

From: Katie Adams <kadams@nbcllc.com>

Sent: Friday, February 24, 2023 2:59 PM

To: Fontaine, Lisa <Lisa.Fontaine@ct.gov>

Cc: CSC-DL Siting Council <Siting.Council@ct.gov>

Subject: RE: Council Decision on Request for Extension - TS-VER-168-221122 (Paper Mill Road, Woodbury)

Good afternoon,

Please see the attached revised documents.

Thank you,

Katie Adams

SR Site Acquisition Specialist

NETWORK BUILDING + CONSULTING

100 Apollo Drive | Suite 303 | Chelmsford, MA | 01824
M 781-392-7547



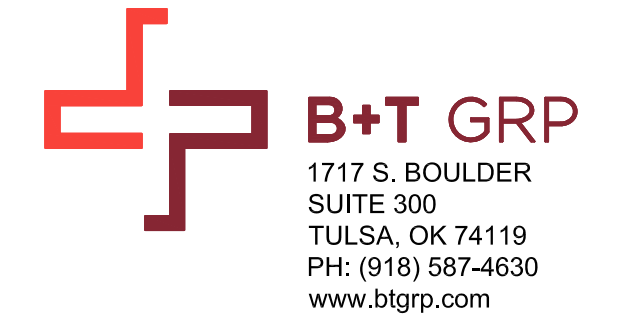
VERIZON SITE NUMBER:
VERIZON SITE NAME:
SITE TYPE:
TOWER HEIGHT:

720892
WOODBURY NW CT
MONOPOLE
150'-0"

BUSINESS UNIT #:
SITE ADDRESS:
COUNTY:
JURISDICTION:

857528
85 PAPER MILL ROAD
WOODBURY, CT 06798
LITCHFIELD
CONNECTICUT
SITING COUNCIL

VERIZON INITIAL BUILD 16925401



VERIZON SITE NUMBER:
720892
BU #: 857528
WOODBURY PAPER MILL RD
85 PAPER MILL ROAD
WOODBURY, CT 06798
EXISTING 150'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/25/22	GAC	PRELIMINARY REVIEW	CV
B	8/9/22	ANP	PRELIMINARY REVIEW	CV
0	9/26/22	MEH	CONSTRUCTION	LR
1	9/29/22	GAC	CONSTRUCTION	LR
2	11/18/22	CV	CONSTRUCTION	CV



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/22
 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.

SHEET NUMBER: **T-1** **REVISION:** **2**

SITE INFORMATION	
CROWN CASTLE USA INC. SITE NAME:	WOODBURY PAPER MILL RD
SITE ADDRESS:	85 PAPER MILL ROAD WOODBURY, CT 06798
COUNTY:	LITCHFIELD
MAP/PARCEL #:	040-032A
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.573080°
LONGITUDE:	-73.227640°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	528'
CURRENT ZONING:	OS 100 - OPEN SPACE DISTRICT 100
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	BRYAN JODIE A 754 PEACHTREE ST NE 16RL ATLANTA, GA 30308
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	VERIZON WIRELESS 20 ALEXANDER DRIVE, 2ND FLOOR WALLINGFORD, CT 06492
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER CO 1-800-286-2000
TELCO PROVIDER:	CROWN CASTLE 1-855-93-FIBER

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
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C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	MOUNTING DETAILS
C-4	EQUIPMENT DETAILS
C-5	CONCRETE PAD DETAILS
C-6	GROUND EQUIPMENT PLAN
C-7	GENERATOR DETAILS
E-1	UTILITY PLAN
E-2	ONE LINE DIAGRAM & PANEL SCHEDULE
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G-3	GROUNDING DETAILS
REF1	CIRCUIT SCHEDULE

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

LOCATION MAP

DRIVING DIRECTIONS FROM VERIZON LOCAL OFFICE (278 OXFORD RD, OXFORD, CT 06478):
 HEAD NORTH ON CT-67 W TOWARD OLD STATE RD 67 E, CONTINUE ONTO US-6 E/MAIN ST S, TURN LEFT ONTO CT-47 N/WASHINGTON RD, TURN LEFT ONTO CT-47 N, TURN RIGHT ONTO PAPER MILL RD, ARRIVE AT 857528.

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:

- INSTALL (9) ANTENNAS
- INSTALL (6) RRHS
- INSTALL (1) OVP
- INSTALL (1) HYBRID CABLE
- INSTALL (1) PLATFORM MOUNT VALMONT - F3P-12 W/VALMONT - HRK12 SUPPORT RAIL KIT AND (12) 2" STD. x10'-6" LONG PIPES

GROUND SCOPE OF WORK:

- INSTALL (1) CONCRETE PAD W/ OUTDOOR EQUIPMENT CABINETS
- INSTALL (1) KOHLER - 30REOZK DIESEL GENERATOR
- INSTALL NEW CANOPY WITH NEW H-FRAME

GROUND SCOPE OF WORK:

- INSTALL NEW METER IN EXISTING METER BANK
- CONTRACTOR SHALL CALL POWER COMPANY TO START SERVICE ONCE INSPECTIONS ARE COMPLETE
- CONTRACTOR SHALL CONFORM SITE TO LOCAL UTILITY COMPANY CODES AND REGULATIONS
- CONTRACTOR SHALL PROVIDE AND SECURE ALL REQUIRED PERMITS, LICENSES, INSPECTIONS, APPROVALS AND PAYMENT OF ALL FEES

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2022 CONNECTICUT SBC/2015 IBC
MECHANICAL	2022 CONNECTICUT SBC/2015 IMC
ELECTRICAL	2022 CONNECTICUT SBC/2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: TOWER ENGINEERING PROFESSIONALS
 DATED: 7/1/22

MOUNT ANALYSIS: B+T GROUP
 DATED: 9/7/22

RFDS REVISION: 0
 DATED: 6/15/22

ORDER ID: 623558
 REVISION: 0

INSTALLER NOTES:
 REFERENCE LATEST VERIZON CONSTRUCTION STANDARDS.

NOTE:
 PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER

CALL CONNECTICUT ONE CALL (800) 922-4455 CBVD.COM CALL 2 WORKING DAYS BEFORE YOU DIG!

152945.002.01_WOODBURY PAPER MILL RD - F3P_MOUNT.DWG - SheetT-1 - User: chad.vandergraft - Nov 18, 2022 - 12:16pm

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

- 1. NOTICE TO PROCEED-- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT: THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED-STD-10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR 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. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. 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 CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. 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 CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. 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 ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR 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.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR 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.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. 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.

GREENFIELD GROUNDING NOTES:

- 1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR 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 AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDING AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTI-OXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (I.E., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

GENERAL NOTES:

- 1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: VERIZON
TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR 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 CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR 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. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR 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.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- 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. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (fc) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE--THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
#4 BARS AND SMALLER.....40 ksi
#5 BARS AND LARGER.....60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER.....2"
#5 BARS AND SMALLER.....1-1/2"
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
SLAB AND WALLS.....3/4"
BEAMS AND COLUMNS.....1-1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

- 1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 A/C MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL THE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. 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 NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (I.E. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKOUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. 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 BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "VERIZON".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE table with columns SYSTEM, CONDUCTOR, and COLOR. Rows include 120/240V, 1Ø; 120/208V, 3Ø; 277/480V, 3Ø; and DC VOLTAGE.

APWA UNIFORM COLOR CODE:

- WHITE PROPOSED EXCAVATION
PINK TEMPORARY SURVEY MARKINGS
RED ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE POTABLE WATER
PURPLE RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN SEWERS AND DRAIN LINES

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

ABBREVIATIONS:

- ANT ANTENNA
(E) EXISTING
FIF FACILITY INTERFACE FRAME
GEN GENERATOR
GPS GLOBAL POSITIONING SYSTEM
GSM GLOBAL SYSTEM FOR MOBILE
LTE LONG TERM EVOLUTION
MGB MASTER GROUND BAR
MW MICROWAVE
(N) NEW
NEC NATIONAL ELECTRIC CODE
(P) PROPOSED
PP POWER PLANT
QTY QUANTITY
RECT RECTIFIER
RBS RADIO BASE STATION
RET REMOTE ELECTRIC TILT
RFDS RADIO FREQUENCY DATA SHEET
RRH REMOTE RADIO HEAD
RRU REMOTE RADIO UNIT
SIAD SMART INTEGRATED DEVICE
TMA TOWER MOUNTED AMPLIFIER
TYP TYPICAL
UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P. WORK POINT



20 ALEXANDER DRIVE
WALLINGFORD, CT 06492



3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065



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SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
720892

BU #: 857528
WOODBURY PAPER MILL
RD

85 PAPER MILL ROAD
WOODBURY, CT 06798

EXISTING 150'-0" MONOPOLE

ISSUED FOR:

Table with columns REV, DATE, DRWN, DESCRIPTION, DES./QA. Rows A, B, 0, 1, 2.



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T-2 2

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EXISTING 150'-0" MONOPOLE

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B	8/9/22	ANP	PRELIMINARY REVIEW	CV
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C-1.1

REVISION:

2



1 OVERALL SITE PLAN
SCALE: 1" = 100'-0" (FULL SIZE)
1" = 200'-0" (11x17)



152945.002.01_WOODBURY PAPER MILL RD - F3P_MOUNT.DWG - Sheet C-1.1 - User: chad.vandergraft - Nov 18, 2022 - 12:08pm

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WOODBURY PAPER MILL RD

85 PAPER MILL ROAD
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EXISTING 150'-0" MONOPOLE

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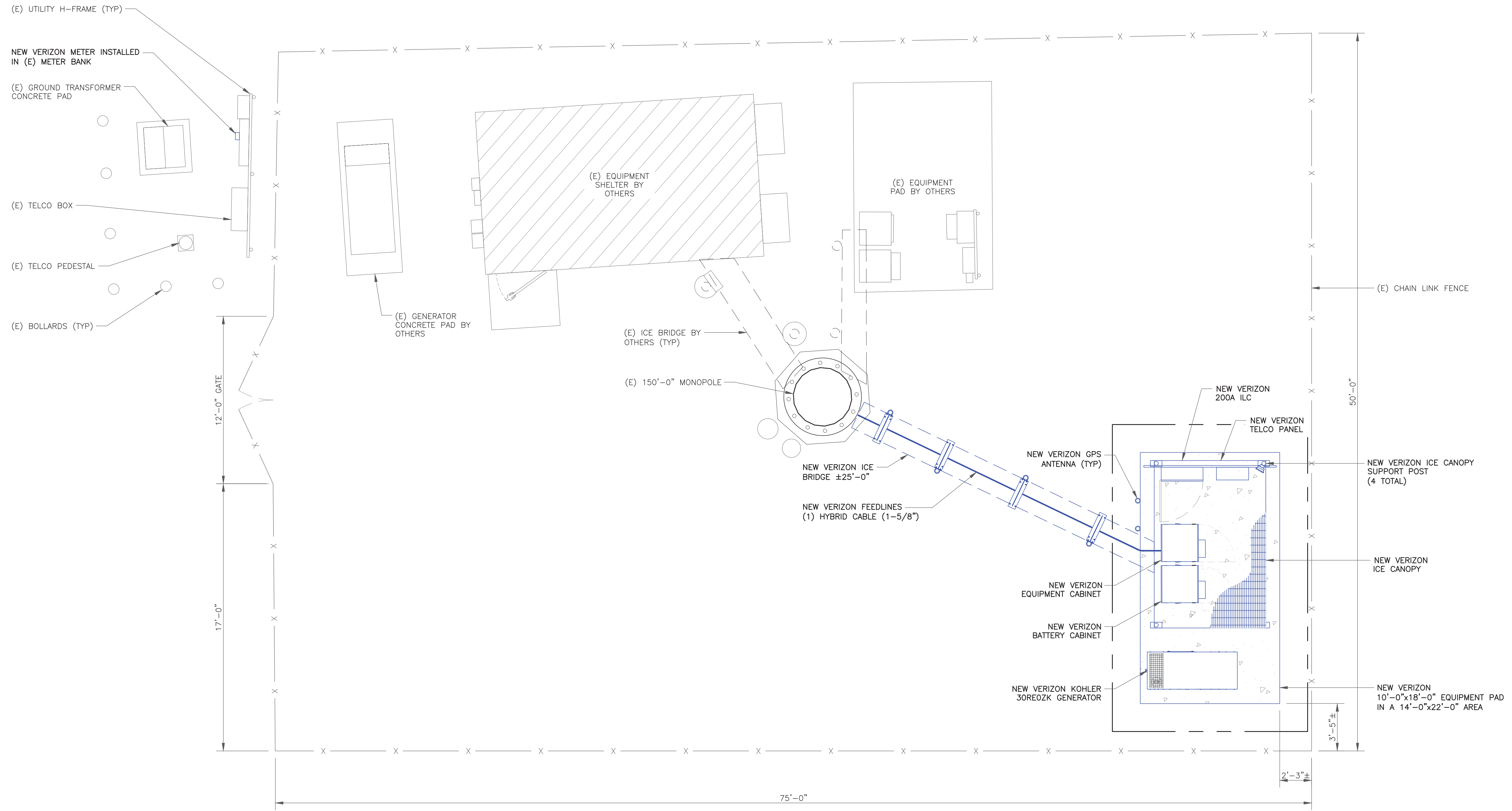
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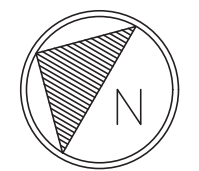
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C-1.2

2



1 SITE PLAN
SCALE: 1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)



152945.002.01_WOODBURY PAPER MILL RD - F3P_MOUNT.DWG - Sheet C-1.2 - User: chad.vandergraft - Nov 18, 2022 - 12:08pm

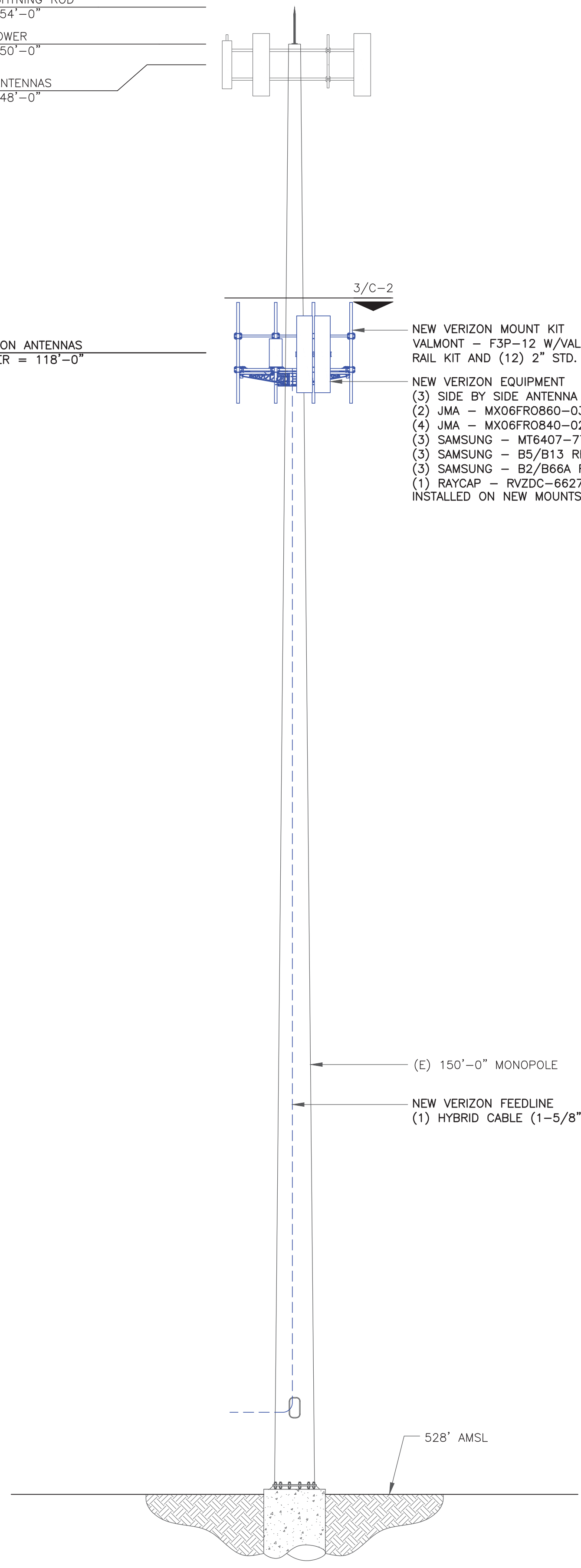
TIP OF LIGHTNING ROD
 ELEV. = 154'-0"
 TOP OF TOWER
 ELEV. = 150'-0"
 EXISTING ANTENNAS
 ELEV. = 148'-0"

NEW VERIZON ANTENNAS
 RAD CENTER = 118'-0"

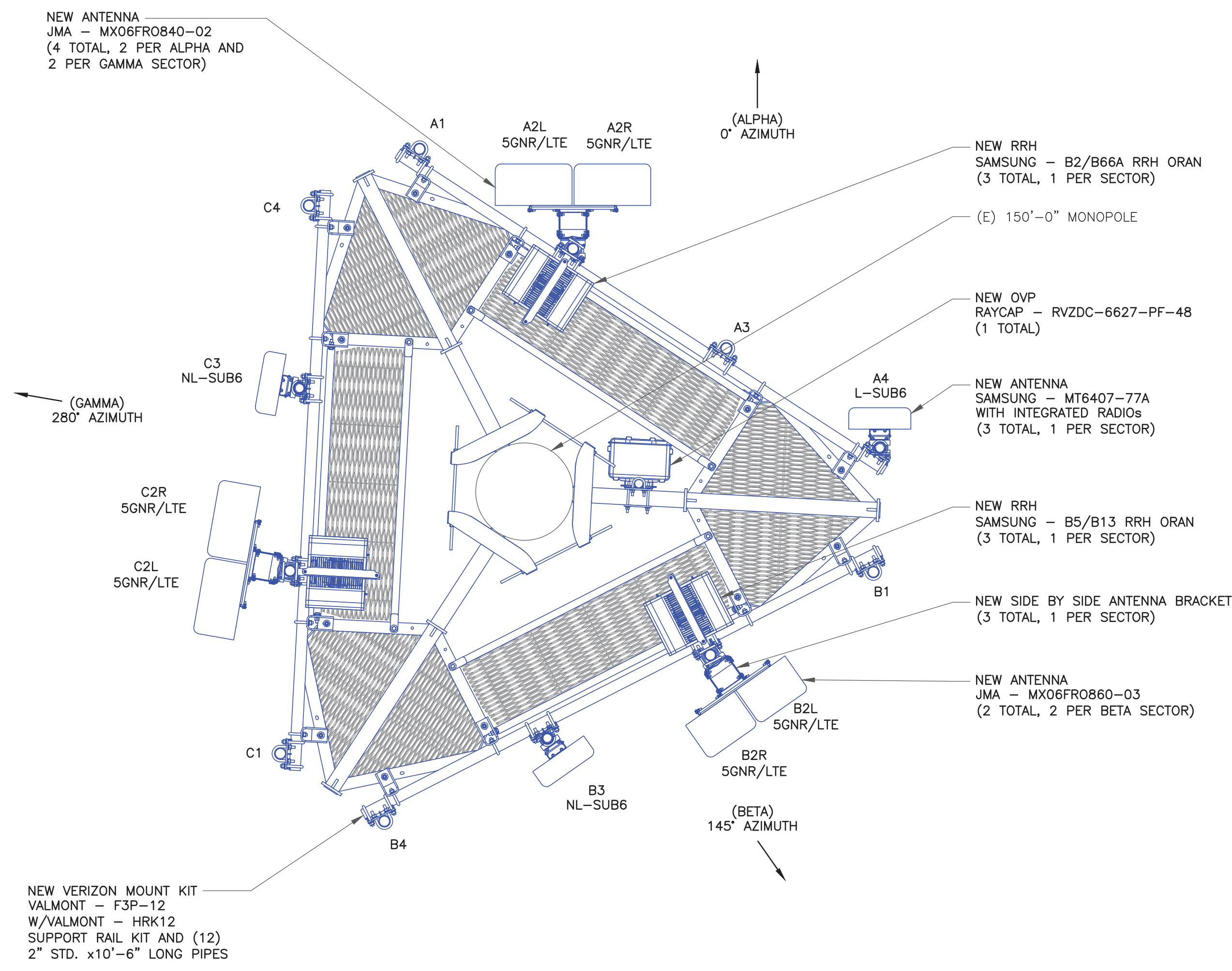
NEW VERIZON MOUNT KIT
 VALMONT - F3P-12 W/VALMONT - HRK12 SUPPORT
 RAIL KIT AND (12) 2" STD. x10'-6" LONG PIPES

NEW VERIZON EQUIPMENT
 (3) SIDE BY SIDE ANTENNA BRACKET
 (2) JMA - MX06FRO860-03 ANTENNAS
 (4) JMA - MX06FRO840-02 ANTENNAS
 (3) SAMSUNG - MT6407-77A ANTENNAS WITH INTEGRATED RRHs
 (3) SAMSUNG - B5/B13 RRH ORAN RRHs
 (3) SAMSUNG - B2/B66A RRH ORAN RRHs
 (1) RAYCAP - RVZDC-6627-PF-48 OVP
 INSTALLED ON NEW MOUNTS

VERIZON EQUIPMENT
 ANTENNA CL: 118'-0"
 MOUNT CL: 118'-0"



1 TOWER ELEVATION
 SCALE: NOT TO SCALE



2 NEW ANTENNA PLAN
 SCALE: NOT TO SCALE

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VERIZON SITE NUMBER:
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BU #: 857528
WOODBURY PAPER MILL RD

85 PAPER MILL ROAD
 WOODBURY, CT 06798

EXISTING 150'-0" MONOPOLE

ISSUED FOR:

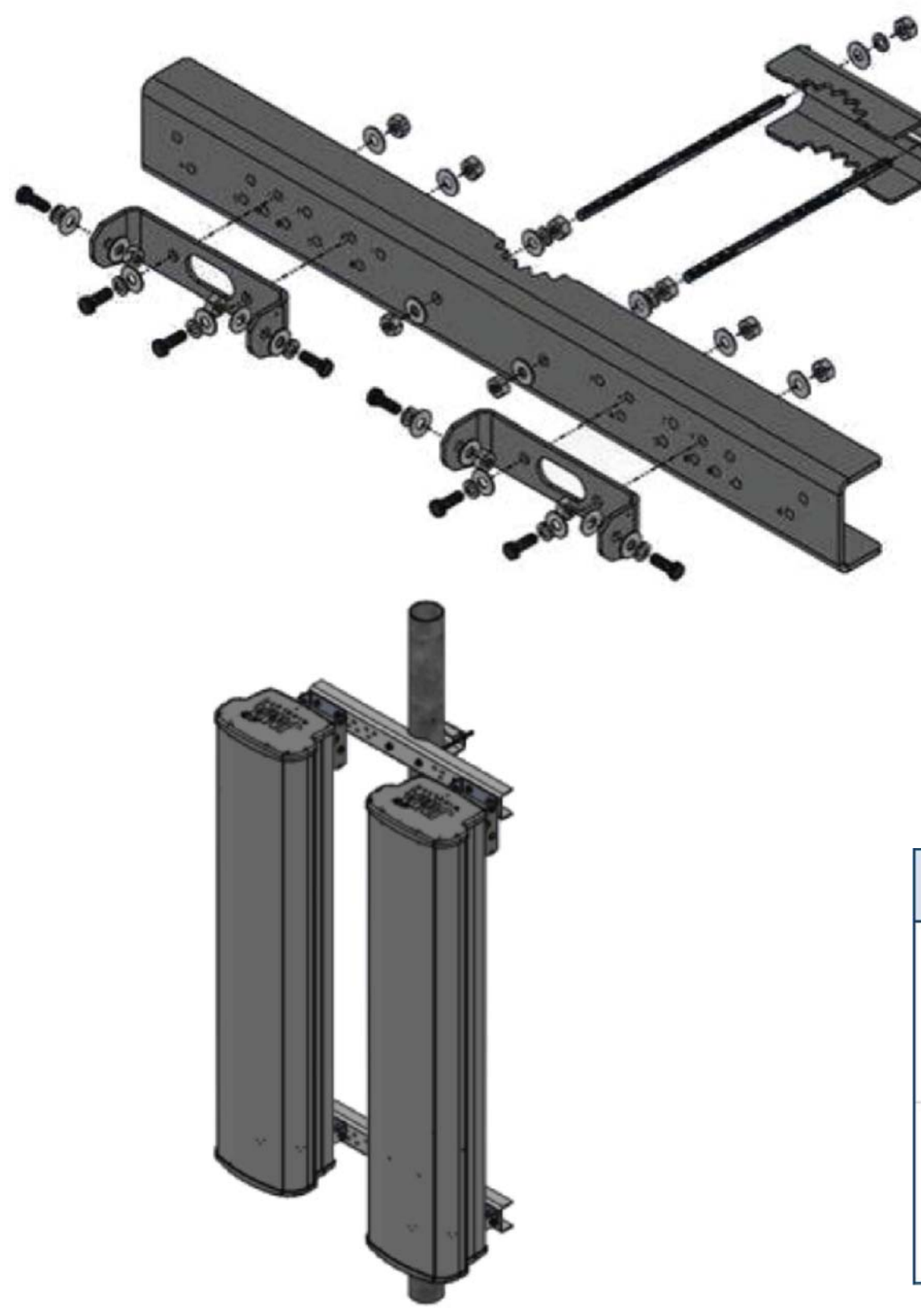
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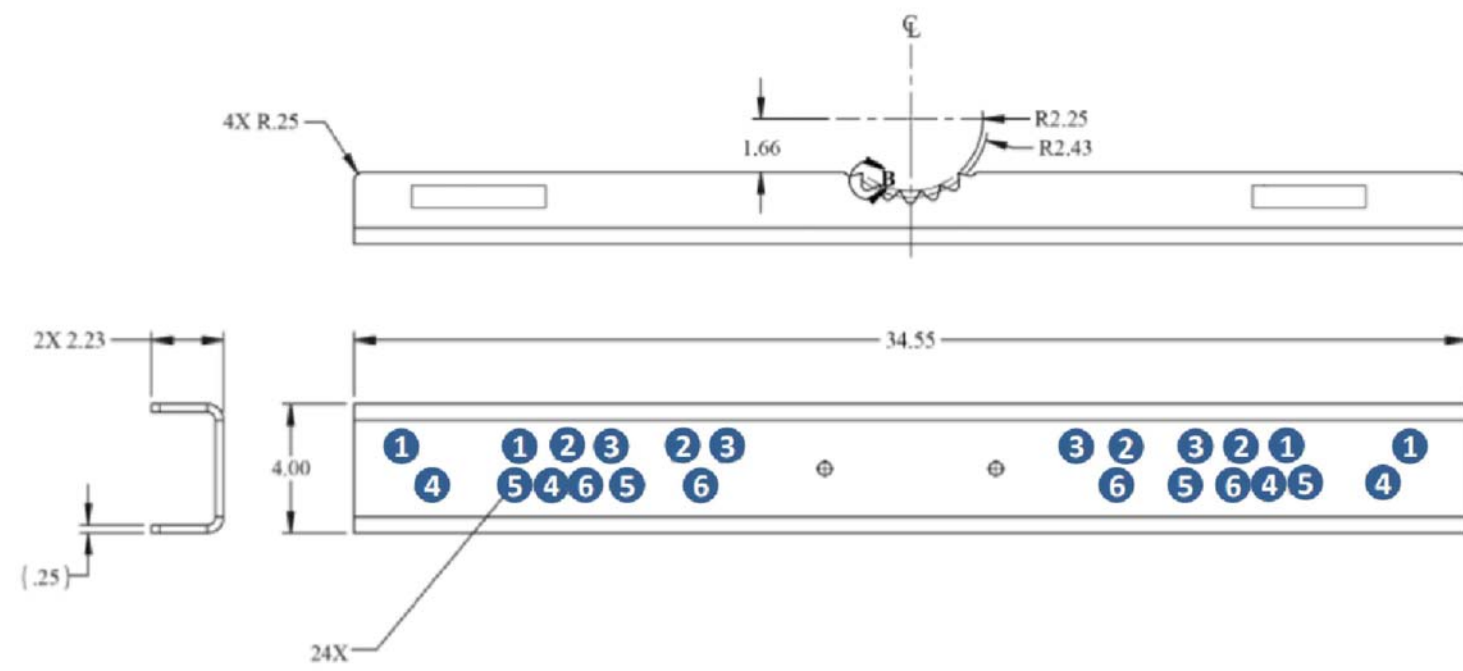
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Mounting bracket model	Description
91900314-01	Single dual-mount antenna bracket assembly
91900314-02	Two dual-mount antenna bracket assemblies
91900314-03	Three dual-mount antenna bracket assemblies

