



FOR CONSTRUCTION

PREPARED FOR:  
  
 400 FRIBERG PARKWAY  
 WESTBOROUGH, MA 01581  
 (508) 330-3330 TEL

HUDSON  
 Design Group, LLC  
 1600 OSGOOD STREET  
 BUILDING 20 NORTH, SUITE 3090  
 N. ANDOVER, MA 01845  
 TEL: (978) 557-5553  
 FAX: (978) 336-5586



*Daniel P. Hamon*

# AMESBURY RIVERSIDE MA

## 27 SOUTH HUNT ROAD AMESBURY, MA 01913



VICINITY MAP SCALE: N.T.S.

**DIRECTIONS TO SITE:**  
 GET ON I-495 N FROM FRIBERG PKWY AND MA-9 E/STATE HWY 9  
 E/BOSTON WORCESTER TURNPIKE  
 MERGE ONTO I-495 N TOWARD LOWELL  
 CONTINUE ONTO EXIT 60 (SIGNS FOR ROUTE 286/BEACHES/SALISBURY)  
 MERGE ONTO ROUTE 150 EXT/MA-150N VIA EXIT 54 TOWARD AMESBURY  
 TURN LEFT ONTO SOUTH HUNT ROAD  
 DESTINATION WILL BE ON THE RIGHT.  
 27 SOUTH HUNT ROAD, AMESBURY, MA 01913

**CONSULTANT TEAM**

**PROJECT ENGINEER**  
 HUDSON DESIGN GROUP, LLC  
 1600 OSGOOD STREET  
 BUILDING 20 NORTH, SUITE 3090  
 NORTH ANDOVER, MA 01845  
 TEL: 1-(978)-557-5553  
 FAX: 1-(978)-336-5586

**MEP ENGINEER**  
 HUDSON DESIGN GROUP, LLC  
 1600 OSGOOD STREET  
 BUILDING 20 NORTH, SUITE 3090  
 NORTH ANDOVER, MA 01845  
 TEL: 1-(978)-557-5553  
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**PROJECT SUMMARY**

**SITE NAME:** AMESBURY RIVERSIDE MA  
**SITE ADDRESS:** 27 SOUTH HUNT ROAD  
 AMESBURY, MA 01913  
**APPLICANT:** VERIZON WIRELESS  
 400 FRIBERG PARKWAY  
 WESTBOROUGH, MA 01581

**ZONING DISTRICT:** I - INDUSTRIAL  
**ZONING JURISDICTION:** CITY OF AMESBURY, MA  
**LATITUDE:** N 42° 50' 06.27"  
**LONGITUDE:** W 70° 57' 09.52"  
**PARCEL ID:** MAP 96 LOT 8  
**PROPERTY OWNER:** NOEL, ROY A & KIMBERLY R LOWELL  
 TRUSTEES A NOEL ROY LIVING TRU  
 119 MAIN AVENUE  
 S HAMPTON, NH 03827

**SHEET INDEX**

SHEET NO.	DESCRIPTION
T-1	TITLE SHEET
C-1	PLOT PLAN
A-1	COMPOUND PLAN
A-2	WEST ELEVATION
A-3	ANTENNA PLAN & DETAILS
A-4	DETAILS
S-1	STRUCTURAL NOTES
S-2	STRUCTURAL DETAILS
E-1	ELECTRICAL/ GROUNDING RISER DIAGRAM
E-2	ELECTRICAL/ GROUNDING PLAN AND NOTES
E-3	ELECTRICAL/ GROUNDING DETAILS
RF-1	RF COLOR CODE
RF-2	RF ANTENNA DESIGN
RF-3	RF ANTENNA DESIGN

CHECKED BY: JX

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
0	02/10/16	FOR CONSTRUCTION	CP

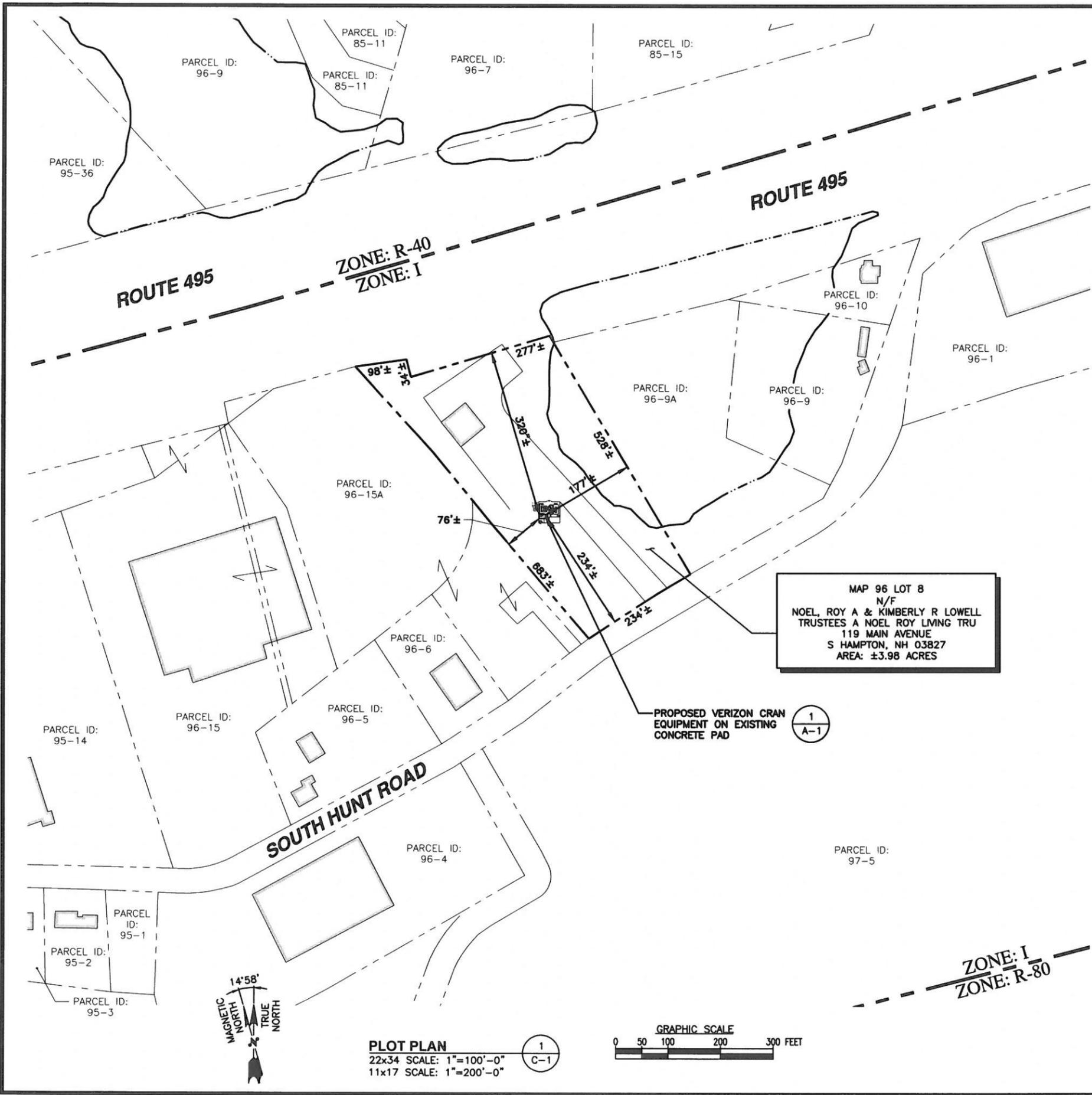
**SITE NAME:**  
AMESBURY  
RIVERSIDE MA

**SITE ADDRESS:**  
27 SOUTH HUNT RD  
AMESBURY, MA 01913

**SHEET TITLE**  
TITLE SHEET

**SHEET NUMBER**  
T-1

**DIG SAFE**  
 3 WORKING DAYS  
 BEFORE YOU DIG  
 CALL TOLL FREE 888-DIG-SAFE  
 UNDERGROUND SERVICE ALERT



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 N. ANDOVER, MA 01845 FAX: (978) 336-5386

**SOURCE:**  
 CITY OF AMESBURY MASS ASSESSOR MAPS AND GIS ONLINE MAPS

**SITE SPECIFIC NOTES:**

1. SITE SURVEY HAS NOT BEEN CONDUCTED BY HUDSON DESIGN GROUP, LLC FOR THIS PROJECT. ALL SETBACKS SHOWN ON THIS PLAN ARE TAKEN FROM TIP OF PROPOSED ANTENNAS TO PROPERTY LINES AND ARE APPROXIMATE.
2. VERIFY AZIMUTHS W/ RF ENGINEER.
3. PROPERTY LINE INFORMATION IS COMPILED FROM ASSESSORS PLAN AND RECORD DOCUMENTS AND IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. A FULL BOUNDARY SURVEY WAS NOT PERFORMED.



