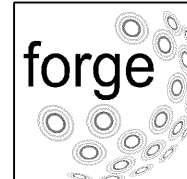
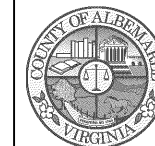
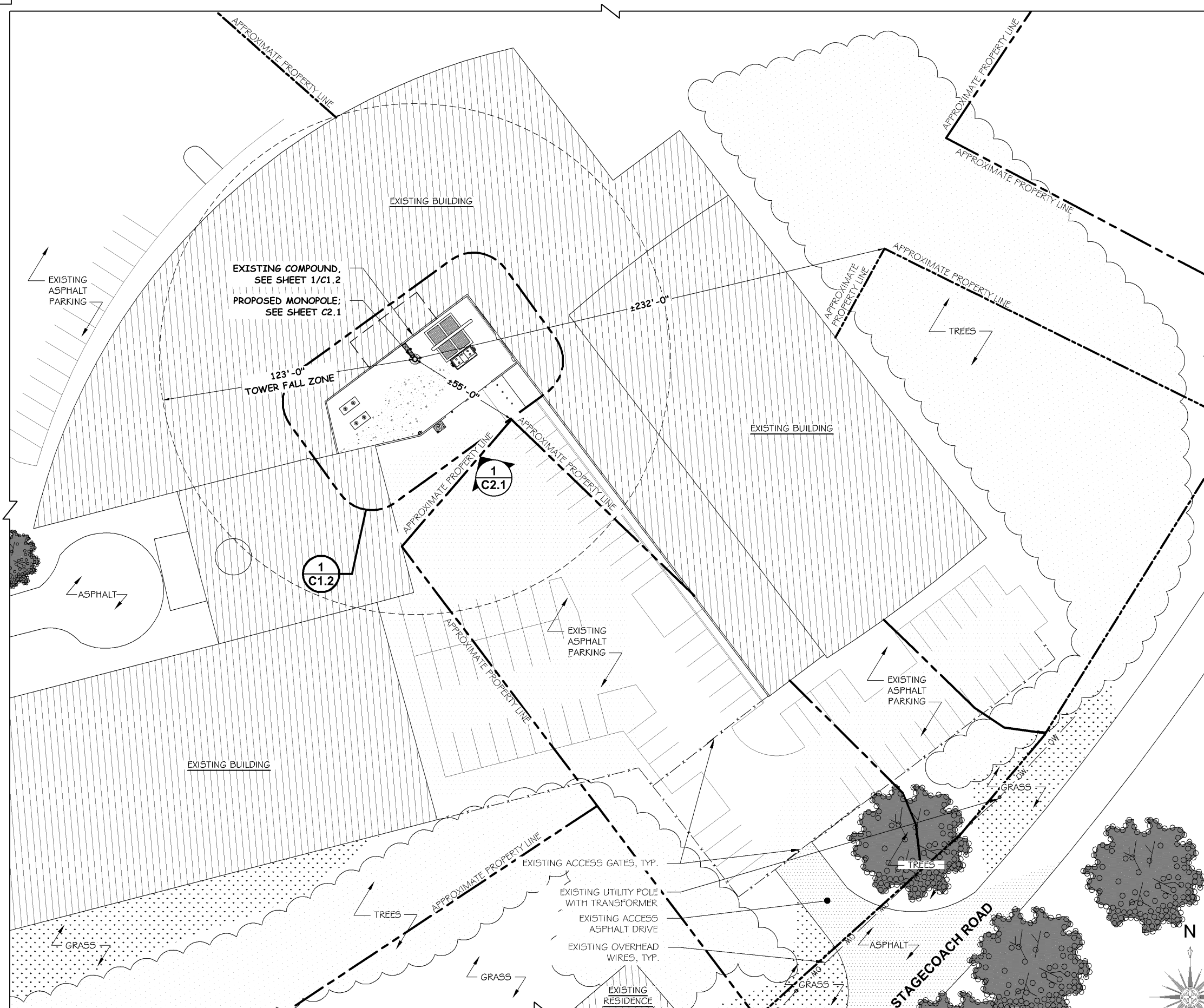


SITE PLAN



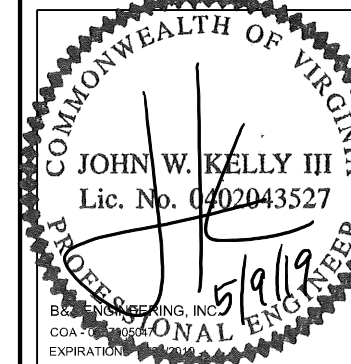
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NEW MONOPOLE

SITE PLAN

C1.1

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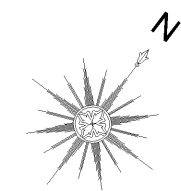
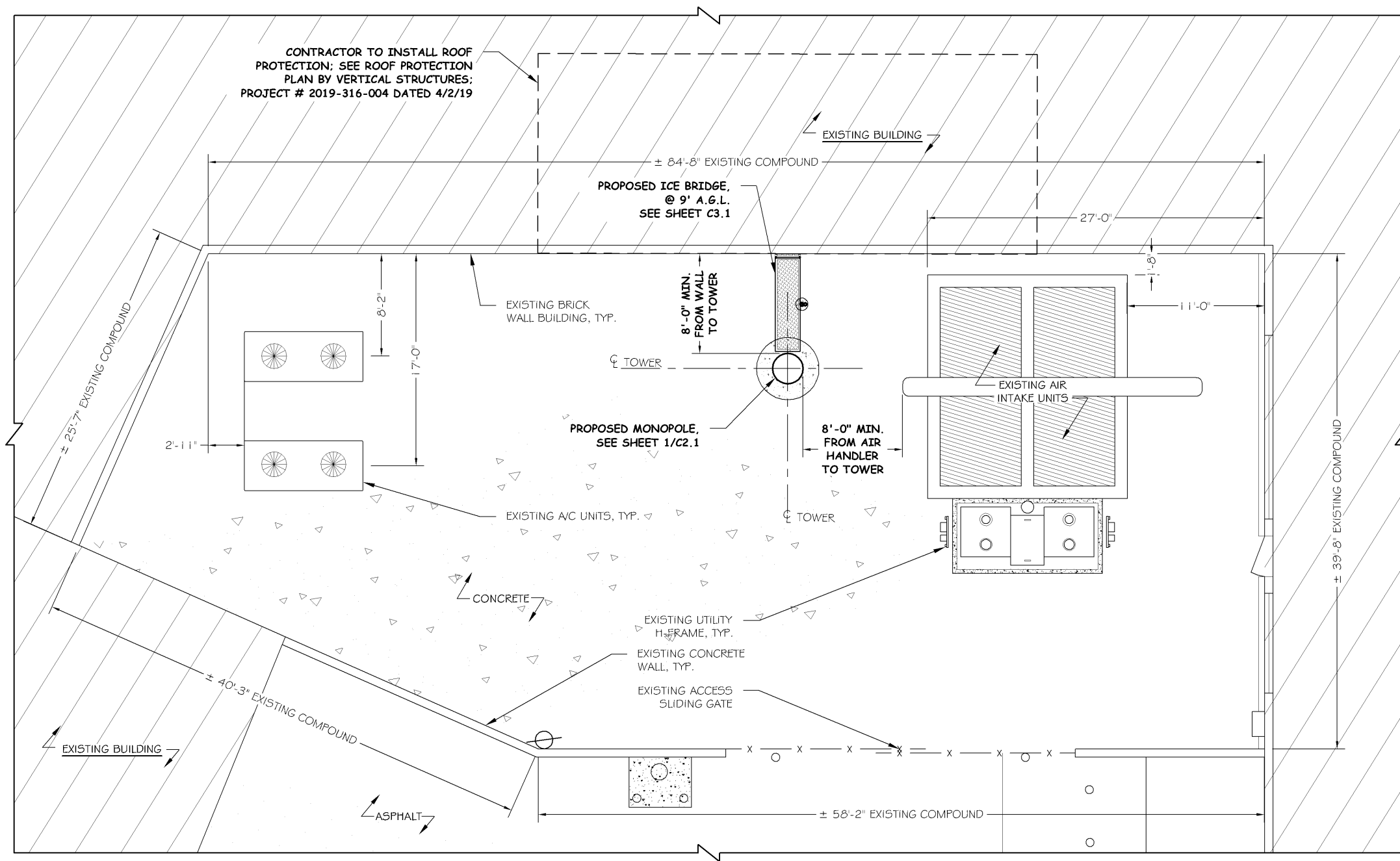
LEGEND

1

COMPOUND PLAN

SCALE: 1" = 10'-0"

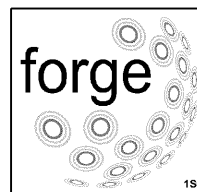
- | | |
|--|-------------------------|
| | MANHOLE/VALVE VAULT |
| | CATCH BASIN |
| | CURB INLET |
| | VALVE |
| | FIRE HYDRANT |
| | STREET LIGHT/LIGHT POST |
| | UTILITY/POWER POLE |
| | GUY WIRE/ANCHOR |
| | TELEPHONE PEDESTAL |
| | ELECTRIC METER |
| | GAS METER |
| | TRAFFIC SIGNAL |
| | TRAFFIC SIGNAL BOX |
| | SIGN |
| | MAIL BOX |
| | HANDHOLE |
| | DRAINPIPE |
| | FES (AT END OF PIPE) |
| | CHAIN LINK FENCE |
| | WOOD FENCE |
| | DEPRESSED CURB |
| | CONCRETE CURB & GUTTER |
| | SANITARY SEWER |
| | STORM SEWER |
| | WATER MAIN |
| | OVERHEAD ELECTRIC |
| | UNDERGROUND ELECTRIC |
| | OVERHEAD WIRES |
| | UNDERGROUND TELCO |
| | GAS LINE |
| | UNDERGROUND FIBER |
| | BUSH/SHRUB |
| | TREE DECIDUOUS |
| | TREE NON-DECIDUOUS |
| | DRAINAGE ARROW |
| | CONTOUR LINE |
| | SPOT ELEVATION |
| | TOP OF FOUNDATION |
| | TOP OF CONCRETE |
| | FINISHED FLOOR |
| | ABOVE GROUND LEVEL |
| | BOUNDARY LINE |
| | CONCRETE |
| | ASPHALT |
| | GRAVEL |
| | BRICK |
| | NEW BUILDING/EQUIPMENT |
| | EXISTING BUILDING |
| | LEASE SITE |
| | EASEMENT |

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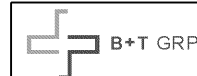
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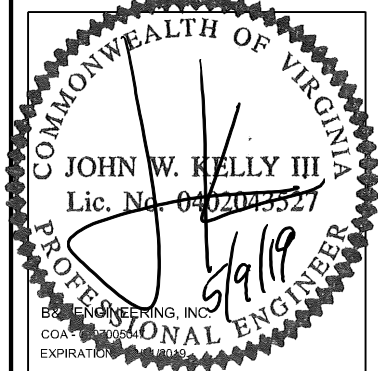
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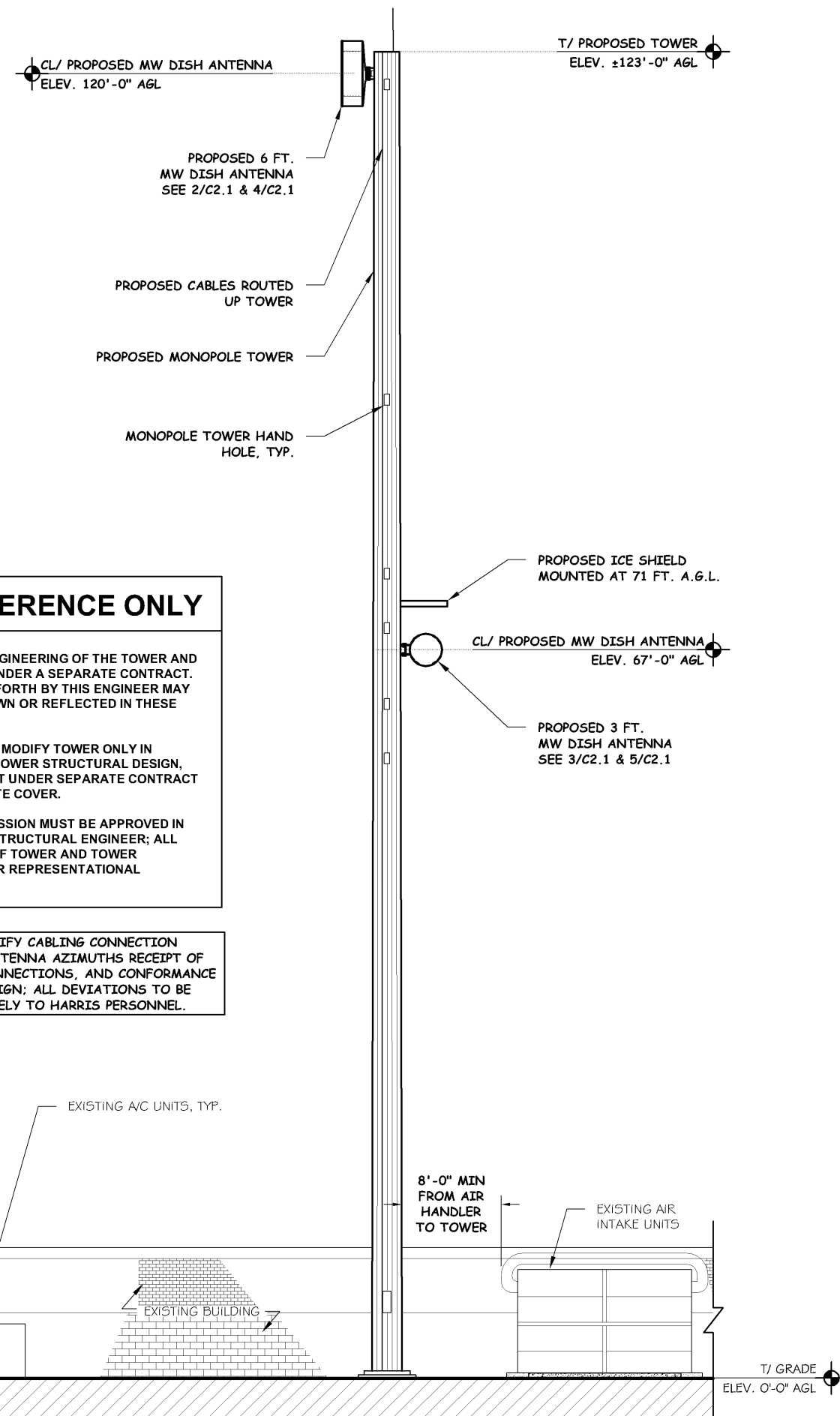
COMPOUND PLAN

C1.2

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ELEVATION

SCALE: NTS



FOR REFERENCE ONLY

THE STRUCTURAL ENGINEERING OF THE TOWER AND ITS FOUNDATION IS UNDER A SEPARATE CONTRACT. REQUIREMENTS SET FORTH BY THIS ENGINEER MAY OR MAY NOT BE KNOWN OR REFLECTED IN THESE DRAWINGS.

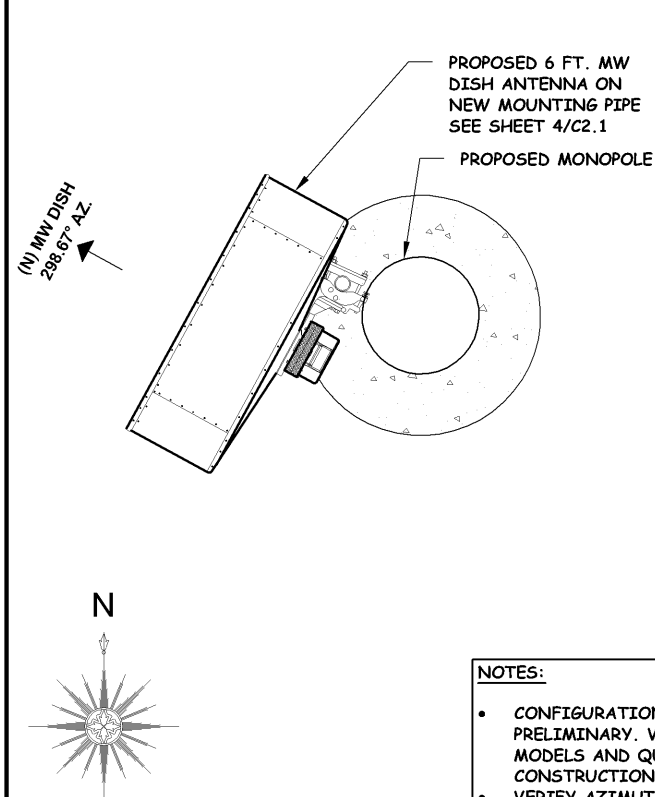
CONTRACTOR SHALL MODIFY TOWER ONLY IN ACCORDANCE WITH TOWER STRUCTURAL DESIGN, DETAILS, AND REPORT UNDER SEPARATE CONTRACT AND UNDER SEPARATE COVER.

ANY CHANGE OR OMISSION MUST BE APPROVED IN WRITING BY TOWER STRUCTURAL ENGINEER; ALL REPRESENTATIONS OF TOWER AND TOWER FOUNDATION ARE FOR REPRESENTATIONAL PURPOSES ONLY

CONTRACTOR TO VERIFY CABLING CONNECTION CONFIGURATION, ANTENNA AZIMUTHS RECEIPT OF FINAL RFDS, ALL CONNECTIONS, AND CONFORMANCE TO STRUCTURAL DESIGN; ALL DEVIATIONS TO BE REPORTED IMMEDIATELY TO HARRIS PERSONNEL.