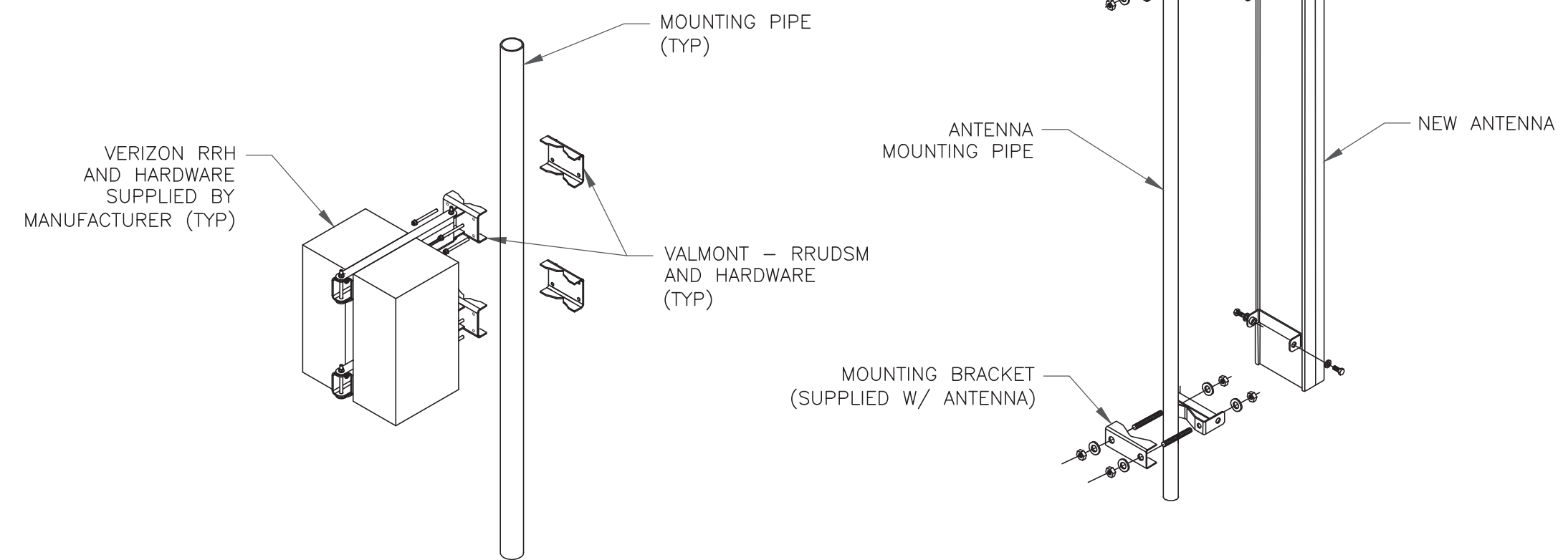


Model types beginning with:	Antenna width	Corresponding hole position	Resulting spacing between antennas
MX	15.4" (wide spacing)	1	12"
	15.4" (narrow spacing)	2	2"
	12"	3	2"
X7C*, C7C*	20"	5	3/4"
	12.5"	3	2"
	24.0"	4	2"
	18.8"	5	2"
	14.6"	6	2"

1 JMA - 91900314
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHS RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



3 ANTENNA WITH RRHS MOUNTING DETAIL
SCALE: NOT TO SCALE

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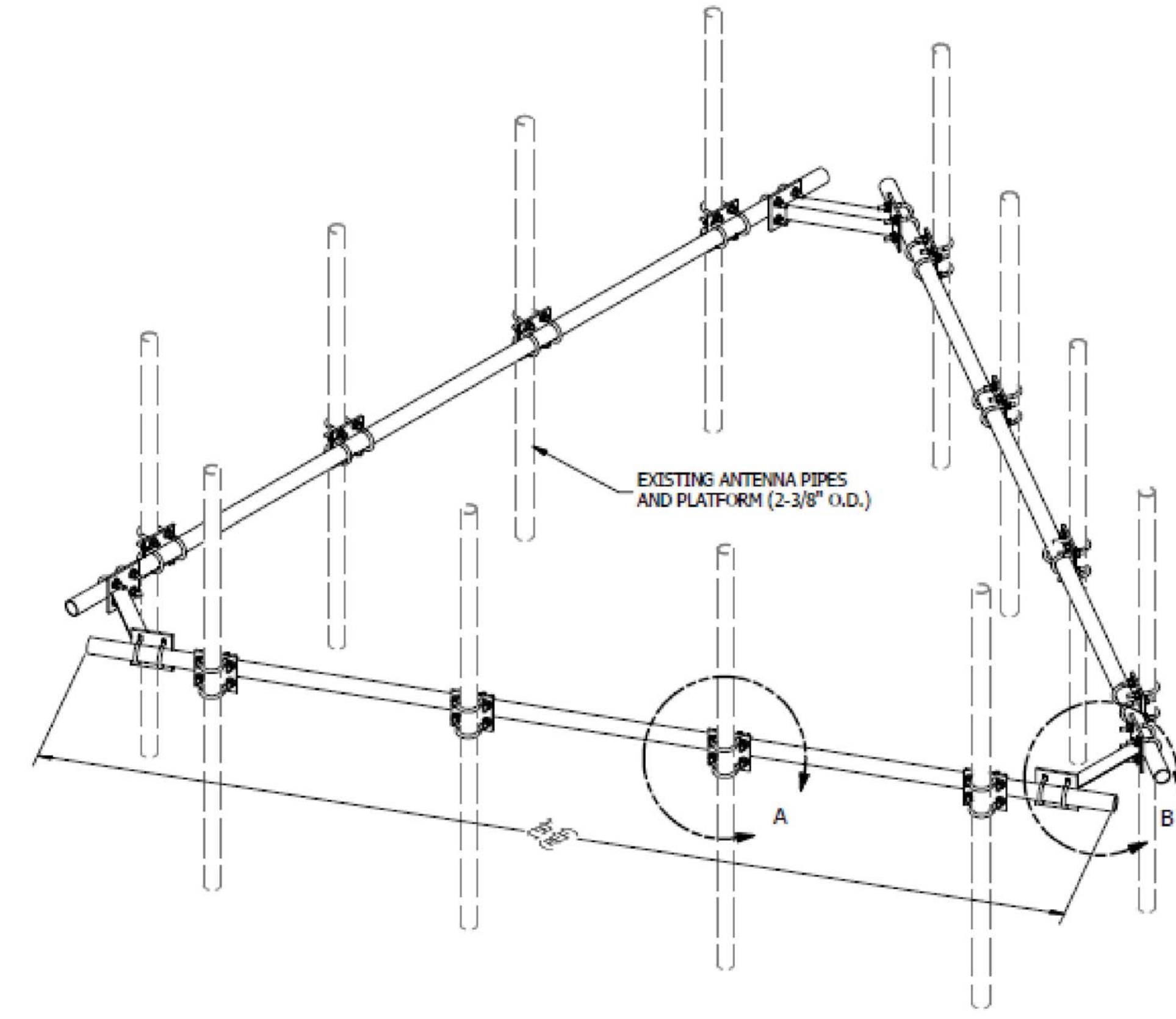
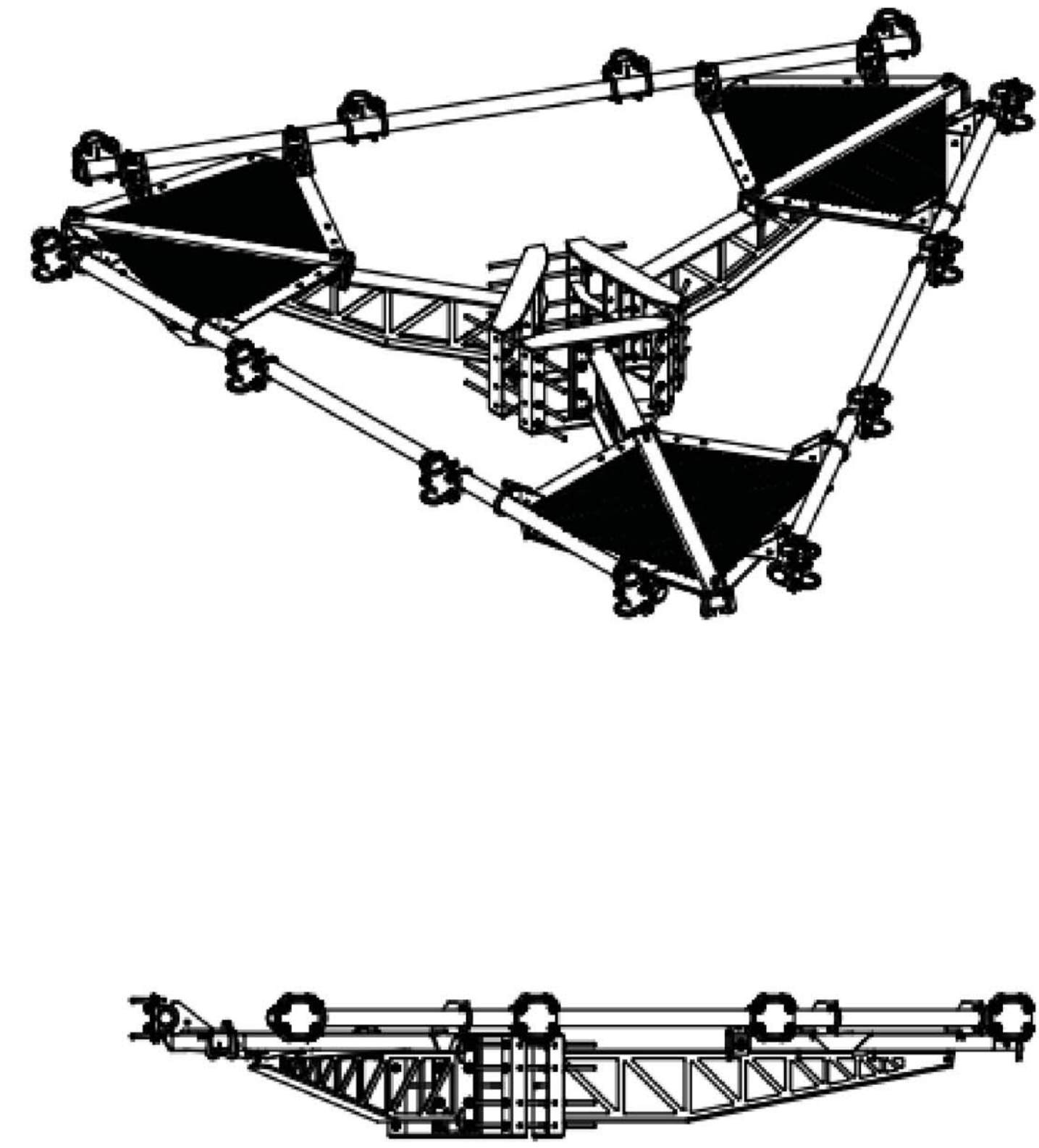
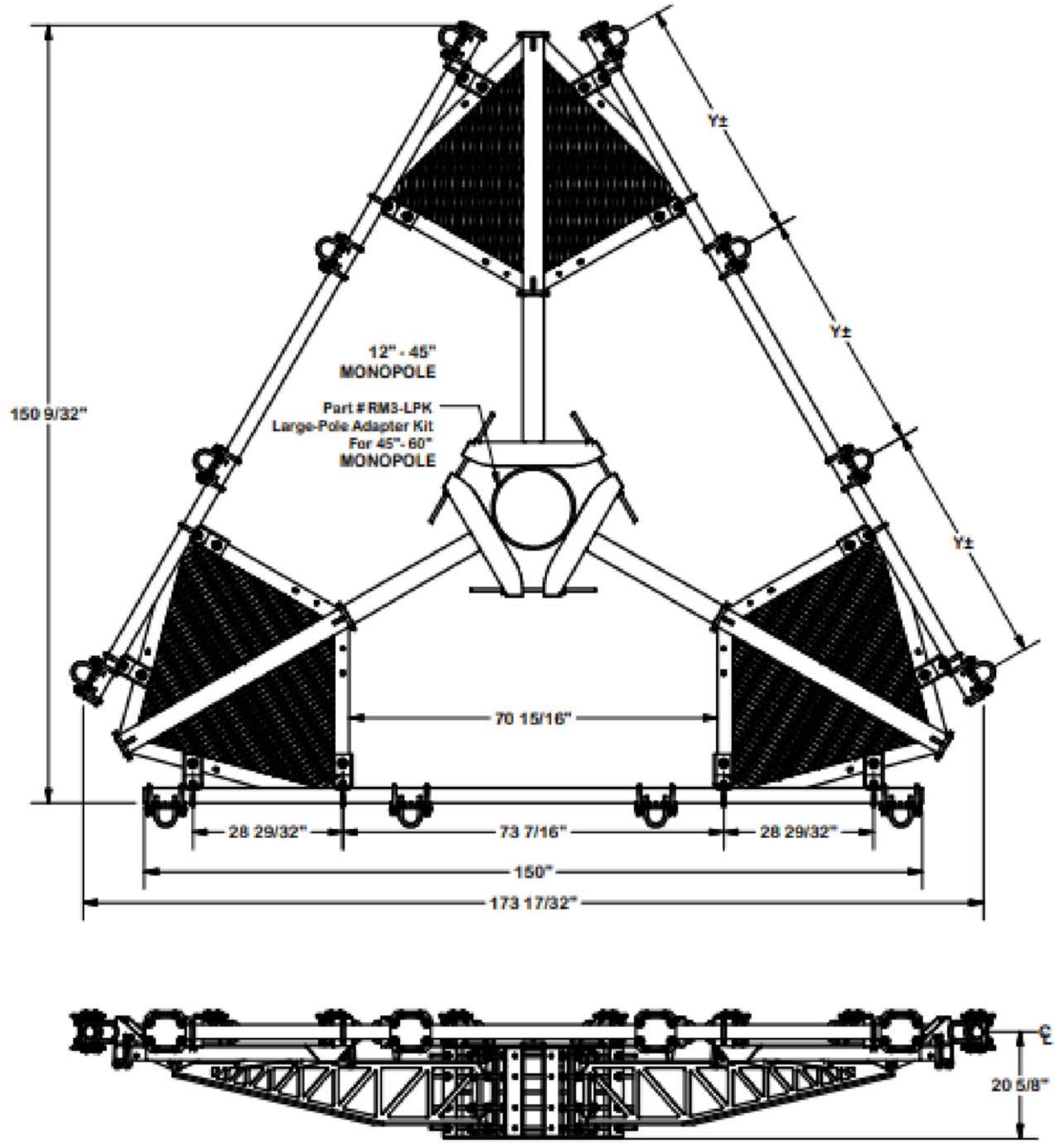
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85 PAPER MILL ROAD
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EXISTING 150'-0" MONOPOLE

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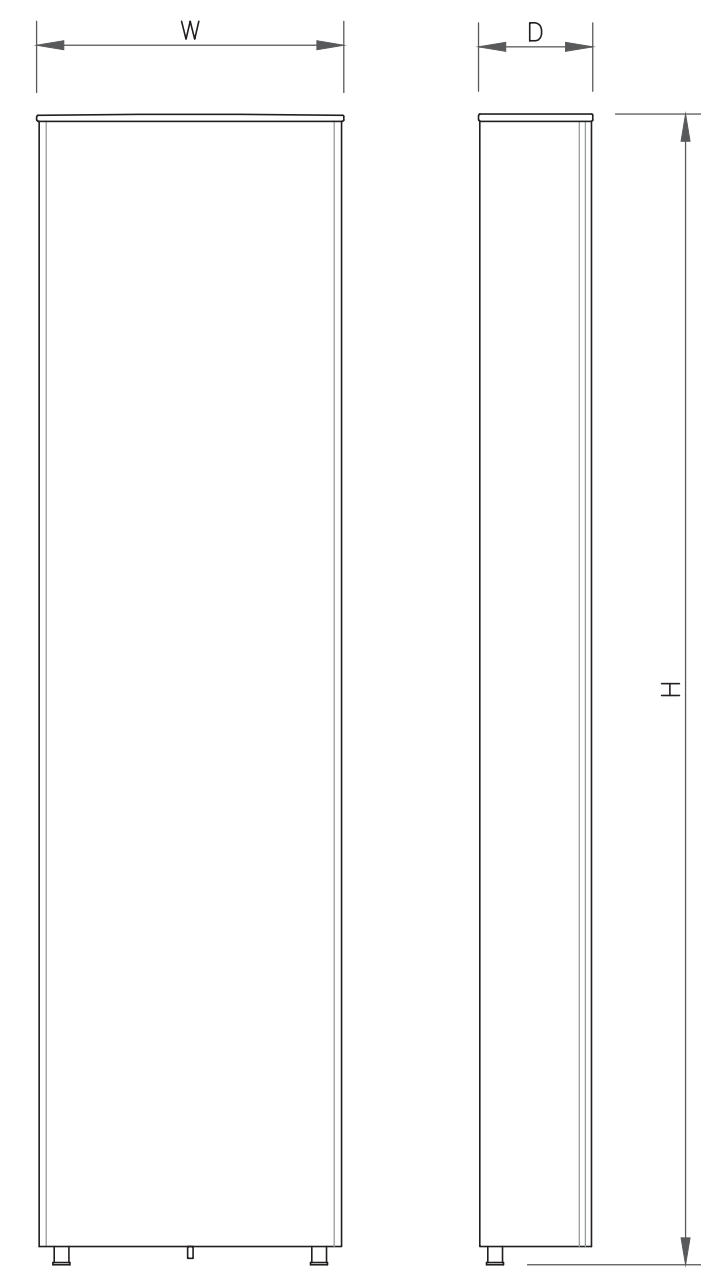
3 VALMONT - F3P-12W & VALMONT - HRK12
SCALE: NOT TO SCALE



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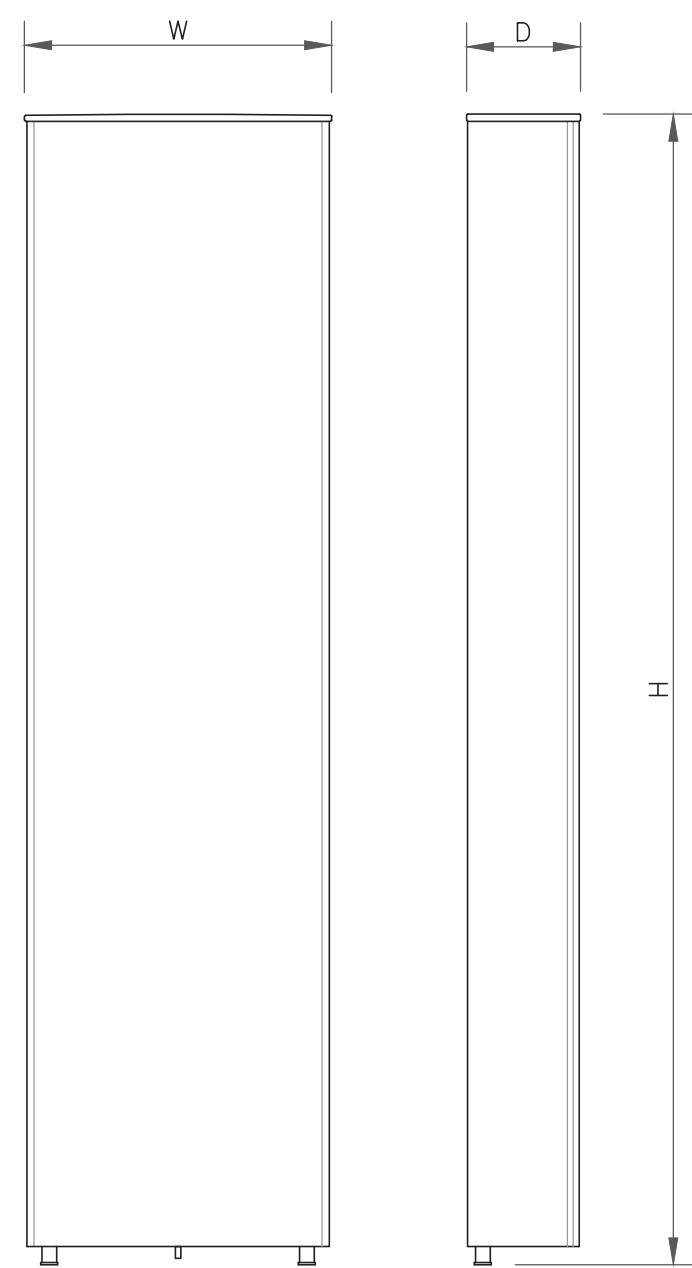
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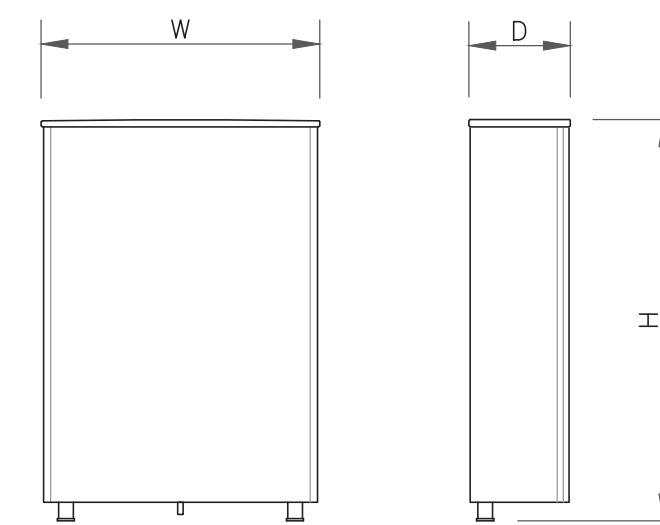
ANTENNA SPECS	
MANUFACTURER	JMA WIRELESS
MODEL #	MX06FR0840-02
WIDTH	19.80"
DEPTH	10.70"
HEIGHT	95.90"
WEIGHT	124.0 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



ANTENNA SPECS	
MANUFACTURER	JMA WIRELESS
MODEL #	MX06FR0860-03
WIDTH	15.40"
DEPTH	10.70"
HEIGHT	95.90"
WEIGHT	83.0 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



ANTENNA SPECS	
MANUFACTURER	SAMSUNG
MODEL #	MT6407-77A
WIDTH	16.06"
DEPTH	5.51"
HEIGHT	35.06"
WEIGHT	81.57 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE

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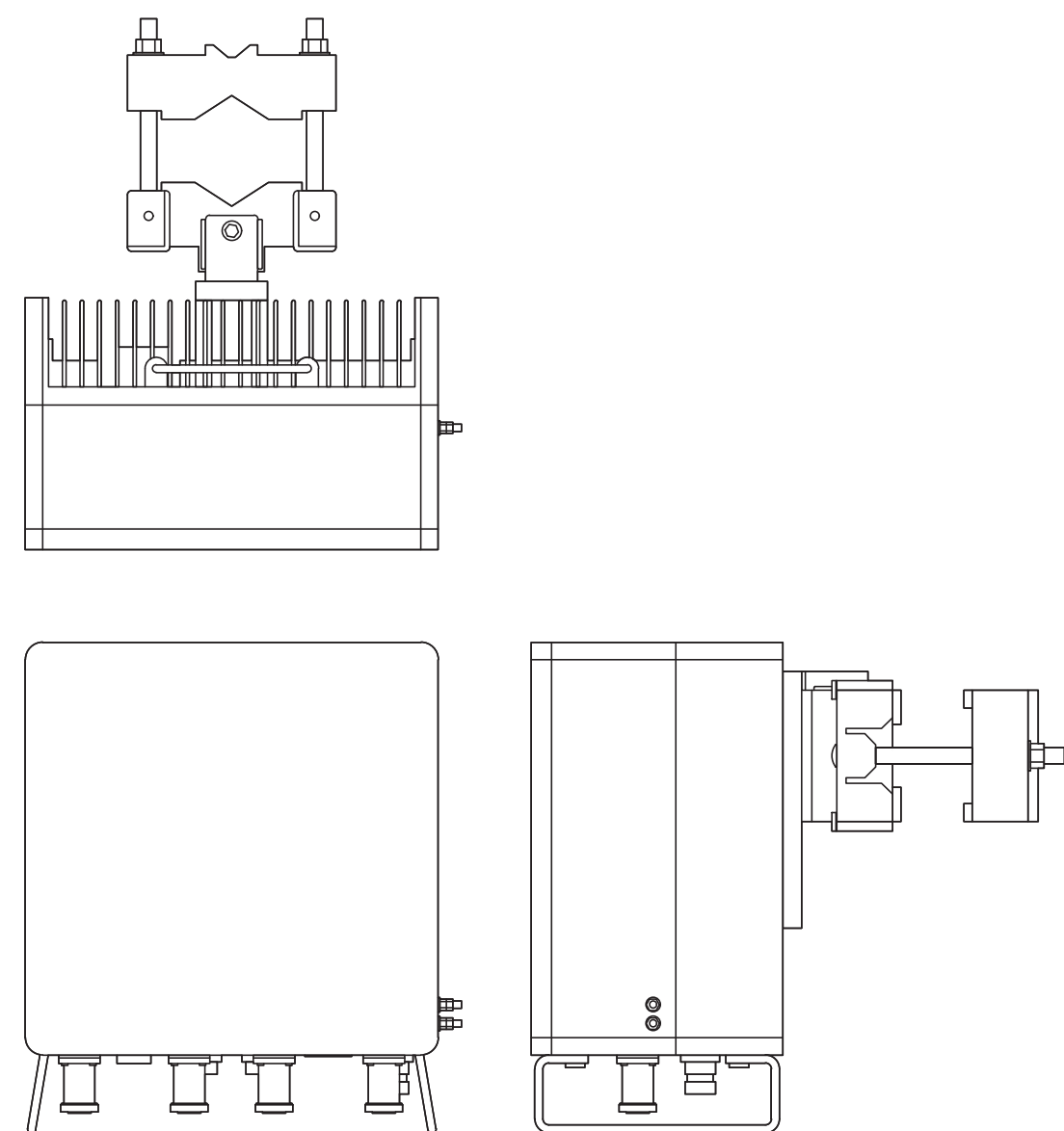
BU #: **857528**
WOODBURY PAPER MILL RD

85 PAPER MILL ROAD
WOODBURY, CT 06798

EXISTING 150'-0" MONOPOLE

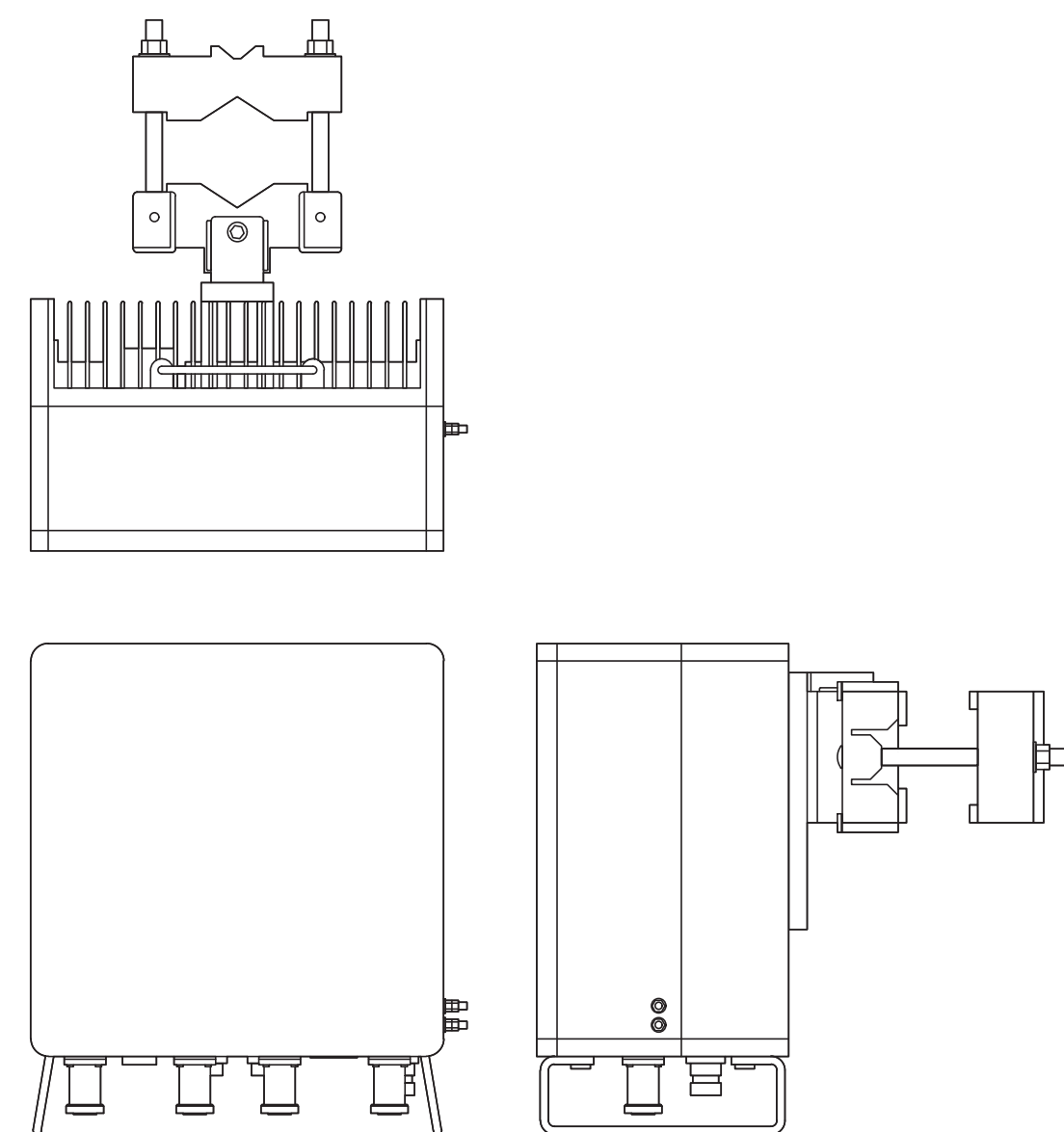
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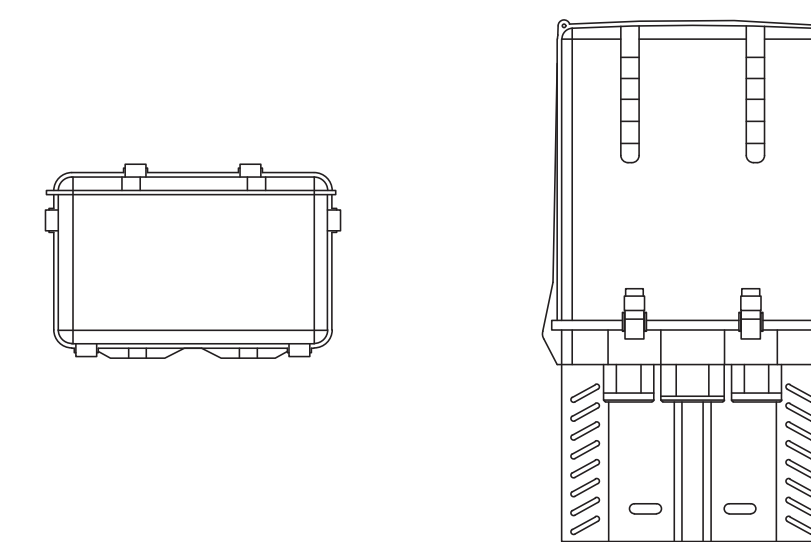
RRU SPECS	
MANUFACTURER	SAMSUNG
MODEL #	B2/B66A RRH ORAN
WIDTH	14.96"
DEPTH	10.04"
HEIGHT	14.96"
WEIGHT	74.7 LBS

4 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECS	
MANUFACTURER	SAMSUNG
MODEL #	B5/B13 RRH ORAN
WIDTH	14.96"
DEPTH	9.06"
HEIGHT	14.96"
WEIGHT	72.5 LBS

5 RRU SPECS
SCALE: NOT TO SCALE



RAYCAP - RVZDC-6627-PF-48
WEIGHT (WITHOUT MOUNTING HARDWARE): 32.0 LBS
SIZE (HxWxD): 29.5x16.5x12.6 IN.

