Robinson+Cole

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts
and New York

December 9, 2022

Hand Delivered

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

Re: **Docket No. 442 – Application of Cellco Partnership d/b/a Verizon Wireless for a Certificate of Environmental Compatibility and Public Need for the Construction, Maintenance and Operation of a Wireless Telecommunications Facility at 284 New Canaan Avenue, Norwalk, Connecticut**

Development and Management Plan Submission for Cellco Partnership d/b/a Verizon Wireless ("Cellco") Unipole Tower

Dear Ms. Bachman:

Enclosed please find fifteen (15) copies of the following:

1. Final Development and Management ("D&M") Plans prepared by Hudson Design Group LLC for the Cellco telecommunications facility at 284 New Canaan Avenue, Norwalk, Connecticut, incorporating the Council's conditions of approval. Also enclosed are three (3) full size (24" x 36") sets of D&M plans.

2. Structure Design Report for the Unipole Tower and Tower Foundation dated December 8, 2022, by Sabre Industries Inc.

3. Geotechnical Engineering Report prepared by Terracon Consultants, Inc. dated January 26, 2022.

Together, this information constitutes the final D&M Plan submission for the second unipole structure approved at 284 New Canaan Avenue, Norwalk, Connecticut.

We respectfully request that this information be reviewed, and this matter be placed on the next available Siting Council agenda for approval. Please feel free to contact me if you have any questions or require additional information. Thank you.

Sincerely,

Kenneth C. Baldwin

KCB/kmd
Enclosures
Copy to:
Harry W. Rilling, Mayor, City of Norwalk
Kevin Moynihan, First Selectman, Town of New Canaan
Christopher B. Fisher, Esq., Cuddy & Feder LLP

CELLCO PARTNERSHIP

d.b.a. verizon

WIRELESS COMMUNICATIONS FACILITY

NORWALK 3 CT

284 NEW CANAAN AVENUE
NORWALK, CT 06850

VICINITY MAP — SCALE: N.T.S.

DIRECTIONS TO SITE: FROM VERIZON WALLINGFORD CT OFFICE

20 ALEXANDER DRIVE, WALLINGFORD, CT 06492

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

CONSULTANT TEAM

PROJECT ENGINEER

HUDSON DESIGN GROUP, LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: 1-(978)-557-5553
FAX: 1-(978)-336-5586

PROJECT SUMMARY

SITE NAME:	NORWALK 3 CT
SITE ADDRESS:	284 NEW CANAAN AVENUE NORWALK, CT 06850
APPLICANT:	CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
LATITUDE:	N 41° 08' 09.45"
LONGITUDE:	W 73° 27' 21.85"
PARCEL ID:	17508
PROPERTY OWNER:	INDIAN HILL RE LLC 46 INDIAN HILL ROAD WESTPORT, CT 06880

SHEET INDEX

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

UNDERGROUND SERVICE ALERT

811 DigSafe
WWW.DIGSAFE.COM
72 HOURS PRIOR

NOTE TO GENERAL CONTRACTOR:

'RF' DESIGN AND EQUIPMENT IS BASED UPON
RFDS ISSUED BY VZW DATED: 7/14/2021 REV 4
THE CONTRACTOR OF RECORD SHALL CONTACT VZW PRIOR TO ANY AND ALL ORDERING/PURCHASING/INSTALLATION OF EQUIPMENT TO VERIFY THAT THE 'RF' LISTED IN THE DRAWING SET IS CURRENT AND UP TO DATE.

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 21078
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	08/16/21	ADD ICE CANOPY,REV,NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAM
1	09/10/18	REVISED PER COMMENTS	KAM
0	08/13/18	ISSUED FOR REVIEW	KAM

SITE NAME:
NORWALK 3 CT

SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

DIVISION 01000 – GENERAL REQUIREMENTS

PART 1 GENERAL

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

PART 2 GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

13. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE STATE BASIC BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT/ENGINEER.

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

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

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

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

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

CONCRETE

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION

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

1.02 RELATED WORK

A. COORDINATE UNDER SLAB CONDUITS

B. COORDINATE WITH GROUNDING

1.03 APPLICABLE STANDARDS

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

B. ACI 347 – GUIDE TO FORMWORK FOR CONCRETE.

C. ASTM C33 – CONCRETE AGGREGATES

D. ASTM C94 – READY-MIXED CONCRETE

E. ASTM C150 – PORTLAND CEMENT

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

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

H. ASTM C494 – CHEMICAL ADMIXTURES FOR CONCRETE.

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

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

1.04 QUALITY ASSURANCE

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

1.05 TESTS

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

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

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

PART 2 – PRODUCT

2.01 CONCRETE MATERIALS

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

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

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

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

2.02 ADMIXTURES

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

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

2.04 ACCESSORIES

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

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

C. ANCHOR BOLTS: ASTM A307. UNPRIMED.

2.05 CONCRETE MIX

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

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

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

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

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

PART 3 – EXECUTION

3.01 INSPECTION

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

3.02 PREPARATION

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

3.03 PLACING CONCRETE

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

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

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

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

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

E. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST EARTH.....3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 AND LARGER.....1 1/2 IN.
#5 AND SMALLER & WWF.....1 1/2 IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND.
SLAB AND WALL.....3/4 IN.
BEAMS AND COLUMNS.....1 1/2 IN.

3.04 SURFACE FINISHES

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

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

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

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

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

3.05 PATCHING

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

3.06 DEFECTIVE CONCRETE

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

3.07 PROTECTION

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

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

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

METALS

PART 1 – GENERAL

1.01 WORK INCLUDED

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

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

2. WELDING AND BOLTING OF ATTACHMENTS.

1.02 REFERENCE STANDARDS

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

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

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

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

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

PART 2 – STRUCTURAL NOTES

ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND VERIZON SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-992-50 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION". MISC. STEEL TO BE A36.

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

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

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

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

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

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

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

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

9. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". 14TH EDITION.

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

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

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

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

WOOD

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

SPECIAL CONSTRUCTION ANTENNA INSTALLATION

PART 1 – GENERAL

1.01 WORK INCLUDED

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

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

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

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

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

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

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

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CHARTER SIZE	SLY
4	06/18/21	ADD ICE CANOPY,REV,/NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAH
1	09/10/18	REVISED PER COMMENTS	KAH
0	08/13/18	ISSUED FOR REVIEW	KAH

SITE NAME:

NORWALK 3 CT

SITE ADDRESS:

284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE

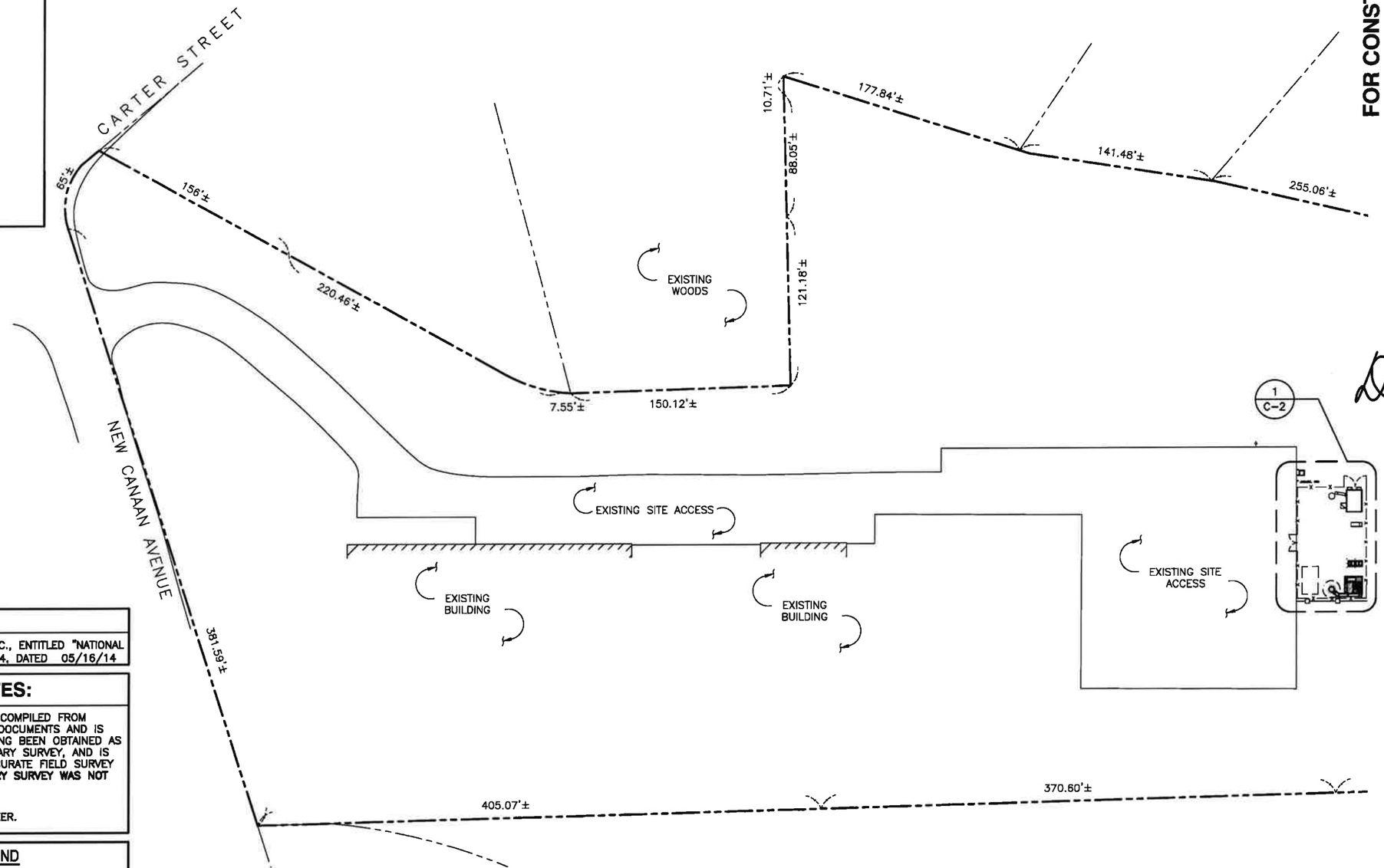
GENERAL NOTES

SHEET NUMBER

GN-1

LEGEND

- PROPERTY LINE – SUBJECT PARCEL
- ABUTTERS PROPERTY LINE
- EXISTING CONTOUR LINE
- TREE LINE
- BARBED WIRE FENCE REMAINS
- OHW — OVERHEAD WIRE
- EXISTING RAIL FENCE
- WETLAND FLAG LINE
- ⊡ 1–22 — WETLAND FLAG NUMBER
- CONIFEROUS TREE
- DECIDUOUS TREE
- STONE WALL
- TOWER CONTROL POINT
- WELL
- UTILITY POLE
- × 197.0 — EXISTING SPOT ELEVATION
- TOW — TOP OF WALL
- BOW — BOTTOM OF WALL
- EXISTING BUILDING
- SILT SOCK
- PROPOSED FENCE



SOURCE:

PLAN BY DEWBERRY ENGINEERS,INC., ENTITLED "NATIONAL GUARD ARMORY" DRAWING No. S-4, DATED 05/16/14

SITE SPECIFIC NOTES:

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

LEGEND

- PROPERTY LINE–SUBJECT PARCEL
- PROPERTY LINE–ABUTTERS
- TOWN BOUNDARY LINE
- CONTOUR LINE
- DELINEATED WETLAND LINE
- (E) BUILDING
- XXX–XX — ASSESSORS MAP–BLOCK–LOT NO.
- (E) TREE LINE

MAGNETIC NORTH 14°02'
TRUE NORTH

SITE PLAN 1 C-1
22x34 SCALE: 1"=40'-0"
11x17 SCALE: 1"=80'-0"

GRAPHIC SCALE
0 20 40 80 120 FEET

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 20179
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

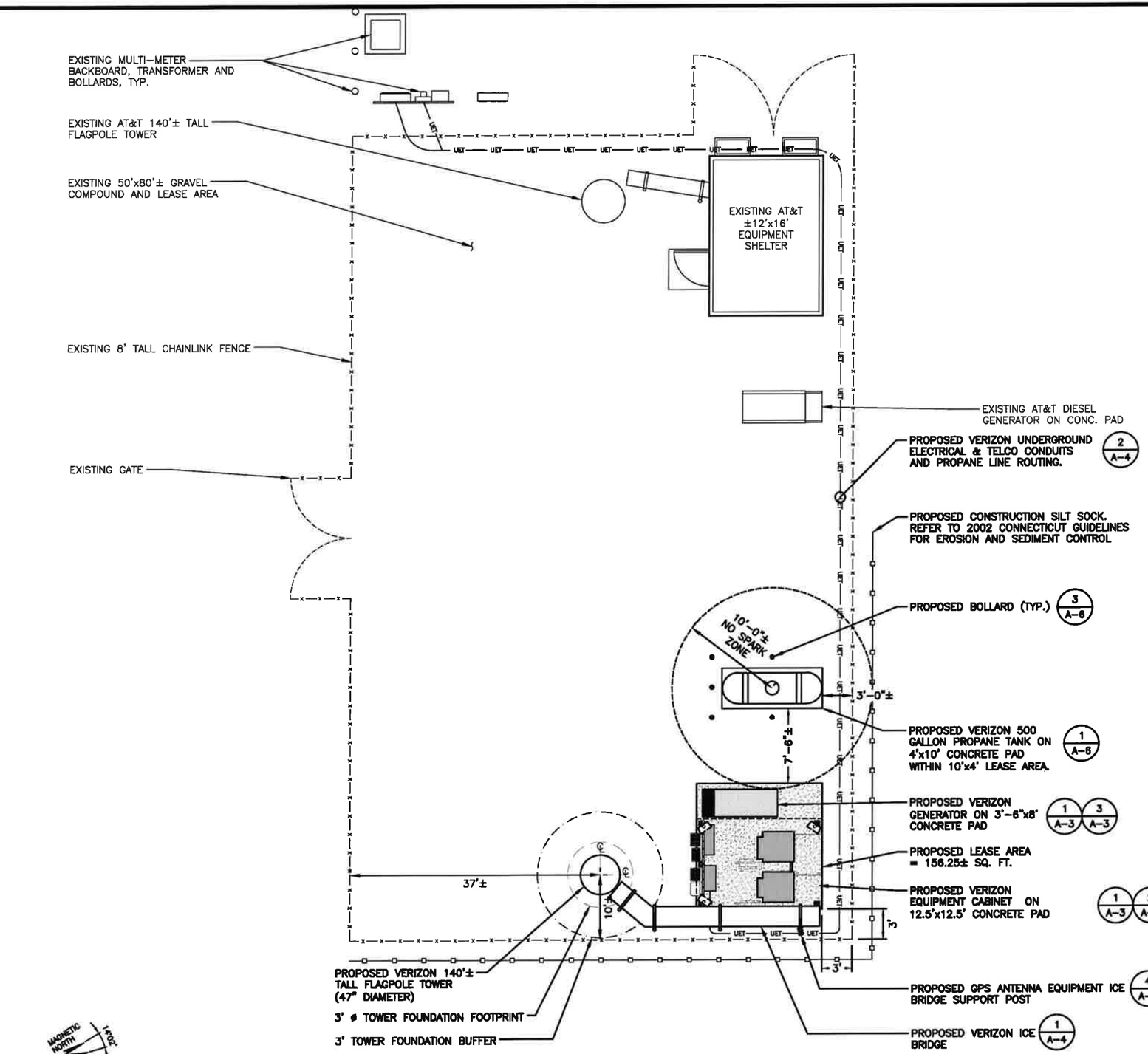
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	08/16/21	ADD ICE CANOPY,REV./NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAH
1	09/10/18	REVISED PER COMMENTS	KAH
0	06/13/18	ISSUED FOR REVIEW	KAH

SITE NAME:
NORWALK 3 CT

SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
SITE PLAN

SHEET NUMBER
C-1



COMPOUND PLAN 1 C-2
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

LEGEND

- PROPERTY LINE - SUBJECT PARCEL
- ABUTTERS PROPERTY LINE
- EXISTING CONTOUR LINE
- TREE LINE
- BARBED WIRE FENCE REMAINS
- OHW — OVERHEAD WIRE
- EXISTING RAIL FENCE
- WETLAND FLAG LINE
- 1-22 — WETLAND FLAG NUMBER
- CONIFEROUS TREE
- DECIDUOUS TREE
- STONE WALL
- TOWER CONTROL POINT
- WELL
- UTILITY POLE
- X 197.0 — EXISTING SPOT ELEVATION
- TOW — TOP OF WALL
- BOW — BOTTOM OF WALL
- EXISTING BUILDING
- SILT SOCK
- PROPOSED FENCE

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE, N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 21173
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

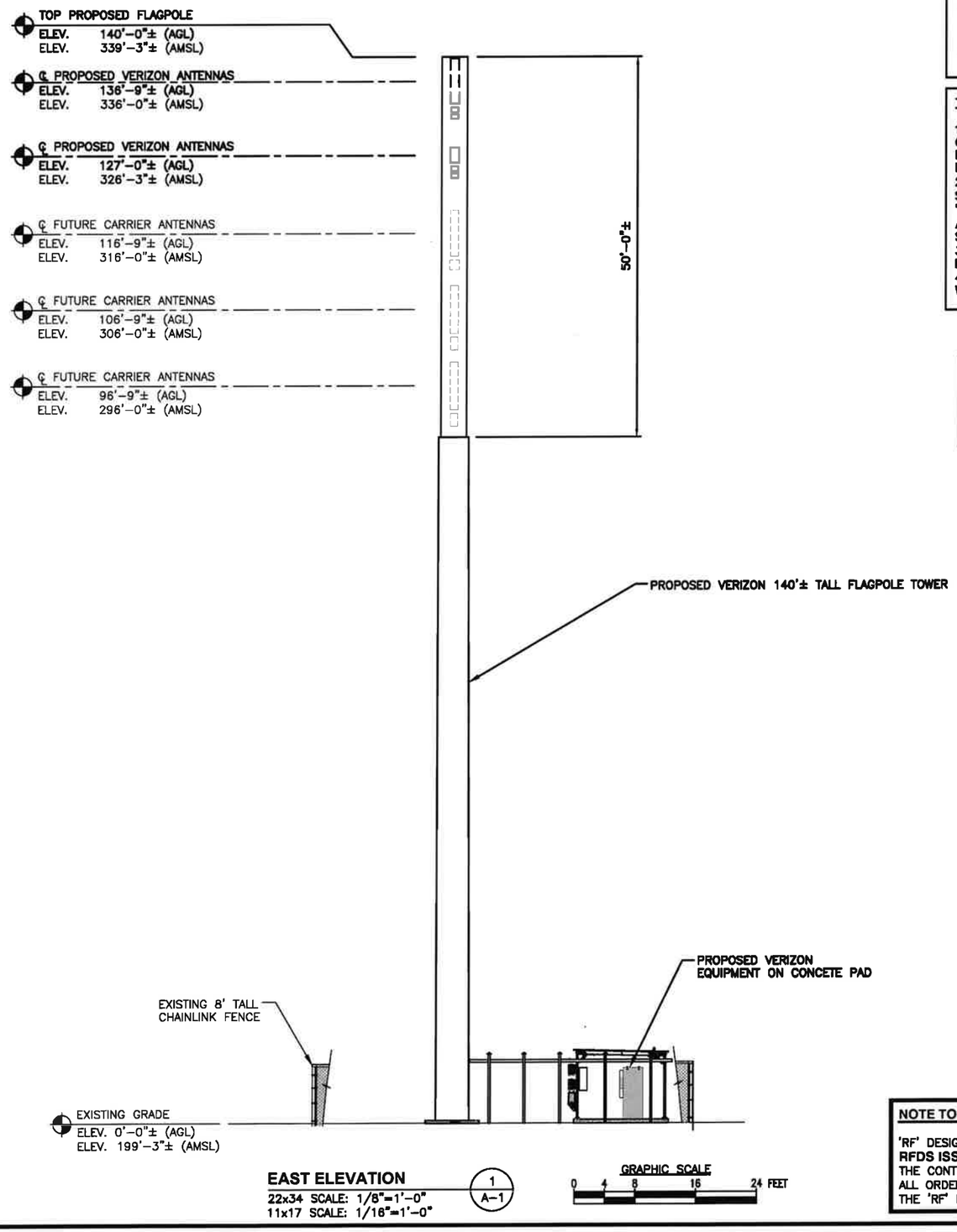
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	08/16/21	ADD ICE CANOPY,REV./NEW RRUS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAM
1	09/10/18	REVISED PER COMMENTS	KAM
0	08/13/18	ISSUED FOR REVIEW	KAM

SITE NAME:
NORWALK 3 CT

SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
C-2



EAST ELEVATION (1 / A-1)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

GRAPHIC SCALE
0 4 8 16 24 FEET

NOTE:

1. PROPOSED NEW TOWER AND FOUNDATION DESIGN BY OTHERS
2. VERIFY AZIMUTHS W/ RF ENGINEER.

TOWER NOTES:

1.) TOWER ELEVATION IS SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL REFER TO TOWER MANUFACTURER DRAWINGS FOR COMPLETE INSTALLATION AND BILL OF MATERIAL INFORMATION.
2.) TOWER MINIMUM DESIGN SPECIFICATIONS SHALL BE IN ACCORDANCE WITH ANSI/TIA/EIA 222-H "STRUCTURAL STANDARDS FOR SUPPORTING STRUCTURES AND ANTENNAS, REVISION H" AND GOVERNING FEDERAL, STATE, AND LOCAL CODE REQUIREMENTS
3.) TOWER MANUFACTURER SHALL BE RESPONSIBLE FOR DESIGN AND STRUCTURAL COMPONENTS OF THE TOWER.
4.) FINAL UTILITY CONNECTIONS SHALL BE COORDINATED WITH THE LOCAL UTILITIES.