**ZONES:**

I	INDUSTRIAL
R-40	RESIDENTIAL 40K
R-80	RESIDENTIAL 80K

CHECKED BY: JX  
 APPROVED BY: DPH

**LEGEND:**

	PROPERTY LINE - SUBJECT PARCEL
	PROPERTY LINE - ABUTTERS
	ZONING BOUNDARY LINE
	WATER LINE
	EXISTING BUILDING

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
0	02/10/16	FOR CONSTRUCTION	CP

**ZONING INFORMATION:**

JURISDICTION: CITY OF AMESBURY, MA

ZONING DISTRICT TYPE: I INDUSTRIAL

DIMENSION REQUIREMENTS:	REQUIRED	PROP.±
MINIMUM LOT AREA:	40,000 sf	N/A
MINIMUM LOT FRONTAGE:	125 ft	234'±
FRONT YARD SETBACK:	25 ft	234'±
SIDE YARD SETBACK:	20 ft	76'± & 177'±
REAR YARD SETBACK:	40 ft	320'±
MAXIMUM BUILDING HEIGHT:	40 ft	N/A

(ALL MEASUREMENTS ARE IN FEET ± UNLESS OTHERWISE NOTED)

SITE NAME:  
 AMESBURY  
 RIVERSIDE MA

SITE ADDRESS:  
 27 SOUTH HUNT RD  
 AMESBURY, MA 01913

SHEET TITLE  
 PLOT PLAN

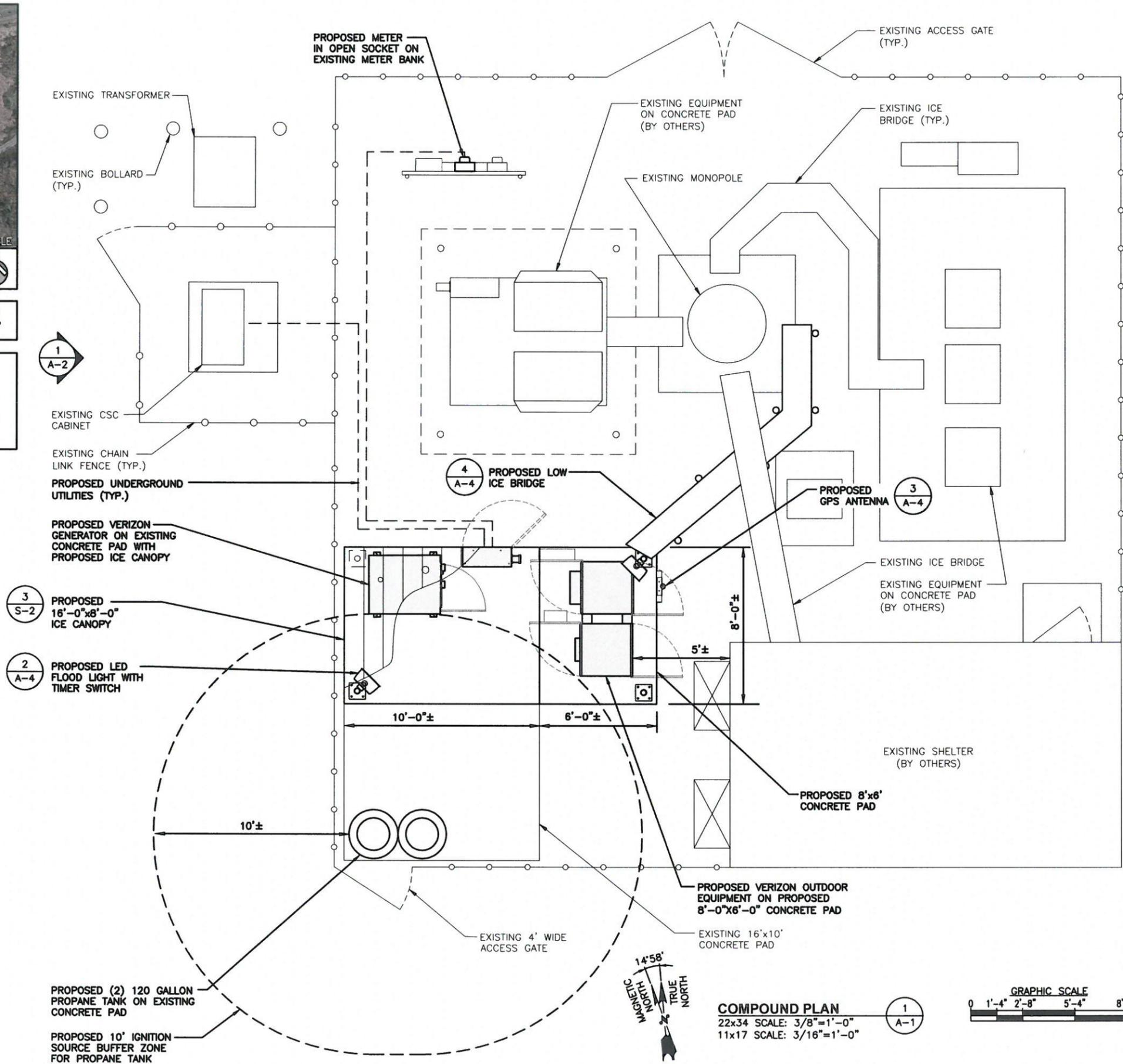
SHEET NUMBER  
 C-1



**VICINITY MAP**  
SCALE: N.T.S.

APPROXIMATE COORDINATES: LAT: N 42° 50' 06.27" LONG: W 70° 57' 09.52"

**NOTE:**  
AN ANALYSIS OF THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THE PROPOSED LOADING HAS NOT BEEN COMPLETED BY HUDSON DESIGN GROUP, L.L.C. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF A STRUCTURAL ANALYSIS.



**FOR CONSTRUCTION**

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 N. ANDOVER, MA 01845  
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*Daniel P. Hamon*

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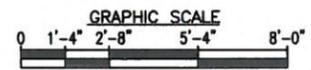
SITE NAME:  
**AMESBURY  
 RIVERSIDE MA**

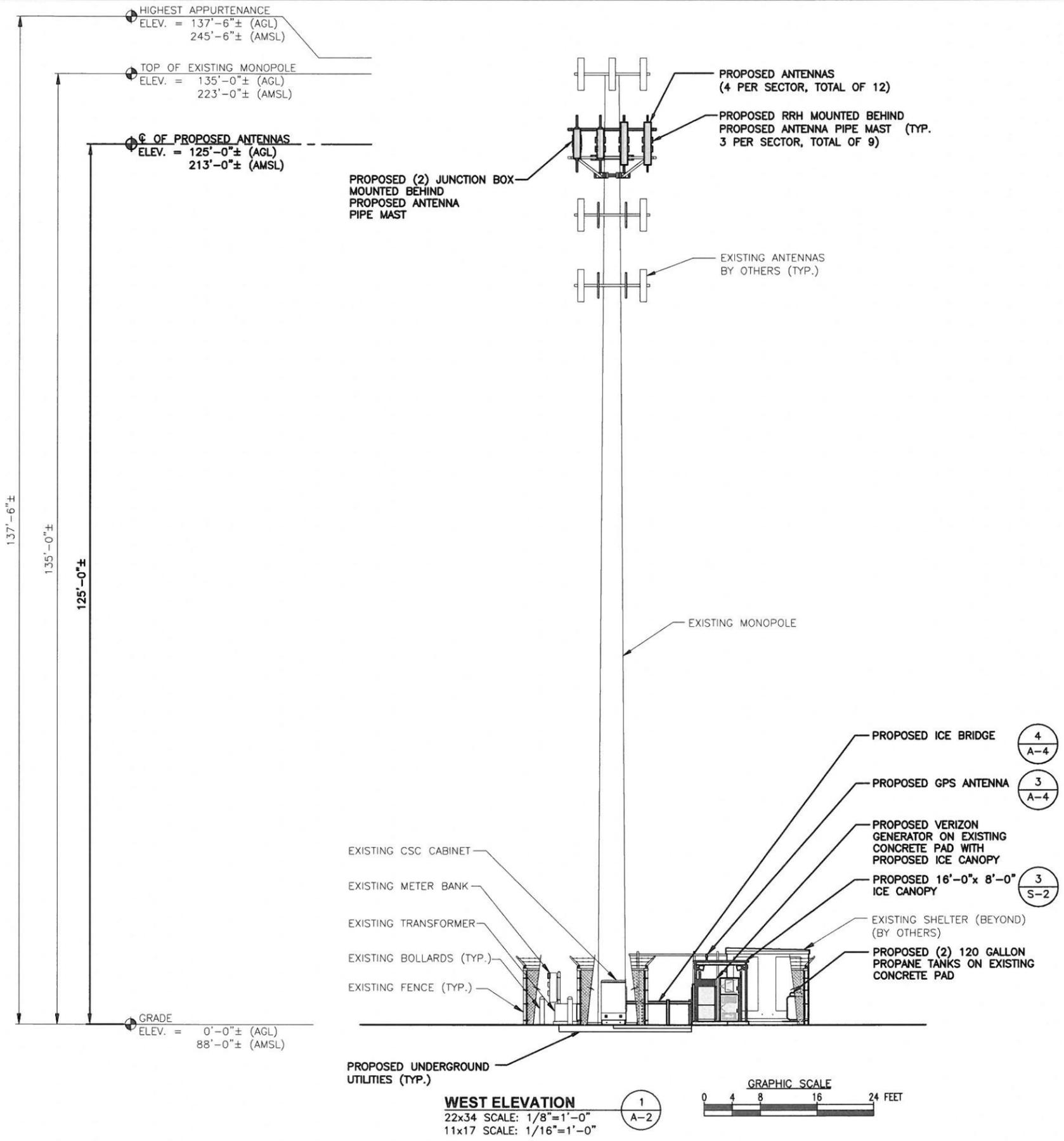
SITE ADDRESS:  
 27 SOUTH HUNT RD  
 AMESBURY, MA 01913