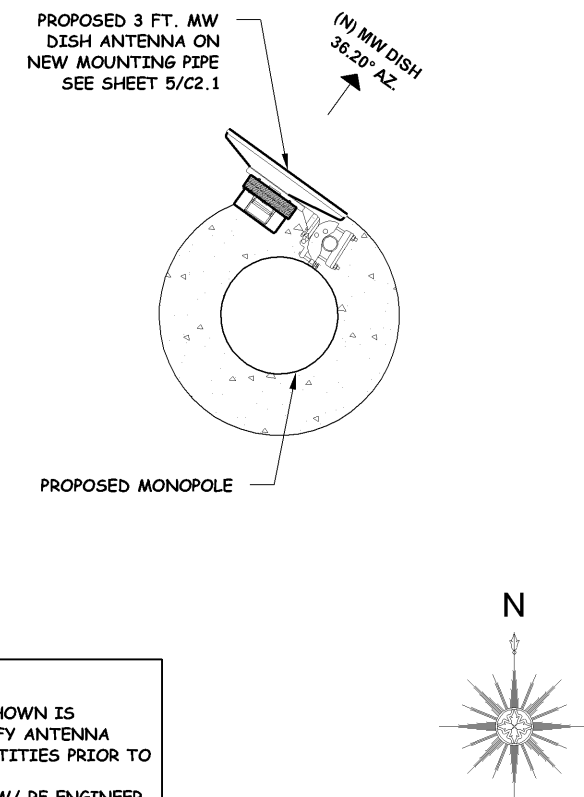
ANTENNA PLAN @ 120 FT. AGL

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



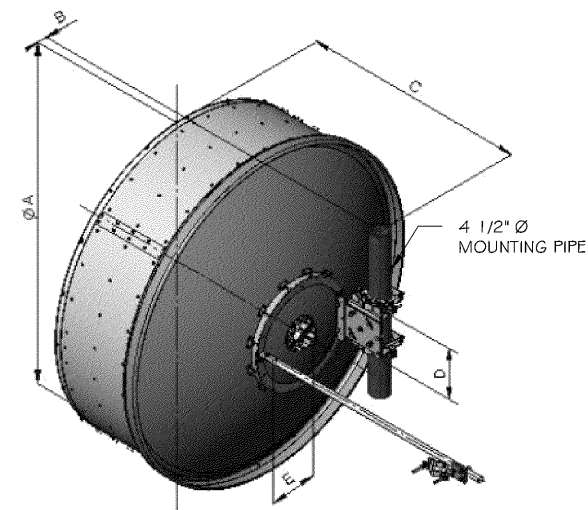
ANTENNA PLAN @ 67 FT. AGL

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



MICROWAVE ANTENNA SPECIFICATIONS

SCALE: NTS

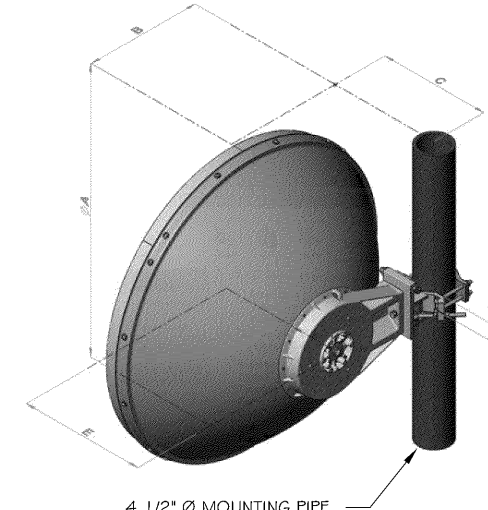


COMMSCOPE VHL6-6W	
TYPE	POINT-TO-POINT
NOMINAL DIAMETER	6 FT
WEIGHT	209 LBS (95 KG)
MOUNTING PIPE Ø	4.5 IN
RADOME COLOR	WHITE
RADOME MATERIAL	POLYMER
REFLECTOR	1 PIECE

DIMENSIONS	
A	76.3 IN (1938 MM)
B	15 IN (381 MM)
C	38.7 IN (984 MM)
D	12.2 IN (310 MM)
E	11.7 IN (297 MM)

	MICROWAVE ANTENNA SPECIFICATIONS
--	---

SCALE: NTS



COMMSCOPE VHLP3-11W	
TYPE	POINT-TO-POINT
NOMINAL DIAMETER	3 FT
WEIGHT	37 LBS (17 KG)
MOUNTING PIPE Ø	3.5 IN - 4.7 IN
RADOME COLOR	GRAY
RADOME MATERIAL	COMPOSITE BROADBAND
REFLECTOR	1 PIECE

DIMENSIONS	
A	39.3 IN (999 MM)
B	16 IN (407 MM)
C	15.2 IN (387 MM)
D	2.4 IN (60 MM)
E	17.2 IN (437 MM)

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 **B+T GRP**

FORGE PROJECT NO: 7572

DRAWN BY: MM

CHECKED BY: JL

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 JOHN W. KELLY III
 Lic. No. 0402043527
 PROFESSIONAL ENGINEER
 BE ENGINEERING, INC.
 COALFIELD, VIRGINIA
 EXPIRATION: 12/31/2019

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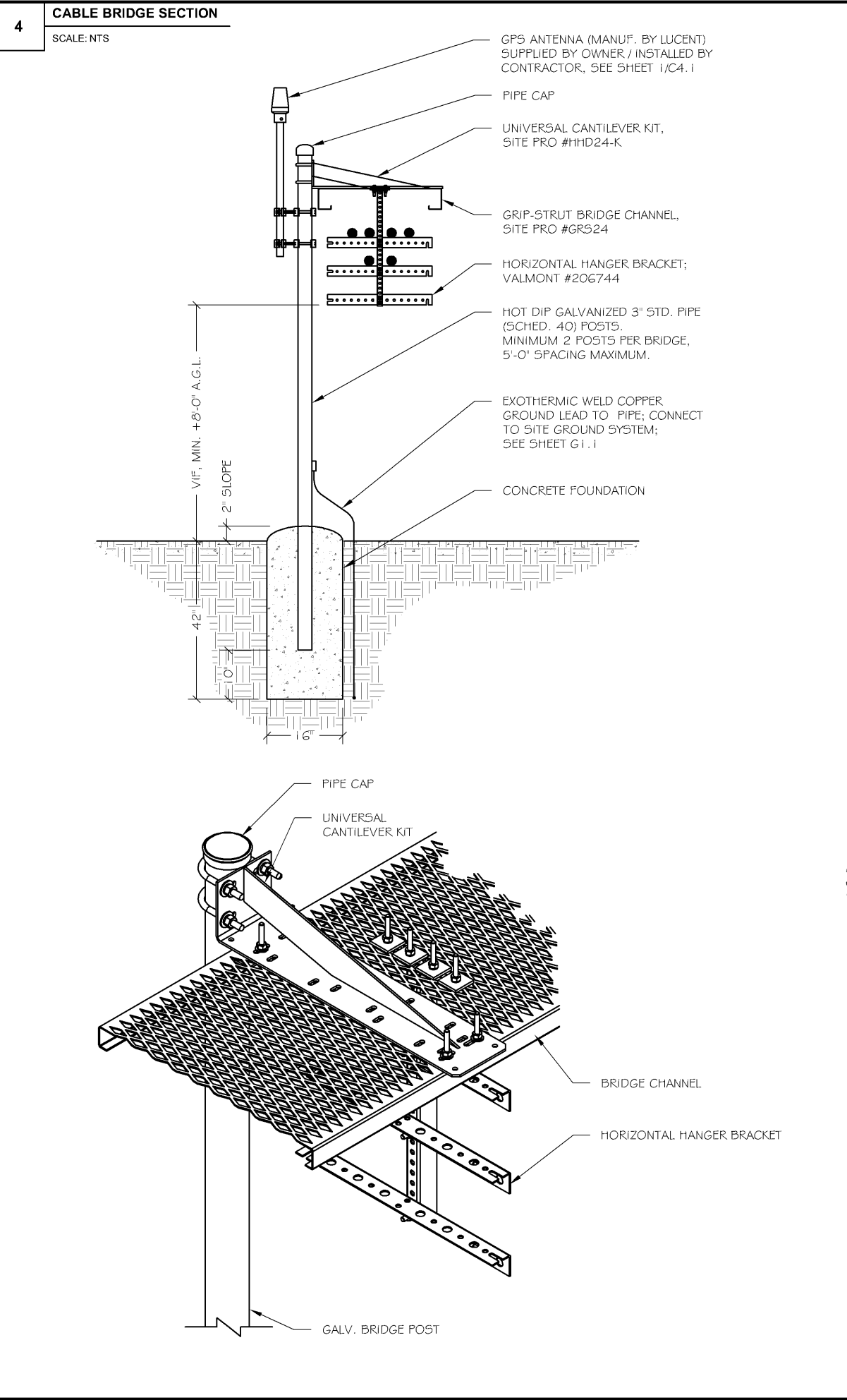
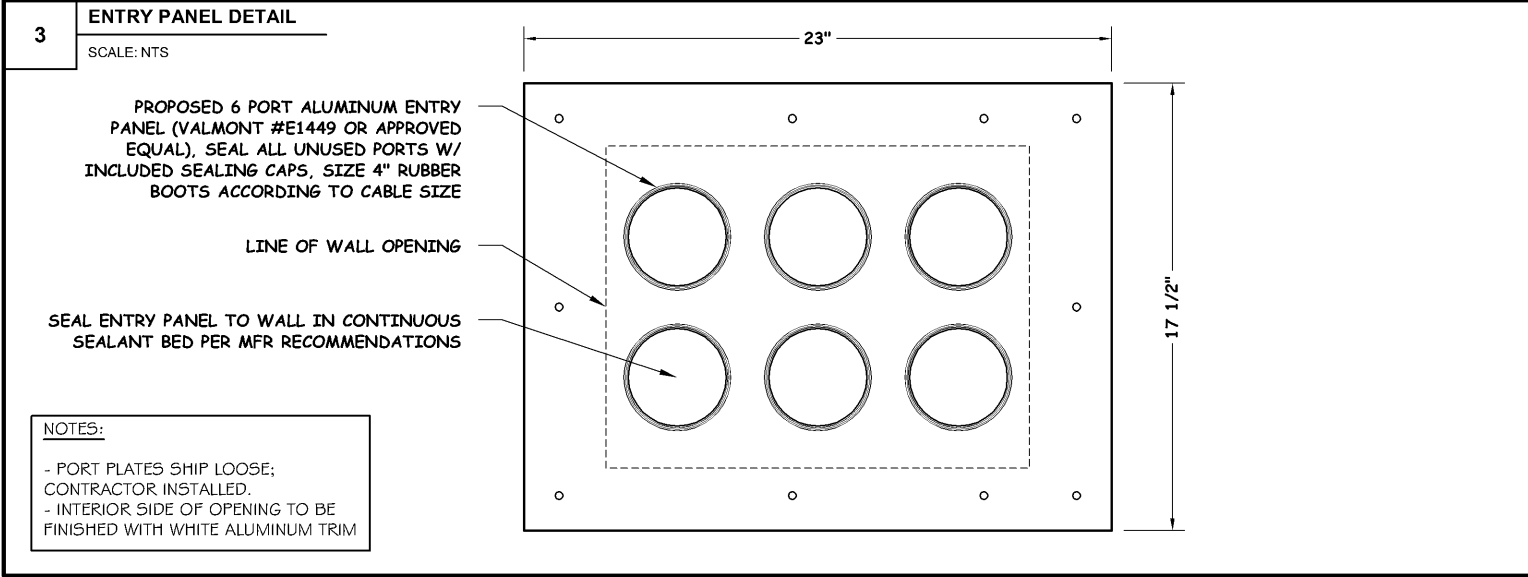
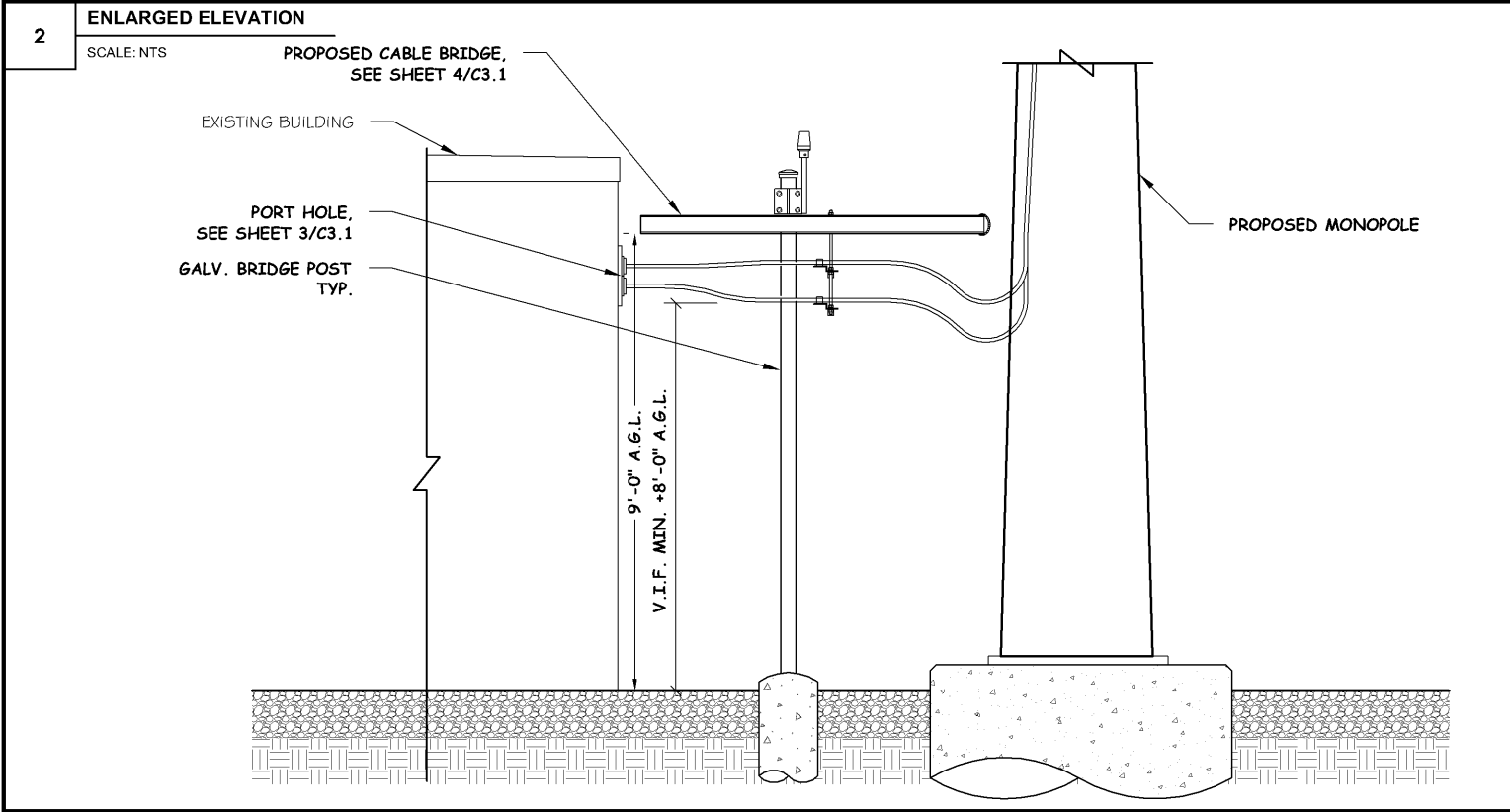
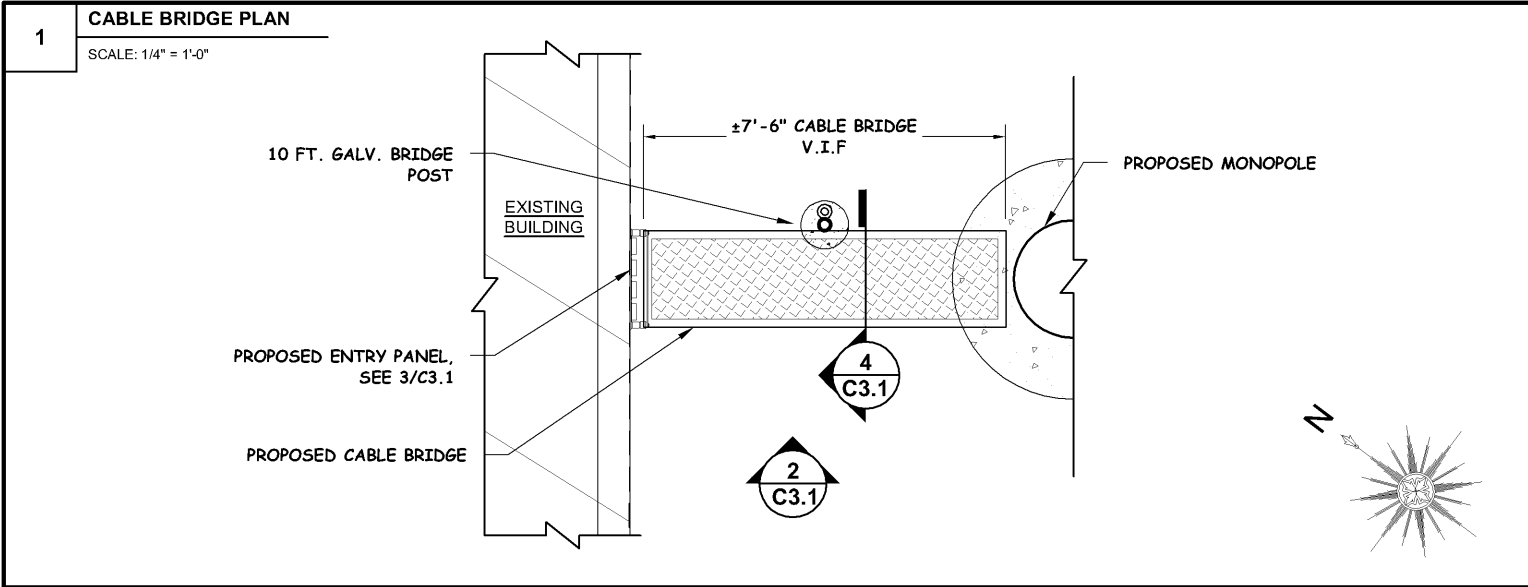
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NEW MONOPOLE

ELEVATION & ANTENNA DETAILS

C2.1


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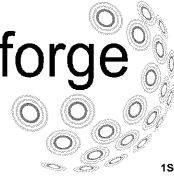


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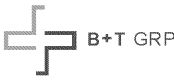
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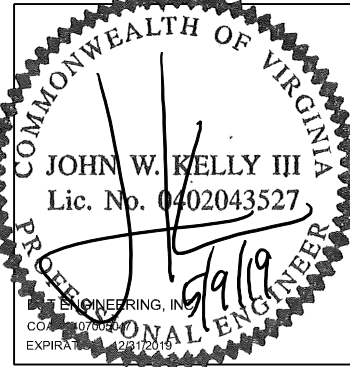
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PROFESSIONAL ENGINEER
EXPIRATION: 12/31/2019

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CABLE BRIDGE DETAILS

C3.1

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1

GPS ANTENNA DETAIL

SCALE: NTS

The diagram shows a vertical assembly for a GPS antenna. At the top is a conical GPS antenna. Below it is a set screw. The main vertical component is a pipe, labeled '1 1/4" SCHED. 40 x 18" LNG MIN. SS OR GALV. PIPE'. A 'PIPE CAP' is shown at the top of the pipe. A 'WELDED PIPE TO PIPE CLAMP' is shown on the left. A 'PIPE' is shown in the middle. A 'PIPE GROUND' is shown at the bottom. A 'WEATHERPROOFING KIT ANDREW #221213 OR EQUAL VERIFY WITH PROJECT MANAGER' is shown on the right. An 'EXOTHERMIC WELD FOR GROUND' is shown at the bottom right. A '1/2" Ø COAX CABLE (OR EQUAL) MIN. BENDING RADIUS PER MFG'S SPECIFICATIONS' is shown on the right.

MOUNTING NOTES:

1. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1 - 1/4"Ø, SCH. 40 GALVANIZED OR STAINLESS STEEL PIPE. THE PIPE MUST BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MIN OF 18")USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH PERPENDICULAR CUT. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNAS MOUNT.

2. GPS ANTENNA MUST BE PLUMB TO WITHIN 1/8" OVER 6'-0"

3. INSTALL ANTENNA AS INDICATED ON SITE PLAN. IF INSTALLING ON CABLE BRIDGE GPS IS TO BE PLACED A MINIMUM OF 10' ABOVE GRADE, ON THE FURTHEST POST FROM THE TOWER TO ATTAIN MAXIMUM EXPOSURE TO SKY

4. GPS TO BE PLACED WITH OPTIMUM 360° VIEW OF SKY; WHEN PLACING ON THE SIDE OF A WALL OR VERTICAL STRUCTURE, GPS MUST BE A MINIMUM OF 3' AWAY ON STANDOFFS.