RATED WIND VELOCITY: 150 MPH (SUSTAINED)
OPERATING TEMPERATURE: -40° C TO +80° C
NOMINAL OPERATING DC VOLTAGE: 48 VDC

1 RAYCAP - RVZDC-6627-PF-48
SCALE: NOT TO SCALE



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SHEET NUMBER:

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VERIZON SITE NUMBER:
720892

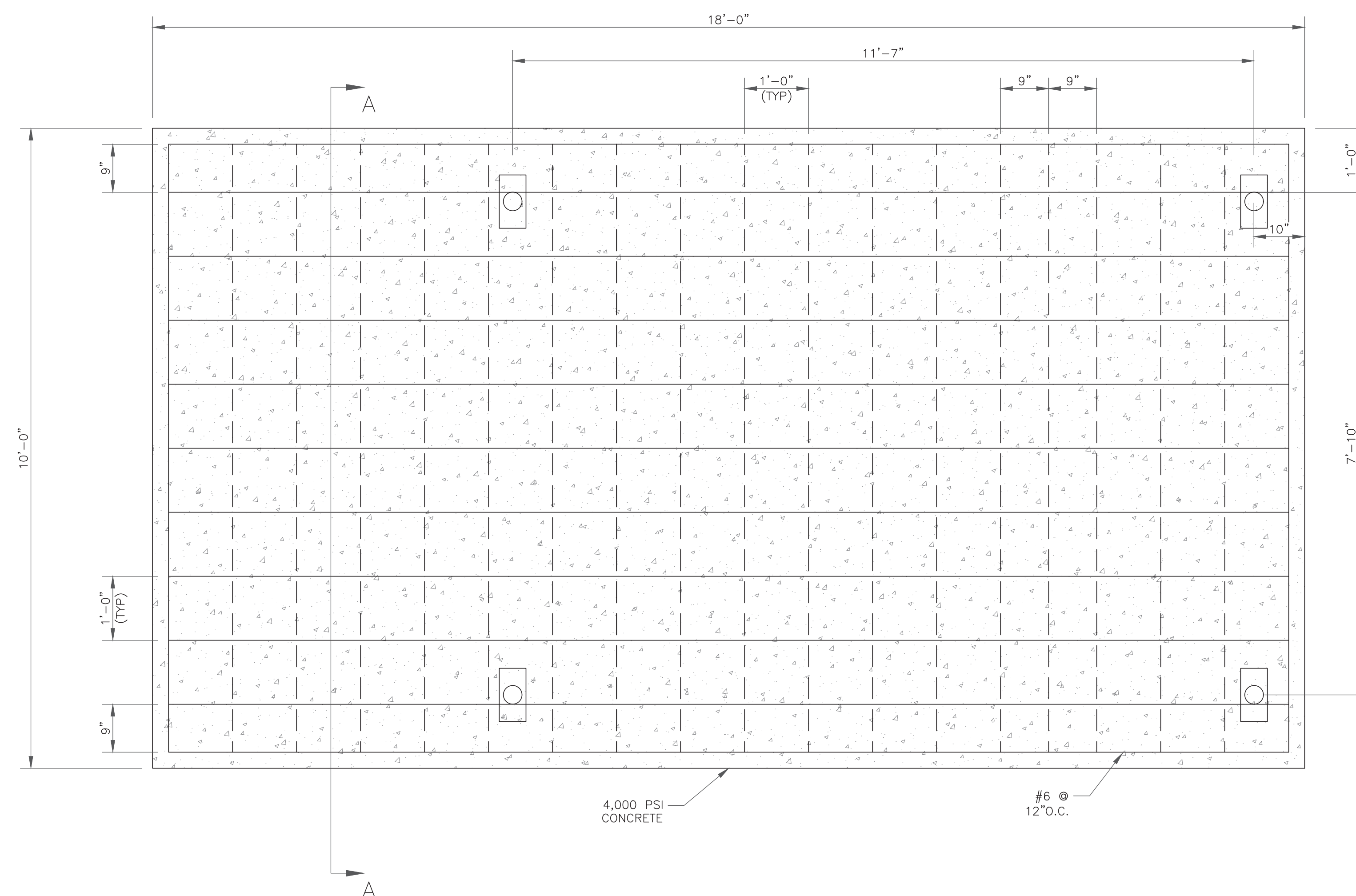
BU #: **857528**
**WOODBURY PAPER MILL
RD**

85 PAPER MILL ROAD
WOODBURY, CT 06798

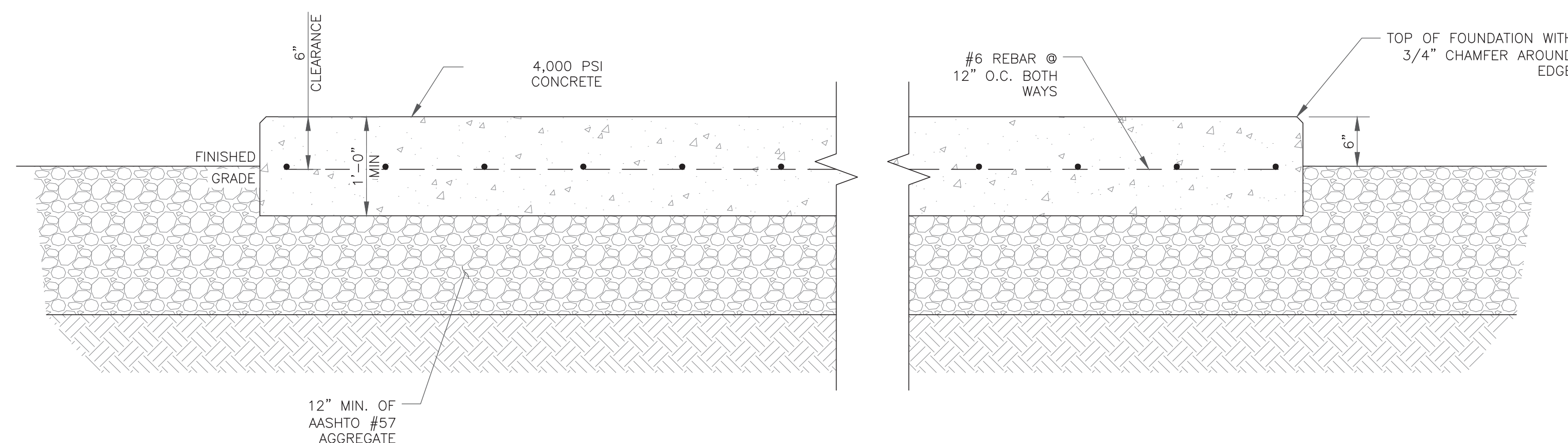
EXISTING 150'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/25/22	GAC	PRELIMINARY REVIEW	CV
B	8/9/22	ANP	PRELIMINARY REVIEW	CV
0	9/26/22	MEH	CONSTRUCTION	LR
1	9/29/22	GAC	CONSTRUCTION	LR
2	11/18/22	CV	CONSTRUCTION	CV



1 EQUIPMENT PAD FOUNDATION
SCALE: NOT TO SCALE



2 SECTION 'A-A'
SCALE: NOT TO SCALE

FOUNDATION NOTES:

1. REFER TO CIVIL DRAWINGS FOR ORIENTATION OF FOUNDATION.
2. FOUNDATION IS DESIGNED FOR THE FOLLOWING LOADS: FLOOR LIVE LOAD 40 PSF 3.
3. EQUIPMENT SHALL NOT BE SET UNTIL FOUNDATION HAS BEEN CURED FOR 72 HOURS MINIMUM.
4. ALL CONCRETE SHALL HAVE 28 DAY STRENGTH OF 4000 PSI MINIMUM, WITH A MAXIMUM SLUMP OF 3" AND SHALL BE AIR ENTRAINED.
5. REINFORCING STEEL TO HAVE INTERMEDIATE GRADE DEFORMED BARS OF NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60.
6. FOUNDATION SHALL BE INSTALLED PER VERIZON WIRELESS STATEMENT OF WORK SECTION 7.1.
7. CONTRACTOR MUST GROUND THE FOUNDATION PER VERIZON WIRELESS NSTD46 STANDARDS.
8. CONTRACTOR TO ENSURE FOUNDATION IS POURED TO MEET FLATNESS LEVEL TOLERANCES AS INDICATED IN ACI 4.5.6 AND ACI 4.5.7.
9. SLAB TOLERANCE IS $\pm 1/4"$.
10. THIS FOUNDATION IS DESIGNED FOR A MINIMUM OF 1,000 PSF ALLOWABLE SOIL BEARING CAPACITY.
11. FOUNDATION BEARING MATERIAL SHALL BE TESTED & VERIFIED



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Expires 3/31/23

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SHEET NUMBER:

C-5

REVISION:

2

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20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

CROWN CASTLE

3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
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BU #: **857528**
WOODBURY PAPER MILL RD

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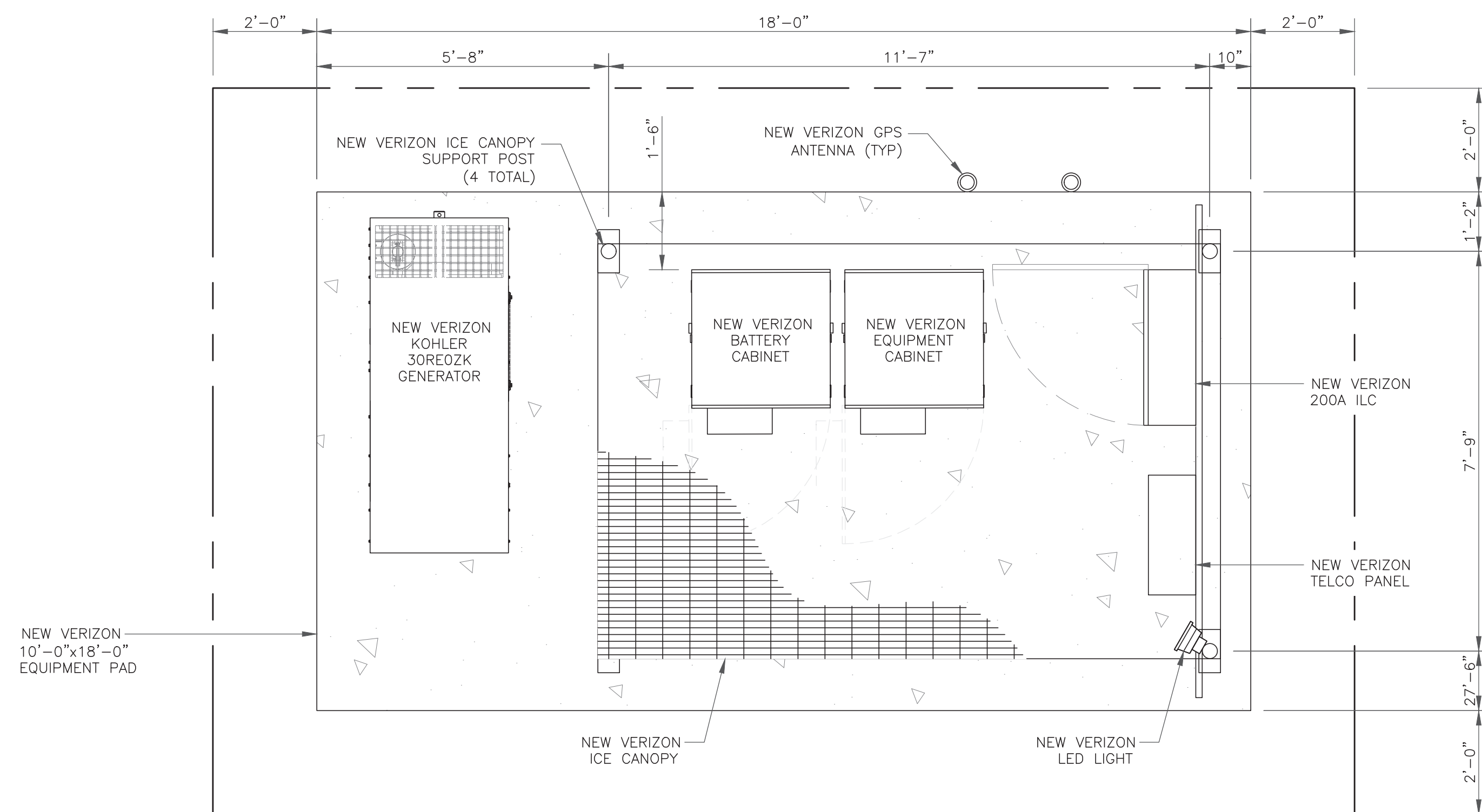
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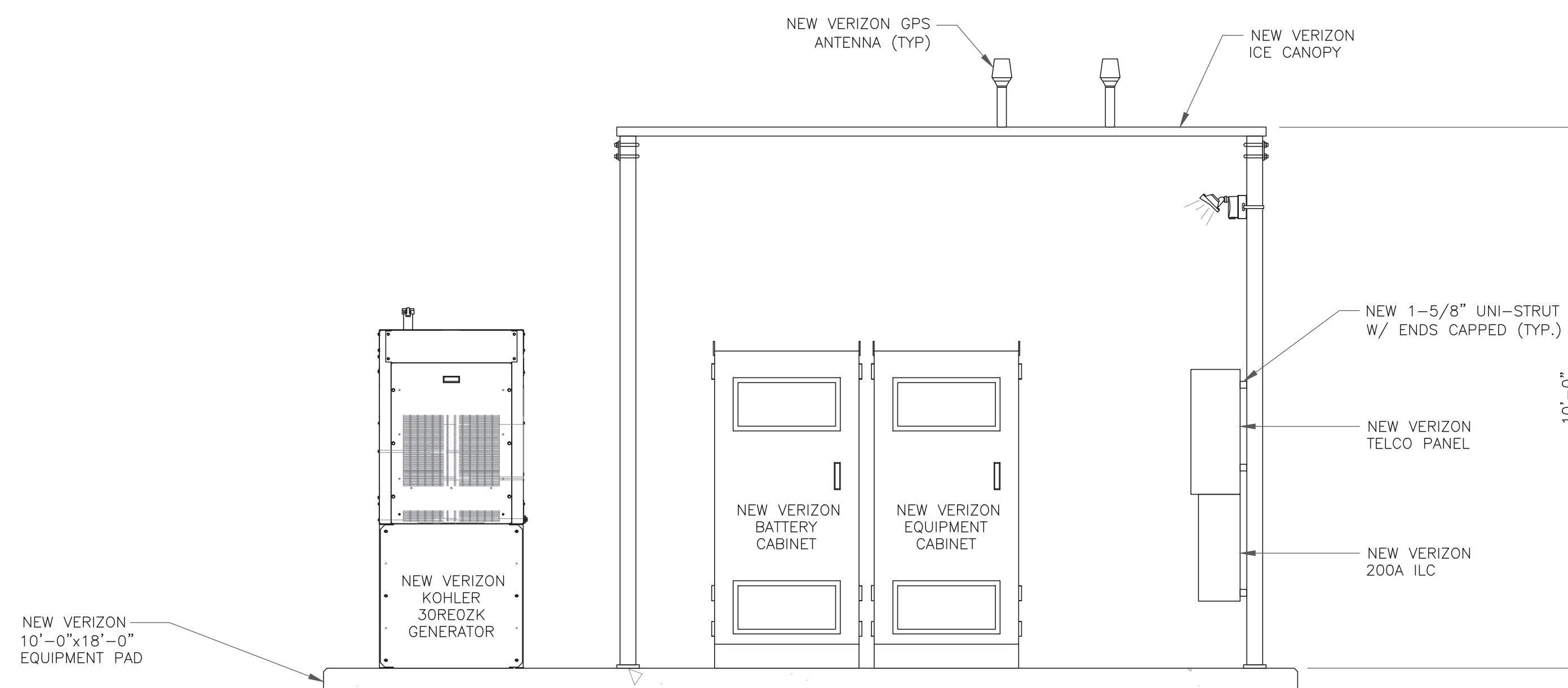
C-6

REVISION:

2



1 EQUIPMENT PAD PLAN
SCALE: NOT TO SCALE

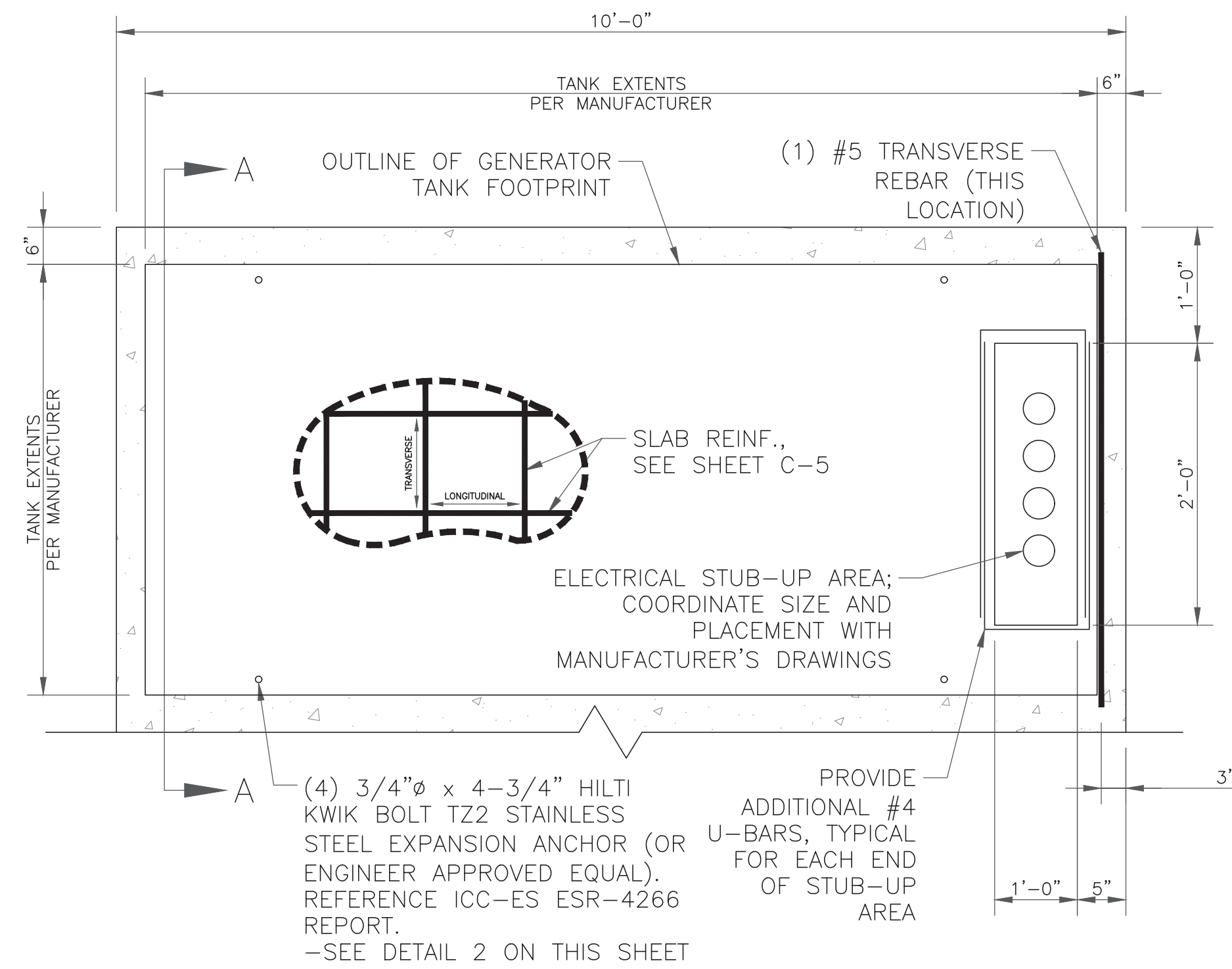


2 ELEVATION
SCALE: NOT TO SCALE

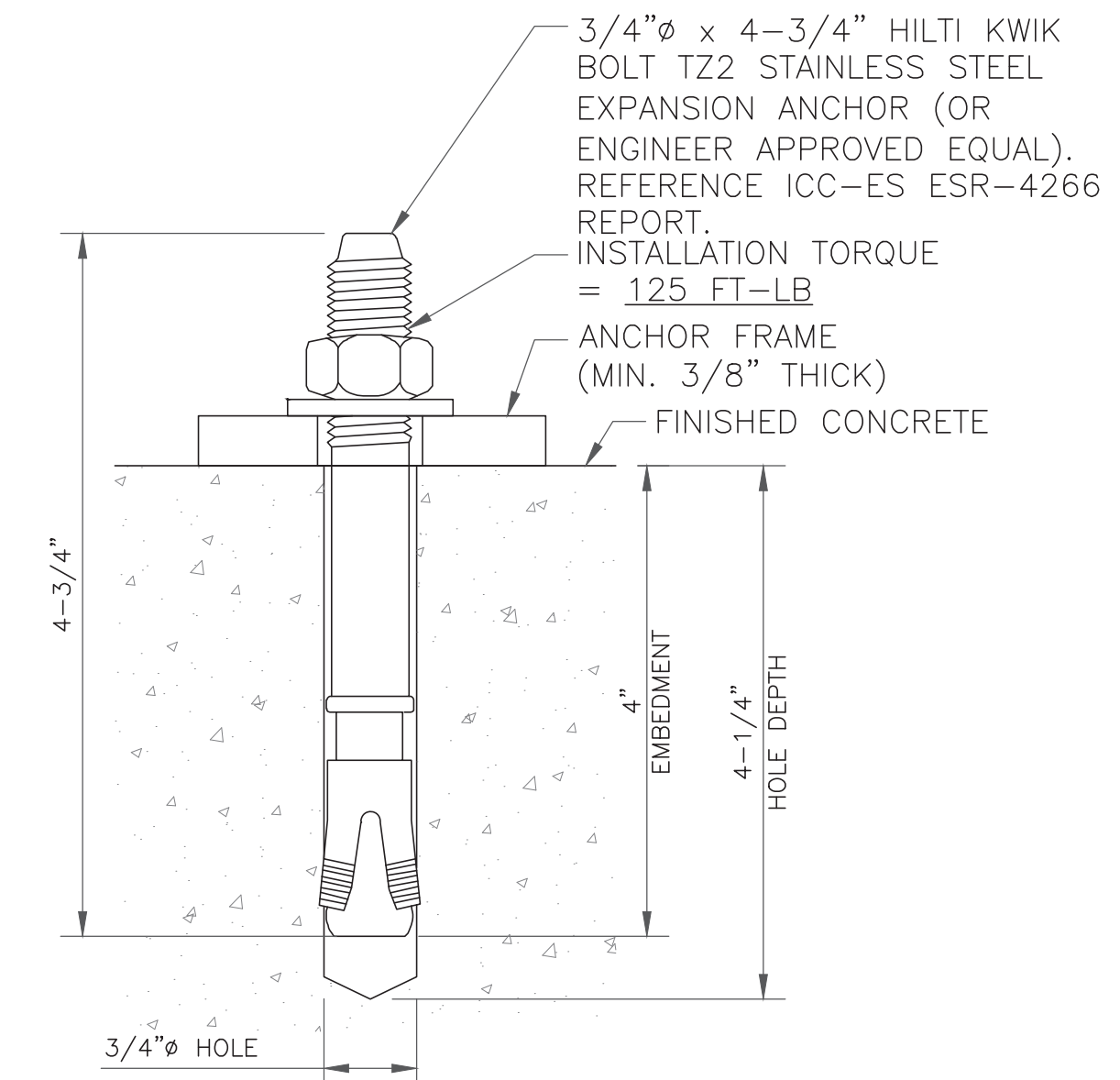
GENERAL NOTES:

1. FLEXIBLE UTILITY CONNECTIONS SHOULD BE USED AT UNDERGROUND TO GENERATOR INTERACTIONS.
2. INSTALL EQUIPMENT ANCHORAGE PER MANUFACTURER'S WRITTEN RECOMMENDATIONS.
3. THE ATTACHMENT OF THE GENERATOR TO THE FOUNDATION SLAB AND THE FOUNDATION ITSELF ARE DESIGNED TO RESIST A 3 SECOND GUST WIND SPEED OF 143 MPH (ULTIMATE WIND SPEED).
4. ELECTRICAL STUB-UP AREA WILL BE DETERMINED BY GENERATOR ORIENTATION.

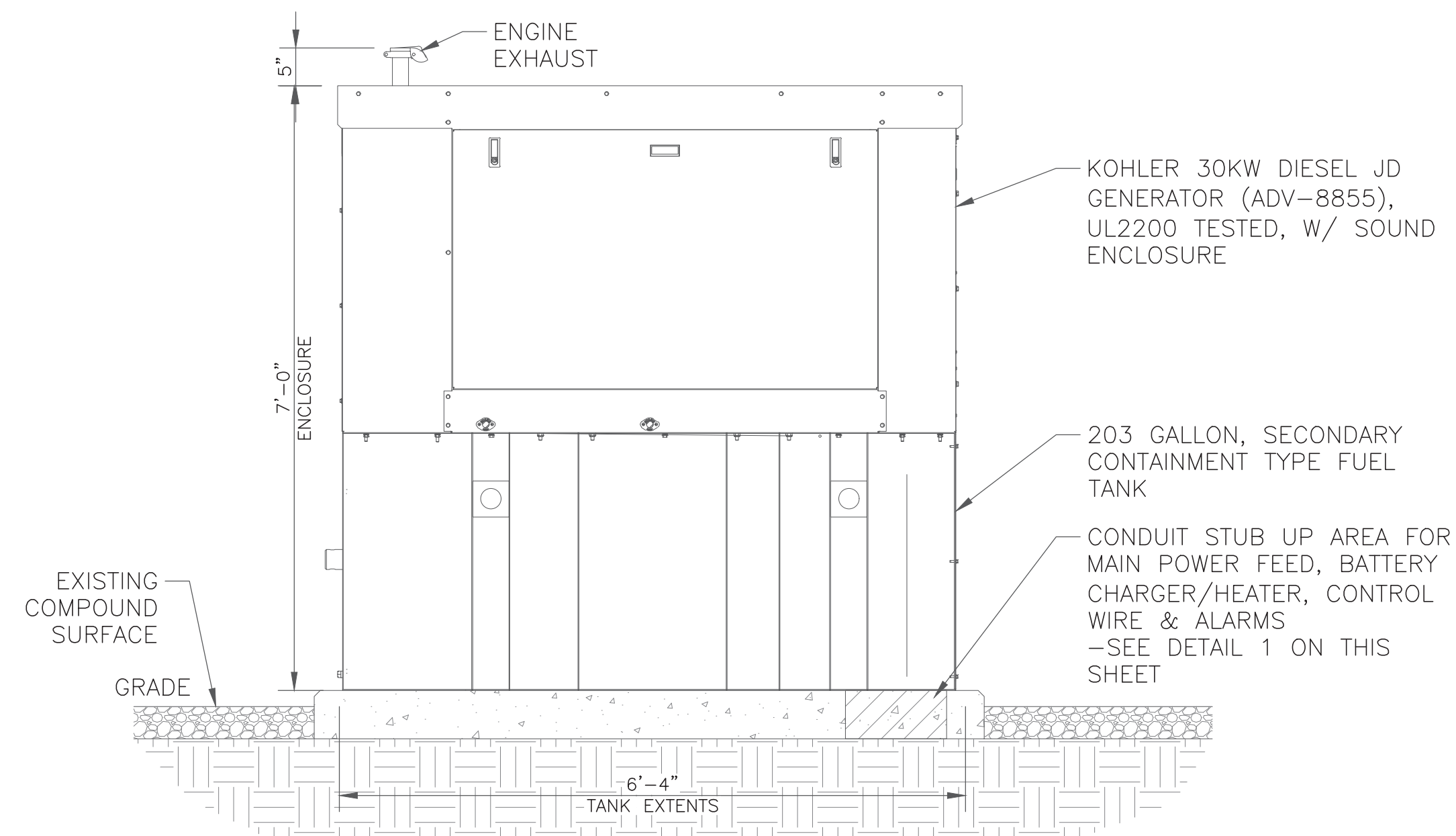
INSTALLER NOTE:
CONDUIT STUB UP LOCATIONS SHALL BE COORDINATED ON SITE WITH CONSTRUCTION MANAGER, PRIOR TO INSTALLING CONCRETE PAD.



