



**SITE NAME: INNOVATION DRIVE
CROWN CASTLE ID: 816360**

1756 AIRPORT ROAD
CHARLOTTESVILLE, VA 22901
ALBEMARLE COUNTY

SITE INFORMATION

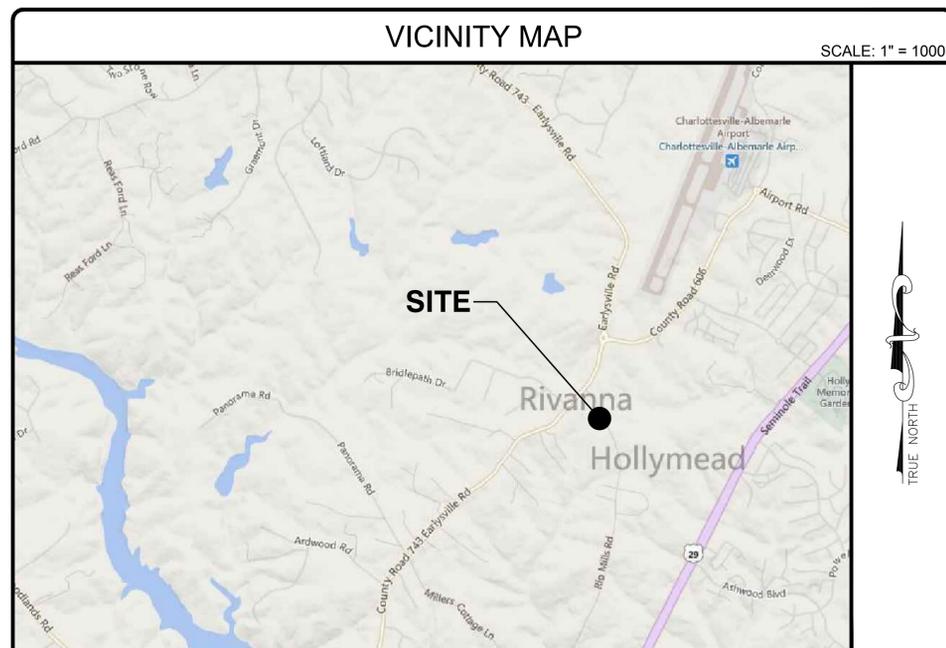
PROJECT DESCRIPTION:	COLLOCATION: INSTALLATION OF ANTENNAS AND ASSOCIATED EQUIPMENT AT AN EXISTING TELECOMMUNICATIONS FACILITY.
SITE ADDRESS:	1756 AIRPORT ROAD CHARLOTTESVILLE, VA 22901
LATITUDE (NAD 83):	38° 07' 58.45"
LONGITUDE (NAD 83):	-78° 26' 25.03"
GROUND ELEVATION:	600.0' (AMSL) (NAVD88)
JURISDICTION:	ALBEMARLE COUNTY
ZONING:	RURAL AREAS
PARCEL ID:	0320000004100
PARCEL AREA:	7.1990 ACRES
PROPOSED ADDED IMPERVIOUS AREA:	1,325 SQ. FT
PROPOSED DISTURBED AREA:	1,578 SQ. FT
PARCEL OWNER:	DAVID P. TURNER & THE MARKET PLACE OF VIRGINIA
TOWER OWNER:	CROWN CASTLE 200 CORPORATE DRIVE CANONSBURG, PA 15317
TOTAL LEASE AREA:	360 SQ FT
STRUCTURE TYPE:	SELF-SUPPORT
STRUCTURE HEIGHT:	148'-0" (AGL)
RAD CENTER:	100'-0" (AGL)
TOP OF ALL APPURTENANCES:	153'-0" (AGL)
POWER PROVIDER:	DOMINION (888) 837-4966
TELCO PROVIDER:	CENTURY LINK (434) 973-8342

EMERGENCY INFORMATION:

ALBEMARLE COUNTY FIRE DEPARTMENT:	(434) 296-5833
ALBEMARLE COUNTY POLICE DEPT:	(434) 977-9041

PROJECT TEAM

ENGINEER OF RECORD:	TRENT T. SNARR, P.E. NB+C ENGINEERING SERVICES (804) 548-4079
SITE ACQUISITION	STACY MONROE GDN SITES (704) 425-1833
ZONING	STEPHEN WALLER GDN SITES (434) 825-0617
CONSTRUCTION MANAGER:	STEVE POOLE NB+C (540) 290-6704
UTILITY COORDINATOR:	JESSE WARD NB+C (540) 290-2005
ENVIRONMENTAL CONSULTANT:	NOAH D-ANTONIA GTA (703) 478-0055



DIRECTIONS

FROM 1831 RADY CT: HEAD NORTHWEST ON RADY CT TOWARD RADY ST. TURN RIGHT ONTO RADY ST. SLIGHT LEFT ONTO DILL AVE. TURN RIGHT ONTO MEADOWBRIDGE RD. TURN LEFT ONTO E LABURNUM AVE. SLIGHT RIGHT ONTO THE INTERSTATE 64 W RAMP. FOLLOW I-64 W TO US-250 W IN RIVANNA. TAKE EXIT 124 FROM I-64 W. MERGE ONTO I-64 W. TAKE EXIT 124 FOR US-250 TOWARD CHARLOTTESVILLE/SHADWELL. TAKE VA-20 S AND PROFFIT RD TO AIRPORT RD IN RIO. USE ANY LANE TO TURN RIGHT ONTO US-250 W. TURN RIGHT ONTO VA-20 S. TURN LEFT ONTO PROFFIT RD. CONTINUE ONTO AIRPORT RD.

CODE COMPLIANCE

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

- 2012 INTERNATIONAL BUILDING CODE
- ANSI/TIA-222-G
- 2011 NATIONAL ELECTRICAL CODE
- TIA 607
- 2009 NFPA 101, LIFE SAFETY CODE
- INSTITUTE FOR ELECTRICAL & ELECTRONICS ENGINEER 81
- 2009 IFC
- IEEE C2 NATIONAL ELECTRIC SAFETY CODE LATEST EDITION
- AMERICAN CONCRETE INSTITUTE
- TELECordia GR-1275
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION
- ANSI/T 311
- MANUAL OF STEEL CONSTRUCTION 13TH EDITION

DRAWING INDEX

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S-2	EQUIPMENT STEEL PLATFORM, CONCRETE PAD, DETAILS & NOTES
S-3	CONSTRUCTION DETAILS & NOTES
S-4	GENERATOR DETAILS
E-1	ELECTRICAL PLAN & DETAILS
E-2	ELECTRICAL PANEL SCHEDULE, DIAGRAM & NOTES
E-3	ELECTRICAL RISER DIAGRAM & SERVICE ENTRANCE SCHEMATIC
G-1	GROUNDING PLAN, DETAILS & NOTES
G-2	GROUNDING RISER DIAGRAM & DETAILS

DO NOT SCALE DRAWINGS

THESE DRAWINGS ARE FORMATTED TO BE FULL-SIZE AT 24"x36". CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE DESIGNER / ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE RESPONSIBLE FOR THE SAME. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICE TO PREVENT STORM WATER POLLUTION DURING CONSTRUCTION.

APPLICANT

APPLICANT:	VERIZON WIRELESS 1831 RADY COURT RICHMOND, VA 23222 MERLE DAIGER (804) 543-7573
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ENGINEER



NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-548-4079

APPLICANT



1831 RADY COURT
RICHMOND, VA 23222

SITE INFORMATION

"INNOVATION DRIVE"
CROWN CASTLE SITE ID: 816360
VERIZON COLLOCATION
NB+C PROJ. 27074
1756 AIRPORT ROAD
CHARLOTTESVILLE, VA 22901
ALBEMARLE COUNTY

DESIGN RECORD

REVISIONS

REV	DATE	DESCRIPTION	BY
3	03/15/16	REVISED	OP
2	01/21/15	REVISED	OP
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PROFESSIONAL STAMP



ENGINEER

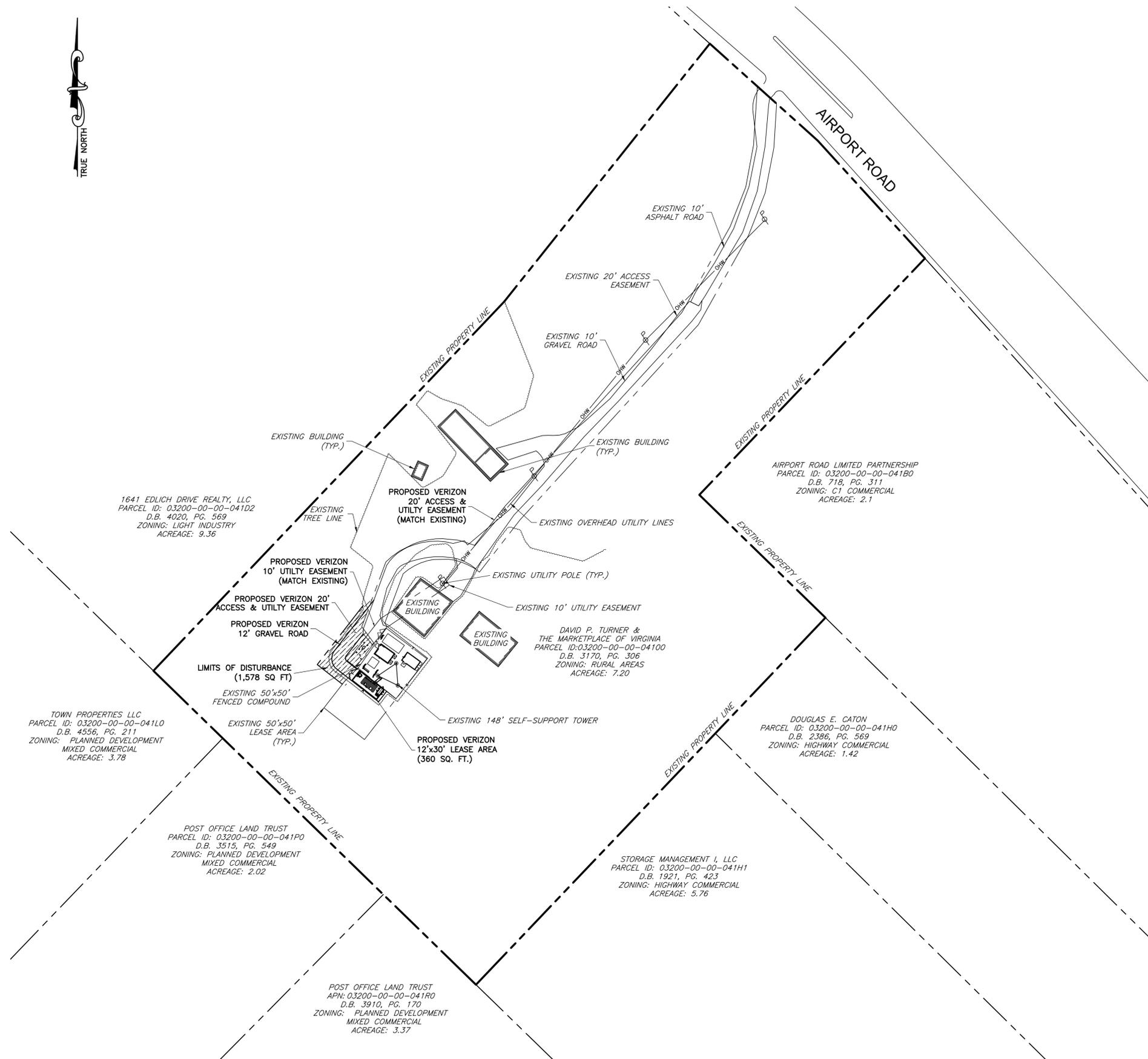
TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