NOTE:
AN ANALYSIS OF THE CAPACITY OF THE PROPOSED STRUCTURE TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY SABRE INDUSTRIES, DATED: APRIL 11, 2022

NOTE TO GENERAL CONTRACTOR:

'RF' DESIGN AND EQUIPMENT IS BASED UPON
RFDS ISSUED BY VZW DATED: 7/14/2021 REV 4
THE CONTRACTOR OF RECORD SHALL CONTACT VZW PRIOR TO ANY AND ALL ORDERING/PURCHASING/INSTALLATION OF EQUIPMENT TO VERIFY THAT THE 'RF' LISTED IN THE DRAWING SET IS CURRENT AND UP TO DATE.

FOR CONSTRUCTION

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

HUDSON
Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

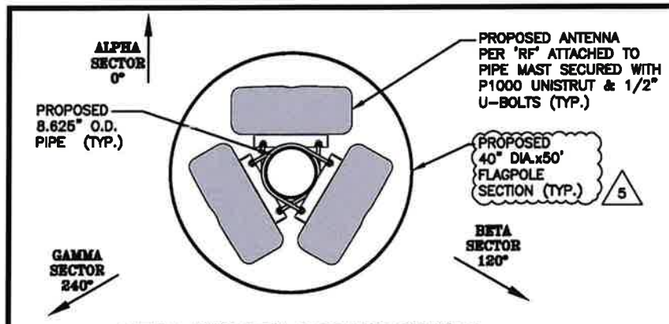
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	06/16/21	ADD ICE CANOPY,REV,/NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAM
1	09/10/18	REVISED PER COMMENTS	KAM
0	08/13/18	ISSUED FOR REVIEW	KAM

SITE NAME:
NORWALK 3 CT

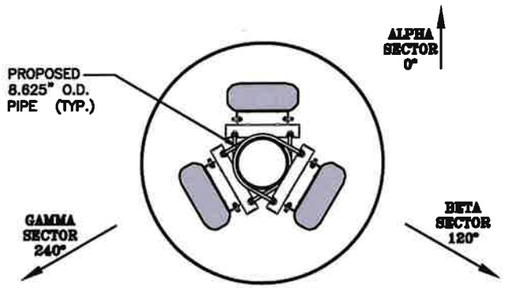
SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
ELEVATION

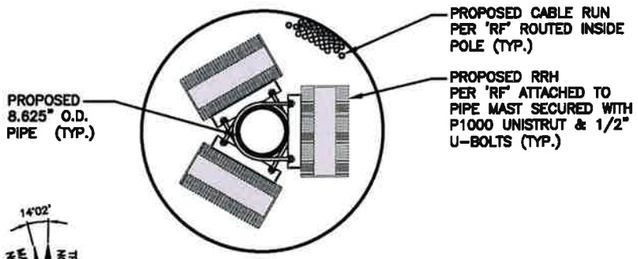
SHEET NUMBER
A-1



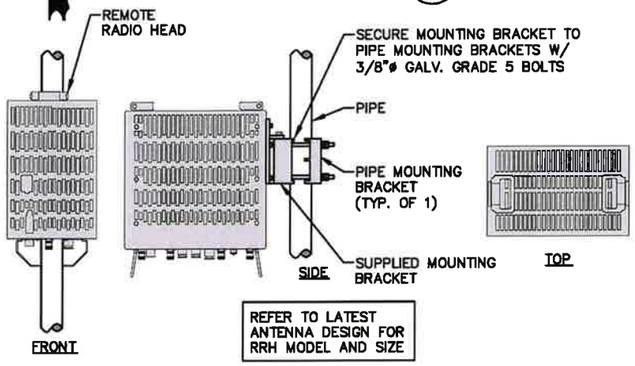
ANTENNA MOUNT DETAIL @ ELEVATION 136'-9" AGL



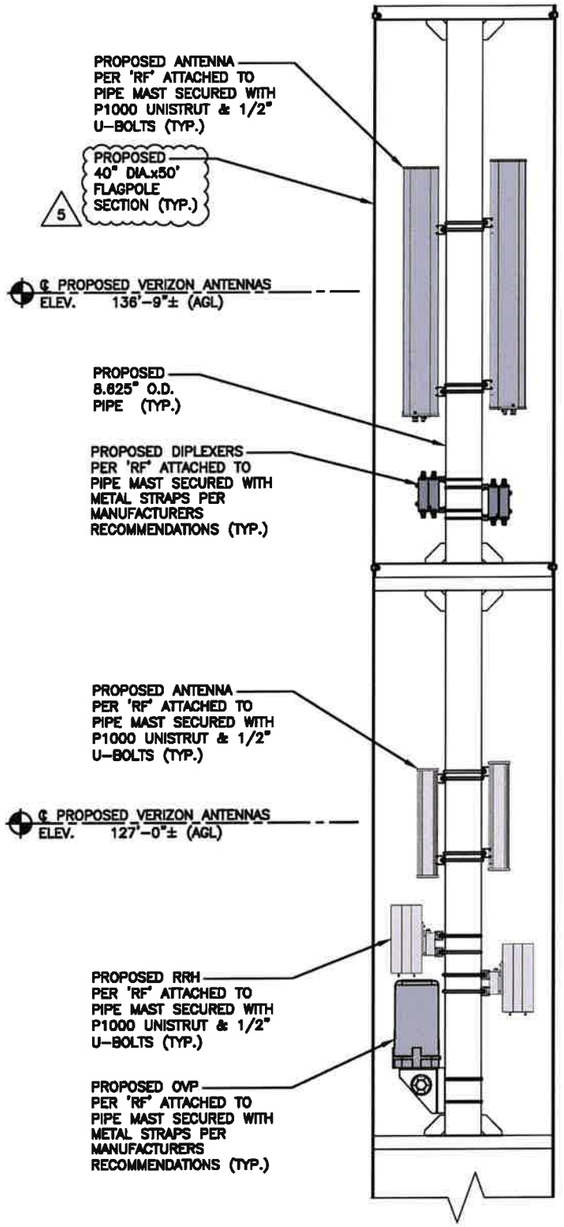
ANTENNA MOUNT DETAIL @ ELEVATION 126'-9" AGL



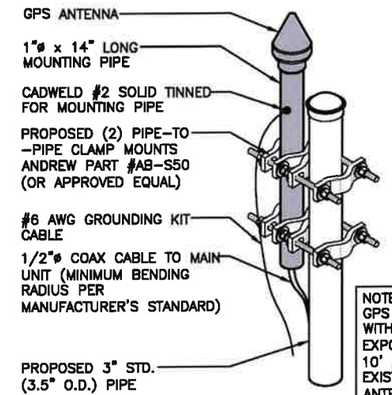
ANTENNA ORIENTATION PLAN 1 A-2
SCALE: N.T.S



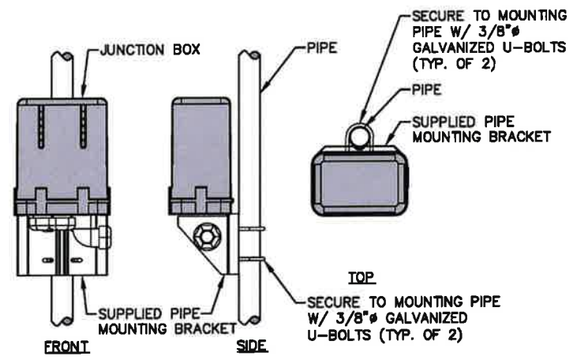
REMOTE RADIO HEAD 2 A-4
22x34 SCALE: N.T.S



ANTENNA MOUNT DETAIL 3 A-2
SCALE: N.T.S



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



JUNCTION BOX 5 A-2
22x34 SCALE: N.T.S

NOTE TO GENERAL CONTRACTOR:

'RF' DESIGN AND EQUIPMENT IS BASED UPON
RFDS ISSUED BY VZW DATED: 7/14/2021 REV 4
THE CONTRACTOR OF RECORD SHALL CONTACT VZW PRIOR TO ANY AND ALL ORDERING/PURCHASING/INSTALLATION OF EQUIPMENT TO VERIFY THAT THE 'RF' LISTED IN THE DRAWING SET IS CURRENT AND UP TO DATE.

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 21178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

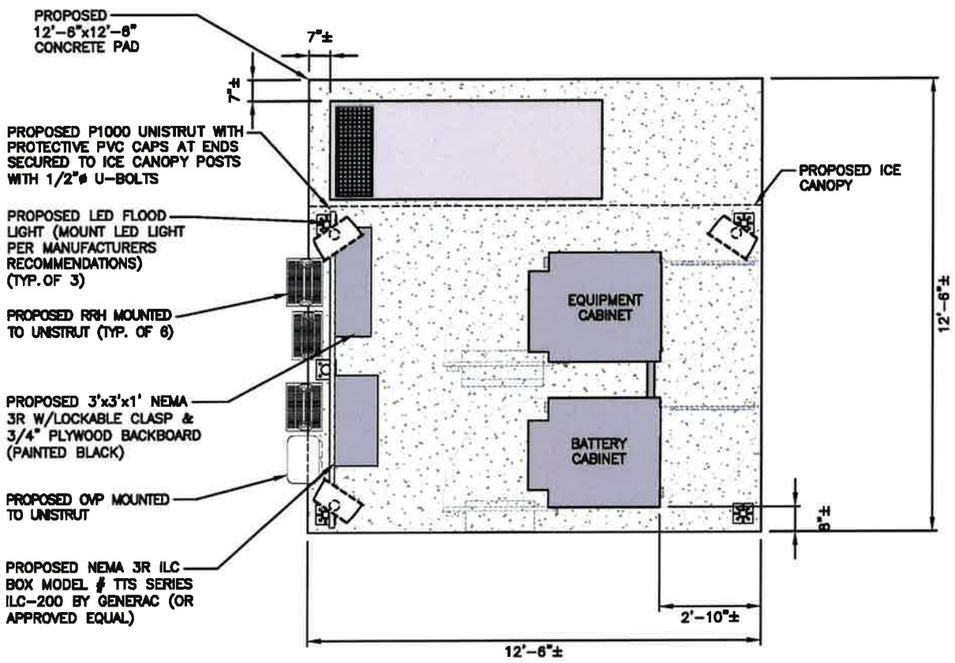
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	09/16/21	ADD ICE CANOPY,REV,/NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAH
1	09/10/18	REVISED PER COMMENTS	KAH
0	08/13/18	ISSUED FOR REVIEW	KAH

SITE NAME:
NORWALK 3 CT

SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
ANTENNA DETAILS

SHEET NUMBER
A-2



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

GRAPHIC SCALE
0 1 2 4 6 FEET

NOTE:

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

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

MOUNT PER MANUFACTURER'S SPECIFICATIONS.

LED FLOOD LIGHT DETAIL (4 / A-3)
SCALE: N.T.S

INTERMATIC WP1220C

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

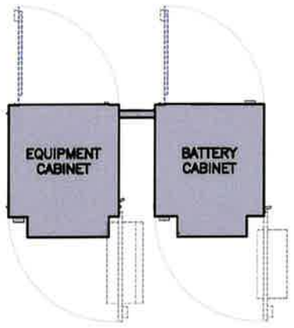
OR APPROVED EQUIVALENT

INTERMATIC FF6H

TIME CYCLE: 6 HOURS
SWITCH: SPST
HOLD: NO

OR APPROVED EQUIVALENT

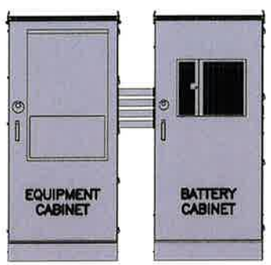
SWITCH DETAIL (5 / A-3)
SCALE: N.T.S



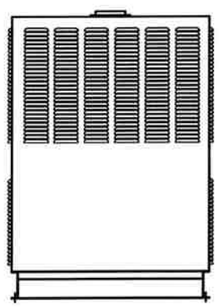
SPECIFICATIONS:
MANUFACTURER: COMMSCOPE
PART NO.: CMC74-36B
BATTERY CABINET
SIZE: 80.75"x36.2"x43.7"
WEIGHT: TBD LBS

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

NOTE:
ANCHOR CABINET TO STEEL PLATFORM PER MANUFACTURERS RECOMMENDATIONS



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



SPECIFICATIONS:
MANUFACTURER: KOHLER
PART NO.: 30CCL
SIZE: 89.8"x32.7"x46.5"
WEIGHT: 1432 LBS.

NOTE:
ANCHOR CABINET TO CONCRETE PAD PER MANUFACTURERS RECOMMENDATIONS

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

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 21078
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

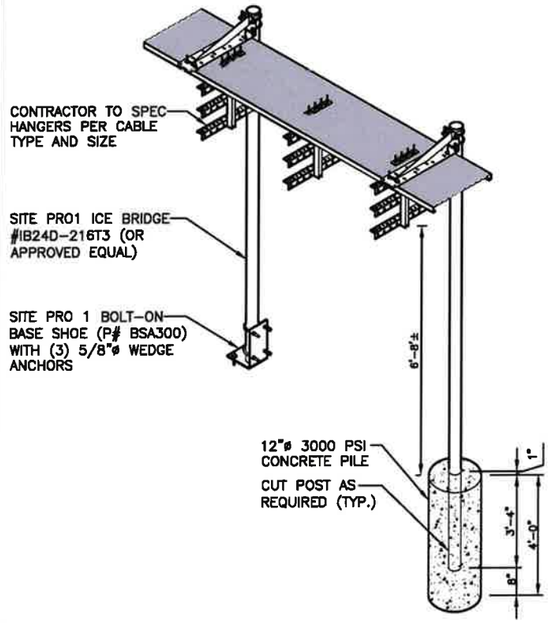
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLV
4	05/19/21	ADD ICE CANOPY,REV./NEW RFDS	SLV
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLV
2	09/10/18	REVISED PER COMMENTS	KAH
1	09/10/18	REVISED PER COMMENTS	KAH
0	08/13/18	ISSUED FOR REVIEW	KAH

SITE NAME:
NORWALK 3 CT

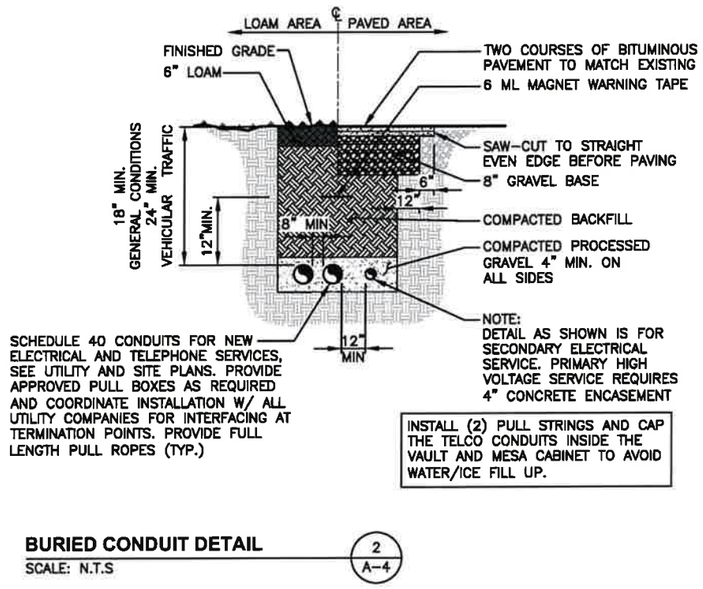
SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
EQUIPMENT PLAN AND DETAILS

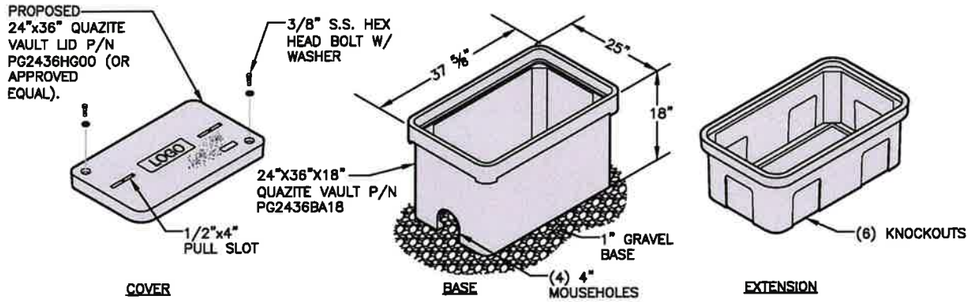
SHEET NUMBER
A-3



ICE BRIDGE DETAIL (1 / A-4)
SCALE: N.T.S



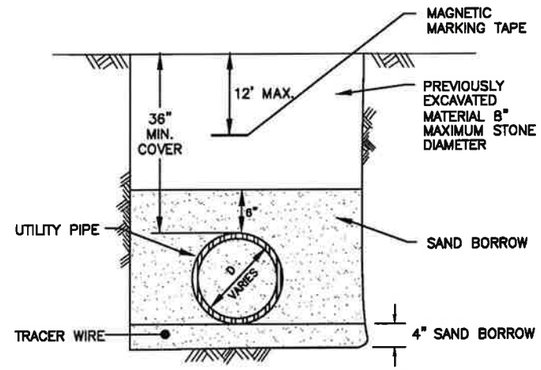
BURIED CONDUIT DETAIL (2 / A-4)
SCALE: N.T.S



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

FOR TELCO AND POWER

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



NOTES: 1 COMPACT ALL BACKFILL MATERIAL WITH VIBRATORY PLATE EQUIPMENT (MINIMUM TWO PASSES) TO A MINIMUM DENSITY OF 95 PERCENT OF THE STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698. 2 PLACE BACKFILL MATERIALS IN MAXIMUM ONE FOOT LIFTS.