1 GENERATOR PAD DETAIL
SCALE: NOT TO SCALE



2 TYPICAL ANCHOR DETAIL
SCALE: NOT TO SCALE



3 ELEVATION VIEW
SCALE: NOT TO SCALE

NOTES

1. SEE GENERATOR MANUFACTURE'S DRAWINGS FOR PHYSICAL LOCATION OF FUEL LINES, CONTROL AND POWER INTERCONNECTIONS AND OTHER INTERFACES THAT ARE TO CAST INTO THE CONCRETE. THE PREFERRED METHOD IS TO BRING THE CONDUIT THROUGH THE PAD TO THE UNDERSIDE OF THE GENERATOR (MINIMIZES RODENT DAMAGE). FINISH CONNECTIONS WITH FLEXIBLE CONDUIT PER GENERATOR MANUFACTURES SPECS. RIGID CONDUITS SHALL BE SECURED TO THE EXISTING SLAB, THEN BURIED BETWEEN SLAB AND SHELTER.
2. THE GENERATOR SHALL BE LOCATED A MIN 5' AWAY FROM A COMBUSTIBLE WALL.
3. THE GENERATOR SHALL BE LOCATED A MIN OF 3' AWAY FROM A NON-COMBUSTIBLE WALL.

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WALLINGFORD, CT 06492

CROWN CASTLE

3 CORPORATE PARK DRIVE, SUITE 101
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B+T GRP

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SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
720892

BU #: **857528**
WOODBURY PAPER MILL RD

85 PAPER MILL ROAD
WOODBURY, CT 06798

EXISTING 150'-0" MONOPOLE

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SHEET NUMBER:

C-7

REVISION:

2



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WALLINGFORD, CT 06492



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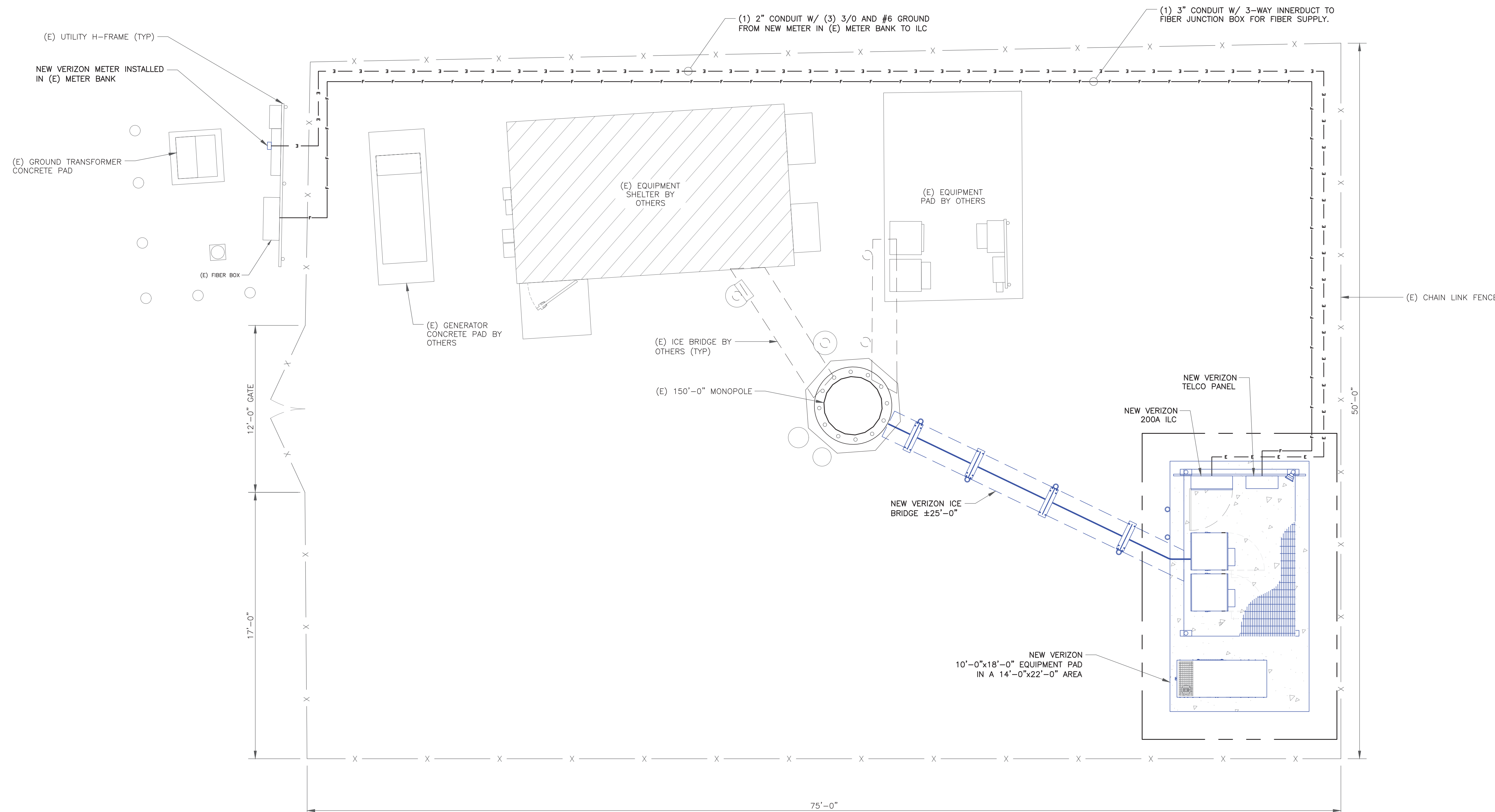
E-1

REVISION:

2

NOTE:
CONSTRUCTION MANAGER & UTILITY
COORDINATOR TO ORDER POWER & TELCO
SERVICES AT ONSET OF CONSTRUCTION.

NOTE:
THE EXISTING UTILITY INFORMATION SHOWN
REPRESENTS THE BEST DATA AVAILABLE
FROM EXISTING DOCUMENTATION AND
FIELD EVIDENCE. ALL LOCATIONS SHOULD
BE CONSIDERED APPROXIMATE, AND A
FIELD INVESTIGATION MUST BE PERFORMED
IN THE VICINITY OF ANY CONSTRUCTION
ACTIVITIES. NOTE THAT THESE PLANS MAY
NOT SHOW ALL UTILITIES THAT ARE
PRESENT AT THE SITE.



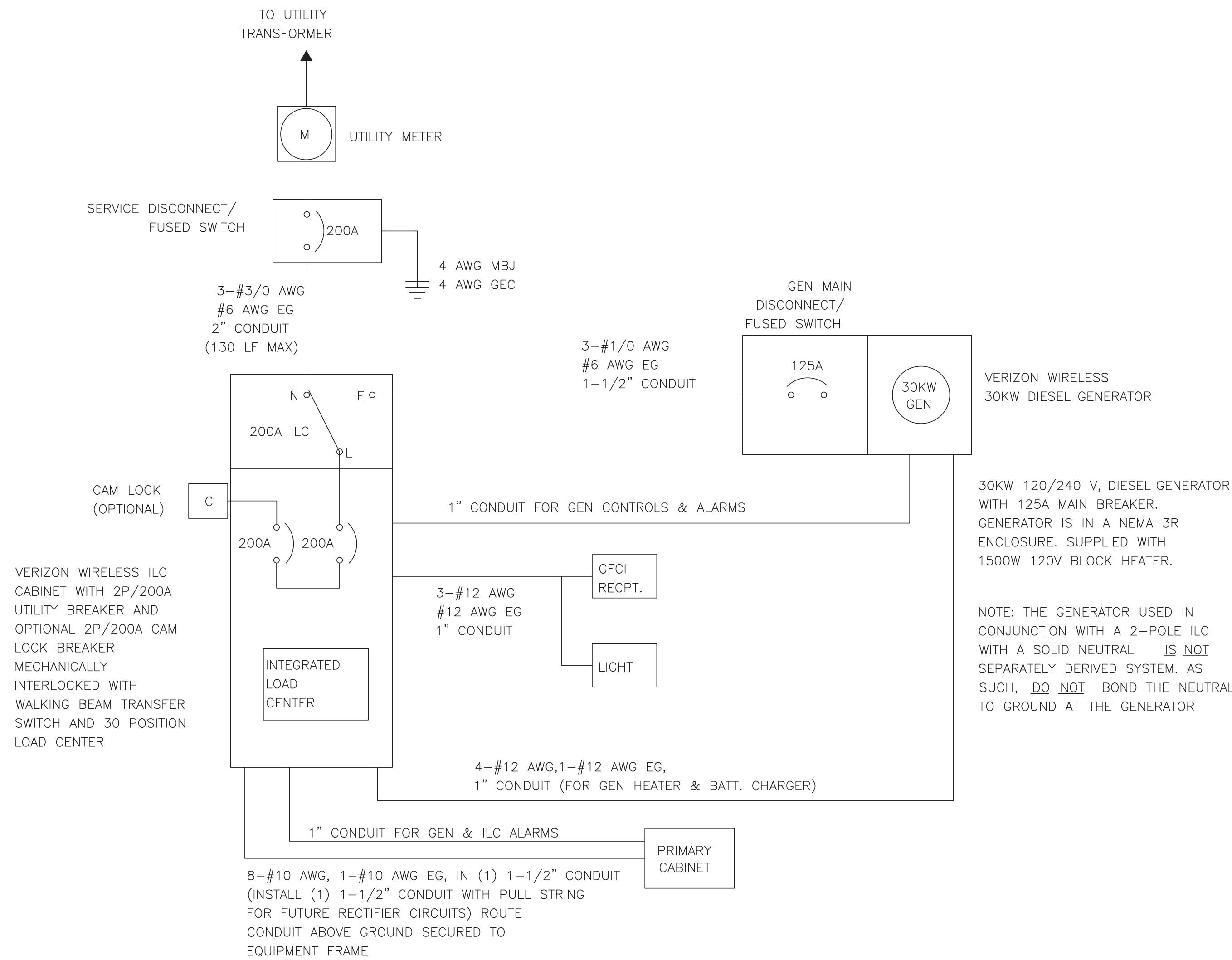
1 UTILITY PLAN
SCALE: 1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)



LOAD CALCULATION	
LOAD	AMPS
PROPOSED LOAD:	148.0
TOTAL DEMAND:	148.0
VOLTAGE: 120/240V SINGLE PHASE 3W 200A	

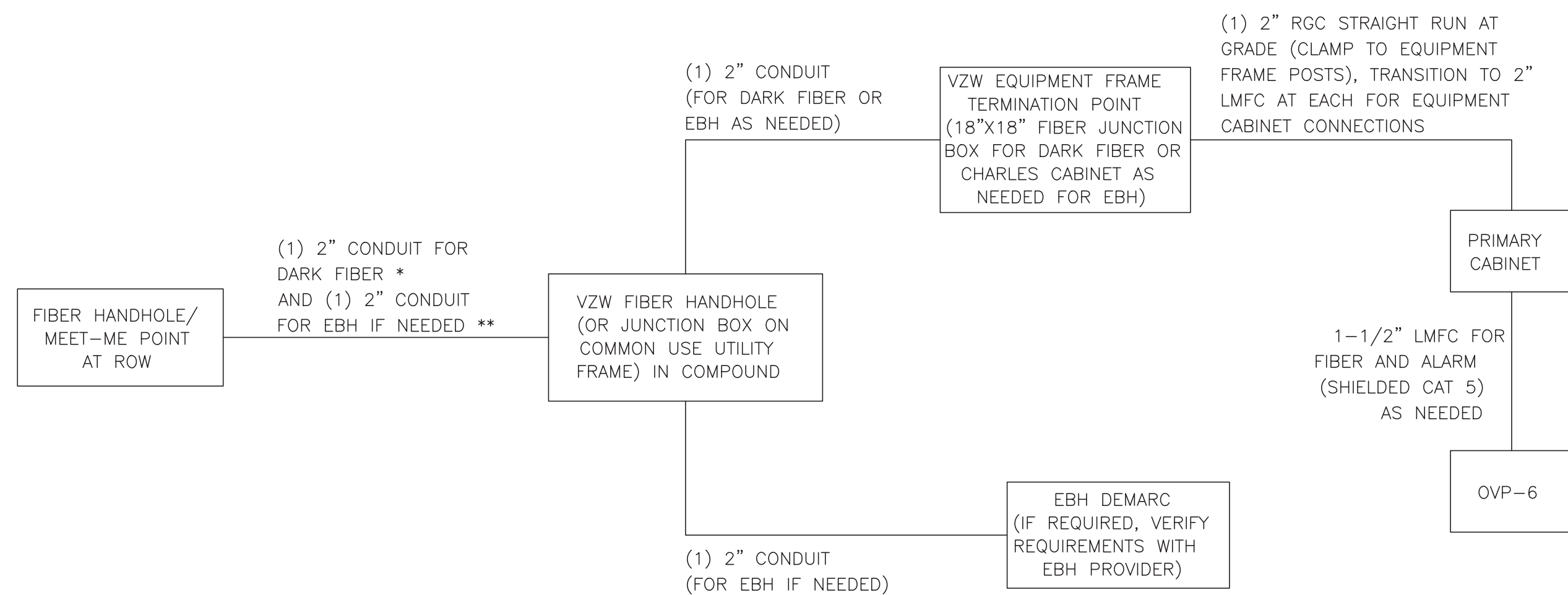
PANEL NAME:		VZW ILC			MODEL NUMBER:		ASCO D300L SERIES															
RATED VOLTAGE:		240	120	VOLTS	PHASE/WIRE:		1	3	MAIN BREAKER:		200	AMPS	BUS RATING:		200	KEY DOOR LATCH:		YES				
MOUNT:		SURFACE			NEUTRAL BAR:		YES		HENGED DOOR:		YES		ENCLOSURE TYPE:		NEMA 3R			AIC:		65K		
POS	USAGE FACTOR	BUS AMPS		LOAD	POLES	AMPS	L1	L2	AMPS	POLES	LOAD	BUS AMPS		USAGE FACTOR	POS							
		L1	L2									L1	L2									
1	1	18		RECTIFIER	2	30A	▲	▲	30A	2	FUTURE RECTIFIER	18		1	2							
3	1		18										18			1	4					
5	1	18		RECTIFIER	2	30A	▲	▲	30A	2	FUTURE RECTIFIER	18		1	6							
7	1		18										18			1	8					
9	1	18		RECTIFIER	2	30A	▲	▲							10							
11	1		18																			
13	1	18		RECTIFIER	2	30A	▲	▲							14							
15	1		18																			
17	1.25	16		GFI RECEPT. /LIGHT	1	20A	▲	▲							18							
19	1		16	BLOCK HEATER	1	20A	▲	▲							20							
21	1	16		BATT. CHARGER	1	20A	▲	▲							22							
23	1		24	UPS RECEPT	1	30A	▲	▲							24							
25							▲	▲							26							
27							▲	▲							28							
29							▲	▲							30							
		104	112	:SUB TOTAL AMPS									SUB TOTAL AMPS:	36	36							
														FACTORED TOTAL AMPS:	140	148						

- NOTES:
- ALL CONDUCTORS ARE TYPE THWN (75°C) COPPER.
 - MAXIMUM LENGTH OF RUN FOR RECTIFIER CIRCUITS IS 50FT.
 - ASCO INTEGRATED LOAD CENTER INCLUDES 200 AMP MAIN DISCONNECT AND TRANSFER SWITCH FOR PORTABLE OR PERMANENT GENERATOR.
 - RECTIFIER LOADS ARE CONSIDERED TO BE NON-CONTINUOUS.
 - IF ADDITIONAL FUTURE LOADS ARE ADDED WHICH CAUSE TOTAL DEMAND TO EXCEED GENERATOR BREAKER SIZE, BACKUP POWER SYSTEM SHALL BE EVALUATED AND UPGRADED AS NECESSARY.



NOTE: THE GENERATOR USED IN CONJUNCTION WITH A 2-POLE ILC WITH A SOLID NEUTRAL IS NOT SEPARATELY DERIVED SYSTEM. AS SUCH, DO NOT BOND THE NEUTRAL TO GROUND AT THE GENERATOR

PANEL SCHEDULE



- NOTES:
- * ADD (1) ADDITIONAL 2" CONDUIT FOR DARK FIBER (2 TOTAL) IF REQUIRED BY LOCAL MARKET FACILITIES, VERIFY PRIOR TO CONSTRUCTION. (ADD 2 PULL STRINGS TO EACH CONDUIT)
 - ** VERIFY EBH REQUIREMENTS WITH TELCO PROVIDER PRIOR TO CONSTRUCTION. (ADD 2 PULL STRINGS TO EACH CONDUIT)

- NOTES:
- ALL EQUIPMENT SHALL BE NEMA 3R RATED.
 - ALL EQUIPMENT SHALL BE LIGHTNING PROTECTED IN ACCORDANCE WITH TIA-222-G AND VERIZON WIRELESS STANDARDS.
 - CONDUCTOR SIZES AND DISTANCES HAVE BEEN SIZED FOR 3% MAX VOLTAGE DROP (TOTAL SYSTEM VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST DEMAND SHALL NOT EXCEED 5%).
 - WIRE SIZING AND MAXIMUM DISTANCE FROM GENERATOR TO ILC ASSUMES POWER FACTOR OF 0.9.
 - BELOW GRADE CONDUIT SHALL BE SCHEDULE 80 PVC. ABOVE GRADE CONDUIT SHALL BE GALVANIZED RIGID CONDUIT. BELOW GRADE PVC CONDUIT SHALL TRANSITION TO GRC PRIOR TO RISING ABOVE GRADE. ALL BENDS SHALL HAVE A MINIMUM 24" RADIUS. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. VERIFY CONDUIT TYPE WITH LOCAL CONSTRUCTION MANAGER AND ADJUST IF NECESSARY. ALL CONDUIT SHALL MEET NEC, STATE, AND LOCAL CODE REQUIREMENTS AS REQUIRED.

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20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

CROWN CASTLE

3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
720892

BU #: **857528**
WOODBURY PAPER MILL RD

85 PAPER MILL ROAD
WOODBURY, CT 06798

EXISTING 150'-0" MONOPOLE

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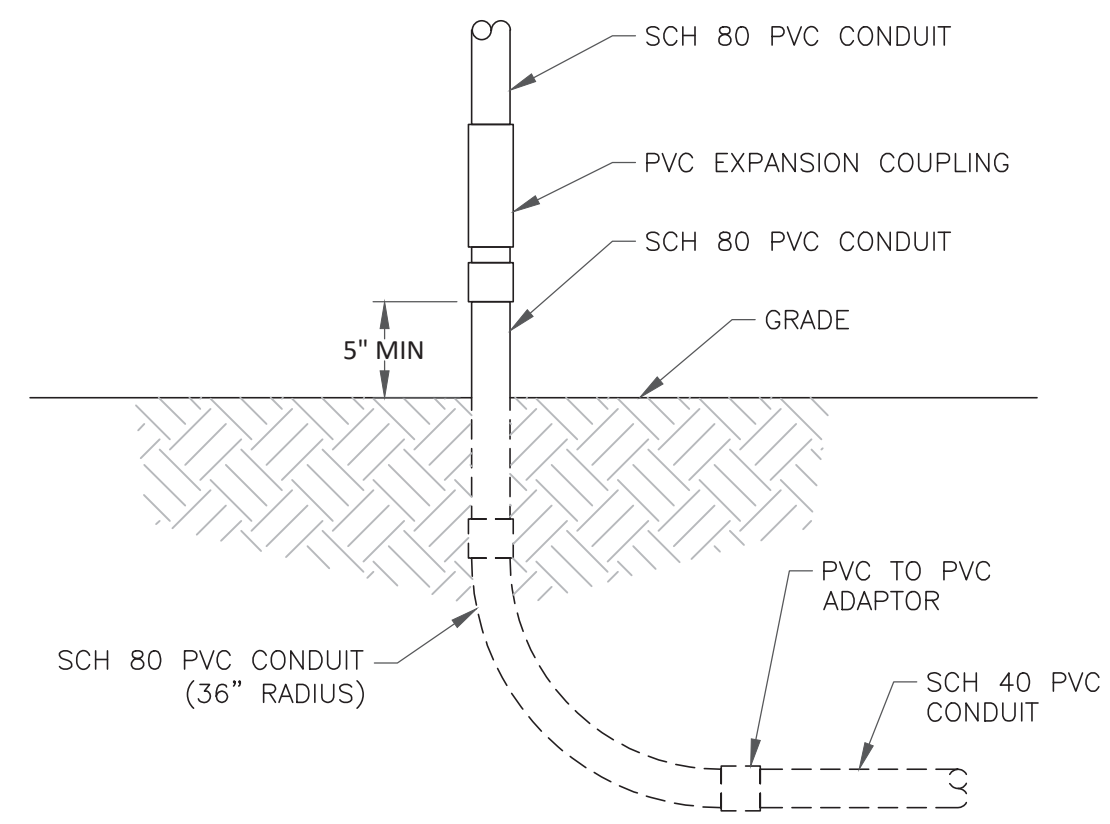


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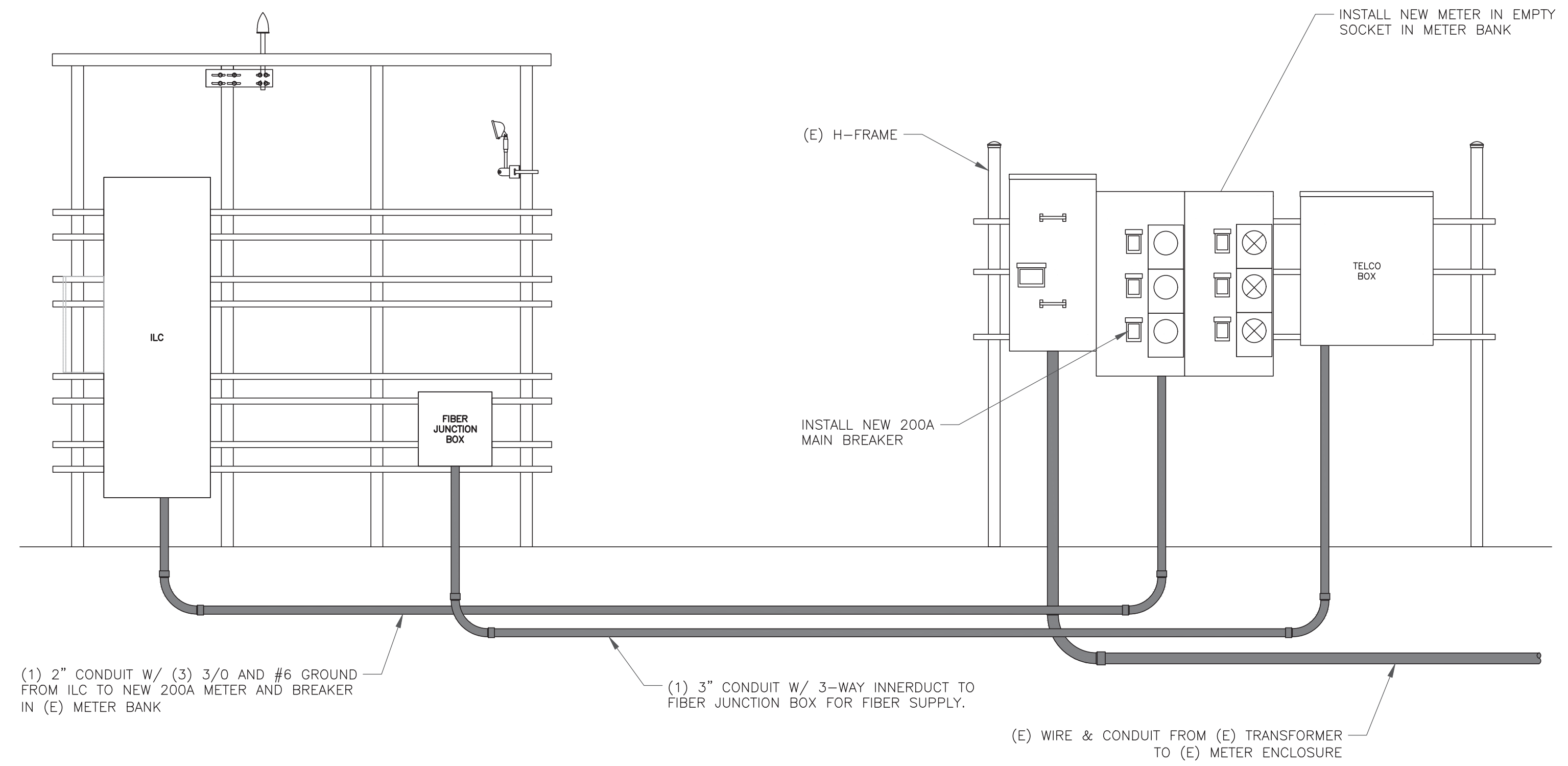
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SHEET NUMBER: **E-2** REVISION: **2**

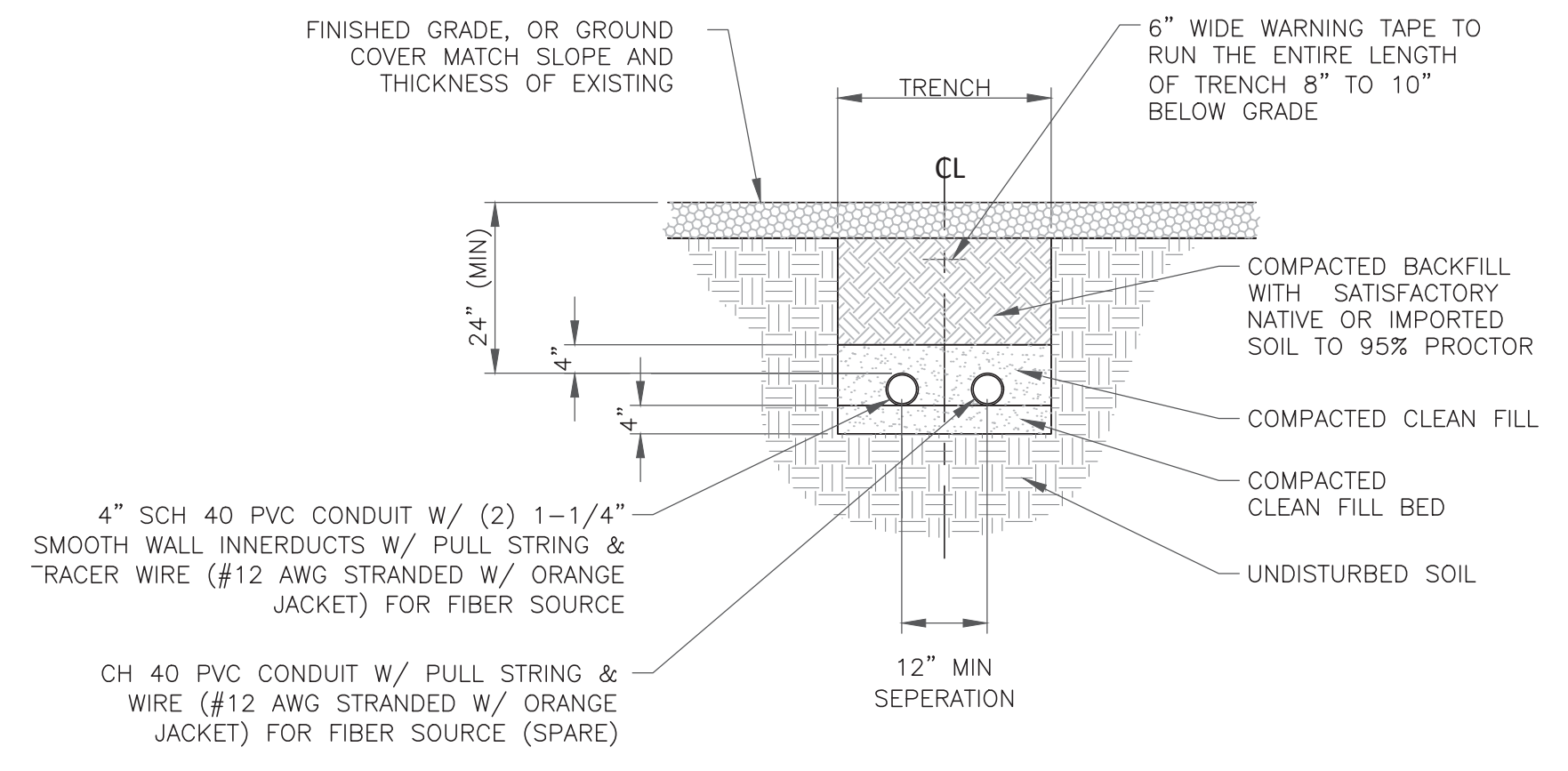
NOTES:
 1. SEE E-1 SHEET FOR CONDUIT SIZES
 2. ALL PVC CONDUITS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE SHALL HAVE EXPANSION COUPLINGS INSTALLED.



