



SITE NAME: RICHMOND CONVENTION CENTER

416 E. BROAD STREET
RICHMOND, VA 23219
CITY OF RICHMOND



Know what's below.
Call before you dig.



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

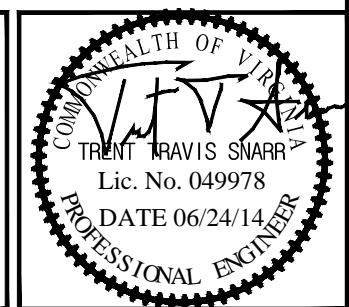


1831 RADY COURT
RICHMOND, VA 23222

RICHMOND CONVENTION CENTER
416 E. BROAD STREET
RICHMOND, VA 23219
CITY OF RICHMOND

REVISIONS

REV	DATE	DESCRIPTION	BY
2	06/24/14	FINAL	MEH
1	04/28/14	REVISED	MEH
0	03/14/14	PRELIMINARY	MEH



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

TITLE SHEET

T-1

SITE INFORMATION

PROJECT DESCRIPTION:	PROPOSED TELECOMMUNICATIONS EQUIPMENT ON EXISTING BUILDING ROOFTOP.
SITE ADDRESS:	416 E. BROAD STREET RICHMOND, VA 23219
LATITUDE (NAD 83):	37° 32' 36.0"
LONGITUDE (NAD 83):	-77° 26' 15.2"
GROUND ELEVATION:	179.0' (AMSL)
JURISDICTION:	CITY OF RICHMOND
ZONING:	DCC
TAX MAP NUMBER:	N000-0017-028
PARCEL AREA:	2.25 ACRES
PARCEL OWNER:	GREATER RICHMOND CONVENTION CENTER AUTHORITY 401 N. 3RD STREET RICHMOND, VA 23219
STRUCTURE TYPE:	ROOFTOP
STRUCTURE HEIGHT:	71.5' (AGL)
POWER PROVIDER:	DOMINION VA POWER (866) 366-4357
TELCO PROVIDER:	VERIZON (800) 837-4966
NATURAL GAS PROVIDER:	CITY OF RICHMOND DEPARTMENT OF PUBLIC UTILITIES DAVID SHULTS (804) 646-5253

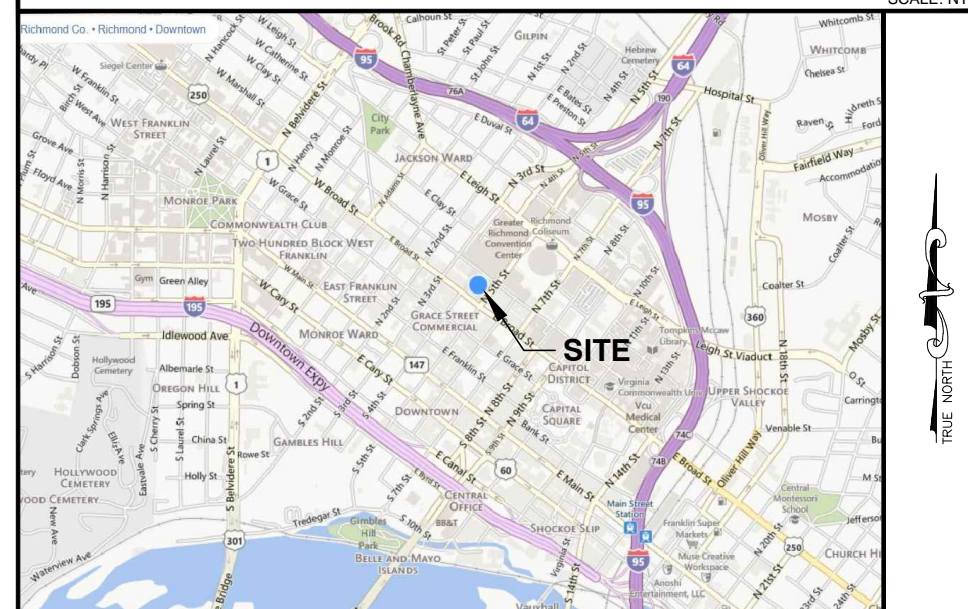
EMERGENCY INFORMATION:

911 FIRE DEPARTMENT:	(804) 646-0745
911 COUNTY SHERIFF'S DEPT:	(804) 646-6700

PROJECT TEAM

APPLICANT:	VERIZON WIRELESS 1831 RADY COURT RICHMOND, VA 23222 MERLE DAIGER (804) 543-7573
PROJECT MANAGEMENT FIRM:	ROB WATKINSON (804) 698-0753
ENGINEERING FIRM:	NB+C ENGINEERING SERVICES, LLC. 4435 WATERFRONT DRIVE, SUITE 100 GLEN ALLEN, VA 23060 (804) 548-4079

VICINITY MAP



DIRECTIONS

FROM 1831 RADY COURT: MERGE ONTO I-64 W TOWARDS I-95. TAKE THE I-95 S/5TH STREET EXIT, EXIT 190, ON THE LEFT TOWARDS PETERSBURG/DOWNTOWN COLISEUM. STAY STRAIGHT TO GO ONTO N. 5TH STREET. TURN RIGHT ONTO E. BROAD STREET/US-33/US-250. 416 E. BROAD IS ON THE RIGHT.

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.

- 2009 INTERNATIONAL BUILDING CODE
- 2008 NATIONAL ELECTRICAL CODE
- 2009 NFPA 101, LIFE SAFETY CODE
- 2009 IFC
- AMERICAN CONCRETE INSTITUTE
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION
- MANUAL OF STEEL CONSTRUCTION 13TH EDITION
- ANSI/TIA-222-G
- TIA 607
- INSTITUTE FOR ELECTRICAL & ELECTRONICS ENGINEER 81
- IEEE C2 NATIONAL ELECTRIC SAFETY CODE LATEST EDITION
- TELECordia GR-1275
- ANSI/T 311
- 2009 INTERNATIONAL FUEL GAS CODE

DRAWING INDEX

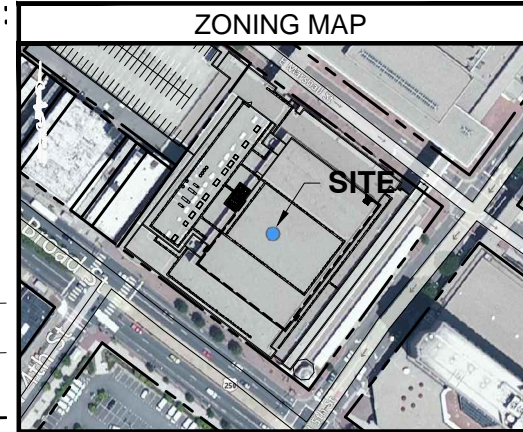
T-1	TITLE SHEET
Z-1	SITE PLAN
C-1	ROOFTOP PLAN
C-2	ROOFTOP ELEVATION
S-1	CONSTRUCTION DETAILS & NOTES
S-2	GENERATOR DETAILS
E-1	ELECTRICAL PLAN & DETAILS
E-2	ELECTRICAL PANEL SCHEDULE DIAGRAM & NOTES
E-3	ALARM DETAILS
G-1	GROUNDING PLAN & DETAILS
G-2	GROUNDING RISER DIAGRAM, DETAILS & NOTES
P-1	GAS PIPING DETAILS
F-1	FIBER ROUTING PLAN AND NOTES
ST-1	GENERATOR PLATFORM DETAILS & NOTES
ST-2	GENERATOR PLATFORM DETAILS
ST-3	GENERATOR PLATFORM 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.

APPROVAL BLOCK

	DATE	APPROVED	APPROVED AS NOTED	DISAPPROVED/REVISE
PROPERTY OWNER	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SITE ACQUISITION	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CONSTRUCTION MANAGER	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ZONING	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RF ENGINEER	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

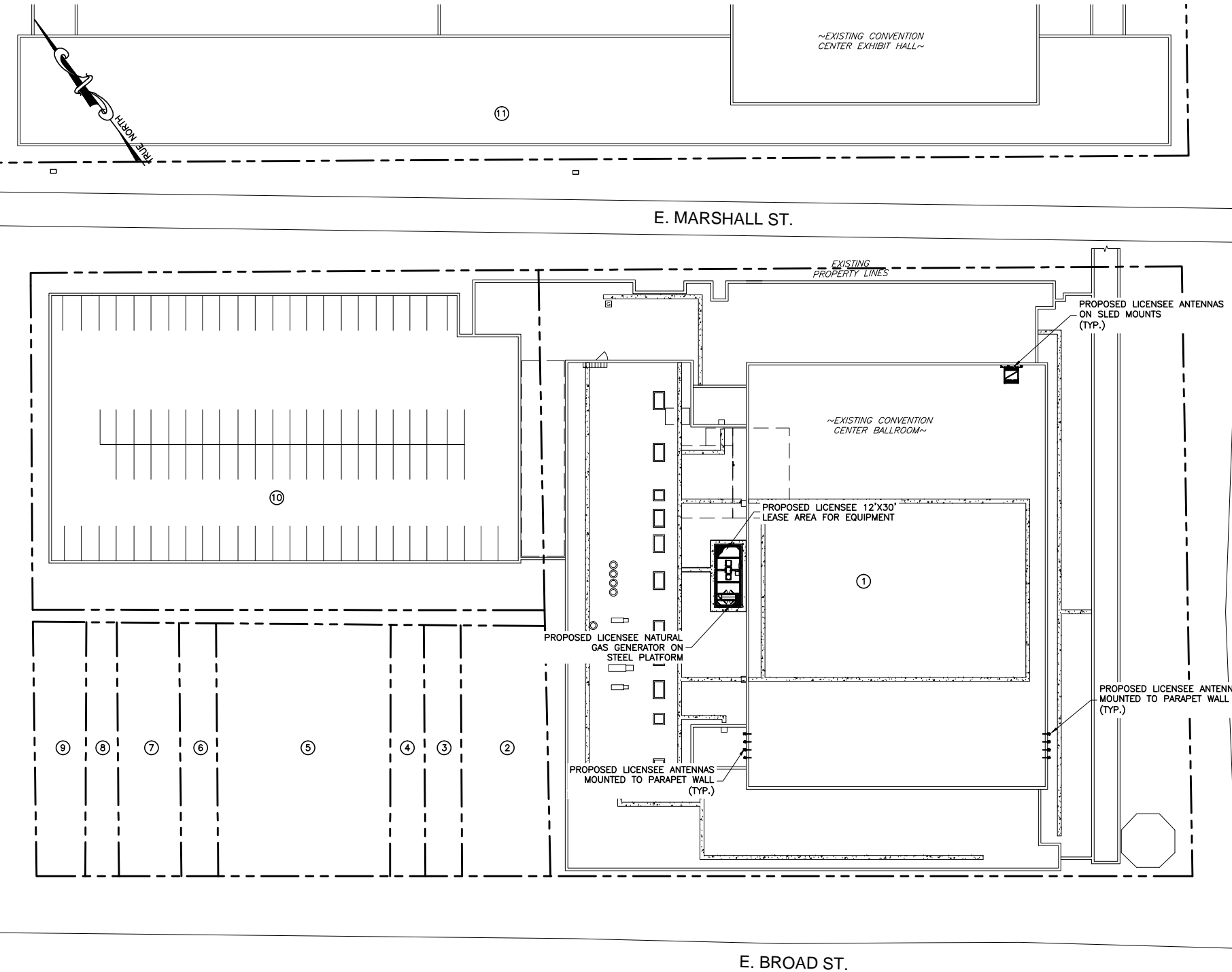


GENERAL NOTES

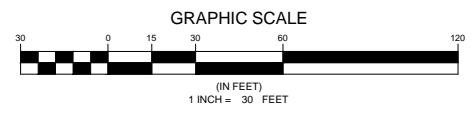
1. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
2. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
3. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION. THERE IS NO HANDICAP ACCESS REQUIRED.
4. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE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

PARCEL INFORMATION

1. GREATER RICHMOND CONVENTION CENTER AUTHORITY
PARCEL: N0000017028
ZONING: DCC
2. SUNNY FOOTWEAR INC.
PARCEL: N0000026016
ZONING: B4
3. HOKIEHUDDLE LLC
PARCEL: N0000026018
ZONING: B4
4. BAWA HARRY S & TOFFEE K
PARCEL: N0000026019
ZONING: B4
5. 312 EAST BROAD STREET LP SCOTT BOYERS
PARCEL: N0000026020
ZONING: B4
6. BAXANI CHANDRU M
PARCEL: N0000026025
ZONING: B4
7. JR COMMERCIAL PROPERTIES LLC
PARCEL: N000026026
ZONING: B4
8. AWAS AFRICAN HAIR BRAIDING LLC
PARCEL: N0000026028
ZONING: B4
9. THE MARK ON BROAD LLC
PARCEL: N0000026029
ZONING: B4
10. GREATER RICHMOND CONVENTION CENTER AUTHORITY
PARCEL: N0000026001
ZONING: DCC
11. GREATER RICHMOND CONVENTION CENTER AUTHORITY
PARCELS: N0000019051,N0000019052,N0000019053,N0000019054
ZONING: DCC



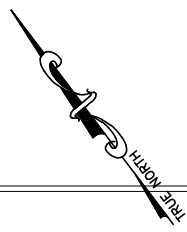
1 SITE PLAN
SCALE: 1" = 30'



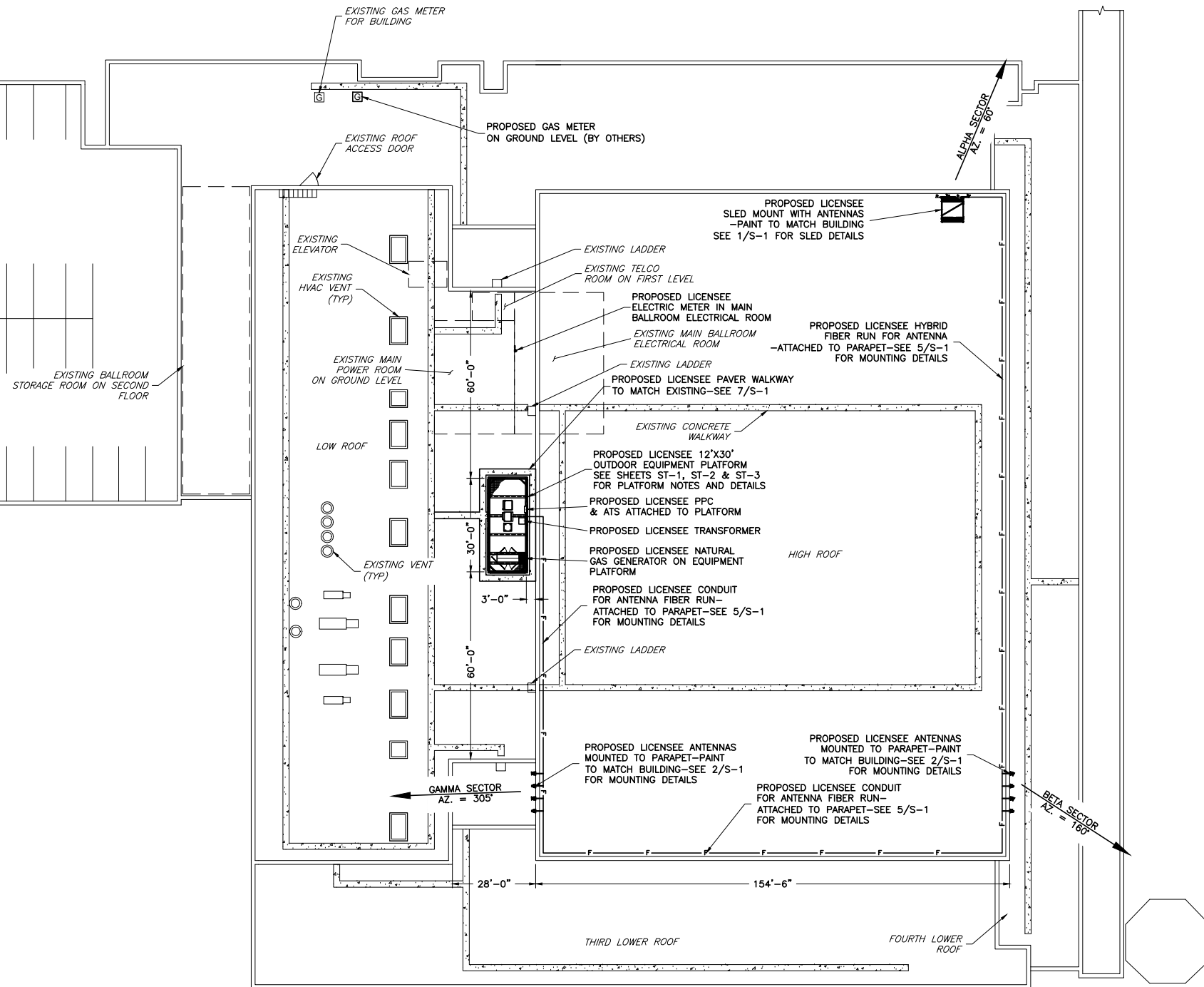
ENGINEER																					
APPLICANT																					
SITE INFORMATION	<p>RICHMOND CONVENTION CENTER 416 E. BROAD STREET RICHMOND, VA 23219 CITY OF RICHMOND</p>																				
DESIGN RECORD	<table border="1"> <thead> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>06/24/14</td> <td>FINAL</td> <td>MEH</td> </tr> <tr> <td>1</td> <td>04/28/14</td> <td>REVISED</td> <td>MEH</td> </tr> <tr> <td>0</td> <td>03/14/14</td> <td>PRELIMINARY</td> <td>MEH</td> </tr> </tbody> </table>	REVISIONS				REV	DATE	DESCRIPTION	BY	2	06/24/14	FINAL	MEH	1	04/28/14	REVISED	MEH	0	03/14/14	PRELIMINARY	MEH
REVISIONS																					
REV	DATE	DESCRIPTION	BY																		
2	06/24/14	FINAL	MEH																		
1	04/28/14	REVISED	MEH																		
0	03/14/14	PRELIMINARY	MEH																		
PROFESSIONAL STAMP																					
ENGINEER	TRENT T. SNARR, P.E. VA PROFESSIONAL ENGINEER LIC. #49978																				
SHEET TITLE	SITE PLAN																				
SHEET NUMBER	Z-1																				



Know what's below.
Call before you dig.