2

NOT USED

SCALE: NTS

3

NOT USED

SCALE: NTS

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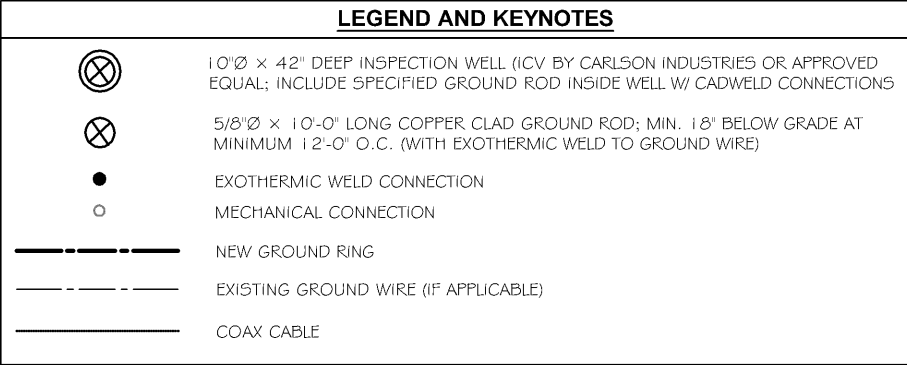
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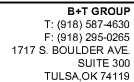
DETAILS

C4.1

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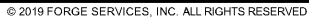


- A. FOR NUMBER OF GROUNDING RODS REQUIRED REFER TO SPECIFICATION 16000 # 551P REQUIREMENT.
- B. ALL GROUND BARS TO BE TINNED COPPER.
- C. LOCATION OF THE MGB'S TO BE DETERMINED IN FIELD AND MAY BE LOCATED AND SUPPORTED AS CLOSE TO EQUIPMENT AS FEASIBLE AND PRACTICAL TO ACHIEVE THE DESIGNED CONFIGURATIONS.
- D. ALL STEEL WITHIN 6' OF SITE SHALL BE GROUNDED.
- E. GROUNDING SYSTEM CONNECTIONS TO COMMERCIAL-GRADE FENCING AND GATES SHALL BE MADE USING EXOTHERMIC WELDING. COAT ALL WELDED CONNECTIONS WITH ZINC-ENRICHED PAINT TO PREVENT RUSTING.
- F. ALL DITCHES TO BE 3'-0" DEEP.
- G. ALL DITCHES TO HAVE 5 BAGS OF G.E.M. MATERIAL (C/ 670/483033) ADDED BEFORE COVERING.



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PRIOR TO TRENCING, ANY DAMAGE CAUSED TO THE EXISTING UNDERGROUND SERVICES OR SYSTEMS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. VERIFY WITH UTILITY NEW SERVICE HAS BEEN APPLIED FOR. THERE SHALL BE NO SPLICING OF GROUND CONDUCTORS BELOW GRADE.

ALL GROUNDING CABLE IN CONCRETE SHALL BE IN PVC OR NON-METALLIC SEAL-TIGHT. NO METALLIC CONDUIT IS TO BE USED FOR GROUNDING CONDUCTOR SLEEVES.

DO NOT INSTALL BURIED GROUND RING OUTSIDE OF PROPERTY LINE. NOTIFY THE CONSTRUCTION MANAGER 24 HOURS IN ADVANCE WHEN THE BURIED GROUND RING IS INSTALLED SO THAT A REPRESENTATIVE CAN INSPECT THE GROUND RING BEFORE IT IS BACK FILLED WITH SOIL.

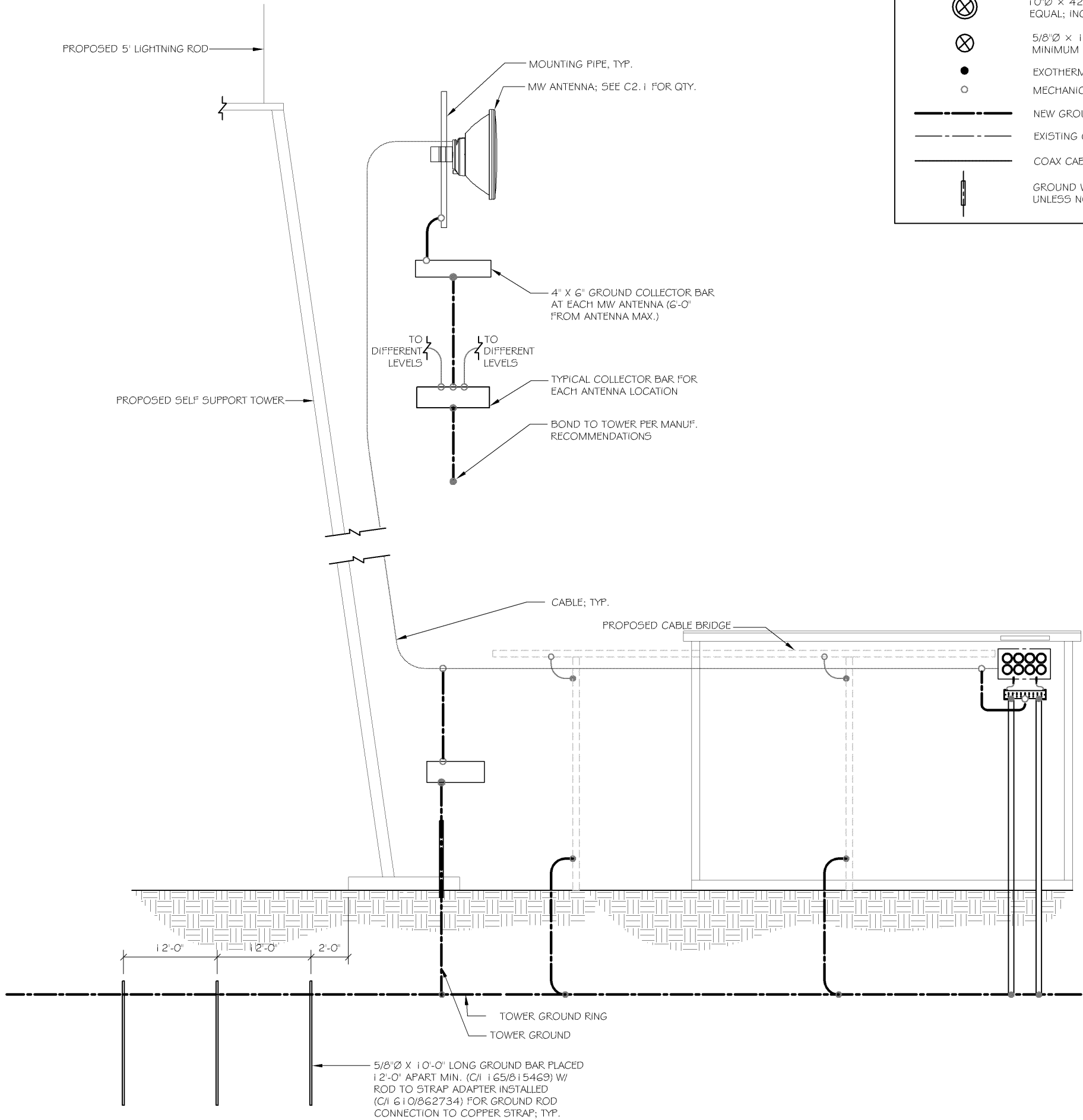
ALL EXTERIOR GROUNDING CONDUCTORS SHALL CONFORM TO SECTION 4.1 OF 55EO 3.01.8.02.004.

5. ALL GROUNDING CABLE IN CONCRETE SHALL BE IN PVC OR NON-METALLIC SEAL-TIGHT. NO METALLIC CONDUIT IS TO BE USED FOR GROUNDING CONDUCTOR SLEEVES.
6. DO NOT INSTALL BURIED GROUND RING OUTSIDE OF PROPERTY LINE. NOTIFY THE CONSTRUCTION MANAGER 24 HOURS IN ADVANCE WHEN THE BURIED GROUND RING IS INSTALLED SO THAT A REPRESENTATIVE CAN INSPECT THE GROUND RING BEFORE IT IS BACK FILLED WITH SOIL.
7. ALL EXTERIOR GROUNDING CONDUCTORS SHALL CONFORM TO SECTION 4.1 OF S550 3.01.8.02.004.
8. ALL EXOTHERMIC WELDS TO BURIED GROUND RING SHALL BE THE PARALLEL TYPE, EXCEPT FOR THE GROUND RODS WHICH ARE SPICE EXOTHERMIC WELDS.
9. ALL CADWELDS SHALL BE COLD GALVANIZED EXCEPT FOR COPPER TO COPPER. REPAIR ALL GALVANIZED SURFACES THAT HAVE BEEN DAMAGED BY EXOTHERMIC WELDING.
10. WHERE MECHANICAL CONNECTORS (TWOHOLE OR CLAMP) ARE USED, APPLY A LIBERAL PROTECTIVE COATING OF KOPRSIELD OR BURNDY PENETROX-E ANTI-OXIDE COMPOUND ON ALL CONNECTORS. PROVIDE LOCK WASHERS ON ALL MECHANICAL CONNECTORS. NO OTHER ANTIOXIDANT IS ACCEPTABLE. USE STAINLESS STEEL HARDWARE THROUGHOUT. THOROUGHLY REMOVE ALL PAINT AND CLEAN ALL DIRT FROM SURFACES REQUIRING GROUND CONNECTIONS, REPAINT TO MATCH EXISTING AFTER CONNECTION IS MADE TO MAINTAIN CORROSION RESISTANCE. ALL GROUND CONNECTIONS SHALL BE APPROVED FOR THE TYPES OF METALS BEING ATTACHED TO.

- 1.1. EXOTHERMICALLY WELD GROUNDING CONDUCTOR TO COMMUNICATION STRUCTURE AT POLE-BASE FLANGE AND BOND TO BURIED GROUND SYSTEM WITHIN A 3/4" FLEXIBLE CONDUIT SLEEVE. VERIFY BEND IS 45 DEGREES FROM GROUND TO POLE.
- 1.2. THE TOP OF THE UTILITY METER GROUND ROD SHALL BE 6" ABOVE THE SUB-GRADE OR PER LOCAL JURISDICTION REQUIREMENTS.
- 1.3. CONTRACTOR SHALL PERFORM MEG TEST (GROUND RESISTANCE) ON THE GROUNDING SYSTEM. THESE TESTS SHALL BE OBSERVED BY THE CONSTRUCTION MANAGER. GROUND FIELD READING SHALL BE 5 OHMS MAXIMUM. OR ADDITIONAL GROUNDING METHODS APPLIED. SEE S5EO 3.018, 10.002.
- 1.4. ALL GROUND RODS AND GROUNDING SYSTEM SHALL COMPLY WITH S5EO 3.018, 10.002.

15. ALL CONDUCTORS SHALL BE COPPER TYPE THWN INSULATION UNLESS OTHERWISE NOTED.
16. ALL GROUNDING SYSTEM CONDUCTORS AND CONNECTIONS BELOW GRADE SHALL BE THERMAL WELDS AT GROUND RODS AND SHALL BE A MINIMUM OF 30" BELOW GRADE OR 6" BELOW FROST LINE, WHICHEVER IS DEEPER.
17. GROUNDING SHALL BE IN ACCORDANCE WITH THE FOLLOWING AT PROJECT NUMBER PRACTICES (AS REQUIRED): R. 55EO 3.018.02.004 BOUNDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES.
18. 55EO 3.018.10.002 SITE RESISTANCE TO EARTH TESTING (3 POINT FALL OF POTENTIAL).
19. REFER TO DETAILS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

20. A MINIMUM OF 2 TEST RUNS SHALL BE MADE AT 90° (100 FOOT RUNS). TEST RESULTS SHALL BE GIVEN TO THE CONSTRUCTION MANAGER.
21. PROVIDE FOR ALL OTHER ADDITIONAL GROUNDING CONNECTIONS WHICH MAY BE REQUIRED AT THE SITE (I.E. FENCES, GATES, METAL EQUIPMENT, ELECTRICAL SERVICE SYSTEMS, ETC.) TO COMPLY WITH ALL STATE LOCAL CODES, AND THE NATIONAL ELECTRICAL CODE 2008.
22. ALL GROUNDING CONNECTIONS AND INSTALLATIONS SHALL BE MADE BY ELECTRICAL CONTRACTOR IN ACCORDANCE WITH LOCAL UTILITY REQUIREMENTS AND THE NATIONAL ELECTRICAL CODE 2008.



LEGEND AND KEYNOTES

- 10'Ø X 42" DEEP INSPECTION WELL (ICV BY CARLSON INDUSTRIES OR APPROVED EQUAL; INCLUDE SPECIFIED GROUND ROD INSIDE WELL W/ CADWELD CONNECTIONS)
- 5/8"Ø X 10'-0" LONG COPPER CLAD GROUND ROD; MIN. 1/8" BELOW GRADE AT MINIMUM 12'-0" O.C. (WITH EXOTHERMIC WELD TO GROUND WIRE)
- EXOTHERMIC WELD CONNECTION
- MECHANICAL CONNECTION
- NEW GROUND RING
- EXISTING GROUND WIRE (IF APPLICABLE)
- COAX CABLE
- GROUND WIRE INSIDE 1/2" PVC SLEEVE; WIRE TO BE #2 AWG SOLID TINNED UNLESS NOTED OTHERWISE