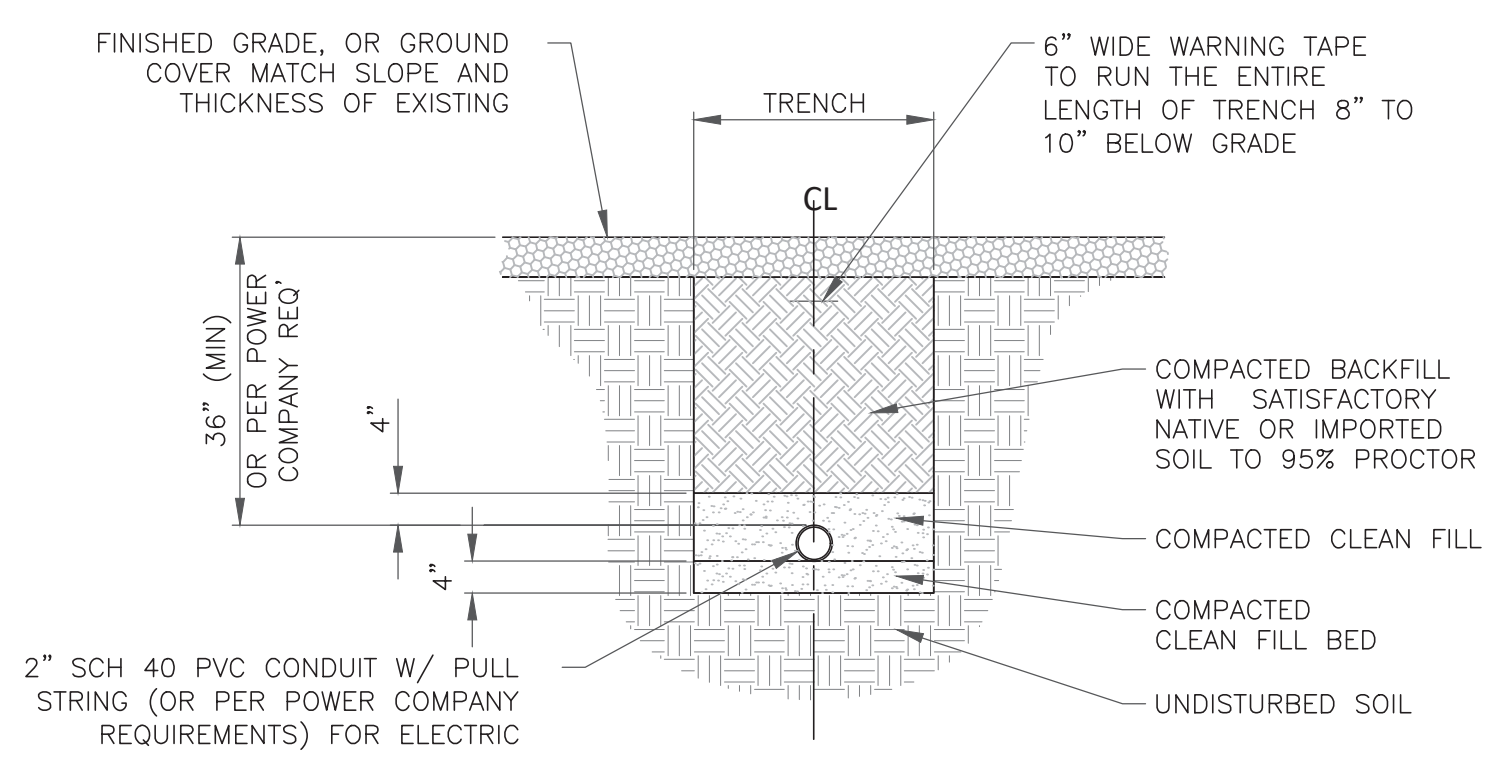
1 UNDERGROUND CONDUIT STUB-UP DETAIL
 SCALE: NOT TO SCALE



2 TYPICAL ELECTRICAL RISER DIAGRAM
 SCALE: NOT TO SCALE



3 FIBER TRENCH DETAIL (SOURCE)
 SCALE: NOT TO SCALE



4 ELECTRIC TRENCH DETAIL (SOURCE)
 SCALE: NOT TO SCALE

UTILITY TRENCH NOTES:

1. CONDUIT SIZE, TYPE, QUANTITY, AND SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY.
2. ALL UTILITY TRENCHES WITHIN THE FENCED COMPOUND OR UNDER ANY POR OF A GRAVEL DRIVE AND/OR ROADWAY SHALL BE BACKFILLED WITH #57 COMPACTED AGGREGATE.
3. ALL CONDUITS SHALL BE INSTALLED WITH A PULL STRING.
4. ALL CONDUITS THAT ARE TO BE USED FOR FIBER/ALARM SHALL BE INSTALL WITH A TRACER WIRE (#12 AWG STRANDED W/ ORANGE JACKET).
5. ALL CONDUITS SHALL BE CLEAN INSIDE WITH NO DIRT OR ANY OTHER OBSTRUCTIONS.
6. ALL BENDS MUST SWEEP 36" RADIUS AND MAXIMUM OF 3 SWEEPS. ANY ADDITIONAL SWEEPS MUST BE APPROVED BY THE POWER COMPANY.
7. THE CONTRACTOR SHALL VERIFY AND FOLLOW THE POWER COMPANY SPECIFICATIONS FOR INSTALLATIONS INVOLVING PAD MOUNTED TRANSFORMERS UTILITY POLE, ETC...

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Professional Engineer Seal: MTS ENGINEERING P.L.L.C., BER:2386985, Expires 3/31/23. Includes a signature and date 11/18/22.

MTS ENGINEERING P.L.L.C.
 BER:2386985
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SHEET NUMBER: **E-3** REVISION: **2**

152945.002.01_WOODBURY PAPER MILL RD - F3P_MOUNT.DWG - Sheet:E-3 - User: chad.vandergraaf - Nov 18, 2022 - 12:08pm

NOTES:

1. PROVIDE "ELECTRIC MOTION" TAMPER RESISTANT BUS BARS AT BULKHEAD AND ABOVE THE TURN AT THE ICE BRIDGE. UTILITY H-FRAME BUS BAR (IF REQUIRED) WILL BE AN ELECTRIC MOTION TINNED COPPER BUS BAR ON RED SEAL INSULATORS & STAINLESS STEEL BRACKET. COAT WITH ELECTRIC MOTION ANTI-THEFT COMPOUND.
2. CONTACT CONSTRUCTION MANAGER PRIOR TO BACKFILLING GROUNDING INSTALLATION.
3. ALL EXPOSED GROUND LEADS NEED TO USE EMC MODEL #2223-TMC THEFT-RESISTANT CABLE FROM 18" BELOW GRADE TO THE FINAL TERMINATION POINT. VERIFY ALL GROUND LEADS ARE VERTICAL AS THEY ENTER THE GROUND.
4. ALL BELOW GRADE GROUND LEADS ARE REQUIRED TO BE SEALED USING SEALTITE TO 18" BELOW GRADE. SEALTITE SHOULD EXTEND AS CLOSE AS POSSIBLE TO THE FINAL TERMINATION POINT AND FILL OPENINGS WITH SILICONE CAULKING.
5. ALL GROUND LEVEL BUS BARS NEED TO USE ANTI-THEFT MOUNTING HARDWARE.

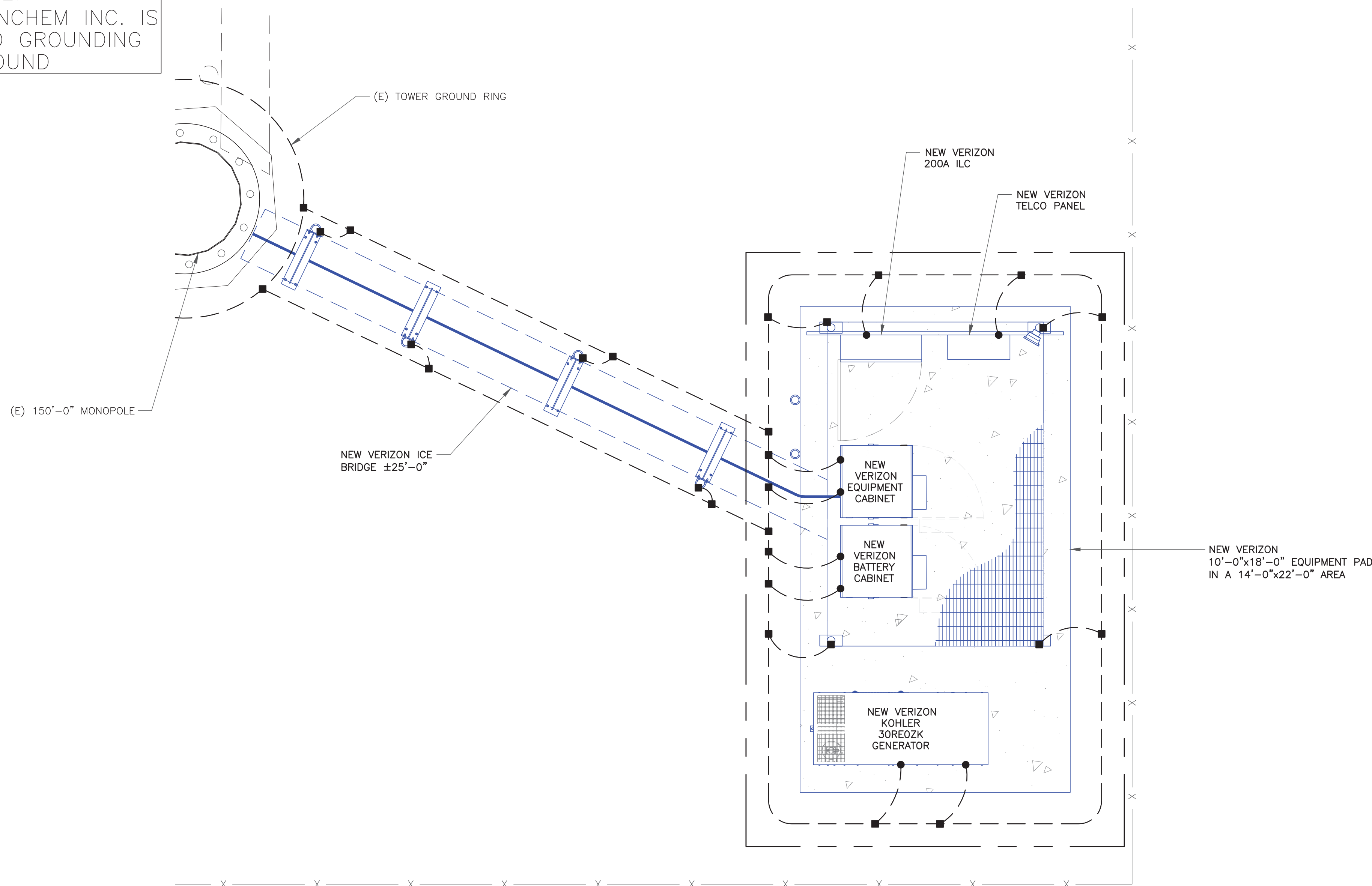
NOTE: FOR ALL ABOVE GRADE CONNECTIONS TO TOWER, ICE BRIDGE, UTILITY H-FRAME, FENCE POSTS, GATE POSTS, GENERATORS, ETC... ALL OF THESE EXPOSED PIGTAILS SHALL BE WITH EMC MODEL #2223-TMC THEFT RESISTANT CABLE. THESE PIGTAILS SHALL THEN HAVE THE SHIELDS STRIPPED BACK AND CADWELDED TO THE TOWER AND EQUIPMENT PAD GROUND RING. ON LONG BELOW GRADE RUNS ONLY, THE ABOVE GROUND PORTIONS (FROM 18" BELOW GRADE UP TO ABOVE GRADE) SHALL BE IN THE EMC THEFT RESISTANT CABLE. CADWELD CONNECTIONS FOR IN-LINE BUT SPLICE FROM #2 TO THE EMC CABLE SHALL BE WITH SSC-1T.

NOTE:
"NO-OX-ID" SANCHEM INC. IS THE APPROVED GROUNDING COMPOUND

GROUNDING PLAN LEGEND:

---	#2 SOLID BARE TINNED COPPER GROUND WIRE	○	COPPER GROUND ROD
■	EXOTHERMIC WELD	⊗	GROUND ROD W/ TEST WELL
●	MECHANICAL CONNECTION		

NOTE TO CONTRACTOR:
ALL FENCE POSTS WITHIN 6' OF VERIZON GROUND EQUIPMENT MUST BE GROUNDED.



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SHEET NUMBER: **G-1** REVISION: **2**

1 SITE PLAN
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)

NOTE: SEE SHEETS G-2 THROUGH G-3 FOR GROUNDING DETAILS

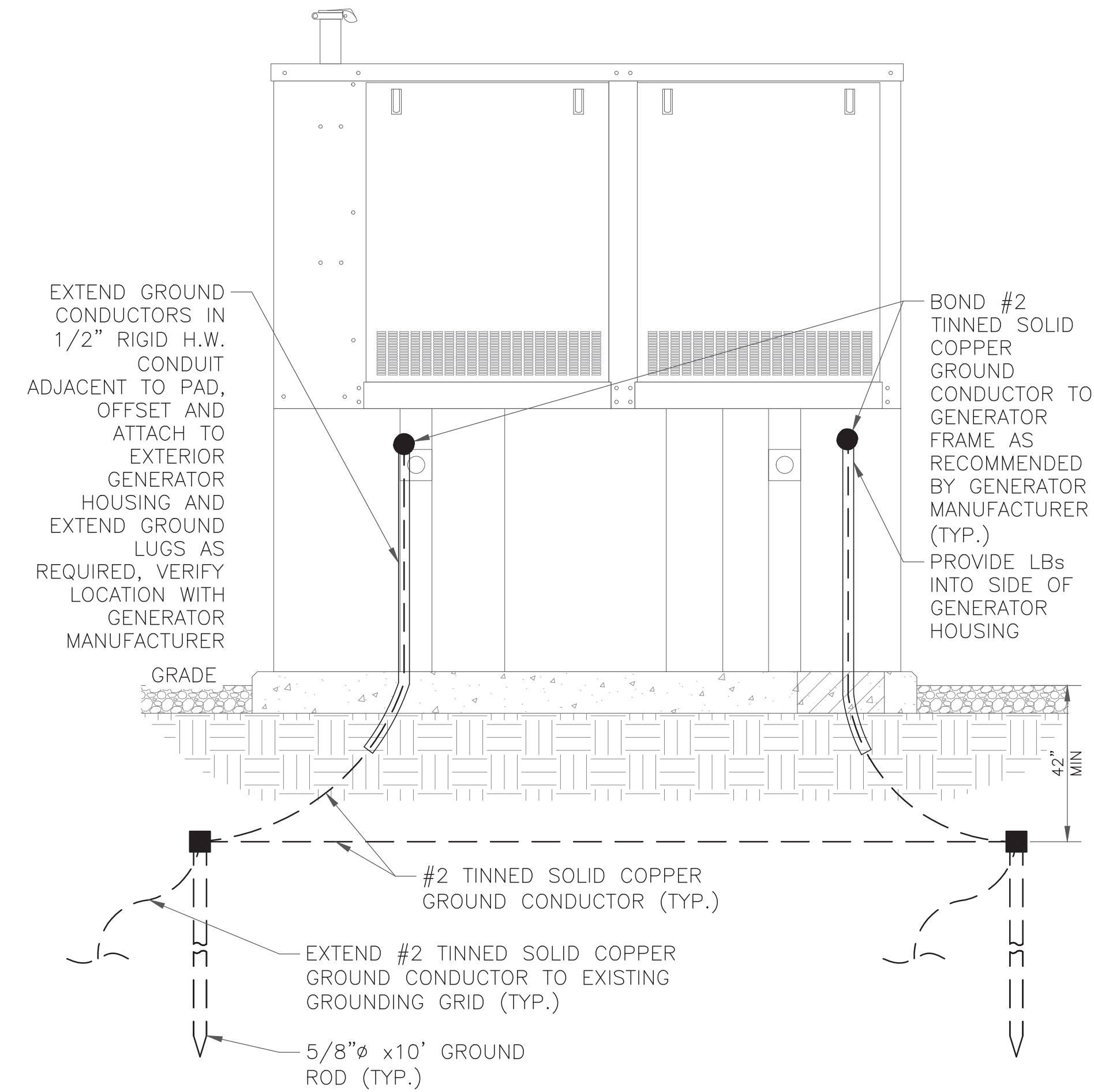
NOTE: ACTUAL RESISTANCE MUST BE MEASURED PRIOR TO CONNECTION TO THE POWER GRID.

NOTES:

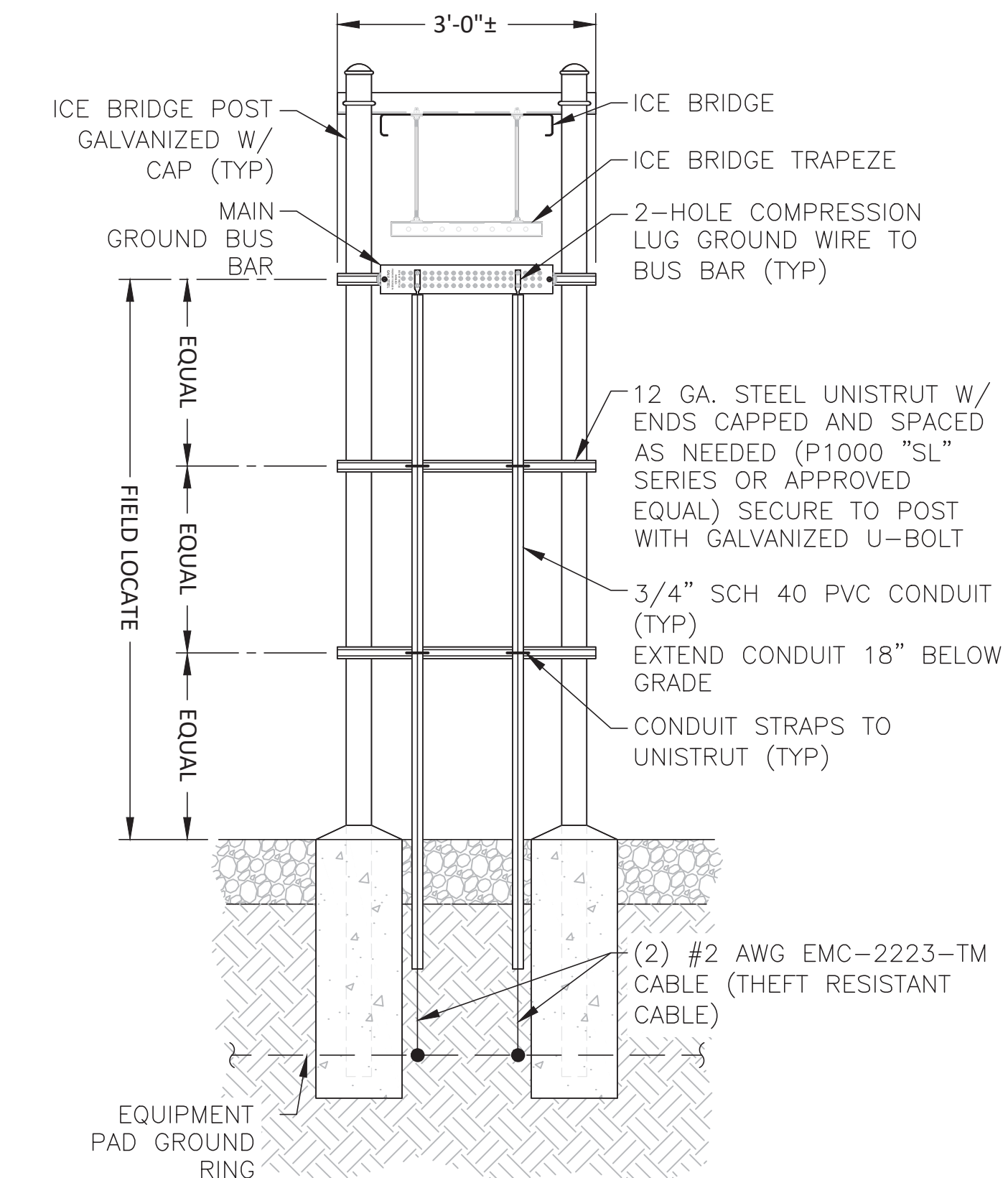
1. ALL GROUNDING LEADS TO FLOW CLOCKWISE
2. CONTACT CONSTRUCTION MANAGER PRIOR TO BACKFILLING GROUNDING INSTALLATION
3. MINIMUM 3 FOOT SPACING BETWEEN THE GROUND CONNECTIONS TO THE MAIN TOWER GROUND RING
4. UFER GROUNDING IS REQUIRED FOR ALL CORNERS OF THE EQUIPMENT PAD USING #2 SOLID BARE TINNED COPPER GROUND WIRE, MECHANICAL GROUND WITH (2) DIRECT BURY GROUND CLAMPS (NSI GROUND CLAMP HD1" OR EQUIVALENT) TO REBAR AND CADWELD TO EQUIPMENT PLATFORM GROUND RING, SEE 'CONCRETE-ENCASED ELECTRODE DETAIL' BELOW.
5. IF GROUND RODS ARE REFUSED, UTILIZE THOMPSON LIGHTNING PROTECTION GROUNDING PLATE NO. 233M AS APPLICABLE.
6. ALL CONNECTIONS TO EQUIPMENT SHALL BE HYPRESS LUGS WITH LONG BARREL.
7. UTILIZE SANCHEM NO-OX-ID GROUNDING COMPOUND.
8. ALL NON LIKE METALS NEED DRAGON TOOTH WASHERS AND BELLEVILLE WASHERS.
9. ANTI-THEFT MOUNTING HARDWARE IS STILL REQUIRED FOR GROUNDING BARS.
10. ALL ABOVE GRADE GROUND WIRES SHOULD BE SEALED WITH SEAL-TITE.

LEGEND

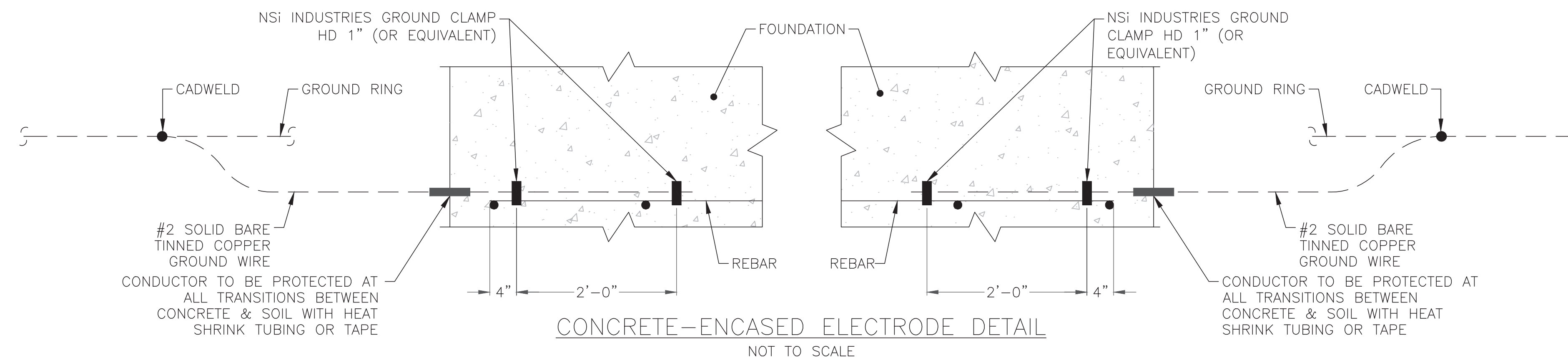
- #2 SOLID BARE TINNED COPPER GROUND WIRE
- GROUND ROD, SPACED AT 10' - 20' O.C. MAX, CADWELD CONNECTION TO GROUND ROD GTC-181T #90 CADWELD SHOT
- CADWELD CONNECTION: PCC-1T1T FOR #2 TO #2, #90 SHOT PARALLEL TYPE CONNECTION
- NSI INDUSTRIES GROUND CLAMP HD 1 (OR EQUIVALENT)



GENERATOR GROUNDING DETAIL
NOT TO SCALE



MAIN GROUND BUS BAR MOUNTING DETAIL
NOT TO SCALE



CONCRETE-ENCASED ELECTRODE DETAIL
NOT TO SCALE

verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
720892

BU #: **857528**
WOODBURY PAPER MILL RD

85 PAPER MILL ROAD
WOODBURY, CT 06798

EXISTING 150'-0" MONOPOLE

ISSUED FOR:

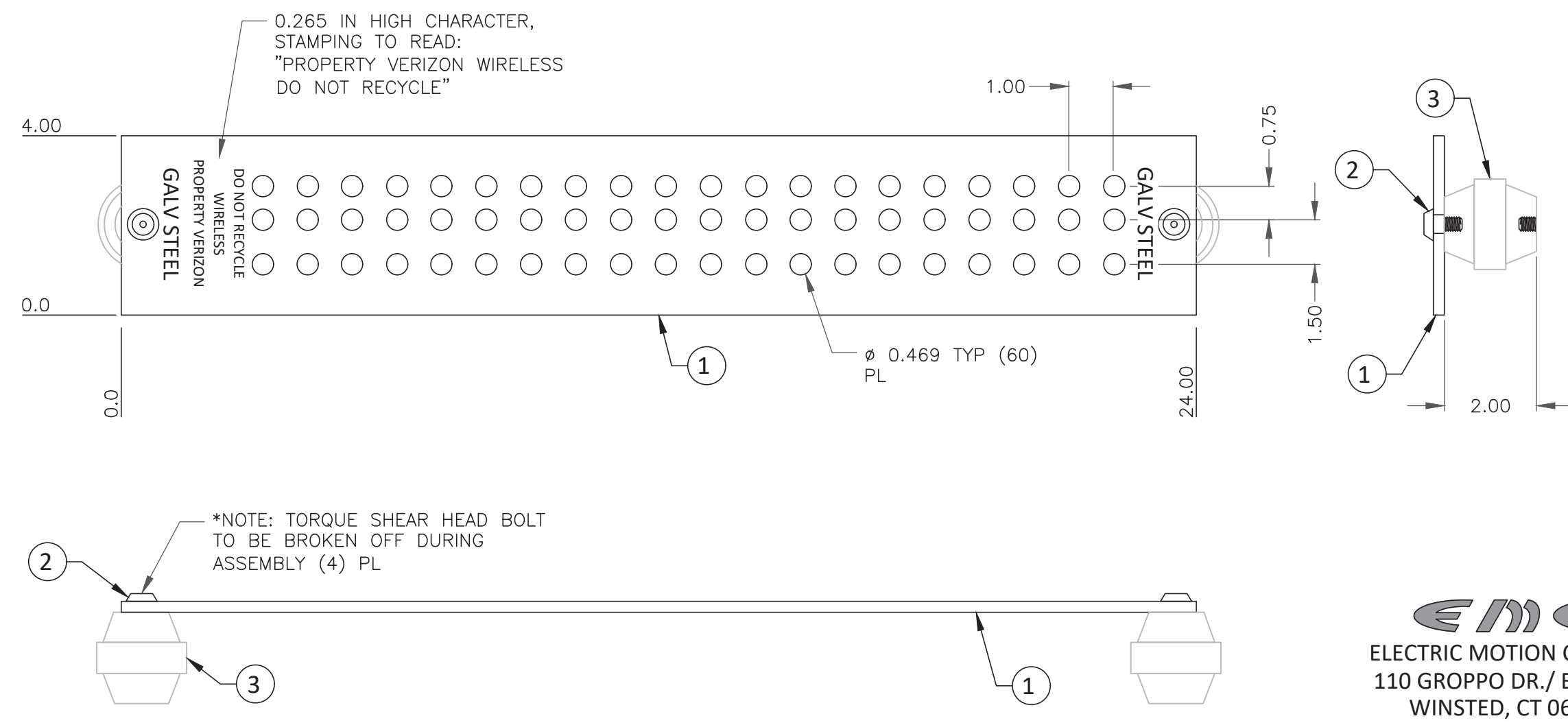
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/25/22	GAC	PRELIMINARY REVIEW	CV
B	8/9/22	ANP	PRELIMINARY REVIEW	CV
0	9/26/22	MEH	CONSTRUCTION	LR
1	9/29/22	GAC	CONSTRUCTION	LR
2	11/18/22	CV	CONSTRUCTION	CV



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BER:2386985
Expires 3/31/23

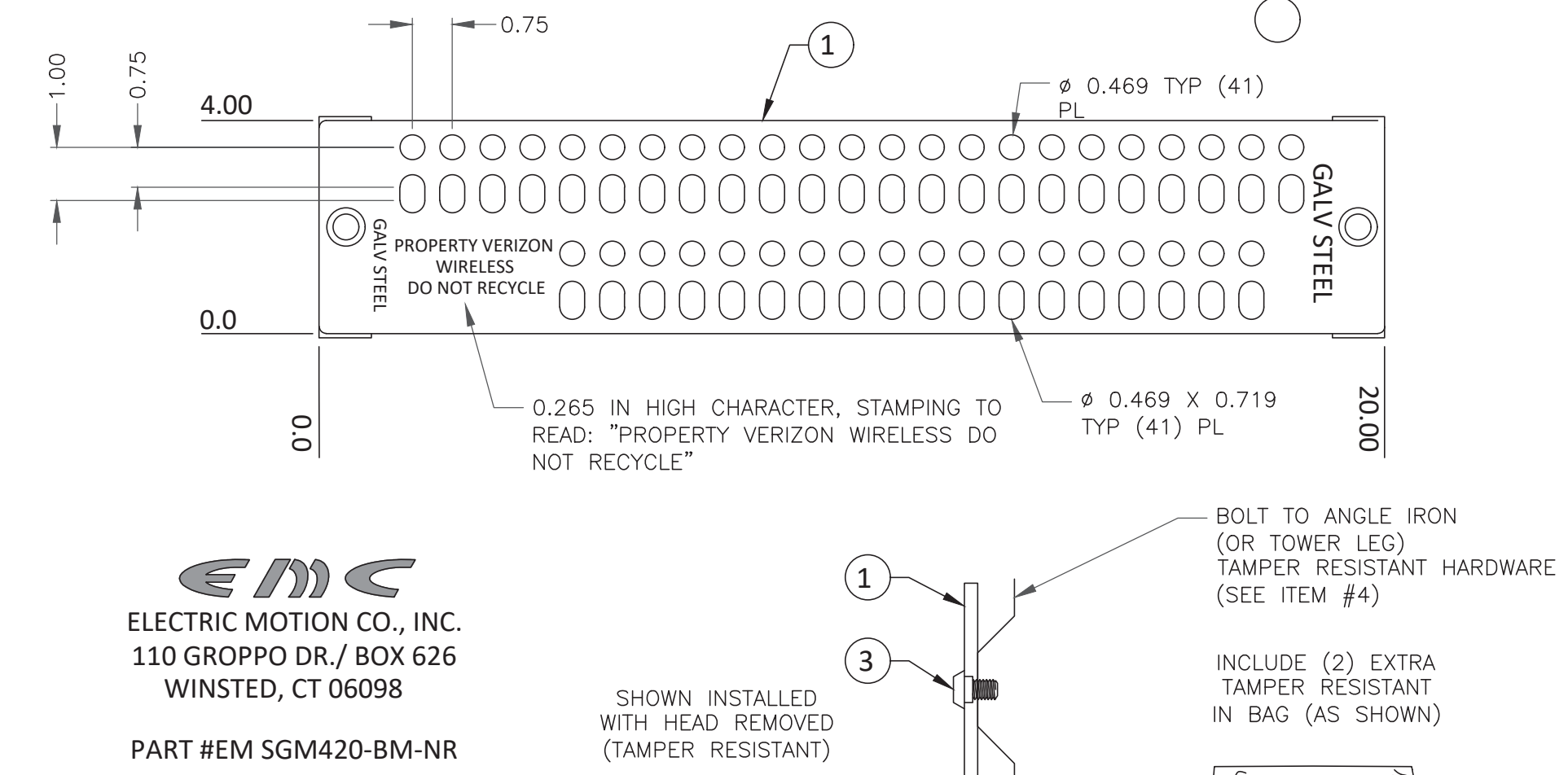
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SHEET NUMBER: **G-2** REVISION: **2**