E. MARSHALL STREET



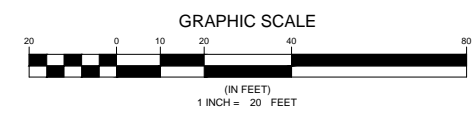
1 ROOFTOP PLAN
SCALE: 1" = 20'

GENERAL NOTES

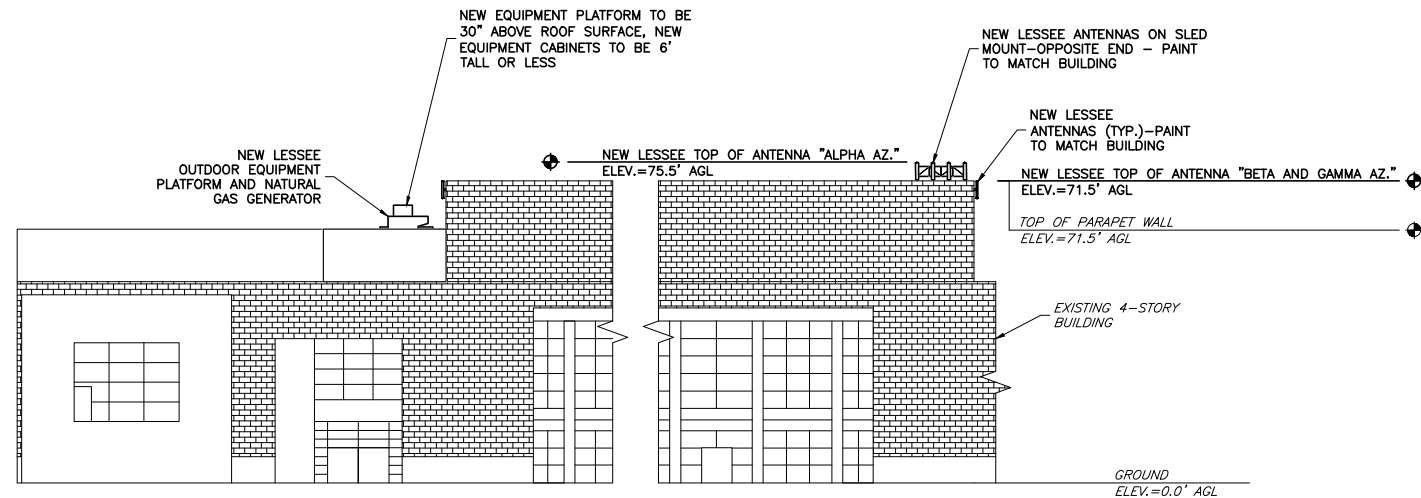
1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL 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.



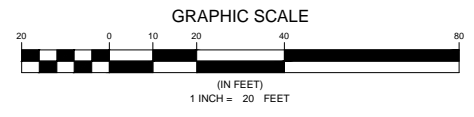
Know what's below.
Call before you dig.



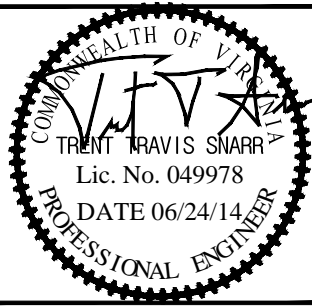


ENGINEER	 NB+C ENGINEERING SERVICES, LLC. 4435 WATERFRONT DRIVE, SUITE 100 GLEN ALLEN, VA 23060 804-648-8079																						
	 1831 RADY COURT RICHMOND, VA 23222																						
APPLICANT	RICHMOND CONVENTION CENTER 416 E. BROAD STREET RICHMOND, VA 23219 CITY OF RICHMOND																						
SITE INFORMATION	<table border="1"> <thead> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>06/24/14</td> <td>FINAL</td> <td>MEH</td> </tr> <tr> <td>1</td> <td>04/28/14</td> <td>REVISED</td> <td>MEH</td> </tr> <tr> <td>0</td> <td>03/14/14</td> <td>PRELIMINARY</td> <td>MEH</td> </tr> </tbody> </table>			REVISIONS				REV	DATE	DESCRIPTION	BY	2	06/24/14	FINAL	MEH	1	04/28/14	REVISED	MEH	0	03/14/14	PRELIMINARY	MEH
REVISIONS																							
REV	DATE	DESCRIPTION	BY																				
2	06/24/14	FINAL	MEH																				
1	04/28/14	REVISED	MEH																				
0	03/14/14	PRELIMINARY	MEH																				
DESIGN RECORD																							
PROFESSIONAL STAMP	TRENT T. SNARR, P.E. VA PROFESSIONAL ENGINEER LIC. #49978																						
ENGINEER	ROOFTOP PLAN																						
SHEET TITLE	C-1																						
SHEET NUMBER																							



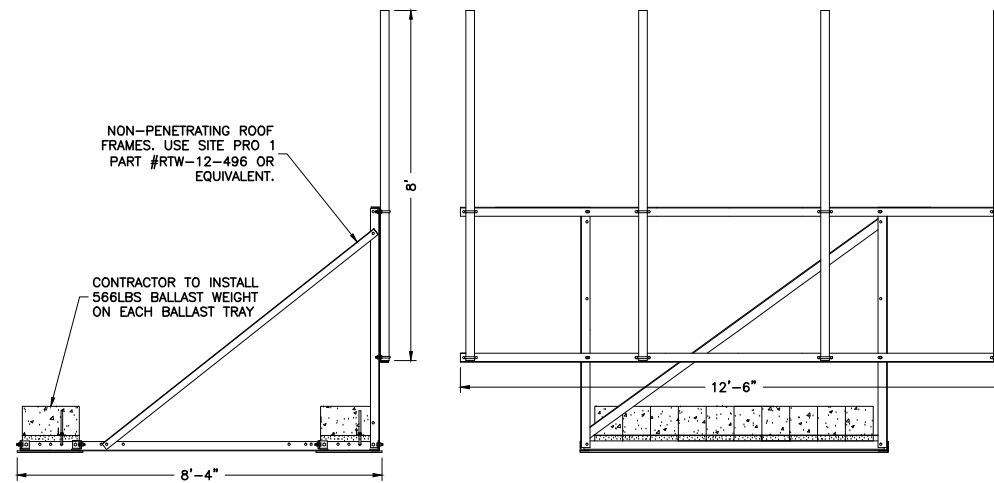
1
C-2
SOUTHWEST ELEVATION
SCALE: 1" = 20'



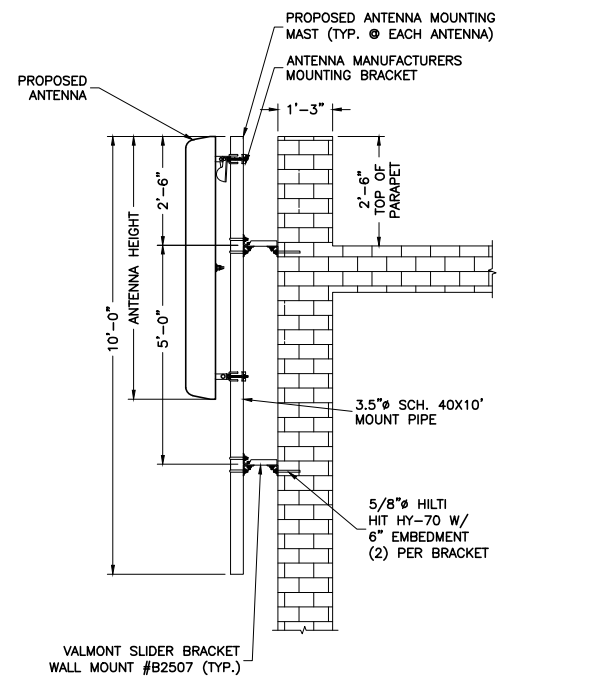
ENGINEER	 TOTALLY COMMITTED. <small>NB+C ENGINEERING SERVICES, LLC. 4435 WATERFRONT DRIVE, SUITE 100 GLEN ALLEN, VA 23060 804-648-6079</small>																				
APPLICANT	 <small>1831 RADY COURT RICHMOND, VA 23222</small>																				
SITE INFORMATION	RICHMOND CONVENTION CENTER 416 E. BROAD STREET RICHMOND, VA 23219 CITY OF RICHMOND																				
DESIGN RECORD	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>06/24/14</td> <td>FINAL</td> <td>MEH</td> </tr> <tr> <td>1</td> <td>04/28/14</td> <td>REVISED</td> <td>MEH</td> </tr> <tr> <td>0</td> <td>03/14/14</td> <td>PRELIMINARY</td> <td>MEH</td> </tr> </tbody> </table>	REVISIONS				REV	DATE	DESCRIPTION	BY	2	06/24/14	FINAL	MEH	1	04/28/14	REVISED	MEH	0	03/14/14	PRELIMINARY	MEH
REVISIONS																					
REV	DATE	DESCRIPTION	BY																		
2	06/24/14	FINAL	MEH																		
1	04/28/14	REVISED	MEH																		
0	03/14/14	PRELIMINARY	MEH																		
PROFESSIONAL STAMP																					
ENGINEER	<small>TRENT T. SNARR, P.E. VA PROFESSIONAL ENGINEER LIC. #49978</small>																				
SHEET TITLE	ROOFTOP ELEVATION																				
SHEET NUMBER	C-2																				

ARCHITECTURAL NOTES:

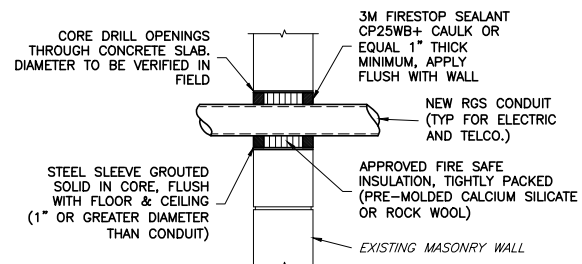
1. MAKE SUCH EXPLORATIONS AND PROBES AS ARE NECESSARY TO ASCERTAIN ANY REQUIRED PROTECTIVE MEASURES BEFORE PROCEEDING WITH ALTERATIONS AND REMOVALS. GIVE PARTICULAR ATTENTION TO, AND PROVIDE, SHORING AND BRACING REQUIREMENTS SO AS TO PREVENT ANY DAMAGE TO EXISTING CONSTRUCTION. PROVIDE ADEQUATE FIRE PROTECTION IN ACCORDANCE WITH LOCAL FIRE DEPARTMENT REQUIREMENTS.
2. PERFORM ALL ALTERATIONS WORK TO THE EXTENT INDICATED TO ACCOMMODATE THE NEW WORK. CUT OUT EMBEDDED ANCHORAGE AND ATTACHMENT ITEMS AS REQUIRED TO PROPERLY PROVIDE FOR PATCHING AND INSTALLATION OF THE RESPECTIVE FINISHES. WHERE EXISTING EQUIPMENT AND FIXTURES ARE INDICATED TO BE USED, REPAIR SUCH EQUIPMENT AND FIXTURES AND REFINISH TO PUT INTO PERFECT WORKING ORDER.
3. DO NOT CUT, WELD TO, DRILL, REMOVE OR OTHERWISE ALTER ANY STRUCTURAL MEMBER, WHETHER NEW OR EXISTING, WITHOUT THE WRITTEN CONSENT OF OWNER, UNLESS SUCH CONDITION IS INDICATED IN DETAIL ON THE DRAWINGS AND REINFORCING OF MEMBERS AFFECTED OR NEW MEMBERS TO COMPENSATE FOR SUCH CUTTING, DRILLING, REMOVALS OR OTHER ALTERATION ARE INDICATED.
4. PATCHING WORK SHALL BE PERFORMED BY TRADESMEN EXPERIENCED WITH THE MATERIAL TO BE PATCHED. IN EXISTING AREAS OR ROOMS WHERE FINISHES ARE CUT FOR ACCESS; WHERE PARTITIONS ARE REMOVED; WHERE NEW PARTITIONS ARE ADDED; OR WHERE CEILINGS ARE REMOVED; PATCH, EXTEND OR BUILD WITH NEW MATERIALS MATCHING EXISTING IN SIZE, KIND, STYLE, MAKE, QUALITY, FUNCTION, WORKMANSHIP, METHOD OF INSTALLATION, AND SURFACE FINISH, WITH EXISTING WORK, AND SHALL BE INDISTINGUISHABLE FROM EXISTING. IF THE WALL OR CEILING IS PAINTED, THE FINAL 2 COATS OF PAINT SHALL BE APPLIED TO THE ENTIRE WALL OR CEILING, CORNER TO CORNER.
5. **JOINT SEALANTS:**
INTERIOR SEALANTS: "AC20 ACRYLIC LATEX CAULK" PECORA CORP.
6. **PAINTS AND COATINGS:**
 - A. PREPARE SURFACES TO RECEIVE PAINT; DENTS, CRACKS, HOLLOW PLACES, OPEN JOINTS AND OTHER IRREGULARITIES SHALL BE MADE FLUSH WITH ADJOINING SURFACES WITH A FILLER SUITABLE FOR THE PURPOSE AND, AFTER SETTING, SANDED TO A SMOOTH, FINISH; THOROUGHLY CLEAN OF GRIME, GREASE, DIRT, LOOSE MATERIAL AND OTHER SUBSTANCES THAT MAY INTERFERE WITH PROPER ADHESION OF PAINT. PAINT DRY SURFACES ONLY. DO NOT ADULTERATE READY-MIXED MATERIALS. APPLY ALL PAINT MATERIALS IN ACCORDANCE WITH THE PAINT MANUFACTURER'S WRITTEN INSTRUCTIONS. THE PRODUCTS NAMED IN THE PAINT BELOW ARE ALL AS MANUFACTURED BY THE SHERWIN WILLIAMS COMPANY AND ARE USED IN ORDER TO ESTABLISH THE PROJECT PAINT QUALITY REQUIREMENTS.
 - B. **PAINTING SYSTEMS:**
 7. METALS: KEM KROMIK METAL PRIMER B50N2/B50W1 AND TWO COATS PROMAR 200 SEMIGLOSS B31W200 SERIES.
 8. MASONRY: PROMAR BLOCK FILLER B25W25 AND TWO COATS PROMAR 200 SEMIGLOSS B31W200 SERIES.
 9. WALLBOARD: PROMAR 200 LATEX WALL PRIMER B28W200 AND TWO COATS PROMAR 200 EGGSHELL B20W200.
 10. **EPOXY NOTES**
 - A. EPOXY AGENTS SHOULD BE ALLOWED TO CURE ACCORDING TO MANUFACTURERS SPEC.
 - B. ANY CONTRACTORS INSTALLING ADHESIVE ANCHORING SYSTEMS SHALL BE TRAINED ON PROPER INSTALLATION TECHNIQUES PRIOR TO PERFORMING WORK.