1641 EDLICH DRIVE REALTY, LLC
 PARCEL ID: 03200-00-00-041D2
 D.B. 4020, PG. 569
 ZONING: LIGHT INDUSTRY
 ACREAGE: 9.36

TOWN PROPERTIES LLC
 PARCEL ID: 03200-00-00-041L0
 D.B. 4556, PG. 211
 ZONING: PLANNED DEVELOPMENT
 MIXED COMMERCIAL
 ACREAGE: 3.78

POST OFFICE LAND TRUST
 PARCEL ID: 03200-00-00-041P0
 D.B. 3515, PG. 549
 ZONING: PLANNED DEVELOPMENT
 MIXED COMMERCIAL
 ACREAGE: 2.02

POST OFFICE LAND TRUST
 APN: 03200-00-00-041R0
 D.B. 3910, PG. 170
 ZONING: PLANNED DEVELOPMENT
 MIXED COMMERCIAL
 ACREAGE: 3.37

PROPOSED VERIZON
 20' ACCESS &
 UTILITY EASEMENT
 (MATCH EXISTING)

PROPOSED VERIZON
 10' UTILITY EASEMENT
 (MATCH EXISTING)

PROPOSED VERIZON
 20' ACCESS &
 UTILITY EASEMENT

PROPOSED VERIZON
 12' GRAVEL ROAD

LIMITS OF DISTURBANCE
 (1,578 SQ FT)

EXISTING 50'x50'
 FENCED COMPOUND

EXISTING 50'x50'
 LEASE AREA
 (TYP.)

PROPOSED VERIZON
 12'x30' LEASE AREA
 (360 SQ. FT.)

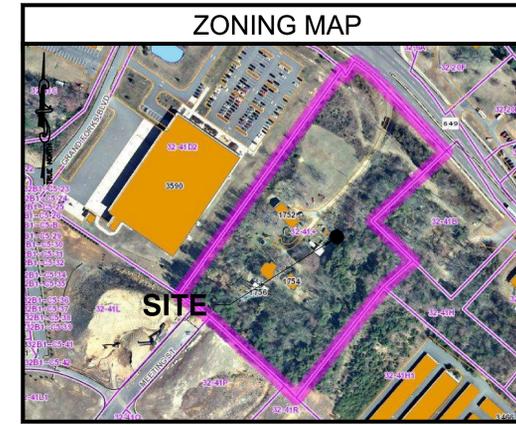
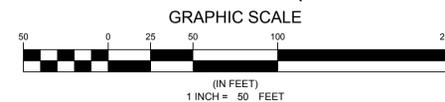
DAVID P. TURNER &
 THE MARKETPLACE OF VIRGINIA
 PARCEL ID: 03200-00-00-04100
 D.B. 3170, PG. 306
 ZONING: RURAL AREAS
 ACREAGE: 7.20

AIRPORT ROAD LIMITED PARTNERSHIP
 PARCEL ID: 03200-00-00-041B0
 D.B. 718, PG. 311
 ZONING: C1 COMMERCIAL
 ACREAGE: 2.1

DOUGLAS E. CATON
 PARCEL ID: 03200-00-00-041H0
 D.B. 2386, PG. 569
 ZONING: HIGHWAY COMMERCIAL
 ACREAGE: 1.42

STORAGE MANAGEMENT I, LLC
 PARCEL ID: 03200-00-00-041H1
 D.B. 1921, PG. 423
 ZONING: HIGHWAY COMMERCIAL
 ACREAGE: 5.76

1 SITE PLAN
 SCALE: 1" = 50'



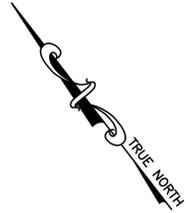
LEGEND	
	PROPERTY LINE - SUBJECT PARCEL
	PROPERTY LINE - ABUTTERS
	EXISTING ROAD
	EXISTING FENCE
	PROPOSED EASEMENT
	PROPOSED LEASE AREA
	EXISTING BUILDING

GENERAL NOTES

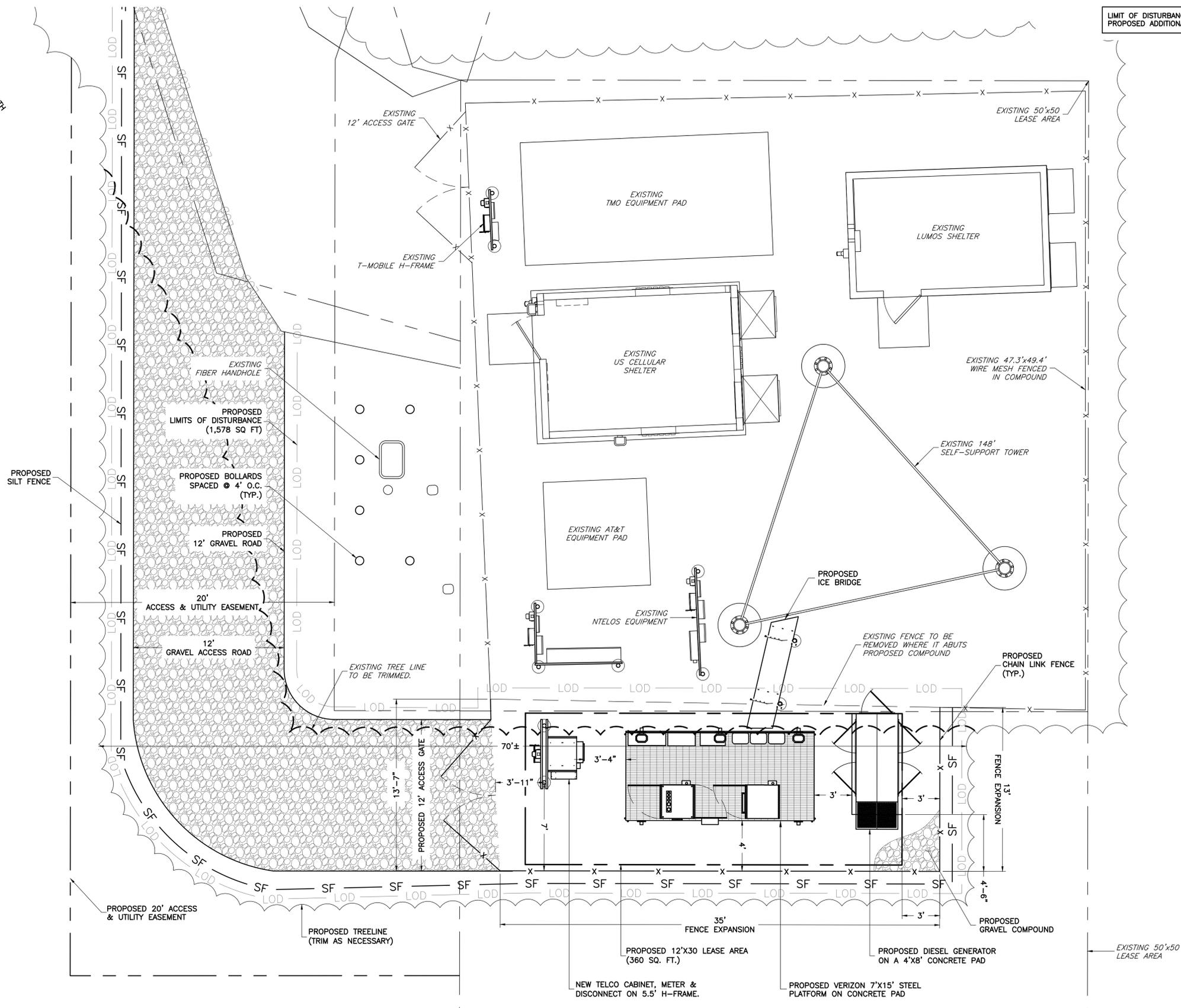
1. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
2. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
3. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION. THERE IS NO HANDICAP ACCESS REQUIRED.
4. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.



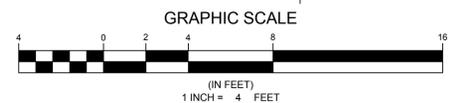
ENGINEER	 NB+C ENGINEERING SERVICES, LLC. 4435 WATERFRONT DRIVE, SUITE 100 GLEN ALLEN, VA 23060 804-548-4072																				
APPLICANT	 1831 RADY COURT RICHMOND, VA 23222																				
SITE INFORMATION	"INNOVATION DRIVE" CROWN CASTLE SITE ID: 816360 VERIZON COLLOCATION NB+C PROJ. 27074 1756 AIRPORT ROAD CHARLOTTESVILLE, VA 22901 ALBEMARLE COUNTY																				
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ENGINEER	TRENT T. SNARR, P.E. VA PROFESSIONAL ENGINEER LIC. #49978																				
SHEET TITLE	SITE PLAN																				
SHEET NUMBER	Z-1																				



LIMIT OF DISTURBANCE = 1,578 SQ. FT.
 PROPOSED ADDITIONAL IMERVIOUS AREA = 1,325 SQ. FT.