ITEM	PART NO.	DESCRIPTION	REQ
3	03-009-0118-000	THREADED (3/8-16) INSULATORS, 2" DIA X 2" HEIGHT; FIBERGLASS	2
2	02-009-0633-000	3/8-16 X 5/8" TORQUE SHEAR HEAD BOLT (NON-REMOVABLE) WITH VIBRASEAL; STAINLESS STEEL	2
1	02-009-0662-000	GROUND BAR, GALVANIZED STEEL 1/4" X 4" X 24"	1

1 MAIN GROUND BUS BAR
SCALE: NOT TO SCALE

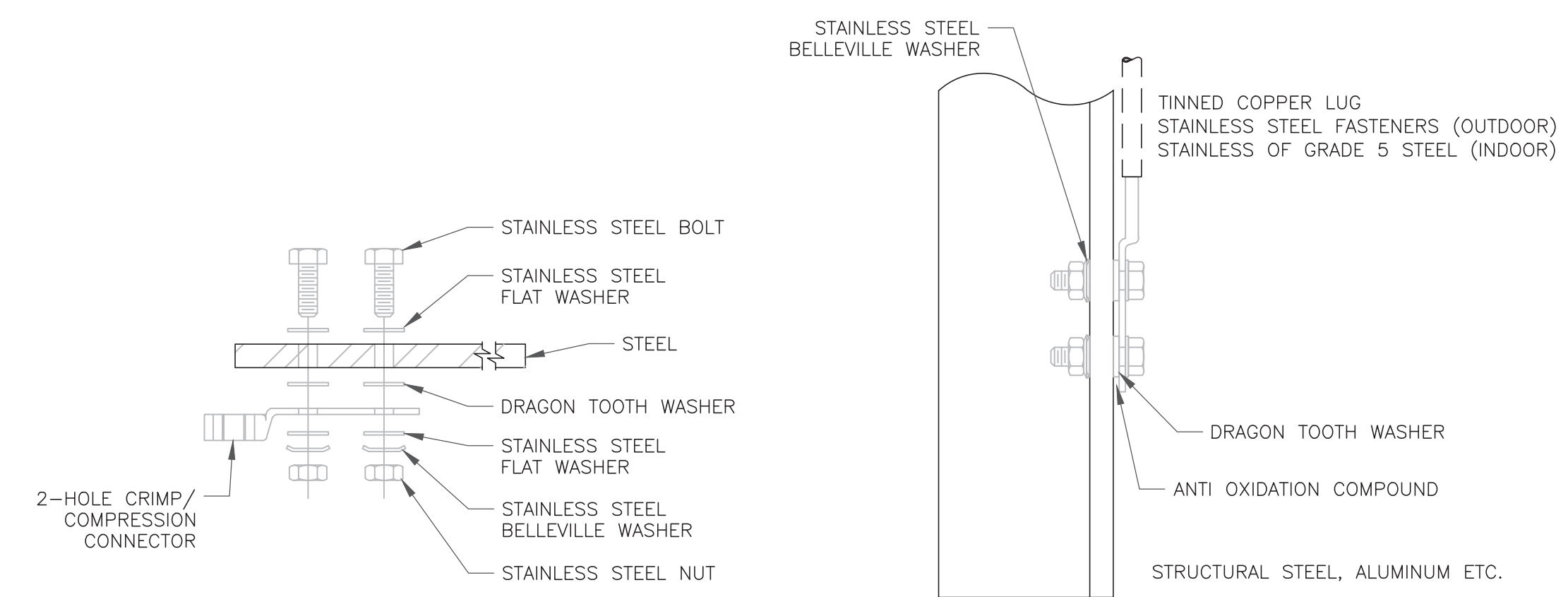


EMC
ELECTRIC MOTION CO., INC.
110 GROPPA DR./ BOX 626
WINSTED, CT 06098
PART #EM SGM420-BM-NR

ATTENTION NOTE:
ALL NON LIKE METALS NEED DRAGON
TOOTH WASHERS AND BELLEVILLE
WASHERS

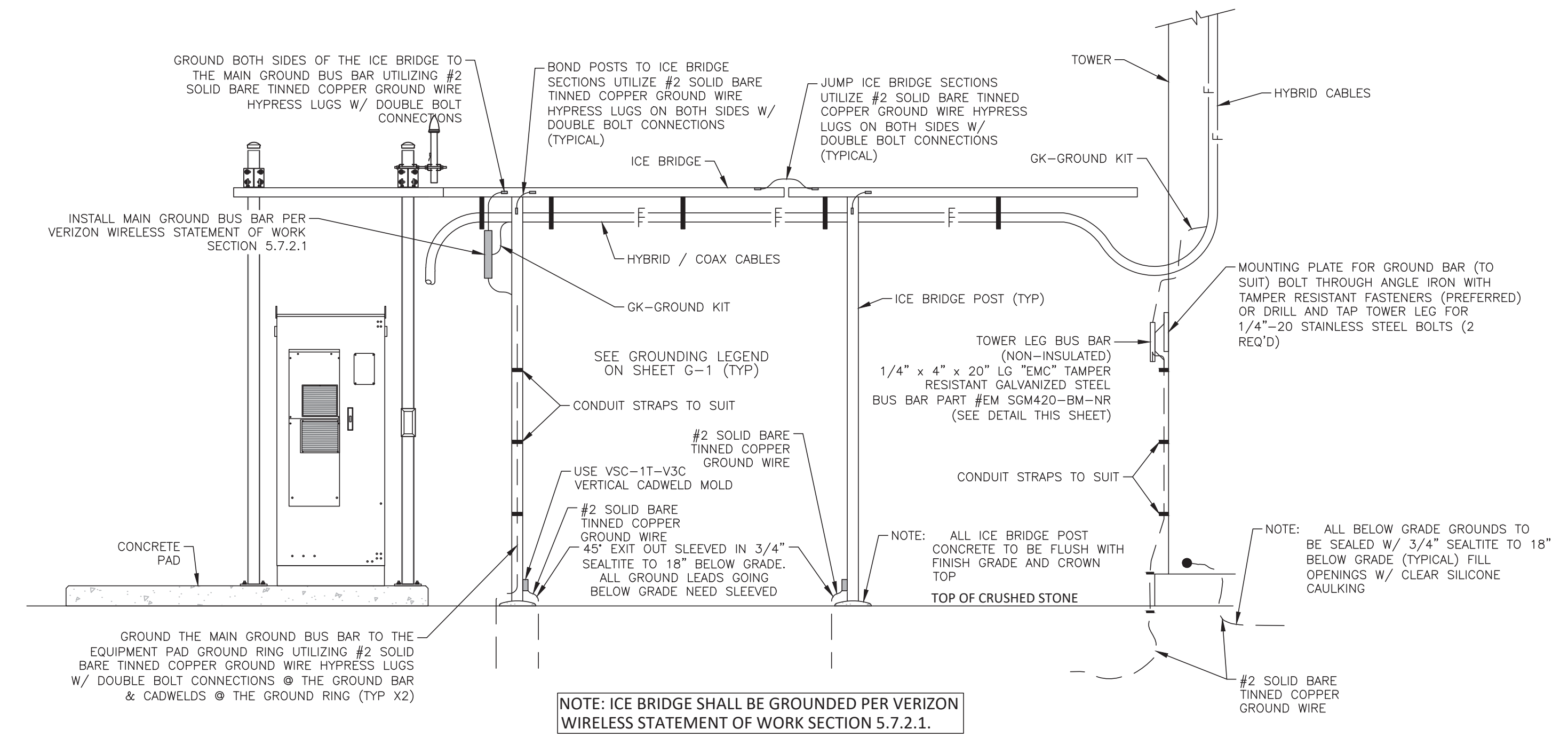
4	02-009-0663-000 (SUB-ASSEMBLY)	3/8-16 x 5/8" TORQUE SHEAR HEAD BOLT IN A STANDARD 4 x 6 BAG INCLUDES: (2) 3/8-16 x 5/8" TORQUE SHEAR HEAD BOLT (NON-REMOVABLE) WITH VIBRASEAL; STAINLESS STEEL (303) P/N 02-009-0603-000 (1) STANDARD 4" x 6" BAG (P/N 03-009-0209-00)	1
3	02-009-0633-000	3/8-16 x 5/8" TORQUE SHEAR HEAD BOLT (NON-REMOVABLE) WITH VIBRASEAL; STAINLESS STEEL (303)	2
2	02-009-0524-000	MOUNTING BRACKET; STAINLESS STEEL, 16 GA (.060) THICK	1
1	02-009-0672-000	20" GROUND BAR; STEEL; GALVANIZED	1

2 TOWER LEG BUS BAR (NON-INSULATED)
SCALE: NOT TO SCALE



- INSTALLATION NOTES:**
1. ALL OUTDOOR HARDWARE (I.E. BOLTS, SCREWS, NUTS, WASHERS) SHOULD BE 18-8 GRADE STAINLESS STEEL.
 2. ALL INDOOR HARDWARE (I.E. BOLTS, SCREWS, NUTS, WASHERS) SHOULD BE GRADE 5 STEEL HARDWARE.
 3. BOLT LENGTH SHOULD ALLOW THE EXPOSURE OF AT TWO THREADS.
 4. BACK TO BACK LUG CONNECTIONS ARE AN ACCEPTABLE PRACTICE WHEN BONDING TO A GROUND BAR OR STEEL OBJECTS.
 5. ANY CONNECTIONS MADE BETWEEN STEEL OR OTHER DISSIMILAR METALS REQUIRE THE USE OF A DRAGON TOOTH WASHER.
 6. *SINGLE CONNECTOR AT GROUND BARS* PERTAINS TO COPPER GROUND BARS ONLY!
 7. GALVANIZED GROUND BARS AND OTHER STEEL OBJECTS (I.E. CABINETS, GENERATOR TANKS, ICE BRIDGE POSTS, ETC.) SHOULD FOLLOW THE *SINGLE CONNECTOR AT STEEL OBJECTS* DETAIL.

3 STANDARD GROUNDING HARDWARE CONFIGURATION
SCALE: NOT TO SCALE



NOTE: ICE BRIDGE SHALL BE GROUNDED PER VERIZON WIRELESS STATEMENT OF WORK SECTION 5.7.2.1.

4 ICE BRIDGE GROUNDING DETAIL
SCALE: NOT TO SCALE

verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
720892

BU #: **857528**
WOODBURY PAPER MILL RD

85 PAPER MILL ROAD
WOODBURY, CT 06798

EXISTING 150'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/25/22	GAC	PRELIMINARY REVIEW	CV
B	8/9/22	ANP	PRELIMINARY REVIEW	CV
0	9/26/22	MEH	CONSTRUCTION	LR
1	9/29/22	GAC	CONSTRUCTION	LR
2	11/18/22	CV	CONSTRUCTION	CV

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SHEET NUMBER: **G-3** REVISION: **2**

152945.002.01_WOODBURY PAPER MILL RD - F3P_MOUNT.DWG - Sheet:G-3 - User: chad.vandergraft - Nov 18, 2022 - 12:08pm



20 ALEXANDER DRIVE
WALLINGFORD, CT 06492



3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
720892

BU #: 857528
WOODBURY PAPER MILL
RD

85 PAPER MILL ROAD
WOODBURY, CT 06798

EXISTING 150'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/25/22	GAC	PRELIMINARY REVIEW	CV
B	8/9/22	ANP	PRELIMINARY REVIEW	CV
0	9/26/22	MEH	CONSTRUCTION	LR
1	9/29/22	GAC	CONSTRUCTION	LR
2	11/18/22	CV	CONSTRUCTION	CV



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Expires 3/31/23

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SHEET NUMBER: REVISION:

REF1 2

VZW GENERATOR RETROFIT ALARM LAYOUT

02/04/2010 GFH

New GEN PROG ALARM layout

Replaces existing alarm positions on BLK#2

All GEN PROG ALARMS on BLK#1 to remain the same

TB2

ROW	DESIGNATION	NOMENCLATURE	RELAY	CONTACT	WIRE COLOR
1	GEN PROG ALARM J1	GEN OVERCRANK	1	1	W/BL
2	GEN PROG ALARM J1	GEN OVERCRANK	1	2	BL/W
3	GEN PROG ALARM J2	HIGH WATER TEMP	2	1	W/O
4	GEN PROG ALARM J2	HIGH WATER TEMP	2	2	O/W
5	GEN PROG ALARM J3	PRE-LOW OIL PRESSURE	3	1	W/GR
6	GEN PROG ALARM J3	PRE-LOW OIL PRESSURE	3	2	GR/W
7	GEN PROG ALARM J4	PRE-HIGH WATER TEMP	4	1	W/BR
8	GEN PROG ALARM J4	PRE-HIGH WATER TEMP	4	2	BR/W
9	GEN PROG ALARM J5	PRE-LOW FUEL	5	1	W/SL
10	GEN PROG ALARM J5	PRE-LOW FUEL	5	2	SL/W
11	GEN PROG ALARM J6	BATTERY CHARGER FAIL	6	1	R/BL
12	GEN PROG ALARM J6	BATTERY CHARGER FAIL	6	2	BL/R
13	GEN PROG ALARM J7	GEN RUN	7	1	R/O
14	GEN PROG ALARM J7	GEN RUN	7	2	O/R
15	GEN PROG ALARM J8	GEN NOT IN AUTO	8	1	R/GR
16	GEN PROG ALARM J8	GEN NOT IN AUTO	8	2	GR/R
17	GENERATOR SUMMARY ALARM	SUMMARY	9	C	R/BR
18	GENERATOR SUMMARY ALARM	SUMMARY	9	NC	BR/R
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35	SUB-PANEL AC POWER FAIL	EXT AC CKT SUB-PANEL	RELAY	NO	W/BL
36	SUB-PANEL AC POWER FAIL	EXT AC CKT SUB-PANEL	RELAY	C	BL/W
37	EXTERNAL AC CIRCUIT TVSS	LAE(TVSS3)	SA	NO	W/O
38	EXTERNAL AC CIRCUIT TVSS	LAE(TVSS3)	SA	C	O/W
39	GEN. FAIL COMMON (PROG RELAY	GPR2	GEN	NO	W/BL
40	GEN. FAIL COMMON (PROG RELAY	GPR2	GEN	C	BL/W
41	CATCH BASIN (PROG RELAY #4)	GPR4	GEN	NO	W/O
42	CATCH BASIN (PROG RELAY #4)	GPR4	GEN	C	O/W
43	UTILITY POWER FAIL	PFA	ATS	NO	W/GR
44	UTILITY POWER FAIL	PFA	ATS	C	GR/W
45	ATS/UTILITY SURGE ARREST.	LAU (TVSS1)	ATS	NC	W/BR
46	ATS/UTILITY SURGE ARREST.	LAU (TVSS1)	ATS	C	BR/W
47	ATS/GEN SURGE ARREST.	LAG(TVSS2)	ATS	NC	W/SL
48	ATS/GEN SURGE ARREST.	LAG(TVSS2)	ATS	C	SL/W
49	ATS/ILC NOT IN AUTO	ATS/ILC	ILC	NC	R/BL
50	ATS/ILC NOT IN AUTO	ATS/ILC	ILC	C	BL/R

TVSS
ALARM
CABLE

CABLE 4A

SURGE ARRESTOR BLOCK

ROW	CABLE #	DESIGNATION	CONTACT	ARRESTOR MODEL
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19	4	1	GEN. FAIL COMMON (PROG RELAY #2)	GPR2
20	4	2	GEN. FAIL COMMON (PROG RELAY #2)	GPR2
21	4	3	CATCH BASIN (PROG RELAY #4)	GPR4
22	4	4	CATCH BASIN (PROG RELAY #4)	GPR4
23	7	1	UTILITY POWER FAIL	PFA
24	7	2	UTILITY POWER FAIL	PFA
25	7	3	ATS/UTILITY SURGE ARREST.	LAU (TVSS1)
26	7	4	ATS/UTILITY SURGE ARREST.	LAU (TVSS1)
27	7	5	ATS/GEN SURGE ARREST.	LAG(TVSS2)
28	7	6	ATS/GEN SURGE ARREST.	LAG(TVSS2)
29	7	7	ATS/ILC NOT IN AUTO	ATS/ILC
30	7	8	ATS/ILC NOT IN AUTO	ATS/ILC
31				
32				
33	6	1	AI REMOTE RS232 PORT	DB9 PIN 2
34	6	2	AI REMOTE RS232 PORT	DB9 PIN 3
35	6	3	AI REMOTE RS232 PORT	DB9 PIN 5
36				
37				
38				
39				
40				
41				
42				
43				
44				
45	5	1	21LT ANNUNCIATOR PANEL	RS485 (+)
46	5	2	21LT ANNUNCIATOR PANEL	RS485 (-)
47				
48	5	4	21LT ANNUNCIATOR PANEL	12V (-)
49				
50	5	3	21LT ANNUNCIATOR PANEL	12V (+)

CABLE 4A

B/WH
W/O
W/G

NOTE: This document pertains to the install of the generator related alarms only. Adjust the placement of the alarms on TB1 as required based on current site configuration. For LP or Natural Gas generators substitute Pre-Low Water Temp for Pre-Low Fuel alarm on J5.

152945.002.01_WOODBURY PAPER MILL RD - F3P_MOUNT.DWG - Sheet:REF1 - User: chad.vondergraff - Nov 18, 2022 - 12:08pm

Date: **February 01, 2023**



Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject: **Structural Analysis Report**

Carrier Designation: **Verizon Wireless Co-Locate**
Site Number: 720892
Site Name: WOODBURY NW CT

Crown Castle Designation: **BU Number:** 857528
Site Name: WOODBURY PAPER MILL RD
JDE Job Number: 740204
Work Order Number: 2200757
Order Number: 644453 Rev. 0

Engineering Firm Designation: **Crown Castle Project Number:** 2200757

Site Data: **85 PAPER MILL ROAD, WOODBURY, LITCHFIELD County, CT**
Latitude 41° 34' 23.07", Longitude -73° 13' 39.51"
150 Foot - Monopole Tower

Crown Castle is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Proposed Equipment Configuration

Sufficient Capacity – 75.1%

This analysis has been performed in accordance with the 2022 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 115 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Michael Lopienski

Respectfully submitted by:

Maham Barimani, P.E.
Senior Project Engineer

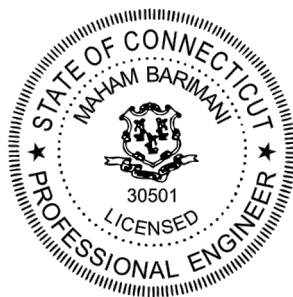


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7) APPENDIX C

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1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by Ehresmann Engineering 1995.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	115 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
118.0	118.0	4	jma wireless	MX06FRO840-02_CCIV2 w/ Mount Pipe	1	1-5/8
		2	jma wireless	MX06FRO860-03 w/ Mount Pipe		
		1	raycap	RVZDC-6627-PF-48_CCIV2		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RF4439D-25A		
		3	samsung telecommunications	RF4440D-13A		
		1	tower mounts	Platform Mount [LP 301-1_KCKR]		
		1	tower mounts	Site Pro 1 F3P-12[W]		
		1	tower mounts	Site Pro 1 F3P-HRK12		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
148.0	148.0	1	cci antennas	DMP65R-BU4D w/ Mount Pipe	6	1-5/8
		2	cci antennas	DMP65R-BU6D w/ Mount Pipe		
		1	cci antennas	OPA65R-BU4D w/ Mount Pipe		
		2	cci antennas	OPA65R-BU6D w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS 8843 B2/B66A		
		-	mounts	Mount Reinforcements		
		3	powerwave technologies	TT19-08BP111-001		
		3	powerwave technologies	P90-14-XLH-RR w/ Mount Pipe		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		2	raycap	DC6-48-60-18-8F		
		1	tower mounts	Miscellaneous [NA 507-1]		
		1	tower mounts	Platform Mount [LP 712-1]		
136.0	140.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
	138.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
128.0	128.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe	2	1-5/8
			ericsson	RADIO 4460 B2/B25 B66_TMO		
			ericsson	RADIO 4480 B71_TMO		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		1	tower mounts	SitePro1 RMQP-4096-HK		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4570959	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4724414	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4724415	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	150 - 104.5	Pole	TP28.1875x18x0.1875	1	-18.06	988.77	64.9	Pass
L2	104.5 - 68.75	Pole	TP35.75x26.8609x0.25	2	-22.98	1673.43	73.9	Pass
L3	68.75 - 34	Pole	TP43x34.0833x0.3125	3	-29.94	2519.29	66.0	Pass
L4	34 - 0	Pole	TP50x41.0375x0.3125	4	-39.73	3027.25	73.7	Pass
							Summary	
						Pole (L2)	73.9	Pass
						Rating =	73.9	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	32.1	Pass
1	Base Plate	0	46.6	Pass
1	Base Foundation (Structure)	0	37.1	Pass
1	Base Foundation (Soil Interaction)	0	75.1	Pass

Structure Rating (max from all components) =	75.1%
-----------------------------------------------------	--------------

Notes:

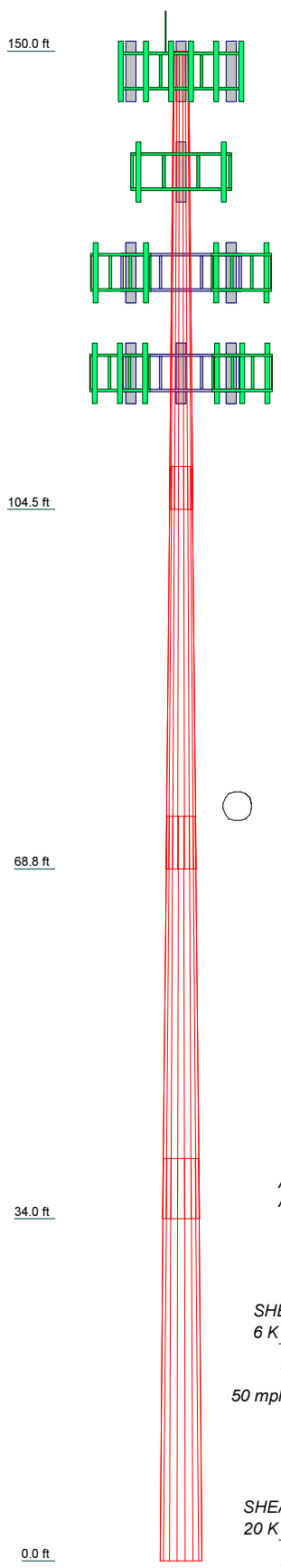
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4	
Length (ft)	45.50	40.00	40.00	40.00	
Number of Sides	18	18	18	18	
Thickness (in)	0.1875	0.2500	0.3125	0.3125	
Socket Length (ft)	4.25	5.25	6.00	41.0375	
Top Dia (in)	18.0000	26.8609	34.0833	50.0000	
Bot Dia (in)	28.1875	35.7500	43.0000		
Grade		A572-65			
Weight (K)	2.1	3.4	5.2	6.1	16.7



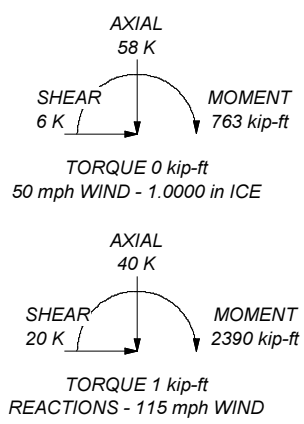
MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 115 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 73.9%

ALL REACTIONS ARE FACTORED



<p>CROWN CASTLE The Pathway to Possible</p>	<p>Crown Castle 2000 Corporate Drive Canonsburg, PA 15317 Phone: (724) 416-2000 FAX:</p>		<p>Job: BU 857528</p>
	Project:	Client: Crown Castle	Drawn by: MLopienski
	Code: TIA-222-H	Date: 02/01/23	Scale: NTS
	Path:	C:\Work Area\857528\WO 2200757 - SAIProd\857528.et	
	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 base elevation above sea level: 528.00 ft.
- Basic wind speed of 115 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets ✓ Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	

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	150.00-104.50	45.50	4.25	18	18.0000	28.1875	0.1875	0.7500	A572-65 (65 ksi)
L2	104.50-68.75	40.00	5.25	18	26.8609	35.7500	0.2500	1.0000	A572-65 (65 ksi)
L3	68.75-34.00	40.00	6.00	18	34.0833	43.0000	0.3125	1.2500	A572-65 (65 ksi)
L4	34.00-0.00	40.00		18	41.0375	50.0000	0.3125	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	18.2488	10.6007	424.9328	6.3234	9.1440	46.4712	850.4248	5.3013	2.8380	15.136
	28.5934	16.6635	1650.5160	9.9400	14.3193	115.2655	3303.2038	8.3333	4.6310	24.699
L2	28.1958	21.1158	1889.1396	9.4469	13.6453	138.4457	3780.7650	10.5599	4.2875	17.15
	36.2629	28.1692	4485.0722	12.6025	18.1610	246.9617	8976.0460	14.0873	5.8520	23.408
L3	35.7493	33.4964	4826.3493	11.9886	17.3143	278.7490	9659.0492	16.7514	5.4487	17.436
	43.6151	42.3407	9747.5744	15.1541	21.8440	446.2358	19507.9749	21.1744	7.0180	22.458
L4	42.9875	40.3941	8464.0368	14.4574	20.8470	406.0065	16939.2109	20.2009	6.6726	21.352
	50.7231	49.2838	15372.1931	17.6391	25.4000	605.2045	30764.6134	24.6466	8.2500	26.4

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	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 150.00-104.50				1	1	1			
L2 104.50-68.75				1	1	1			
L3 68.75-34.00				1	1	1			
L4 34.00-0.00				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 r in	Weight plf

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _A A _A ft ² /ft	Weight plf	
** miscl **									
Safety Line 3/8	C	No	No	CaAa (Out Of Face)	150.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.04 0.14 0.24	0.22 0.75 1.28
Step Pegs (5/8")	C	No	No	CaAa (Out	150.00 - 0.00	1	No Ice	0.03	0.49

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
SR) 7-in. w/30" step ** 148 **				Of Face)			1/2" Ice	0.14	1.01
							1" Ice	0.23	2.07
LDF7-50A(1-5/8)	B	No	No	Inside Pole	148.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
FB-L98B-034-XXX(3/8)	B	No	No	Inside Pole	148.00 - 0.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
WR-VG82ST-BRDA(5/8)	B	No	No	Inside Pole	148.00 - 0.00	2	No Ice	0.00	0.31
							1/2" Ice	0.00	0.31
							1" Ice	0.00	0.31
WR-VG86ST-BRD(3/4)	B	No	No	Inside Pole	148.00 - 0.00	3	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
2" Flexible Conduit	B	No	No	Inside Pole	148.00 - 0.00	2	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
** 138 **									
CU12PSM9P6XXX (1-1/2)	A	No	No	Inside Pole	136.00 - 0.00	1	No Ice	0.00	2.35
							1/2" Ice	0.00	2.35
							1" Ice	0.00	2.35
** 128 **									
HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Inside Pole	128.00 - 0.00	2	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
** 118 **									
HB158-21U6S12-XXXM-01(1-5/8)	C	No	No	Inside Pole	118.00 - 0.00	1	No Ice	0.00	1.90
							1/2" Ice	0.00	1.90
							1" Ice	0.00	1.90

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	150.00-104.50	A	0.000	0.000	0.000	0.000	0.07
		B	0.000	0.000	0.000	0.000	0.35
		C	0.000	0.000	0.000	3.299	0.18
L2	104.50-68.75	A	0.000	0.000	0.000	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.29
		C	0.000	0.000	0.000	2.592	0.27
L3	68.75-34.00	A	0.000	0.000	0.000	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.28
		C	0.000	0.000	0.000	2.519	0.26
L4	34.00-0.00	A	0.000	0.000	0.000	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.27
		C	0.000	0.000	0.000	2.465	0.26

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} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	150.00-104.50	A	0.972	0.000	0.000	0.000	0.000	0.07
		B		0.000	0.000	0.000	0.000	0.35
		C		0.000	0.000	0.000	20.985	0.29
L2	104.50-68.75	A	0.936	0.000	0.000	0.000	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.29

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L3	68.75-34.00	C	0.888	0.000	0.000	0.000	16.488	0.36
		A		0.000	0.000	0.000	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.28
L4	34.00-0.00	C	0.793	0.000	0.000	0.000	15.524	0.35
		A		0.000	0.000	0.000	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.27
		C		0.000	0.000	0.000	14.545	0.34

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	150.00-104.50	-0.5568	0.3215	-1.6552	0.9557
L2	104.50-68.75	-0.5654	0.3264	-1.7692	1.0214
L3	68.75-34.00	-0.5698	0.3290	-1.7821	1.0289
L4	34.00-0.00	-0.5726	0.3306	-1.7575	1.0147