SHEET TITLE  
**COMPOUND PLAN**

SHEET NUMBER  
**A-1**

**COMPOUND PLAN**  
 22x34 SCALE: 3/8"=1'-0"  
 11x17 SCALE: 3/16"=1'-0"





APPROXIMATE COORDINATES: LAT: N 42° 50' 06.27" LONG: W 70° 57' 09.52"

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**PROPOSED ANTENNA INFORMATION**

SECTOR	STATUS	AZIMUTH	CABLE LENGTH
1	PROPOSED	0°	185'
2	PROPOSED	100°	185'
3	PROPOSED	250°	185'

NOTE: CABLE LENGTH = EXACT LENGTH PLUS 25'

FOR CONSTRUCTION

PREPARED FOR:

400 FRIBERG PARKWAY  
WESTBOROUGH, MA 01581  
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Hudson Design Group, LLC

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SITE NAME:  
**AMESBURY  
RIVERSIDE MA**

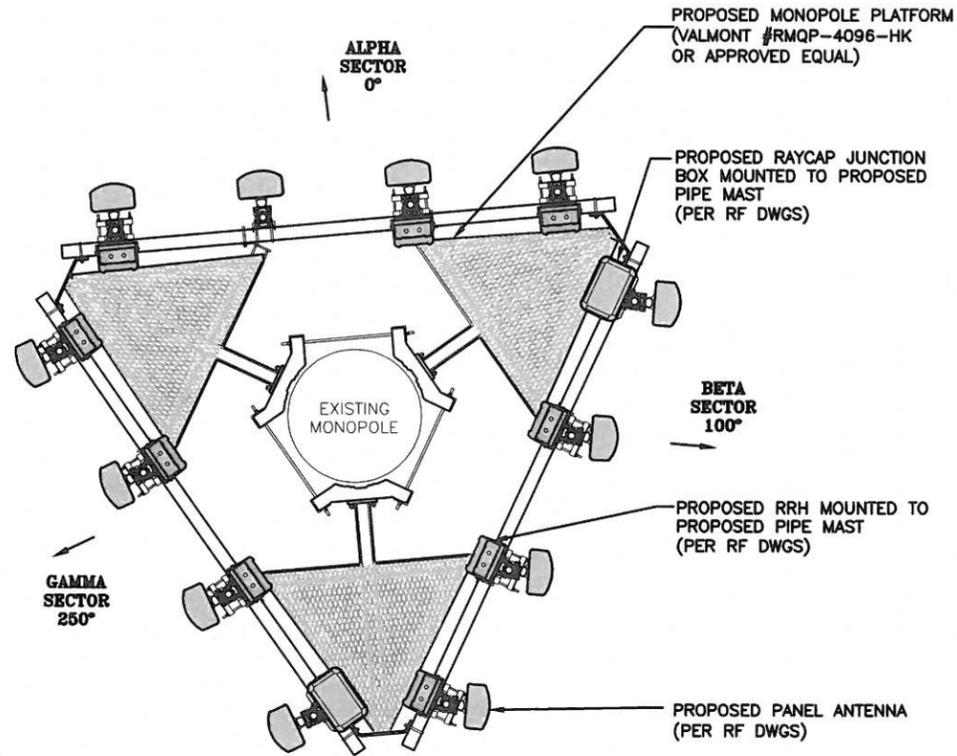
SITE ADDRESS:  
27 SOUTH HUNT RD  
AMESBURY, MA 01913

SHEET TITLE  
**WEST ELEVATION**

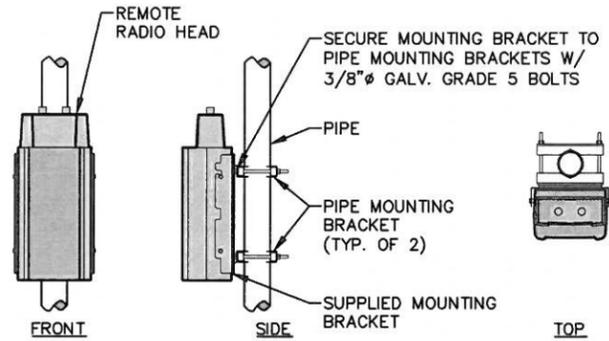
SHEET NUMBER  
**A-2**

**WEST ELEVATION**  
22x34 SCALE: 1/8"=1'-0"  
11x17 SCALE: 1/16"=1'-0"

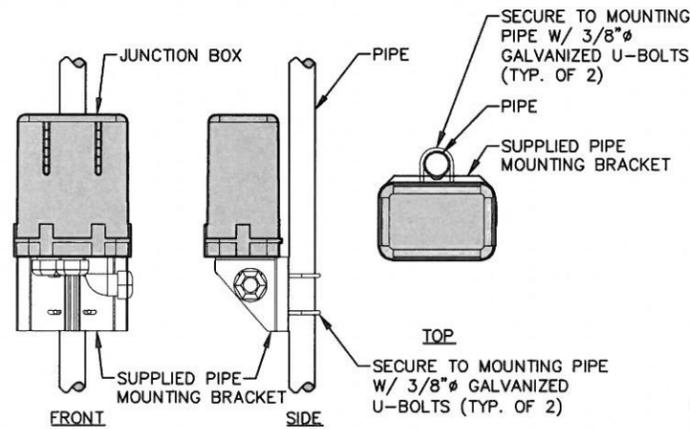
**NOTE:**  
CONTRACTOR SHALL ADJUST MOUNTING LOCATION OF RRH'S & JUNCTION BOXES AS REQUIRED TO AVOID OBSTRUCTING EXISTING CLIMBING LADDER/PEGS.



**ANTENNA, RRH & JUNCTION BOX PLAN** 1  
SCALE: N.T.S. A-3



**REMOTE RADIO HEAD** 2  
22x34 SCALE: N.T.S. A-3

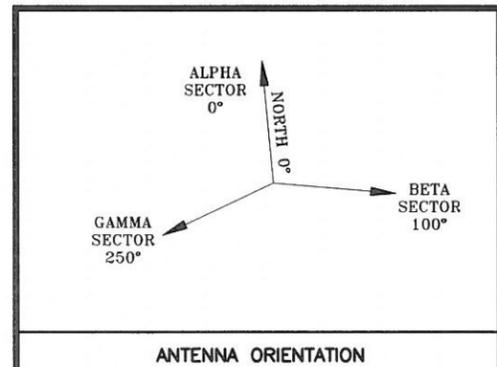


**JUNCTION BOX** 3  
22x34 SCALE: N.T.S. A-3

**NOTE:**  
CONTRACTOR SHALL ADJUST MOUNTING LOCATION OF RRH'S & JUNCTION BOXES AS REQUIRED TO AVOID OBSTRUCTING EXISTING CLIMBING LADDER/PEGS.

- NOTE:**
1. VERIFY AZIMUTHS W/ RF ENGINEER.
  2. EQUIPMENT SHELTER DESIGN PROVIDED BY OTHERS.

**NOTE:**  
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ANTENNA ORIENTATION

**FOR CONSTRUCTION**

PREPARED FOR:  
**Verizon wireless**  
400 FRIBERG PARKWAY  
WESTBOROUGH, MA 01581  
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COMMONWEALTH OF MASSACHUSETTS  
DANIEL P. HAMM  
REGISTERED PROFESSIONAL ENGINEER  
No. 40720

*Daniel P. Hamm*

CHECKED BY: JX

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
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RIVERSIDE MA**

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SHEET TITLE  
**ANTENNA PLAN &  
DETAILS**