GAS PIPING TRENCH SECTION (5 / A-4)
SCALE: N.T.S

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

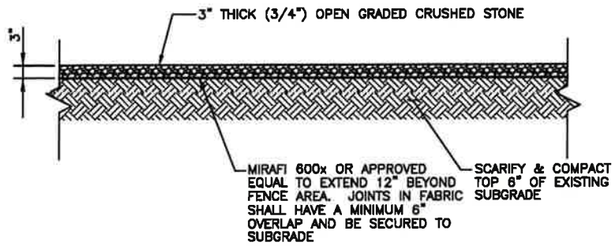
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	09/16/21	ADD ICE CANOPY,REV./NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAM
1	09/10/18	REVISED PER COMMENTS	KAM
0	08/13/18	ISSUED FOR REVIEW	KAM

SITE NAME:
NORWALK 3 CT

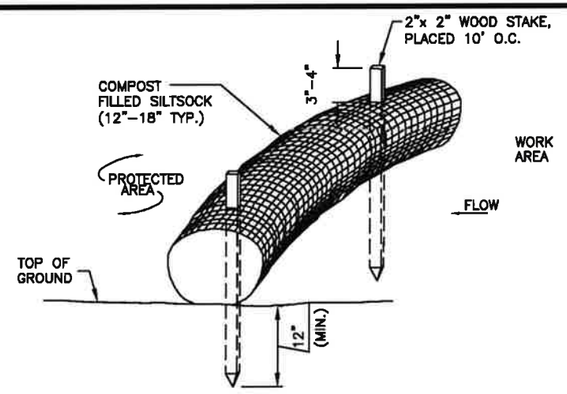
SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
CABLE SUPPORT DETAILS

SHEET NUMBER
A-4



COMPOUND SURFACE DETAIL (1 / A-5)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"



NOTES:

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

SILT SOCK DETAIL (2 / A-5)
SCALE: N.T.S

GENERAL CONSTRUCTION SEQUENCE:

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

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

EROSION CONTROL MEASURES:

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

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

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

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

TREATMENT SWALE PLANTING SPECIFICATIONS

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

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

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

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

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

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

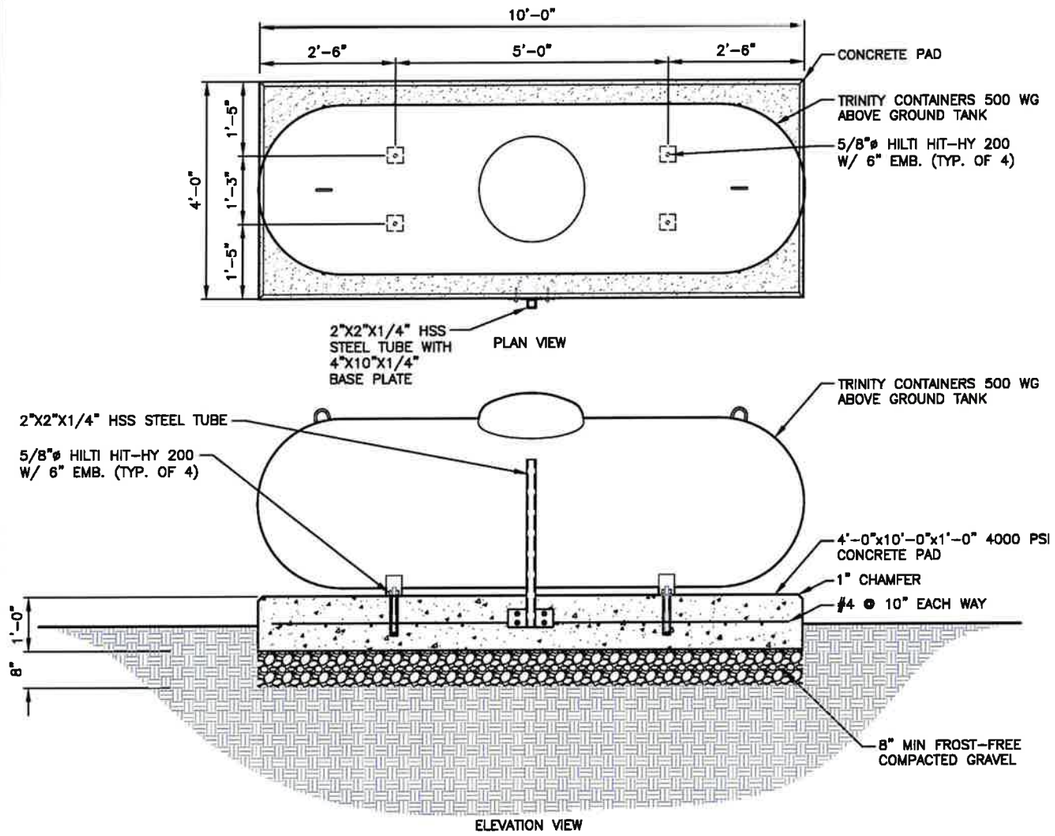
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	05/18/21	ADD ICE CANOPY,REV./NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAH
1	09/10/18	REVISED PER COMMENTS	KAH
0	08/13/18	ISSUED FOR REVIEW	KAH

SITE NAME:
NORWALK 3 CT

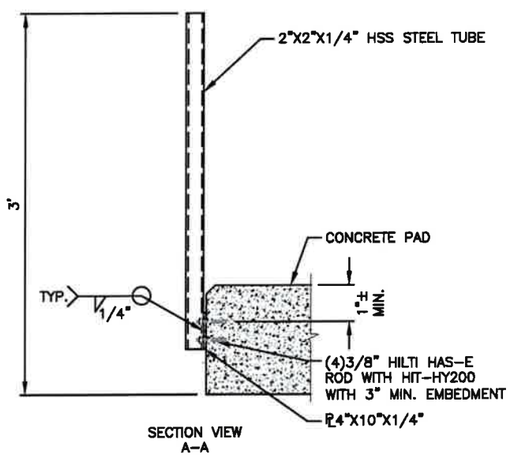
SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
SITE SURFACE COVER AND EROSION CONTROL DETAILS

SHEET NUMBER
A-5



PROPANE TANK MOUNTING DETAILS (1 / A-6)
SCALE: N.T.S

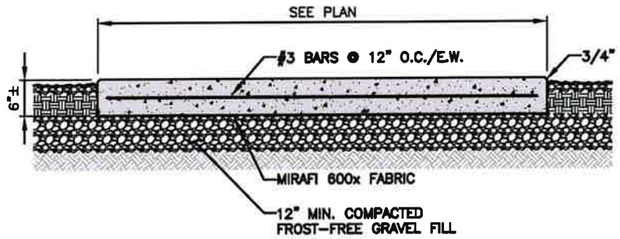


NOTE:

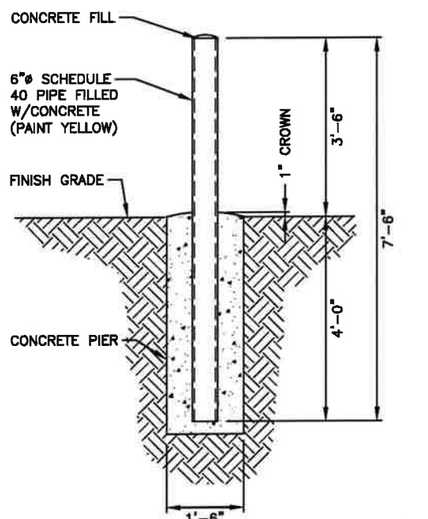
PROPANE TANK TO BE PAINTED WHTIE.

FOUNDATION NOTES & CONCRETE SPECIFICATIONS:

1. FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FT'S, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
2. UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
3. CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH ($f'c$)=4000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%)
4. REINFORCING BAR TO BE ASTM A615 GRADE 60.
5. WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A82.
6. ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.
7. ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 AND APPLICABLE STATE BUILDING CODE.



CONCRETE PAD DETAIL (2 / A-6)
22x34 SCALE: N.T.S



CONCRETE FILLED BOLLARD (3 / A-6)
SCALE: N.T.S

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER
CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	08/18/21	ADD ICE CANOPY,RCV./NEW RRDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAN
1	09/10/18	REVISED PER COMMENTS	KAN
0	08/13/18	ISSUED FOR REVIEW	KAN

SITE NAME:
NORWALK 3 CT

SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
CONCRETE PAD DETAILS

SHEET NUMBER
A-6

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-70 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

SPECIAL INSPECTION CHECKLIST

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

NOTES:

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

NOTES:

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

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

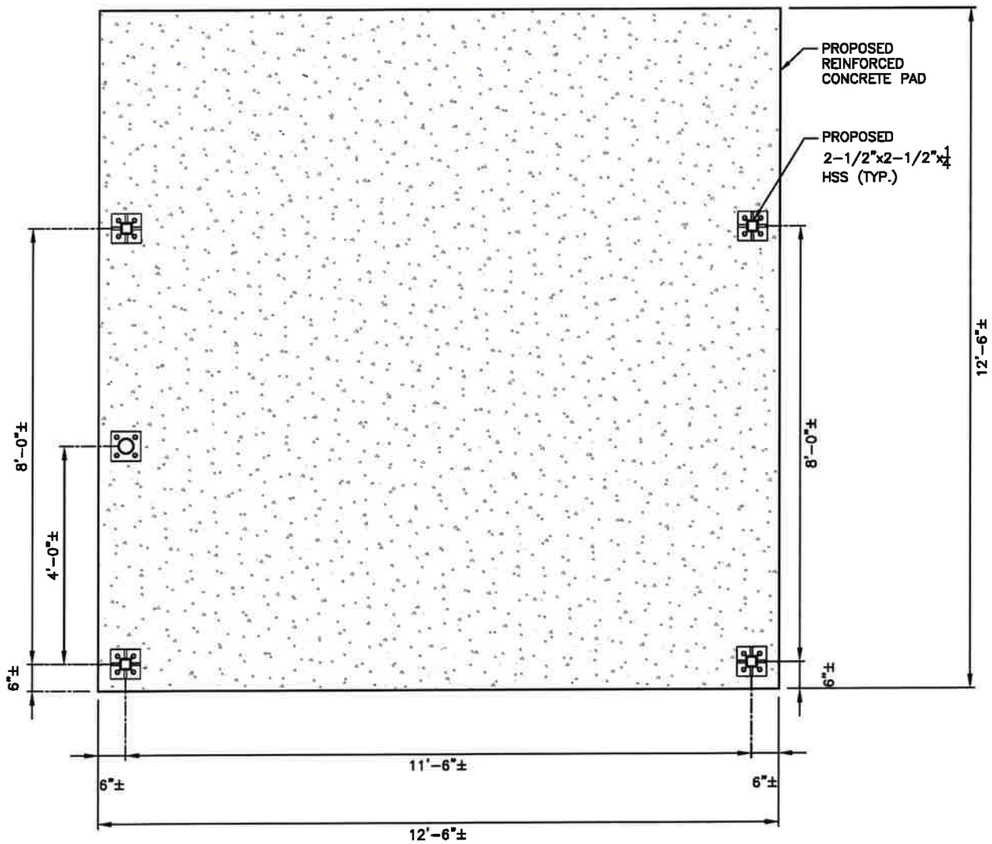
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	08/18/21	ADD ICE CANOPY,REV./NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAN
1	09/10/18	REVISED PER COMMENTS	KAN
0	08/13/18	ISSUED FOR REVIEW	KAN

SITE NAME:
NORWALK 3 CT

SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

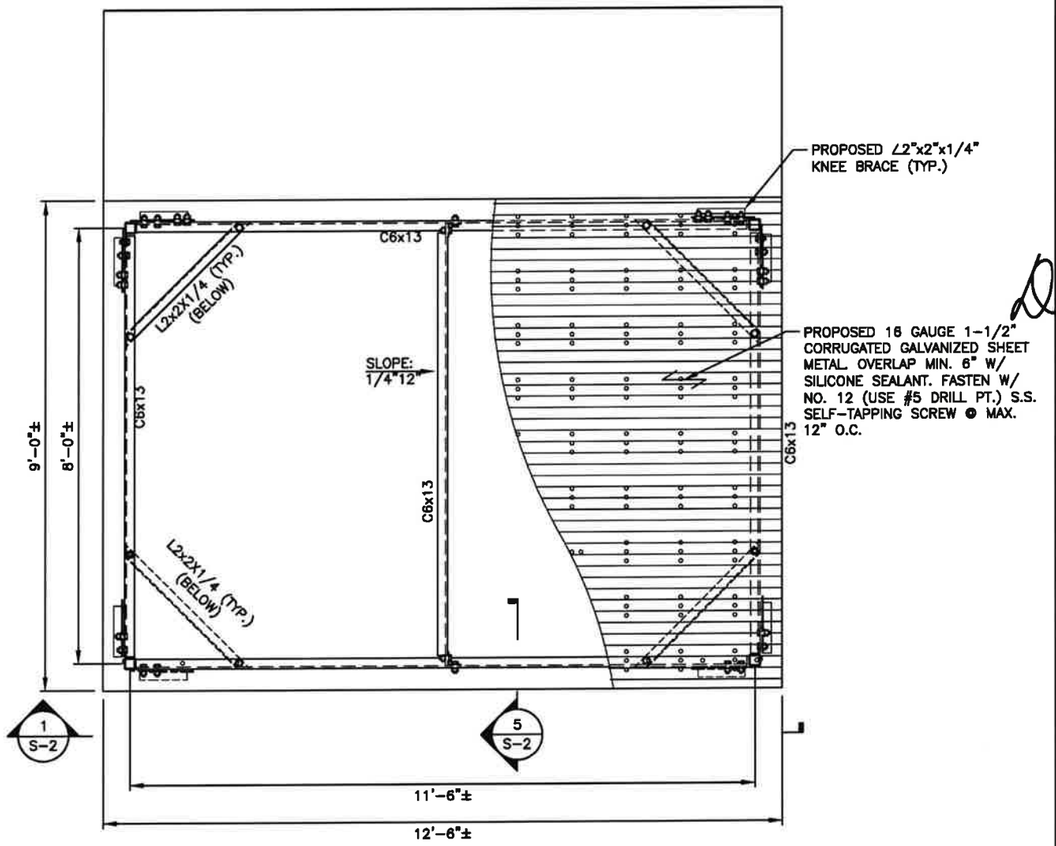
SHEET TITLE
STRUCTURAL NOTES AND SPECIAL INSPECTIONS

SHEET NUMBER
SN-1



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

GRAPHIC SCALE
0 16 32 64 96 FEET



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

GRAPHIC SCALE
0 16 32 64 96 FEET

FOR CONSTRUCTION

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

HUDSON
Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 21078
LICENSED
PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

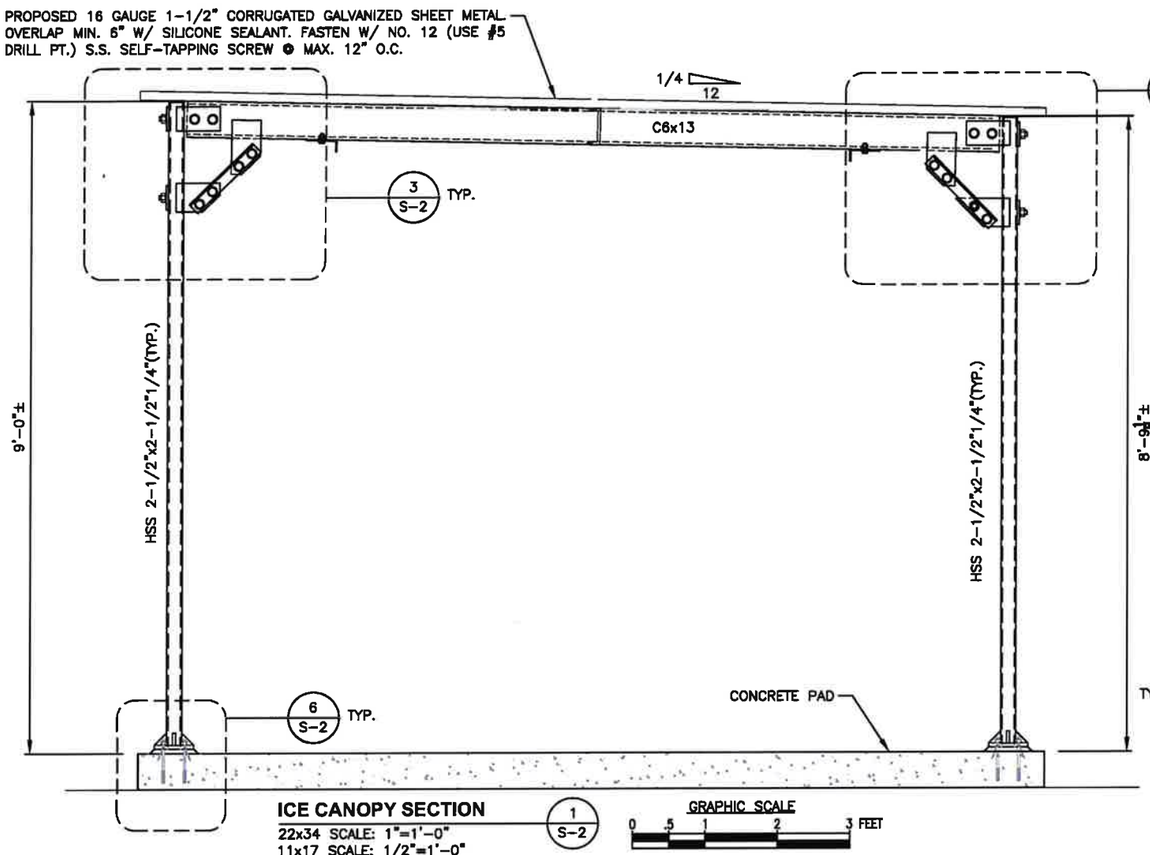
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	08/16/21	ADD ICE CANOPY,HEX,NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAN
1	09/10/18	REVISED PER COMMENTS	KAN
0	08/13/18	ISSUED FOR REVIEW	KAN

SITE NAME:
NORWALK 3 CT

SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

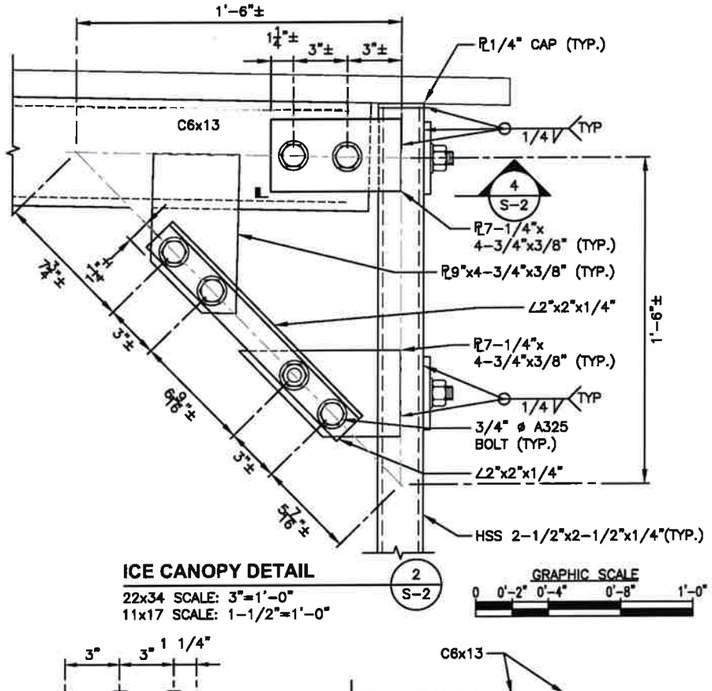
SHEET TITLE
ICE CANOPY
DETAILS

SHEET NUMBER
S-1



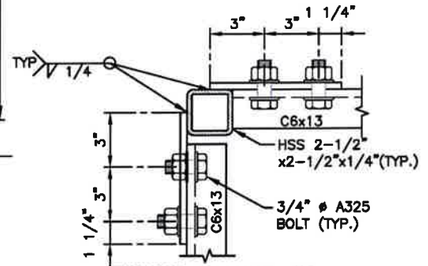
ICE CANOPY SECTION 1 S-2
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

GRAPHIC SCALE 0 .5 1 2 3 FEET



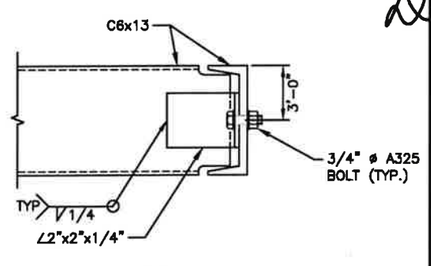
ICE CANOPY DETAIL 2 S-2
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

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



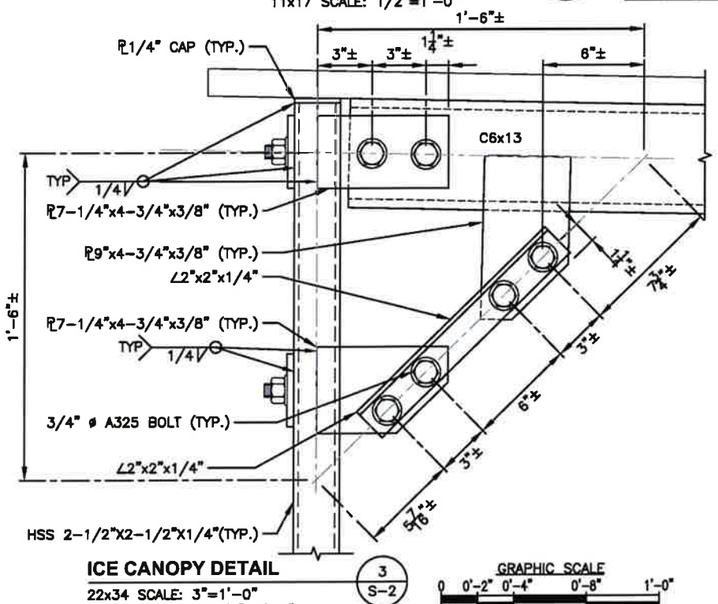
TYPICAL CHANNEL TO HSS CONNECTION DETAIL 4 S-2
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

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



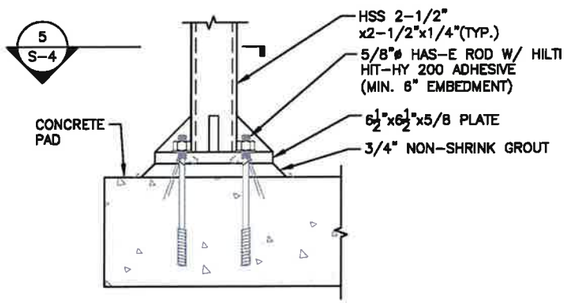
MID CHANNEL TO CHANNEL CONNECTION 5 S-2
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

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

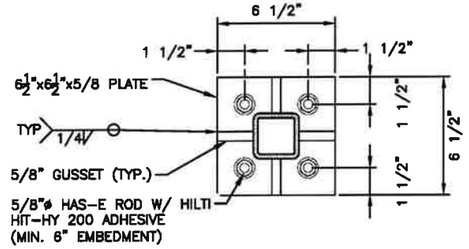


ICE CANOPY DETAIL 3 S-2
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

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



TYPICAL HSS BASE PLATE CONNECTION SECTION 6 S-2
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"



TYPICAL HSS BASE PLATE CONNECTION DETAIL 7 S-2
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 21178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	08/16/21	ADD ICE CANOPY,REV./NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAH
1	09/10/18	REVISED PER COMMENTS	KAH
0	08/13/18	ISSUED FOR REVIEW	KAH