1 COMPOUND PLAN
 SCALE: 1" = 4'-0"



ENGINEER



NB+C ENGINEERING SERVICES, LLC.
 4435 WATERFRONT DRIVE, SUITE 100
 GLEN ALLEN, VA 23060
 804-548-4072

APPLICANT



1831 RADY COURT
 RICHMOND, VA 23222

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COMPOUND PLAN

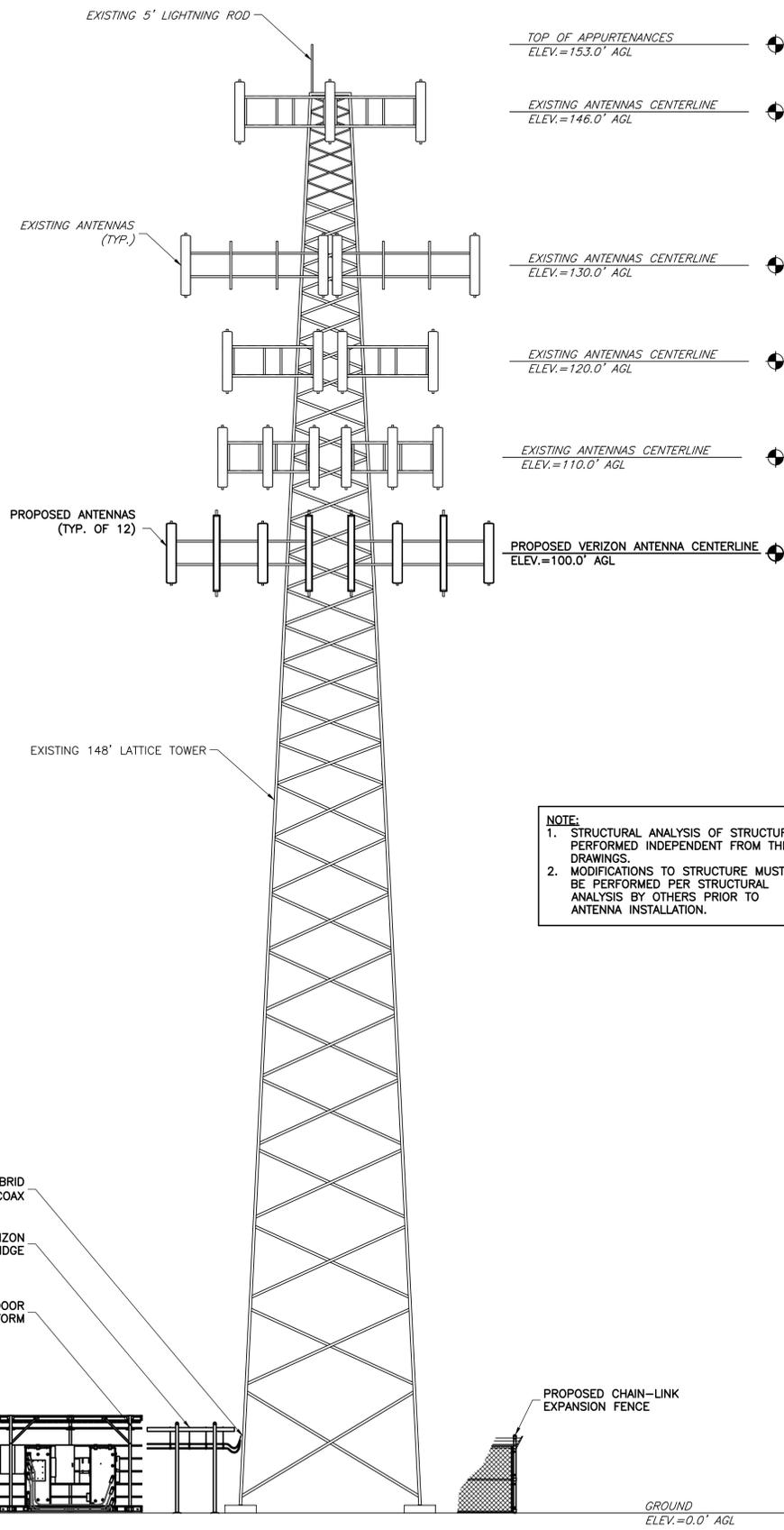
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C-1

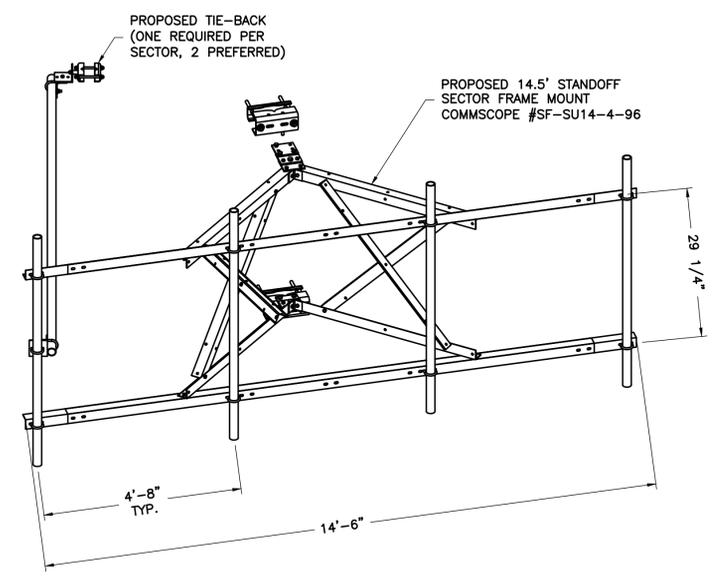
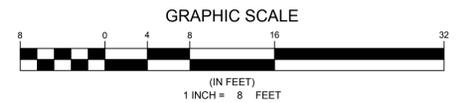


GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
5. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
8. TRANSMITTER EQUIPMENT AND ANTENNAS ARE DESIGNED TO MEET ANSI/TIA 222-G REQUIREMENTS.
9. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
10. CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
11. IF ANY UNDERGROUND UTILITIES OR STRUCTURES EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE IT AND CONTACT THE APPLICANT & THE OWNER'S REPRESENTATIVE.
12. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION BY TECHNICIANS APPROXIMATELY 2 TIMES PER MONTH.
13. PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT OR MODIFICATION OF THE EXISTING STRUCTURE, A STRUCTURAL ANALYSIS SHALL BE PERFORMED BY THE OWNER'S AGENT TO CERTIFY THAT THE EXISTING/PROPOSED COMMUNICATION STRUCTURE AND COMPONENTS ARE STRUCTURALLY ADEQUATE TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, COAXIAL CABLES AND OTHER APPURTENANCES.
14. PROPERTY LINE INFORMATION WAS PREPARED USING DEEDS, TAX MAPS, AND PLANS OF RECORD AND SHOULD NOT BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY.
15. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
16. THE PROPOSED FACILITY WILL CAUSE ONLY A "DE MINIMIS" INCREASE IN STORMWATER RUNOFF. THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
17. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
18. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION (NO HANDICAP ACCESS REQUIRED).
19. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
20. POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.

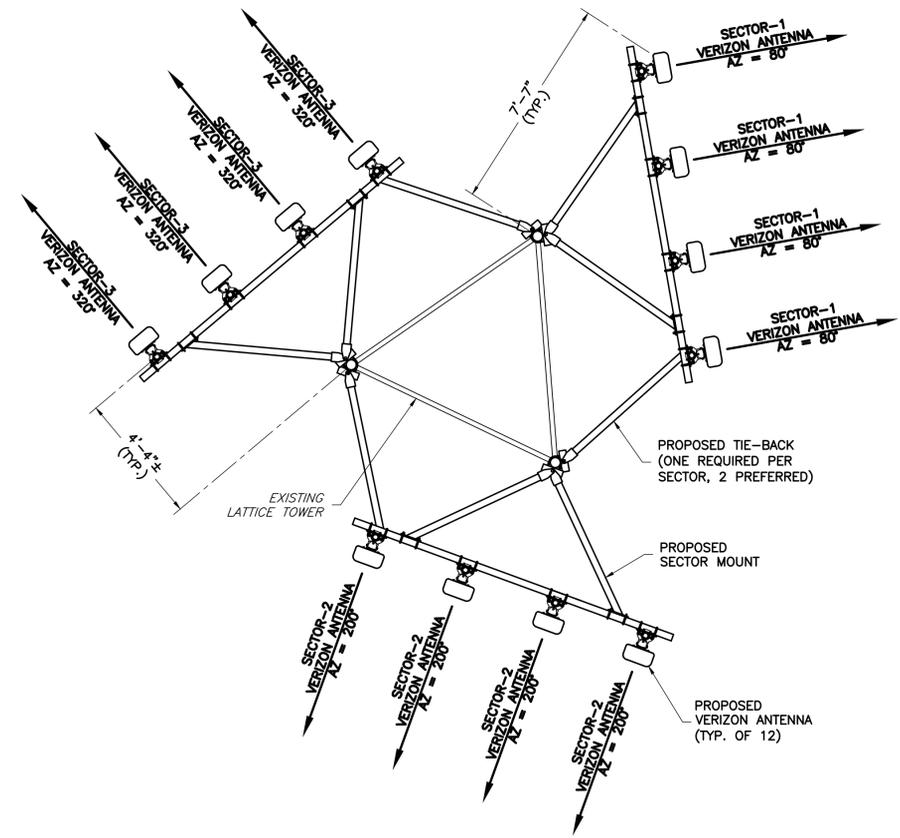


1 ELEVATION
SCALE: 1" = 8'
C-2



2 MOUNT DETAIL
SCALE: NTS
C-2

NOTE: CONTRACTOR TO PROVIDE THIS COMMSCOPE SECTOR FRAME OR A APPROVED EQUAL.



3 ANTENNA ORIENTATION PLAN
SCALE: NTS
C-2



ENGINEER																					
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SHEET TITLE	TOWER ELEVATION & MOUNT DETAILS																				
SHEET NUMBER	C-2																				

REVISIONS

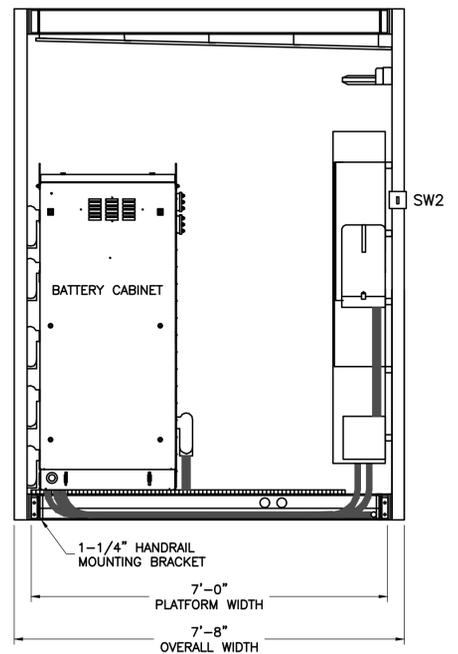
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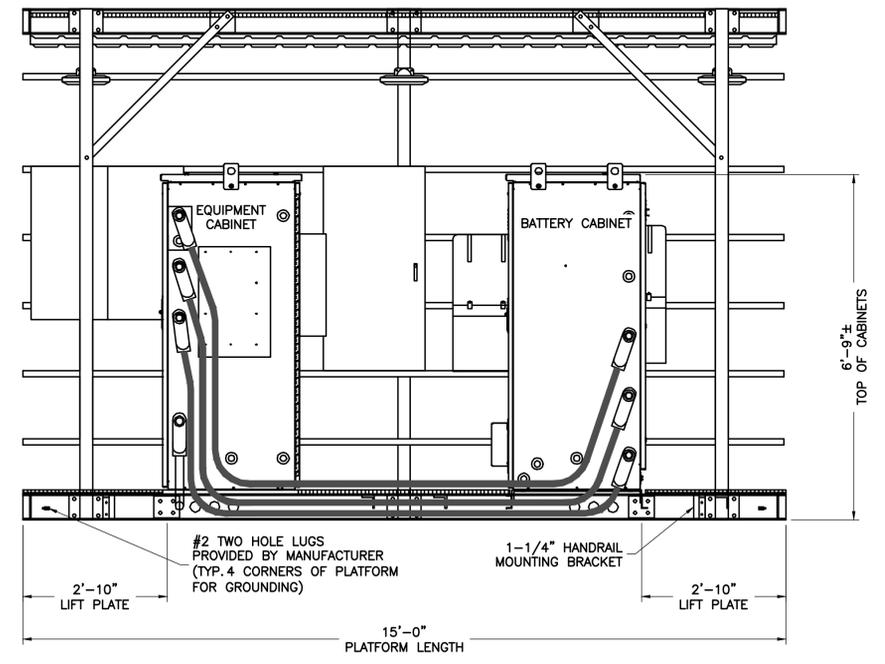
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VA PROFESSIONAL ENGINEER LIC. #49978