SHEET NUMBER  
**A-3**

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SHEET TITLE  
**DETAILS**

SHEET NUMBER  
**A-4**



**INTERMATIC WP1220C**

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

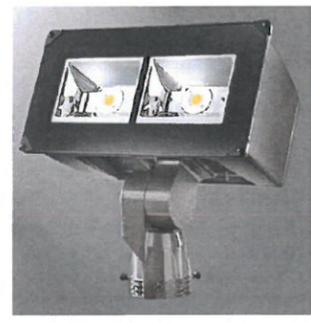
OR APPROVED EQUIVALENT



**INTERMATIC FF6H**

TIME CYCLE: 6 HOURS  
SWITCH: SPST  
HOLD: NO

OR APPROVED EQUIVALENT

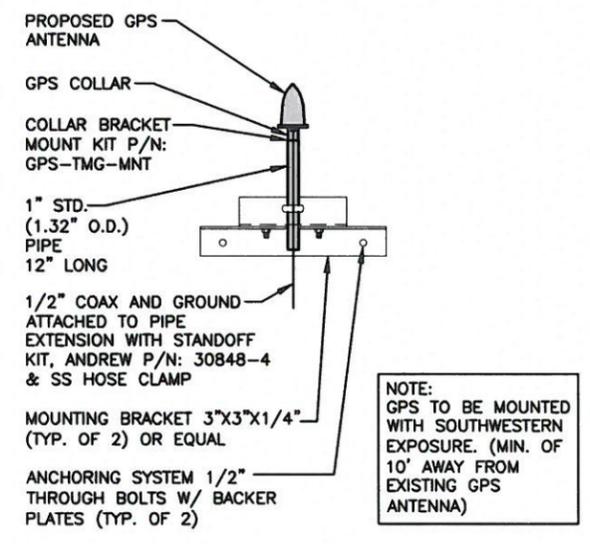


**COOPER LIGHTING NFFLD NIGHT FALCON**  
NFFLD-A25-E-UNV-66-S-BK  
SLIPFITTER MOUNT AND VANDAL SHIELD

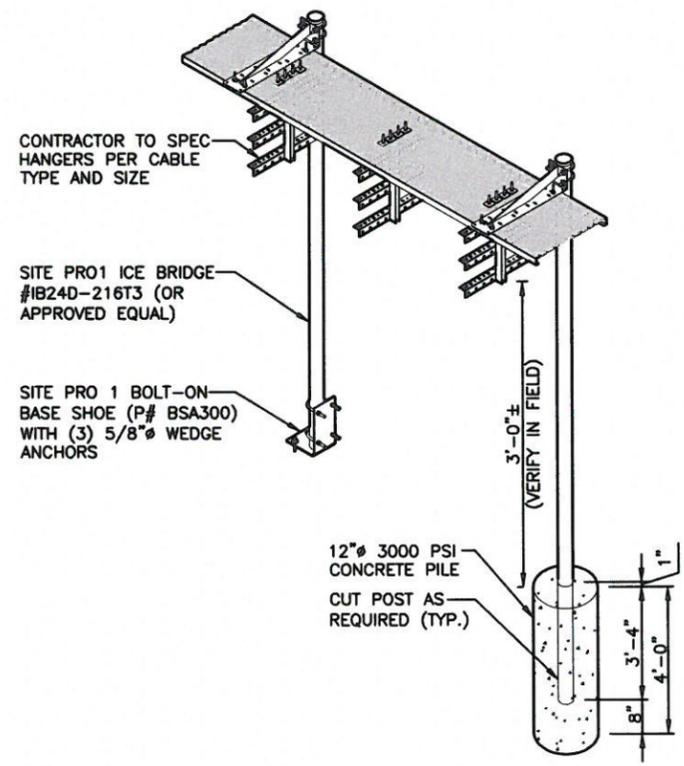
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

**SWITCH DETAIL** 1  
SCALE: N.T.S. A-4

**EXTERIOR LED FLOOD LIGHT DETAIL** 2  
SCALE: N.T.S. A-4



**GPS MOUNTING DETAIL** 3  
22x34 SCALE: N.T.S. A-4



**ICE BRIDGE DETAIL** 4  
22x34 SCALE: N.T.S. A-4

- STRUCTURAL NOTES:**
- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE (IBC 2009), ASCE 7-05, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
  - CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
  - DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
  - STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
  - STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
  - STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
  - ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
  - ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
  - FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
  - CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION.
  - INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
  - UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
  - EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND AN EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-20 AND OR HY-150 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
  - EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-5-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
  - LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
  - WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
  - ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
  - NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
  - SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

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

- NOTES:**
- REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
  - PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
  - PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
  - HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C.D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
  - AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

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

**SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):**  
 GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

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

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

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

**REQUIRED INSPECTIONS AND SITE REVIEW DOCUMENT AS A CONDITION OF THE BUILDING PERMIT THE FOLLOWING INSPECTIONS AND SITE REVIEWS IDENTIFIED BY THE BUILDING OFFICIAL ARE REQUIRED FOR WORK PER THE 8TH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE, 780 CMR, SECTION 110 AND CHAPTER 17**

REQUIRED SITE REVIEW AND DOCUMENTATION FOR PORTIONS OR PHASES CONSTRUCTION 1,6,7 (TO BE PERFORMED BY THE APPROPRIATE REGISTERED DESIGN PROFESSIONAL OR HIS/HER DESIGNEE OR M.G.L.C 112 §81R CONTRACTOR)			
SITE REVIEW AND DOCUMENTATION	X	SITE REVIEW AND DOCUMENTATION	X
SOIL CONDITION/ANALYSIS/REPORT		ENERGY EFFICIENCY REQUIREMENTS	
FOOTING AND FOUNDATION (INCLUDING REINFORCEMENT AND FOUNDATION ATTACHMENT)		FIRE ALARM INSTALLATION <sup>2</sup>	
CONCRETE FLOOR AND UNDER FLOOR		FIRE SUPPRESSION INSTALLATION <sup>3</sup>	
LOWEST FLOOR FLOOD ELEVATION		FIELD REPORTS <sup>5</sup>	
STRUCTURAL FRAME - WALL/FLOOR/ROOF	X	CARBON MONOXIDE DETECTION SYSTEM <sup>4</sup>	
LATH AND PLASTER/GYPSUM		SEISMIC REINFORCEMENT	
FIRE RESISTANT WALL/PARTITIONS FRAMING		SMOKE CONTROL SYSTEMS	
FIRE RESISTANT WALL/PARTITIONS FINISH ATTACHMENTS		SMOKE AND HEAT VENTS	
ABOVE CEILING INSPECTION		ACCESSIBILITY (521 CMR)	
FIRE BLOCKING/STOPPING SYSTEM		OTHER:	
EMERGENCY LIGHTING/EXIT SIGNAGE			
MEANS OF EGRESS COMPONENTS		SPECIAL INSPECTIONS (SECTION 1704): -CHANNEL REINFORCEMENT -STEEL STUB-UP INSTALLATION SUPPORTING PLATFORM. (ROOF)	X
ROOFING, COPING/SYSTEM			
VENTING SYSTEMS (KITCHEN, CHEMICAL, FUME)			
MECHANICAL SYSTEMS			

- IT IS THE RESPONSIBILITY OF THE PERMIT APPLICANT TO NOTIFY THE BUILDING OFFICIAL OF REQUIRED INSPECTIONS (X). INSPECTION OF 780 CMR FIRE PROTECTION SYSTEMS MAY BE WITNESSED BY THE FIRE OFFICIAL AND INSTALLATION PERMITS ARE REQUIRED FROM THE FIRE DEPARTMENT PER 527 CMR.
- INCLUDE NFPA 72 TEST AND ACCEPTANCE DOCUMENTATION
- INCLUDE APPLICABLE NFPA 13, 13R, 13D, 14, 15, 17, 20, 241, ETC. - TEST AND ACCEPTANCE DOCUMENTATION
- INCLUDE NFPA 720 RECORD OF COMPLETION AND INSPECTION AND TEST FORM
- INCLUDE FIELD REPORTS AND RELATED DOCUMENTATION
- WORK SHALL NOT PROCEED, OR BE CONCEALED, UNTIL THE REQUIRED INSPECTION HAS BEEN APPROVED BY THE BUILDING OFFICIAL, AND NOTHING WITHIN CONSTRUCTION CONTROL SHALL HAVE THE EFFECT OF WAIVING OR LIMITING THE BUILDING OFFICIAL'S AUTHORITY TO ENFORCE THIS CODE WITH RESPECT TO EXAMINATION OF THE CONTRACT DOCUMENTS, INCLUDING PLANS, COMPUTATIONS AND SPECIFICATIONS, AND FIELD INSPECTIONS.
- ROUGH AND/OR FINISH INSPECTIONS OF ELECTRICAL, PLUMBING, OR SHEET METAL SHALL BE INSPECTED PRIOR TO ROUGH AND FINISH INSPECTIONS BY THE BUILDING OFFICIAL.

**MASSACHUSETTS AMENDMENTS TO THE IBC (REFERENCE 780 CMR):**  
 107.6.1 GENERAL. THIS SECTION SHALL APPLY TO THE CONSTRUCTION CONTROLS, PROFESSIONAL SERVICES AND CONTRACTOR SERVICES REQUIRED FOR BUILDINGS AND STRUCTURES NEEDING REGISTERED DESIGN PROFESSIONAL SERVICES. THE FOLLOWING STRUCTURES ARE EXEMPT FROM THE REQUIREMENTS OF THIS SECTION: ANY BUILDING CONTAINING LESS THAN 35,000 CUBIC FEET OF ENCLOSED SPACE, MEASURED TO THE EXTERIOR SURFACES OF WALLS AND ROOFS AND TO THE TOP OF A GROUND SUPPORTED FLOOR, OR IN THE CASE OF A CRAWL SPACE, TO THE BOTTOM SURFACE OF THE CRAWL SPACE. IN THE CASE OF BASEMENT FLOORS OR LEVELS, THE CALCULATION OF ENCLOSED SPACE SHALL INCLUDE SUCH SPACES. FOR ADDITIONS TO EXISTING BUILDINGS, THE VOLUME OF ENCLOSED SPACE SHALL INCLUDE THE ENTIRE EXISTING BUILDING AND ALL PROPOSED ADDITIONS.