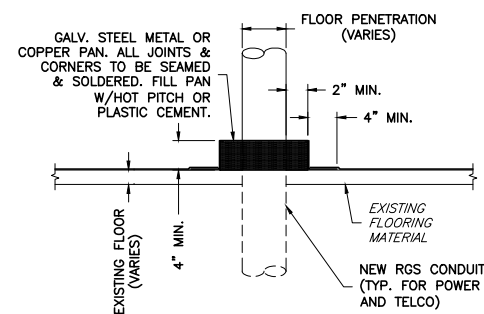
1 SLED MOUNT ELEVATION
S-1 NTS



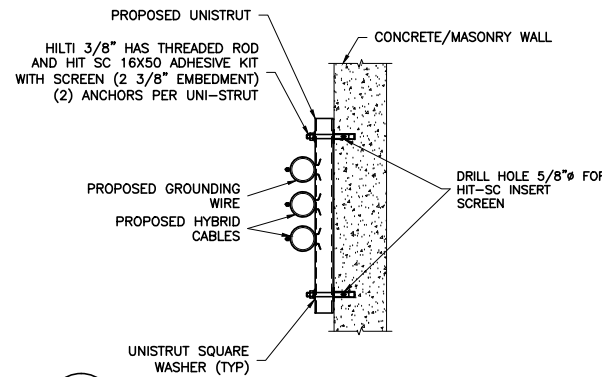
2 ANTENNA MOUNT TO PARAPET DETAIL
S-1 NTS



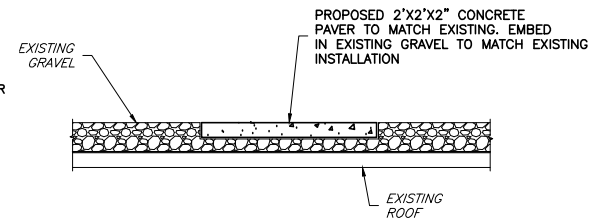
3 MASONRY WALL PENETRATION DETAIL
S-1 NTS



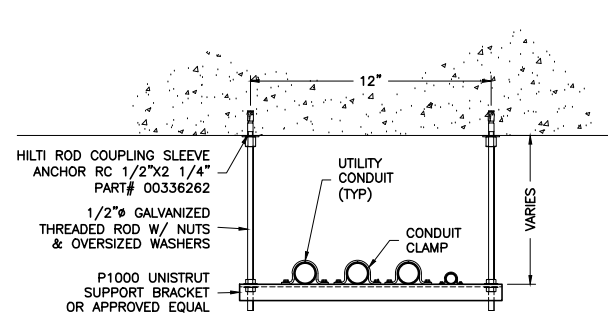
4 FLOOR CONDUIT PENETRATION
S-1 NTS



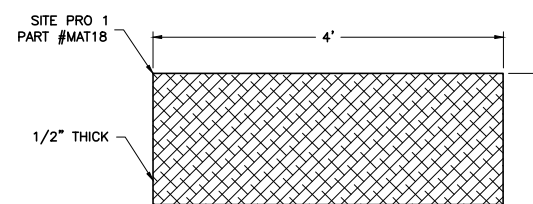
5 CONDUIT ROUTING DETAIL
S-1 NTS



7 CONCRETE PAVER DETAIL
S-1 NTS



6 UTILITY CONDUIT SUPPORT SECTION
S-1 NTS



- NOTES:**
1. EACH NON-PENETRATING SLED MOUNT REQUIRES 4 MATS.
 2. MANUFACTURED FROM UV-RESISTANT 1/2" THICK RUBBER.

8 RUBBER MAT
S-1 NTS

ENGINEER



NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-648-8079

APPLICANT



1831 RADY COURT
RICHMOND, VA 23222

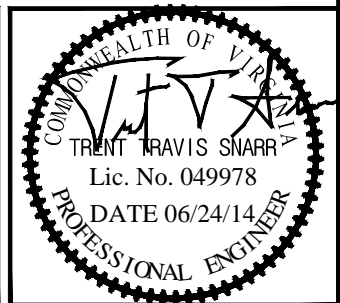
SITE INFORMATION

RICHMOND CONVENTION CENTER
416 E. BROAD STREET
RICHMOND, VA 23219
CITY OF RICHMOND

DESIGN RECORD

REVISIONS			
REV	DATE	DESCRIPTION	BY
2	06/24/14	FINAL	MEH
1	04/28/14	REVISED	MEH
0	03/14/14	PRELIMINARY	MEH

PROFESSIONAL STAMP



ENGINEER

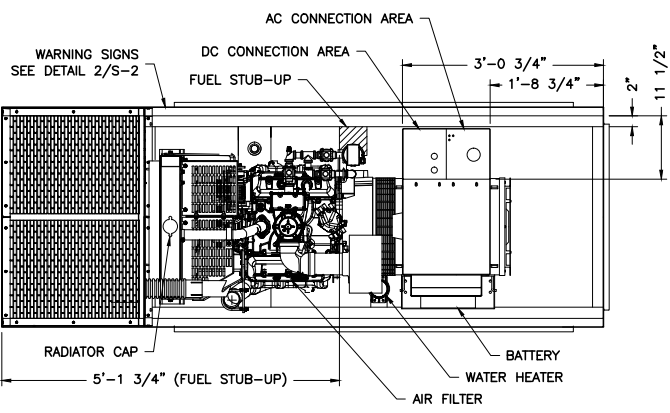
TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

SHEET TITLE

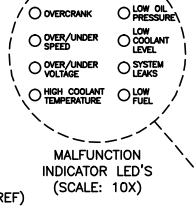
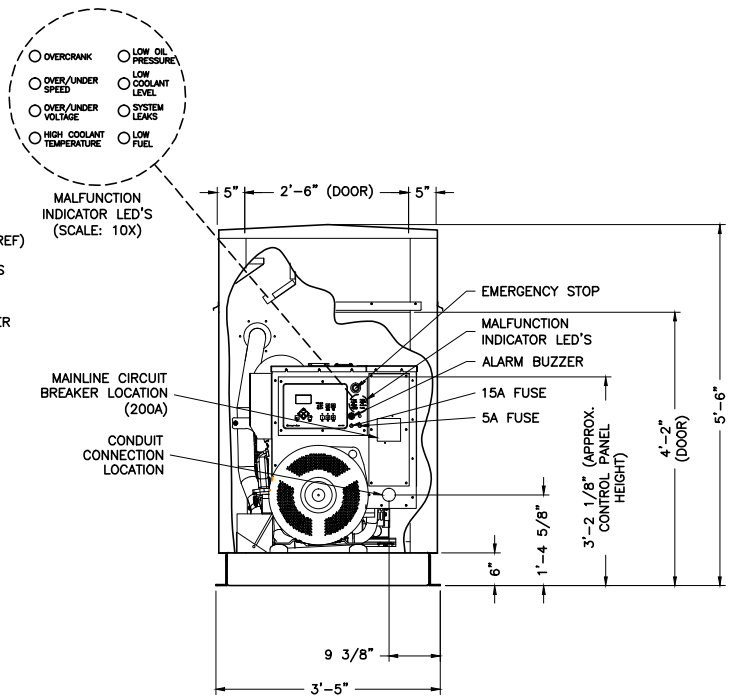
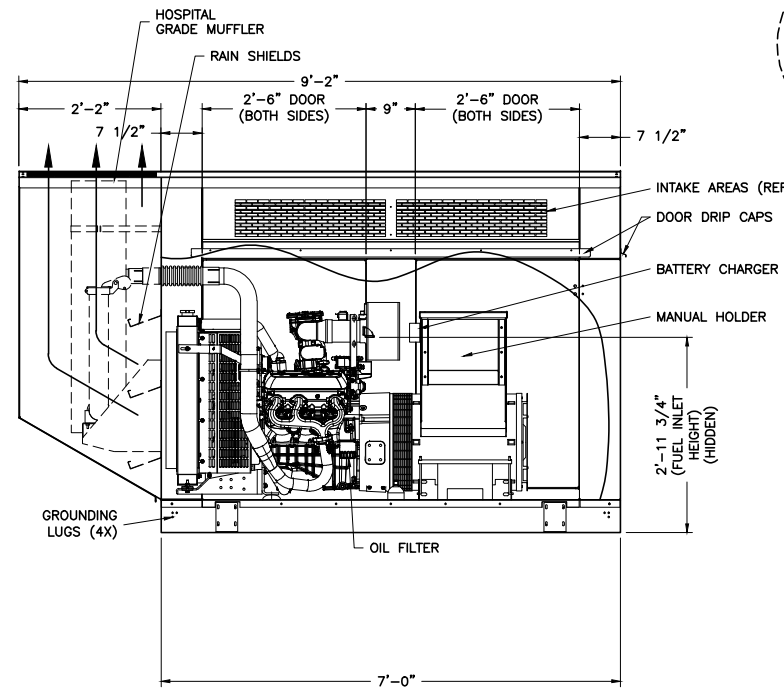
CONSTRUCTION
DETAILS & NOTES

SHEET NUMBER

S-1



- NOTES:
- 1) NATURAL GAS FUEL CONSUMPTION=600 CFH
 - 2) OPERATING PRESSURE RANGE=7"-11" H2O
 - 3) APPROX. WEIGHT: (WET) 2100#
 - 4) REFERENCE BASE DRAWING: 105-5425
 - 5) REFERENCE ENCLOSURE DRAWING: 90802
 - 6) SOUND LEVEL: 65 DBA @ 23 FT. (TO BE DETERMINED)
 - 7) GEN-SET IS OFF-SET 1 3/4" TO LEFT SIDE OF BASE/ENCL.
 - 8) ENCLOSURE & EXHAUST SYSTEMS ARE NOT SHOWN ON TOP VIEW
 - 9) FUEL CONNECTIONS 3/4" NPT
 - 10) [X] DIMENSIONS MAY VARY DUE TO SPRING COMPRESSION.
 - 11) PAINT FINISH: ANSI 61 GRAY
 - 12) SEE SHEETS ST-2 & ST-3 FOR GENERATOR TO PLATFORM CONNECTION DETAILS



1 50KW ONSITE ENERGY NATURAL GAS GENERATOR DETAIL
S-2 NTS



2 SIGNAGE DETAIL
S-2 NTS



NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-648-8079

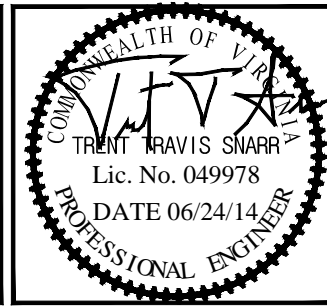


1831 RADY COURT
RICHMOND, VA 23222

RICHMOND CONVENTION CENTER
416 E. BROAD STREET
RICHMOND, VA 23219
CITY OF RICHMOND

REVISIONS

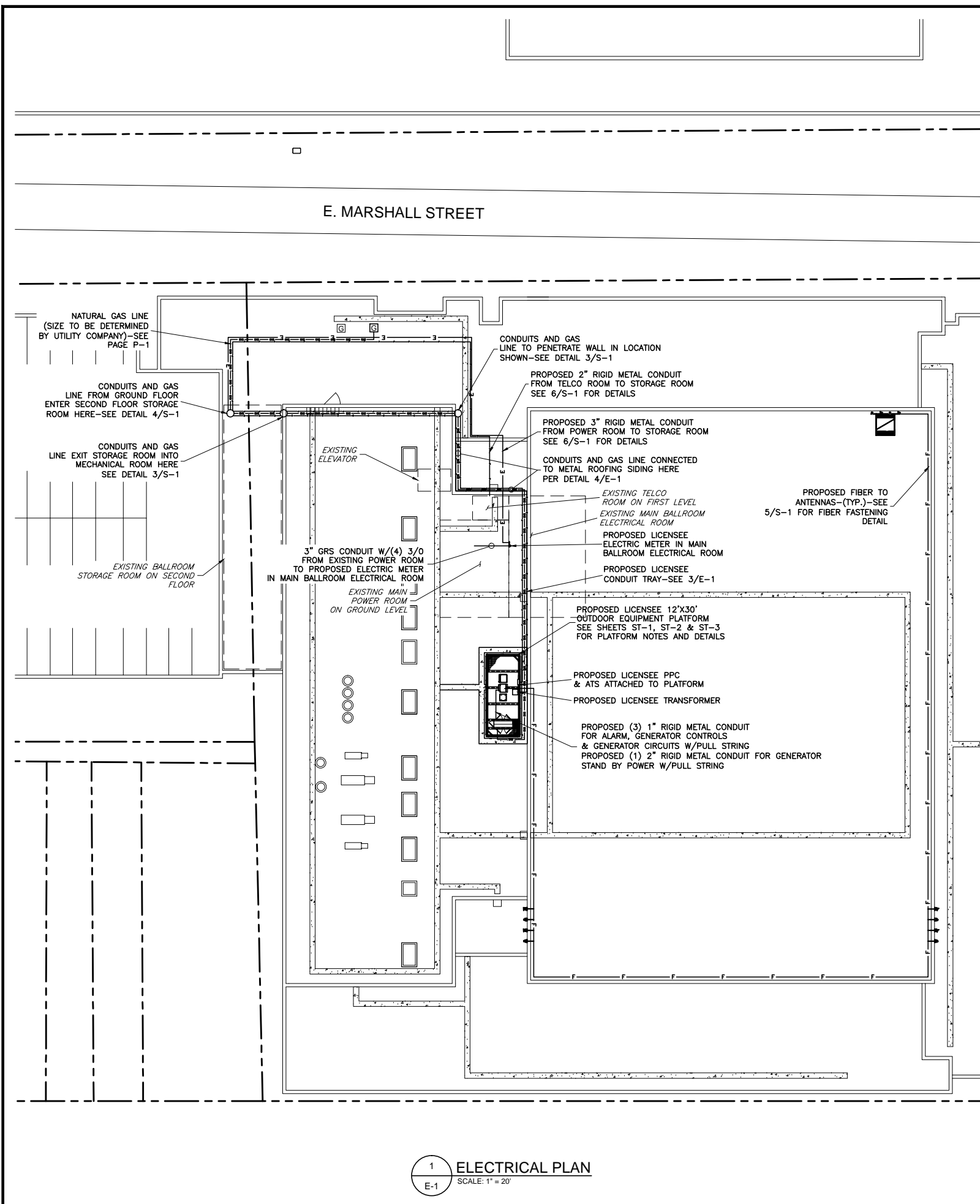
REV	DATE	DESCRIPTION	BY
2	06/24/14	FINAL	MEH
1	04/28/14	REVISED	MEH
0	03/14/14	PRELIMINARY	MEH



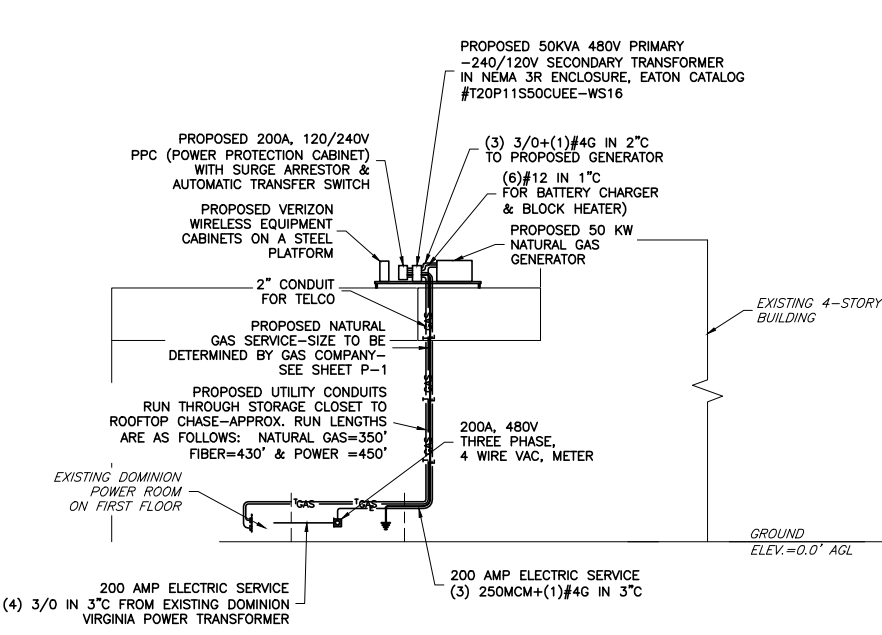
TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