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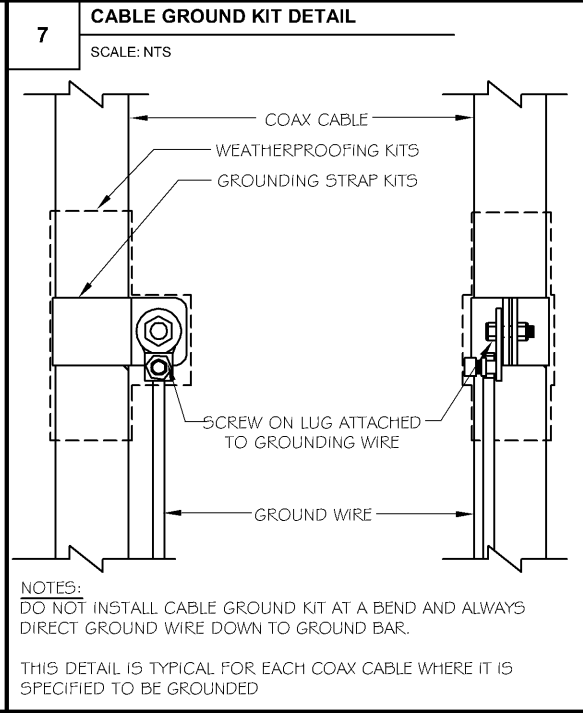
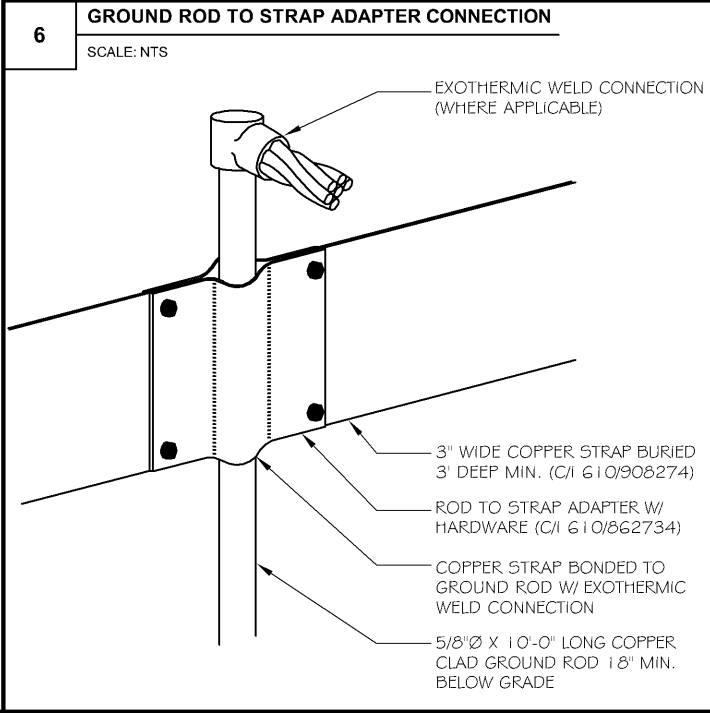
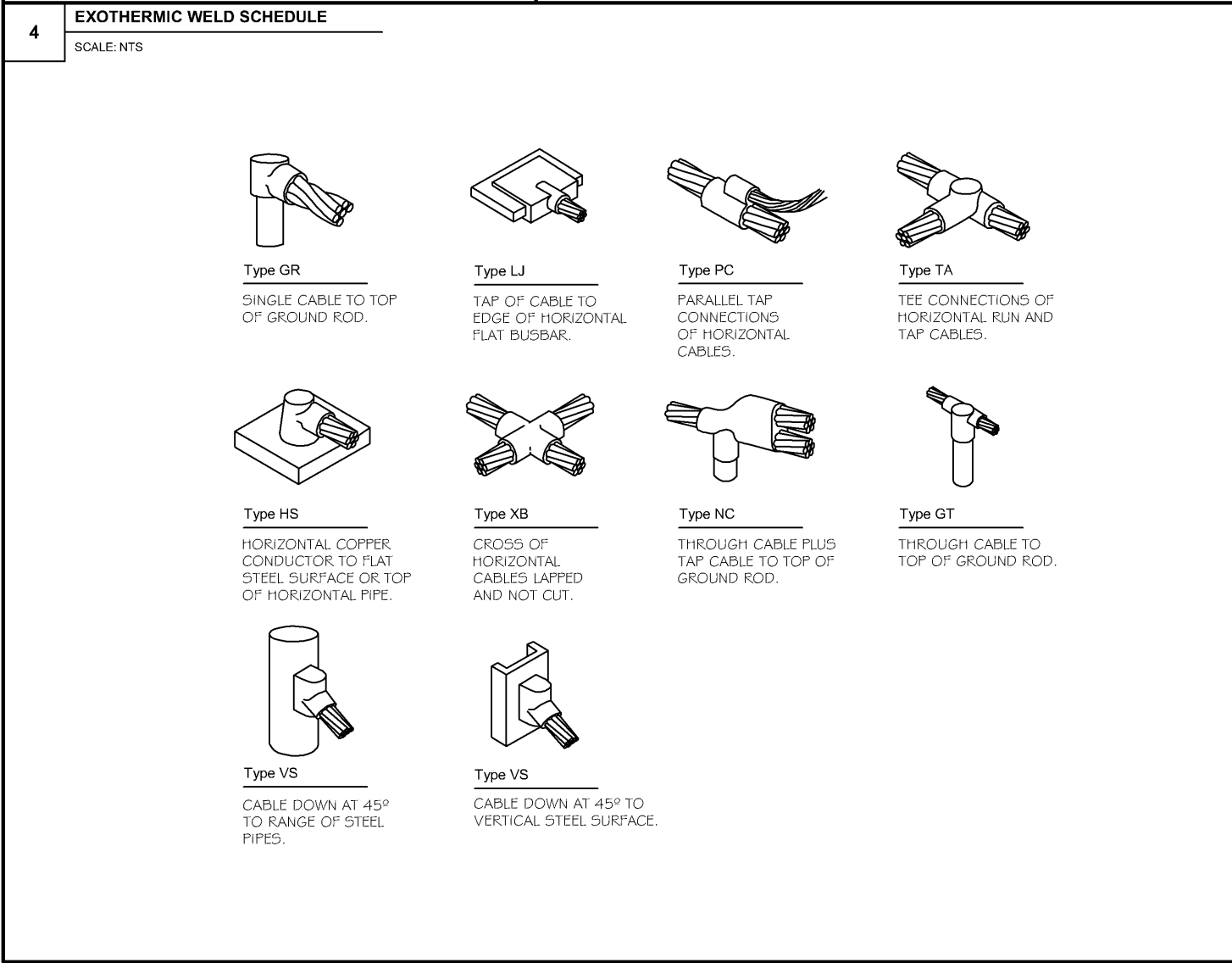
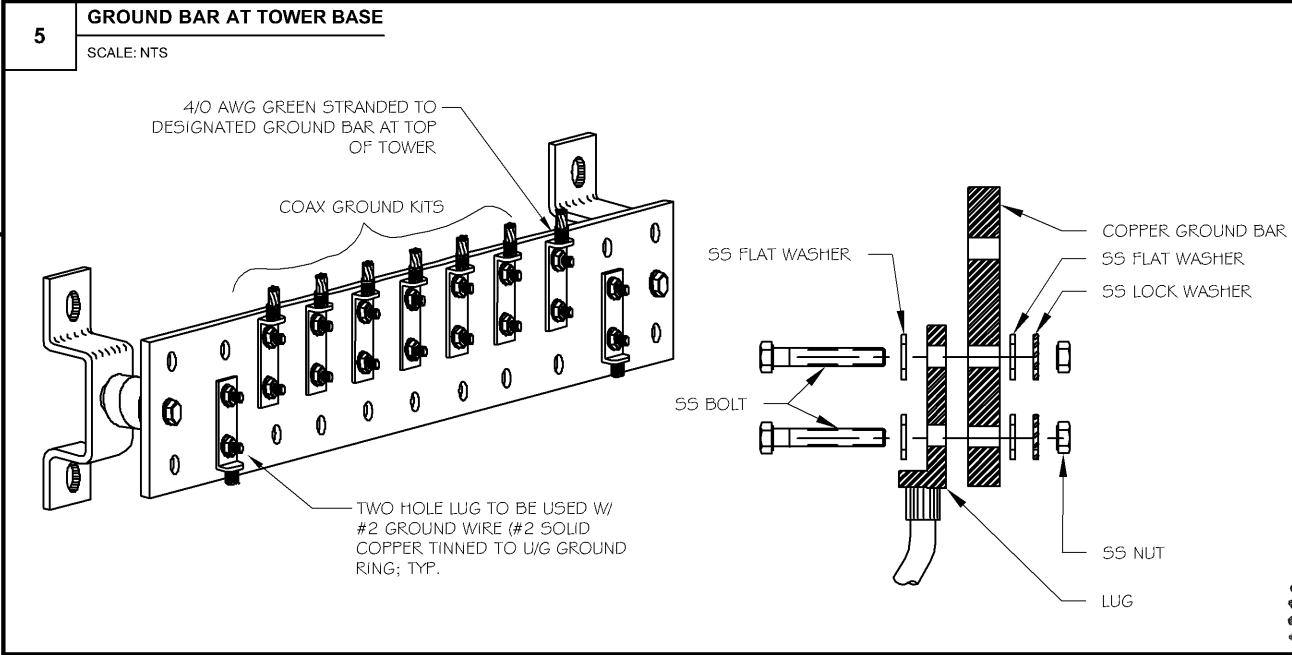
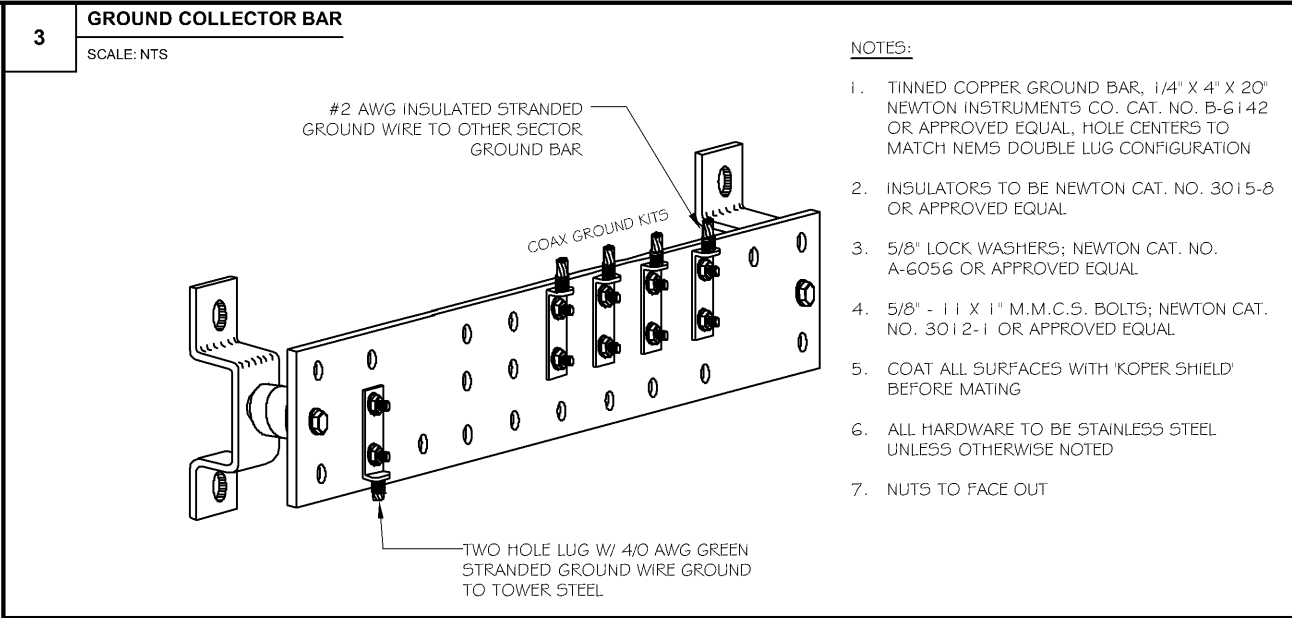
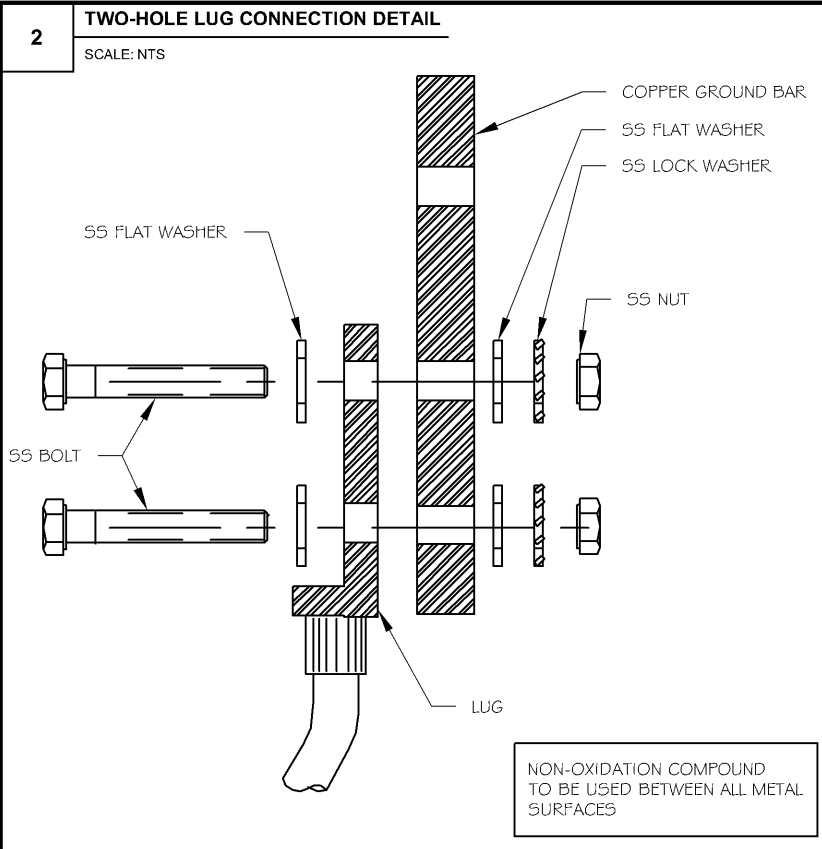
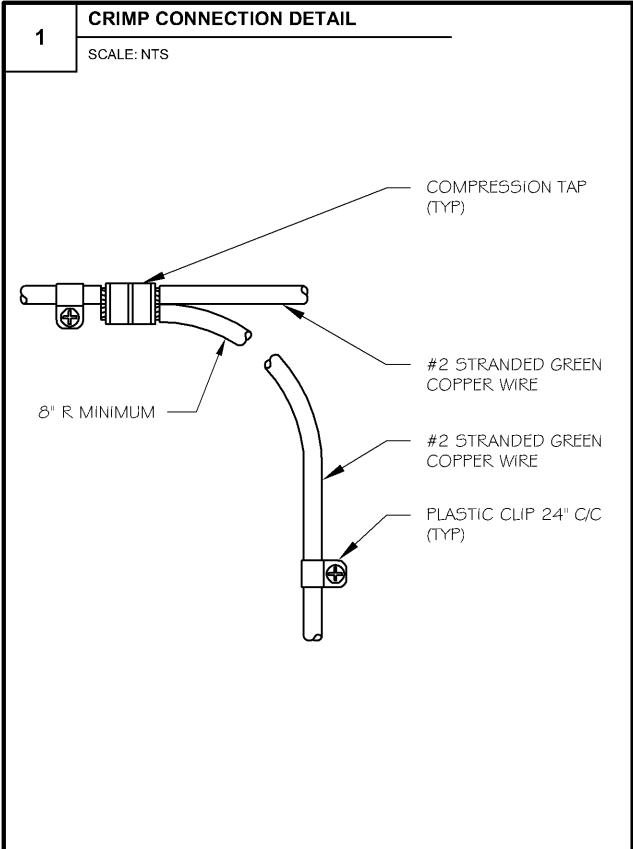
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GROUNDING RISER

G2.1

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FORGE PROJECT NO: **7572**

DRAWN BY: **MM**

CHECKED BY: **JL**

REV	DATE	DESCRIPTION
A	08/27/2018	ISSUED FOR LEASE EXHIBIT
B	08/30/2018	ISSUED FOR LEASE EXHIBIT
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COMMONWEALTH OF VIRGINIA
JOHN W. KELLY III
Lic. No. 0402043527
5/9/19
PROFESSIONAL ENGINEER
B&T ENGINEERING, INC.
COA - 0402043527
EXPIRATION: 5/9/2024

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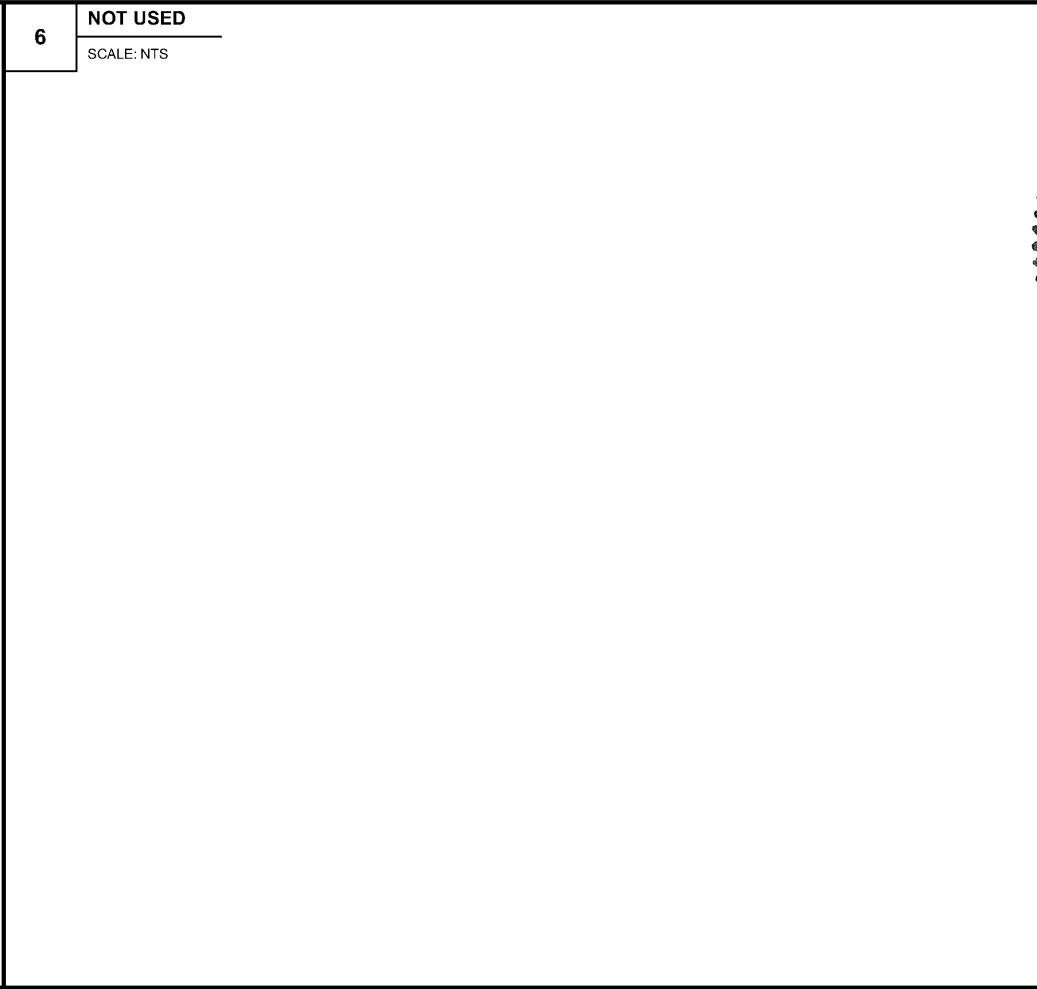
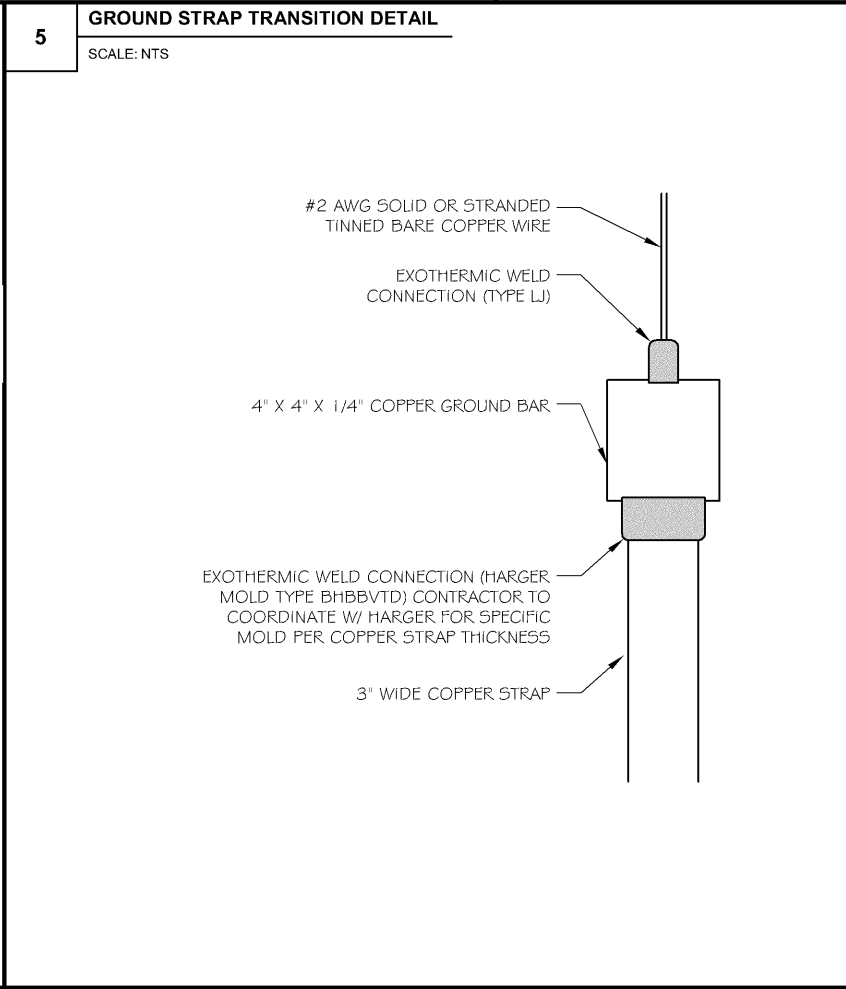
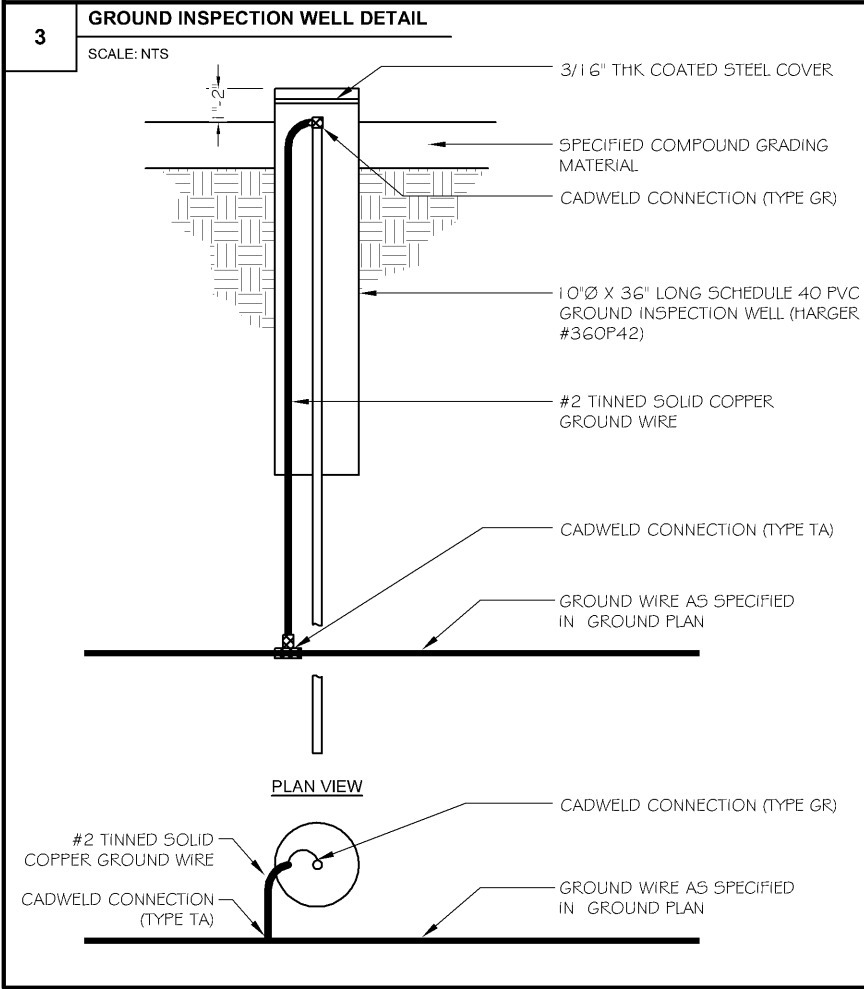
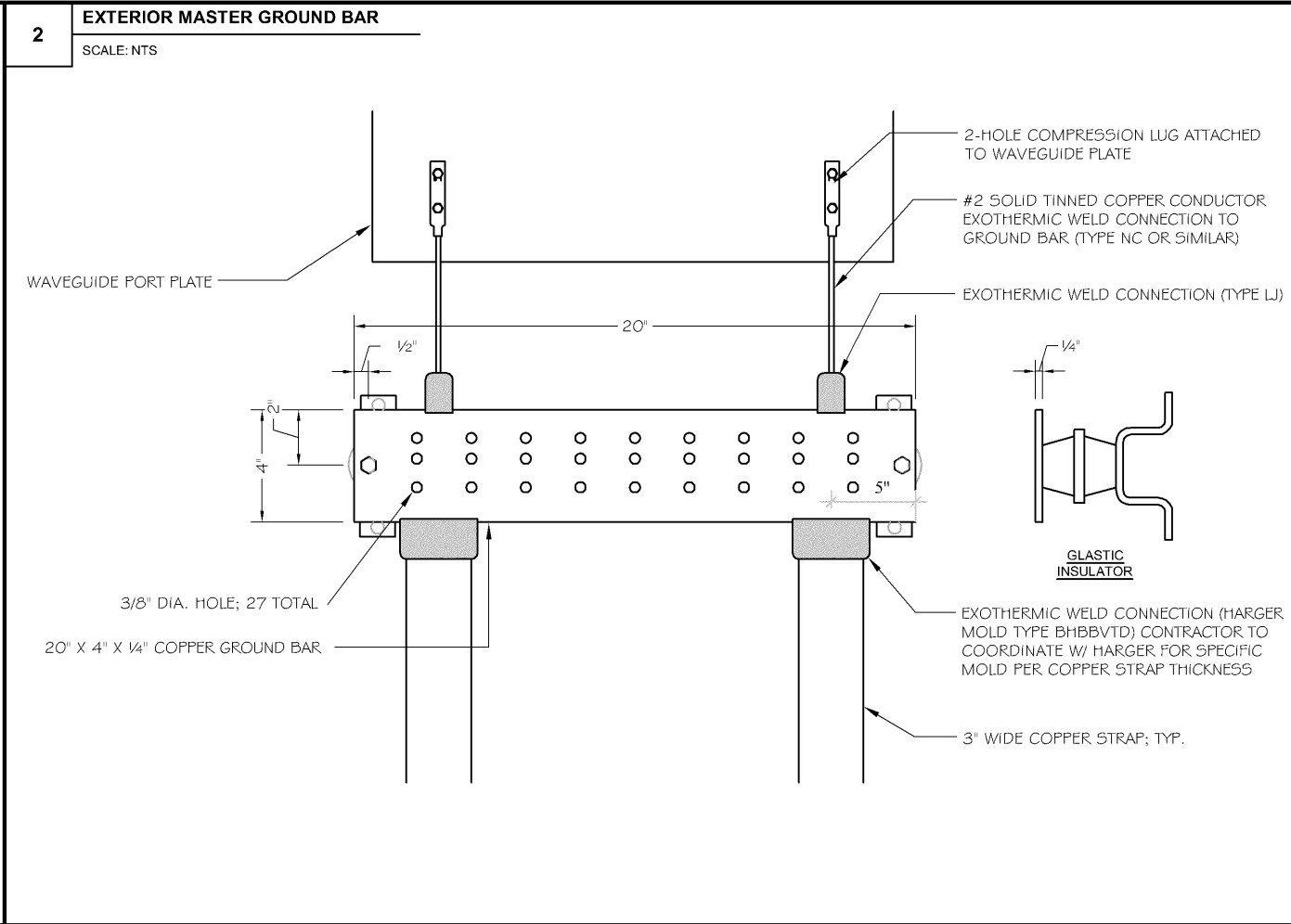
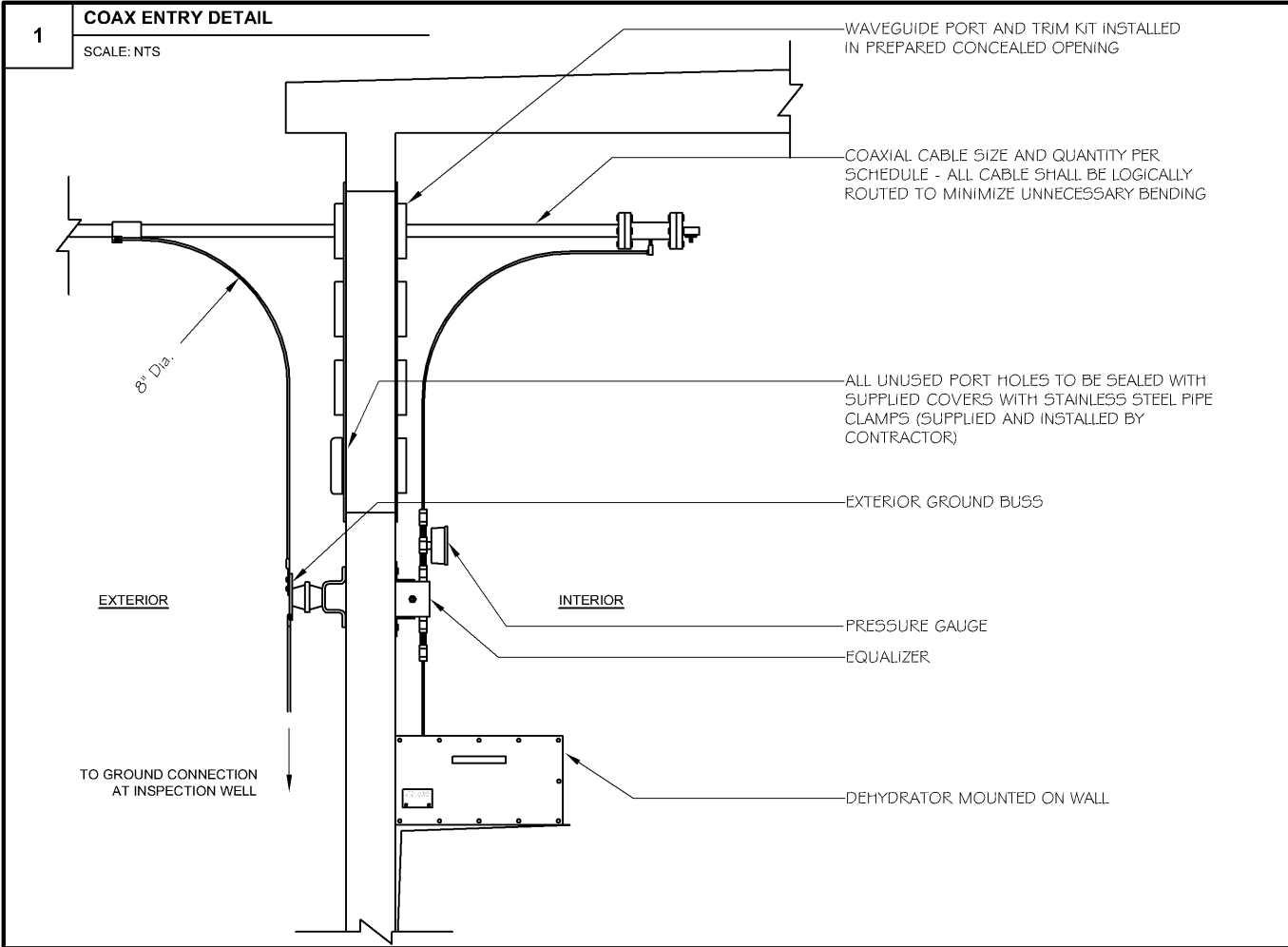
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GROUNDING DETAILS