**EQUIPMENT
STEEL PLATFORM
DETAILS**

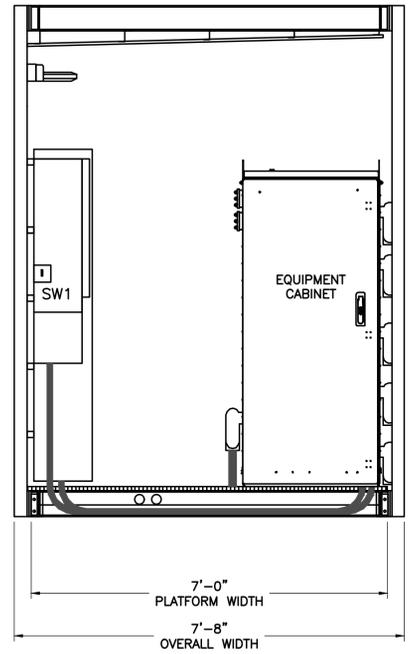
S-1



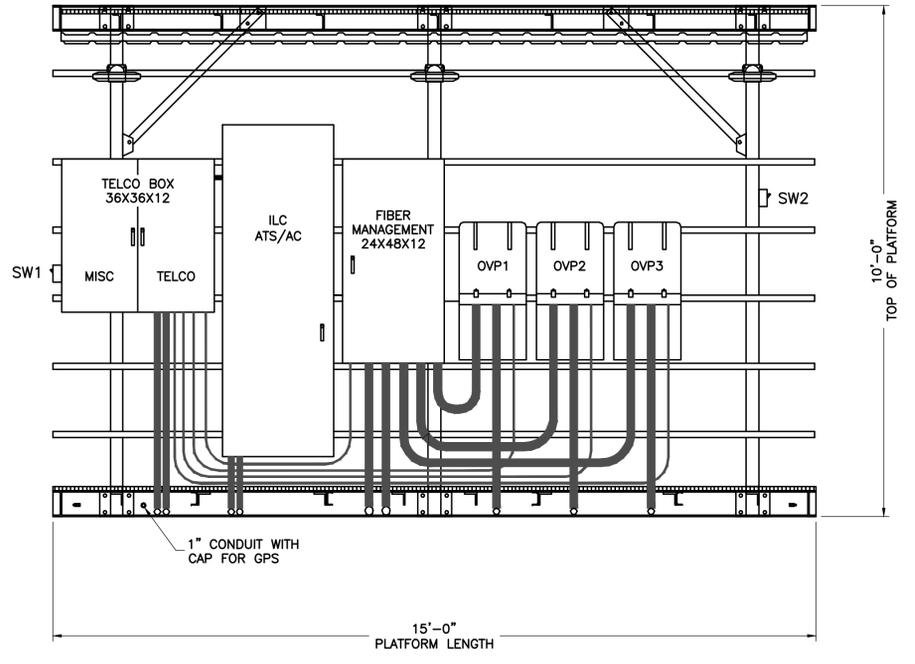
1 PLATFORM RIGHT ELEVATION
SCALE: NTS



2 PLATFORM FRONT ELEVATION
SCALE: NTS

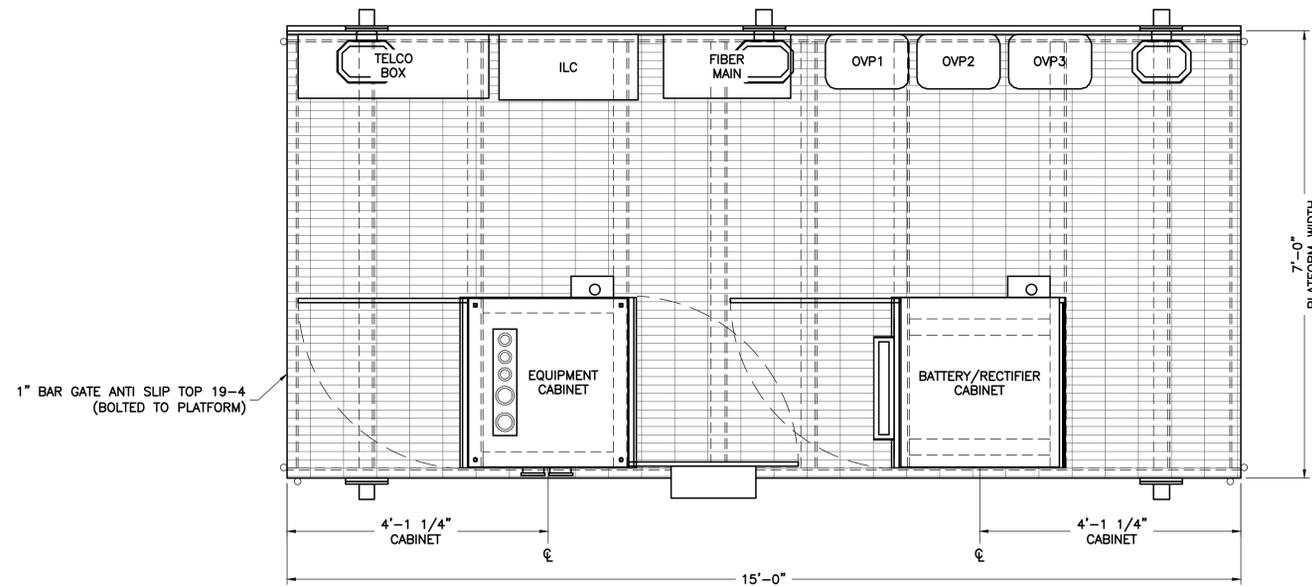


3 PLATFORM LEFT ELEVATION
SCALE: NTS

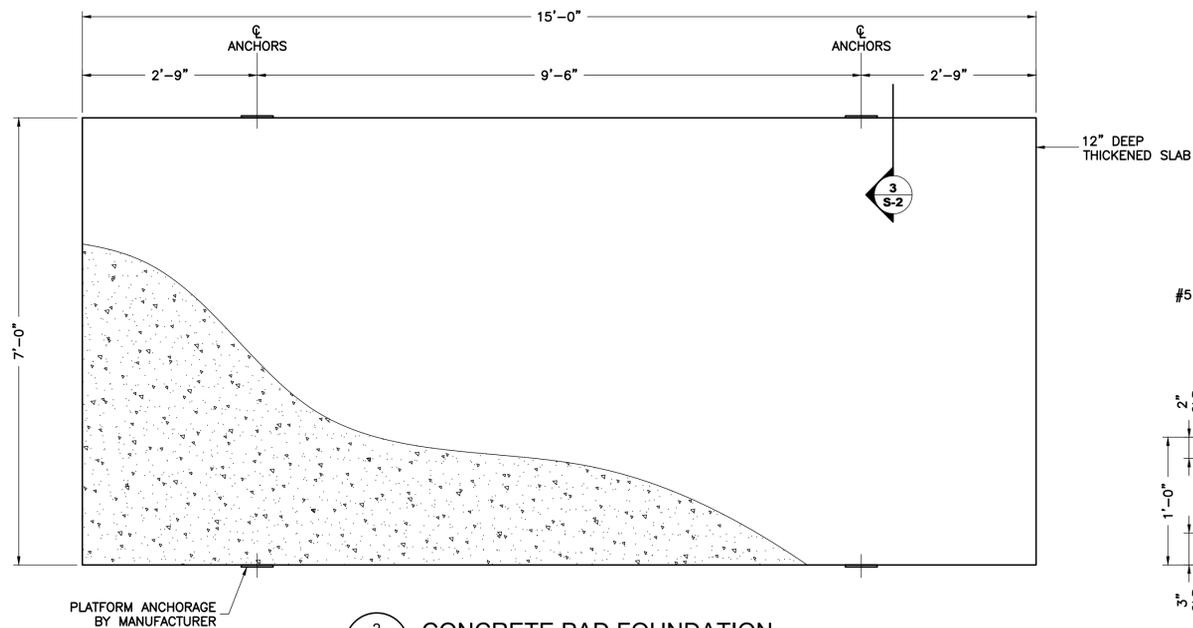


4 PLATFORM H-FRAME ELEVATION
SCALE: NTS

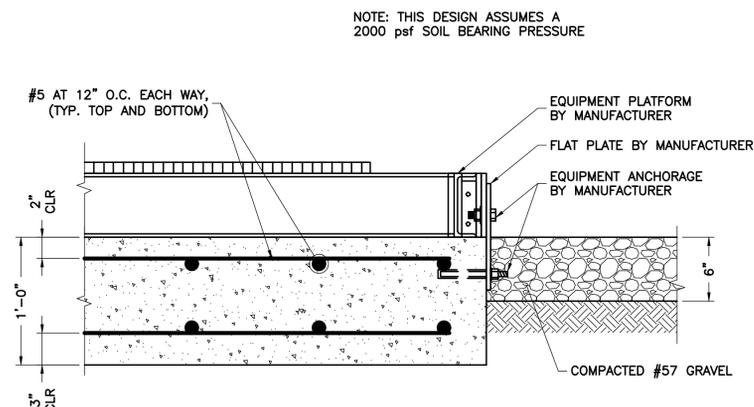
NOTE: SEE SHEET E-1 FOR CONDUIT INFORMATION.



1 PLATFORM PLAN
SCALE: NTS



2 CONCRETE PAD FOUNDATION
SCALE: NTS



3 CONCRETE PAD FOUNDATION
SCALE: NTS

CONCRETE GENERAL NOTES

- ALL CONCRETE WORK SHALL CONFORM TO ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND TO THE PROJECT SPECIFICATIONS.
- ALL CONCRETE IS TO BE NORMAL DENSITY CONCRETE WITH A MAXIMUM SLUMP OF 4 INCHES. MAXIMUM AGGREGATE SIZE 3/4 INCH. NO ADDITIONAL WATER SHALL BE ADDED TO THE CONCRETE AT THE JOB SITE.
- PROVIDE AIR ENTRAINMENT OF 4 TO 6 PERCENT IN ALL EXPOSED CONCRETE WORK WITH AIR-ENTRAINING ADMIXTURE COMPLYING WITH ASTM C 260. AT TROWEL-FINISHED FLOORS, DO NOT EXCEED AIR-ENTRAINMENT CONTENT OF 3 PERCENT.
- NO HOLES OR SLEEVES SHALL BE MADE THROUGH CONCRETE WORK OTHER THAN THOSE INDICATED ON THE STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
- ALL FORMWORK OFFSET TOLERANCES (PER ACI 117) TO BE CLASS A.
- FLOOR SLAB TOLERANCES TO ASTM E1155; SPECIFIED OVERALL MINIMUM VALUE OF FLATNESS F=25 WITH LOCAL MINIMUM F F=17, AND MINIMUM VALUE OF LEVELNESS F F=20 WITH LOCAL MINIMUM F I AND F F WITHIN 72 HOURS OF SLAB CONSTRUCTION.
- CABINETS ON SLAB (IF APPLICABLE). ALLOWABLE CAPACITY OF CONCRETE USED IN DESIGN MIN. 3500 PSI.

FOUNDATION NOTES:

1. DESIGN INFORMATION AND GENERAL REQUIREMENTS

1.1 CODES

- DESIGN CONFORMS TO INTERNATIONAL BUILDING CODE 2009.
- AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE," ACI 318-99.

2. EARTHWORK

2.1 FOUNDATIONS

- FOUNDATIONS HAVE BEEN DESIGNED TO BEAR ON (UNDISTURBED RESIDUAL SOILS/COMPACTED STRUCTURAL FILL), CAPABLE OF SAFELY SUPPORTING A NET ALLOWABLE BEARING PRESSURE OF 2000 PSF. IF FOUNDATION CONDITIONS PROVE UNACCEPTABLE AT ELEVATIONS SHOWN, EXCAVATION SHALL BE CARRIED DEEPER AND SHALL BE BACKFILLED WITH LEAN CONCRETE TO PLAN FOOTING BOTTOM, OR REDESIGN OF FOUNDATIONS WILL BE REQUIRED AT THE DIRECTION OF THE ENGINEER.
- DESIGN, FURNISH AND INSTALL ALL TEMPORARY SHEETING, SHORING AND DRAINAGE NECESSARY TO MAINTAIN THE EXCAVATION AND PROTECT SURROUNDING STRUCTURES AND UTILITIES.
- THOROUGHLY COMPACT ALL BOTTOM OF FOOTINGS PRIOR TO PLACING ANY CONCRETE.