- ANY ONE OR TWO FAMILY DWELLING OR ANY ACCESSORY BUILDING THERE TO.
- ANY BUILDING USED EXCLUSIVELY FOR AGRICULTURAL PURPOSES. SEE APPENDIX C FOR OCCUPANCY AND OTHER LIMITATIONS.
- RETAINING WALLS LESS THAN TEN FEET IN HEIGHT AT ALL POINTS ALONG THE WALL AS MEASURED FROM THE BASE OF THE FOOTING TO THE TOP OF THE WALL.

NOTWITHSTANDING THESE EXEMPTIONS, PROFESSIONAL ENGINEERING SERVICES SHALL BE REQUIRED FOR ACTIVITIES WHICH ARE DEEMED TO CONSTITUTE THE PRACTICE OF ENGINEERING AS DEFINED IN M.G.L. C. 112, § 81D, EXCEPT AS PROVIDED IN M.G.L. C. 54A AND ANY LEGALLY REQUIRED PROFESSION OR AS PROVIDED IN M.G.L. C. 112, § 81R. WHERE WORK IS PERFORMED BY LICENSED TRADES PEOPLE PURSUANT TO M.G.L. C. 112, § 81R, PLANS AND SPECIFICATIONS PREPARED TO DOCUMENT THAT WORK SHALL NOT BE REQUIRED TO BEAR THE SEAL OR SIGNATURE OF A REGISTERED DESIGN PROFESSIONAL.

107.6.1.1 SPECIALIZED STRUCTURES. TELECOMMUNICATION TOWERS, WIND TURBINE TOWERS, AND SIMILAR STRUCTURES ARE ENGINEERED STRUCTURES AND SHALL BE SUBJECT TO THE REQUIREMENTS OF SECTION 107.6.

107.6.2.2 CONSTRUCTION. THE REGISTERED DESIGN PROFESSIONALS WHO ARE RESPONSIBLE FOR THE DESIGN, PLANS, CALCULATIONS, AND SPECIFICATIONS, THEIR DESIGNEE OR THE REGISTERED DESIGN PROFESSIONALS WHO HAVE BEEN RETAINED FOR CONSTRUCTION PHASE SERVICES, SHALL PERFORM THE FOLLOWING TASKS:

- REVIEW, FOR CONFORMANCE TO THIS CODE AND THE DESIGN CONCEPT, SHOP DRAWINGS, SAMPLES AND OTHER SUBMITTALS BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS.
- PERFORM THE DUTIES FOR REGISTERED DESIGN PROFESSIONALS IN CHAPTER 17.
- BE PRESENT AT INTERVALS APPROPRIATE TO THE STAGE OF CONSTRUCTION TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK AND TO DETERMINE IF THE WORK IS BEING PERFORMED IN A MANNER CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND THIS CODE.

THE PERMIT APPLICATION SHALL NOT BE DEEMED COMPLETED UNTIL ALL OF THE CONSTRUCTION DOCUMENTS REQUIRED BY THIS CODE HAVE BEEN SUBMITTED. DOCUMENTATION INDICATING THAT WORK COMPLIES WITH THE PLANS AND SPECIFICATIONS SHALL BE PROVIDED AT THE COMPLETION OF EACH PHASE WHEN REQUIRED BY THE BUILDING OFFICIAL.

107.6.3 CONSTRUCTION CONTRACTOR SERVICES. THE ACTUAL CONSTRUCTION OF THE WORK SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AS IDENTIFIED ON THE APPROVED BUILDING PERMIT AND SHALL INVOLVE THE FOLLOWING:

- EXECUTION OF ALL WORK IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
- EXECUTION AND CONTROL OF ALL METHODS OF CONSTRUCTION IN A SAFE AND SATISFACTORY MANNER IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL STATUTES AND REGULATIONS.
- UPON COMPLETION OF THE CONSTRUCTION, CERTIFICATION IN WRITING TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE THAT, TO THE BEST OF THE CONTRACTOR'S KNOWLEDGE AND BELIEF, CONSTRUCTION HAS BEEN DONE IN SUBSTANTIAL ACCORD WITH SECTION 107.6 AND WITH ALL PERTINENT DEVIATIONS SPECIFICALLY NOTED. THE BUILDING OFFICIAL MAY REQUIRE A COPY OF THIS CERTIFICATION.

107.6.4 ON SITE PROJECT REPRESENTATION. WHEN APPLICATIONS FOR UNUSUAL DESIGNS OR MAGNITUDE OF CONSTRUCTION ARE FILED, OR WHERE REFERENCE STANDARDS REQUIRE SPECIAL ARCHITECTURAL OR ENGINEERING INSPECTIONS, THE BUILDING OFFICIAL MAY REQUIRE FULLTIME PROJECT REPRESENTATION BY A REGISTERED ARCHITECT OR PROFESSIONAL ENGINEER IN ADDITION TO THAT PROVIDED IN SECTION 107.6. THE PROJECT REPRESENTATIVE SHALL KEEP DAILY RECORDS AND SUBMIT REPORTS AS MAY BE REQUIRED BY THE BUILDING OFFICIAL. UPON COMPLETION OF THE WORK, THE REGISTERED DESIGN PROFESSIONAL SHALL FILE A FINAL REPORT INDICATING THAT THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS AND THIS CODE. THIS ON SITE PROJECT REPRESENTATION REQUIREMENT SHALL BE DETERMINED PRIOR TO THE ISSUANCE OF THE BUILDING PERMIT AND SHALL BE A REQUISITE FOR THE PERMIT ISSUANCE. REFUSAL BY THE APPLICANT TO PROVIDE SUCH SERVICE SHALL RESULT IN THE DENIAL OF THE PERMIT. ALL FEES AND COSTS RELATED TO THE PERFORMANCE OF ONSITE PROJECT REPRESENTATION SHALL BE BORNE BY THE OWNER.

PREPARED FOR:

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WESTBOROUGH, MA 01581  
(508) 330-3330 TEL

1600 OSGOOD STREET  
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N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586



CHECKED BY: JX

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
0	02/10/16	FOR CONSTRUCTION	CP

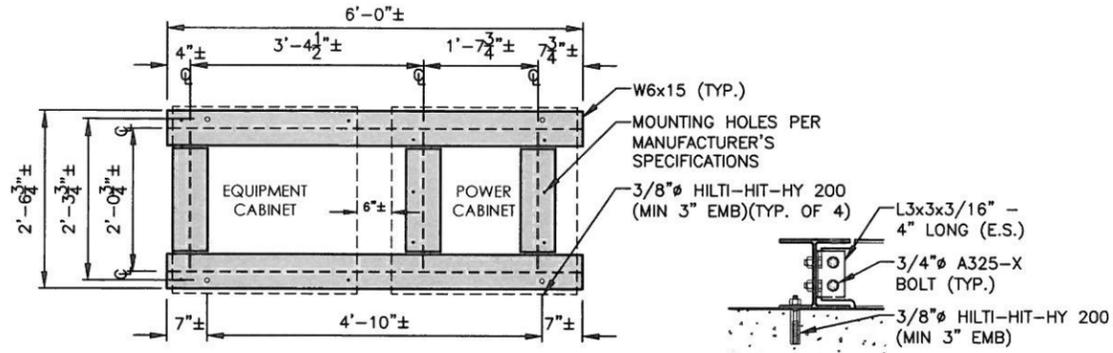
SITE NAME:  
**AMESBURY  
 RIVERSIDE MA**

SITE ADDRESS:  
 27 SOUTH HUNT RD  
 AMESBURY, MA 01913

SHEET TITLE  
**STRUCTURAL NOTES**

SHEET NUMBER  
**S-1**

**FOR CONSTRUCTION**

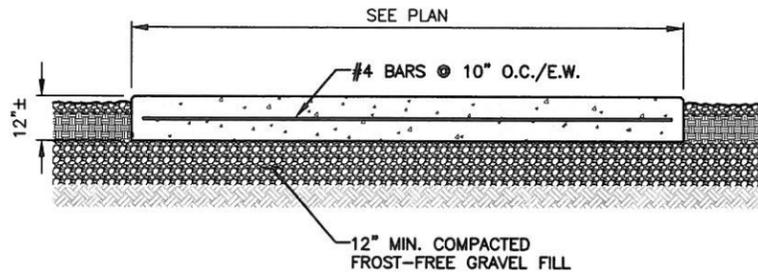


NOTE:  
CONTRACTOR TO ADD GRATING IF  
ONLY INSTALLING 1 CABINET.