G3.1


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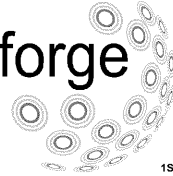


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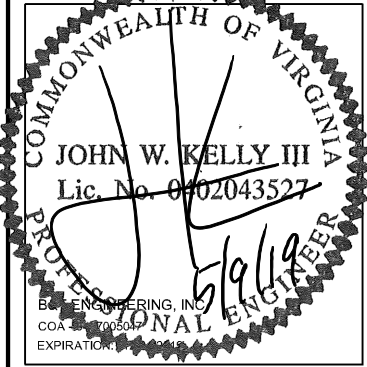
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5/9/19

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GROUNDING DETAILS

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PART 1 GENERAL

1.01 CARRIER REPRESENTATIVE

A. THE SITE DEVELOPMENT MANAGER (SDM) OR HIS DESIGNEE (INCLUDING BUT NOT LIMITED TO THE ARCHITECT/ENGINEER, OR CONSTRUCTION MANAGER) SHALL SERVE AS THE SINGLE POINT OF CONTACT.
C. CONTRACTOR SHALL VERIFY ALL CHANGES ARE ACCEPTED BY FORGE SERVICES, INC.

1.02 INTENT

A. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND COMPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH.

B. THESE SPECIFICATIONS AND DESIGN DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE PERFORMED AND THE MATERIALS TO BE FURNISHED FOR THE CONSTRUCTION OF THE PROJECT.

C. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS INDICATED IN THE DOCUMENTS.

D. THE PURPOSE OF THE SPECIFICATIONS IS TO SUPPLEMENT THE INTENT OF THE DRAWINGS AND TO DESIGNATE A PROCEDURE, TYPE, OR QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.

E. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. HOWEVER, NO CHANGES THAT ALTER THE CHARACTER INTENT OF THE DESIGN WILL BE MADE OR PERMITTED WITHOUT A CHANGE ORDER FROM THE OWNER.

1.03 SHOP DRAWINGS

A. CONTRACTOR TO SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS AND THROUGH THE GENERAL CONTRACT TO FORGE FOR APPROVAL.

B. SHOP DRAWINGS FOR ALL STRUCTURAL STEEL SHALL BE SUBMITTED TO FORGE SERVICES, INC., UNLESS SPECIFICALLY NOTED OTHERWISE; CONTRACTOR SHALL NOT FABRICATE STEEL UNTIL DRAWINGS HAVE BEEN ACCEPTED IN WRITING.

C. ALL SHOP DRAWINGS TO BE REVISED, CHECKED AND CORRECTED BY GENERAL CONTRACTOR PRIOR TO SUBMITTAL TO THE SDM.

1.04 PRODUCTS AND SUBSTITUTIONS

A. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBMISSION. IN EACH REQUEST IDENTIFY THE PRODUCT FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED INSPECTIONS AND DRAWING NUMBERS, AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.

B. ALL NECESSARY PRODUCT DATA AND CUT SHEETS SHOULD PROPERLY INDICATES AND DESCRIBE ITEMS, PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE SDM, SUBMIT ACTUAL SAMPLES TO THE SDM FOR APPROVAL IN LIEU OF CUT SHEETS.

1.05 COMPLIANCE

A. ALL MATERIALS, DESIGN AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES (SOME ARE LISTED HEREIN) ORDINANCES, AND AUTHORITIES HAVING JURISDICTION OVER THE WORK. UPON THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL PROVIDE CARRIER WITH THE CERTIFICATES OF OCCUPANCY (IF REQUIRED), JOB SITE PERMITTED PLANS AND INSPECTION CARD WITH ALL FINAL INSPECTION SIGNATURES AND OTHER LEGAL DOCUMENTS TO VERIFY SUCH COMPLIANCE. WHERE NO CODES EXIST, THE WORK SHALL CONFORM TO THE UNIFORM BUILDING CODE AND/OR THE SPECIFICATIONS HEREIN, WHICHEVER IS MORE STRINGENT AND A DOCUMENT STATEMENT SHALL BE FURNISHED TO THIS EFFECT.

B. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY COMPLIANCE WITH THE GOVERNING CODES AND TO NOTIFY THE SDM OF ANY DISCREPANCIES PRIOR TO PERFORMING WORK.

C. REFERENCES TO ANY STANDARD OR CODE OF PRACTICES IN THIS SPECIFICATION SHALL BE DEEMED TO MEAN THE EDITION CURRENT AT THE TIME OF AWARD OF THE CONTRACT.

D. THE CONTRACTOR SHALL COMPLY WITH ALL ZONING AND SITE ACQUISITION SPECIAL STIPULATIONS AS OUTLINED IN THE JOB SPECIFICATIONS, OR AS DIRECTED BY THE SDM.
1. ANSI/TIA - 222 - G
2. INTERNATIONAL BUILDING CODE (IBC)
3. NATIONAL ELECTRICAL CODE (NEC) WITH ALL AMENDMENTS
4. AMERICAN INSTITUTE FOR STEEL CONSTRUCTION OR SPECIFICATIONS (AISC)
5. LIFE SAFETY CODE NFPA - 101
6. FEDERAL AVIATION REGULATIONS

E. CONTRACT COMPANIES AND THEIR EMPLOYEES SHALL OBSERVE AND PRACTICE ALL OSHA SAFETY GUIDELINES WHILE PERFORMING SERVICE.

F. TOWER PLATFORM AND ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.

G. WHERE A TOWER DOES NOT HAVE A PERMANENT FALL PROTECTION SYSTEM, THE CONTRACT COMPANY IS RESPONSIBLE FOR PROVIDING A SUITABLE SYSTEM FOR ITS EMPLOYEES.

H. GENERAL CONTRACTOR WILL HAVE A QUALIFIED PERSON WITH TOOLS AT THE TIME OF INSTALLATION OF EQUIPMENT.

1.06 ADMINISTRATION

A. FAA APPROVAL WILL BE SUPPLIED BY OTHERS BUT MUST BE CONFIRMED BY THE CONTRACTOR WITH THE SDM PRIOR TO THE ERECTING OF TOWER (IF APPLICABLE).

1.07 INSPECTIONS:

A. THE CONTRACTOR SHALL NOTIFY THE SDM AT LEAST 48 HOURS IN ADVANCE OF REQUIRED JURISDICTIONAL INSPECTIONS AND INSPECTIONS THAT WILL BE REQUIRED BY THE SDM OR OTHER DESIGNATED CARRIER REPRESENTATIVE ARE:
1. INSPECTION OF GROUNDING SYSTEM PRIOR TO COVER UP
2. PRACTICAL COMPLETION

B. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ENSURING THAT ALL RELEVANT AUTHORITY INSPECTIONS ARE CARRIED OUT IN A TIMELY MANNER. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION OF ALL INSPECTIONS.

1.08 ENVIRONMENTAL PROTECTION:

A. NOISE LEVEL: THE CONTRACTOR SHALL ENSURE THAT STATE AND LOCAL REGULATIONS ARE COMPLIED WITH IN REGARD TO NOISE LEVELS PRODUCED BY HIS OR HIS SUBCONTRACTOR'S EQUIPMENT OR METHODS OF CONSTRUCTION.

PART 2 SPECIALTY ITEMS

2.00 READY-MIX CONCRETE:

A. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION PLANS, READY-MIX CONCRETE SHALL BE 4,000 PSI STRENGTH CONCRETE CONFORMING TO THE ASTM C 94 STANDARDS. SUBMIT DESIGN TO SDM FOR APPROVAL ONE WEEK PRIOR TO POURING CONCRETE. EACH BATCH OF CONCRETE DELIVERED TO THE SITE MUST BE ACCOMPANIED BY A DELIVERY TICKET, PREPARED BY THE READY-MIX SUPPLIER STATING THE TICKET NUMBER, DELIVERY DATE, TIME OF ARRIVAL AT SITE, QUANTITY DELIVERED, AMOUNT OF WATER ADDED ON SITE, MIXING, AND TRAVEL TIME TO THE SITE, AND TIME THAT BATCH POUR WAS COMPLETED.

B. CEMENT SHALL BE PORTLAND TYPE I OR II AS PER ASTM C 150 STANDARDS. AGGREGATES SHALL BE EVENLY GRADED BETWEEN ¼ AND ¾ INCHES AS PER ASTM C 33 STANDARDS. WATER SHALL BE POTABLE WATER CEMENT RATIO AS PER ACI 301. AIR ENTRAINING IN EXTERIOR EXPOSED CONCRETE SHALL BE 6 PERCENT PER ASTM 260. THE USE OF WATER-REDUCING ADMIXTURES IS PERMITTED. NOTIFY THE SDM IN ADVANCE OF USING SUCH ADMIXTURES.

C. WHERE SITE CONDITIONS, WEATHER, REQUIRE ADJUSTMENTS TO THE CONCRETE DESIGN MIX, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE SDM IN ADVANCE OF ORDERING THE CONCRETE.

D. COVER THE REINFORCING STEEL WITH WATERED SOAKED BURLAP TO PREVENT THE STEEL FROM EXCEEDING THE AMBIENT AIR TEMPERATURE. KEEP SUBGRADE EVENLY MOISTENED TO OPTIMUM MOISTURE CONTENT. THE USE OF WATER-REDUCING ADMIXTURES IS PERMITTED. NOTIFY THE SDM IN ADVANCE OF USING SUCH ADMIXTURES.

E. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION PLANS, ALL EXPOSED SURFACES SHALL RECEIVE A BROOM FINISH PERPENDICULAR TO THE PRIMARY TRAFFIC PATH OR LONGEST DIMENSION OF THE SURFACE. EXPOSED EDGES OF ALL TOWER FOUNDATIONS SHALL RECEIVE A ¾" BY ¾" INCH, 45 DEGREE CHAMFER. OTHER EXPOSED EDGES SHALL RECEIVE A TOOLED RADIUS FINISH.

F. PROTECT ALL CONCRETE DURING POURING PERIODS FROM EXCESSIVE LOSS OF MOISTURE AND EXTREME TEMPERATURES (AS OUTLINED ABOVE). IF NECESSARY, SPRAY CONCRETE WITH A CONCRETE CURING COMPOUND TO MAINTAIN OPTIMUM MOISTURE CONTENT FOR A 1 DAY PERIOD. MINIMUM CURING - 28 DAYS STRENGTH.

G. A MINIMUM OF 24 HOURS CURING OF MAT FOUNDATION CONCRETE IS REQUIRED BEFORE PLACING PIER FORMWORK AND CONCRETE.

2.01 TESTING AND INSPECTIONS:

A. SLUMP TESTS, AIR CONTENT TEST, TEMPERATURE READINGS, AND THE SECURING OF COMPRESSION TEST CYLINDERS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IN THE PRESENCE OF AN APPROVED CARRIER REPRESENTATIVE. ONE OF EACH TEST (AS PER BLOW) AND THREE TEST CYLINDERS (AS PER ASTM C 30 SHALL BE TAKEN ON EACH CONCRETE BATCH AT THE BEGINNING OF POURING. TESTING REPORTS TO BE SUBMITTED TO CARRIER COMMUNICATIONS.

2.02 SLUMP:

A. THE SLUMP TEST SHALL BE PERFORMED ACCORDING TO ASTM C 143. THE ALLOWABLE SLUMP SHALL BE FOUR INCHES PLUS OR MINUS ONE INCH UNLESS OTHERWISE APPROVED BY THE SDM.

2.03 TEMPERATURE:

A. UNDER NORMAL POURING CONDITIONS THE TEMPERATURE OF THE CONCRETE SHALL NOT EXCEED 90 DEGREES FAHRENHEIT (32 DEGREES CELSIUS) OR GO BELOW 45 DEGREES FAHRENHEIT (7 DEGREES CELSIUS).

B. FOR PROPER RECORD KEEPING, EACH SET OF TEST CYLINDERS SHALL BE MARKED OR TAGGED WITH THE DATE AND TIME OF DAY THE CYLINDERS WERE MADE, THE SITE NAME AND LOCATION OF THE SAMPLED CONCRETE, THE DELIVERY TRUCK OR BATCH NUMBER, THE AIR CONTENT AND THE SLUMP.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DELIVERY OF ALL COMPRESSION TEST CYLINDERS TO CARRIER'S APPROVED TESTING LABORATORY.