3. CONCRETE

3.1 FORMWORK

- CONCRETE CONSTRUCTION SHALL CONFORM TO "SPECIFICATIONS FOR STRUCTURAL, CONCRETE FOR BUILDINGS," (ACI 301-89).
- FORMWORK SHALL CONFORM TO ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS."

3.2 REINFORCEMENT

- REINFORCING STEEL ASTM A615, GRADE 60. WELDED WIRE ASTM A185 (FLAT SHEET). LAPS 40 BAR DIAMETERS UNLESS NOTED. BARS SHALL BE SECURELY HELD IN ACCURATE POSITION BY SUITABLE ACCESSORIES, TIE BARS, SUPPORT BARS, ETC. HOOK LENGTHS SHALL BE 12 BAR DIAMETERS.
- CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED.
FOOTINGS & SLABS CAST AGAINST GROUND 3"
CONCRETE TO BE IN CONTACT WITH GROUND OR WEATHER AT BARS GREATER THAN #5 2"
AT BARS #5 OR LESS 1-1/2"
CONCRETE NOT TO BE EXPOSED TO GROUND OR WEATHER BEAMS, GIRDERS & COLUMNS 1-1/2"
SLABS & WALLS 3/4"

3.3 CAST-IN-PLACE-CONCRETE

- MINIMUM 28 DAY CYLINDER STRENGTH AND MAXIMUM SLUMP, PRIOR TO ADDITION OF SUPER PLASTICIZERS, AS FOLLOWS:

	F'c (psi)	
SLUMP		
CLASS I FOOTINGS	4000	3"
CLASS II FOOTINGS	4000	3"
CLASS III INTERIOR ELEVATED	4000	4"
SLABS & WALLS		
CLASS V OTHER WORK	4000	4"
CLASS VI LEAN CONCRETE FOR OVER EXCAVATION OF FOUNDATIONS	2000	
N/A		

- MIX DESIGN TO BE IN ACCORDANCE WITH ACI 318, CHAPTER 5. NO CALCIUM CHLORIDE OR ADMIXTURE CONTAINING CHLORIDES SHALL BE USED IN ANY CONCRETE.
- COARSE AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 SIZE #57. COARSE AGGREGATE FOR LIGHT WEIGHT CONCRETE SHALL CONFORM TO ASTM C330 GRADED 3/4" TO 1/4".
- COLD WEATHER PLACEMENT SHALL COMPLY WITH ACI 306.1
- HOT WEATHER PLACEMENT SHALL COMPLY WITH ACI 305 R.
- CHAMFER ALL EXPOSED EDGES 3/4".
- THE MAXIMUM TEMPERATURE OF ALL CONCRETE AT DELIVERY TO THE SITE SHALL BE 85°F, TOTAL DELIVERY TIME SHALL BE LESS THEN 75 MINUTES.

ENGINEER

APPLICANT

1831 RADY COURT
RICHMOND, VA 23222

SITE INFORMATION

"INNOVATION DRIVE"
CROWN CASTLE SITE ID: 816360
VERIZON COLLOCATION
NB+C PROJ. 27074
1756 AIRPORT ROAD
CHARLOTTESVILLE, VA 22901
ALBEMARLE COUNTY

DESIGN RECORD

REV	DATE	DESCRIPTION	BY
3	03/15/16	REVISED	OP
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PROFESSIONAL STAMP

ENGINEER

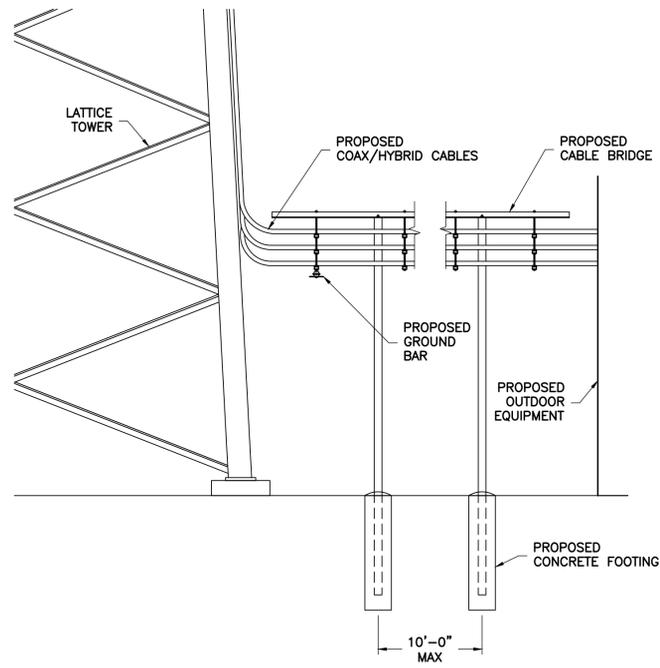
TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

SHEET TITLE

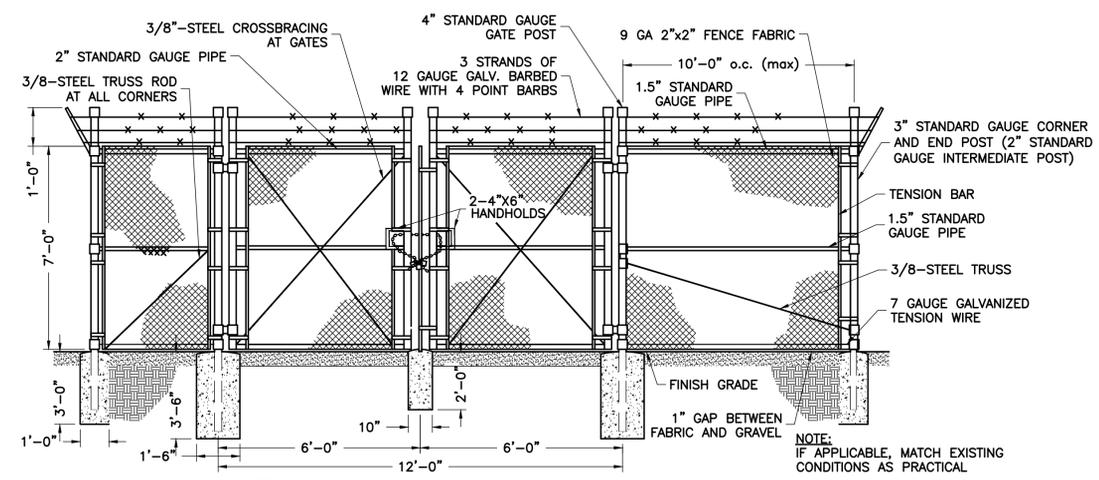
EQUIPMENT
STEEL PLATFORM,
CONCRETE PAD
DETAILS & NOTES

SHEET NUMBER

S-2



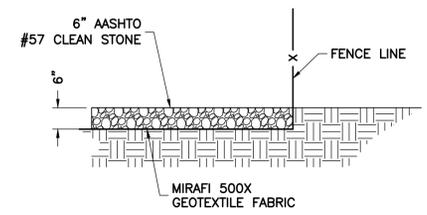
1 EQUIPMENT ELEVATION
S-1 NTS



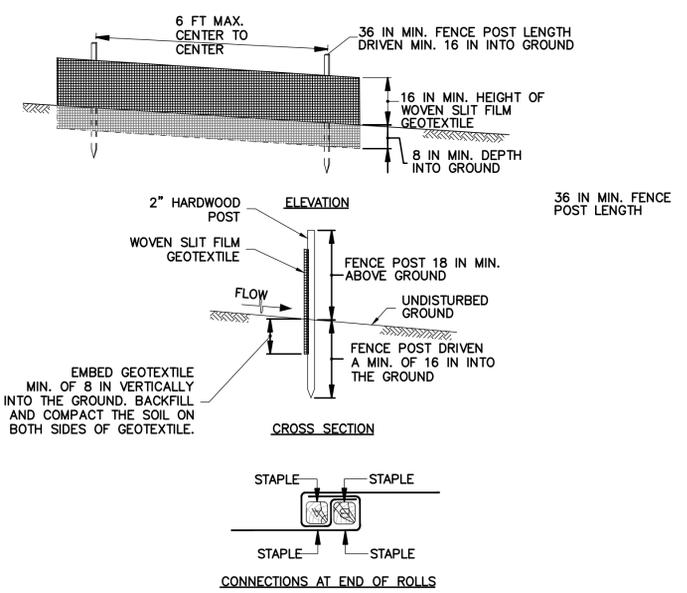
2 TYPICAL FENCE AND GATE DETAIL
S-1 NTS

STRUCTURAL NOTES

- DESIGN REQUIREMENTS PER INTERNATIONAL BUILDING CODE 2012 AND THE EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED BY FIELD MEASUREMENT AND FROM THE EXISTING STRUCTURAL DRAWINGS. THE GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH CONSTRUCTION.
- STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN INCLUDING THE COMMENTARY AND THE AISC CODE FOR STANDARD PRACTICE.
- STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A36. ALL STRUCTURAL STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
- WELDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AMERICAN WELDING SOCIETY (AWS) STRUCTURAL WELDING CODE - STEEL WELD ELECTRODES SHALL BE E70XX.
- ALL COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE AS SPECIFIED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
- ALL THREADED STRUCTURAL FASTENERS AND THREADED ROD FOR ANTENNA SUPPORT ASSEMBLIES SHALL CONFORM TO ASTM A307 OR ASTM A36. ALL STRUCTURAL FASTENERS FOR STRUCTURAL STEEL FRAMING SHALL CONFORM TO ASTM A325. FASTENERS SHALL BE 5/8" MIN. DIAMETER BEARING TYPE CONNECTIONS WITH THREADS INCLUDED IN THE SHEAR PLANE. ALL EXPOSED FASTENERS, NUTS AND WASHERS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. CONCRETE EXPANSION ANCHORS SHALL BE HILTI KWIK BOLTS UNLESS OTHERWISE NOTED.
- NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH AND INFORM CONSTRUCTION MANAGER OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.