GENERATOR
DETAILS

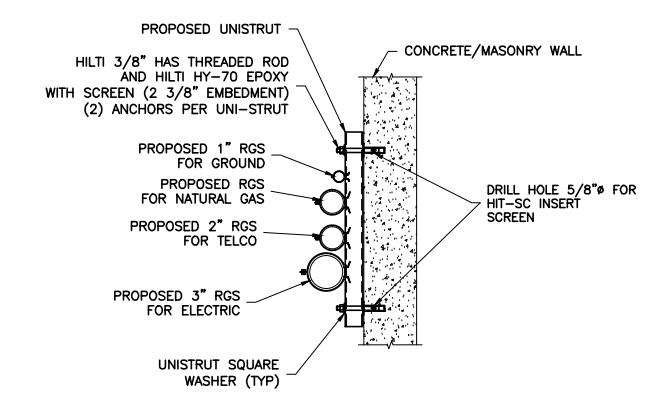
S-2



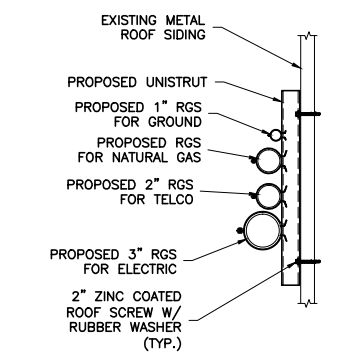
1 ELECTRICAL PLAN
E-1 SCALE: 1" = 20'



2 ELECTRICAL PLAN ELEVATION VIEW
E-1 SCALE: 1" = 20'



3 ROOFTOP UTILITY CONDUIT & ROUTING DETAIL
E-1 NTS



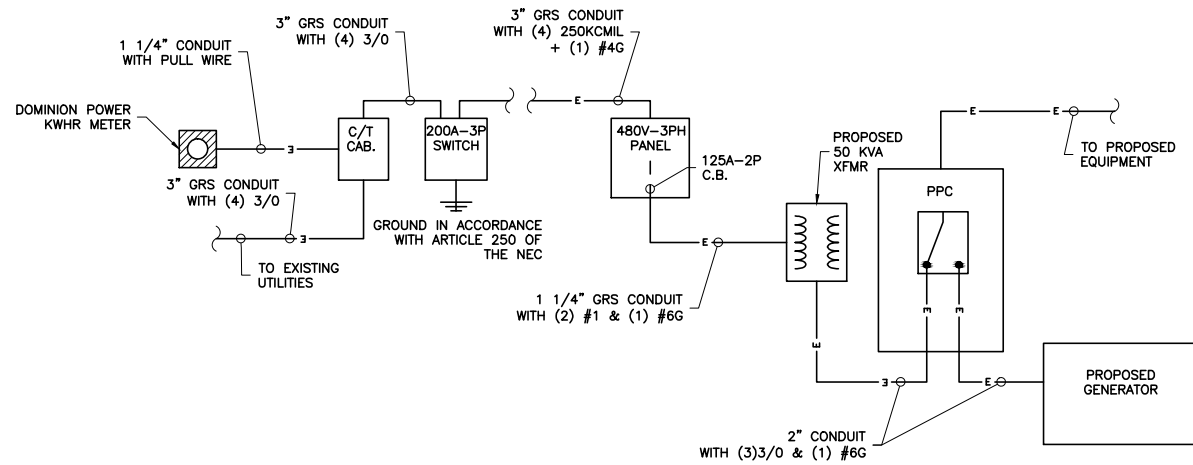
4 CONDUIT ROUTING DETAIL
E-1 NTS

ENGINEER	 TOTALLY COMMITTED. NB+C ENGINEERING SERVICES, LLC. 4435 WATERFRONT DRIVE, SUITE 100 GLEN ALLEN, VA 23060 804-648-8079																						
APPLICANT	 1831 RADY COURT RICHMOND, VA 23222																						
SITE INFORMATION	RICHMOND CONVENTION CENTER 416 E. BROAD STREET RICHMOND, VA 23219 CITY OF RICHMOND																						
DESIGN RECORD	<table border="1"> <thead> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>06/24/14</td> <td>FINAL</td> <td>MEH</td> </tr> <tr> <td>1</td> <td>04/28/14</td> <td>REVISED</td> <td>MEH</td> </tr> <tr> <td>0</td> <td>03/14/14</td> <td>PRELIMINARY</td> <td>MEH</td> </tr> </tbody> </table>			REVISIONS				REV	DATE	DESCRIPTION	BY	2	06/24/14	FINAL	MEH	1	04/28/14	REVISED	MEH	0	03/14/14	PRELIMINARY	MEH
REVISIONS																							
REV	DATE	DESCRIPTION	BY																				
2	06/24/14	FINAL	MEH																				
1	04/28/14	REVISED	MEH																				
0	03/14/14	PRELIMINARY	MEH																				
PROFESSIONAL STAMP																							
ENGINEER	TRENT T. SNARR, P.E. VA PROFESSIONAL ENGINEER LIC. #49978																						
SHEET TITLE	ELECTRICAL PLAN & DETAILS																						
SHEET NUMBER	E-1																						

ELECTRICAL NOTES

- SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
- CONTRACTOR SHALL PERFORM ALL VERIFICATIONS, OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO ORDERING OF ANY EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
- VERIFY HEIGHTS WITH PROJECT MANAGER PRIOR TO INSTALLATION.
- THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.
- CONTRACTOR SHALL COORDINATE ALL WORK BETWEEN TRADES AND ALL OTHER SCHEDULING AND PROVISIONARY CIRCUMSTANCES SURROUNDING THE PROJECT.
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC. FOR COMPLETE AND FUNCTIONALLY OPERATING SYSTEMS ENERGIZED AND READY FOR USE THROUGHOUT AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. ELECTRICAL MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES AND SHALL BEAR THE INSPECTION LABEL "U" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION OVER THE CONSTRUCTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH ALL CURRENT APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU. ALL MATERIALS AND EQUIPMENT SHALL BE APPROVED FOR THEIR INTENDED USE AND LOCATION.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE GOVERNING STATE, COUNTY AND CITY CODES AND OSHA, NFPA, NEC & ASHRAE REQUIREMENTS.
- ENTIRE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE. ALL WORK, MATERIAL AND EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
- PROPERLY SEAL ALL PENETRATIONS. PROVIDE UL LISTED FIRE-STOPS WHERE PENETRATIONS ARE MADE THROUGH FIRE-RATED ASSEMBLIES. WATER-TIGHT USING SILICONE SEALANT.
- DELIVER ALL BROCHURES, OPERATING MANUALS, CATALOGS AND SHOP DRAWINGS TO THE PROJECT MANAGER AT JOB COMPLETION. PROVIDE MAINTENANCE MANUALS FOR MECHANICAL EQUIPMENT. AFFIX MAINTENANCE LABELS TO MECHANICAL EQUIPMENT.
- ALL CONDUCTORS SHALL BE COPPER. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG., UNLESS OTHERWISE NOTED. CONDUCTORS SHALL BE TYPE THHW, RATED IN ACCORDANCE WITH NEC 110-14(C).
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM INTERRUPTING CURRENT TO WHICH THEY MAY BE SUBJECTED.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE; ARTICLES 250 & 810 AND THE UTILITY COMPANY STANDARDS.
- CONDUIT:
 - RIGID CONDUIT SHALL BE U.L. 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.
 - ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
 - LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE U.L. LISTED AND SHALL BE USED AT FINAL CONNECTIONS TO MECHANICAL EQUIPMENT & RECTIFIERS AND WHERE PERMITTED BY CODE. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL CONTAIN A FULL-SIZE GROUND CONDUCTOR.
 - CONDUIT RUNS SHALL BE SURFACE MOUNTED ON CEILINGS OR WALLS UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL RUN PARALLEL OR PERPENDICULAR TO WALLS, FLOOR, CEILING, OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH THE PROJECT MANAGER PRIOR TO INSTALLING.
 - PVC CONDUIT MAY BE PROVIDED ONLY WHERE SHOWN, OR IN UNDERGROUND INSTALLATIONS. PROVIDE UV-RESISTANT CONDUIT WHERE EXPOSED TO THE ATMOSPHERE. PROVIDE GROUND CONDUCTOR IN ALL PVC RUNS; EXCEPT WHERE PERMITTED BY CODE TO OMIT.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS. BACKGROUND SHALL BE BLACK WITH WHITE LETTERS; EXCEPT AS REQUIRED BY CODE TO FOLLOW A DIFFERENT SCHEME.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
- CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION. LEGALLY DISPOSE OF ALL REMOVED, UNUSED AND EXCESS MATERIAL GENERATED BY THE WORK OF THIS CONTRACT. DELIVER ITEMS INDICATED ON THE DRAWINGS TO THE OWNER IN GOOD CONDITION. OBTAIN SIGNED RECEIPT UPON DELIVERY.
- COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS SHALL BE PAID BY THE CONTRACTOR.
- VERIFY ALL EXISTING CIRCUITRY PRIOR TO REMOVAL AND NEW WORK. MAINTAIN POWER TO ALL OTHER AREAS & CIRCUITS NOT SCHEDULED FOR REMOVAL.
- RED LINED AS-BUILT PLANS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER.

- INDOOR CONDUCTORS SHALL BE INSTALLED IN EMT UNLESS NOTED OTHERWISE. OUTDOOR CONDUCTORS SHALL BE INSTALLED IN RIGID GALVANIZED STEEL CONDUIT UNLESS NOTED OTHERWISE.
- VA SMSA TO PROVIDE SURGE SUPPRESSOR FOR TELCO BOARD SERVING NEW EQUIPMENT, THE SURGE SUPPRESSOR TO BE INSTALLED BY CONTRACTOR AND GROUNDED TO MGB.
- SEAL AROUND PENETRATIONS RESULTING FROM CONDUIT ROUTING WITH FIRE-STOPPING FOAM SEALANT HAVING A UL-LISTED RATING OF 2 HOURS. HAMMER-DRILLING IS NOT PERMITTED. CORE-DRILLING TO BE COORDINATED WITH BUILDING OWNER'S REPRESENTATIVE.
- PROVIDE ALARM TERMINAL CABINET HIGH/LOW ALARMS MOUNTED ON TELCO BOARD.
- PROVIDE DOOR ALARM CONTACT.

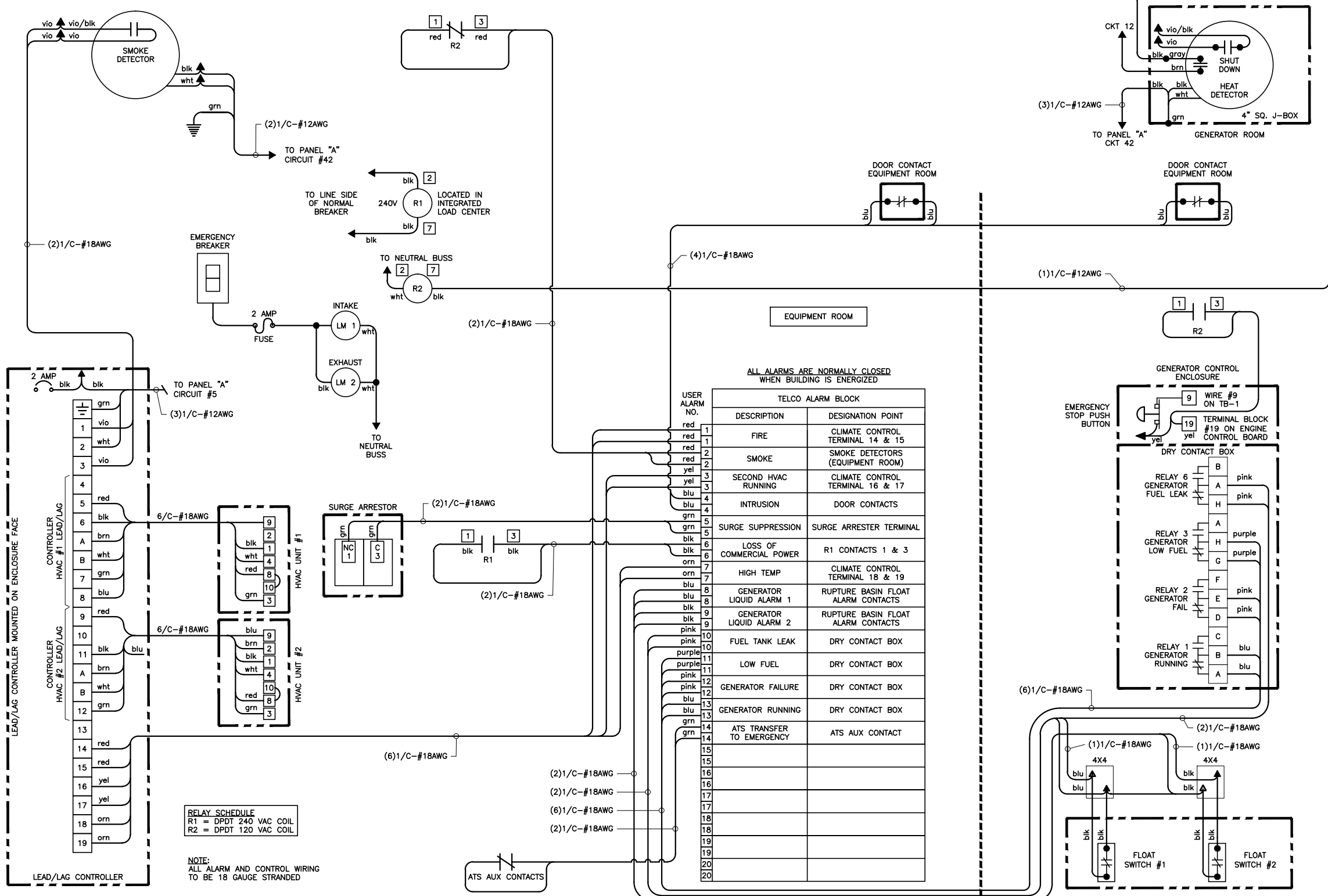


1 POWER DIAGRAM
E-2 NTS

POWER PROTECTION CABINET (PPC)													
VOLTS: 120/240		WIRE: 3	RMS: 10K	NEUTRAL BAR: YES	BRANCH CB: 24	NEMA TYPE: 1	MFR: TBD						
PHASE: 1		AMP: 200	MAIN CB AMP: 200	GROUND BAR: YES	KEY LOCK: NO	MOUNTING: SURFACE							
WATTS		CIRCUIT DESCRIPTION	CONDUCTOR	POLES	BREAKERS				CONDUCTOR	CIRCUIT DESCRIPTION	WATTS		
A	B				B	C	K	B			A	B	
2000		ALU 9712	(3)10+(1)#6	2	60	1	2	15	2	(3)#12+(1)#10	HEATER	1088	
	2000					3	4						1088
360		EXTERIOR GFCI OUTLET	(2)#12+G	1	20	5	6	20	1	(2)#12+G	EXTERIOR LIGHT	430	
	300	GENERATOR BATTERY CHARGER	(2)#12+G	1	20	7	8		1		SPARE		
1000		GENERATOR BLOCK HEATER	(2)#12+G	1	20	9	10		1		SPARE		
		SPARE		1	11	12			1		SPARE		
		SPARE		1	13	14			1		SPARE		
		SPARE		1	15	16			1		SPARE		
		SPARE		1	17	18			1		SPARE		
		SPARE		1	19	20			1		SPARE		
		SPARE		1	21	22			1		SPARE		
		SPARE		1	23	24			1		SPARE		
3360	2300	← TOTAL									TOTAL	1518	1088
LOAD DESCRIPTION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	TOTAL CONNECTED LOAD BY PHASE									
LIGHTS	430	1.25	537	PHASE A = 4878									
EQUIPMENT	6176	0.65	4015	PHASE B = 3388									
RECEPTACLES	360	1.00	360	TOTAL CONNECTED LOAD KVA = 8.3									
MISC	1300	1.00	1300	TOTAL PANEL CAPACITY KVA = 48									
HVAC	0	1.00	0										
TOTAL	8266		6212										