SITE NAME:
NORWALK 3 CT

SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
ICE CANOPY DETAILS

SHEET NUMBER
S-2

GENERAL NOTES

ELECTRICAL

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

CABLE TRAY

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

ALARM AND SIGNAL

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

ABBREVIATIONS

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

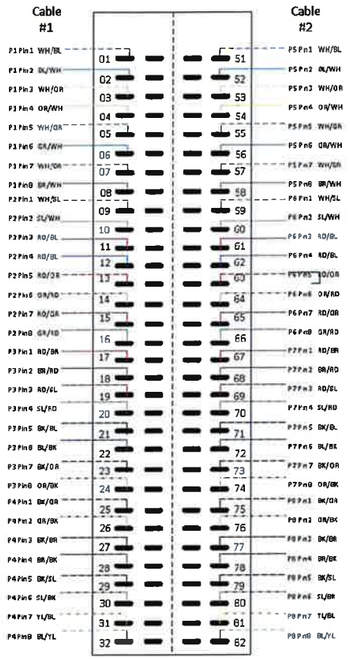
ELECTRICAL NOTES

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

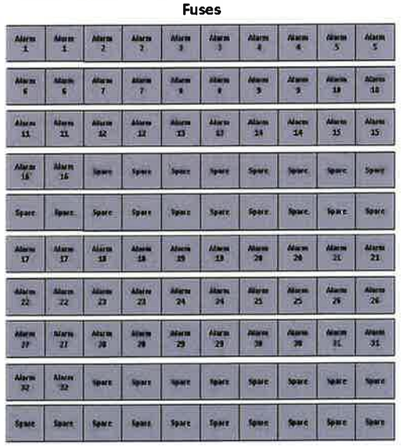
PANEL NAME: PROPOSED AC PANEL

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

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

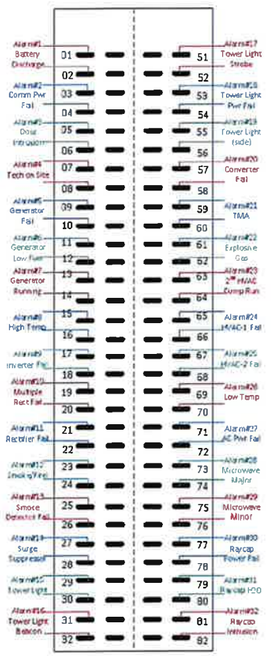


Wiring Diagram for Porta Systems Block Model 899A



8 - RJ45s
P1 – P8

ALARM DETAIL 1/E–1
SCALE: N.T.S



FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 21178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

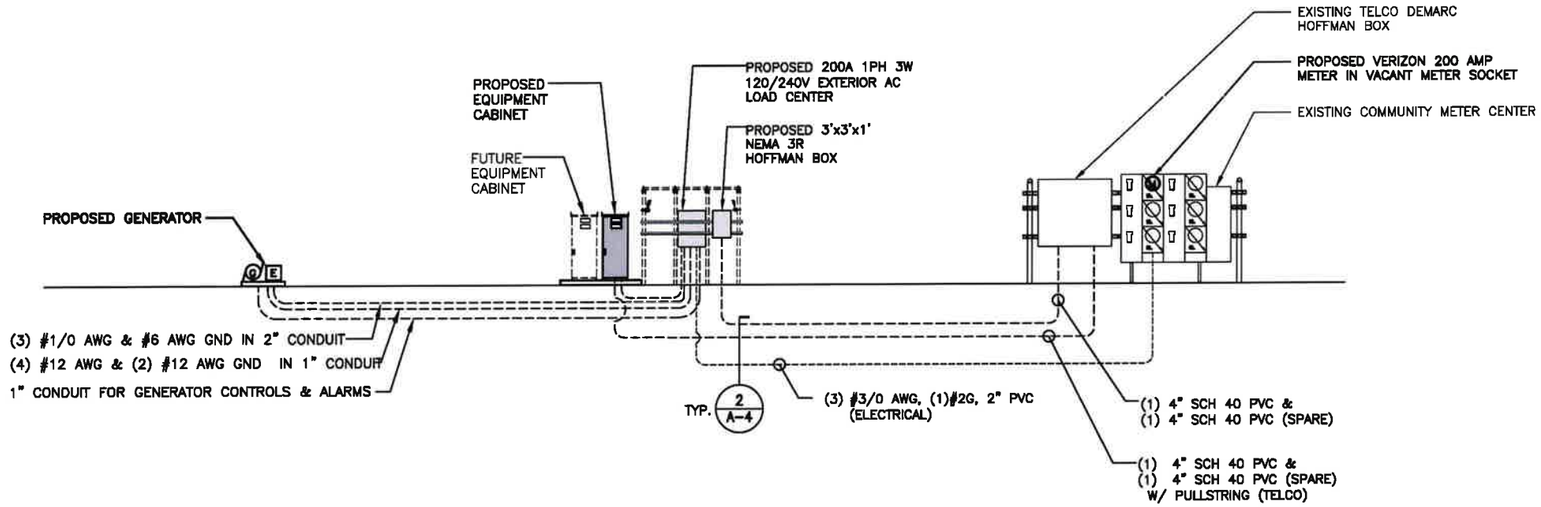
REV.	DATE	DESCRIPTION	BY
5	05/18/22	REVISED ANTENNA CANISTER SIZE	SLY
4	08/16/21	ADD ICE CANOPY,REV.,NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAH
1	09/10/18	REVISED PER COMMENTS	KAH
0	08/13/18	ISSUED FOR REVIEW	KAH

SITE NAME:
NORWALK 3 CT

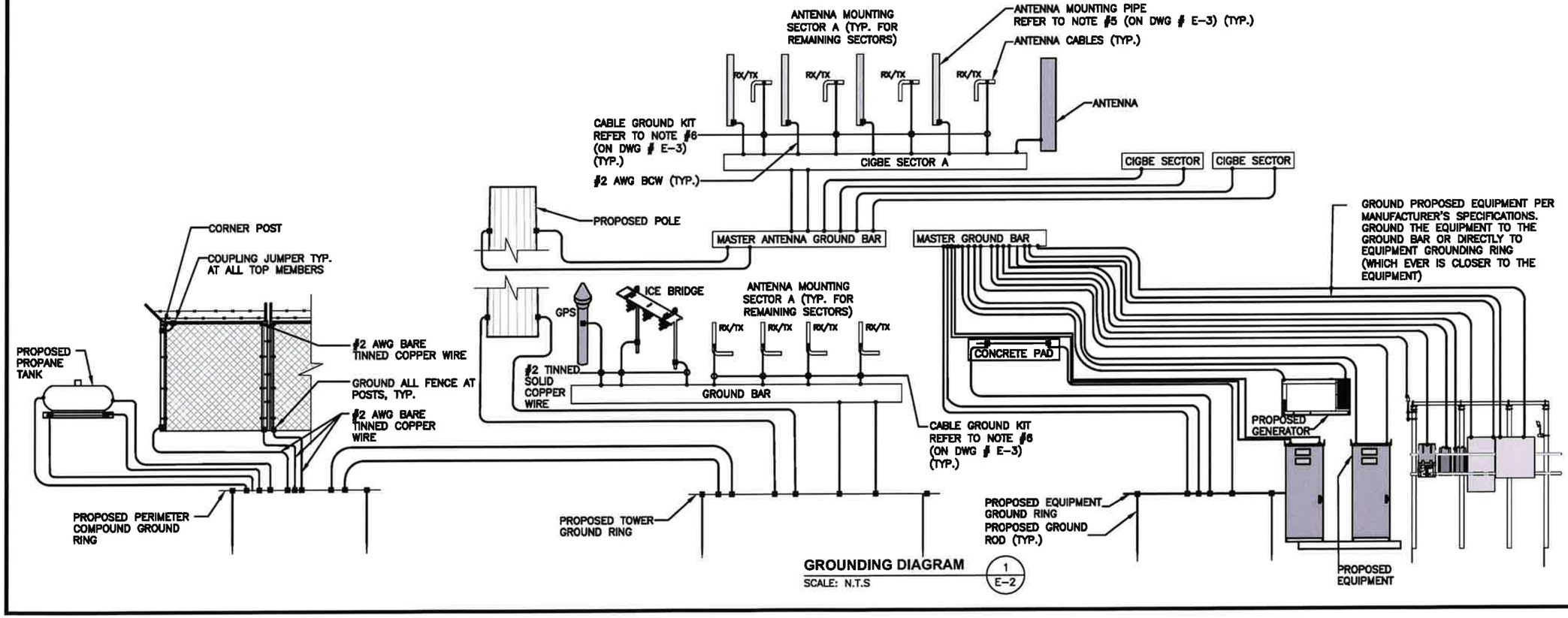
SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
ELECTRICAL/TELCO RISER DIAGRAM AND NOTES

SHEET NUMBER
E-1



POWER & TELEPHONE RISER DIAGRAM 1 E-1
SCALE: N.T.S



GROUNDING DIAGRAM 1 E-2
SCALE: N.T.S

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 21178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

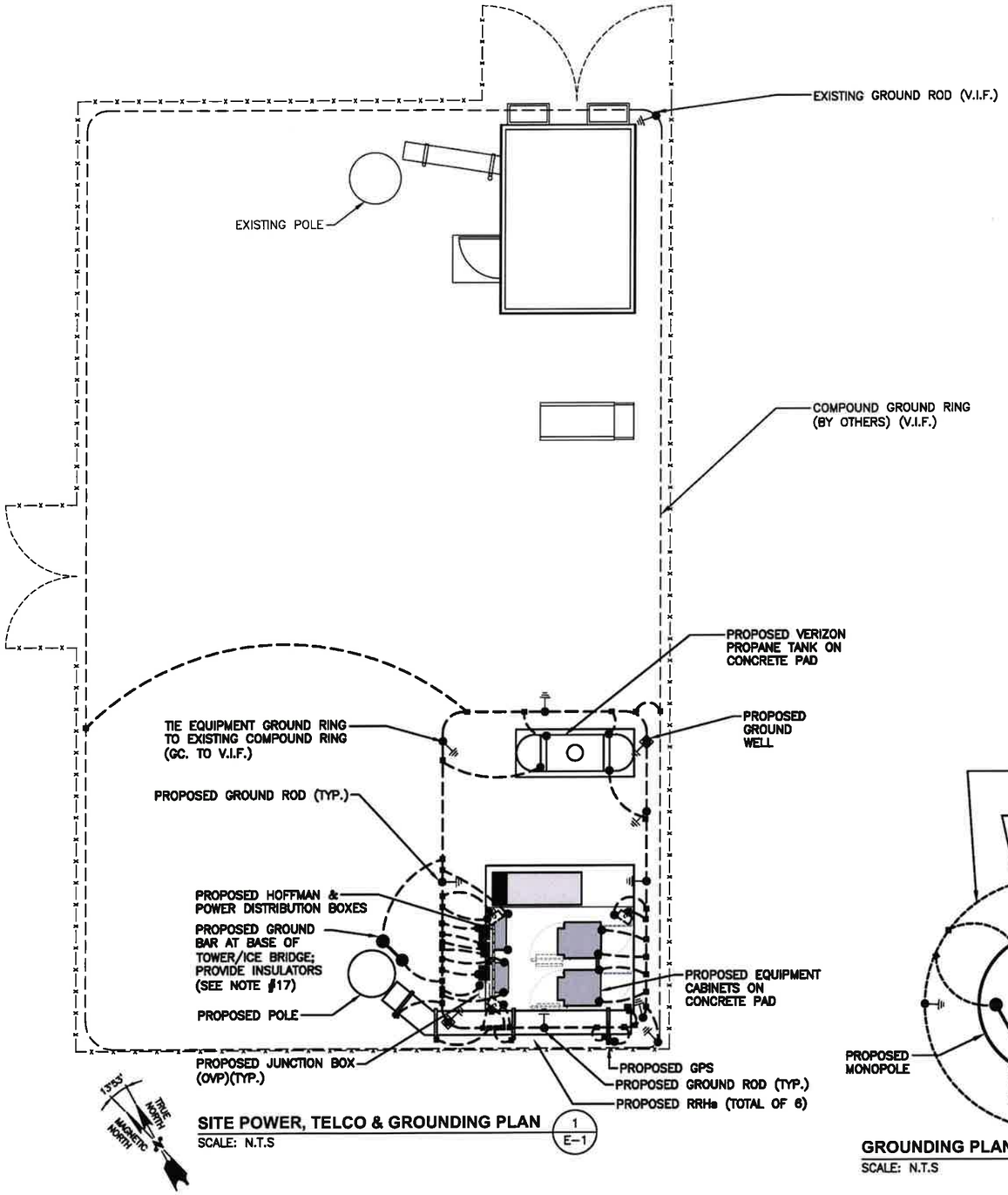
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	08/16/21	ADD ICE CANOPY,REV.,NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAH
1	09/10/18	REVISED PER COMMENTS	KAH
0	08/13/18	ISSUED FOR REVIEW	KAH

SITE NAME:
NORWALK 3 CT

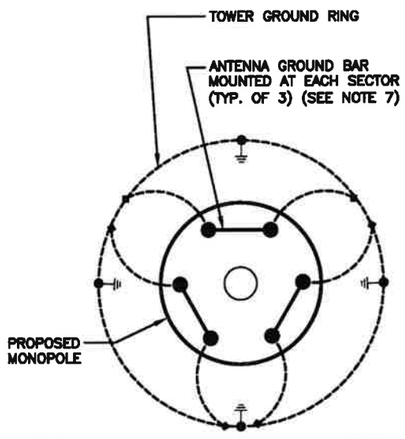
SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
GROUNDING RISER DIAGRAM

SHEET NUMBER
E-2



SITE POWER, TELCO & GROUNDING PLAN (1 / E-1)
SCALE: N.T.S



GROUNDING PLAN AT ANTENNA LEVEL (2 / E-3)
SCALE: N.T.S

GROUNDING NOTES

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

GROUNDING LEGEND

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

FOR CONSTRUCTION

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 21178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

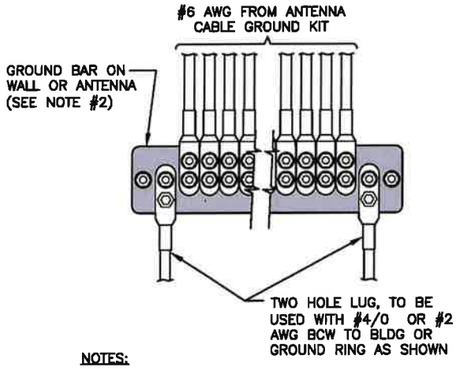
REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	08/16/21	ADD ICE CANOPY/REV./NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAM
1	09/10/18	REVISED PER COMMENTS	KAM
0	08/13/18	ISSUED FOR REVIEW	KAM

SITE NAME:
NORWALK 3 CT

SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
GROUNDING PLAN

SHEET NUMBER
E-3

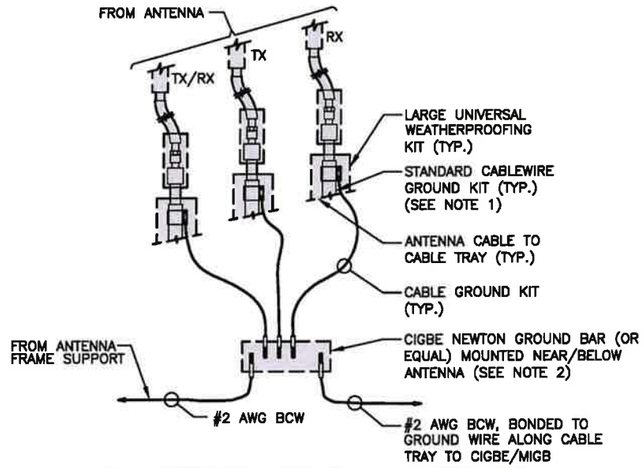


NOTES:

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

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

SCALE: N.T.S

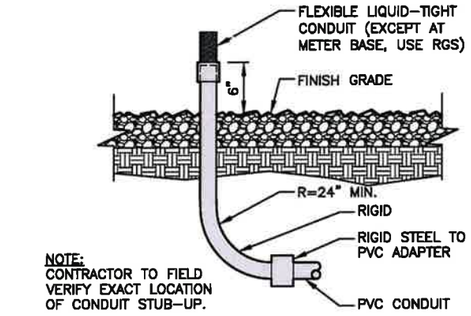


NOTES:

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

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

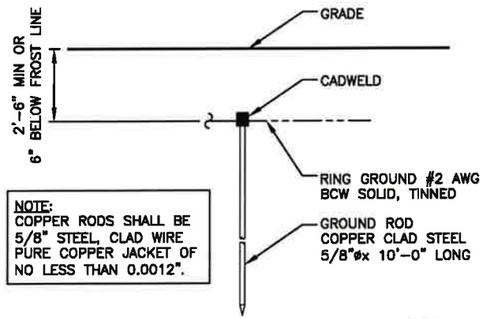
SCALE: N.T.S



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

CONDUIT STUB-UP (5 / E–4)

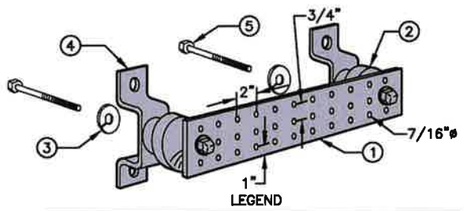
SCALE: N.T.S



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

TYPICAL GROUND ROD DETAIL (6 / E–4)

SCALE: N.T.S



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

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

③ 5/8" LOCKWASHERS OR EQUAL.

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

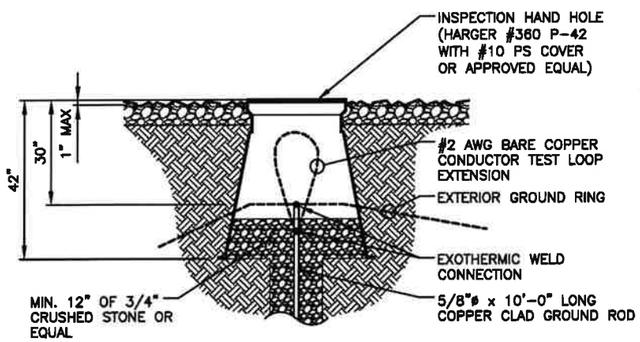
⑤ 5/8–11 x 1" H.H.C.S. BOLTS

NOTES:

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

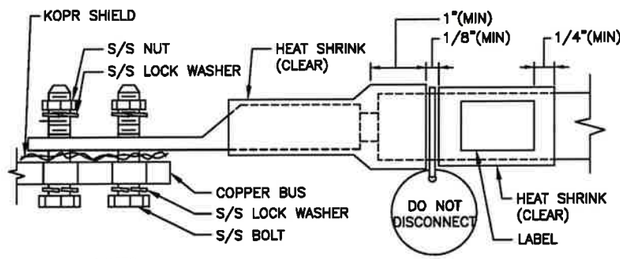
GROUNDING - STANDARD DETAIL GROUND BAR (2 / E–4)

SCALE: N.T.S



GROUNDING WELL DETAIL (4 / E–4)

SCALE: N.T.S



NOTES:

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

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

SCALE: N.T.S

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

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

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
5	05/19/22	REVISED ANTENNA CANISTER SIZE	SLY
4	06/16/21	ADD ICE CANOPY,REX,/NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	09/10/18	REVISED PER COMMENTS	KAH
1	09/10/18	REVISED PER COMMENTS	KAH
0	08/13/18	ISSUED FOR REVIEW	KAH

SITE NAME:

NORWALK 3 CT

SITE ADDRESS:

284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

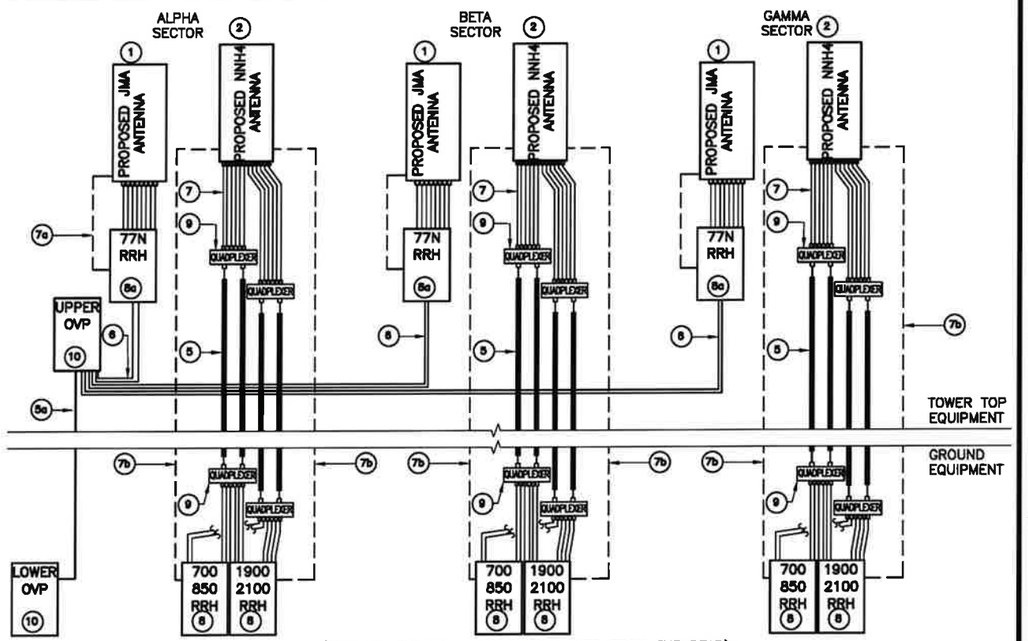
E-4

BILL OF MATERIALS

SITE NAME: NORWALK 3 CT

ITEM	DESCRIPTION		QTY	LENGTH	COMMENTS
(1)	JMA ANTENNAS	MX08FIT265-01	3		MOUNTED TO PIPE MAST WITHIN POLE
(2)	NHH4 ANTENNAS	NNH4-65B-R6H4	3		MOUNTED TO PIPE MAST WITHIN POLE
(5a)	HYBRID CABLE		1	175 FT.	ROUTE FROM OUTDOOR EQUIPMENT TO ANTENNA SECTOR
(5)	1-5/8"ø COAX CABLES		12	185 FT.	ROUTE FROM OUTDOOR EQUIPMENT TO ANTENNA SECTOR
(6)	SAMSUNG POWER CABLE		3	15 FT.	ROUTE FROM UPPER OVP TO RRHs
(6)	SAMSUNG FIBER CABLE		3	15 FT.	ROUTE FROM UPPER OVP TO RRHs
(7)	1/2" TOP COAX JUMPERS		60	6 FT.	ROUTE FROM QUADPLEXERS TO ANTENNAS (AT TOWER LEVEL)
(7)	1/2" TOP COAX JUMPERS		36	6 FT.	ROUTE FROM RRH TO QUADPLEXERS (AT SHELTER LEVEL)
(7a)	RET CONTROL CABLES		3	6 FT.	ROUTE FROM RRH TO ANTENNA (AT SHELTER LEVEL)
(7b)	RET CONTROL CABLES		3	185 FT.	ROUTE FROM RRH TO ANTENNA (AT GROUND LEVEL)
(8a)	RT-8808-77A LTE RRH		3		SAMSUNG 77N PIPE MOUNTED AT TOWER
(8)	700/850 RRH		3		SAMSUNG B5/B13 (AT GROUND LEVEL)
(8)	1900/2100 RRH		3		SAMSUNG B2/B66A (AT GROUND LEVEL)
(9)	UPPER QUADPLEXER - CBC61923T-DS-43		6		MOUNTED TO PIPE MAST WITHIN POLE
(9)	LOWER QUADPLEXER - CBC61923T-DS-43		6		MOUNTED AT GROUND LEVEL
(10)	UPPER OVP		1		MOUNTED TO PIPE MAST WITHIN POLE
(10)	LOWER OVP		1		MOUNTED AT GROUND LEVEL