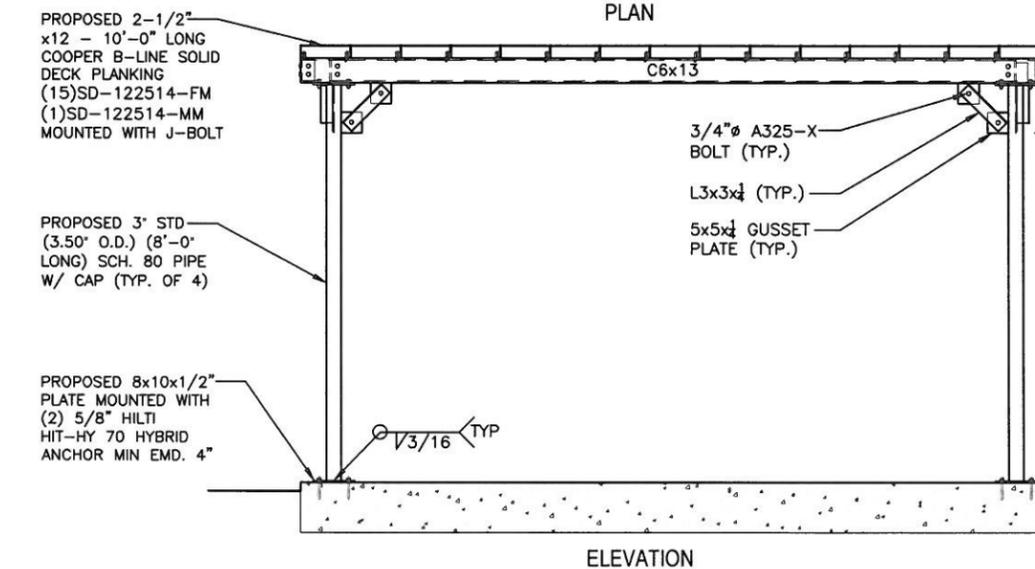
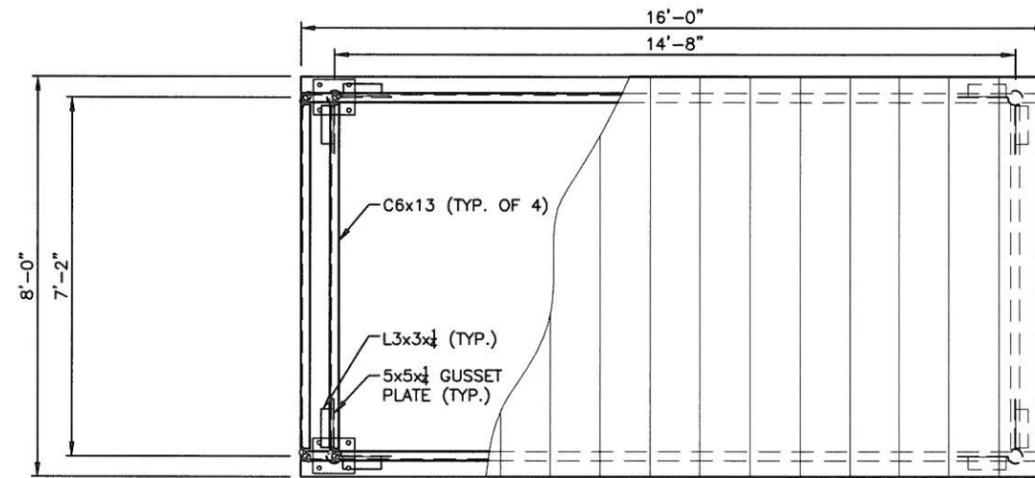
**EQUIPMENT PLATFORM DETAIL** 1  
SCALE: N.T.S. S-2

**FOUNDATION NOTES & CONCRETE SPECIFICATIONS:**

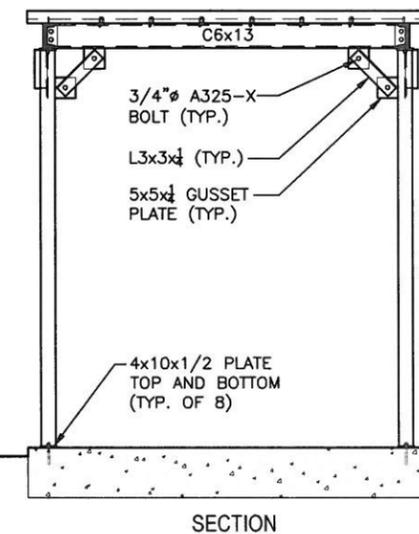
- FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES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



**CONCRETE PAD DETAIL** 2  
22x34 SCALE: N.T.S. S-2



**ICE CANOPY DETAIL** 3  
22x34 SCALE: N.T.S. S-2



*Daniel P. Hamon*



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APPROVED BY: DPH

SUBMITTALS			
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SITE NAME:  
**AMESBURY  
RIVERSIDE MA**

SITE ADDRESS:  
27 SOUTH HUNT RD  
AMESBURY, MA 01913

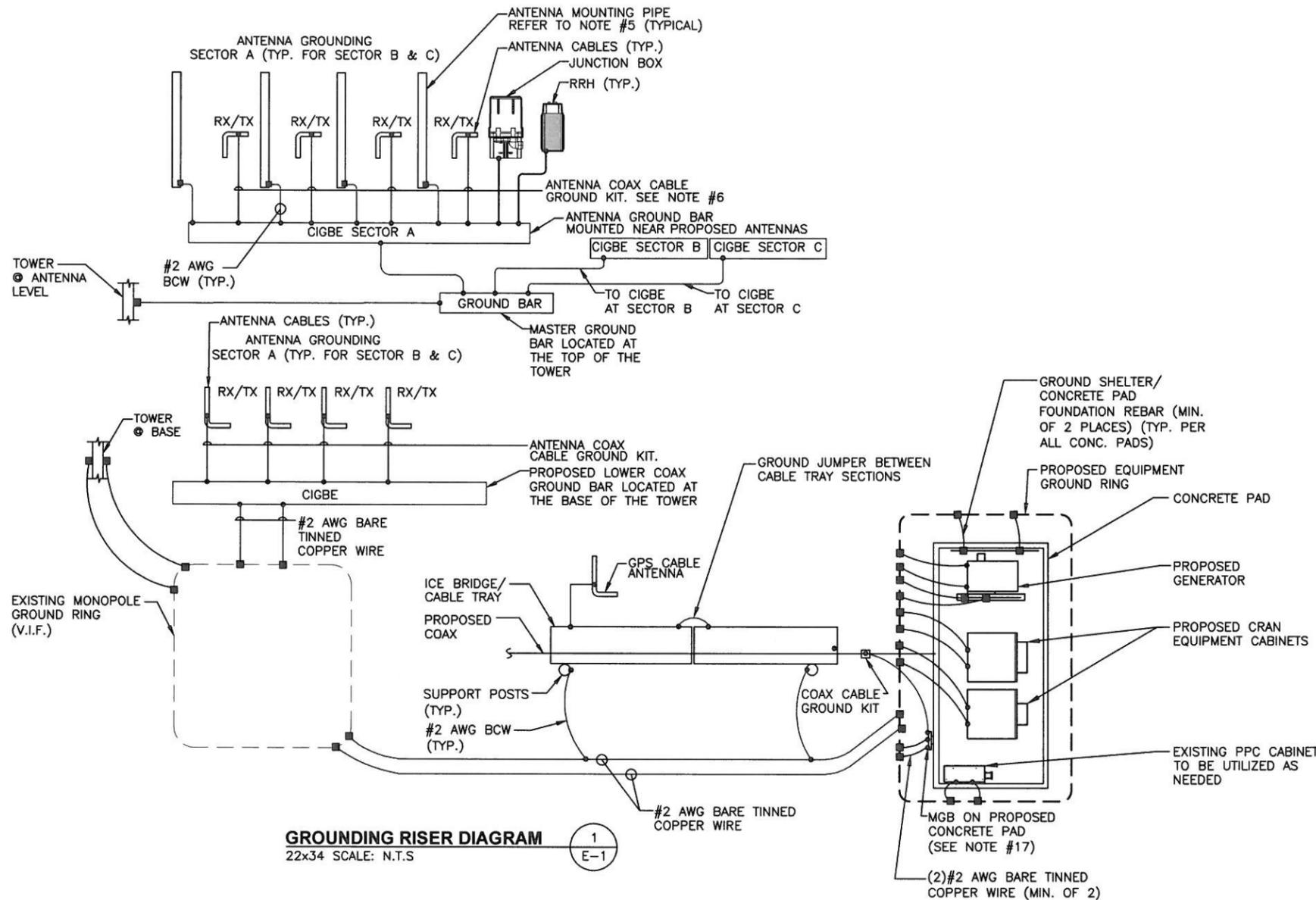
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**STRUCTURAL DETAILS**