2 PANEL SCHEDULE
E-2 NTS

ENGINEER	<p>TOTALLY COMMITTED.</p> <p>NB+C ENGINEERING SERVICES, LLC. 4435 WATERFRONT DRIVE, SUITE 100 GLEN ALLEN, VA 23060 804-648-8079</p>																
APPLICANT	<p>1831 RADY COURT RICHMOND, VA 23222</p>																
SITE INFORMATION	<p>RICHMOND CONVENTION CENTER 416 E. BROAD STREET RICHMOND, VA 23219 CITY OF RICHMOND</p>																
DESIGN RECORD	<table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>06/24/14</td> <td>FINAL</td> <td>MEH</td> </tr> <tr> <td>1</td> <td>04/28/14</td> <td>REVISED</td> <td>MEH</td> </tr> <tr> <td>0</td> <td>03/14/14</td> <td>PRELIMINARY</td> <td>MEH</td> </tr> </tbody> </table>	REV	DATE	DESCRIPTION	BY	2	06/24/14	FINAL	MEH	1	04/28/14	REVISED	MEH	0	03/14/14	PRELIMINARY	MEH
REV	DATE	DESCRIPTION	BY														
2	06/24/14	FINAL	MEH														
1	04/28/14	REVISED	MEH														
0	03/14/14	PRELIMINARY	MEH														
PROFESSIONAL STAMP																	
ENGINEER	<p>TRENT T. SNARR, P.E. VA PROFESSIONAL ENGINEER LIC. #49978</p>																
SHEET TITLE	<p>ELECTRICAL PANEL SCHEDULE, DIAGRAM & NOTES</p>																
SHEET NUMBER	<p>E-2</p>																



ALL ALARMS ARE NORMALLY CLOSED WHEN BUILDING IS ENERGIZED

USER ALARM NO.	DESCRIPTION	DESIGNATION POINT
1	FIRE	CLIMATE CONTROL TERMINAL 14 & 15
2	SMOKE	SMOKE DETECTORS (EQUIPMENT ROOM)
3	SECOND HVAC RUNNING	CLIMATE CONTROL TERMINAL 16 & 17
4	INTRUSION	DOOR CONTACTS
5	SURGE SUPPRESSION	SURGE ARRESTER TERMINAL
6	LOSS OF COMMERCIAL POWER	R1 CONTACTS 1 & 3
7	HIGH TEMP	CLIMATE CONTROL TERMINAL 18 & 19
8	GENERATOR LIQUID ALARM 1	RUPTURE BASIN FLOAT ALARM CONTACTS
9	GENERATOR LIQUID ALARM 2	RUPTURE BASIN FLOAT ALARM CONTACTS
10	FUEL TANK LEAK	DRY CONTACT BOX
11	LOW FUEL	DRY CONTACT BOX
12	GENERATOR FAILURE	DRY CONTACT BOX
13	GENERATOR RUNNING	DRY CONTACT BOX
14	ATS TRANSFER TO EMERGENCY	ATS AUX CONTACT

RELAY SCHEDULE
 R1 = DPDT 240 VAC COIL
 R2 = DPDT 120 VAC COIL

NOTE:
 ALL ALARM AND CONTROL WIRING TO BE 18 GAUGE STRANDED

REVISIONS

REV	DATE	DESCRIPTION	BY
2	06/24/14	FINAL	MEH
1	04/28/14	REVISED	MEH
0	03/14/14	PRELIMINARY	MEH



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

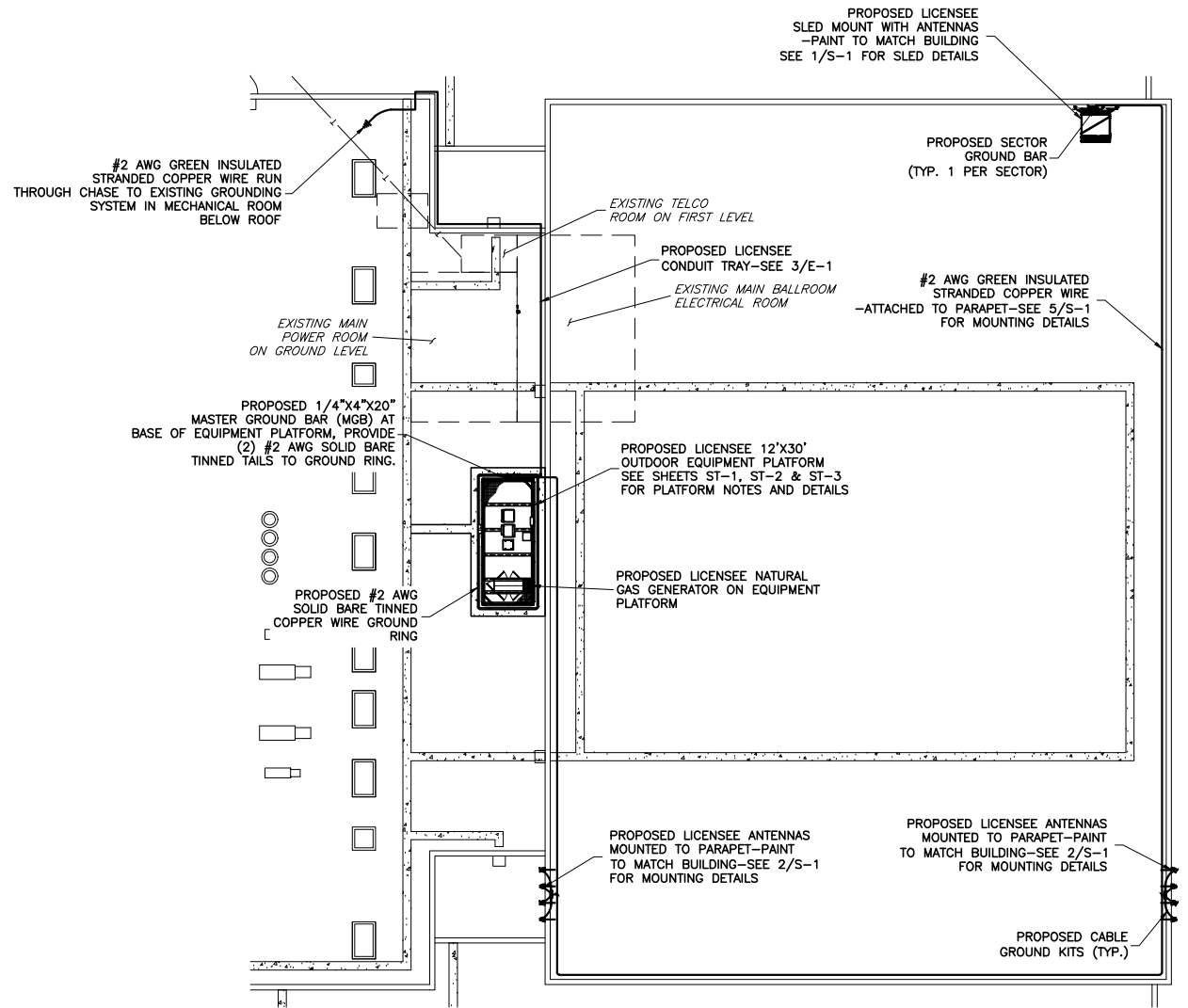
ALARM DETAILS

E-3

ENGINEER
 APPLICANT
 SITE INFORMATION
 DESIGN RECORD
 PROFESSIONAL STAMP
 ENGINEER
 SHEET TITLE
 SHEET NUMBER

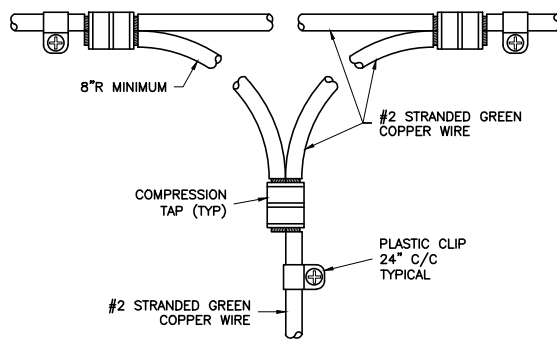
GROUNDING NOTES:

- 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 8' 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 METROPCS 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 METROPCS 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.

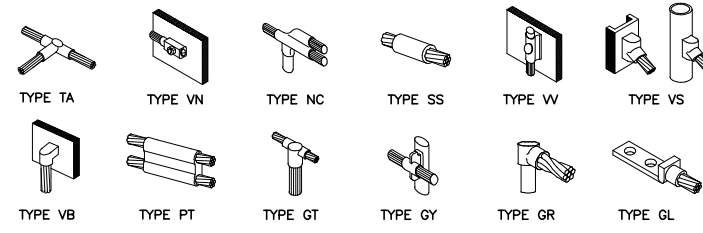


1 ROOFTOP GROUNDING PLAN
SCALE: 1"=20'

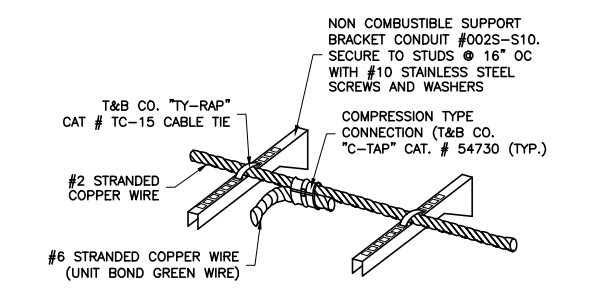
GROUNDING LEGEND	
	COAXIAL CABLE SHIELD GROUND KIT CONNECTION
	COMPRESSION FITTING CONNECTION
	EXOTHERMIC WELD CONNECTION



2 GROUNDING CONNECTION DETAIL
G-1 NTS



3 CADWELD GROUNDING CONNECTION DETAILS
G-1 NTS



4 INTERNAL GROUND RING SUPPORT DETAIL
G-1 NTS

ENGINEER

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-548-8078

APPLICANT

verizonwireless

1831 RADY COURT
RICHMOND, VA 23222

SITE INFORMATION

RICHMOND CONVENTION CENTER
416 E. BROAD STREET
RICHMOND, VA 23219
CITY OF RICHMOND

DESIGN RECORD

REV	DATE	DESCRIPTION	BY
2	06/24/14	FINAL	MEH
1	04/28/14	REVISED	MEH
0	03/14/14	PRELIMINARY	MEH

PROFESSIONAL STAMP

ENGINEER

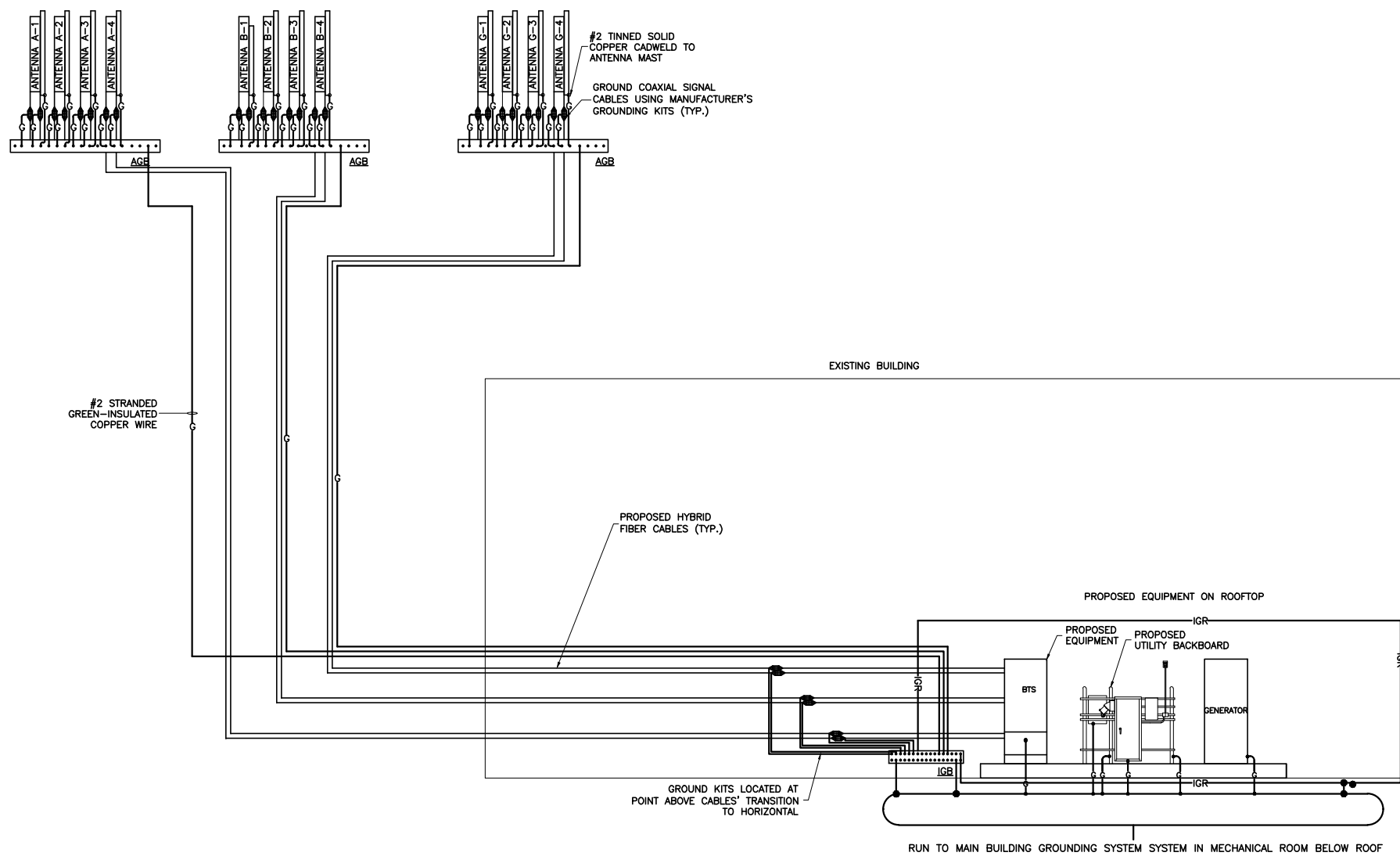
TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

SHEET TITLE

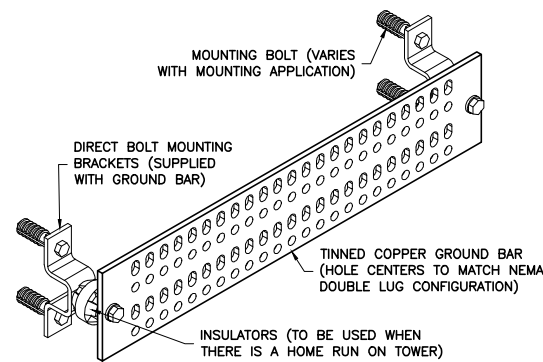
GROUNDING PLAN & DETAILS

SHEET NUMBER

G-1

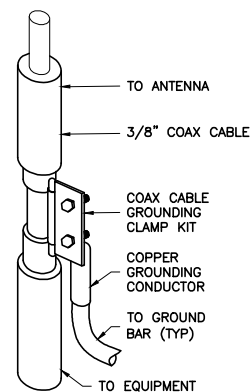


1 GROUNDING RISER DIAGRAM
G-2 NTS

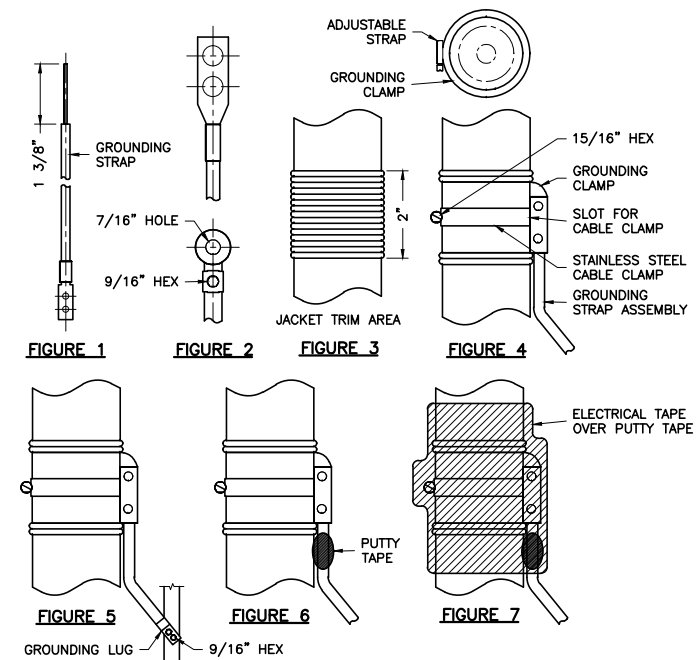


GROUND BAR SCHEDULE				
TYPE	QTY	MANUFACTURER	PART NO.	REMARKS
MGB	2	ANDREW	UGBKIT-0420-T	OR EQUAL
CBG	3	ANDREW	UGBKIT-0412	OR EQUAL