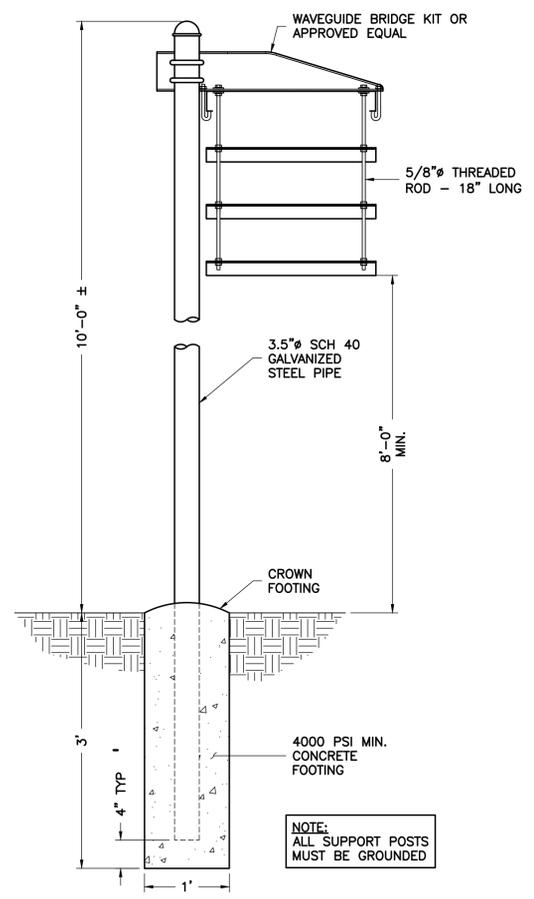
5 GRAVEL COMPOUND DETAIL
S-3 NTS



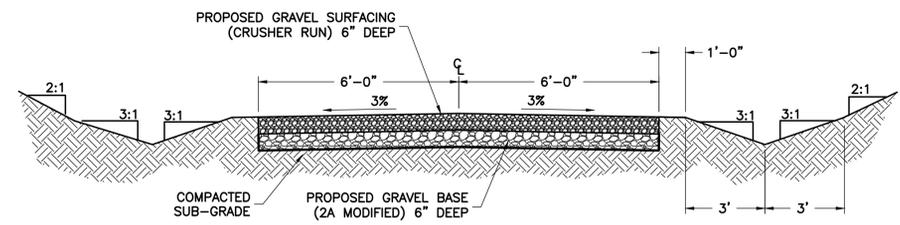
CONSTRUCTION SPECIFICATIONS

- USE WOOD POSTS 1 3/4 x 1 3/4 ± 1/8 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
- EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

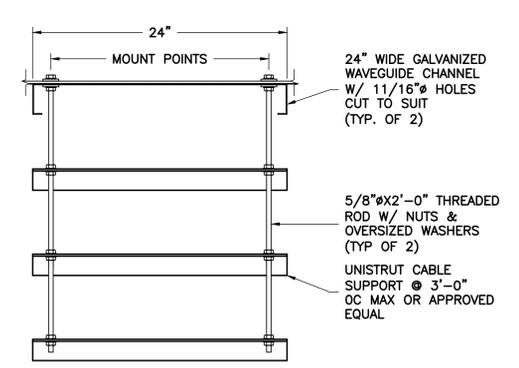
3 SILT FENCE
S-3 NTS



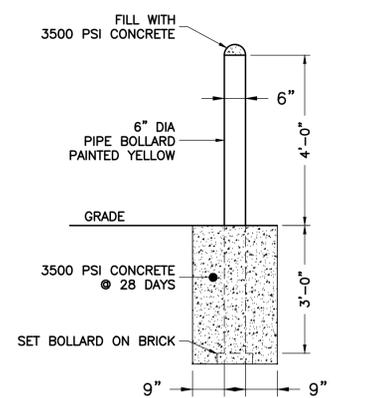
4 CABLE BRIDGE DETAIL
S-3 NTS



6 GRAVEL DRIVEWAY TYPICAL SECTION
S-3 NTS



7 CABLE SUPPORT SECTION
S-3 NTS



8 BOLLARD DETAIL
S-3 NTS

ENGINEER

APPLICANT

SITE INFORMATION

DESIGN RECORD

PROFESSIONAL STAMP

ENGINEER

SHEET TITLE

SHEET NUMBER



NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-648-4072

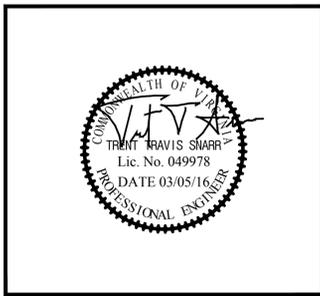


1831 RADY COURT
RICHMOND, VA 23222

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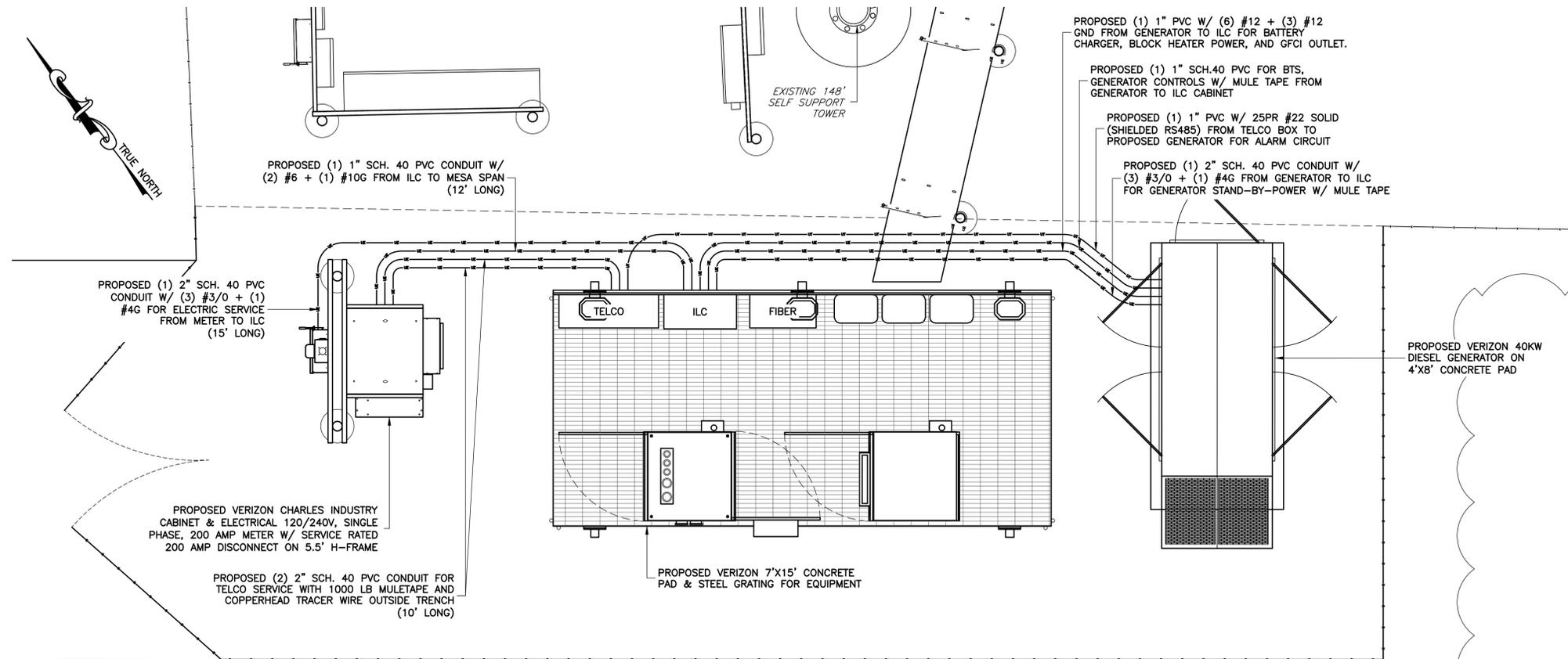
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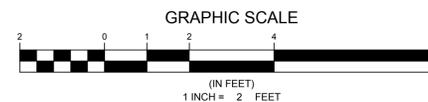
TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

CONSTRUCTION DETAILS & NOTES

S-3

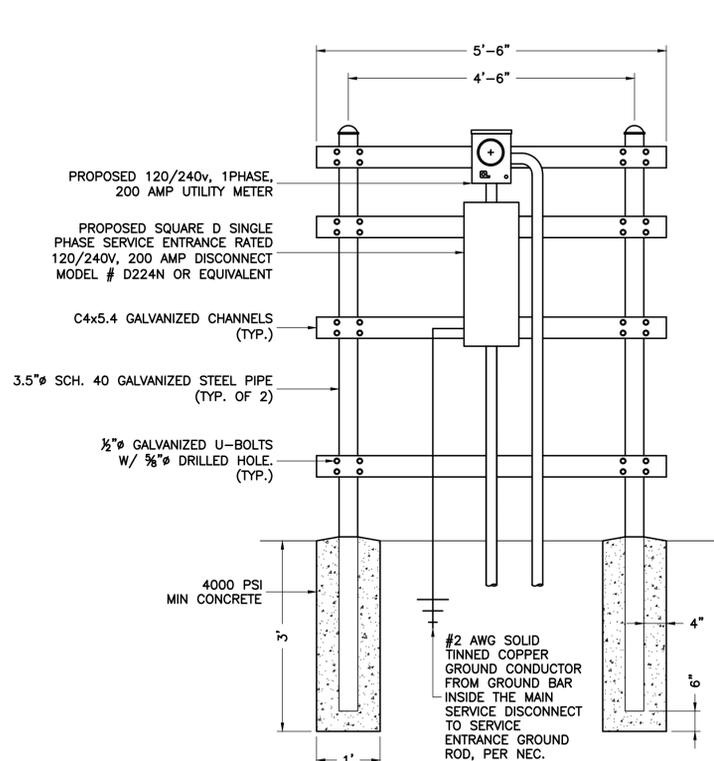


1 ELECTRICAL PLAN
SCALE: 1" = 2'-0"

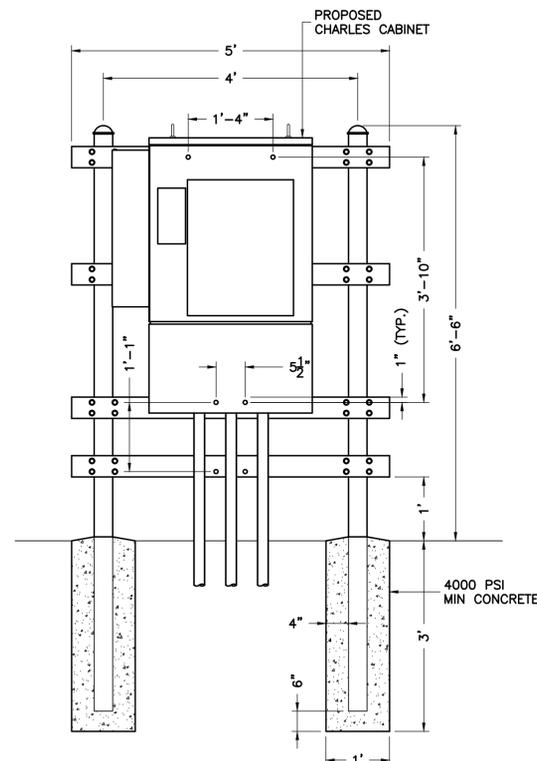


UTILITY COORDINATION NOTE:

- AT ONSET OF CONSTRUCTION, CONTRACTOR TO WORK WITH UTILITY COORDINATOR TO DETERMINE WHERE THE POWER AND TELCO DEMARC LOCATION IS. CONTRACTOR TO INSTALL (1) 3" SCH. 40 PVC CONDUIT FOR POWER FROM THE PROPOSED POWER DEMARC TO THE PROPOSED SINGLE GANG METER BASE WITH 1000LB PULL STRING.
- CONTRACTOR TO INSTALL (2) 2" SCH. 40 PVC CONDUITS TO TELCO FROM TELCO DEMARC TO PROPOSED MESA CABINET WITH 1000 LB PULL STRING AND A TRACER WIRE BURIED IN THE TRENCH OUTSIDE THE CONDUIT