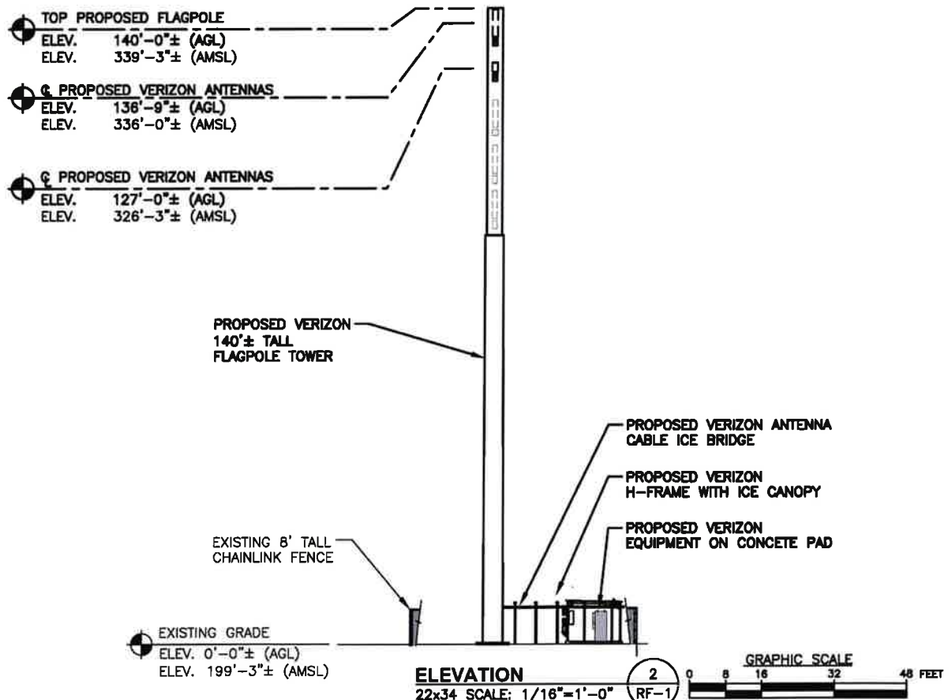
RF BOM IS COMPILED FROM ANTENNA RECOMMENDATION DATA SHEET DATED 7/14/2021 (REV4)



(ANTENNA CONFIGURATION WHEN VIEWED FROM THE REAR)

RF CABLE PLUMBING DIAGRAM (1 / RF-1)

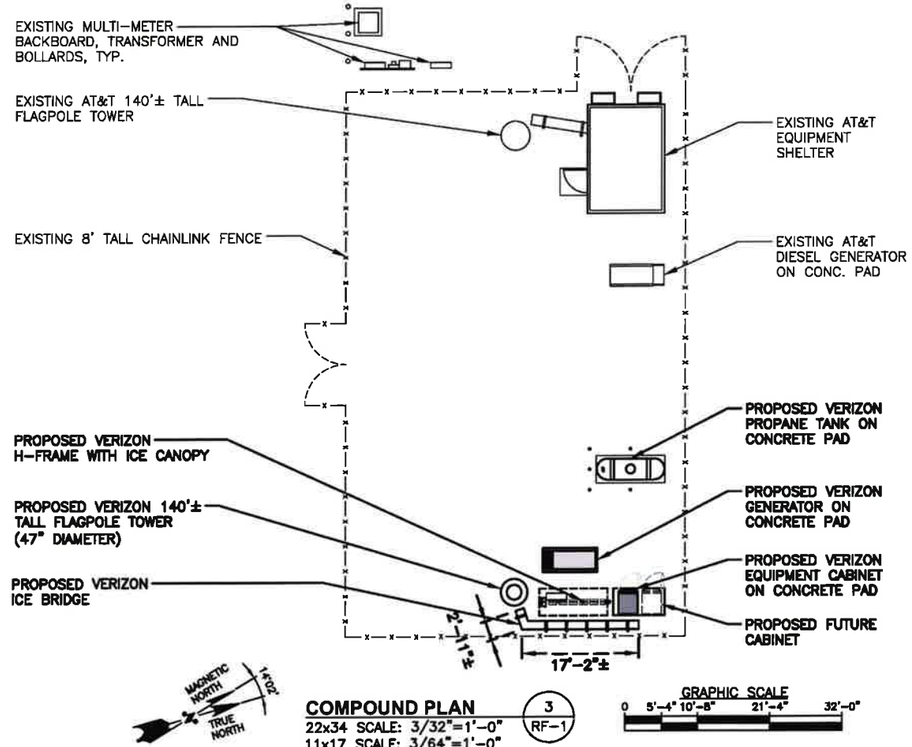
SCALE: N.T.S



ELEVATION (2 / RF-1)

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

GRAPHIC SCALE 0 8 16 32 48 FEET



COMPOUND PLAN (3 / RF-1)

22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

GRAPHIC SCALE 0 5'-4" 10'-8" 21'-4" 32'-0"

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
4	08/16/21	ADD ICE CANOPY,REV./NEW RFDS	SLY
3	11/21/19	ADDED TOWER FOUNDATION BUFFER	SLY
2	04/02/19	REVISED PER COMMENTS	KAM
1	09/10/18	REVISED PER COMMENTS	KAM
0	08/13/18	ISSUED FOR REVIEW	KAM

SITE NAME:
NORWALK 3 CT

SITE ADDRESS:
284 NEW CANAAN AVENUE
NORWALK, CT 06850

SHEET TITLE
RF PLUMBING DIAGRAM AND BILL OF MATERIALS

SHEET NUMBER
RF-1

Sabre Industries™
INNOVATION DELIVERED

Structural Design Report

140' Flagpole
Site: Norwalk 3, CT

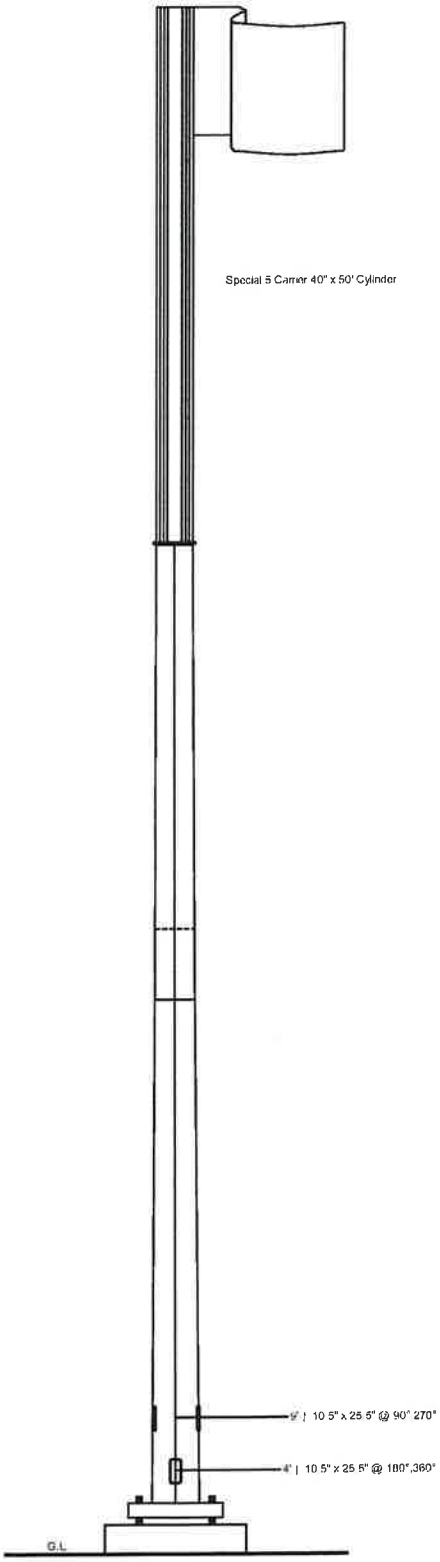
Prepared for: VERIZON WIRELESS
by: Sabre Industries ™

Job Number: 22-4786-JDS-R1
Revision A

December 8, 2022

STATE OF CONNECTICUT
ROBERT E. BEACOM
No. 28396
LICENSED
PROFESSIONAL ENGINEER
12/8/22

Digitally Signed By Robert Beacom
DN: c=US, st=Texas, l=Alvarado, o=SABRE INDUSTRIES, INC., cn=Robert Beacom, email=rebeacom@sabreindustries.com Date: 2022.12.08 11:55:21



Length (ft)	53'-3" | 42'-3"
Number Of Sides	18
Thickness (in)	5/16"
Lap Splice (ft)	6' - 6"
Top Diameter (in)	40" | 44.74"
Bottom Diameter (in)	46.34" | 52.72"
Taper (in/ft)	0.15
Grade	A572-65
Weight (lbs)	6843 | 10225
Overall Steel Height (ft)	89

Designed Appurtenance Loading

Elev	Description	Tx-Line
136.75	(3) NNH4-65B-R6H4	(6) 7/8"
134	(1) FLAG 12x18	
132	(6) CBC782123-DM	
128	(3) MX08FIT265-01	(6) 7/8"
125	(3) RFV01U-D1A	
124	(3) RFV01U-D2A	
123	(3) RRH 800 MHz	
122	(1) RVZDC-6627-PF-48	(1) 1 5/8"
115	(3) 8' x 1' x 3in Panel	(6) 7/8"
105	(3) 8' x 1' x 3in Panel	(6) 7/8"
95	(3) 8' x 1' x 3in Panel	(6) 7/8"
90	Special 5 Carrier 40" x 50' Cylinder	

Design Criteria - ANSI/TIA-222-H

Wind Speed (No Ice)	120 mph
Wind Speed (Ice)	50 mph
Design Ice Thickness	1.00 in
Risk Category	II
Exposure Category	B
Topographic Factor Procedure	Method 1 (Simplified)
Topographic Category	1
Ground Elevation	195 ft
Seismic Importance Factor, Ie	1.00
0.2-sec Spectral Response, Ss	0.246 g
1-sec Spectral Response, S1	0.057 g
Site Class	D
Seismic Design Category	B
Basic Seismic Force-Resisting System	Telecommunication Tower (Pole: Steel)

Limit State Load Combination Reactions

Load Combination	Axial (kips)	Shear (kips)	Moment (ft-k)	Deflection (ft)	Sway (deg)
1.2 D + 1.0 Wo	26.87	11.88	892	0.79	0.88
0.9 D + 1.0 Wo	20.15	11.87	889.02	0.79	0.88
1.2 D + 1.0 Di + 1.0 Wi	32.2	3.83	291.99	0.26	0.29
1.2 D + 1.0 Ev + 1.0 Eh	27.99	0.67	69.18	0.07	0.08
0.9 D - 1.0 Ev + 1.0 Eh	18.95	0.67	68.83	0.07	0.08
1.0 D + 1.0 Wo (Service @ 60 mph)	22.39	2.71	210.61	0.19	0.21

Base Plate Dimensions

Shape	Width	Thickness	Bolt Circle	Bolt Qty	Bolt Diameter
Square	56.25"	1.5"	58"	16	1.5"

Anchor Bolt Dimensions

Length	Diameter	Hole Diameter	Weight	Type	Finish
78"	1.5"	1.8125"	761.6	F1554-105	Galv

Notes

1) Antenna Feed Lines Run Inside Pole
2) All dimensions are above ground level, unless otherwise specified.
3) Weights shown are estimates. Final weights may vary.
4) Tower Rating: 51.6%
5) The tower and foundation design (shown on next page) also meet or exceed the requirements of the 2022 Connecticut State Building Code.

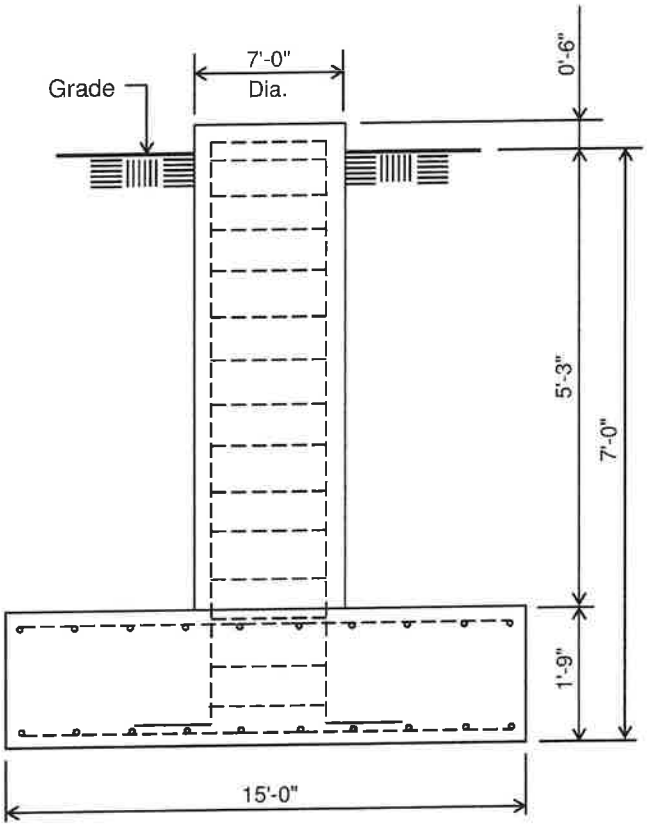
Sabre Industries
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6690
Fax: (712) 279-0814

Job:	22-4786-JDS-R1-RA
Customer:	VERIZON WIRELESS
Site Name:	Norwalk 3, CT
Description:	140' Flagpole
Date:	12/8/2022 By: REB

Sabre Industries™
INNOVATION DELIVERED

No.: 22-4786-JDS-R1
Date: 12/08/22
By: JLG
Revision A

Customer: VERIZON WIRELESS
Site: Norwalk 3, CT
140' Flagpole



ELEVATION VIEW
(22.78 Cu. Yds.)
(1 REQUIRED; NOT TO SCALE)

Notes:

1) Concrete shall have a minimum 28-day compressive strength of 4,500 psi, in accordance with ACI 318-14.
2) Rebar to conform to ASTM specification A615 Grade 60.
3) All rebar to have a minimum of 3" concrete cover.
4) All exposed concrete corners to be chamfered 3/4".
5) The foundation design is based on the geotechnical report by Terracon, Project# J1215125, dated 1/26/2022.
6) See the geotechnical report for compaction requirements, if specified.
7) 5.25 ft of soil cover is required over the entire area of the foundation slab.
8) The bottom anchor bolt template shall be positioned as closely as possible to the bottom of the anchor bolts.

Rebar Schedule for Pad and Pier	
Pier	(36) #8 vertical rebar w/ hooks at bottom w/ #5 ties, (2) within top 5" of pier, then 4" C/C
Pad	(16) #6 horizontal rebar evenly spaced each way top and bottom (64 total)

7101 Southbridge Drive - P.O. Box 658 - Sioux City, IA 51102-0658 - Phone 712.258.6690 - Fax 712.279.0814

(USA 222-H) - Monopole Spatial Analysis (c)2017 Guymast Inc.

Tel:(416)736-7453 Fax:(416)736-4372 Web:www.guymast.com

Processed under license at:

Sabre Towers and Poles on: 8 dec 2022 at: 11:50:30

140' Flagpole / Norwalk 3, CT

* All pole diameters shown on the following pages are across corners.
See profile drawing for widths across flats.

POLE GEOMETRY

ELEV ft	SECTION NAME	No. SIDE	OUTSIDE DIAM in	THICK -NESS in	RESISTANCES **Pn kip	**Mn ft-kip	SPLICE TYPE	...OVERLAP... LENGTH ft	RATIO	w/t
89.0										
			40.62	0.312	2696.0	2200.8				
	A	18								21.5
			46.05	0.312	2916.8	2704.7				
53.2										
			46.05	0.312	2916.8	2704.7				
	A/B	18					SLIP	6.50	1.71	
			46.43	0.312	2930.8	2740.0				
46.7										
			46.43	0.312	2930.8	2740.0				
	B	18								24.7
			53.54	0.312	3165.3	3418.8				
0.0										

POLE ASSEMBLY

SECTION NAME	BASE ELEV ft	BOLTS AT BASE OF SECTION NUMBER	TYPE	DIAM in	STRENGTH ksi	THREADS IN SHEAR PLANE	CALC BASE ELEV ft
A	46.750	0	A325	0.00	92.0	0	46.750
B	0.000	0	A325	0.00	92.0	0	0.000

POLE SECTIONS

SECTION NAME	No.of SIDES	LENGTH ft	OUTSIDE.DIAMETER BOT * in	TOP * in	BEND RAD in	MAT-ERIAL ID	FLANGE.ID BOT	TOP	FLANGE.WELD ..GROUP.ID.. BOT	TOP
A	18	42.25	47.05	40.62	0.625	1	0	0	0	0
B	18	53.25	53.54	45.43	0.625	2	0	0	0	0

* - Diameter of circumscribed circle

MATERIAL TYPES

TYPE OF SHAPE	TYPE NO	NO OF ELEM.	ORIENT & deg	HEIGHT in	WIDTH in	.THICKNESS. WEB in	FLANGE in	IRREGULARITY .PROJECTION. % OF AREA	ORIENT deg
PL	1	1	0.0	47.05	0.31	0.312	0.312	0.00	0.0
PL	2	1	0.0	53.54	0.31	0.312	0.312	0.00	0.0

& - With respect to vertical

MATERIAL PROPERTIES

MATERIAL TYPE NO.	ELASTIC MODULUS ksi	UNIT WEIGHT pcf	.. STRENGTH .. Fu ksi	Fy ksi	THERMAL COEFFICIENT /deg
1	29000.0	490.0	80.0	65.0	0.00001170
2	29000.0	490.0	80.0	65.0	0.00001170

* Only 5 condition(s) shown in full
* Some concentrated wind loads may have been derived from full-scale wind tunnel testing

LOADING CONDITION A

120 mph wind with no ice. Wind Azimuth: 0• (1.2 D + 1.0 Wo)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	135.750	0.00	0.0	0.0	0.0000	0.5278	0.0000	0.0000
C	135.750	0.00	0.0	0.0	0.0000	0.2819	0.0000	0.0000
C	133.000	0.00	0.0	0.0	0.3807	0.0900	0.0000	0.0000
C	131.000	0.00	0.0	0.0	0.0000	0.0936	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0000	0.4938	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0000	0.1768	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0000	0.3204	0.0000	0.0000
C	123.000	0.00	0.0	0.0	0.0000	0.3204	0.0000	0.0000
C	122.000	0.00	0.0	0.0	0.0000	0.2628	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0000	0.1510	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0000	0.0384	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0000	0.4432	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0000	0.1080	0.0000	0.0000
C	114.000	0.00	0.0	0.0	4.4863	4.8000	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0000	0.4044	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0000	0.1080	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0000	0.3655	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0000	0.1080	0.0000	0.0000
D	89.000	0.00	180.0	0.0	0.0827	0.1644	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0817	0.1788	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0802	0.3664	0.0000	0.0000
D	46.750	0.00	180.0	0.0	0.0802	0.3664	0.0000	0.0000
D	46.750	0.00	180.0	0.0	0.0754	0.1875	0.0000	0.0000
D	0.000	0.00	180.0	0.0	0.0762	0.2087	0.0000	0.0000