3 GROUND BAR DETAIL
G-2 NTS



4 COAX CABLE GROUNDING DETAIL
G-2 NTS



2 TYPICAL COAX WEATHERPROOFING DETAIL
G-2 NTS

ENGINEER

NB+C
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-648-8079

APPLICANT

verizonwireless

1831 RADY COURT
RICHMOND, VA 23222

SITE INFORMATION

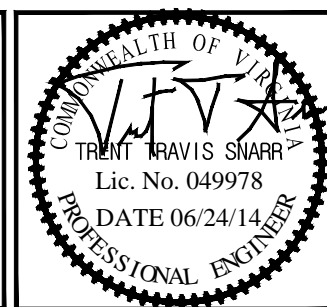
RICHMOND CONVENTION
CENTER
416 E. BROAD STREET
RICHMOND, VA 23219
CITY OF RICHMOND

DESIGN RECORD

REVISIONS

REV	DATE	DESCRIPTION	BY
2	06/24/14	FINAL	MEH
1	04/28/14	REVISED	MEH
0	03/14/14	PRELIMINARY	MEH

PROFESSIONAL STAMP



ENGINEER

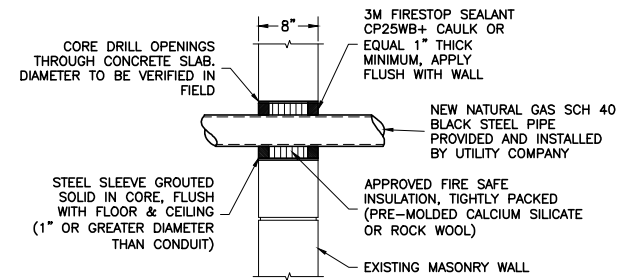
TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

SHEET TITLE

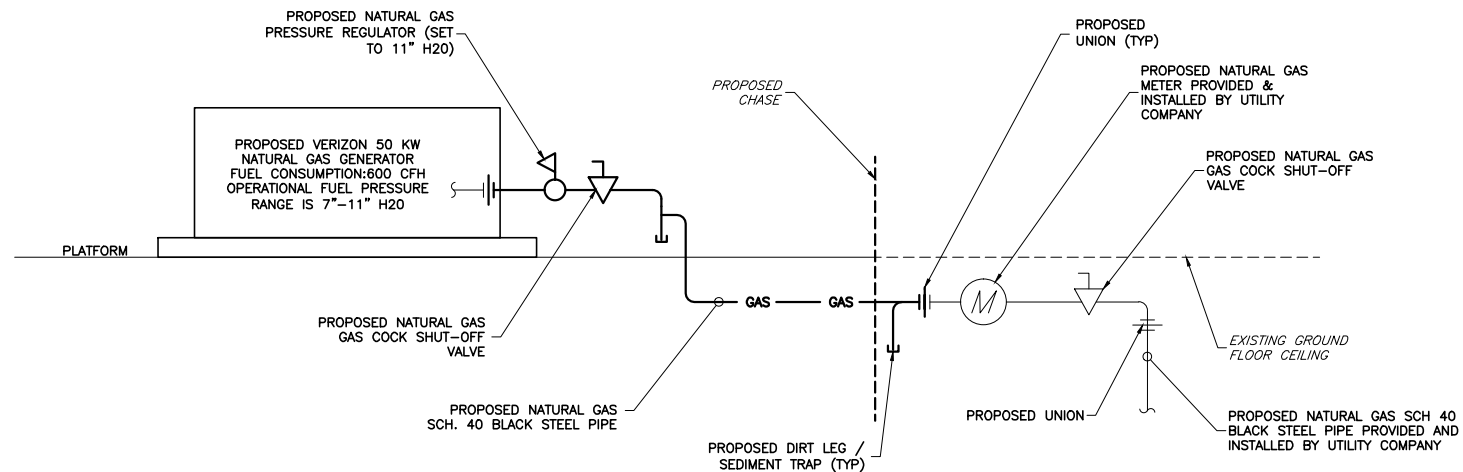
**GROUNDING RISER
DIAGRAM, DETAILS
& NOTES**

SHEET NUMBER

G-2



1 CONDUIT PENETRATION DETAIL
P-1 NTS



2 GAS RISER DIAGRAM
P-1 SCALE: NOT TO SCALE

SYMBOLS LIST & ABBREVIATIONS

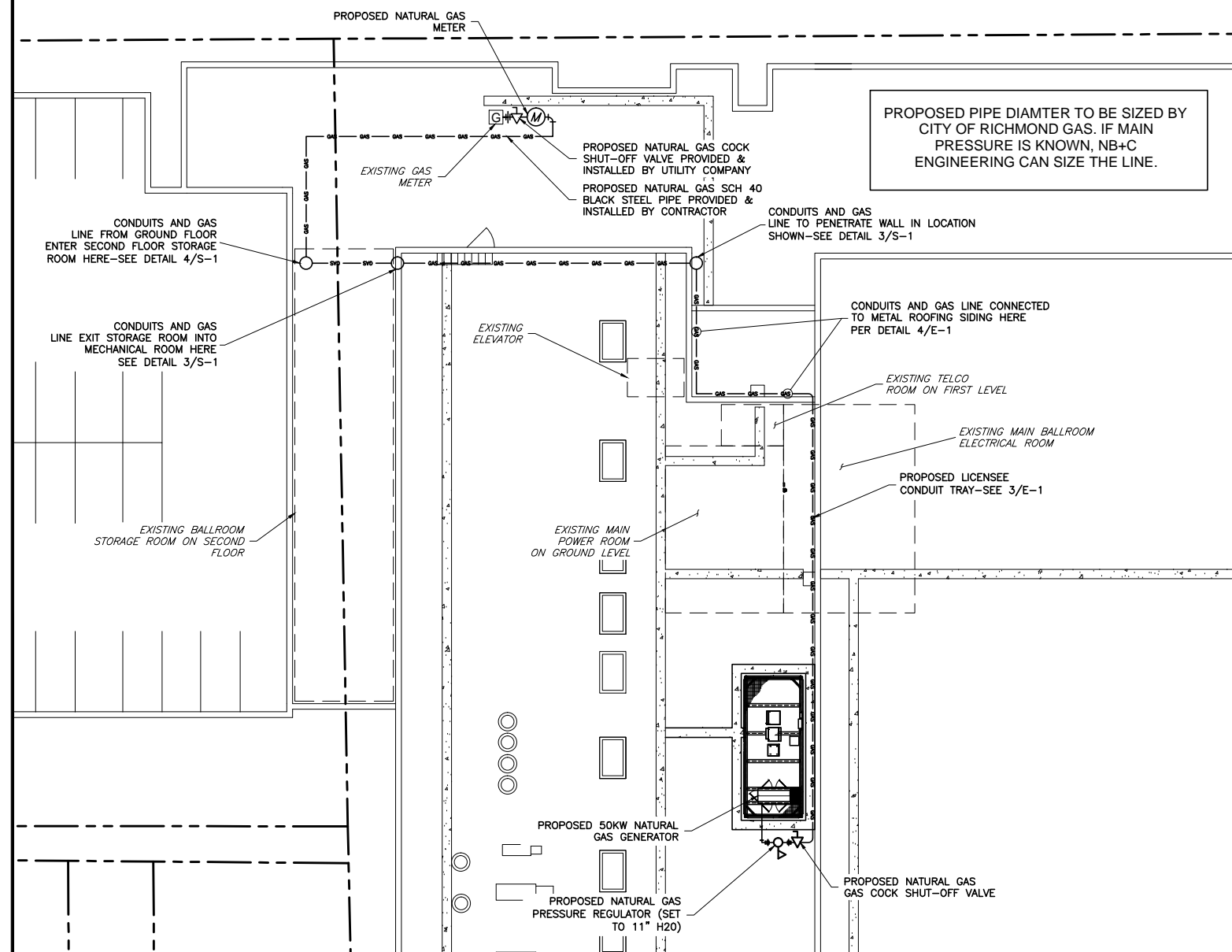
	UNION	MBH	1000 BRITISH THERMAL UNITS/HOUR
	GAS COCK	PSIG	POUNDS PER SQUARE INCH GAUGE
	PRESSURE REGULATOR	CFH	CUBIC FEET PER HOUR
	NATURAL GAS PIPE	IFGC	INTERNATIONAL FUEL GAS CODE
	NATURAL GAS METER		

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL EXISTING CONDITIONS, PARTICULARLY WHERE THEY MAY IMPACT THE PROPOSED WORK, PRIOR TO STARTING CONSTRUCTION. MINOR VARIATIONS CAN BE EXPECTED. ANY REQUIRED DEVIATION FROM THE CONTRACT DOCUMENTS AS A RESULT OF DIFFERING SITE CONDITIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS. EXISTING CONDITIONS HAVE BEEN OBTAINED FROM RECENT FIELD SURVEY.
3. THE CONTRACTOR SHALL CONNECT ALL ITEMS OF EQUIPMENT AND SHALL PROVIDE ALL ITEMS NECESSARY TO COMPLETE THE GAS LINE INSTALLATION.
4. ALL MATERIALS PROVIDED SHALL BE NEW AND FREE FROM DEFECTS.
5. ALL VALVES SHALL BE INSTALLED TO ALLOW PROPER SERVICING AND OR REMOVAL WITHOUT DISCONNECTING ALL PIPING AND ACCESSORIES.
6. ALL EXPOSED NATURAL GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE (ASTM A53) WITH 150 PSI FITTINGS AND WELDED JOINTS.
7. ALL BELOW GRADE NATURAL GAS PIPING SHALL BE POLYETHYLENE-SLEEVED FLEXIBLE GAS PIPING (TRACPIPE PS-11) OR APPROVED EQUAL.
8. DI-ELECTRIC FITTINGS SHALL BE USED FOR CONNECTIONS OF DISSIMILAR PIPING MATERIALS.
9. ALL FERROUS GAS PIPING EXPOSED TO THE ATMOSPHERE OR OTHERWISE SUSCEPTIBLE TO CORROSION SHALL BE PROTECTED WITH A CORROSION RESISTANT YELLOW COATING WITH "NATURAL GAS" IDENTIFICATION EVERY 25 FEET.

NOTES

1. TOTAL LENGTH = 350LF + 44 LF FOR FITTINGS = 394LF.
2. ALL GAS PIPING & AND ACCESSORIES SHALL BE INSTALLED IN ACCORDANCE WITH IFGC 2009 AND LOCAL CODES.
3. ALL GAS PIPING SIZED IN ACCORDANCE WITH IFGC 2009, CHAPTER 4 (ASSUMING A 1.5" H2O PRESSURE DROP OVER ENTIRE LENGTH OF PIPING).
4. GAS PIPING SIZES LISTED ARE BASED ON THE ENGINEER'S UNDERSTANDING OF THE PROPOSED ROUTING FROM THE GAS METER TO GENERATOR. CONTRACTOR SHALL BEAR SOLE RESPONSIBILITY FOR RECALCULATING GAS PIPE SIZE BASED ON ACTUAL ROUTING. UNDER NO CIRCUMSTANCES SHALL CONTRACTOR ASSUME THAT SIZES LISTED REFLECT EXACT PIPE LENGTHS AND NUMBER OF BENDS.
5. GAS PIPE SIZING FROM REGULATOR TO GENERATOR SHALL BE FULL SIZE TO MATCH GENERATOR FUEL INLET SIZE.
6. FUEL CONSUMPTION: 600 CFH



3 GAS PIPING PLAN
P-1 SCALE: 1"=15'



NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-646-8079



1831 RADY COURT
RICHMOND, VA 23222

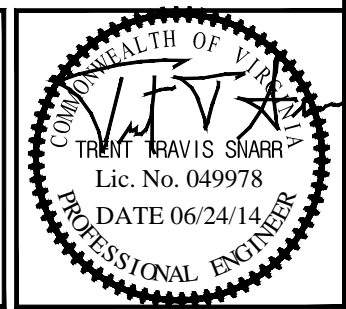
RICHMOND CONVENTION CENTER
416 E. BROAD STREET
RICHMOND, VA 23219
CITY OF RICHMOND

REVISIONS

REV	DATE	DESCRIPTION	BY
2	06/24/14	FINAL	MEH
1	04/28/14	REVISED	MEH
0	03/14/14	PRELIMINARY	MEH

DESIGN RECORD

PROFESSIONAL STAMP



ENGINEER

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

SHEET TITLE

GAS PIPING DETAILS

SHEET NUMBER

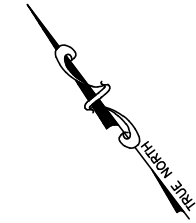
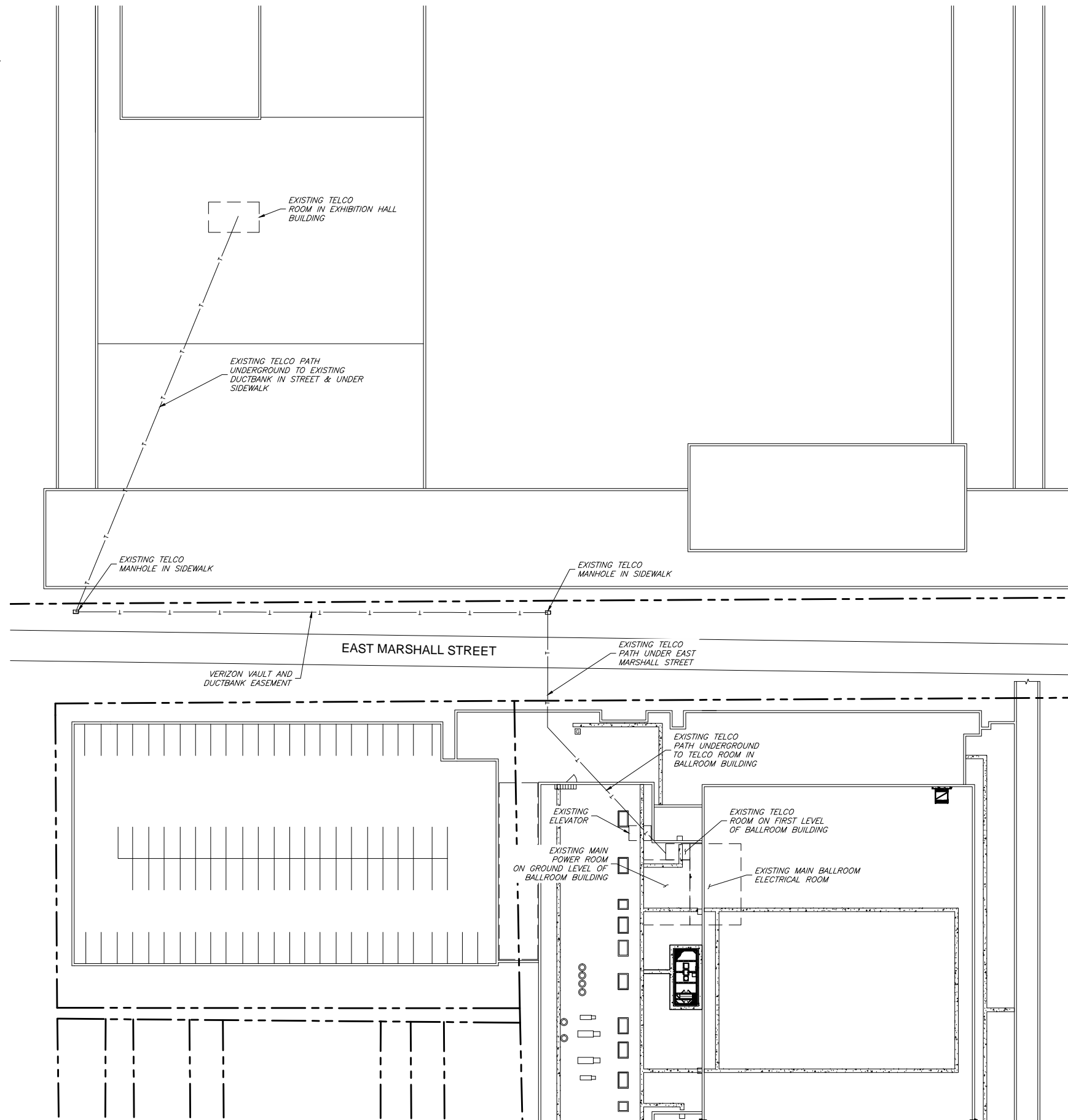
P-1



Know what's below.
Call before you dig.