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 Vert ft ft ft	Azimuth Adjustment °	Placement ft
1/2" x 4' L Rod	C	From Leg	1.00 0.00 2.00	0.0000	150.00
** 148 **					
DMP65R-BU6D w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	148.00
DMP65R-BU6D w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	148.00
OPA65R-BU6D w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	148.00
OPA65R-BU6D w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	148.00
P90-14-XLH-RR w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	148.00
P90-14-XLH-RR w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	148.00
P90-14-XLH-RR w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	148.00
DMP65R-BU4D w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	148.00
OPA65R-BU4D w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	148.00

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft
			Horz Lateral ft	Vert ft		
RRUS 4449 B5/B12	A	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
RRUS 4449 B5/B12	B	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
RRUS 4449 B5/B12	C	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
RRUS 4478 B14	A	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
RRUS 4478 B14	B	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
RRUS 4478 B14	C	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
RRUS 8843 B2/B66A	A	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
RRUS 8843 B2/B66A	B	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
RRUS 8843 B2/B66A	C	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
DC6-48-60-18-8F	A	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
DC6-48-60-18-8F	B	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
TT19-08BP111-001	A	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
TT19-08BP111-001	B	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
TT19-08BP111-001	C	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
2.9" Dia. x 8-ft Mount Pipe	A	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
2.9" Dia. x 8-ft Mount Pipe	B	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
2.9" Dia. x 8-ft Mount Pipe	C	From Centroid-Leg	0.00	4.00	0.0000	148.00
			0.00	0.00		
Miscellaneous [NA 507-1]	C	None			0.0000	148.00
Platform Mount [LP 712-1]	C	None			0.0000	148.00
** 138 **						
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	136.00
			2.00	0.00		
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	136.00
			2.00	0.00		
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	136.00
			2.00	0.00		
TA08025-B604	A	From Leg	4.00	0.00	0.0000	136.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00		
TA08025-B604	B	From Leg	4.00	0.0000	136.00
			4.00		
TA08025-B604	C	From Leg	4.00	0.0000	136.00
			0.00		
TA08025-B605	A	From Leg	4.00	0.0000	136.00
			4.00		
TA08025-B605	B	From Leg	4.00	0.0000	136.00
			0.00		
TA08025-B605	C	From Leg	4.00	0.0000	136.00
			0.00		
RDIDC-9181-PF-48	A	From Leg	4.00	0.0000	136.00
			0.00		
(2) 2.4" Dia x 8-ft Mount Pipe	A	From Centroid-Leg	2.00	0.0000	138.00
			4.00		
(2) 2.4" Dia x 8-ft Mount Pipe	B	From Centroid-Leg	0.00	0.0000	138.00
			0.00		
(2) 2.4" Dia x 8-ft Mount Pipe	C	From Centroid-Leg	0.00	0.0000	138.00
			4.00		
Commscope MC-PK8-DSH ** 128 **	C	None	0.00	0.0000	138.00
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00	0.0000	128.00
			0.00		
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	0.00	0.0000	128.00
			4.00		
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	0.00	0.0000	128.00
			4.00		
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	0.00	0.0000	128.00
			4.00		
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	0.00	0.0000	128.00
			4.00		
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	0.00	0.0000	128.00
			4.00		
RADIO 4460 B2/B25 B66_TMO	A	From Leg	0.00	0.0000	128.00
			4.00		
RADIO 4460 B2/B25 B66_TMO	B	From Leg	0.00	0.0000	128.00
			4.00		
RADIO 4460 B2/B25 B66_TMO	C	From Leg	0.00	0.0000	128.00
			4.00		
RADIO 4480 B71_TMO	A	From Leg	0.00	0.0000	128.00
			4.00		
RADIO 4480 B71_TMO	B	From Leg	0.00	0.0000	128.00
			4.00		
RADIO 4480 B71_TMO	C	From Leg	0.00	0.0000	128.00
			4.00		

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00		
(2) 2.9" Dia. x 8-ft Mount Pipe	A	From Centroid-Leg	0.00 0.00 4.00	0.0000	128.00
(2) 2.9" Dia. x 8-ft Mount Pipe	B	From Centroid-Leg	0.00 0.00 4.00	0.0000	128.00
(2) 2.9" Dia. x 8-ft Mount Pipe	C	From Centroid-Leg	0.00 0.00 4.00	0.0000	128.00
SitePro1 RMQP-4096-HK ** 118 **	C	None	0.00	0.0000	128.00
(2) MX06FRO840-02_CCIV2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	118.00
(2) MX06FRO840-02_CCIV2 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	118.00
(2) MX06FRO860-03 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	118.00
MT6407-77A w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	118.00
MT6407-77A w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	118.00
MT6407-77A w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	118.00
RVZDC-6627-PF-48_CCIV2	A	From Leg	4.00 0.00 0.00	0.0000	118.00
RF4439D-25A	A	From Leg	4.00 0.00 0.00	0.0000	118.00
RF4439D-25A	B	From Leg	4.00 0.00 0.00	0.0000	118.00
RF4439D-25A	C	From Leg	4.00 0.00 0.00	0.0000	118.00
RF4440D-13A	A	From Leg	4.00 0.00 0.00	0.0000	118.00
RF4440D-13A	B	From Leg	4.00 0.00 0.00	0.0000	118.00
RF4440D-13A	C	From Leg	4.00 0.00 0.00	0.0000	118.00
(2) 12' x 2" Pipe Mount	A	From Leg	4.00 0.00 0.00	0.0000	118.00
(2) 12' x 2" Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	118.00
(2) 12' x 2" Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	118.00
Site Pro 1 F3P-HRK12	C	None	0.00	0.0000	118.00
Site Pro 1 F3P-12[W] *****	C	None	0.00	0.0000	118.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum 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 - 104.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.01	0.14	1.77
			Max. Mx	20	-18.10	378.63	2.73

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L2	104.5 - 68.75	Pole	Max. My	2	-18.06	2.42	383.88
			Max. Vy	20	-15.97	378.63	2.73
			Max. Vx	2	-16.18	2.42	383.88
			Max. Torque	24			-1.01
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.97	0.29	1.80
			Max. Mx	20	-23.01	959.40	3.20
			Max. My	2	-22.98	2.88	971.69
			Max. Vy	20	-17.42	959.40	3.20
			Max. Vx	2	-17.63	2.88	971.69
L3	68.75 - 34	Pole	Max. Torque	24			-0.98
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.25	0.44	1.71
			Max. Mx	20	-29.96	1578.02	3.57
			Max. My	2	-29.94	3.29	1596.98
			Max. Vy	20	-18.89	1578.02	3.57
			Max. Vx	2	-19.09	3.29	1596.98
			Max. Torque	22			-0.87
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.65	0.65	1.59
L4	34 - 0	Pole	Max. Mx	20	-39.73	2363.24	3.93
			Max. My	2	-39.73	3.73	2389.73
			Max. Vy	20	-20.30	2363.24	3.93
			Max. Vx	2	-20.49	3.73	2389.73
			Max. Torque	22			-0.77

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	57.65	0.00	6.45
	Max. H _x	20	39.75	20.28	0.01
	Max. H _z	2	39.75	0.01	20.46
	Max. M _x	2	2389.73	0.01	20.46
	Max. M _z	8	2362.37	-20.28	-0.01
	Max. Torsion	10	0.67	-17.56	-10.24
	Min. Vert	23	29.81	17.56	10.24
	Min. H _x	8	39.75	-20.28	-0.01
	Min. H _z	14	39.75	-0.01	-20.46
	Min. M _x	14	-2388.41	-0.01	-20.46
	Min. M _z	20	-2363.24	20.28	0.01
	Min. Torsion	22	-0.67	17.56	10.24

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
Dead Only	33.12	0.00	0.00	-0.47	0.33	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	39.75	-0.01	-20.46	-2389.73	3.73	0.44
0.9 Dead+1.0 Wind 0 deg - No Ice	29.81	-0.01	-20.46	-2342.42	3.51	0.44
1.2 Dead+1.0 Wind 30 deg - No Ice	39.75	10.13	-17.72	-2068.08	-1178.09	0.12
0.9 Dead+1.0 Wind 30 deg - No Ice	29.81	10.13	-17.72	-2027.12	-1155.01	0.12
1.2 Dead+1.0 Wind 60 deg - No Ice	39.75	17.56	-10.22	-1192.42	-2044.18	-0.23

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturing Moment, M _x kip-ft	Overturing Moment, M _z kip-ft	Torque kip-ft
0.9 Dead+1.0 Wind 60 deg - No Ice	29.81	17.56	-10.22	-1168.75	-2004.00	-0.23
1.2 Dead+1.0 Wind 90 deg - No Ice	39.75	20.28	0.01	2.63	-2362.37	-0.52
0.9 Dead+1.0 Wind 90 deg - No Ice	29.81	20.28	0.01	2.71	-2315.91	-0.52
1.2 Dead+1.0 Wind 120 deg - No Ice	39.75	17.56	10.24	1196.78	-2047.41	-0.67
0.9 Dead+1.0 Wind 120 deg - No Ice	29.81	17.56	10.24	1173.30	-2007.14	-0.67
1.2 Dead+1.0 Wind 150 deg - No Ice	39.75	10.15	17.72	2070.01	-1183.74	-0.64
0.9 Dead+1.0 Wind 150 deg - No Ice	29.81	10.15	17.72	2029.32	-1160.48	-0.64
1.2 Dead+1.0 Wind 180 deg - No Ice	39.75	0.01	20.46	2388.41	-2.83	-0.44
0.9 Dead+1.0 Wind 180 deg - No Ice	29.81	0.01	20.46	2341.47	-2.85	-0.44
1.2 Dead+1.0 Wind 210 deg - No Ice	39.75	-10.13	17.72	2066.75	1178.97	-0.12
0.9 Dead+1.0 Wind 210 deg - No Ice	29.81	-10.13	17.72	2026.17	1155.65	-0.12
1.2 Dead+1.0 Wind 240 deg - No Ice	39.75	-17.56	10.22	1191.10	2045.04	0.23
0.9 Dead+1.0 Wind 240 deg - No Ice	29.81	-17.56	10.22	1167.81	2004.64	0.23
1.2 Dead+1.0 Wind 270 deg - No Ice	39.75	-20.28	-0.01	-3.93	2363.24	0.52
0.9 Dead+1.0 Wind 270 deg - No Ice	29.81	-20.28	-0.01	-3.64	2316.54	0.52
1.2 Dead+1.0 Wind 300 deg - No Ice	39.75	-17.56	-10.24	-1198.06	2048.29	0.67
0.9 Dead+1.0 Wind 300 deg - No Ice	29.81	-17.56	-10.24	-1174.22	2007.78	0.67
1.2 Dead+1.0 Wind 330 deg - No Ice	39.75	-10.15	-17.72	-2071.30	1184.64	0.64
0.9 Dead+1.0 Wind 330 deg - No Ice	29.81	-10.15	-17.72	-2030.25	1161.14	0.64
1.2 Dead+1.0 Ice+1.0 Temp	57.65	-0.00	-0.00	-1.59	0.65	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	57.65	-0.00	-6.45	-762.73	1.35	-0.24
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	57.65	3.21	-5.59	-660.45	-376.53	-0.16
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	57.65	5.56	-3.22	-381.66	-653.34	-0.04
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	57.65	6.42	0.00	-1.08	-754.90	0.09
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	57.65	5.56	3.23	379.33	-654.00	0.20
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	57.65	3.21	5.59	657.63	-377.68	0.25
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	57.65	0.00	6.45	759.26	0.03	0.24
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	57.65	-3.21	5.59	656.98	377.91	0.16
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	57.65	-5.56	3.22	378.19	654.72	0.04
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	57.65	-6.42	-0.00	-2.40	756.28	-0.09
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	57.65	-5.56	-3.23	-382.80	655.38	-0.19
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	57.65	-3.21	-5.59	-661.10	379.05	-0.25
Dead+Wind 0 deg - Service	33.12	-0.00	-5.25	-606.48	1.19	0.12
Dead+Wind 30 deg - Service	33.12	2.60	-4.54	-524.90	-298.56	0.03
Dead+Wind 60 deg - Service	33.12	4.50	-2.62	-302.81	-518.22	-0.06
Dead+Wind 90 deg - Service	33.12	5.20	0.00	0.29	-598.90	-0.14
Dead+Wind 120 deg - Service	33.12	4.50	2.63	303.15	-519.04	-0.18

Load Combination	Vertical	Shear _x	Shear _z	Overtuning Moment, M _x	Overtuning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 150 deg - Service	33.12	2.60	4.55	524.65	-299.99	-0.17
Dead+Wind 180 deg - Service	33.12	0.00	5.25	605.40	-0.47	-0.12
Dead+Wind 210 deg - Service	33.12	-2.60	4.54	523.82	299.28	-0.03
Dead+Wind 240 deg - Service	33.12	-4.50	2.62	301.72	518.93	0.06
Dead+Wind 270 deg - Service	33.12	-5.20	-0.00	-1.37	599.61	0.14
Dead+Wind 300 deg - Service	33.12	-4.50	-2.63	-304.24	519.76	0.18
Dead+Wind 330 deg - Service	33.12	-2.60	-4.55	-525.73	300.71	0.17

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-33.12	0.00	0.00	33.12	0.00	0.000%
2	-0.01	-39.75	-20.46	0.01	39.75	20.46	0.000%
3	-0.01	-29.81	-20.46	0.01	29.81	20.46	0.000%
4	10.13	-39.75	-17.72	-10.13	39.75	17.72	0.000%
5	10.13	-29.81	-17.72	-10.13	29.81	17.72	0.000%
6	17.56	-39.75	-10.22	-17.56	39.75	10.22	0.000%
7	17.56	-29.81	-10.22	-17.56	29.81	10.22	0.000%
8	20.28	-39.75	0.01	-20.28	39.75	-0.01	0.000%
9	20.28	-29.81	0.01	-20.28	29.81	-0.01	0.000%
10	17.56	-39.75	10.24	-17.56	39.75	-10.24	0.000%
11	17.56	-29.81	10.24	-17.56	29.81	-10.24	0.000%
12	10.15	-39.75	17.72	-10.15	39.75	-17.72	0.000%
13	10.15	-29.81	17.72	-10.15	29.81	-17.72	0.000%
14	0.01	-39.75	20.46	-0.01	39.75	-20.46	0.000%
15	0.01	-29.81	20.46	-0.01	29.81	-20.46	0.000%
16	-10.13	-39.75	17.72	10.13	39.75	-17.72	0.000%
17	-10.13	-29.81	17.72	10.13	29.81	-17.72	0.000%
18	-17.56	-39.75	10.22	17.56	39.75	-10.22	0.000%
19	-17.56	-29.81	10.22	17.56	29.81	-10.22	0.000%
20	-20.28	-39.75	-0.01	20.28	39.75	0.01	0.000%
21	-20.28	-29.81	-0.01	20.28	29.81	0.01	0.000%
22	-17.56	-39.75	-10.24	17.56	39.75	10.24	0.000%
23	-17.56	-29.81	-10.24	17.56	29.81	10.24	0.000%
24	-10.15	-39.75	-17.72	10.15	39.75	17.72	0.000%
25	-10.15	-29.81	-17.72	10.15	29.81	17.72	0.000%
26	0.00	-57.65	0.00	0.00	57.65	0.00	0.000%
27	-0.00	-57.65	-6.45	0.00	57.65	6.45	0.000%
28	3.21	-57.65	-5.59	-3.21	57.65	5.59	0.000%
29	5.56	-57.65	-3.22	-5.56	57.65	3.22	0.000%
30	6.42	-57.65	0.00	-6.42	57.65	-0.00	0.000%
31	5.56	-57.65	3.23	-5.56	57.65	-3.23	0.000%
32	3.21	-57.65	5.59	-3.21	57.65	-5.59	0.000%
33	0.00	-57.65	6.45	-0.00	57.65	-6.45	0.000%
34	-3.21	-57.65	5.59	3.21	57.65	-5.59	0.000%
35	-5.56	-57.65	3.22	5.56	57.65	-3.22	0.000%
36	-6.42	-57.65	-0.00	6.42	57.65	0.00	0.000%
37	-5.56	-57.65	-3.23	5.56	57.65	3.23	0.000%
38	-3.21	-57.65	-5.59	3.21	57.65	5.59	0.000%
39	-0.00	-33.12	-5.25	0.00	33.12	5.25	0.000%
40	2.60	-33.12	-4.54	-2.60	33.12	4.54	0.000%
41	4.50	-33.12	-2.62	-4.50	33.12	2.62	0.000%
42	5.20	-33.12	0.00	-5.20	33.12	-0.00	0.000%
43	4.50	-33.12	2.63	-4.50	33.12	-2.63	0.000%
44	2.60	-33.12	4.55	-2.60	33.12	-4.55	0.000%
45	0.00	-33.12	5.25	-0.00	33.12	-5.25	0.000%
46	-2.60	-33.12	4.54	2.60	33.12	-4.54	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
47	-4.50	-33.12	2.62	4.50	33.12	-2.62	0.000%
48	-5.20	-33.12	-0.00	5.20	33.12	0.00	0.000%
49	-4.50	-33.12	-2.63	4.50	33.12	2.63	0.000%
50	-2.60	-33.12	-4.55	2.60	33.12	4.55	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00014636
3	Yes	5	0.00000001	0.00006886
4	Yes	6	0.00000001	0.00068927
5	Yes	6	0.00000001	0.00023330
6	Yes	6	0.00000001	0.00068700
7	Yes	6	0.00000001	0.00023280
8	Yes	5	0.00000001	0.00015507
9	Yes	5	0.00000001	0.00007298
10	Yes	6	0.00000001	0.00067894
11	Yes	6	0.00000001	0.00022921
12	Yes	6	0.00000001	0.00070326
13	Yes	6	0.00000001	0.00023818
14	Yes	5	0.00000001	0.00020753
15	Yes	5	0.00000001	0.00009937
16	Yes	6	0.00000001	0.00068247
17	Yes	6	0.00000001	0.00023086
18	Yes	6	0.00000001	0.00068039
19	Yes	6	0.00000001	0.00023035
20	Yes	5	0.00000001	0.00021654
21	Yes	5	0.00000001	0.00010342
22	Yes	6	0.00000001	0.00070249
23	Yes	6	0.00000001	0.00023793
24	Yes	6	0.00000001	0.00068249
25	Yes	6	0.00000001	0.00022994
26	Yes	4	0.00000001	0.00003743
27	Yes	6	0.00000001	0.00023423
28	Yes	6	0.00000001	0.00033816
29	Yes	6	0.00000001	0.00033842
30	Yes	6	0.00000001	0.00023108
31	Yes	6	0.00000001	0.00033523
32	Yes	6	0.00000001	0.00033611
33	Yes	6	0.00000001	0.00023171
34	Yes	6	0.00000001	0.00033551
35	Yes	6	0.00000001	0.00033366
36	Yes	6	0.00000001	0.00023137
37	Yes	6	0.00000001	0.00034041
38	Yes	6	0.00000001	0.00034113
39	Yes	4	0.00000001	0.00032159
40	Yes	5	0.00000001	0.00013207
41	Yes	5	0.00000001	0.00013134
42	Yes	4	0.00000001	0.00031667
43	Yes	5	0.00000001	0.00012486
44	Yes	5	0.00000001	0.00013794
45	Yes	4	0.00000001	0.00032408
46	Yes	5	0.00000001	0.00012808
47	Yes	5	0.00000001	0.00012741
48	Yes	4	0.00000001	0.00032222
49	Yes	5	0.00000001	0.00013857
50	Yes	5	0.00000001	0.00012684

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 104.5	30.137	39	1.8248	0.0049
L2	108.75 - 68.75	15.456	39	1.4402	0.0017
L3	74 - 34	6.840	39	0.8892	0.0006
L4	40 - 0	1.984	39	0.4542	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	1/2" x 4' L Rod	39	30.137	1.8248	0.0049	27515
148.00	DMP65R-BU6D w/ Mount Pipe	39	29.376	1.8103	0.0047	27515
138.00	(2) 2.4" Dia x 8-ft Mount Pipe	39	25.595	1.7360	0.0038	11464
136.00	MX08FRO665-21 w/ Mount Pipe	39	24.848	1.7203	0.0037	9826
128.00	AIR6449 B41_T-MOBILE w/ Mount Pipe	39	21.918	1.6527	0.0030	6252
118.00	(2) MX06FRO840-02_CCIV2 w/ Mount Pipe	39	18.433	1.5532	0.0022	4298

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 104.5	118.882	2	7.2085	0.0189
L2	108.75 - 68.75	61.002	2	5.6920	0.0064
L3	74 - 34	26.993	2	3.5123	0.0023
L4	40 - 0	7.823	2	1.7923	0.0009

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	1/2" x 4' L Rod	2	118.882	7.2085	0.0189	7171
148.00	DMP65R-BU6D w/ Mount Pipe	2	115.882	7.1513	0.0182	7171
138.00	(2) 2.4" Dia x 8-ft Mount Pipe	2	100.977	6.8584	0.0148	2986
136.00	MX08FRO665-21 w/ Mount Pipe	2	98.035	6.7967	0.0141	2559
128.00	AIR6449 B41_T-MOBILE w/ Mount Pipe	2	86.484	6.5307	0.0115	1626
118.00	(2) MX06FRO840-02_CCIV2 w/ Mount Pipe	2	72.743	6.1382	0.0086	1115

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 P _u / φP _n
L1	150 - 104.5 (1)	TP28.1875x18x0.1875	45.50	0.00	0.0	16.097 2	-18.06	941.69	0.019
L2	104.5 - 68.75 (2)	TP35.75x26.8609x0.25	40.00	0.00	0.0	27.243 5	-22.98	1593.74	0.014
L3	68.75 - 34 (3)	TP43x34.0833x0.3125	40.00	0.00	0.0	41.014 0	-29.94	2399.32	0.012
L4	34 - 0 (4)	TP50x41.0375x0.3125	40.00	0.00	0.0	49.283 8	-39.73	2883.10	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio M _{ux} / φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} / φM _{ny}
L1	150 - 104.5 (1)	TP28.1875x18x0.1875	384.52	583.66	0.659	0.00	583.66	0.000
L2	104.5 - 68.75 (2)	TP35.75x26.8609x0.25	971.69	1278.26	0.760	0.00	1278.26	0.000
L3	68.75 - 34 (3)	TP43x34.0833x0.3125	1596.98	2349.59	0.680	0.00	2349.59	0.000
L4	34 - 0 (4)	TP50x41.0375x0.3125	2389.72	3146.22	0.760	0.00	3146.22	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V _u K	φV _n K	Ratio V _u / φV _n	Actual T _u kip-ft	φT _n kip-ft	Ratio T _u / φT _n
L1	150 - 104.5 (1)	TP28.1875x18x0.1875	16.14	282.51	0.057	1.00	669.19	0.001
L2	104.5 - 68.75 (2)	TP35.75x26.8609x0.25	17.63	478.12	0.037	0.65	1437.59	0.000
L3	68.75 - 34 (3)	TP43x34.0833x0.3125	19.09	719.80	0.027	0.56	2606.54	0.000
L4	34 - 0 (4)	TP50x41.0375x0.3125	20.49	864.93	0.024	0.45	3763.64	0.000

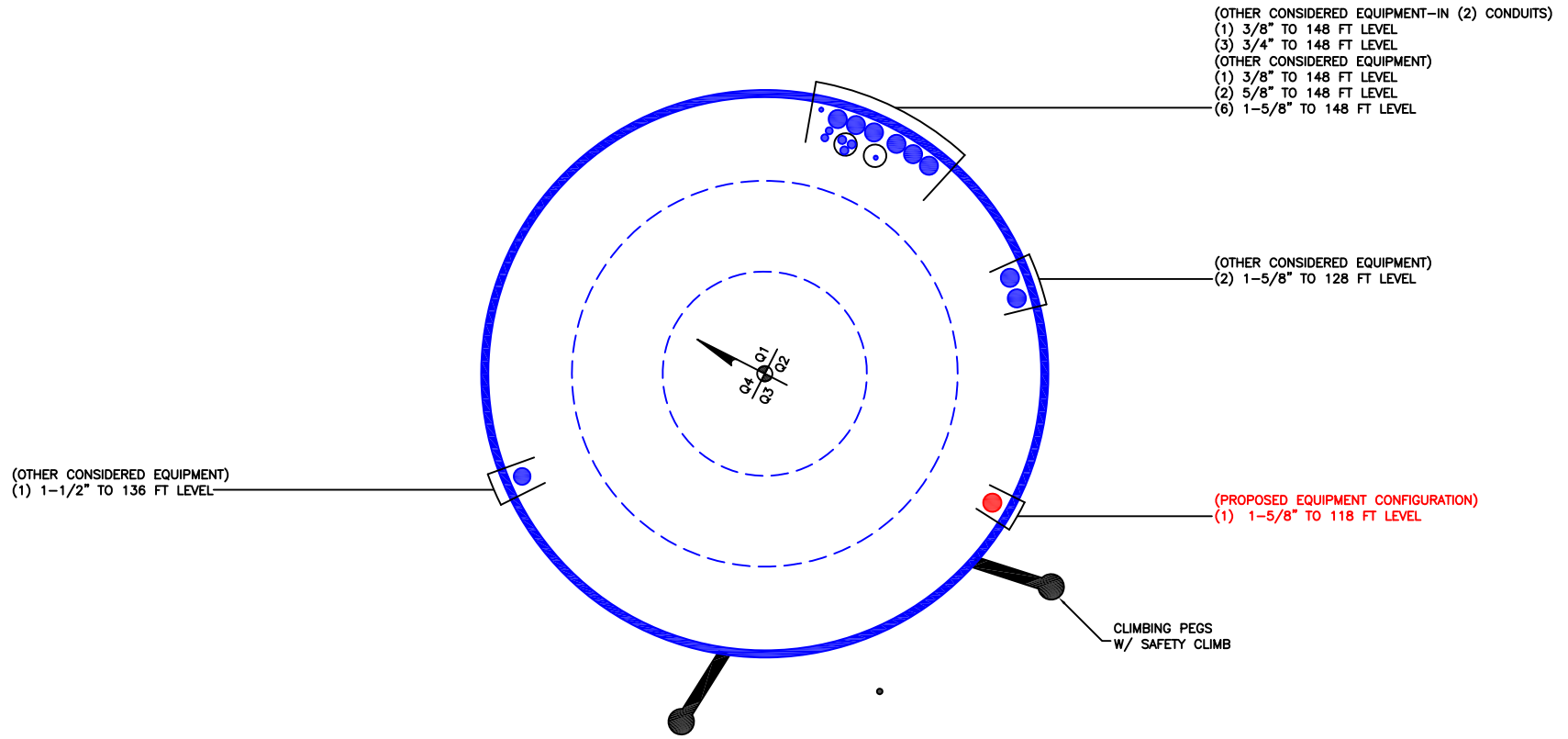
Pole Interaction Design Data

Section No.	Elevation ft	Ratio P _u / φP _n	Ratio M _{ux} / φM _{nx}	Ratio M _{uy} / φM _{ny}	Ratio V _u / φV _n	Ratio T _u / φT _n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 104.5 (1)	0.019	0.659	0.000	0.057	0.001	0.681	1.050	4.8.2
L2	104.5 - 68.75 (2)	0.014	0.760	0.000	0.037	0.000	0.776	1.050	4.8.2
L3	68.75 - 34 (3)	0.012	0.680	0.000	0.027	0.000	0.693	1.050	4.8.2
L4	34 - 0 (4)	0.014	0.760	0.000	0.024	0.000	0.774	1.050	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 - 104.5	Pole	TP28.1875x18x0.1875	1	-18.06	988.77	64.9	Pass	
L2	104.5 - 68.75	Pole	TP35.75x26.8609x0.25	2	-22.98	1673.43	73.9	Pass	
L3	68.75 - 34	Pole	TP43x34.0833x0.3125	3	-29.94	2519.29	66.0	Pass	
L4	34 - 0	Pole	TP50x41.0375x0.3125	4	-39.73	3027.25	73.7	Pass	
							Summary		
							Pole (L2)	73.9	Pass
							RATING =	73.9	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

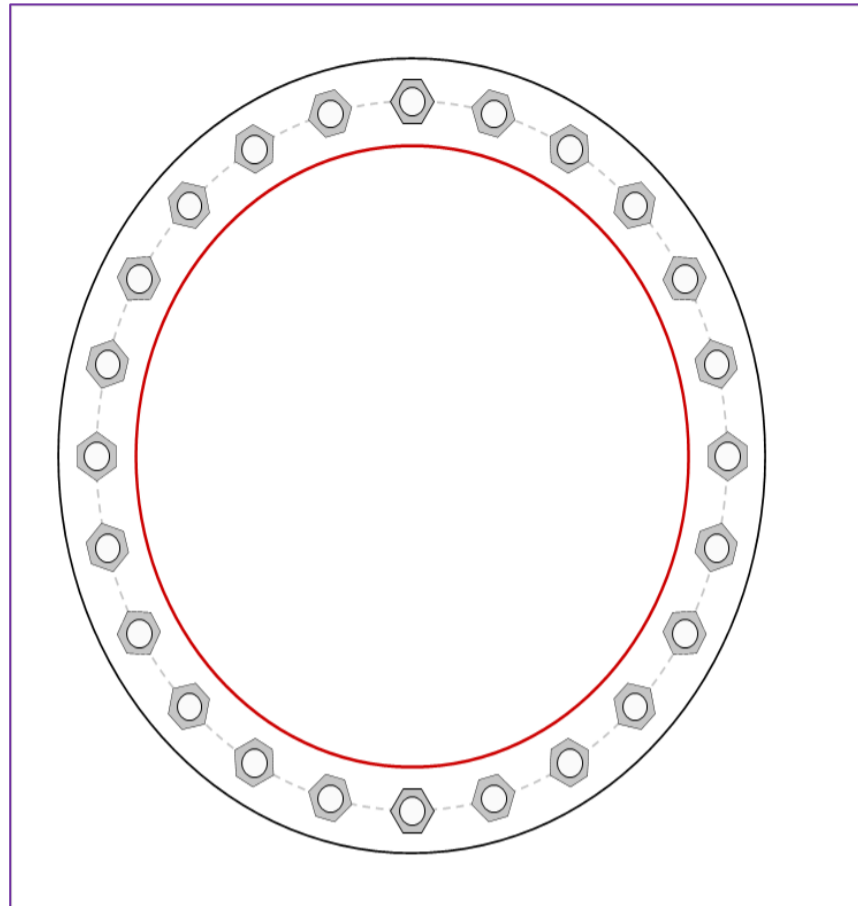


Site Info	
BU #	857528
Site Name	Woodbury Paper Mill R
Order #	644453 Rev. 0

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

Applied Loads	
Moment (kip-ft)	2389.73
Axial Force (kips)	39.73
Shear Force (kips)	20.49