LOADING CONDITION M

120 mph wind with no ice. Wind Azimuth: 0• (0.9 D + 1.0 Wo)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	135.750	0.00	0.0	0.0	0.0000	0.3958	0.0000	0.0000
C	135.750	0.00	0.0	0.0	0.0000	0.2114	0.0000	0.0000
C	133.000	0.00	0.0	0.0	0.3807	0.0675	0.0000	0.0000
C	131.000	0.00	0.0	0.0	0.0000	0.0702	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0000	0.3703	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0000	0.1326	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0000	0.2403	0.0000	0.0000
C	123.000	0.00	0.0	0.0	0.0000	0.2403	0.0000	0.0000
C	122.000	0.00	0.0	0.0	0.0000	0.1971	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0000	0.1133	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0000	0.0288	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0000	0.3324	0.0000	0.0000

C	114.000	0.00	0.0	0.0	0.0000	0.0810	0.0000	0.0000
C	114.000	0.00	0.0	0.0	4.4863	3.6000	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0000	0.3033	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0000	0.0810	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0000	0.2741	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0000	0.0810	0.0000	0.0000
D	89.000	0.00	180.0	0.0	0.0827	0.1233	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0817	0.1341	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0802	0.2748	0.0000	0.0000
D	46.750	0.00	180.0	0.0	0.0802	0.2748	0.0000	0.0000
D	46.750	0.00	180.0	0.0	0.0754	0.1406	0.0000	0.0000
D	0.000	0.00	180.0	0.0	0.0762	0.1565	0.0000	0.0000

LOADING CONDITION Y

50 mph wind with 1 ice. Wind Azimuth: 0° (1.2 D + 1.0 Di + 1.0 Wi)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	135.750	0.00	0.0	0.0	0.0000	0.5278	0.0000	0.0000
C	135.750	0.00	0.0	0.0	0.0000	0.2819	0.0000	0.0000
C	133.000	0.00	0.0	0.0	0.1698	0.1590	0.0000	0.0000
C	131.000	0.00	0.0	0.0	0.0000	0.0936	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0000	0.4938	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0000	0.1768	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0000	0.3204	0.0000	0.0000
C	123.000	0.00	0.0	0.0	0.0000	0.3204	0.0000	0.0000
C	122.000	0.00	0.0	0.0	0.0000	0.2628	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0000	0.1510	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0000	0.0384	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0000	0.4432	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0000	0.1080	0.0000	0.0000
C	114.000	0.00	0.0	0.0	1.4379	4.8000	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0000	0.4044	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0000	0.1080	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0000	0.3655	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0000	0.1080	0.0000	0.0000
D	89.000	0.00	180.0	0.0	0.0264	0.2217	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0259	0.2388	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0254	0.4271	0.0000	0.0000
D	46.750	0.00	180.0	0.0	0.0254	0.4271	0.0000	0.0000
D	46.750	0.00	180.0	0.0	0.0238	0.2490	0.0000	0.0000
D	0.000	0.00	180.0	0.0	0.0239	0.2656	0.0000	0.0000

LOADING CONDITION AK

Seismic - Azimuth: 0° (1.2 D + 1.0 Ev + 1.0 Eh)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	135.750	0.00	0.0	0.0	0.0365	0.5508	0.0000	0.0000
C	135.750	0.00	0.0	0.0	0.0195	0.2942	0.0000	0.0000
C	133.000	0.00	0.0	0.0	0.0060	0.0939	0.0000	0.0000
C	131.000	0.00	0.0	0.0	0.0061	0.0977	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0304	0.5154	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0109	0.1845	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0189	0.3344	0.0000	0.0000
C	123.000	0.00	0.0	0.0	0.0186	0.3344	0.0000	0.0000
C	122.000	0.00	0.0	0.0	0.0150	0.2743	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0085	0.1576	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0022	0.0401	0.0000	0.0000

C	114.000	0.00	0.0	0.0	0.0225	0.4627	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.2436	5.0096	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0055	0.1127	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0174	0.4221	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0047	0.1127	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0132	0.3815	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0039	0.1127	0.0000	0.0000
C	67.880	0.00	0.0	0.0	0.1475	7.6341	0.0000	0.0000
C	26.620	0.00	0.0	0.0	0.0397	10.8694	0.0000	0.0000
D	89.000	0.00	180.0	180.0	0.0000	0.0000	0.0000	0.0000
D	0.000	0.00	180.0	180.0	0.0000	0.0000	0.0000	0.0000

LOADING CONDITION AL

Seismic - Azimuth: 0• (0.9 D - 1.0 Ev + 1.0 Eh)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	135.750	0.00	0.0	0.0	0.0365	0.3728	0.0000	0.0000
C	135.750	0.00	0.0	0.0	0.0195	0.1991	0.0000	0.0000
C	133.000	0.00	0.0	0.0	0.0060	0.0636	0.0000	0.0000
C	131.000	0.00	0.0	0.0	0.0061	0.0661	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0304	0.3488	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0109	0.1249	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0189	0.2263	0.0000	0.0000
C	123.000	0.00	0.0	0.0	0.0186	0.2263	0.0000	0.0000
C	122.000	0.00	0.0	0.0	0.0150	0.1856	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0085	0.1066	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0022	0.0271	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0225	0.3131	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.2436	3.3904	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0055	0.0763	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0174	0.2856	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0047	0.0763	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0132	0.2581	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0039	0.0763	0.0000	0.0000
C	67.880	0.00	0.0	0.0	0.1475	5.1666	0.0000	0.0000
C	26.620	0.00	0.0	0.0	0.0397	7.3561	0.0000	0.0000
D	89.000	0.00	180.0	180.0	0.0000	0.0000	0.0000	0.0000
D	0.000	0.00	180.0	180.0	0.0000	0.0000	0.0000	0.0000

(USA 222-H) - Monopole Spatial Analysis (c)2017 Guymast Inc.

Tel:(416)736-7453 Fax:(416)736-4372 Web:www.guymast.com

Processed under license at:

Sabre Towers and Poles on: 8 dec 2022 at: 11:50:30

140' Flagpole / Norwalk 3, CT

MAXIMUM POLE DEFORMATIONS CALCULATED(w.r.t. wind direction)

MAST ELEV ft	.....DEFLECTIONS (ft)..... HORIZONTAL ..... ALONG	ACROSS	DOWN	.....ROTATIONS (deg)..... TILT ..... ALONG	ACROSS	TWIST
89.0	0.79I	0.00I	0.01I	0.88I	0.00I	0.00I
77.1	0.62I	0.00I	0.01I	0.81I	0.00I	0.00I

65.2	0.46I	0.00I	0.01I	0.73I	0.00I	0.00I
53.2	0.31I	0.00I	0.00I	0.63I	0.00I	0.00I
46.7	0.25I	0.00I	0.00I	0.57I	0.00I	0.00I
35.1	0.14I	0.00I	0.00I	0.45I	0.00I	0.00I
23.4	0.06I	0.00I	0.00I	0.31I	0.00I	0.00I
11.7	0.02I	0.00I	0.00AI	0.16I	0.00I	0.00I
0.0	0.00A	0.00A	0.00A	0.00A	0.00A	0.00A

MAXIMUM POLE FORCES CALCULATED(w.r.t. to wind direction)

MAST ELEV ft	TOTAL AXIAL kip	SHEAR.w.r.t.WIND.DIR ALONG kip	ACROSS kip	MOMENT.w.r.t.WIND.DIR ALONG ft-kip	ACROSS ft-kip	TORSION ft-kip
89.0	9.49 AK	4.87 I	0.00 N	-128.91 B	0.00 B	0.00 N
	11.84 AB	5.85 I	0.00 N	-194.54 I	0.01 N	0.00 N
77.1	11.84 AB	5.85 O	0.00 B	-194.54 D	0.01 N	0.00 E
	17.13 AK	6.83 O	0.00 B	-272.03 I	-0.02 K	0.00 N
65.2	17.13 AK	6.83 O	0.00 K	-272.03 I	-0.02 K	0.00 N
	17.39 AB	7.81 O	0.00 K	-361.25 I	-0.04 K	0.00 N
53.2	17.39 AB	7.81 A	0.00 K	-361.26 I	0.05 I	0.00 I
	20.17 AB	8.33 A	0.00 K	-414.81 I	0.07 I	0.00 I
46.7	20.17 AB	8.33 M	0.00 I	-414.82 I	0.07 I	0.00 I
	23.10 AB	9.21 M	0.00 I	-519.27 I	0.13 I	0.00 I
35.1	23.10 AB	9.21 A	0.01 W	-519.27 I	0.13 I	0.00 I
	27.99 AK	10.10 A	0.01 W	-633.73 I	0.19 I	0.00 I
23.4	27.99 AK	10.10 M	0.01 W	-633.73 I	0.19 I	0.00 I
	29.12 AB	10.99 M	0.01 W	-758.03 I	0.25 I	0.00 I
11.7	29.12 AB	10.99 A	0.01 W	-758.03 I	0.25 I	0.00 I
	32.20 AB	11.88 A	0.01 W	-892.00 I	0.29 I	0.00 I
base reaction	32.20 AB	-11.88 A	-0.01 W	892.00 I	-0.29 I	0.00 I

COMPLIANCE WITH 4.8.2 & 4.5.4

ELEV ft	AXIAL	BENDING	SHEAR + TORSIONAL	TOTAL	SATISFIED	D/t(w/t)	MAX ALLOWED
89.00	0.00AK	0.06B	0.00I	0.06B	YES	21.51A	45.2
	0.00AB	0.08I	0.00I	0.09I	YES	22.52A	45.2
77.08	0.00AB	0.08D	0.00O	0.09D	YES	22.52A	45.2
	0.01AK	0.11I	0.00O	0.11I	YES	23.53A	45.2
65.17	0.01AK	0.11I	0.00O	0.11I	YES	23.53A	45.2
	0.01AB	0.13I	0.01O	0.14I	YES	24.54A	45.2
53.25							

	0.01AB	0.13I	0.01A	0.14I	YES	24.54A	45.2
	0.01AB	0.15I	0.01A	0.15I	YES	25.09A	45.2
46.75							
	0.01AB	0.15I	0.01M	0.16I	YES	24.74A	45.2
	0.01AB	0.18I	0.01M	0.19I	YES	25.73A	45.2
35.06							
	0.01AB	0.18I	0.01A	0.19I	YES	25.73A	45.2
	0.01AK	0.21I	0.01I	0.21I	YES	26.71A	45.2
23.37							
	0.01AK	0.21I	0.01M	0.21I	YES	26.71A	45.2
	0.01AB	0.23I	0.01M	0.24I	YES	27.70A	45.2
11.69							
	0.01AB	0.23I	0.01A	0.24I	YES	27.70A	45.2
	0.01AB	0.26I	0.01A	0.27I	YES	28.69A	45.2
0.00							

MAXIMUM LOADS ONTO FOUNDATION(w.r.t. wind direction)

DOWN	SHEAR.w.r.t.WIND.DIR ALONG	ACROSS	MOMENT.w.r.t.WIND.DIR ALONG	ACROSS	TORSION
kip	kip	kip	ft-kip	ft-kip	ft-kip
32.20	11.88	0.01	-892.00	0.29	0.00
AB	A	W	I	I	I

(USA 222-H) - Monopole Spatial Analysis (c)2017 Guymast Inc.

Tel:(416)736-7453 Fax:(416)736-4372 Web:www.guymast.com

Processed under license at:

Sabre Towers and Poles on: 8 dec 2022 at: 11:50:37

140' Flagpole / Norwalk 3, CT

********** Service Load Condition **********

* Only 1 condition(s) shown in full
* Some concentrated wind loads may have been derived from full-scale wind tunnel testing

LOADING CONDITION A

60 mph wind with no ice. Wind Azimuth: 0• (1.0 D + 1.0 Wo)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	135.750	0.00	0.0	0.0	0.0000	0.4398	0.0000	0.0000
C	135.750	0.00	0.0	0.0	0.0000	0.2349	0.0000	0.0000
C	133.000	0.00	0.0	0.0	0.0952	0.0750	0.0000	0.0000
C	131.000	0.00	0.0	0.0	0.0000	0.0780	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0000	0.4115	0.0000	0.0000
C	127.000	0.00	0.0	0.0	0.0000	0.1473	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0000	0.2670	0.0000	0.0000
C	123.000	0.00	0.0	0.0	0.0000	0.2670	0.0000	0.0000
C	122.000	0.00	0.0	0.0	0.0000	0.2190	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0000	0.1258	0.0000	0.0000

C	121.000	0.00	0.0	0.0	0.0000	0.0320	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0000	0.3694	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0000	0.0900	0.0000	0.0000
C	114.000	0.00	0.0	0.0	1.1216	4.0000	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0000	0.3370	0.0000	0.0000
C	104.000	0.00	0.0	0.0	0.0000	0.0900	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0000	0.3046	0.0000	0.0000
C	94.000	0.00	0.0	0.0	0.0000	0.0900	0.0000	0.0000
D	89.000	0.00	180.0	0.0	0.0176	0.1370	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0174	0.1490	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0171	0.3053	0.0000	0.0000
D	46.750	0.00	180.0	0.0	0.0171	0.3053	0.0000	0.0000
D	46.750	0.00	180.0	0.0	0.0160	0.1562	0.0000	0.0000
D	0.000	0.00	180.0	0.0	0.0162	0.1739	0.0000	0.0000

MAXIMUM POLE DEFORMATIONS CALCULATED(w.r.t. wind direction)

MAST ELEV ft	DEFLECTIONS (ft) HORIZONTAL ALONG	HORIZONTAL ACROSS	DOWN	ROTATIONS (deg) TILT ALONG	TILT ACROSS	TWIST
89.0	0.19B	0.00I	0.00D	0.21B	0.00I	0.00I
77.1	0.15B	0.00I	0.00D	0.20B	0.00I	0.00I
65.2	0.11B	0.00I	0.00D	0.18B	0.00I	0.00I
53.2	0.07B	0.00I	0.00D	0.15B	0.00I	0.00I
46.7	0.06B	0.00I	0.00D	0.14B	0.00I	0.00I
35.1	0.03B	0.00I	0.00D	0.11B	0.00I	0.00I
23.4	0.02B	0.00I	0.00D	0.07B	0.00I	0.00I
11.7	0.00B	0.00I	0.00A	0.04B	0.00I	0.00I
0.0	0.00A	0.00A	0.00A	0.00A	0.00A	0.00A

MAXIMUM POLE FORCES CALCULATED(w.r.t. to wind direction)

MAST ELEV ft	TOTAL AXIAL kip	SHEAR.w.r.t.WIND.DIR ALONG kip	SHEAR.w.r.t.WIND.DIR ACROSS kip	MOMENT.w.r.t.WIND.DIR ALONG ft-kip	MOMENT.w.r.t.WIND.DIR ACROSS ft-kip	TORSION ft-kip
89.0	7.58 K	1.22 B	0.00 I	-32.23 A	0.00 L	0.00 H
	9.23 K	1.43 B	0.00 I	-48.34 F	0.00 I	0.00 C
77.1	9.23 A	1.43 B	0.00 H	-48.33 H	0.00 I	0.00 C
	10.94 A	1.64 B	0.00 H	-66.96 B	0.01 H	0.00 C
65.2	10.94 A	1.64 A	0.00 H	-66.96 B	0.01 H	0.00 C
	12.69 A	1.84 A	0.00 H	-88.09 A	0.01 H	0.00 B
53.2	12.69 A	1.84 K	0.00 H	-88.09 A	0.01 H	0.00 H
	14.67 A	1.95 K	0.00 H	-100.65 A	0.02 H	0.00 C
46.7	14.67 A	1.95 B	0.00 I	-100.65 A	0.01 H	0.00 C
	16.53 A	2.14 B	0.00 I	-124.97 A	-0.02 I	0.00 I
35.1	16.53 A	2.14 B	0.00 I	-124.97 A	-0.02 I	0.00 I
	18.43 A	2.33 B	0.00 I	-151.43 B	-0.04 I	0.00 I
23.4	18.43 A	2.33 B	0.00 I	-151.43 B	-0.04 I	0.00 I
	20.38 A	2.52 B	0.00 I	-179.99 B	-0.06 I	0.00 I

11.7						
	20.38 A	2.52 B	0.00 I	-179.99 B	-0.06 I	0.00 I
	22.39 A	2.71 B	0.00 I	-210.61 B	-0.07 I	0.00 I
base reaction	22.39 A	-2.71 B	0.00 I	210.61 B	0.07 I	0.00 I

COMPLIANCE WITH 4.8.2 & 4.5.4

ELEV ft	AXIAL	BENDING	SHEAR + TORSIONAL	TOTAL	SATISFIED	D/t(w/t)	MAX ALLOWED
89.00							
	0.00K	0.01A	0.00B	0.02A	YES	21.51A	45.2
	0.00K	0.02F	0.00B	0.02F	YES	22.52A	45.2
77.08							
	0.00A	0.02H	0.00B	0.02H	YES	22.52A	45.2
	0.00A	0.03B	0.00B	0.03B	YES	23.53A	45.2
65.17							
	0.00A	0.03B	0.00A	0.03B	YES	23.53A	45.2
	0.00A	0.03A	0.00A	0.04A	YES	24.54A	45.2
53.25							
	0.00A	0.03A	0.00K	0.04A	YES	24.54A	45.2
	0.00A	0.04A	0.00K	0.04A	YES	25.09A	45.2
46.75							
	0.01A	0.04A	0.00B	0.04A	YES	24.74A	45.2
	0.01A	0.04A	0.00B	0.05A	YES	25.73A	45.2
35.06							
	0.01A	0.04A	0.00B	0.05A	YES	25.73A	45.2
	0.01A	0.05B	0.00B	0.06B	YES	26.71A	45.2
23.37							
	0.01A	0.05B	0.00B	0.06B	YES	26.71A	45.2
	0.01A	0.06B	0.00B	0.06B	YES	27.70A	45.2
11.69							
	0.01A	0.06B	0.00B	0.06B	YES	27.70A	45.2
	0.01A	0.06B	0.00B	0.07B	YES	28.69A	45.2
0.00							

MAXIMUM LOADS ONTO FOUNDATION(w.r.t. wind direction)

DOWN	SHEAR.w.r.t.WIND.DIR ALONG	ACROSS	MOMENT.w.r.t.WIND.DIR ALONG	ACROSS	TORSION
kip	kip	kip	ft-kip	ft-kip	ft-kip
22.39 A	2.71 B	0.00 I	-210.61 B	-0.07 I	0.00 I

Seismic Load Effects
Equivalent Lateral Force Procedure
ANSI/TIA-222-H

Parameters	
Risk Category	II
R	1.500
S_S	0.246
S_1	0.057
Site Class	D
T_L (sec)	6.000
F_a	1.600
F_v	2.400
S_{MS}	0.394
S_{M1}	0.137
S_{DS}	0.262
S_{D1}	0.091
T_s	0.347
I_e	1.000
Ω	1.500
C_S	0.030
E (ksi)	29,000
I_{top} (in^4)	7,852
I_{bot} (in^4)	18,079
I_{avg} (in^4)	8,338
g (in/s^2)	386.4
W_t (kips)	22.353
W_u (kips)	1.590
W_L (kips)	20.763
L_p (in)	1668
f_1 (Hertz)	0.486
T (sec)	2.060
k_e	1.7800
V_s (kips)	0.671
Seismic Design Category	B

Vertical Distribution of Seismic Forces

Description	h_i (ft.)	w_i (kips)	W_u (kips)	$w_i h_i^{ke}$	F_{sz} or E_h (kips)	E_V (kips)	1.2 D + 1.0 E_V (kips)	0.9 D - 1.0 E_V (kips)
Antenna Weight	135.75	0.2349	0.2349	1,469.4673	0.0195	0.0123	0.2942	0.1991
Line Deadload	135.75	0.4398	0.0000	2,751.2632	0.0365	0.0230	0.5508	0.3728
Antenna Load	133.00	0.0750	0.0750	452.3944	0.0060	0.0039	0.0939	0.0636
Antenna Weight	131.00	0.0780	0.0780	457.9705	0.0061	0.0041	0.0977	0.0661
Antenna Weight	127.00	0.1473	0.1473	818.4146	0.0109	0.0077	0.1845	0.1249
Line Deadload	127.00	0.4115	0.0000	2,286.3381	0.0304	0.0216	0.5154	0.3488
Antenna Weight	124.00	0.2670	0.2670	1,421.6800	0.0189	0.0140	0.3344	0.2263
Antenna Weight	123.00	0.2670	0.2670	1,401.3363	0.0186	0.0140	0.3344	0.2263
Antenna Weight	122.00	0.2190	0.2190	1,132.8297	0.0150	0.0115	0.2743	0.1856
Antenna Weight	121.00	0.0320	0.0320	163.1203	0.0022	0.0017	0.0401	0.0271
Line Deadload	121.00	0.1258	0.0000	641.2666	0.0085	0.0066	0.1576	0.1066
Antenna Weight	114.00	0.0900	0.0900	412.6037	0.0055	0.0047	0.1127	0.0763
Canister Load	114.00	4.0000	0.0000	18,337.9433	0.2436	0.2096	5.0096	3.3904
Line Deadload	114.00	0.3694	0.0000	1,693.5091	0.0225	0.0194	0.4627	0.3131
Antenna Weight	104.00	0.0900	0.0900	350.3982	0.0047	0.0047	0.1127	0.0763
Line Deadload	104.00	0.3370	0.0000	1,312.0466	0.0174	0.0177	0.4221	0.2856
Antenna Weight	94.00	0.0900	0.0900	292.6915	0.0039	0.0047	0.1127	0.0763
Line Deadload	94.00	0.3046	0.0000	990.5981	0.0132	0.0160	0.3815	0.2581
Structure - Section 1	67.88	6.0956	0.0000	11,104.9581	0.1475	0.3194	7.6341	5.1666
Structure - Section 2	26.62	8.6788	0.0000	2,987.6520	0.0397	0.4548	10.8694	7.3561
	Σ	22.35	1.5902	50,478.48	0.67	1.17	27.99	18.95