D. THE MINIMUM ACCEPTABLE COMPRESSIVE STRENGTHS AS DETERMINED BY ASTM C 39 SHALL BE 70 PERCENT OF FULL DESIGN STRENGTH AT 7 DAYS AND 100 PERCENT OF FULL DESIGN AT 28 DAYS. RESULT OF THE 7-DAY CYLINDER BREAK TEST MUST BE CONFIRMED BY THE CONTRACTOR PRIOR TO PLACING THE BUILDING OR ERECTING THE TOWER. WRITTEN CONFIRMATION OF THE 7-DAY AND 28-DAY CYLINDER BREAKS WILL BE REQUIRED IN THE PRACTICAL COMPLETION DOCUMENTATION.

2.04 CONCRETE REINFORCEMENT:

A. ALL CONCRETE REINFORCING BARS SHALL BE GRADE 60, DEFORMED BARS CONFORMING TO ASTM A615 STANDARDS, UNLESS OTHERWISE SPECIFIED, AND SHALL BE FREE OF LOOSE RUST AND SCALE. HEATING AND WELDING OF REINFORCING BARS IS STRICTLY PROHIBITED. A THREE INCH MINIMUM CLEAR SPACE IS REQUIRED BETWEEN ALL REINFORCING AND ALL CONCRETE SURFACES.

B. WELDED WIRE FABRIC SHALL BE PER ASTM A 185 STANDARDS. STEEL WIRE SHALL BE PLAIN, COLD DRAWN WIRE AS PER ASTM A 82.

C. ALL REINFORCING BOLSTER CHAIRS, SPACERS, AND OTHER ACCESSORIES FOR FASTENING BARDS AND WELDED WIRE FABRIC IN PLACE SHALL BE ACCURATELY POSITIONED AND SECURED WHILE CONCRETE IS BEING POURED. ALL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE COVER OF 3 INCHES, UNLESS OTHERWISE NOTED ON THE CONSTRUCTION PLANS.

2.05 FORMWORK:

A. PLACE, ERECT, SUPPORT, AND BRACE FORMS TO PROVIDE HARDENED INDICATED ON THE DRAWINGS. FOUNDATIONS SHALL BE FORMED TO A DEPTH OF 12" BELOW THE FROST OR IN ACCORDANCE WITH THE CONSTRUCTION PLAN, WHICHEVER IS GREATER. EXPOSED CONCRETE SURFACES SHALL BE CONSIDERED ARCHITECTURAL CONCRETE FORMED TO THE TOLERANCES 0.75 INCHES OVER ENTIRE DIMENSION AND HAVING SURFACE CONSISTENCIES AS PER ASTM 347 STANDARDS.

B. FABRICATE FORMS TO ALLOW FOR EASY REMOVAL AFTER CONCRETE CURING WITHOUT THE NEED FOR PRYING AND HAMMERING AGAINST CONCRETE SURFACES. FORM MATERIALS SHALL BE SUFFICIENTLY TIGHT TO PREVENT LEAKAGE OF CEMENT PASTE. PROVIDE SUFFICIENT WALL THICKNESS OF TUBES TO PREVENT DEFORMATION DUE TO FORCES OF EXTERNAL PRESSURE.

2.06 WET CONCRETE:

A. BEFORE ANY FOUNDATION EXCAVATION BEGINS, THE CONTRACTOR SHALL VERIFY ALL SHELTER TOWER BASE, AND GUY ANCHOR LOCATIONS AS SHOWN ON THE SITE DRAWINGS. DISCREPANCIES SHALL BE REPORTED TO THE SDM AS SOON AS POSSIBLE AND BEFORE EXCAVATION COMMENCES.

2.07 EXCAVATIONS:

A. EXCAVATE FOOTINGS AND FOUNDATIONS TO THE ELEVATIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION PLANS. EXTEND THE WIDTH OF EXCAVATIONS AT LEAST THREE FEET, OR IN ACCORDANCE WITH OSHA REGULATIONS-WHICHEVER IS GREATER, TO ALLOW FOR SAFE PLACING AND REMOVAL OF FORMWORK, INSTALLATION OF SERVICES AND PERFORMING INSPECTIONS.

B. EXCAVATIONS CARRIED OUT BELOW THE DEPTHS INDICATED ON THE CONSTRUCTION PLANS OR AUTHORIZED BY THE SDM SHALL BE CONSIDERED UNAUTHORIZED. AT NO ADDITIONAL EXPENSE TO CARRIER THE UNAUTHORIZED EXCAVATIONS SHALL BE FILLED TO THE ELEVATIONS INDICATED ON THE CONSTRUCTION PLANS WITH FOUNDATION, CONCRETE, A LEAN CONCRETE MIX, OR ADEQUATELY COMPACTED F.D.O.T. 51 CRUSHED STONE AS APPROVED BY THE SDM.

C. RESULTS AS APPROVED BY THE SDM. EXPENSE FOR SUCH WORK SHALL BE REIMBURSED TO THE CONTRACTOR.

D. UTILITY TRENCHES SHALL BE EXCAVATED AS REQUIRED BY THE CONSTRUCTION PLANS OR LOCAL CODES, WHICHEVER IS GREATER TO ALLOW INSTALLATION OF THE TOP OF THE PIPE OR CABLING TO BE BELOW THE FROST LINE. PROVIDE UNIFORM BEARING AND SUPPORT ALONG THE FULL LENGTH OF THE CONDUIT PIPE. REMOVE STONES AND OTHER OBJECTS FROM THE EXCAVATION THAT WOULD OTHERWISE CAUSE POINT LOADING DAMAGE.

2.08 FILL MATERIAL:

A. FILL MATERIAL SHALL BE OBTAINED, TO THE MAXIMUM EXTENT POSSIBLE, FROM EXCAVATIONS ON SITE AND SHALL BE APPROVED BY THE SDM. THE FILL MATERIAL SHALL CONTAIN NO ORGANICS OR ROCKS LARGER THAN 6 INCHES, NOR SHALL CONTAIN OBJECTIONABLE MATERIALS AND/OR MATERIALS DESIGNATED AS HAZARDOUS OR INDUSTRIAL BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE FILL MATERIAL SHALL CONTAIN FINES SUFFICIENT TO FILL ALL VOIDS IN THE MATERIAL. MOISTURE CONTENT OF FILL MATERIAL SHALL BE WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT PRIOR TO COMPACTION. UNDER SLABS-ON-GRADE, PROVIDE FULLY COMPACTED DRAINAGE FILL CONSISTING OF A WASHED 51 STONE TO THE REQUIRED THICKNESS AND ELEVATIONS INDICATED ON THE CONSTRUCTION PLANS.

2.09 BORROW MATERIAL:

A. UNDER SLABS-ON-GRADE, PROVIDE FULLY COMPACTED DRAINAGE FILL CONSISTING OF CRUSHED STONES TO THE REQUIRED THICKNESS AND THE FILL MATERIAL SHALL CONTAIN NO ORGANIC MATERIAL.

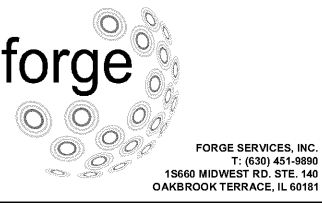


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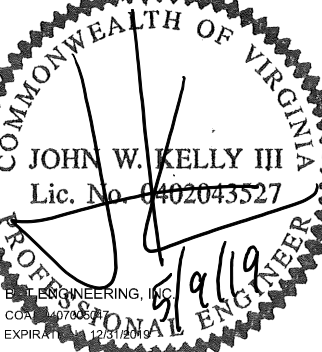


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GENERAL NOTES

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2.10 BACKFILL AND COMPACTION:

A. BACKFILL OPERATIONS SHALL ONLY COMMENCE AFTER ALL CONSTRUCTION BELOW FINISH GRADE HAS BEEN INSPECTED BY THE RELEVANT AUTHORITIES AND APPROVED BY THE SDM. ALL DEBRIS, FORMWORK, EXCESS MATERIAL, AND TRASH SHALL BE REMOVED FROM THE EXCAVATION PRIOR THE BACKFILL.

B. PLACE AND COMPACT FILL MATERIAL EVENLY ALONG THE FULL LENGTH OF ALL FOUNDATIONS, UTILITY CONDUITS AND PIPES AND EVENLY UNDER ALL SLABS AND PAVEMENTS TO THE REQUIRED ELEVATIONS. COMPACTION OF BACKFILL OR BORROW SOIL SHALL BE PERFORMED IN 12 INCH LIFTS OF LOOSE MATERIAL WHEN UTILIZING HEAVY COMPACTION EQUIPMENT OR 6 INCH LIFTS OF LOOSE WHEN UTILIZING HAND OPERATED TAMPERS.

C. COMPACTION OF ALL BACKFILL SHALL ACHIEVE 95 PERCENT OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698. STRUCTURAL BACKFILL SHALL HAVE A MINIMUM COMPACTED WEIGHT OF 100 POUNDS PER CUBIC FOOT.

D. FOR ALL FILLS AND EMBANKMENTS, DO NOT PLACE ON MUDDY OR FROZEN SURFACES, OR SURFACES THAT CONTAIN ORGANIC MATERIAL SUCH AS LEAVES, GRASS, ROOTS, OR BRUSH. ON SLOPES STEEPER THAN 25 PERCENT GRADE, FLOW STRIP OR OTHERWISE BREAK UP THE SURFACE TO BOND FILL MATERIAL WITH THE EXISTING SURFACE.

2.11 VAPOR BARRIERS AND FILTER FABRICS:

A. PROVIDE 6 MIL POLYETHYLENE VAPOR BARRIER WHERE INDICATED ON THE CONSTRUCTION PLANS. FILTER FABRIC SHALL BE A PERVIOUS GEO TEXTILE FABRIC OF POLYPROPYLENE, NYLON, OR POLYESTER FIBER WITH A 100 LB. TENSILE STRENGTH, 100 APPARENT OPENING SIZE AND A PERMEABILITY OF 150 GALLONS/MINUTE/SF.

PART 3 EQUIPMENT SHELTER (IF APPLICABLE)

3.00 DELIVERY AND PLACEMENT:

A. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE SHELTER MANUFACTURER FOR THE TIMELY DELIVERY OF THE SHELTER. THE SHELTER MANUFACTURER WILL FURNISH THE TRANSPORTATION OF THE SHELTER TO THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR THE CRANE AND NECESSARY RIGGING EQUIPMENT TO PROPERLY PLACE THE SHELTER ON THE FOUNDATION.

3.01 ANCHORING:

A. FOR STANDARD CONCRETE SHELTERS ON SLAB ON GRADE OR PERIMETER BEAM FOUNDATION, THE CONTRACTOR SHALL ANCHOR THE SHELTER AS RECOMMENDED BY THE SHELTER MANUFACTURER. THE CONTRACTOR SHALL ALSO PROVIDE LABOR AND SUPERVISION NECESSARY TO ASSEMBLE SHELTER COMPONENTS REMOVED FOR SHIPPING PURPOSES. ALL SUCH WORKS PERFORMED BY THE CONTRACTOR ON THE SHELTER SHALL BE IN ACCORDANCE WITH THE SHELTER MANUFACTURER.

3.02 MISCELLANEOUS ASSEMBLY:

A. TO SATISFY DOT RESTRICTIONS, SOME ON-SITE ASSEMBLY OF SHELTER COMPONENTS, PERFORMED BY THE CONTRACTOR, MAY BE REQUIRED. THESE ITEMS INCLUDE, BUT NOT LIMITED TO, THE DOOR CANOPY AND MAIN DISCONNECT SWITCH. THE CONTRACTOR WILL BE RESPONSIBLE FOR THIS ASSEMBLY AND COORDINATION WITH THE SHELTER MANUFACTURER.

3.03 WALL, FLOOR, AND ROOF PENETRATIONS:

A. TO ONLY THOSE PENETRATIONS PROVIDED OR APPROVED BY THE SHELTER MANUFACTURER WILL BE PERMITTED. ALL PENETRATIONS FOR UTILITY SERVICES, ELECTRICAL CABLING, AND GROUNDING LEADS MUST BE SEALED WITH A SUITABLE WEATHER TIGHT COMPOUND SUCH AS DUCSEAL OR APPROVED EQUIVALENT.

3.04 SHELTER CLEANLINESS:

A. THE CONTRACTOR IS RESPONSIBLE FOR THE CLEANLINESS OF THE SHELTER UNTIL THE DATE OF PRACTICAL COMPLETION. THE SHELTER IS NOT TO BE USED FOR STORING THE CONTRACTOR'S OR SUB-CONTRACTORS' TOOLS, EQUIPMENT OR PERSONAL PROPERTY. ON-SITE PERSONNEL SHALL LIMIT THEIR ACCESS TO THE BUILDING FOR THE PURPOSE OF PERFORMING THE WORK.
B. AT ALL TIMES, THE AMOUNT OF DUST, DIRT, AND DEBRIS INSIDE THE SHELTER SHALL BE KEPT TO AN ABSOLUTE MINIMUM. GRAVEL FOR THE SITE COMPOUND SHALL BE PLACED, AS SPECIFIED, AT THE EARLIEST POSSIBLE TIME AND PRIOR TO THE COMPLETION OF WORK INSIDE THE SHELTER.
C. DUE TO THE SITE AND WEATHER CONDITIONS AND AS DIRECTED BY THE SDM, IT MAY BECOME NECESSARY FOR THE CONTRACTOR TO PROTECT THE SHELTER FLOOR WITH PAPER, PLASTIC OR PLYWOOD FROM FOOT TRAFFIC AND MUD.

3.05 SHELTER SECURITY:

A. THE CONTRACTOR IS RESPONSIBLE FOR SECURITY OF THE SHELTER AND ALL ITS COMPONENTS UNTIL THE DATE OF PRACTICAL COMPLETION. MAINTAIN A KEYED OR COMBINATION LOCK IN ACCORDANCE WITH THE SHELTER DESIGN AND AS REQUESTED BY THE SDM FOR CARRIER USE PRIOR TO PRACTICAL COMPLETION.

PART 4 ELECTRICAL PROVISIONS

4.00 GENERAL

A. SUBMITTAL OF BID INDICATES CONTRACTOR HAS FAMILIARIZED HIMSELF WITH ALL OF JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.

B. CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATIONS TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT/ENGINEER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.

C. HEIGHTS SHALL BE VERIFIED WITH SDM PRIOR TO INSTALLATION.

D. THESE PLANS ARE DIAGRAMMATIC ONLY; FOLLOW AS CLOSELY AS POSSIBLE.

E. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULLBOX, J-BOX, SWITCH BOX, ETC. IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.).

F. CONTRACTOR SHALL PROVIDE ALL LABOR MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC. FOR A COMPLETE AND PROPERLY OPERATING SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.

G. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN SAFE CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, NBFU AND "UL" LISTED.

H. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH ALL GOVERNING STATE, IBC, NEC, COUNTY AND LOCAL CODES AND O.S.H.A.

I. CONTRACTOR SHALL OBTAIN ALL NECESSARY BUILDING PERMITS AND PAY ALL REQUIRED FEES PURSUANT TO THE WORK.

J. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF SITE ACCEPTANCE BY SDM. ANY WORK MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AND AT THE EXPENSE OF THE CONTRACTOR.

K. ALL CONDUIT SHALL HAVE A PULL WIRE OR ROPE.

L. PROVIDE SDM WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.

M. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO SDM AT JOB COMPLETION.

N. USE T-TAP CONNECTIONS ON ALL MULTICIRCUITS WITH COMMON NEUTRAL CONDUCTOR FOR LIGHTING FIXTURE.

O. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 22,000 A.I.C.

P. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY UBC, NEC AND ALL APPLICABLE CODES.

Q. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.

R. PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH APPLICABLE BUILDING CODES.

S. RECEPTACLES SHALL BE 10 AMPERE, 15 VOLT AC, HUBBELL 5362 WHITE. MOUNT ALL RECEPTACLES AT 18" A.F.F. OR REQUIRED BY THE SDM, OR APPROVED EQUAL.

T. WALL SWITCHES SHALL BE 15 AMPERE, 20 VOLT AC, SINGLE-POLE HUBBELL 1201.

U. PLASTIC PLATES FOR ALL SWITCH RECEPTACLES, TELEPHONE AND BLANKED OUTLETS, SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA UPD-8 LIFT COVER PLATES.

V. WIRE AND CABLE CONDUCTORS SHALL BE COPPER 600V, TYPE THHN OR THWN, WITH A MIN. SIZE OF 12 AWG. COLOR CODES. ALL RECTIFIER DROPS SHALL BE STRANDED TO ACCEPT CRIMP CONNECTORS.

W. GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND STRANDED INSULATED 2 AWG COPPER.

X. GROUND RODS SHALL BE COPPER CLAD STEEL, 5/8" ROUND AND 10' LONG. HARGER OR APPROVED EQUAL.

Y. ALL CHEMICAL GROUND RODS SHALL BE "UL" APPROVED.

Z. METER SOCKET AMPERES, VOLTAGE NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS MANUFACTURED BY SQUARE "D" COMPANY OR APPROVED EQUAL.

4.01 CONDUITS:

A. RIGID CONDUIT SHALL BE UL LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.

B. ELECTRICAL METALLIC TUBING SHALL HAVE UL LABEL, FITTING SHALL BE GLAND RING COMPRESS ON TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.

C. FLEXIBLE METALLIC CONDUIT SHALL HAVE UL LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL HAVE FULL SIZE GROUND WIRE.

D. CONDUIT RUNS MAY BE SURFACE MOUNTED IN CEILINGS OR WALLS UNLESS INDICATED OTHERWISE. CONDUIT INDICATED SHALL RUN PARALLEL OR AT RIGHT ANGELS TO CEILING, FLOOR OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH ARCHITECT PRIOR TO INSTALLING.

E. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 OR 80 WITH UV PROTECTION UNLESS NOTED OTHERWISE. AT A MINIMUM DEPTH OF 24" BELOW GRADE IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO CALL JULIE 1-800-892-0123 OR OTHER SUCH NOTIFYING AGENCY FORTY EIGHT (48) HOURS PRIOR TO STARTING AND DIGGING, TRENCHING, EXCAVATION, OR OTHER SUCH EARTH REMOVAL.

F. ALL ALARMS SHALL BE (2) 22 AWG AND BE RUN FROM EACH OF THE ITEMS AS INDICATED ON DRAWINGS. THE ALARM WIRES SHALL HAVE AN ADDITIONAL LENGTH REACHING TO THE FLOOR, TAGGED AND LABELED WITH THE APPROPRIATE ALARM ITEM. ALL CONTACTS WILL BE NORMALLY CLOSED, DRY AND ISOLATED FROM GROUND. ALARM WILL BE NEATLY RUN AND SECURED EVERY THREE FEET TO WALLS AND EXISTING CABLE TRAY.

G. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS TO BE PAID BY CONTRACTOR. ELECTRICAL CONTRACTOR TO SET BILLING TO BE FORWARDED TO PROPER OFFICE. INDICATE SITE NAME AND NUMBER.

H. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.

I. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO SDM. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.

4.02 GROUNDING ELECTRODE SYSTEM

A. PREPARATION

1. SURFACE PREPARATION:
2. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
3. GROUND BAR PREPARATION:
4. ALL COPPER GROUND BARS SHALL BE CLEANED, POLISHED AND A NON-OXIDIZING AGENT APPLIED. NO FINGER PRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
5. SLEEVES:
6. ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.