CONSTRUCTION NOTES:

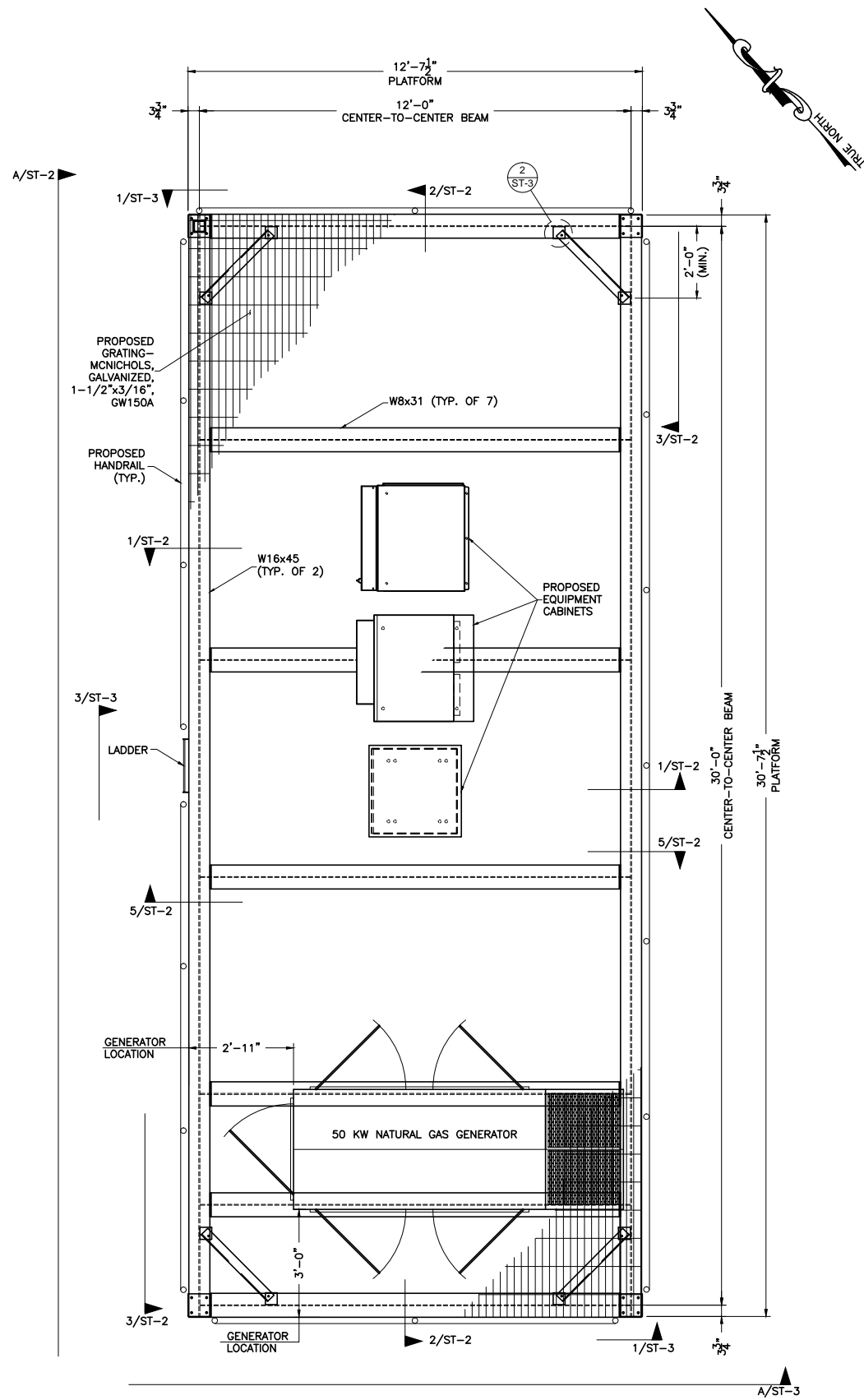
1. CONTRACTOR TO RUN FIBER CABLE FROM TELCO ROOM IN EXHIBITION HALL BUILDING TO TELCO ROOM LOCATED IN BALLROOM BUILDING THROUGH EXISTING CONDUIT AND DUCTBANK PATH.
2. TOTAL DISTANCE FROM TELCO ROOM TO TELCO ROOM IS APPROXIMATELY 675'.



1 FIBER ROUTING PLAN
SCALE: 1"=30'
F-1

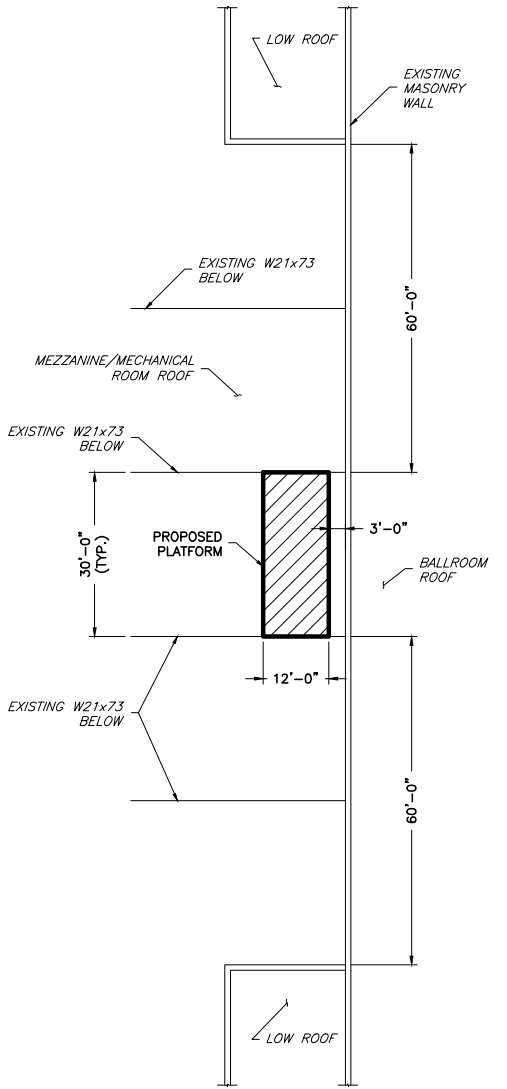


ENGINEER	 NB+C ENGINEERING SERVICES, LLC. 4435 WATERFRONT DRIVE, SUITE 100 GLEN ALLEN, VA 23060 804-648-6079																				
APPLICANT	 1831 RADY COURT RICHMOND, VA 23222																				
SITE INFORMATION	RICHMOND CONVENTION CENTER 416 E. BROAD STREET RICHMOND, VA 23219 CITY OF RICHMOND																				
DESIGN RECORD	<table border="1"> <thead> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>06/24/14</td> <td>FINAL</td> <td>MEH</td> </tr> <tr> <td>1</td> <td>04/28/14</td> <td>REVISED</td> <td>MEH</td> </tr> <tr> <td>0</td> <td>03/14/14</td> <td>PRELIMINARY</td> <td>MEH</td> </tr> </tbody> </table>	REVISIONS				REV	DATE	DESCRIPTION	BY	2	06/24/14	FINAL	MEH	1	04/28/14	REVISED	MEH	0	03/14/14	PRELIMINARY	MEH
REVISIONS																					
REV	DATE	DESCRIPTION	BY																		
2	06/24/14	FINAL	MEH																		
1	04/28/14	REVISED	MEH																		
0	03/14/14	PRELIMINARY	MEH																		
PROFESSIONAL STAMP																					
ENGINEER	TRENT T. SNARR, P.E. VA PROFESSIONAL ENGINEER LIC. #49978																				
SHEET TITLE	FIBER ROUTING PLAN AND NOTES																				
SHEET NUMBER	F-1																				



1 PLATFORM-PLAN VIEW
SCALE: 1/2" = 1'-0"

2 PLATFORM ROOF LOCATION DETAIL
SCALE: 1/16" = 1'-0"



GENERAL NOTES

- PLATFORM DESIGN FOR BELOW LOADS:
 - ASCE 7/IBC2009 90MPH WIND LOAD, EXPOSURE B.
 - EQUIPMENT CABINETS AND MISC. WEIGHT: GENERATOR EQUIPMENT = 2865 LBS.
 - GRATING WEIGHT = 11 PSF APPROX.
 - SNOW LOAD ON PLATFORM = 22.0 PSF.
 - PLATFORM SELFWEIGHT.
 - LIVE LOAD = 60 psf.
- REFER TO SITE PLAN FOR PLATFORM LOCATION.
- ALL FABRICATION AND INSTALLATION SHOULD BE DONE BY A CONTRACTOR EXPERIENCED IN SIMILAR WORK.
- CONTRACTOR SHOULD OBSERVE ALL OSHA AND OTHER APPLICABLE SAFETY GUIDELINES DURING INSTALLATION.
- ALL FABRICATION AND INSTALLATION PROCEDURES AND SITE SAFETY ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHOULD FIELD VERIFY ALL DIMENSIONS AND FIT BEFORE FABRICATION.
- THE DRAWINGS DO NOT INCLUDE ALL THE EXISTING FIELD CONDITIONS, SOME OF WHICH MAY INTERFERE WITH THE INSTALLATION. CONTRACTOR SHOULD CONDUCT A FIELD SURVEY TO IDENTIFY ANY POTENTIAL DIFFICULTIES IN THE INSTALLATION BEFORE WORK COMMENCES. CONTACT THE ENGINEER IF THE FIELD CONDITIONS REQUIRE ANY CHANGES IN THE DESIGN.
- CONTRACTOR MAY HAVE TO TEMPORARILY REMOVE EXISTING TRANSMISSION LINES AND OTHER OBSTRUCTIONS TO INSTALL NEW STRUCTURE. COORDINATE ALL SUCH PROCEDURES WITH THE BUILDING OWNER.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL LICENSES, PERMITS AND ANY OTHER APPROVALS REQUIRED FOR CONSTRUCTION.
- ALL SPECIFICATIONS BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION SHOULD BE FOLLOWED FOR FABRICATION AND INSTALLATION.
- ALL NEW STEEL TUBE MEMBERS SHALL MEET THE ASTM A500-42 STEEL SPECIFICATIONS, 42 KSI MIN. YIELD STRENGTH.
- ALL STEEL PLATES AND OTHER MISCELLANEOUS MEMBERS SHALL MEET ASTM A36 STEEL SPECIFICATIONS, 36 KSI MIN. YIELD STRENGTH. ALL STEEL W-SHAPES SHALL BE ASTM A992 STEEL SPECIFICATIONS, 50ks: YIELD STRENGTH.
- ALL STEEL SHALL BE HOT DIPPED GALVANIZED AS PER ASTM A123 SPECIFICATIONS.
- ALL STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED AS PER ASTM A153.
- ALL BOLTS SHALL BE DOMESTIC, NEW 1/2 INCH DIAMETER HIGH STRENGTH GALVANIZED BOLTS, BEARING TYPE "X", UNLESS NOTED OTHERWISE IN THE DRAWINGS AND SHALL CONFORM TO ASTM A325 SPECIFICATIONS. USE ANCO LOCKNUTS & FLAT WASHERS ON ALL BOLTS.
- ALL FINISHED BOLT HOLES SHALL NOT BE MORE THAN 1/16 INCH LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
- ALL BOLTS SHALL BE TIGHTENED USING TURN-OF-THE-NUT METHOD.
- ALL BOLT HOLES EDGE DISTANCES SHALL BE 1 1/2 INCH UNLESS OTHERWISE NOTED.
- ALL WELDING SHALL BE DONE USING E-70 ELECTRODES AND IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY STANDARDS AND SPECIFICATIONS.
- ANY FIELD CUTS MUST BE THOROUGHLY CLEANED AND DOUBLE COATED.
- DO NOT HEAT STRUCTURAL MATERIAL FOR STRAIGHTENING BENT OR WARPED MEMBERS.
- CLEAN THE SITE OF ALL DEBRIS UPON COMPLETION OF THE WORK. STORE ALL SURPLUS MATERIALS NEATLY IN AN AREA APPROVED BY THE OWNER.
- BEFORE FIELD WELDING CLEAN ALL PAINT AND GALVANIZING TO BARE METAL. PREHEATING AND POSTHEATING OF THE BASE METAL SHOULD BE AS PER AWS D1.1 SPECIFICATION AND APPLICABLE CODES REGARDING PREHEATING AND POSTHEATING.
- CONTRACTOR TO PROVIDE FIRE PROTECTION BEFORE FIELD WELDING.

PLATFORM PLACEMENT NOTES

- CONTRACTOR TO FIELD VERIFY THAT THE PROPOSED PLATFORM STUB COLUMNS ARE PLACED DIRECTLY ON TOP OF THE EXISTING W21X73 ROOF BEAMS.

EQUIPMENT AND GENERATOR CONNECTION NOTES

- EQUIPMENT CABINETS AND GENERATOR TO BE CONNECTED TO PLATFORM GRATIGN PER MANUFACTURERS SPECS.



NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-648-8079

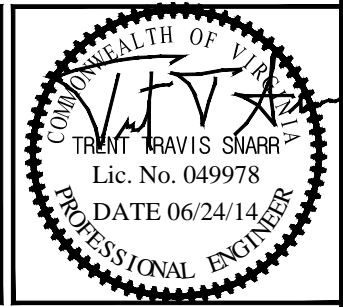


1831 RADY COURT
RICHMOND, VA 23222

RICHMOND CONVENTION CENTER
416 E. BROAD STREET
RICHMOND, VA 23219
CITY OF RICHMOND

REVISIONS

REV	DATE	DESCRIPTION	BY
2	06/24/14	FINAL	MEH
1	04/28/14	REVISED	MEH
0	03/14/14	PRELIMINARY	MEH

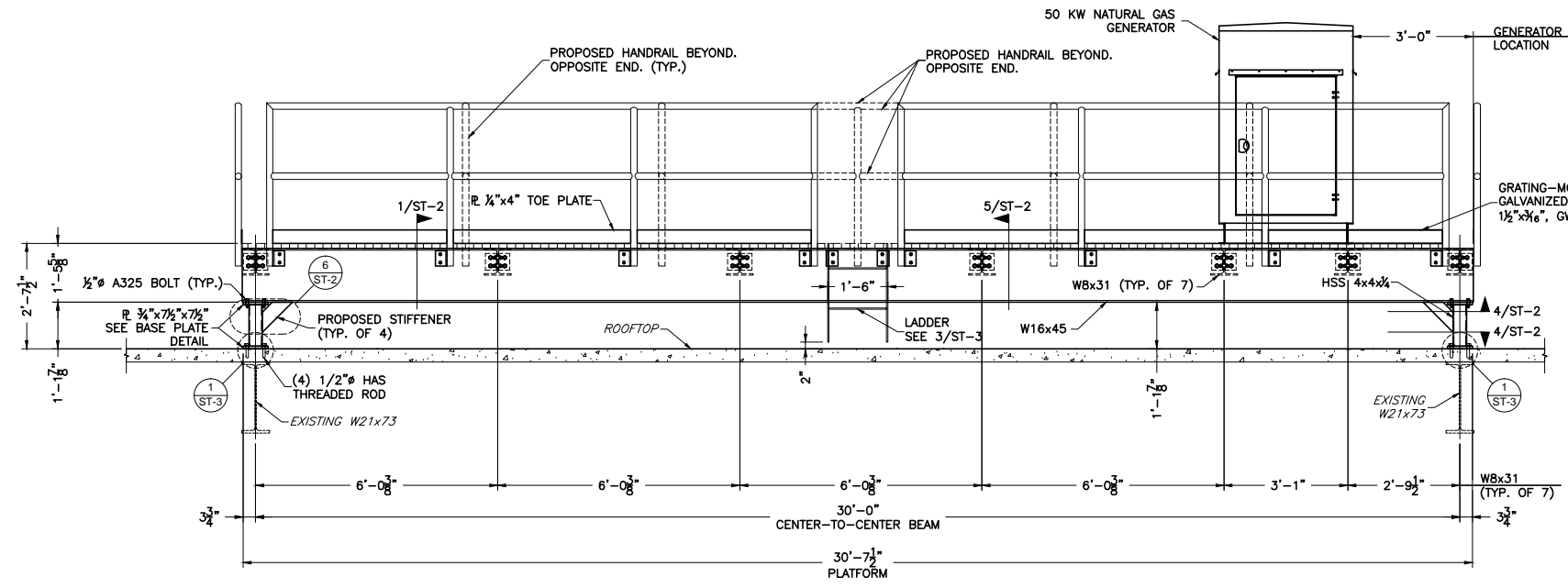


TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

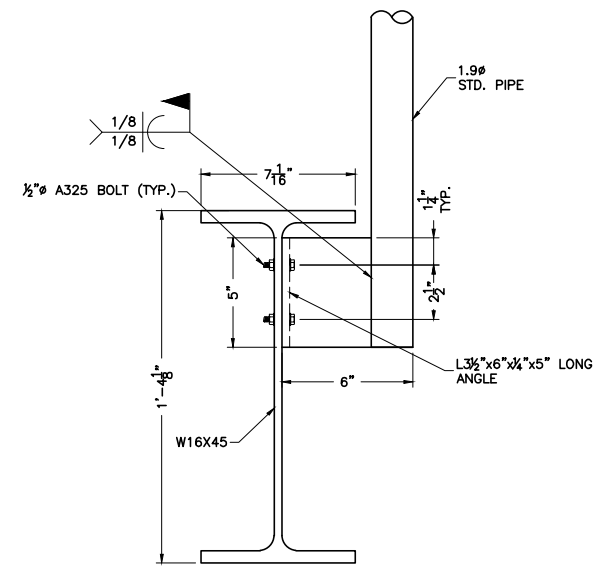
GENERATOR PLATFORM
DETAILS & NOTES

ST-1

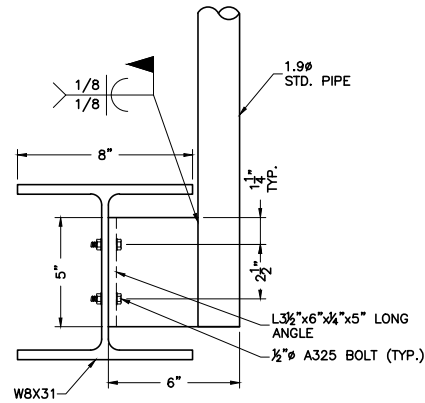
ENGINEER
APPLICANT
SITE INFORMATION
DESIGN RECORD
PROFESSIONAL STAMP
ENGINEER
SHEET TITLE
SHEET NUMBER