SHEET NUMBER  
**S-2**

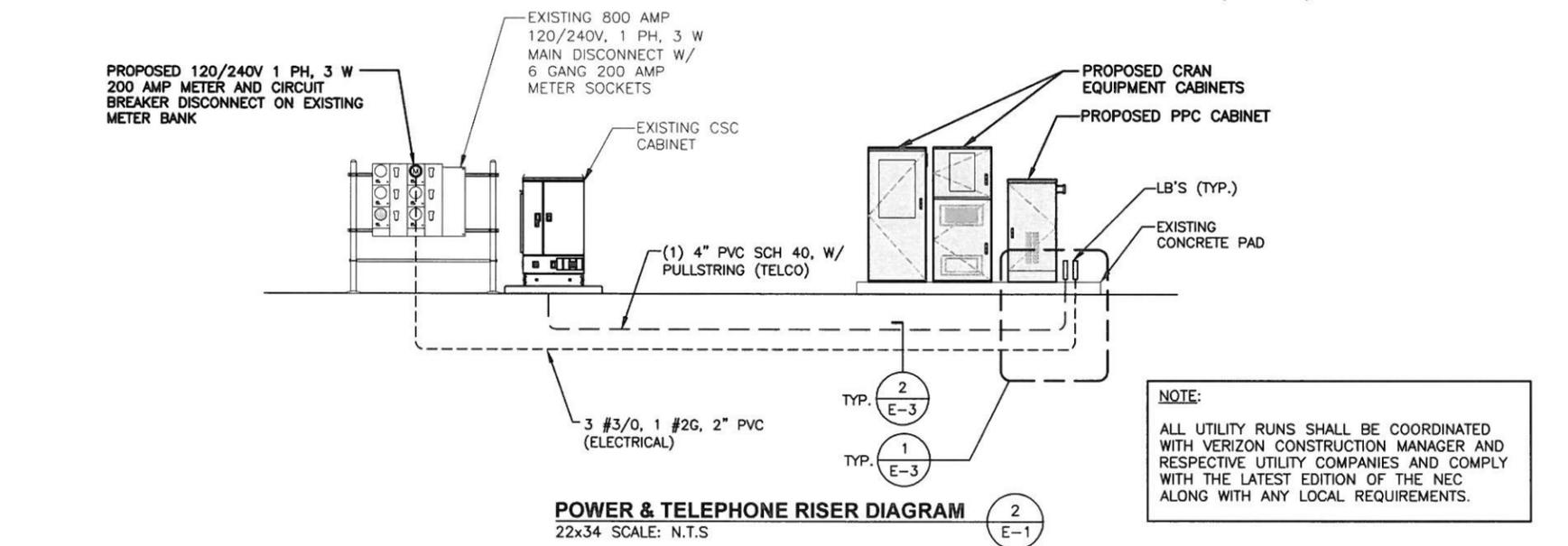
**FOR CONSTRUCTION**

PREPARED FOR:  
**verizonwireless**  
400 FRIBERG PARKWAY  
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(508) 330-3330 TEL

**Hudson Design Group LLC**  
1600 OSGOOD STREET  
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**GROUNDING RISER DIAGRAM**  
22x34 SCALE: N.T.S. 1 E-1

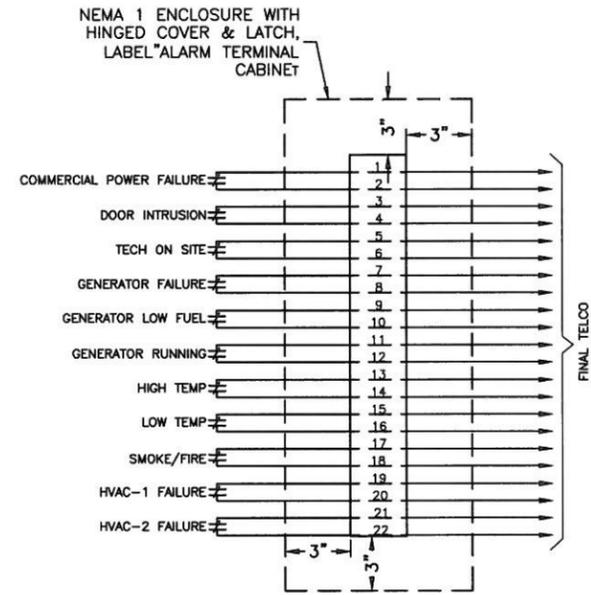


**POWER & TELEPHONE RISER DIAGRAM**  
22x34 SCALE: N.T.S. 2 E-1

**NOTE:**  
ALL UTILITY RUNS SHALL BE COORDINATED WITH VERIZON CONSTRUCTION MANAGER AND RESPECTIVE UTILITY COMPANIES AND COMPLY WITH THE LATEST EDITION OF THE NEC ALONG WITH ANY LOCAL REQUIREMENTS.

- NOTES:**
1. **TERMINATIONS:** TERMINATIONS TO THE ALARM STRIP WILL HAVE CRIMP ON BLOCK SPADE.
  2. **LABELING:** ALL ALARMS WILL BE LABELED WITH WHITE LAMINATED TAPE LABELS AT THE ALARM BLOCK.
  3. ALL ALARMS WILL BE BROUGHT TO THE TELCO BOARD AND CONNECTED TO THE TERMINAL STRIP.
  4. TERMINAL STRIP WILL BE LOCATED INSIDE A HOFFMAN BOX MOUNTED TO THE TELCO BOARD.
  5. USE A MINIMUM 18AWG WIRE TO BRING ALARMS TO THE ALARM BOARD.
  6. ALARM CONTACTS ARE NORMALLY CLOSED. OPENING OF CONTACTS INDICATES AN ALARM CONDITION.

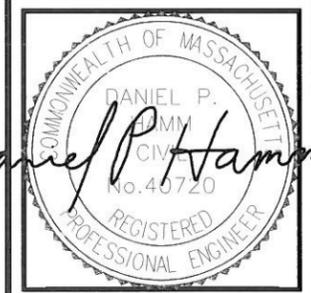
CIRCUIT TERMINALS	ALARM DESIGNATION	ALARM GENERATED BY:
1-2	COMMERCIAL POWER FAILURE	TRANSFER SWITCH
3-4	DOOR INTRUSION	EITHER DOOR
5-6	TECH ON SITE	SHELTER
7-8	GENERATOR FAILURE	GENERATOR
9-10	GENERATOR LOW FUEL	GENERATOR
11-12	GENERATOR RUNNING	GENERATOR
13-14	HIGH TEMP	CLIMATE CONTROL
15-16	LOW TEMP	CLIMATE CONTROL
17-18	SMOKE/FIRE	EITHER SMOKE DETECTOR
19-20	HVAC-1 FAILURE	HVAC
21-22	HVAC-2 FAILURE	HVAC



**NOTE:**  
INSTALL ALARM TERMINAL INSIDE 16X16 HOFFMAN BOX TELCO BACKBOARD WITH (2) 1" KNOCK OUTS

**ALARM DETAIL**  
22x34 SCALE: N.T.S. 3 E-1

**FOR CONSTRUCTION**



CHECKED BY: JX

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
0	02/10/16	FOR CONSTRUCTION	CP

**SITE NAME:**  
AMESBURY  
RIVERSIDE MA

**SITE ADDRESS:**  
27 SOUTH HUNT RD  
AMESBURY, MA 01913

**SHEET TITLE**  
ELECTRICAL/  
GROUNDING RISER  
DIAGRAM

**SHEET NUMBER**  
E-1

### ELECTRICAL NOTES

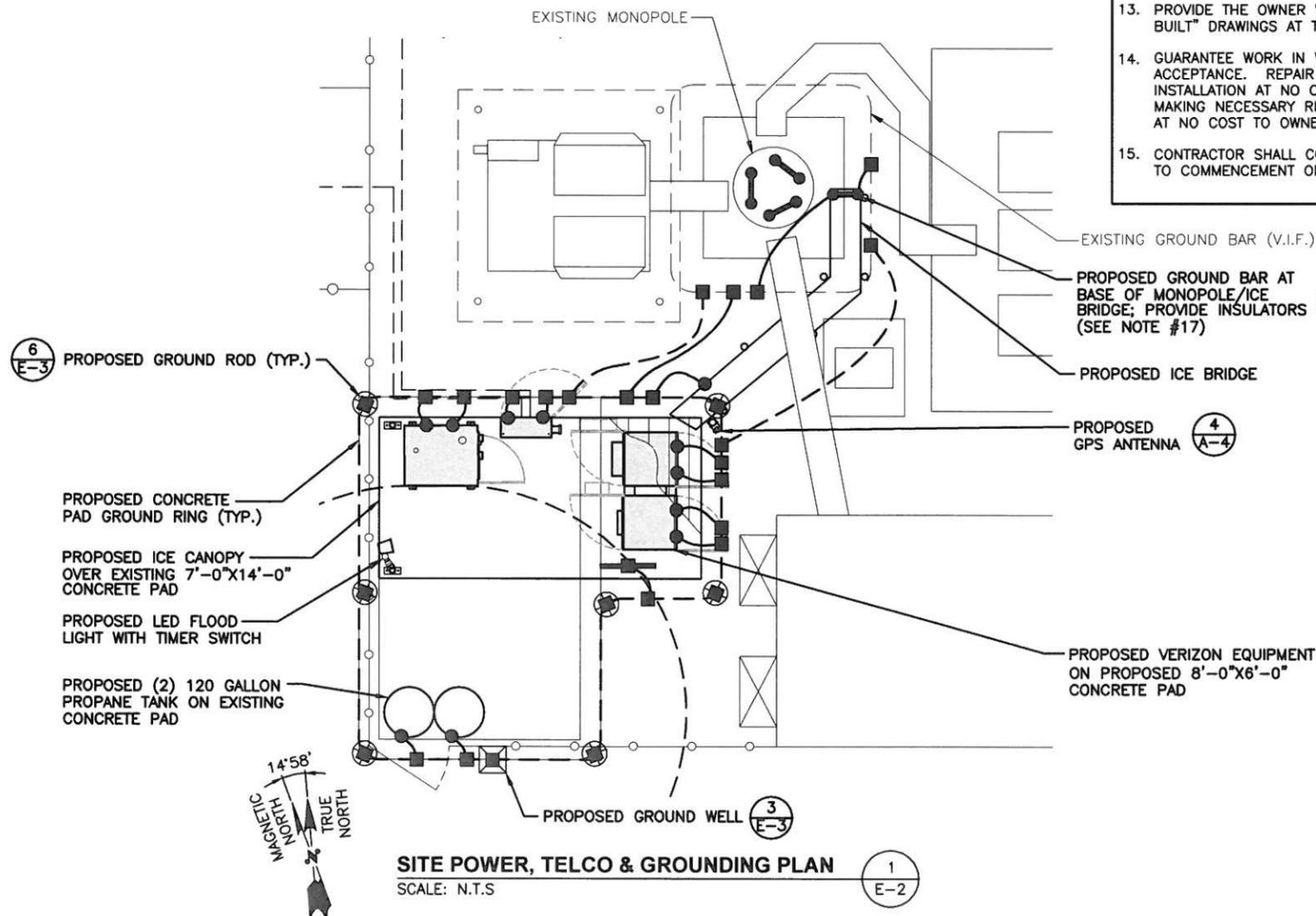
- UTILITY SERVICES SHOWN ARE PROPOSED, THE ELECTRIC CONTRACTOR SHALL COORDINATE EXACT TELEPHONE AND ELECTRIC SERVICE CONNECTION POINTS, PULL BOXES, ROUTING AND ASSOCIATED REQUIREMENTS WITH LOCAL UTILITY COMPANIES.
- VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED. REPORT ADVERSE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