2 UTILITY H-FRAME - FRONT VIEW
E-1 NTS



3 UTILITY H-FRAME - REAR VIEW
E-1 NTS

ENGINEER



APPLICANT



SITE INFORMATION

"INNOVATION DRIVE"
CROWN CASTLE SITE ID: 816360
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PROFESSIONAL STAMP



ENGINEER

TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

SHEET TITLE

ELECTRICAL PLAN & DETAILS

SHEET NUMBER

E-1

REVISIONS

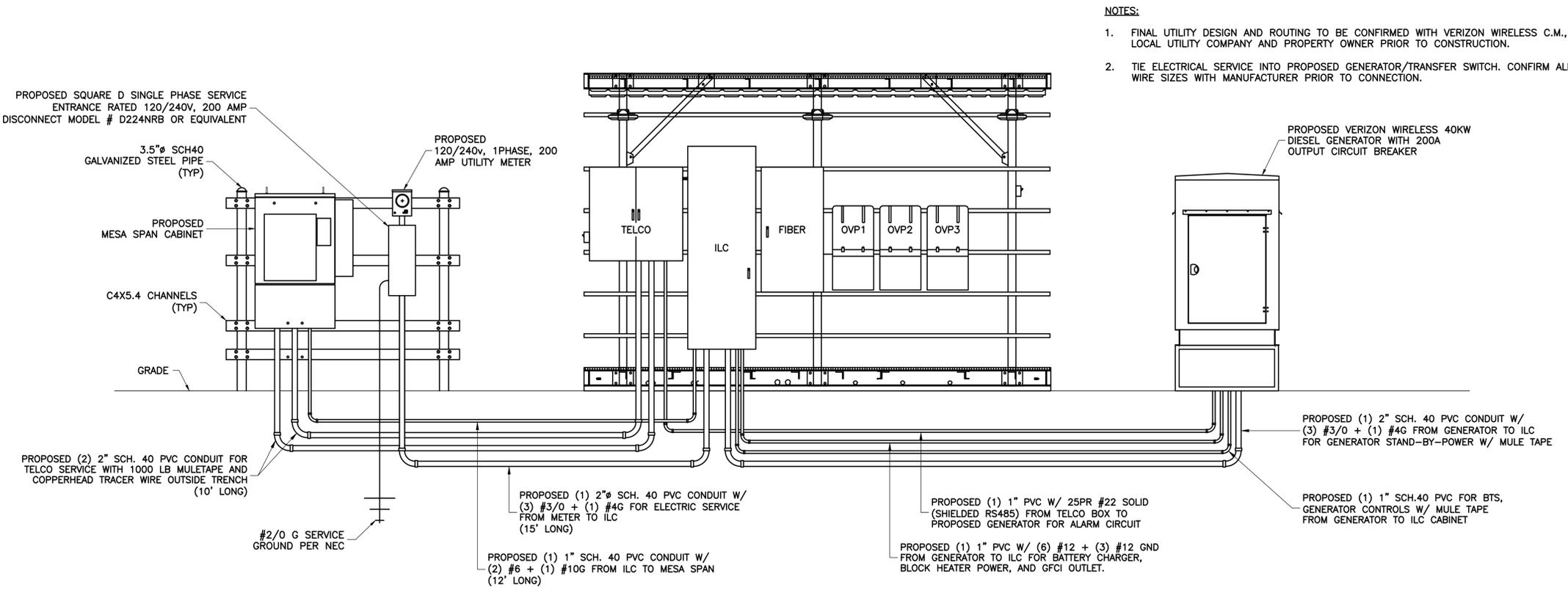
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TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

ELECTRICAL RISER DIAGRAM & SERVICE ENTRANCE SCHEMATIC

E-3



- NOTES:
- FINAL UTILITY DESIGN AND ROUTING TO BE CONFIRMED WITH VERIZON WIRELESS C.M., LOCAL UTILITY COMPANY AND PROPERTY OWNER PRIOR TO CONSTRUCTION.
 - TIE ELECTRICAL SERVICE INTO PROPOSED GENERATOR/TRANSFER SWITCH. CONFIRM ALL WIRE SIZES WITH MANUFACTURER PRIOR TO CONNECTION.

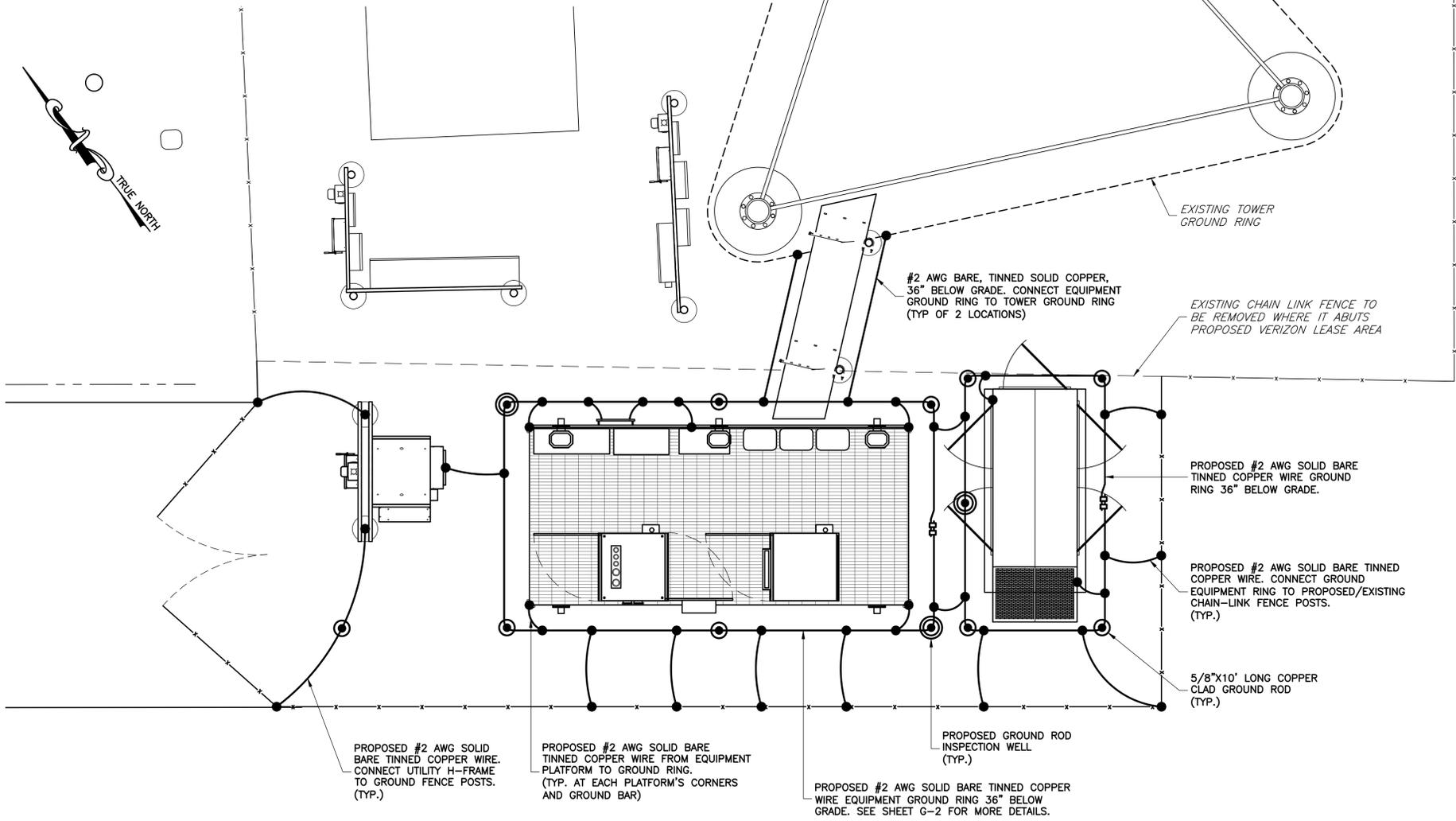
1 ELECTRICAL RISER DIAGRAM AND SERVICE ENTRANCE (SCHEMATIC)
E-3 NTS



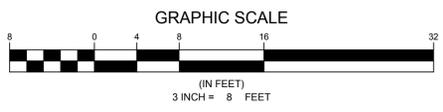
GROUNDING NOTES:

- GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
- ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
- ALL WIRES SHALL BE AWG THHN/THWN COPPER UNLESS NOTED OTHERWISE.
- GROUNDING CONNECTIONS TO GROUND RODS, GROUND RING WIRE, TOWER BASE AND FENCE POSTS SHALL BE EXOTHERMIC ("CADWELDS") UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL WHERE GROUND WIRES ARE CADWELDED TO GALVANIZED SURFACES, SPRAY CADWELD WITH GALVANIZING PAINT.
- GROUNDING CONNECTIONS TO GROUND BARS ARE TO BE TWO-HOLE BRASS MECHANICAL CONNECTORS WITH STAINLESS STEEL HARDWARE (INCLUDING SCREW SET) CLEAN GROUND BAR TO SHINY METAL. AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTIOXIDANT COATING.
- GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURER'S GROUNDING KITS.
- ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
- INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 TINNED SOLID COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
- REFER TO GROUNDING PLAN FOR GROUND BAR LOCATIONS. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE ("CADWELDS") TO ANTENNA MOUNTS AND GROUND RING. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
- THE GROUND ELECTRODE SYSTEM SHALL CONSIST OF DRIVEN GROUND RODS POSITION ACCORDING TO GROUNDING PLAN. THE GROUND RODS SHALL BE 5/8"x10'-0" COPPER CLAD STEEL INTERCONNECTED WITH #2 TINNED SOLID COPPER WIRE BURIED 36" BELOW GRADE. BURY GROUND RODS A MAXIMUM OF 15' APART, AND A MINIMUM OF 6' APART.
- IF ROCK IS ENCOUNTERED GROUND RODS SHALL BE PLACED AT AN OBLIQUE ANGLE NOT TO EXCEED 45°.
- EXOTHERMIC WELDS SHALL BE MADE IN ACCORDANCE WITH ERICO PRODUCTS BULLETIN A-AT.
- CONSTRUCTION OF GROUND RING AND CONNECTIONS TO EXISTING GROUND RING SYSTEM SHALL BE DOCUMENTED WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PROVIDE PHOTOS TO THE VERIZON CONSTRUCTION MANAGER.
- ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2 TINNED SOLID COPPER WIRE. ALL EXTERIOR GROUND BARS TINNED COPPER.
- PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF JET LUBE INC.). PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
- ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED FIVE OHMS TO GROUND BY MEANS OF "FALL OF POTENTIAL TEST". TEST SHALL BE WITNESSED BY A VERIZON REPRESENTATIVE, AND RECORDED ON THE "GROUND RESISTANCE TEST" FORM.
- WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1' BELOW GRADE AND SEAL TOP WITH SILICONE MATERIAL.
- PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.
- ANY SITE WHERE THE EQUIPMENT (BTS, CABLE BRIDGE, PPC, GENERATOR, ETC.) IS LOCATED WITHIN 6 FEET OF METAL FENCING, THE GROUND RING SHALL BE BONDED TO THE NEAREST FENCE POST USING (3) RUNS OF #2 BARE TINNED COPPER WIRE.

NOTES THIS SHEET ONLY:
 1. BELOW GRADE GROUND RING BONDS AND CONNECTIONS WILL BE EXOTHERMIC WELDS, NO EXCEPTIONS.
 2. GROUND CONDUCTORS FROM GROUND RING TO PLATFORM OR EQUIPMENT WILL BE RUN IN 3/4" PVC CONDUIT AND SEALED WITH SILICONE.
 3. CONNECTIONS TO GROUND BAR WILL BE HIGH PRESSURE CRIMPED LONG BARREL 2-HOLE LUG.