B. GROUND BARS

1. ALL GROUND BARS SHALL BE 1/4' THICK BARE COPPER PLATE AND OF SIZE INDICATED ON DRAWINGS.

C. INTERIOR CONNECTIONS

1. ALL INTERIOR NON-ELECTRICAL MATERIALS, I.E. HVAC GRILLES, HOLLOW METAL DOOR FRAMES/DOORS, CABLE TRAYS, TELCO ENTRANCE CONDUIT (EMT ONLY), ETC. SHALL BE GROUNDED WITH 6 GREEN GROUND WIRES OR JUMPERS WITH SINGLE HOME RUNS BACK TO THE MASTER GROUND BAR (THE CABLE TRAY, DOOR/FRAME AND STEEL CHANNEL MAY BE JUMPED TOGETHER AND HAVE A SINGLE GROUND WIRE CONNECTION TO THE MASTER GROUND BAR). ALL PAINT OR DELETERIOUS MATERIAL SHALL BE REMOVED AT THE POINT OF ATTACHMENT OF ALL GROUND JUMPERS. ALL SINGLE LUG CONNECTORS MUST BE BOLT-THRU USING STAR AND LOCK WASHERS. DOUBLE LUG CONNECTORS MAY BE SCREWED WITH STAR WASHERS.

D. EXTERNAL CONNECTIONS

1. ALL GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPICES, TEE'S, X'S, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPICES AND LIGHTING PROTECTION SYSTEM AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY "CADWELD" AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.
2. ALL GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLES CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD) MECHANICAL CONNECTIONS, FITTING OR CONNECTIONS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED.
3. THE SHELTER SKIDS STEEL FRAME SHALL BE GROUNDED AT TWO LOCATIONS (OPPOSITE ENDS OF THE BUILDING) WITH A 2 SOLID-TINNED BARE COPPER WIRE CONNECTED TO THE EXTERNAL GROUND RING. ALL CONNECTIONS SHALL BE CADWELDED AND SPRAYED WITH COLD GALVANIZED PAINT.
4. WAVEGUIDE PORT AND BRIDGE SHALL BE GROUNDED TO THE EXTERNAL GROUND BAR (EGB) LOCATED BELOW THE WAVEGUIDE ENTRY PORT, WITH 6 SOLID WIRE. THESE CONNECTIONS SHALL BE DOUBLE LUG-BOLTED, SCREWED MECHANICAL CONNECTIONS WITH STAR WASHERS AND NO-OX GREASE.

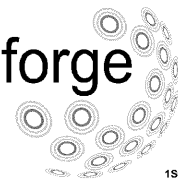


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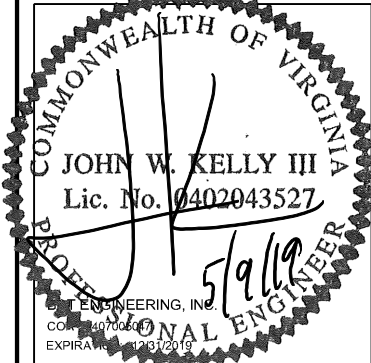
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CHECKED BY: **JL**

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VA.22902.02

COB 5

1600 5TH ST
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NEW MONOPOLE

GENERAL NOTES

GN2.1

THIS DRAWING IS SCALED FOR 11x17 PAPER (U.S. GOVT. "TABLOID")

E. GROUND RODS

I. ALL GROUND RODS SHALL BE 5/8" DIAMETER X 10'-0" LONG "HARGER" OR APPROVED EQUAL, OF NUMBER AND LOCATIONS INDICATED ON THE PLANS. GROUND RODS SHALL BE DRIVEN FULL LENGTH VERTICAL IN UNDISTURBED EARTH. ALL GROUND RODS TO BE NO MORE THAN 10' APART UNLESS OTHERWISE NOTED.

F. CABLES

I. ALL GROUND CABLES SHALL BE STANDARD TNN D SOLID BARE COPPER AND OF SIZE INDICATED ON DRAWINGS.

G. LUGS

- I. LUGS SHALL BE 2-HOLE, SHORT BARREL, STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THIS DOCUMENT. LUGS SHALL BE THOMAS AND BETTS SERIES 548 BE OR EQUIVALENT.
- I. A. 535 MCM DLO 1880BE
- II. B. 262 MCM DLO 1872BE
- III. C. 1/0 DLO 4862BE
- IV. D. 4/0 THWN AND BARE 4866BE
- V. E. 2/0 THWN 4862BE
- VI. F. 2 THHN 4207BE
- VII. G. 6 DLO 1205BE
2. WHEN THE DIRECTION OF THE CONDUCTOR MUST CHANGE, IT SHALL BE DONE GRADUALLY. THE CAPTURE OF THE TURN SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING CHART:
- I. GROUND CONDUCTOR SIZE MINIMUM BENDING RADIUS OF INSIDE EDGE
- II. NO. 6 AWG TO NO. 4 AWG 8 INCS
- III. NO. 2 AWG TO NO. 1/0 AWG 8 INCS
- IV. NO. 2/0 AWG TO 750 MCM 1 FOX
- V. BUSS BAR NO RESTRICTIONS.

H. GROUND RING

- I. THE EXTERNAL GROUND RING ENCIRCLE THE BUILDING SHALL BE MINIMUM SIZE OF NO. 2 AWG SOLID TNN D BARE COPPER CONDUCTOR IN DIRECT CONTACT WITH THE EARTH AT A DEPTH OF NOT LESS THAN 24 INCHES. CONDUCTOR BENDS SHALL HAVE A MINIMUM RADIUS 8 INCHES.
2. ALL EXTERNAL GROUND RINGS ARE TO BE JOINED TOGETHER AND ALL CONNECTIONS MUST BE EXOTHERMIC WELDS. NO LUGS OR CLAMPS WILL BE ACCEPTED.
3. ASTM FALL POTENTIAL TESTS
4. FOR RAW LAND SITE
5. GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A BIDDLE GROUND OHM OR THE METHOD OF USING TWO AUXILIARY GROUND ROD AS DESCRIBED IN I.E.E.E. STANDARD NO. 81-1983 PART MAY BE USED. THE I.E.E.E. METHOD REQUIRES THE USE ON A.C. TEST CURRENT. THE AUXILIARY TEST ROD MUST BE SUFFICIENTLY FAR AWAY FROM THE ROD UNDER TEST SO THAT THE REGIONS IN WHICH THEIR RESISTANCE IS LOCALIZED DO NOT OVERLAP. THE ST POINT WILL BE THE EXTERIOR TEST WELL AND CONSIST OF THE THREE POINT FULL OF POTENTIAL MEGGER 11 METHOD USING THE BIDDLE NULL-BALANCE EARTH TEST (MEGGER 250220-2 OR EQUIVALENT). RESULTS SHALL B OHMS OR LESS.
6. CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS: (DOES NOT APPLY TO TENANT IMPROVEMENT SITES).
7. 2.1 EQUIPMENT BUILDING
8. FIRST TEST – SHALL BE WITH FOUR GROUND RODS INSTALLED, ONE AT EACH CORNER OF THE BUILDING BUT NOT CONNECTED TO THE MAIN GROUNDING BUSS. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL FOUR GROUND RODS TOGETHER TO MAKE A SYSTEM TESTER. EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, THE ELECTRICAL CONTRACTOR AND SDM SHOULD BE NOTIFIED SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL FOUR RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
9. SECOND TEST – SHALL BE WITH THE GROUND RODS CONNECTED WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR AT LEAST TEN DAYS. THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS THE ELECTRICAL CONTRACTOR AND SDM SHOULD BE NOTIFIED SO THAT EITHER ADDITION AND/OR DEEPER RODS CAN BE INSTALLED.
10. 2.2 TOWER
11. FIRST TEST – SHALL BE WITH THREE GROUND RODS INSTALLED (MIN) EQUALLY SPACED AROUND THE TOWER FOUNDATION BUT NOT CONNECTED TO THE EQUIPMENT BUILDING EXTERNAL GROUND RING. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL THREE GROUND RODS TOGETHER TO MAKE A SYSTEM TESTER EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, THE ELECTRICAL CONTRACTOR AND SDM SHOULD BE NOTIFIED SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL THREE RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
12. SECOND TEST – SHALL BE WITH THREE ROUND RODS CONNECTED WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR AT LEAST TEN DAYS. THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS THE ELECTRICAL CONTRACTOR AND SDM SHOULD BE NOTIFIED SO THAT EITHER ADDITION AND/OR DEEPER RODS CAN BE INSTALLED.
13. 2.3 EQUIPMENT BUILDING AND TOWER
14. AFTER THE EQUIPMENT BUILDING AND TOWER GROUND RESISTANCE TEST IS COMPLETED, ELECTRICAL CONTRACTOR SHALL TIE EQUIPMENT BUILDING EXTERNAL GROUND RING AND TOWER EXTERNAL GROUND RING TOGETHER. AFTER FIRST AND SECOND TEST ALL CONNECTIONS MUST HAVE EXOTHERMIC WELDS. NO LUGS OR CLAMPS WILL BE ACCEPTED.

GROUNDING RESISTANCE TEST REPORT

I. UPON COMPLETION OF THE TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10-15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL AND NOTIFY SDM NO LESS THAN 48 HOURS IN ADVANCE OF BACKFILL TESTING SHALL BE COMPLETED BY GENERAL CONTRACTOR AND TWO (2) SETS OF DOCUMENTS ARE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OF WORK COMPLETION.

PART 5 TELCO SERVICE

5.00 GENERAL

A. APPLICATION FOR TELEPHONE SERVICE WILL BE MADE BY THE SDM. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL MATERIALS AND ASSOCIATED LABOR FOR CONNECTION FROM THE TELCO SOURCE TO THE SHELTER AS PER THE CONSTRUCTION PLANS.

B. PROVIDE A 2 INCH DIAMETER SCHEDULE 40 PVC PIPE FROM THE SHELTER TELCO ENTRY TO A LOCATION INDICATED ON THE CONSTRUCTION PLANS. PLUG OR CAP EACH END OF THE PIPE AND PROVIDE TWO SEPARATE PULL STRINGS SECURELY FASTENED AT EACH END OF THE PIPE. PULL STRINGS SHALL BE 200 LB TEST POLYETHYLENE CORD.

PART 6 FENCE

6.00 GENERAL

A. REFER TO THE SITE PLANS FOR TYPE SIZE AND LOCATION OF FENCE TO BE INSTALLED.

6.01 RELATED WORK:

- A. COORDINATE FENCE GROUNDING WITH ELECTRICAL CONTRACTOR
- B. REFER TO DIVISION 2 FOR SPECIFICATION OF CONCRETE

6.02 DESCRIPTIONS:

A. A SECURITY FENCE IS PROVIDED IN ORDER TO INHIBIT UNAUTHORIZED ACCESS TO THE SITE.

6.03 QUALITY ASSURANCE:

A. THE CONTRACTOR SHALL ESTABLISH THE LEGAL BOUNDARY AND LOCALLY REQUIRED SETBACKS ON THE CARRIER PARCEL AND HOLD THE FENCE WITHIN THAT BOUNDARY IN ACCORDANCE WITH THE LINES AND DIMENSIONS OUTLINED ON THE CONSTRUCTION PLANS. WHERE CONFLICTS BETWEEN THE CONSTRUCTION PLANS AND LEGAL REQUIREMENTS EXIST, THE CONTRACTOR SHALL SEEK DIRECTION FROM THE SDM PRIOR TO PERFORMING THE WORKS.

- B. MEMBER SIZES, FABRIC TYPES, CONNECTION DETAILS, SECURITY MEASURES, AND LOCATION OF GATES MUST STRICTLY ADHERE TO THE SPECIFICATIONS.
- C. ALL STEEL MATERIALS UTILIZED IN CONNECTION WITH THIS SPECIFICATION WILL BE GALVANIZED OR STAINLESS STEEL. WEIGHT OF ZINC COATING ON THE FENCE FABRIC SHALL BE NOT LESS THAN 12 OUNCES PER SQUARE FOOT OF MATERIAL. COVERED POSTS SHALL BE HOT-DIPPED IN GRADE "E" ZINC, 18 OUNCES PER SQUARE FOOT.

6.04 SEQUENCING:

A. IF THE SITE AREA HAS BEEN BROUGHT UP TO SURFACE COURSE ELEVATION PRIOR TO FENCE CONSTRUCTION, FENCE POST EXCAVATION SPOILS MUST BE CONTROLLED TO PRECLUDE CONTAMINATION OF SAID SURFACE COURSE.

9.05 SUBMITTALS:

- A. MANUFACTURER'S DESCRIPTIVE LITERATURE
- B. CERTIFICATE OF COMPLIANCE THAT SPECIFICATIONS HAVE BEEN MET.

COAX/ANTENNA INSTALLATION & TESTING REQUIREMENTS

- A. COAX TO BE INSTALLED PER MANUFACTURER'S STANDARDS. DIN CONNECTORS TO BE USED INSIDE & OUTSIDE.
- B. ANTENNA TEST RESULTS (SUPPLIED WITH ANTENNA) NOTING ANTENNA LOCATION TO BE SUBMITTED TO OWNER.
- C. FINAL AZIMUTHS & TILTS TO BE VERIFIED PER FINAL SITE DATA SHEET PROVIDED BY PROJECT MANAGER.
- D. WRITTEN SURVEYOR REPORT VERIFYING FINAL ANTENNA AZIMUTHS TO BE SUBMITTED TO OWNER.

COAX/ANTENNA NOTES

A. ALL COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE AS SPECIFIED BY THE OWNER. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES.

B. NORTH ARROW SHOWN ON PLANS REFERS TO PLAN NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH AND INFORM CONSTRUCTION MANAGER OF ANY DISCREPANCIES BEFORE STARTING CONSTRUCTION.

ITEMS TO BE PROVIDED TO OWNER BY CONTRACTOR AT SITE INSPECTION

- A. AS-BUILT DRAWINGS
- B. ANTENNA VERIFICATION FORM
- C. SWEEP TEST RESULTS
- D. GROUND TEST RESULTS
- E. SITE PHOTOS
- F. CONTACT NUMBERS

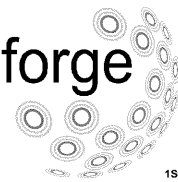


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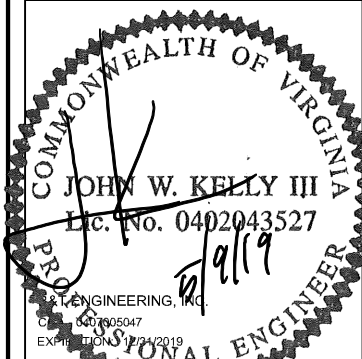
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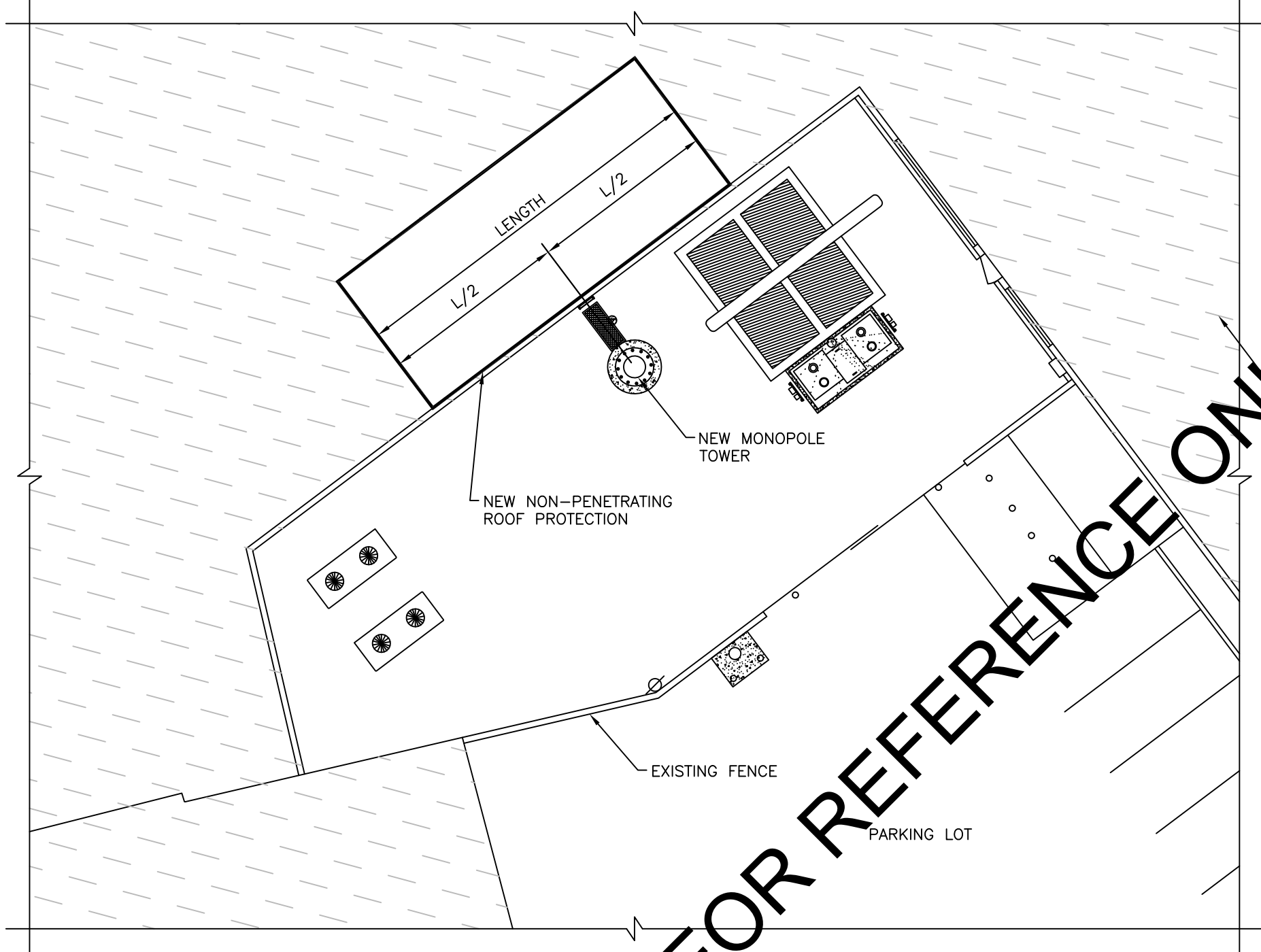
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NEW MONOPOLE