Sabre Industries
INNOVATION DELIVERED

SO#: 22-4786-JDS-R1-RA
Site Name: Norwalk 3, CT
Date: 12/8/2022

Square Base Plate and Anchor Rods per ANSI/TIA 222-H

Pole Data

Diameter:	52.720	in (flat to flat)
Thickness:	0.3125	in
Yield (Fy):	65	ksi
# of Sides:	18	"0" IF Round
Strength (Fu):	80	ksi

Reactions

Moment, Mu:	1709.4	ft-kips
Axial, Pu:	26.87	kips
Shear, Vu:	11.88	kips

Anchor Rod Data

Quantity:	16	(multiple of 4)
Diameter:	1.5	in
Rod Material:	F1554	
Strength (Fu):	125	ksi
Yield (Fy):	105	ksi
BC Diam. (in):	58	BC Override:
Rod Spacing:	6	in

Plate Data

Width (in):	56.25	Width Override:
Thickness:	1.5	in
Yield (Fy)	50	ksi
Eff. Width:	26.83	in
Corner Clip	12.00	in
Drain Hole:	2.625	in. diameter
Drain Location:	24.25	in. center of pole to center of drain hole
Center Hole:	40.5	in. diameter

Anchor Rod Results

(per 4.9.9)

Maximum Put:	87.16	Kips
Φt*Rnt:	132.19	Kips
Vu:	0.74	Kips
Φv*Rnv:	82.83	Kips
Tension Interaction Ratio:	0.43	
Maximum Puc:	90.10	Kips
Φc*Rnc:	167.00	Kips
Vu:	0.74	Kips
Φc*Rnvc:	75.15	Kips
Compression Interaction Ratio:	0.54	
Maximum Interaction Ratio:	**54.0%**	**Pass**

Base Plate Results

Base Plate (Mu/Z):	43.7	ksi	
Allowable Φ*Fy:	45	ksi	(per AISC)
Base Plate Interaction Ratio:	**97.2%**	**Pass**	

MAT FOUNDATION DESIGN BY SABRE INDUSTRIES

140' Flagpole VERIZON WIRELESS Norwalk 3, CT (22-4786-JDS-R1) 12/08/22 JLG

Overall Loads:			
Factored Moment (ft-kips)	892		
Factored Axial (kips)	26.87		
Factored Shear (kips)	11.88		
Bearing Design Strength (ksf)	3	Max. Net Bearing Press. (ksf)	2.71
Water Table Below Grade (ft)	**10**		
Width of Mat (ft)	15	Allowable Bearing Pressure (ksf)	**2.00**
Thickness of Mat (ft)	1.75	Safety Factor	**2.00**
Depth to Bottom of Slab (ft)	7	Ultimate Bearing Pressure (ksf)	4.00
Quantity of Bolts in Bolt Circle	16	Bearing Φs	0.75
Bolt Circle Diameter (in)	58		
Effective Anchor Bolt Embedment (in)	65		
Diameter of Pier (ft)	7	Minimum Pier Diameter (ft)	7.00
Ht. of Pier Above Ground (ft)	0.5	Equivalent Square b (ft)	6.20
Ht. of Pier Below Ground (ft)	5.25	Square Pier? (Y/N)	**N**
Quantity of Bars in Mat	16		
Bar Diameter in Mat (in)	0.75		
Area of Bars in Mat (in^2)	7.07		
Spacing of Bars in Mat (in)	11.55	Recommended Spacing (in)	5 to 12
Quantity of Bars Pier	36		
Bar Diameter in Pier (in)	1		
Tie Bar Diameter in Pier (in)	0.625		
Spacing of Ties (in)	4		
Area of Bars in Pier (in^2)	28.27	Minimum Pier A_s (in^2)	27.71
Spacing of Bars in Pier (in)	6.61	Recommended Spacing (in)	5 to 12
f'c (ksi)	4.5		
fy (ksi)	60		
Unit Wt. of Soil (kcf)	**0.11**		
Unit Wt. of Concrete (kcf)	0.15		
Volume of Concrete (yd^3)	22.78		
Two-Way Shear Action:			
Average d (in)	17.25		
ϕv_c (ksi)	0.195	v_u (ksi)	0.028
$\phi v_c = \phi(2 + 4/\beta_c)f'_c{}^{1/2}$	0.302		
$\phi v_c = \phi(\alpha_s d/b_o+2)f'_c{}^{1/2}$	0.195	J (in^3)	8.944E+06
$\phi v_c = \phi 4 f'_c{}^{1/2}$	0.201	c + d (in)	91.69
Shear perimeter, b_o (in)	366.77	$0.40M_{sc}$ (ft-kips)	384.1
β_c	1		
One-Way Shear:			
ϕV_c (kips)	312.4	V_u (kips)	78.7
Stability:			
Overturning Design Strength (ft-k)	1500.9	Total Applied M (ft-k)	981.1

Pier-Slab Transfer by Flexure:

b_{slab} (ft)	12.25		
ϕM_n (ft-kips)	880.2	$0.60M_{sc}$ (ft kips)	576.2

Pier Design:

ϕV_n (kips)	1033.2	V_u (kips)	11.9
$\phi V_c=\phi 2(1+N_u/(2000A_g))f'_c{}^{1/2}b_wd$	569.4		
V_s (kips)	618.5	*** V_s max = $4\ f'_c{}^{1/2}b_wd$ (kips)	1514.7
Maximum Spacing (in)	8.71	(Only if Shear Ties are Required)	
Actual Hook Development (in)	16.50	Req'd Hook Development l_{dh} (in) - Tension	12.52
		Req'd Hook Development l_{dc} (in) - Compression	13.50

Flexure in Slab:

ϕM_n (ft-kips)	538.9	M_u (ft-kips)	243.0
a (in)	0.62		
Steel Ratio	0.00228		
β_1	0.825		
Maximum Steel Ratio (ρ_t)	0.0197		
Minimum Steel Ratio	0.0018		
Rebar Development in Pad (in)	45.00	Required Development in Pad (in)	16.10

Condition	1 is OK, 0 Fails
Maximum Soil Bearing Pressure	1
Pier Area of Steel	1
Pier Shear	1
Interaction Diagram	1
Two-Way Shear Action	1
One-Way Shear Action	1
Overturning	1
Flexure	1
Steel Ratio	1
Length of Development in Pad	1
Hook Development	1
Anchor Bolt Pullout	1
Anchor Bolt Punching Shear	1

Terracon GeoReport

Geotechnical Engineering Report

Norwalk 3 CT Telecommunications Tower
Norwalk, Connecticut
January 26, 2022
Terracon Project No. J1215125

Prepared for:
Hudson Design Group, LLC
North Andover, Massachusetts

Prepared by:
Terracon Consultants, Inc.
Manchester, New Hampshire

January 26, 2022

Hudson Design Group, LLC
45 Beechwood Drive
North Andover, MA 01845

Attn: Mr. Sylvester Bhembe
P: (978) 557 5553 Ext. 235
E: sbhembe@hudsondesigngroupllc.com

Re: Geotechnical Engineering Report
Norwalk 3 CT Telecommunications Tower
284 New Canaan Avenue
Norwalk, Connecticut
Terracon Project No. J1215125

Dear Mr. Bhembe:

We have completed the Geotechnical Engineering services for the above referenced project. This study was authorized by Hudson Design Group (HDG) via Purchase Order No. 10719 dated December 30, 2021. This report presents our review of the subsurface exploration data provided by Hudson Design Group and provides geotechnical recommendations concerning earthwork and the design and construction of foundations for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Gullison, Marc A
Jan 26 2022 8:03 PM

Marc A. Gullison, P.E. (NH)
Senior Staff Engineer

STATE OF CONNECTICUT
SCOTT M. CARTER
28591
LICENSED
PROFESSIONAL ENGINEER

Scott M. Carter, P.E.
Geotechnical Department Manager

Joseph L. Robichaud, Jr., P.E.
Principal

REPORT TOPICS

Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the ***GeoReport*** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report

Norwalk 3 CT Telecommunications Tower
284 New Canaan Avenue
Norwalk, Connecticut

Terracon Project No. J1215125
January 26, 2022

INTRODUCTION

This report presents the results of the subsurface exploration (completed by others) and our geotechnical engineering services performed for the proposed telecommunications tower to be located at 284 New Canaan Avenue in Norwalk, Connecticut. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Excavation considerations
- Foundation design and construction
- Exterior slab design and construction
- Seismic site classification per IBC

The geotechnical field services for this project included the advancement of one test boring to approximately 50 feet below the existing site grade at the proposed tower location. The boring was drilled on December 30, 2021 by Seaboard Drilling (Seaboard) of Chicopee, Massachusetts under contract with Hudson Design Group (HDG). Terracon personnel did not observe the advancement of the boring; a copy of the boring log prepared by Seaboard and the soil samples were provided for our review.

Maps showing the site and approximate boring location, as reported to Terracon, are shown in the Site Location and Exploration Plan sections, respectively. The boring logs, including Seaboard's original boring log, and our typed boring log following review of soil samples and classification by a geotechnical engineer, can be found in the Exploration Results section.

SITE CONDITIONS

The following description of site conditions is derived from our review of provided site plans, publicly available geologic and topographic maps and the provided test boring information.

Item	Description
Parcel Information	The project is located on 284 New Canaan Avenue in Norwalk, Connecticut. The tower compound is centered at approximate coordinates 41.1360°N, 73.4561°W. See Site Location.

Item	Description
Existing Improvements	A fenced-in telecommunications compound with a 140-foot-tall flagpole tower, an equipment shelter, and a generator. The facility is adjacent to a paved parking lot at the rear of the facility of a local excavation company.
Current Ground Cover	Gravel surfaced (assumed).
Existing Topography	The facility area is at an approximate elevation (El.) of 199 feet, as shown on "Elevation," sheet number A-1, prepared by HDG, last revision dated August 16, 2021.

PROJECT DESCRIPTION

Our initial understanding of the project was discussed during project planning. Our final understanding of the project conditions is as follows:

Item	Description
Information Provided	HDG provided the following information: ■ "Norwalk 3 CT Plan Set," prepared by HDG, last revision dated August 16, 2021 ■ "Geotechnical Report" prepared by Dewberry, dated April 7, 2014 ■ Norwalk CT Boring Log Excel File, drilled by Seaboard Drilling, dated December 30, 2021
Project Description	The project includes construction of a second telecommunications facility within the existing compound. New structures will include a 140-foot-tall flagpole tower, equipment cabinets, generator and propane tank, among other ancillary features.
Tower Base Elevation	Based on the "Elevation Plan," the tower base will be at or near the existing ground surface of approximately El. 199 feet.
Grading/Slopes	Proposed grading plans were not provided; however, we assume minimal grade changes will be required to develop the site.

GEOTECHNICAL CHARACTERIZATION

Subsurface Conditions

The presence of existing fill was not noted on the test boring log. Existing site grading and general topography in the project vicinity indicate the possibility of encountering fill during excavation. Based on our interpretation of the driller's test boring log and soil samples, existing fill is expected at the site and anticipated to extend to approximately 4 feet below existing ground surface. The

test boring generally encountered loose to medium dense silty sand within 4 feet of the existing ground surface.

Beneath the apparent fill was a layer of loose to medium dense silty sand grading to silty gravel. From approximately 12 to 30 feet, the deposit consisted of loose, poorly graded sand with silt before changing to medium dense silty sand with gravel at approximately 30 feet. Dense to very dense sandy silt with gravel (till) was encountered at 35 feet and continued to the boring termination depth of 50 feet.

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration (completed by others), geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at the exploration location are indicated on the boring log. The boring logs, including Seaboard's original boring log, and our typed boring log following review of soil samples and classification by a geotechnical engineer, can be found in the Exploration Results section and the GeoModel can be found in the Figures section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Fill**	Silty Sand, trace gravel, grayish brown
2	**Silty Sand & Silty Gravel**	Silty Sand with Gravel (SM) to Silty Gravel with Sand (GM), brownish gray
3	**Sand**	Poorly Graded Sand with Silt (SP-SM), trace gravel, brown to gray
4	**Till**	Sandy Silt with Gravel (ML), gray

Groundwater Conditions

Groundwater observations were not noted on the boring log prepared by Seaboard Drilling; however, soil samples were described as 'wet' starting at 10 feet below existing grade at the boring location. This description is generally an indicator of the probable groundwater level at the time of drilling. Groundwater level fluctuations can occur due to seasonal changes in the amount of precipitation, runoff, and other factors not evident at the time of exploration. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

GEOTECHNICAL OVERVIEW

The site appears suitable for the proposed development based upon geotechnical conditions presented on Seaboard's test boring log and our review of the recovered samples, provided the recommendations in this report are implemented during design and construction.

As noted in the **Geotechnical Characterization** section, the presence of existing fill was not noted on the test boring log. Existing site grading and general topography in the project vicinity indicate the possibility of encountering fill during excavation. Based on our interpretation of the driller's test boring log and soil samples, existing fill is expected at the site and anticipated to extend to approximately 4 feet below existing ground surface. Supporting the tower foundation and exterior slabs on existing unimproved fill may cause structures to settle beyond tolerable limits. We recommend existing fill be removed from the foundation bearing zone and replaced with compacted Structural Fill or Crushed Stone. Excavation for the tower foundation should remove most of the existing fill; however, if pockets of deeper fill are encountered, they should be over-excavated and replaced with compacted Structural Fill or Crushed Stone. Excavation is discussed further in the **Earthwork** section. The geotechnical engineer should be provided the opportunity to review the exposed subsurface conditions and provide supplemental recommendations, as warranted.

The near surface soil could become unstable with typical earthwork and construction traffic, especially after precipitation events. Effective site drainage should be completed early in the construction sequence and maintained after construction to avoid potential issues. If possible, the grading should be performed during the warmer and drier times of the year (typically May to October). If grading is performed during winter months (typically November to April), an increased risk for possible undercutting and replacement of unstable subgrade will persist. Additional site preparation recommendations, including subgrade review and fill placement, are provided in the **Earthwork** section.

Based on the subsurface conditions encountered in the boring, Terracon recommends supporting the proposed tower on a monolithic mat foundation bearing on a minimum 12 inches of compacted Structural Fill or Crushed Stone placed above proof-rolled native soil. We recommend exterior slabs required for ancillary equipment be supported upon a minimum 24 inches of compacted Crushed Stone over proof-rolled native soil. Crushed stone should be separated from the excavation base, sidewalls, and backfill, using a non-woven geotextile such as Mirafi 140N or equivalent. The **Mat Foundation** section addresses support of the telecommunications tower. The **Exterior Slabs** section addresses exterior slab support of ancillary equipment.

The **General Comments** section provides an understanding of the report limitations.

EARTHWORK

Earthwork is anticipated to include excavations and fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for the tower foundation and exterior slabs.

Site & Subgrade Preparation

Existing vegetation and root mat (if encountered) should be removed before placing new fill. Complete stripping of the topsoil should be performed within proposed structure footprints.

As noted in the Geotechnical Characterization section, existing fill may extend to at least 4 feet below existing ground surface. Supporting the tower foundation and exterior slabs on existing unimproved fill may cause structures to settle beyond tolerable limits. Excavation for the tower foundation and exterior slabs should remove most of the existing fill; however, if pockets of deeper fill are encountered, they should be removed from within the foundation/slab bearing zones and replaced with compacted Structural Fill or Crushed Stone.

Subgrades should be proof-rolled with at least six passes in perpendicular directions using a minimum 10-ton vibratory roller in open areas; or a minimum 1-ton self-propelled vibratory roller or large vibratory plate compactor in trenches. The proof-rolling should be performed under the direction of the Geotechnical Engineer. Areas excessively deflecting under the proof-roll should be delineated and subsequently addressed by the Geotechnical Engineer. Soft or unstable areas should be over-excavated to more competent material and replaced with compacted Structural Fill. Excessively wet or dry material should either be removed, or moisture conditioned and recompacted.

Fill Material Types

The following section presents material property requirements and suitable placement locations for various types of fill. Regardless of its source, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade.

Reuse of On-site Soil: Excavated on-site soil may be selectively reused as raise-in-grade fill (General Fill) above or adjacent to the mat foundation. On-site soil placed as backfill above the foundation should meet the unit weight requirements specified by the foundation designer. Excavated on-site soil is not suitable for reuse as Structural Fill and should not be placed beneath settlement sensitive structures and within foundation bearing zones. Portions of the on-site soil have an elevated fines content and will be sensitive to moisture conditions (particularly during seasonally wet periods) and may not be suitable for reuse when above optimum moisture content. On-site soil may be used as General Fill provided it has the following properties:

- Free of deleterious materials
- A maximum particle size equal to the lesser of 6 inches or 2/3 of the lift thickness
- A suitable moisture content allowing for effective compaction
- Compactive efforts yield a firm and stable surface

Imported Fill Materials: Imported fill materials should meet the material property requirements in the following table.

Fill Type	Connecticut Department of Transportation (CTDOT) Item	Acceptable Location for Placement
Structural Fill	M.02.01 – Granular Fill, Broken or crushed stone (Grading "A")	Beneath the mat foundation and within foundation bearing zones. Structural Fill should also be used as raise-in-grade fill to achieve subgrade elevations beneath exterior slabs and settlement sensitive structures.
Crushed Stone [1]	M.01.02 – No. 6 Coarse Aggregate	Below exterior slabs or other ancillary structures where frost heave may be a concern. As backfill of underdrains and over wet subgrades as needed. Crushed Stone may be substituted for Structural Fill when approved by the Geotechnical Engineer.

1. Crushed Stone should be separated from soil subgrades, excavation sidewalls, and backfill using a non-woven geotextile (such as Mirafi 140N or similar).

Fill Compaction Requirements

Fill materials should meet the following compaction requirements.

Item	Description
Maximum Lift Thickness	*Vibratory Rollers:* 12 inches or less in loose thickness *Plate Compactors:* 6 inches or less in loose thickness when hand-guided equipment (i.e., jumping jack or plate compactor) is used
Minimum Compaction Requirements [1, 2]	*Structural Fill:* At least 95% of the material's maximum dry density *Crushed Stone:* Densified and compacted using at least six (6) passes of a vibratory roller or large vibratory plate compactor *General Fill:* At least 92% of the material's maximum dry density
Water Content Range [1]	±3% of optimum water content

Item	Description
1.	Maximum density and optimum water content as determined by the Modified Proctor test (ASTM D1557, Method C).
2.	We recommend testing fill for moisture content and compaction during placement. If the results of in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested, as required, until the specified moisture and compaction requirements are achieved.

Utility Trench Backfill

Trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. Trenches should be backfilled with material that approximately matches the permeability characteristics of the surrounding soil. Fill placed as backfill for utilities located below slabs should consist of compacted Structural Fill or suitable bedding material approved by the utility designer.

Grading and Drainage

All grades must provide effective drainage away from structures during and after construction and should be maintained throughout the life of the structures. Water retained next to structures can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential foundation or slab movements.

After construction has been completed, final grades should be verified to document effective drainage has been achieved. Grades around structures should also be periodically inspected and adjusted, as necessary, as part of the facility's maintenance program.

Earthwork Construction Considerations

Shallow excavations for the proposed foundation and exterior slabs are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of foundation and exterior slabs. Construction traffic over the completed subgrades should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to slab construction.

The amount of groundwater expected to be encountered in excavations at this site will greatly depend on the depth of excavation required for construction of the mat foundation and the prevailing weather conditions at the time of construction. Groundwater or seasonally saturated soils could affect over-excavation efforts, especially for over-excavation and replacement of lower strength soils.

Based on the soil descriptions on the boring log provided by Seaboard Drilling, the groundwater level is anticipated to be about 10 feet below existing grade. Though not anticipated, a temporary dewatering system could be necessary to achieve the required depth of excavation. The dewatering system, if required, should lower and maintain the groundwater table at least 2 feet below the bottom of the mat foundation. Dewatering is a means and methods consideration for the contractor.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of vegetation, topsoil, and unsuitable fill. Foundation excavations and subgrade preparation should also be observed by the Geotechnical Engineer. If unanticipated conditions are encountered, the Geotechnical Engineer should be notified to evaluate the need for supplemental mitigation recommendations.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the tower facility area.

MAT FOUNDATION

We recommend the tower be constructed on a monolithic mat foundation. If the site has been prepared in accordance with the requirements noted in the Earthwork section, the following design parameters are applicable for the foundation.