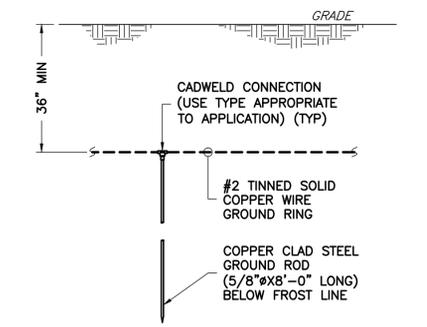


1 GROUNDING PLAN PLAN
 SCALE: 3/8" = 1'-0"

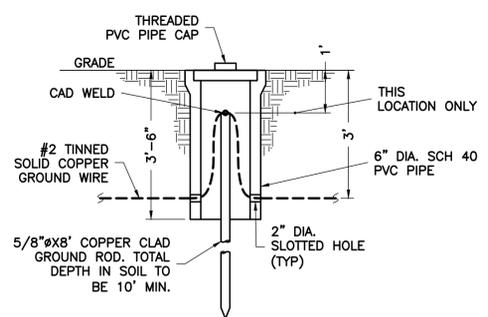


GROUNDING LEGEND

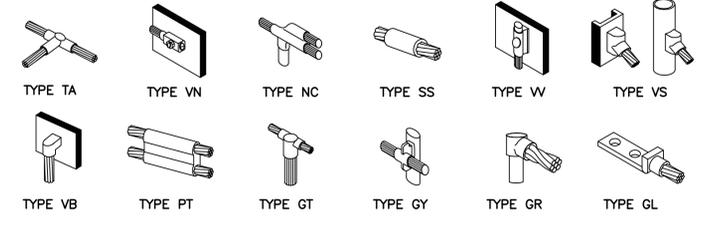
	COAXIAL CABLE SHIELD GROUND KIT CONNECTION
	COMPRESSION FITTING CONNECTION
	EXOTHERMIC WELD CONNECTION
	5/8"x10' COPPER-CLAD STEEL GROUND ROD
	5/8"x10' COPPER-CLAD STEEL GROUND ROD WITH INSPECTION WELL
	PROPOSED GROUND WIRING
	EXISTING GROUND WIRING
	TINNED COPPER GROUND BAR 1/4"x4"x12" OR 1/4"x4"x20"
	COLLECTOR GROUND BAR
	MAIN GROUND BAR



2 TYPICAL GROUND ROD DETAIL
 G-1 NTS



3 INSPECTION WELL DETAIL
 G-1 NTS



4 CADWELD GROUNDING CONNECTION DETAILS
 G-1 NTS

ENGINEER

NB+C ENGINEERING SERVICES, LLC.
 4435 WATERFRONT DRIVE, SUITE 100
 GLEN ALLEN, VA 23060
 804-648-4079

APPLICANT

1831 RADY COURT
 RICHMOND, VA 23222

SITE INFORMATION

"INNOVATION DRIVE"
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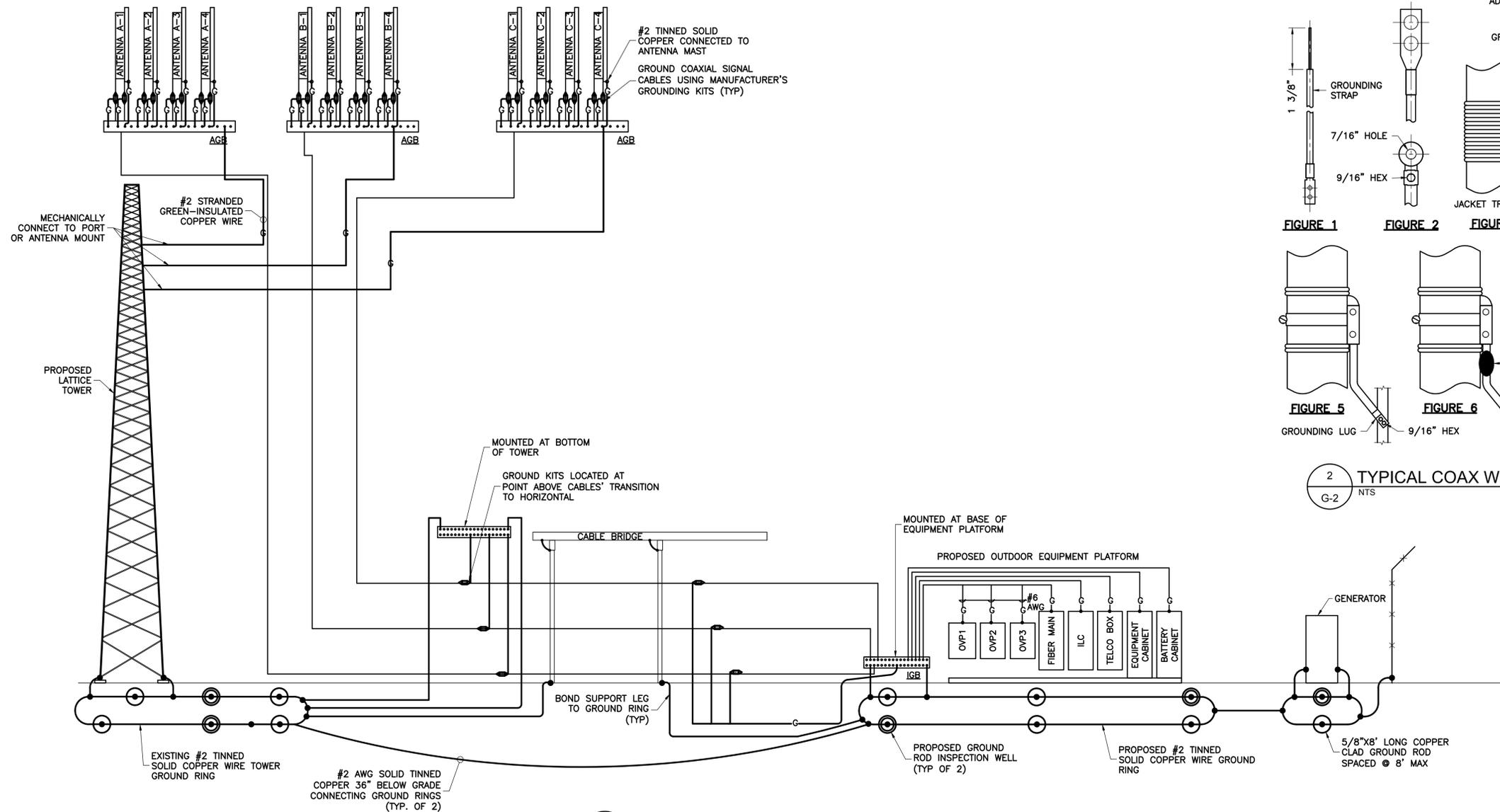
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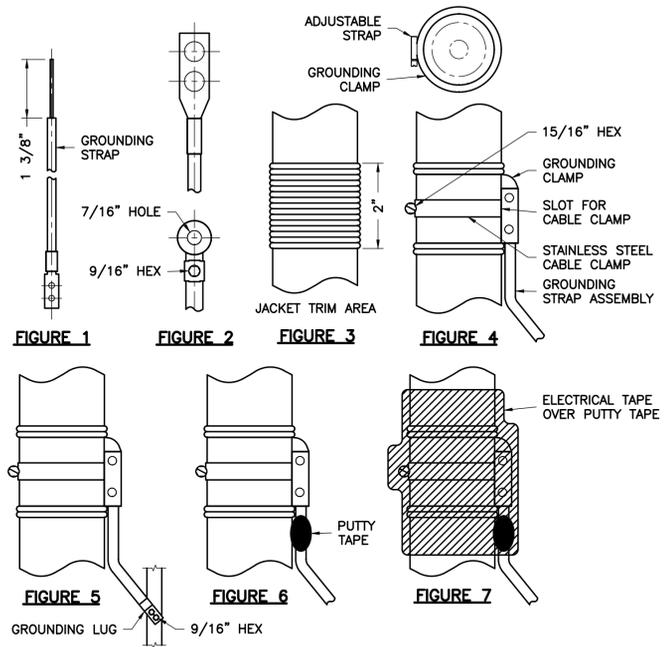
GROUNDING PLAN DETAILS & NOTES

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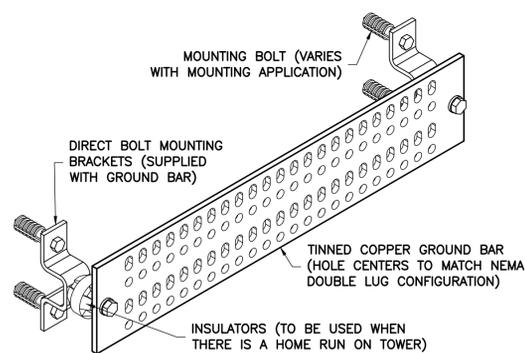
G-1



1 GROUND RISER DIAGRAM
G-2 NTS

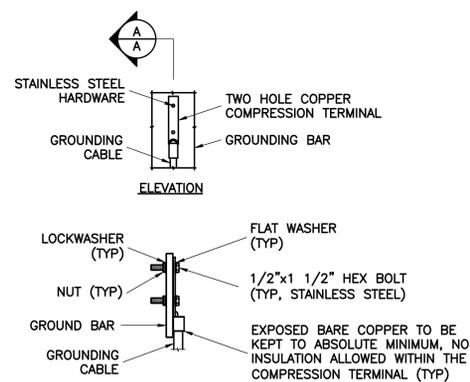


2 TYPICAL COAX WEATHERPROOFING DETAIL
G-2 NTS



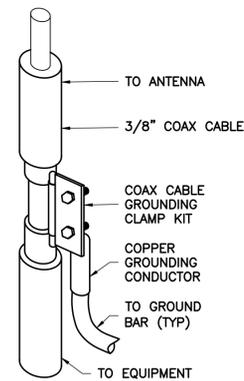
GROUND BAR SCHEDULE				
TYPE	QTY	MANUFACTURER	PART NO.	REMARKS
MGB	2	ANDREW	UGBKIT-0420-T	OR EQUAL
CBG	3	ANDREW	UGBKIT-0412	OR EQUAL

3 GROUND BAR DETAIL
G-2 NTS

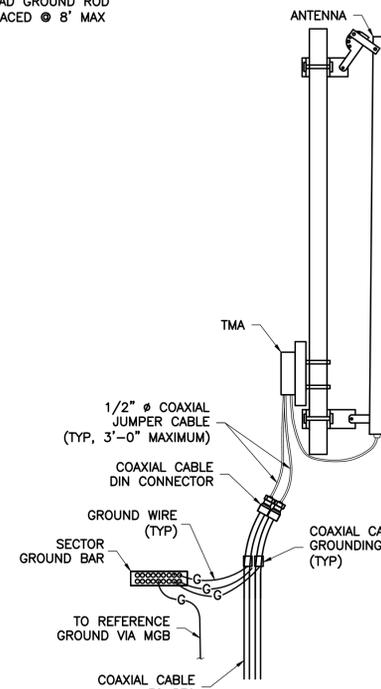


NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

4 TYPICAL GROUND BAR CONN DETAIL
G-2 NTS



5 COAX CABLE GROUNDING DETAIL
G-2 NTS



6 ANTENNA GROUNDING DETAIL
G-2 NTS

ENGINEER

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-548-6078

APPLICANT

verizon

1831 RADY COURT
RICHMOND, VA 23222

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SHEET TITLE

GROUNDING
RISER DIAGRAM
& DETAILS

SHEET NUMBER

G-2