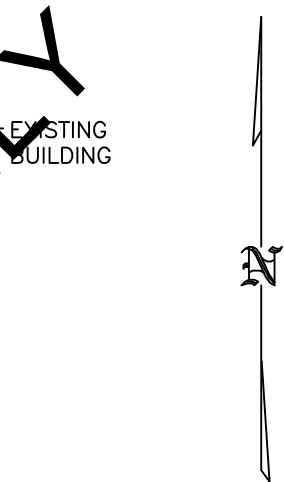
GENERAL NOTES


GN3.1



A
1 SITE PLAN

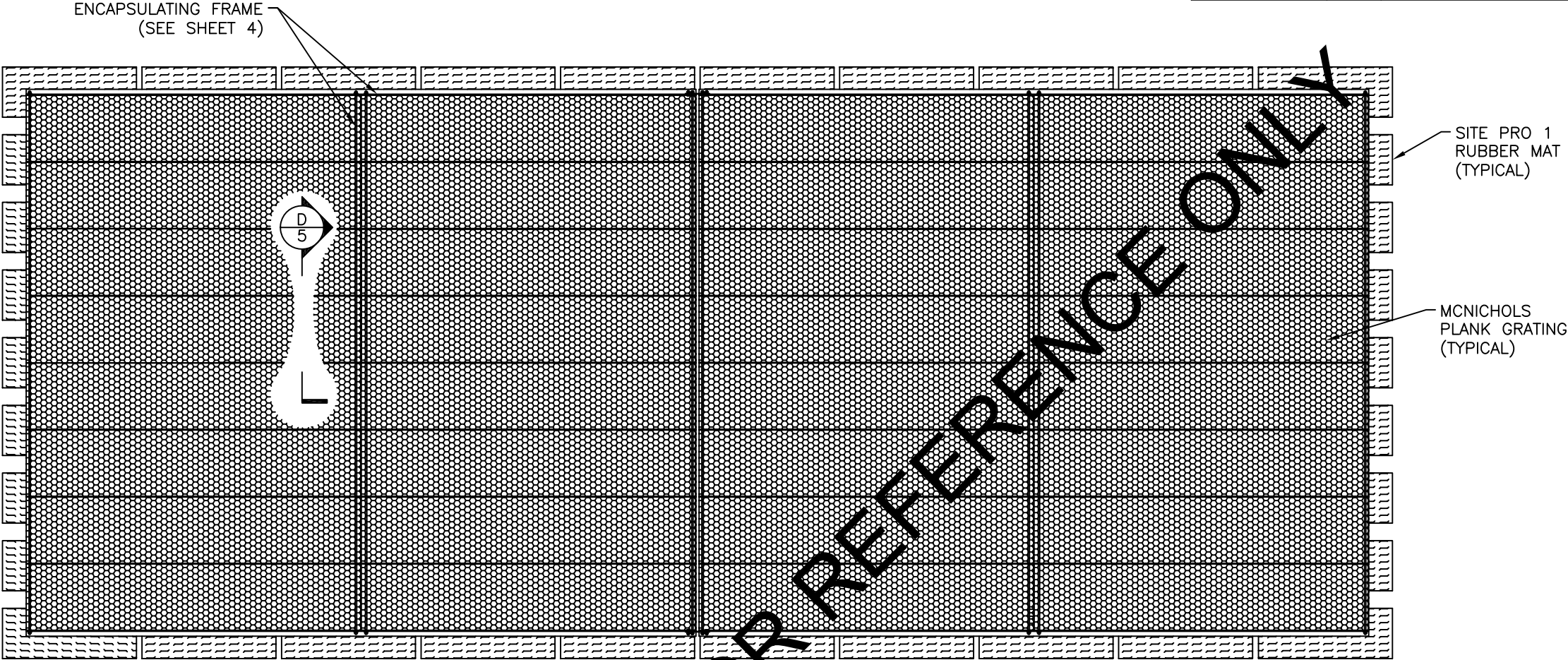
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A	ORIGINAL RELEASE	BJH	ANP	DCB	4-2-19
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE
		<div><div></div><div><div>P.O. Box 1496 Richmond, KY 40476 Phone: (859) 624-8360 Fax: (859) 624-8369 Email: engineering@verticalstructures.com</div></div></div>			
		FOR			
		HARRIS			
		2019 MODIFICATIONS NON-PENETRATING ROOF PROTECTION ALBEMARLE COB 5, VA			
SHEET NUMBER: 1 OF 5		PROJECT NUMBER: 2019-316-004		SCALE: NONE	


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BILL OF MATERIALS			
MARK NO.	QTY.	DESCRIPTION	MATERIAL GRADE
VS-28667	2	ENCAPSULATING FRAME, L 2" X 2" X 1/4"	ASTM A572 GRADE 50
VS-28668	2	ENCAPSULATING FRAME, L 2" X 2" X 1/4"	ASTM A572 GRADE 50
VS-28669	2	FRAME SPLICE PLATE, PL 1 3/4" X 1/4" THICK	ASTM A572 GRADE 50
VS-28670	8	ALLTHREAD, 1/2"Ø	ASTM A193 GRADE B7
XX1214	4	BOLT, 1/2" X 1 1/2"	ASTM A325
XY0029	16	FLAT WASHER, 1/2"Ø	-
XY0051	16	LOCK WASHER, 1/2"Ø	-
XY0402	16	2H HEAVY HEX NUT, 1/2"Ø	-
2410201410	32	MCNICHOLS PLANK GRATING, 2' X 10'	-
MAT18	90	SITE PRO 1 RUBBER MAT, 18" X 48"	-

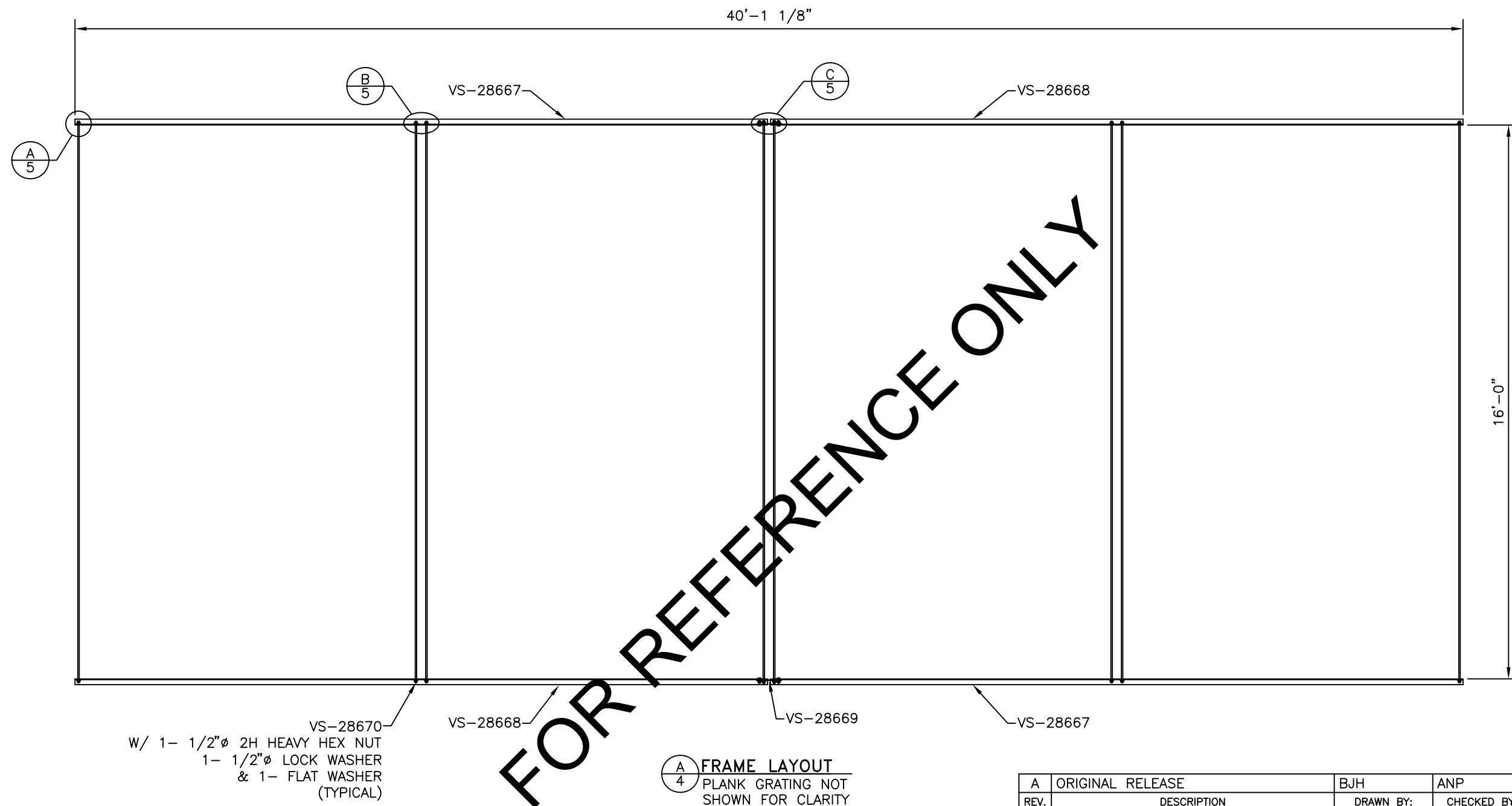



A
2

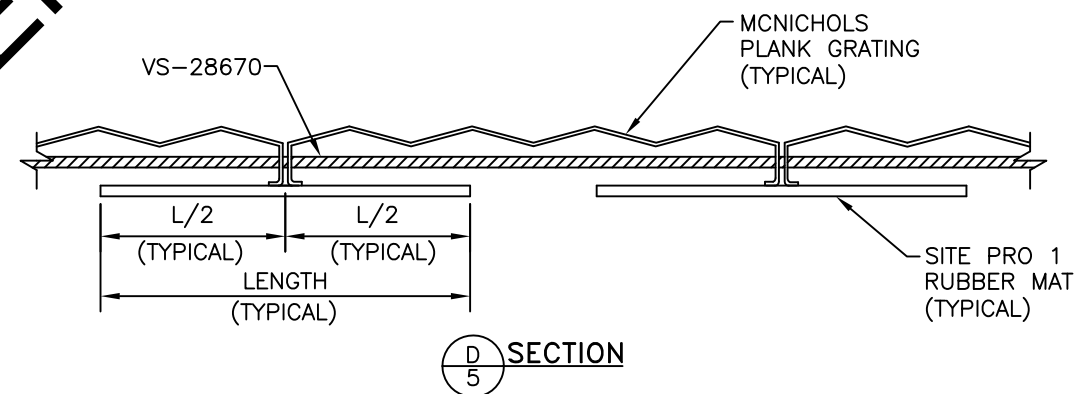
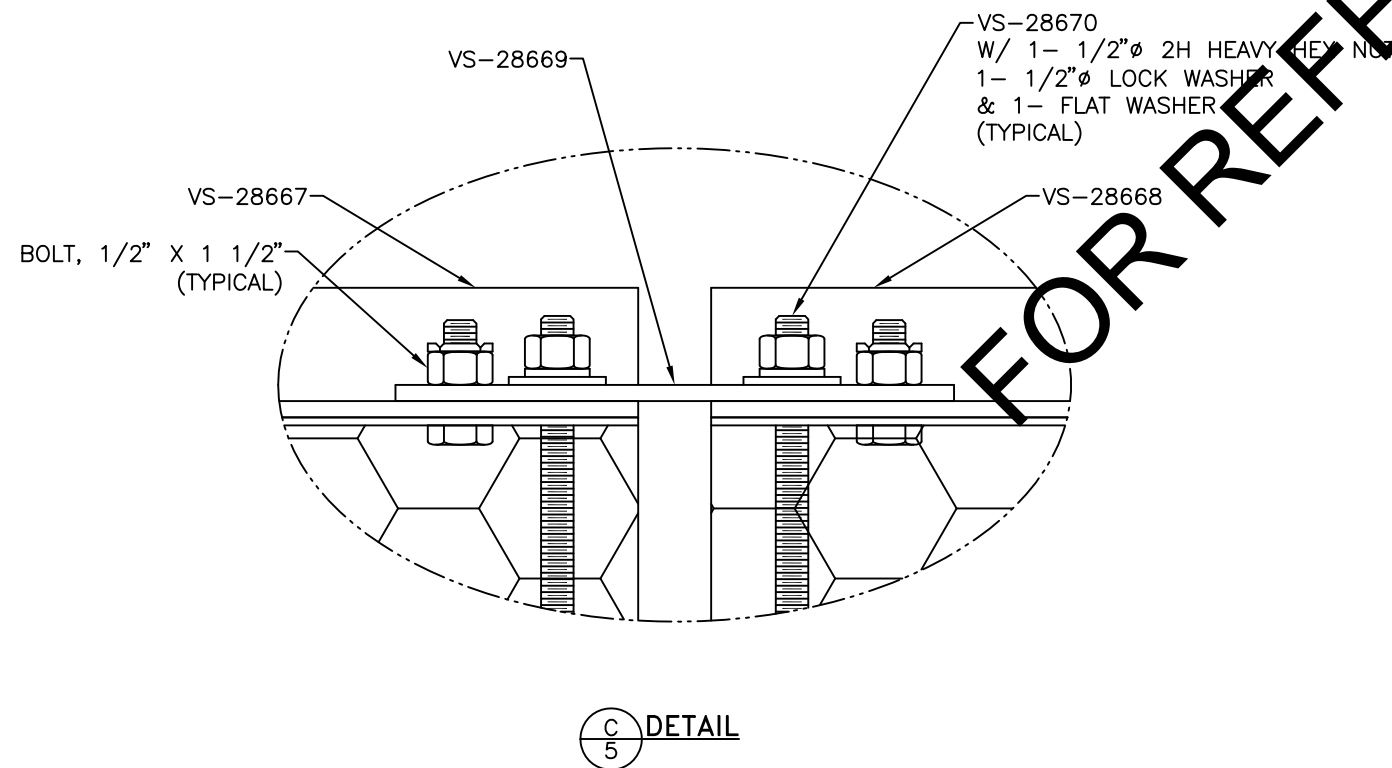
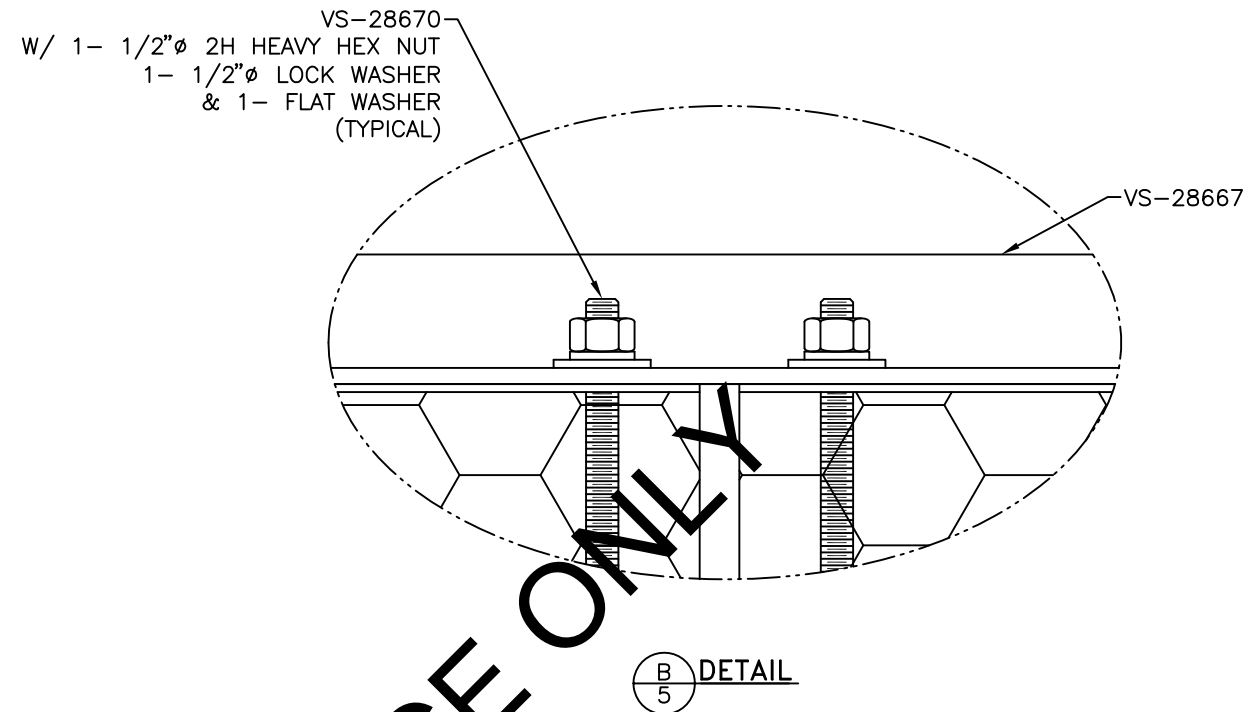
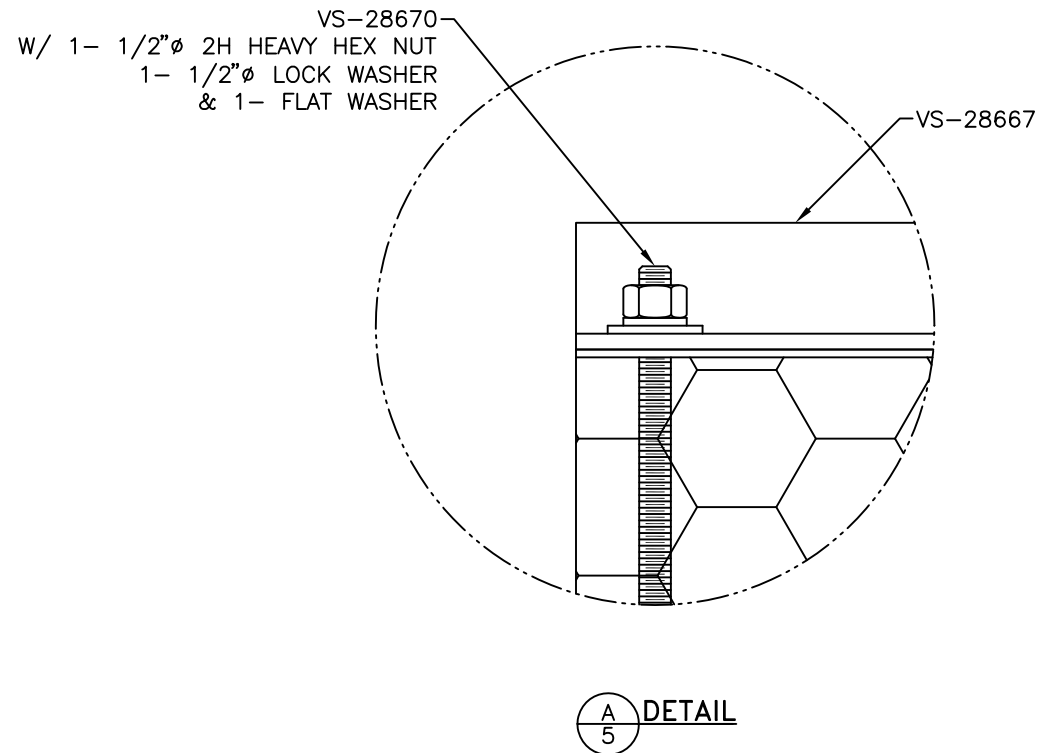
NON-PENETRATING ROOF PROTECTION

A	ORIGINAL RELEASE	BJH	ANP	DCB	4-2-19
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		FOR			
		HARRIS			
		2019 MODIFICATIONS NON-PENETRATING ROOF PROTECTION ALBEMARLE COB 5, VA			
		SHEET NUMBER: 2 OF 5	PROJECT NUMBER: 2019-316-004	SCALE: NONE	

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RESERVED FOR PROFESSIONAL SEAL		 P.O. Box 1496 Richmond, KY 40476 Phone: (859) 624-8360 Fax: (859) 624-8369 Email: engineering@verticalstructures.com			
		FOR			
		HARRIS			
		2019 MODIFICATIONS NON-PENETRATING ROOF PROTECTION ALBEMARLE COB 5, VA			
SHEET NUMBER: 4 OF 5		PROJECT NUMBER: 2019-316-004		SCALE: NONE	



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REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE
<div> <div>RESERVED FOR PROFESSIONAL SEAL</div> <div> <div>VERTICAL</div> <div>STRUCTURES, INC.</div> </div> </div>		P.O. Box 1496 Richmond, KY 40476 Phone: (859) 624-8360 Fax: (859) 624-8369 Email: engineering@verticalstructures.com			
		FOR			
		HARRIS			
		2019 MODIFICATIONS NON-PENETRATING ROOF PROTECTION ALBEMARLE COB 5, VA			
SHEET NUMBER: 5 OF 5		PROJECT NUMBER: 2019-316-004		SCALE: NONE	