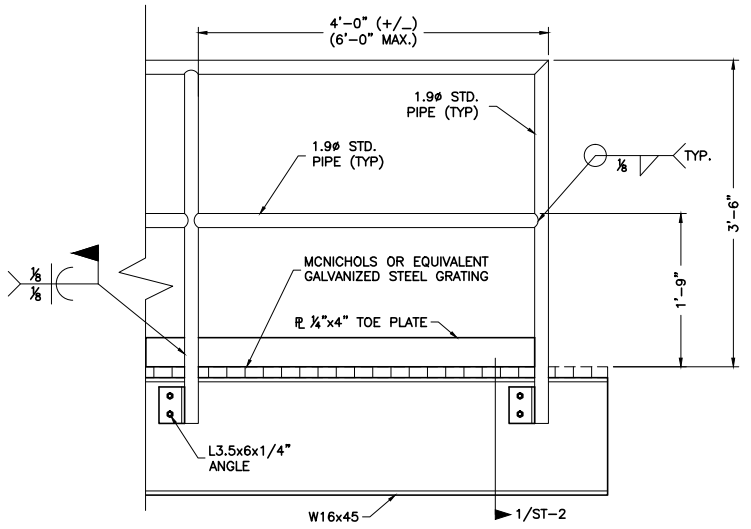
A GENERATOR PLATFORM-FRONT VIEW
SCALE: 1/2" = 1'-0"



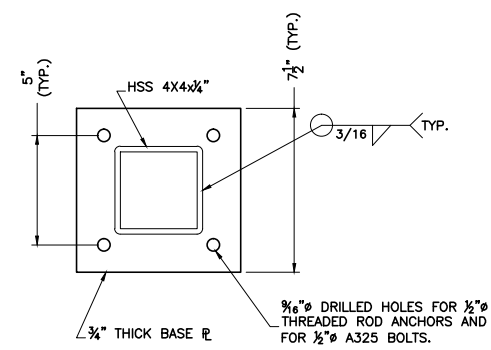
1 HANDRAIL TO BEAM CONNECTION DETAIL
SCALE: 3" = 1'-0"



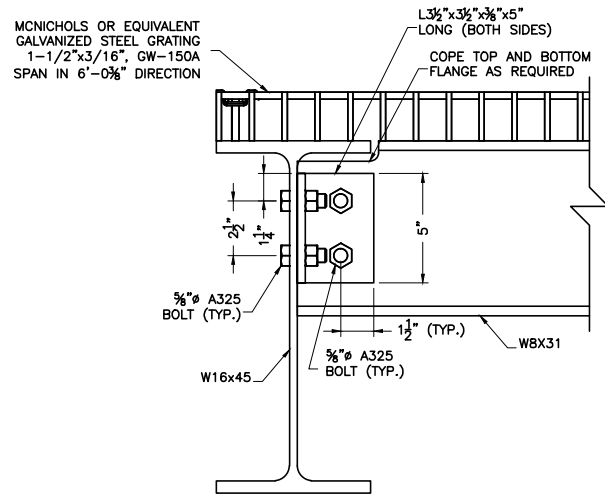
2 HANDRAIL TO BEAM CONNECTION DETAIL
SCALE: 3" = 1'-0"



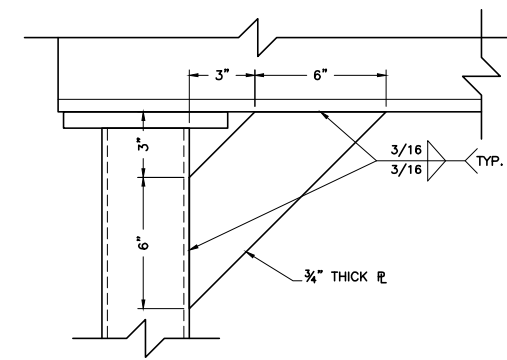
3 HANDRAIL DETAIL
SCALE: 1" = 1'-0"



4 BASE PLATE DETAIL
SCALE: 3" = 1'-0"



5 BEAM CONNECTION DETAIL
SCALE: 3" = 1'-0"



6 GUSSET DETAIL
SCALE: 3" = 1'-0"

NB+C
TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-648-6079

verizonwireless
1831 RADY COURT
RICHMOND, VA 23222

RICHMOND CONVENTION CENTER
416 E. BROAD STREET
RICHMOND, VA 23219
CITY OF RICHMOND

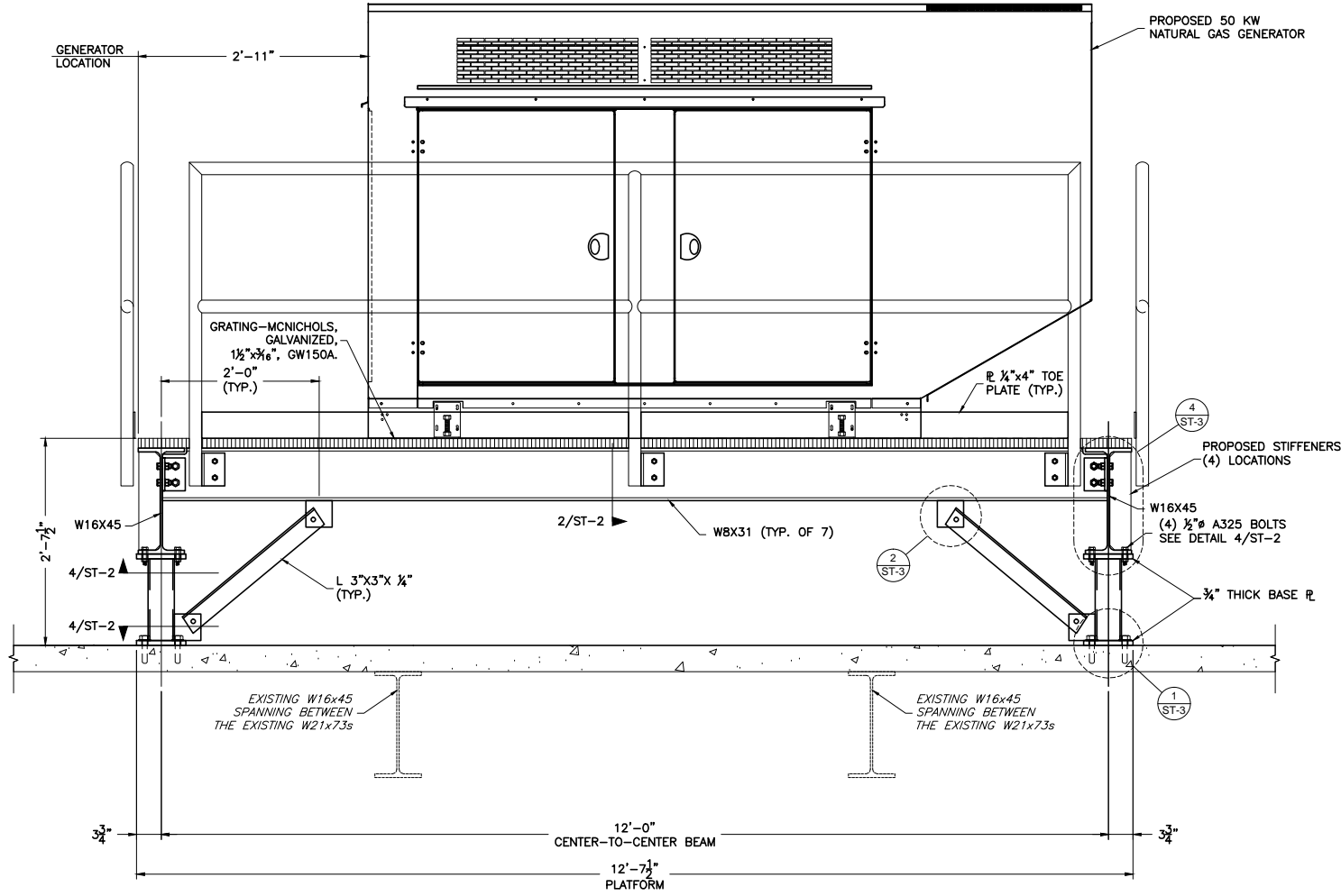
REVISIONS			
REV	DATE	DESCRIPTION	BY
2	06/24/14	FINAL	MEH
1	04/28/14	REVISED	MEH
0	03/14/14	PRELIMINARY	MEH

COMMONWEALTH OF VIRGINIA
TRENT TRAVIS SNARR
Lic. No. 049978
DATE 06/24/14
PROFESSIONAL ENGINEER

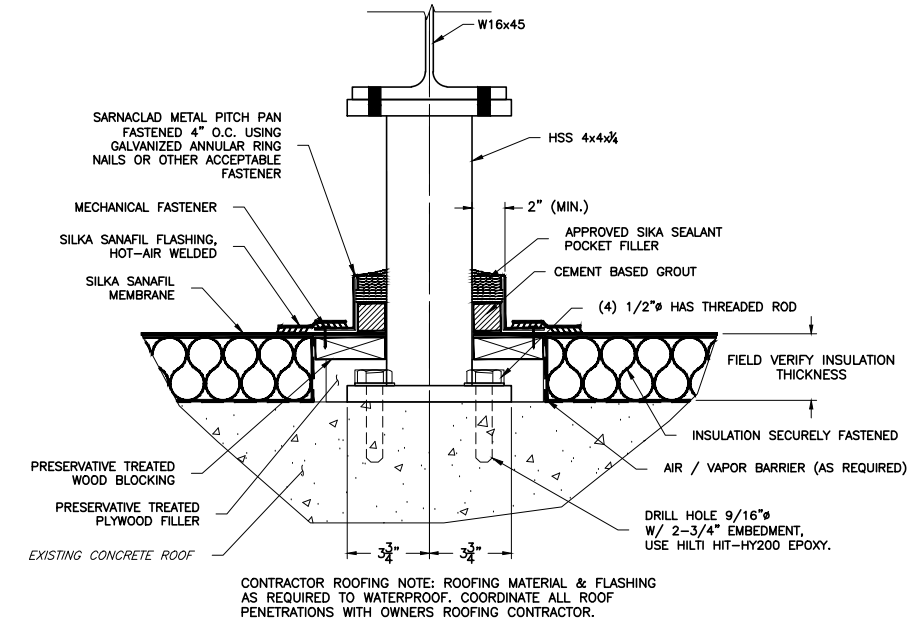
TRENT T. SNARR, P.E.
VA PROFESSIONAL ENGINEER LIC. #49978

GENERATOR PLATFORM DETAILS

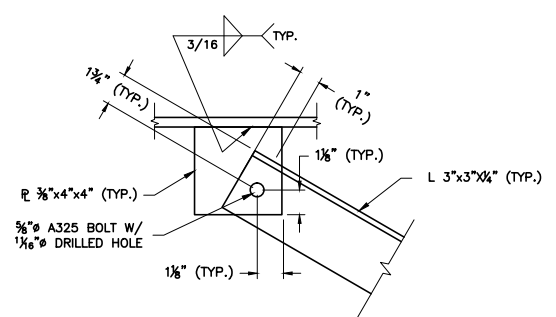
ST-2



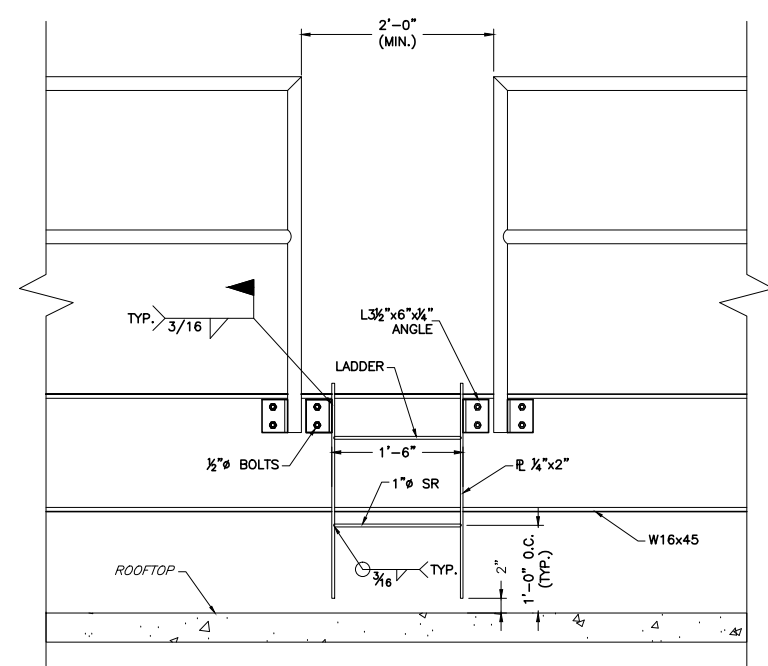
A GENERATOR PLATFORM-SIDE VIEW
SCALE: 1" = 1'-0"



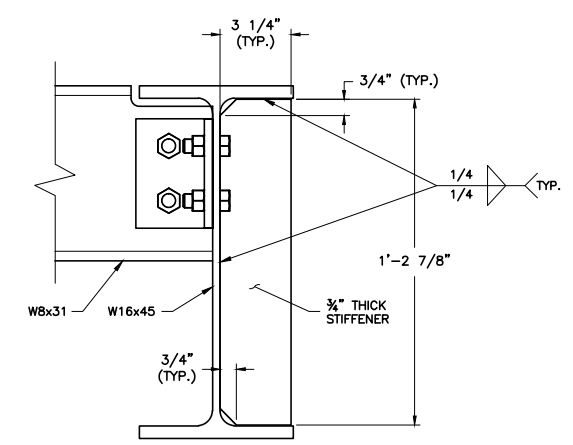
1 PLATFORM FLASHING DETAIL
SCALE: 3" = 1'-0"



2 GUSSET CONNECTION DETAIL (TYP.)
SCALE: 3" = 1'-0"



3 LADDER TO BEAM CONNECTION DETAIL
SCALE: 1" = 1'-0"



4 PROPOSED STIFFENER DETAIL
SCALE: 3" = 1'-0"



NB+C ENGINEERING SERVICES, LLC.
4435 WATERFRONT DRIVE, SUITE 100
GLEN ALLEN, VA 23060
804-648-8079

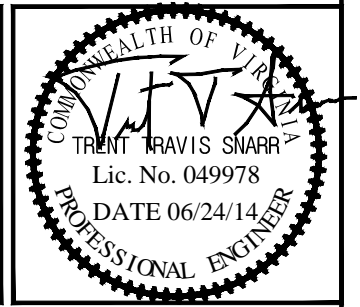


1831 RADY COURT
RICHMOND, VA 23222

RICHMOND CONVENTION CENTER
416 E. BROAD STREET
RICHMOND, VA 23219
CITY OF RICHMOND

REVISIONS

REV	DATE	DESCRIPTION	BY
2	06/24/14	FINAL	MEH
1	04/28/14	REVISED	MEH
0	03/14/14	PRELIMINARY	MEH



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

GENERATOR PLATFORM DETAILS

ST-3