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
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Anchor Rod Data
(24) 2-1/4" ϕ bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 57" BC
Base Plate Data
64" OD x 2.25" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)
Stiffener Data
N/A
Pole Data
50" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Anchor Rod Summary			<i>(units of kips, kip-in)</i>
$P_{u,t}$ = 82.14	$\phi P_{n,t}$ = 243.75	Stress Rating	
V_u = 0.85	ϕV_n = 149.1	32.1%	
M_u = n/a	ϕM_n = n/a	Pass	
Base Plate Summary			
Max Stress (ksi):	22.01	(Flexural)	
Allowable Stress (ksi):	45		
Stress Rating:	46.6%	Pass	

Pier and Pad Foundation



BU #: 857528
Site Name: Woodbury Paper M
App. Number: 644453 Rev. 0

TIA-222 Revision: H
Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	39.75	kips
Base Shear, V_{u_comp} :	20.46	kips
Moment, M_u :	2389.73	ft-kips
Tower Height, H :	150	ft
BP Dist. Above Fdn, bp_{dist} :	4.25	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	71.28	20.46	27.3%	Pass
<i>Bearing Pressure (ksf)</i>	9.00	3.08	34.2%	Pass
<i>Overturning (kip*ft)</i>	3314.62	2489.05	75.1%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	6241.43	2430.65	37.1%	Pass
<i>Pier Compression (kip)</i>	21120.36	51.70	0.2%	Pass
<i>Pad Flexure (kip*ft)</i>	4232.26	1104.97	24.9%	Pass
<i>Pad Shear - 1-way (kips)</i>	685.65	178.71	24.8%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.190	0.037	18.7%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	4903.88	1458.39	28.3%	Pass

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, $dpier$:	6.5	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	10	
Pier Rebar Quantity, mc :	34	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Structural Rating*:	37.1%
Soil Rating*:	75.1%

Pad Properties		
Depth, D :	4	ft
Pad Width, W_1 :	24	ft
Pad Thickness, T :	2.5	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	10	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	31	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	4	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	90	pcf
Ultimate Gross Bearing, Q_{ult} :	12.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	0	degrees
SPT Blow Count, N_{blows} :	79	
Base Friction, μ :	0.3	
Neglected Depth, N :	3.33	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	N/A	ft

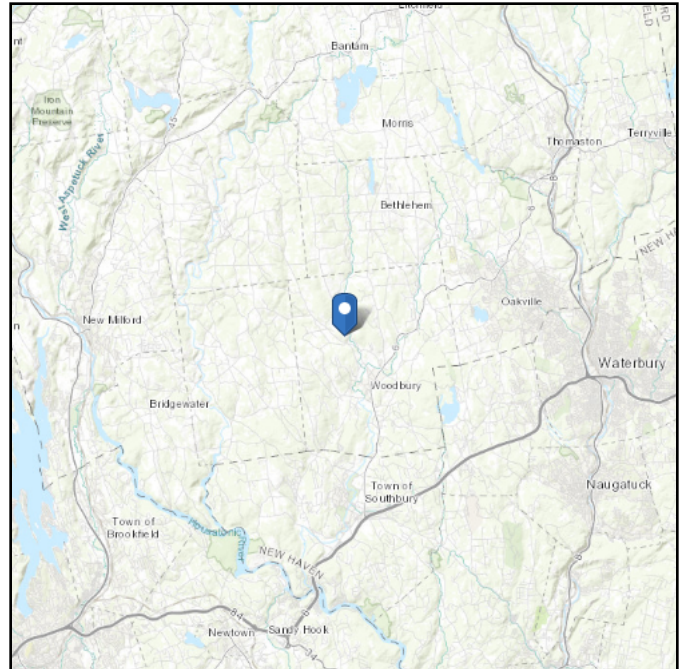
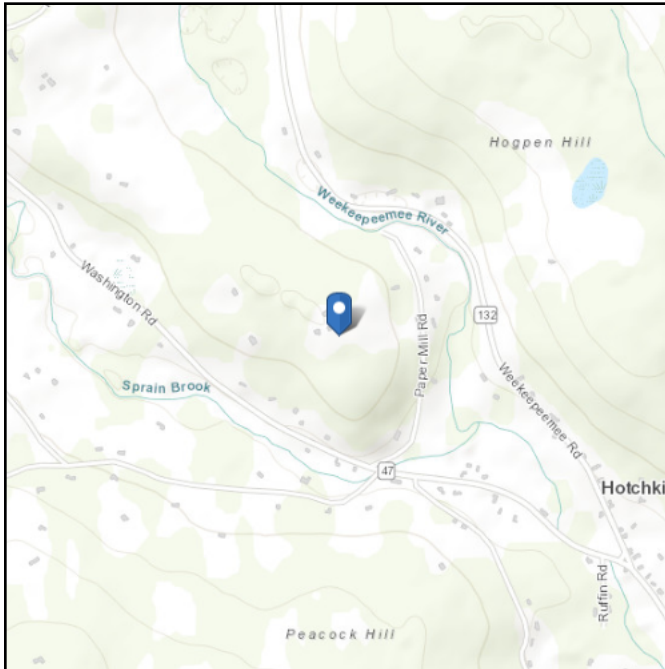
<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Latitude: 41.573075
Longitude: -73.227642
Elevation: 528.06 ft (NAVD 88)



Wind

Results:

Wind Speed	115 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	89 Vmph
100-year MRI	96 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Feb 01 2023

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

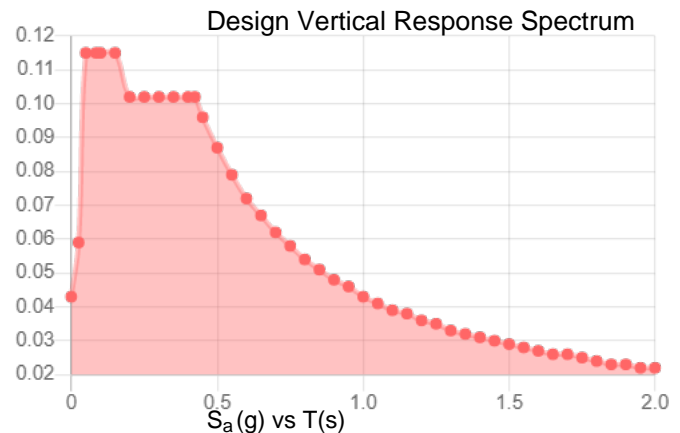
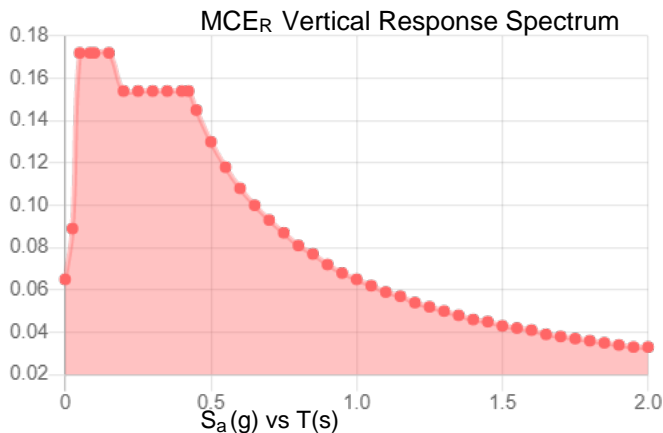
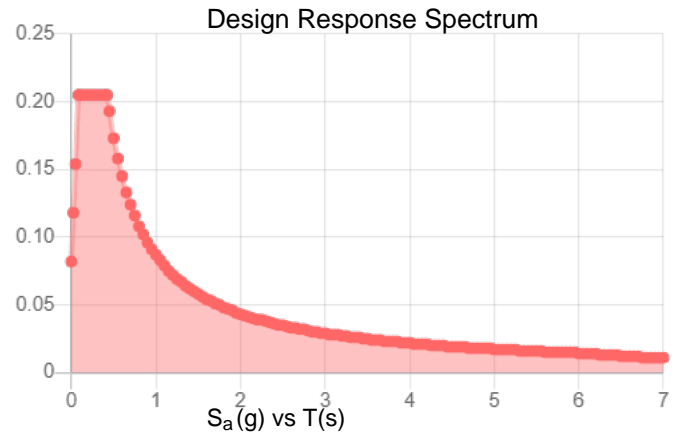
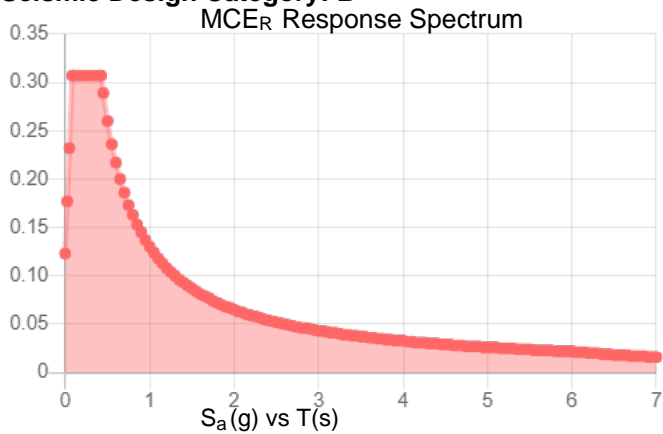
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class:

Results:

S_s :	0.192	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.106
F_v :	2.4	PGA _M :	0.168
S_{MS} :	0.307	F_{PGA} :	1.589
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.205	C_v :	0.7

Seismic Design Category: B



Data Accessed:

Wed Feb 01 2023

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Wed Feb 01 2023

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

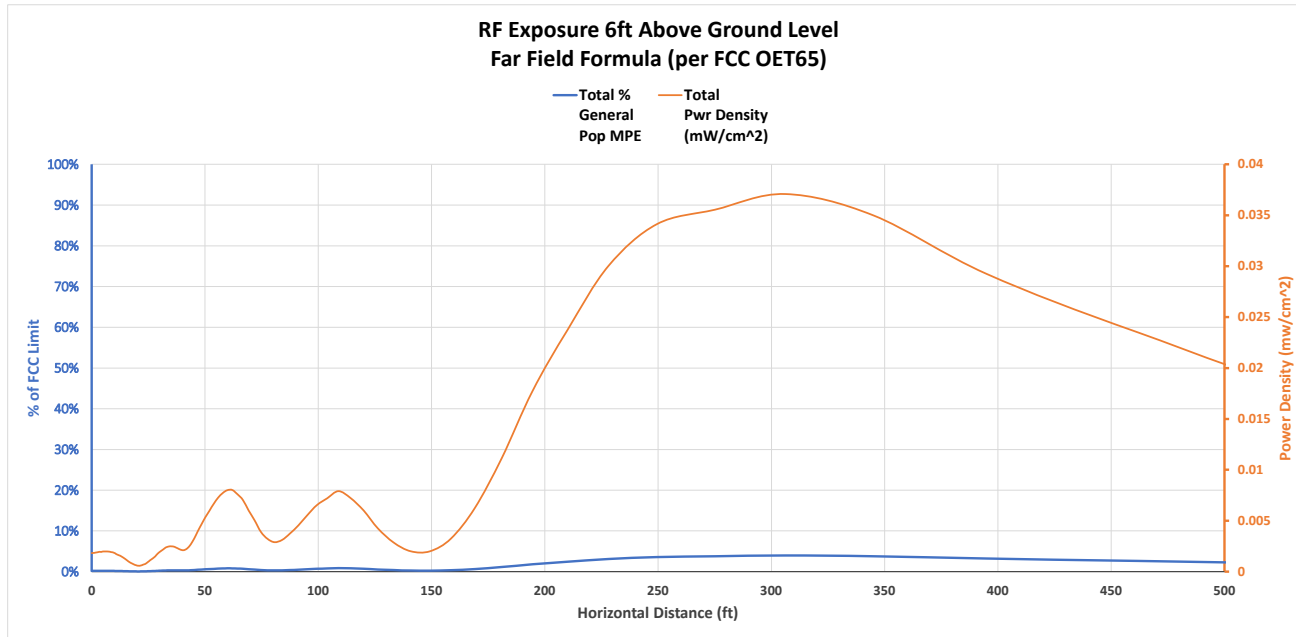
Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from 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.

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Location	WOODBURY NW CT				
Date	1/26/2023				
Band	C-Band	AWS	PCS	850-LTE	700
Operating Frequency (MHz)	3,700	2,145	1,970	880	746
General Population MPE (mW/cm ²)	1	1	1	0.586666667	0.497333333
ERP Per Transmitter (Watts)	13,335	1,622	1,549	495	543
Number of Transmitters	2	4	4	4	4
Antenna Centerline (feet)	118	118	118	118	118
Total ERP (Watts)	12,735	3,981	2,138	851	1,820
Total ERP (dBm)	71	66	63	59	63
Maximum % of General Population Limit	4.0%				



Angle Below Horizon	Power Density (mW/cm ²)					Percent of General Population MPE										Distance	Total Pwr Density (mW/cm ²)	Total % General Pop MPE
	C-Band	AWS	PCS	850-LTE	700 MHz	39GHz	28GHz	C-Band	CBRS	AWS	PCS	Cellular	CDMA	700 MHz				
90	0.001804711	6.05909E-07	1.0457E-07	1.18689E-05	1.5396E-05	0.00%	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0	0.001832687	0.19%
89	0.001804608	1.09492E-06	1.81712E-08	1.16516E-05	1.57537E-05	0.00%	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.846570649	0.001833127	0.19%
88	0.001846326	2.60201E-06	8.71582E-08	1.13321E-05	1.50075E-05	0.00%	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.69365732	0.001875355	0.19%
87	0.001871475	4.99096E-06	3.35107E-07	1.07941E-05	1.34333E-05	0.00%	0.00%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.541777295	0.001901029	0.19%
86	0.001914299	7.46465E-06	6.65287E-07	9.97725E-06	1.15348E-05	0.00%	0.00%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.391450379	0.001943941	0.20%
85	0.001913308	8.94921E-06	1.02279E-06	8.94923E-06	9.79004E-06	0.00%	0.00%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.243200181	0.001942019	0.20%
84	0.001956632	8.65982E-06	1.59041E-06	7.87971E-06	8.40444E-06	0.00%	0.00%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.09755541	0.001983166	0.20%
83	0.001955157	6.7481E-06	2.54789E-06	6.95317E-06	7.4333E-06	0.00%	0.00%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.955051204	0.00197884	0.20%
82	0.001953449	4.39341E-06	3.72222E-06	6.36507E-06	6.91516E-06	0.00%	0.00%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.816230483	0.001974845	0.20%
81	0.001951505	2.94693E-06	4.6491E-06	6.27149E-06	6.87653E-06	0.00%	0.00%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.681645356	0.001972249	0.20%
80	0.001904948	2.99146E-06	5.17467E-06	6.72797E-06	7.22575E-06	0.00%	0.00%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.551858564	0.001927068	0.19%
79	0.001859266	3.85781E-06	5.61489E-06	7.80445E-06	7.85853E-06	0.00%	0.00%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.427444993	0.001884402	0.19%
78	0.001773143	4.37264E-06	6.32038E-06	9.54432E-06	8.64458E-06	0.00%	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.30899324	0.001802025	0.18%
77	0.001652299	3.9363E-06	7.36357E-06	1.19699E-05	9.39915E-06	0.00%	0.00%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	11.19710727	0.001684968	0.17%

76	0.001575341	2.87326E-06	8.83841E-06	1.50098E-05	9.89405E-06	0.00%	0.00%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.09240814	0.001611956	0.16%
75	0.001467573	1.82221E-06	1.14446E-05	1.84332E-05	9.87642E-06	0.00%	0.00%	0.15%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.99553583	0.001509149	0.15%
74	0.001335865	1.19334E-06	1.63592E-05	2.18154E-05	9.19946E-06	0.00%	0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	13.90715121	0.001384433	0.14%
73	0.001188123	1.19361E-06	2.44828E-05	2.47094E-05	7.84985E-06	0.00%	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.82793805	0.001246359	0.13%
72	0.001090007	1.9315E-06	3.56364E-05	2.67236E-05	6.23582E-06	0.00%	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.75860527	0.001079534	0.11%
71	0.00084695	3.06096E-06	4.90747E-05	2.75333E-05	5.12694E-06	0.00%	0.00%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.69989824	0.000931746	0.10%
70	0.000719037	3.60372E-06	6.37897E-05	2.72115E-05	5.04372E-06	0.00%	0.00%	0.07%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	17.65255636	0.000818685	0.08%
69	0.000596445	2.82209E-06	7.89896E-05	2.60958E-05	6.70765E-06	0.00%	0.00%	0.06%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	18.61740577	0.00071106	0.07%
68	0.000494667	1.27442E-06	9.29636E-05	2.45649E-05	1.24828E-05	0.00%	0.00%	0.05%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	19.59527195	0.000625953	0.07%
67	0.000426557	4.72037E-07	0.000102796	2.30663E-05	2.45458E-05	0.00%	0.00%	0.04%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	20.58702859	0.000577437	0.06%
66	0.000435068	1.1576E-06	0.000106306	2.1655E-05	4.22238E-05	0.00%	0.00%	0.04%	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%	21.59359124	0.00060641	0.07%
65	0.000486464	2.73559E-06	0.000101403	2.0326E-05	6.57735E-05	0.00%	0.00%	0.05%	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%	22.61592142	0.000676702	0.08%
64	0.000556486	5.15768E-06	8.71875E-05	1.90746E-05	9.62619E-05	0.00%	0.00%	0.06%	0.00%	0.00%	0.01%	0.00%	0.00%	0.02%	23.65503055	0.000764168	0.09%
63	0.000696247	1.11369E-05	6.52774E-05	1.76915E-05	0.000134203	0.00%	0.00%	0.07%	0.00%	0.00%	0.01%	0.00%	0.00%	0.03%	24.7119843	0.000924556	0.11%
62	0.000853048	2.56433E-05	3.89918E-05	1.59946E-05	0.000180706	0.00%	0.00%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	25.78790744	0.001114384	0.13%
61	0.000975168	5.22491E-05	1.51035E-05	1.39341E-05	0.000236635	0.00%	0.00%	0.10%	0.00%	0.01%	0.00%	0.00%	0.00%	0.05%	26.883989	0.00129309	0.15%
60	0.001091632	9.01729E-05	2.21858E-06	1.151E-05	0.000301353	0.00%	0.00%	0.11%	0.00%	0.01%	0.00%	0.00%	0.00%	0.06%	28.00148806	0.001496886	0.18%
59	0.001247263	0.000135506	9.09825E-06	8.93221E-06	0.000374937	0.00%	0.00%	0.12%	0.00%	0.01%	0.00%	0.00%	0.00%	0.08%	29.14174002	0.001775736	0.22%
58	0.001299329	0.000183958	4.24345E-05	6.96178E-06	0.000454694	0.00%	0.00%	0.13%	0.00%	0.02%	0.00%	0.00%	0.00%	0.09%	30.30616357	0.001897378	0.25%
57	0.001289297	0.000229801	0.000105524	7.33422E-06	0.000537468	0.00%	0.00%	0.13%	0.00%	0.02%	0.01%	0.00%	0.00%	0.11%	31.49626827	0.002169425	0.27%
56	0.001281894	0.00026537	0.000197175	1.25561E-05	0.000617806	0.00%	0.00%	0.13%	0.00%	0.03%	0.02%	0.00%	0.00%	0.12%	32.71366307	0.002374801	0.30%
55	0.001162008	0.000276191	0.000310605	2.46723E-05	0.000690572	0.00%	0.00%	0.12%	0.00%	0.03%	0.03%	0.00%	0.00%	0.14%	33.9600656	0.002464049	0.32%
54	0.001012549	0.00024684	0.000433926	4.5125E-05	0.000752343	0.00%	0.00%	0.10%	0.00%	0.02%	0.04%	0.01%	0.00%	0.15%	35.23731261	0.002490783	0.33%
53	0.000836495	0.000175171	0.00055394	7.43814E-05	0.000793347	0.00%	0.00%	0.08%	0.00%	0.02%	0.06%	0.01%	0.00%	0.16%	36.54737143	0.002433335	0.33%
52	0.000624226	8.34337E-05	0.000658175	0.000111775	0.000811599	0.00%	0.00%	0.06%	0.00%	0.01%	0.07%	0.03%	0.02%	0.16%	37.89235289	0.002289209	0.32%
51	0.000428589	2.51212E-05	0.000743089	0.000154897	0.000805454	0.00%	0.00%	0.04%	0.00%	0.00%	0.07%	0.03%	0.00%	0.16%	39.27452561	0.00215715	0.31%
50	0.000256183	6.91114E-05	0.000817616	0.000200702	0.000771879	0.00%	0.00%	0.03%	0.00%	0.01%	0.08%	0.03%	0.00%	0.16%	40.69633211	0.002115491	0.30%
49	0.000160271	0.000269064	0.000889904	0.000244825	0.000714258	0.00%	0.00%	0.02%	0.00%	0.03%	0.09%	0.04%	0.00%	0.14%	42.16040678	0.002277322	0.32%
48	0.000148233	0.000630877	0.000972623	0.000282453	0.000636714	0.00%	0.00%	0.01%	0.00%	0.06%	0.10%	0.05%	0.00%	0.13%	43.66959615	0.0026709	0.35%
47	0.000227407	0.00110358	0.001073504	0.000308891	0.000544257	0.00%	0.00%	0.02%	0.00%	0.11%	0.11%	0.05%	0.00%	0.11%	45.22698168	0.003287379	0.40%
46	0.000404965	0.001590072	0.00120065	0.000320198	0.000443013	0.00%	0.00%	0.04%	0.00%	0.16%	0.12%	0.05%	0.00%	0.09%	46.83590558	0.003958898	0.46%
45	0.000664916	0.001998788	0.001357583	0.000314607	0.000339443	0.00%	0.00%	0.07%	0.00%	0.20%	0.14%	0.05%	0.00%	0.07%	48.5	0.004675337	0.52%
44	0.001011195	0.002274233	0.001537569	0.000290962	0.000241454	0.00%	0.00%	0.10%	0.00%	0.23%	0.15%	0.05%	0.00%	0.05%	50.22322022	0.005355414	0.58%
43	0.001444115	0.002418809	0.001732213	0.000252117	0.000163532	0.00%	0.00%	0.14%	0.00%	0.24%	0.17%	0.04%	0.00%	0.03%	52.00988244	0.006010785	0.64%
42	0.001963561	0.002489111	0.001892536	0.000201858	0.000124178	0.00%	0.00%	0.20%	0.00%	0.25%	0.19%	0.03%	0.00%	0.02%	53.86470697	0.006671244	0.69%
41	0.002495397	0.002547648	0.001959473	0.000147279	0.000110698	0.00%	0.00%	0.25%	0.00%	0.25%	0.20%	0.03%	0.00%	0.02%	55.79286775	0.007260494	0.75%
40	0.003032919	0.002653754	0.001844423	9.39424E-05	9.67967E-05	0.00%	0.00%	0.30%	0.00%	0.27%	0.18%	0.02%	0.00%	0.02%	57.80004924	0.007721835	0.79%
39	0.0035496	0.002800137	0.001521175	4.74439E-05	8.53452E-05	0.00%	0.00%	0.35%	0.00%	0.28%	0.15%	0.01%	0.00%	0.02%	59.89251209	0.008003702	0.81%
38	0.003954251	0.002938083	0.001025803	2.3554E-05	7.56944E-05	0.00%	0.00%	0.40%	0.00%	0.29%	0.10%	0.00%	0.00%	0.02%	62.07716916	0.008017384	0.81%
37	0.004068933	0.002940901	0.000500588	1.81335E-05	6.06011E-05	0.00%	0.00%	0.41%	0.00%	0.29%	0.05%	0.00%	0.00%	0.01%	64.36167385	0.007589156	0.77%
36	0.004211052	0.002663118	0.000120058	1.21728E-05	3.415E-05	0.00%	0.00%	0.42%	0.00%	0.27%	0.01%	0.00%	0.00%	0.01%	66.75452314	0.007040551	0.71%
35	0.003915192	0.002040576	4.04346E-06	1.24381E-05	3.1315E-05	0.00%	0.00%	0.39%	0.00%	0.20%	0.00%	0.00%	0.00%	0.01%	69.26517833	0.006003565	0.60%
34	0.003635146	0.001179022	0.000136622	1.71208E-05	7.62995E-05	0.00%	0.00%	0.36%	0.00%	0.12%	0.01%	0.00%	0.00%	0.02%	71.90420697	0.00504421	0.51%
33	0.003017497	0.000395956	0.000363619	2.12152E-05	0.000102246	0.00%	0.00%	0.30%	0.00%	0.04%	0.04%	0.00%	0.00%	0.02%	74.68345075	0.003900533	0.40%
32	0.00256491	1.87531E-05	0.00048986	2.1236E-05	0.000122764	0.00%	0.00%	0.26%	0.00%	0.00%	0.05%	0.00%	0.00%	0.02%	77.61622466	0.003217523	0.34%
31	0.002146527	0.000169331	0.000416616	1.68166E-05	0.000142146	0.00%	0.00%	0.21%	0.00%	0.02%	0.04%	0.00%	0.00%	0.03%	80.71755489	0.002891437	0.30%
30	0.002087234	0.000636167	0.000210654	1.14175E-05	0.000163144	0.00%	0.00%	0.15%	0.00%	0.06%	0.02%	0.00%	0.00%	0.03%	84.00446417	0.003108617	0.33%
29	0.002474577	0.001017421	4.04111E-05	1.2204E-05	0.000189889	0.00%	0.00%	0.25%	0.00%	0.10%	0.00%	0.00%	0.00%	0.04%	87.49631613	0.003734502	0.39%
28	0.003224346	0.001038584	3.10772E-05	2.59085E-05	0.000227741	0.00%	0.00%	0.32%	0.00%	0.10%	0.00%	0.00%	0.00%	0.05%	91.21523357	0.004547657	0.48%
27	0.00429833	0.000759101	0.000156783	5.38643E-05	0.000285299	0.00%	0.00%	0.43%	0.00%	0.08%	0.02%	0.01%	0.00%	0.06%	95.18660952	0.005553377	0.59%
26	0.00533299	0.000470945	0.000271625	9.70447E-05	0.000369803	0.00%	0.00%	0.53%	0.00%	0.05%	0.03%	0.02%	0.00%	0.07%	99.43973632	0.006542408	0.70%
25	0.005947545	0.000383122	0.000251384	0.000158979	0.000479002	0.00%	0.00%	0.59%	0.00%	0.04%	0.03%	0.03%	0.00%	0.10%	104.0085856	0.007220033	0.78%
24	0.006520333	0.000425863	0.000119473	0.000241141	0.000593294	0.00%	0.00%	0.65%	0.00%	0.04%	0.01%	0.04%	0.00%	0.12%	108.9327835	0.007900103	0.87%
23	0.005802557	0.000379856	2.5919E-05	0.000334673	0.000683312	0.00%	0.00%	0.58%	0.00%	0.04%	0.00%	0.06%	0.00%	0.14%	114.2588397	0.007226317	0.82%
22	0.004573202	0.000184595	9.23039E-05	0.000423859	0.000723136	0.00%	0.00%	0.46%	0.00%	0.02%	0.01%	0.07%	0.00%	0.15%	120.0417124	0.005997096	0.70%
21	0.002728251	5.67393E-05	0.000277258	0.00048965	0.000693241	0.00%	0.00%	0.27%	0.00%	0.01%	0.03%	0.08%	0.00%	0.14%	126.3468196	0.004245139	0.53%
20	0.001115314	0.000237354	0.000403085	0.000514515	0.000590741	0.00%	0.00%	0.11%	0.00%	0.02%	0.04%	0.09%	0.00%	0.12%	133.2526548	0.00286101	0.38%
19	9.67196E-05	0.000649403	0.000333054	0.000485865	0.000431037	0.00%	0.00%	0.01%	0.00%	0.06%	0.03%	0.08%	0.00%	0.09%	140.8542276	0.001996	

5	0.014154317	2.90997E-05	3.80092E-05	0.000803323	0.001659162	0.00%	0.00%	1.42%	0.00%	0.00%	0.00%	0.14%	0.00%	0.33%	554.3575367	0.016683911	1.89%
4	0.008759277	0.000178841	0.000197455	0.000580055	0.001195276	0.00%	0.00%	0.88%	0.00%	0.02%	0.02%	0.10%	0.00%	0.24%	693.5823135	0.010910905	1.25%
3	0.004611444	0.000420569	0.000317568	0.00034901	0.000729183	0.00%	0.00%	0.46%	0.00%	0.04%	0.03%	0.06%	0.00%	0.15%	925.4351294	0.006427774	0.74%
2	0.001752721	0.000412774	0.000259246	0.000157657	0.000337064	0.00%	0.00%	0.18%	0.00%	0.04%	0.03%	0.03%	0.00%	0.07%	1388.858284	0.002919463	0.34%
1	0.000357683	0.000158306	8.98458E-05	3.81504E-05	8.44302E-05	0.00%	0.00%	0.04%	0.00%	0.02%	0.01%	0.01%	0.00%	0.02%	2778.563139	0.000728416	0.08%