Foundation Design Parameters

Item	Description
Maximum Net Allowable Bearing Pressure [1]	2,000 psf
Required Bearing Stratum [2]	Minimum 12 inches of compacted Structural Fill or Crushed Stone over proof-rolled native soil
Ultimate Passive Resistance [3] **(Equivalent Fluid Pressures)**	390 pcf (Structural Fill)
Ultimate Coefficient of Sliding Friction [4]	0.45 (Cast-in-place Concrete on Structural Fill)
Minimum Embedment below Finished Grade [5]	42 inches
Estimated Total Settlement from Structural Loads [6]	Less than about 1 inch
Estimated Differential Settlement [7]	About 1/2 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied. Values assume that exterior grades are no steeper than 2H:1V next to the structure.
2. Unsuitable or soft soils should be over-excavated and replaced per the recommendations presented in the Earthwork section.
3. Use of passive earth pressures require the sides of the excavation for the mat foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the foundation forms are removed and compacted Structural Fill is placed against the vertical foundation face.
4. Can be used to compute sliding resistance where concrete foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions.
5. Embedment necessary to minimize the effects of frost and/or seasonal water content variations. A deeper embedment may be necessary to resist overturning. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
6. The estimated total settlement of 1 inch is based on the bearing capacity and our experience with similar projects. A refined settlement evaluation should be performed once foundation layout and structural loads become available.
7. Differential settlements are as measured over a span of 40 feet.

Foundation Construction Considerations

As noted in the Earthwork section, the foundation excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the

bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the foundation excavations should be removed/reconditioned before foundation concrete is placed.

EXTERIOR SLABS

The following sections present design parameters for slab-on-grade support of ancillary structures and assumes the requirements in the Earthwork section have been followed. Specific attention should be given to positive drainage away from the structure and positive drainage of the base course beneath the slab.

Slab Design Parameters

Item	Description
Slab Support [1, 2]	Minimum 24 inches of compacted Crushed Stone over proof-rolled native soil
Allowable Bearing Capacity [3]	1,000 psf
Estimated Modulus of Subgrade Reaction [4]	200 pounds per square inch per inch (psi/in) for point loads
Modulus Correction Factor, K_c [4]	$K_c = k\left(\frac{b+1}{2b}\right)^2$
Ultimate Coefficient of Sliding Friction	0.50 (Cast-in-place Concrete on Crushed Stone)
Settlement	
Total	<1.0 inch
Differential	About 1/2 of total settlement

1. Slabs should be structurally independent of foundations to reduce the possibility of slab distress caused by differential movements between the slab and the foundation.
2. Other design considerations such as cold temperatures and condensation development could warrant a different base course material.
3. Allowable bearing capacity developed using a factor of safety of 3.0.
4. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in the Earthwork section, and the slab support as noted in this table. It is provided for point loads. It is common to reduce the k-value to account for dimensional effects of large-loaded areas using the modulus correction factor provided, where K_c is the corrected or design modulus value and b is the mat width (short dimension) or tributary loaded area. The native soil at subgrade is expected to develop a subgrade modulus value of 200 psi/in when combined with the base course. Soft or unstable subgrade will be remediated by scarifying and re-compacting or by over-excavation and replacement.

Slab Construction Considerations

Design parameters for slabs assume the requirements in the Earthwork section have been followed. Specific attention should be given to positive drainage away from the structure and positive drainage of the base course beneath the slab. Air entraining admixtures should be used for concrete exposed to freezing. Note that supporting the slab on the minimal 24 inches of Crushed Stone placed over the native subgrade may result in the slab being subject to heave. To eliminate settlement or heave, the native soil would need to be replaced with Crushed Stone to the full frost penetration depth of 42 inches.

Finished subgrade, within and for at least 10 feet beyond the exterior slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until slabs are constructed. If the subgrade should become damaged or desiccated prior to construction of slabs, the affected material should be removed, and Structural Fill or Crushed Stone should be placed to achieve design slab subgrade elevation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the slab support course. The Geotechnical Engineer should approve the condition of the slab subgrades immediately prior to placement of the slab support course, reinforcing steel, and concrete.

SEISMIC CONSIDERATIONS

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC).

Based on the soil properties encountered at the site and as described on the exploration logs and results, it is our professional opinion that the Seismic Site Classification is D. Subsurface explorations at this site were extended to a maximum depth of 50 feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.

LIQUEFACTION

Based upon the soil composition, relative density, and groundwater conditions encountered in the test boring, it is our professional opinion the site is not susceptible to liquefaction during the design seismic event.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from a subsurface exploration completed by others. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

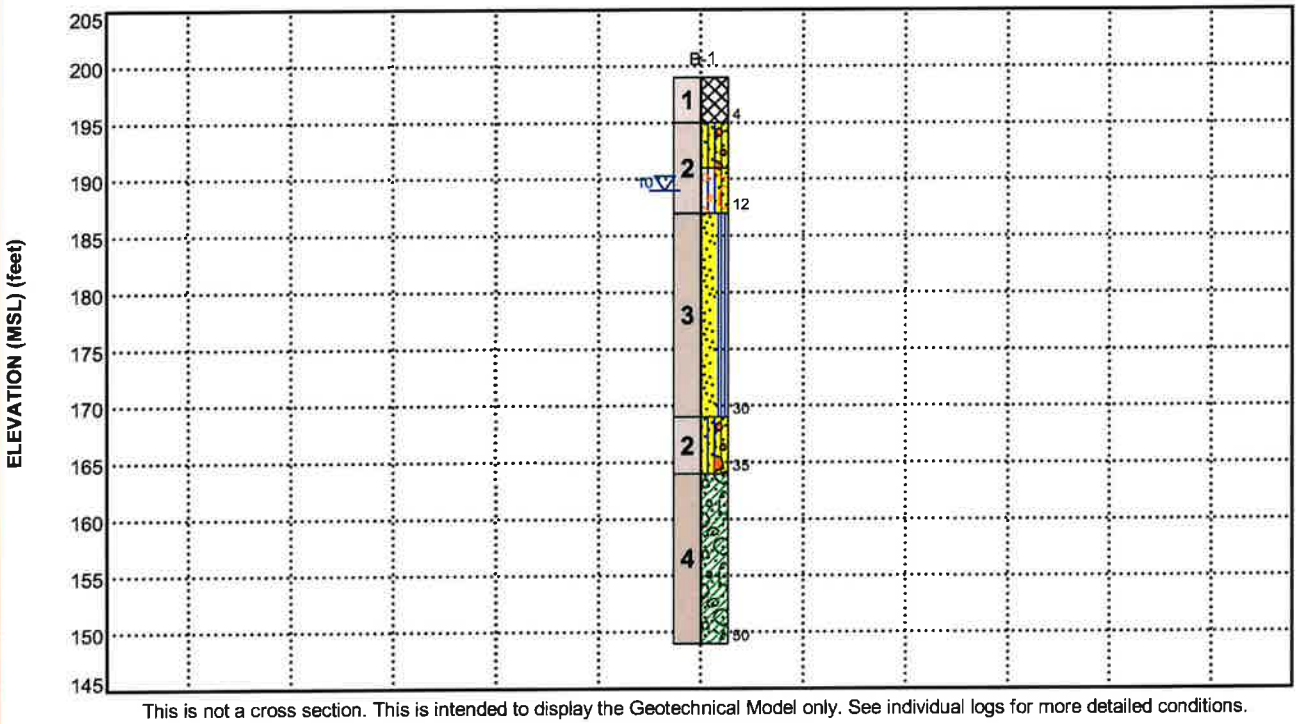
FIGURES

Contents:

GEOMODEL

Norwalk 3 CT Telecommunications Tower ■ Norwalk, CT
Terracon Project No. J1215125

Terracon GeoReport



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Fill	Silty Sand, trace gravel, grayish brown
2	Silty Sand & Silty Gravel	Silty Sand with Gravel (SM) to Silty Gravel with Sand (GM), brownish gray
3	Sand	Poorly Graded Sand with Silt (SP-SM), trace gravel, brown to gray
4	Till	Sandy Silt with Gravel (ML), gray

LEGEND

- Fill
- Silty Sand with Gravel
- Silty Gravel with Sand
- Poorly-graded Sand with Silt
- Glacial Till

▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Boring No.	Boring Depth (feet)	Location
B-1	50	Proposed tower

Boring Layout and Elevations: Final, as-drilled coordinates were not provided by the drilling contractor. We assumed the test boring was located at the proposed tower location as shown on the "Compound Plan" (Sheet No. C-2) prepared by HDG, last revision dated August 16, 2021. The boring surface elevation was taken from the existing grade shown on the "Elevation Plan" (Sheet No. A-1) prepared by HDG, last revision dated August 16, 2021. If elevations and a more precise boring layout are desired, we recommend the boring be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: Seaboard Drilling of Chicopee, Massachusetts was retained by HDG to advance one test boring with a track-mounted rotary drill rig using continuous flight hollow stem augers. Terracon was not present during the boring program. Continuous sampling was performed in the upper 20 feet of the boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration was recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths.

The sampling depths, penetration distances, and other sampling information were recorded on the field boring log, prepared by Seaboard as part of the drilling operations. The samples were brought to our soil laboratory for review and classification by a Geotechnical Engineer. The final boring log was prepared from the driller's field boring log and represents the Geotechnical Engineer's interpretation of the driller's field log and includes modifications based on observation of the samples in our laboratory. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System, as shown in the **Supporting Information** section.

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location
Exploration Plan

Note: All attachments are one page unless noted above.

SITE LOCATION

Norwalk 3 CT Telecommunications Tower ■ Norwalk, Connecticut
January 26, 2022 ■ Terracon Project No. J1215125

Terracon GeoReport

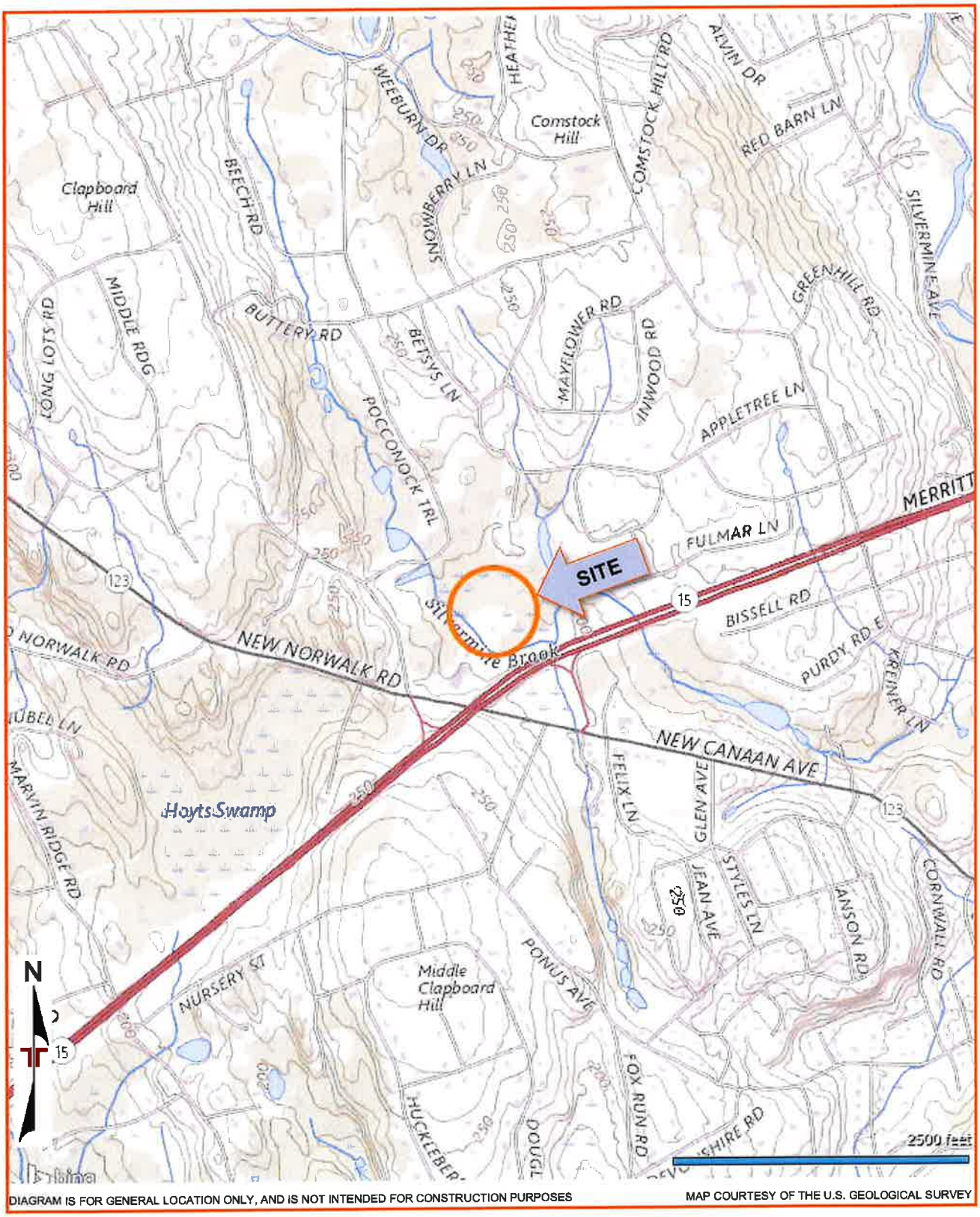


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP COURTESY OF THE U.S. GEOLOGICAL SURVEY

EXPLORATION PLAN

Norwalk 3 CT Telecommunications Tower ■ Norwalk, Connecticut
January 26, 2022 ■ Terracon Project No. J1215125

EXPLORATION RESULTS

Contents:

Note: All attachments are one page unless noted above.

Client: Hudson Design Group				**SEABOARD DRILLING, INC.**	**Test Boring/ Monitor Well ID:** B-1
Location: New Canaan Ave Norwalk, Ct				**649 Meadow St., Chicopee, MA 01013**	
Project: 20094-1301				**DRILLING/SOIL LOG**	**Sheet No.** 1 of 1
Contractor: Seaboard Drilling, Inc.				**Hammer (Weight-lb./fall-30")**	**Start:** 12/30/2021
	Casing		**Core Barrel**	**140/30 300/24**	**Finish:** 12/30/2021
Type	**HSA**	**SS**	**N/A**	**Rig Type: Mobile B-53**	**Driller: Jeff Nitsch**
O.D. Inch	**8-1/2"**				
I.D. Inch	**4-1/4"**				

Depth (ft.) Range	Blows	Sample No.	Recovery	FIELD CLASSIFICATIONS AND REMARKS
0-2'	3-5-5-4	S-1	15"	Brown fine SAND and Silt, some Gravel, some coarse Sand
2-4'	5-12-17-10	S-2	4"	similar to S-1 above
4-6'	3-5-6-5	S-3	13"	fine SAND and Silt , some Gravel, some coarse Sand 9rnoist)
6-8'	2-3-3-4	S-4	4"	Grey fine SAND and Silt, trace Gravel, trace coarse Sand
8-10'	2-4-8-9	S-5	11"	Grey/Brown SILT and fine Sand, some Gravel, trace coarse Sand
10-12'	2-3-6-7	S-6	5"	Grey Brown fine to coarse SAND and Gravel (wet)
12-14'	3-4-5-6	S-7	19"	Brown fine SAND, little Silt, little coarse Sand, trace Gravel (wet)
14-16'	2-3-3-3	S-8	16"	Brown fine SAND , some Silt (wet)
16-18'	3-3-3-3	S-9	18"	Similar to S-8 above
18-20'	2-3-4-7	S-10	24"	Brown fine SAND, some coarse Sand, trace Gravel, trace silt (wet)
25-27'	2-3-3-4	S-11	19"	Grey Brown fine SAND and Silt (wet)
30-32'	12-11-12-9	S-12	8"	Grey fine SAND, little Gravel, trace Silt (wet)
35-37'	14-19-25-45	S-13	16"	Grey fine SAND, some Silt, trace Gravel (wet)
40-42'	12-19-36-39	S-14	17"	Grey Brown fine to coarse SAND and Gravel, little Silt (wet)
45-47'	22-50/2"	S-15	7"	Similar to S-14 above
48-50'	50/3"	S-16	2"	Grey Gravel and coarse SAND, trace fine Sand, trace Silt (wet)
				End of Boring @ 50.0'

SAMPLE PENETRATION RESISTANCE - 140 lb. Wt. Falling 30" on 2" O.D. sampler

Density (# Hammer Blows)		Cohesive Consistence (# Hammer Blows)				PROPORTIONS	
0-4	Very Loose	0-2	Very Soft	3-4	Soft	Trace	0 to 10%
5-9	Loose	5-8	Medium-Stiff	9-15	Stiff	Little	10 to 20%
10-29	Medium-Dense	16-30	Very Stiff	31+	Hard	Some	20 to 35%
30-49	Dense					and	30 to 50%
50+	Very Dense						

BORING LOG NO. B-1

PROJECT: Norwalk 3 CT Telecommunications Tower

CLIENT: Hudson Design Group, LLC
North Andover, MA

SITE: 284 New Canaan Avenue
Norwalk, CT

LOCATION See Exploration Plan

Latitude: 41.1360° Longitude: -73.4561°

Approximate Surface Elev.: 199 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft)		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
1		0.0	199+/-	**FILL - SILTY SAND**, trace gravel, grayish brown, loose to medium dense				15	3-5-5-4 N=10
								4	5-12-17-10 N=29
		4.0	195+/-						
2				**SILTY SAND WITH GRAVEL (SM)**, brownish gray, loose to medium dense	5			13	3-5-6-5 N=11
								4	2-3-3-4 N=6
		8.0	191+/-						
				SILTY GRAVEL WITH SAND (GM), brownish gray, loose to medium dense				11	2-4-8-9 N=12
					10	▽			
								5	2-3-6-7 N=9
		12.0	187+/-						
3				**POORLY GRADED SAND WITH SILT (SP-SM)**, trace gravel, brown, loose				19	3-4-5-6 N=9
					15			16	2-3-3-3 N=6
								18	3-3-3-3 N=6
								24	2-3-4-7 N=7
					20				
				Similar, gray	25			19	2-3-3-4 N=6

Stratification lines are approximate. In-situ, the transition may be gradual.
Samples obtained using a 2" O.D. split spoon sampler

Hammer Type: Automatic

Advancement Method:
4-1/4-inch I.D. hollow stem augers

Abandonment Method:
Unknown. It is assumed the boring was backfilled with soil

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Surface elevation was provided on the project site plan.

Notes:
The original field log was prepared by Seaboard Drilling and the soil samples were sent to our laboratory for review. We prepared this boring log based on a review of the samples and interpretations from Seaboard Drilling's field log. Soil descriptions may differ between the two boring logs.

WATER LEVEL OBSERVATIONS

▽ *10 feet while drilling (based on field soil descriptions)*

Terracon
77 Sundial Ave, Ste 401W
Manchester, NH

Boring Started: 12-30-2021	Boring Completed: 12-30-2021
Drill Rig: Mobile B-53	Driller: Seaboard / J. Nitsch
Project No.: J1215125	

BORING LOG NO. B-1

PROJECT: Norwalk 3 CT Telecommunications Tower

CLIENT: Hudson Design Group, LLC
North Andover, MA

SITE: 284 New Canaan Avenue
Norwalk, CT

LOCATION See Exploration Plan

Latitude: 41.1360° Longitude: -73.4561°

Approximate Surface Elev.: 199 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
3			**POORLY GRADED SAND WITH SILT (SP-SM)**, trace gravel, brown, loose *(continued)*					
		30.0	169+/-	30				
2			**SILTY SAND WITH GRAVEL (SM)**, gray, medium dense			X	8	12-11-12-9 N=23
		35.0	164+/-	35				
4			**SANDY SILT WITH GRAVEL (ML)**, gray, dense to very dense, (TILL)			X	16	14-19-25-45 N=44
				40		X	17	12-19-36-39 N=55
				45		X	7	20-50/2"
						X	2	50/3"
		50.0	149+/-	50				
			Boring Terminated at 50 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.
Samples obtained using a 2" O.D. split spoon sampler

Hammer Type: Automatic

Advancement Method:
4-1/4-inch I.D. hollow stem augers

Abandonment Method:
Unknown. It is assumed the boring was backfilled with soil

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Surface elevation was provided on the project site plan.

Notes:
The original field log was prepared by Seaboard Drilling and the soil samples were sent to our laboratory for review. We prepared this boring log based on a review of the samples and interpretations from Seaboard Drilling's field log. Soil descriptions may differ between the two boring logs.

WATER LEVEL OBSERVATIONS

▽ *10 feet while drilling (based on field soil descriptions)*

Terracon
77 Sundial Ave, Ste 401W
Manchester, NH

Boring Started: 12-30-2021	Boring Completed: 12-30-2021
Drill Rig: Mobile B-53	Driller: Seaboard / J. Nitsch
Project No.: J1215125	

SUPPORTING INFORMATION

Contents:

General Notes
Unified Soil Classification System

Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Norwalk 3 CT Telecommunications Tower ■ Norwalk, CT

Terracon Project No. J1215125

Terracon GeoReport

SAMPLING	WATER LEVEL	FIELD TESTS
Standard Penetration Test	**Water Initially Encountered** **Water Level After a Specified Period of Time** **Water Level After a Specified Period of Time** **Cave In Encountered** Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	**N** Standard Penetration Test Resistance (Blows/Ft.) **(HP)** Hand Penetrometer **(T)** Torvane **(DCP)** Dynamic Cone Penetrometer **UC** Unconfined Compressive Strength **(PID)** Photo-Ionization Detector **(OVA)** Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 4 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or [$Cc<1$ or $Cc>3.0$] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or [$Cc<1$ or $Cc>3.0$] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OL	Organic clay [K, L, M, N] / Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OH	Organic clay [K, L, M, P] / Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.