### GROUNDING NOTES

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

### GROUNDING LEGEND

- EXOTHERMIC TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- #2 SOLID TINNED COPPER WIRE UNLESS OTHERWISE NOTED
- ⊗ 5/8" x 10'-0" COPPER CLAD GROUND ROD
- ⊠ GROUND WELL



**SITE POWER, TELCO & GROUNDING PLAN**  
SCALE: N.T.S.

1  
E-2

FOR CONSTRUCTION

PREPARED FOR:  
**Verizon wireless**  
400 FRIBERG PARKWAY  
WESTBOROUGH, MA 01581  
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**Hudson Design Group LLC**  
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BUILDING 20 NORTH, SUITE 3090  
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TEL: (978) 557-5553  
FAX: (978) 336-5586

COMMONWEALTH OF MASSACHUSETTS  
DANIEL P. HAMMON  
REGISTERED PROFESSIONAL ENGINEER  
No. 40720

CHECKED BY: JX

APPROVED BY: DPH

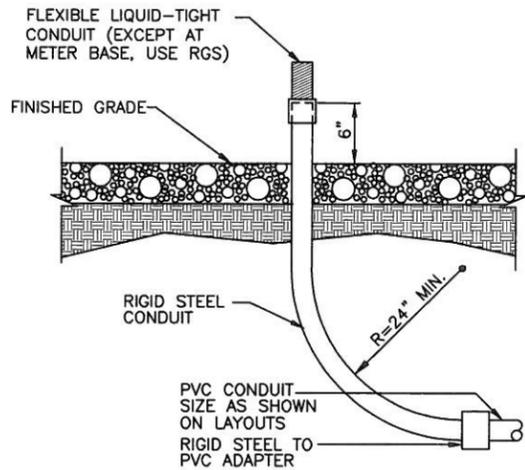
SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	02/10/16	FOR CONSTRUCTION	CP

SITE NAME:  
**AMESBURY  
RIVERSIDE MA**

SITE ADDRESS:  
27 SOUTH HUNT RD  
AMESBURY, MA 01913

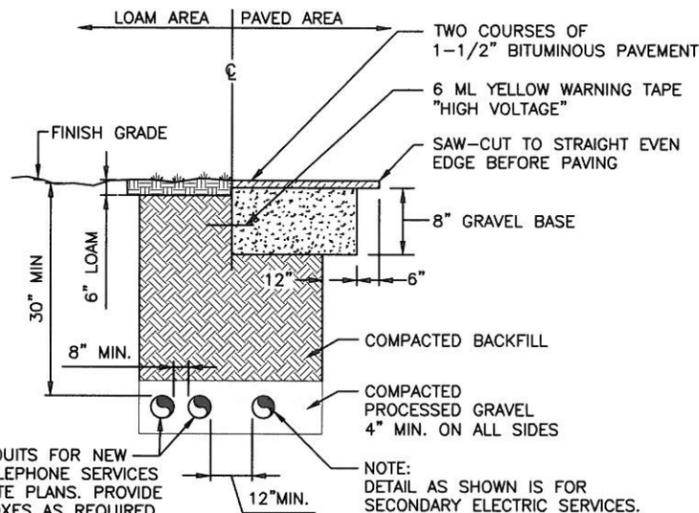
SHEET TITLE  
**ELECTRICAL/  
GROUNDING PLAN  
AND NOTES**

SHEET NUMBER  
**E-2**



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

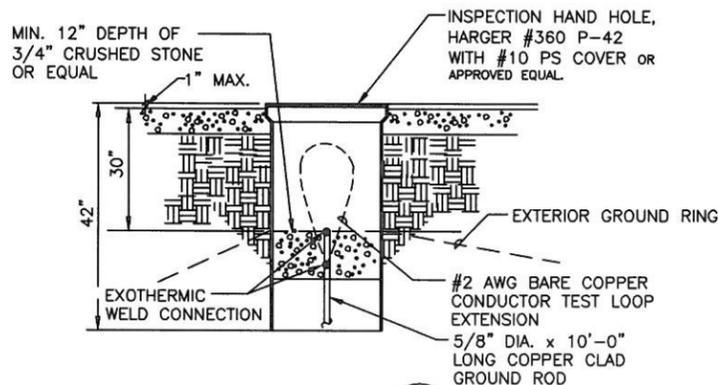
**CONDUIT STUB-UP** 1  
N.T.S. E-3



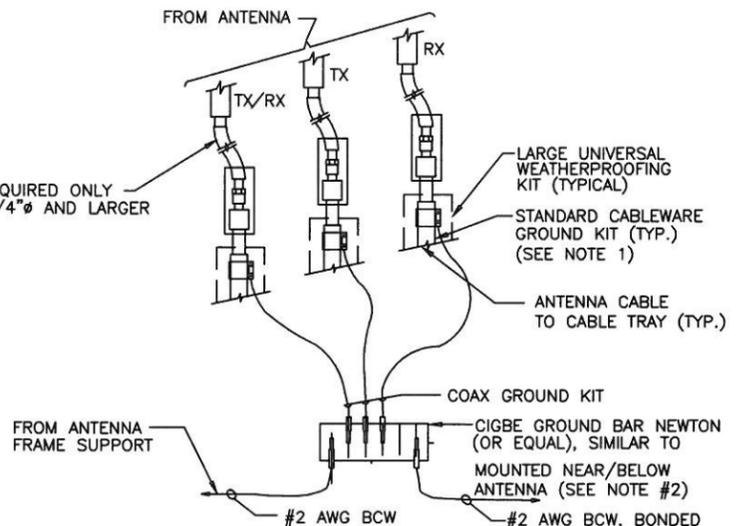
SCHEDULE 40 CONDUITS FOR NEW ELECTRICAL AND TELEPHONE SERVICES SEE UTILITY AND SITE PLANS. PROVIDE APPROVED PULL BOXES AS REQUIRED, AND COORDINATE INSTALLATION W/ ALL UTILITY COMPANIES FOR INTERFACING AT TERMINATION POINTS. PROVIDE FULL LENGTH PULL ROPES (TYP.).

NOTE:  
DETAIL AS SHOWN IS FOR SECONDARY ELECTRIC SERVICES. PRIMARY HIGH VOLTAGE SERVICE REQUIRES 4" CONCRETE ENCASEMENT.

**TYPICAL DIRECT JOIN SERVICE BURIED CONDUIT DETAIL** 2  
SCALE: N.T.S. E-3

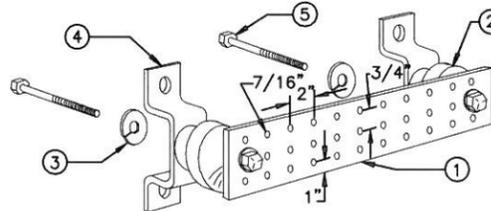


**GROUND WELL DETAIL** 3  
N.T.S. E-3



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

**STANDARD DETAIL CONNECTION OF GROUND WIRES TO GROUND BAR (CIGBE)** 4  
N.T.S. E-3

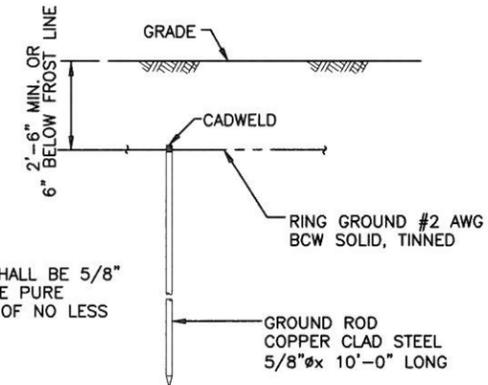


**LEGEND**

- GALVANIZED STEEL GROUND BAR, 1/4" X 4" X 20", OR OTHER LENGTH AS REQUIRED. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 OR EQUAL
- 5/8" LOCKWASHERS OR EQUAL
- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056 OR EQUAL
- 5/8-11 X 1" H.H.C.S. BOLTS

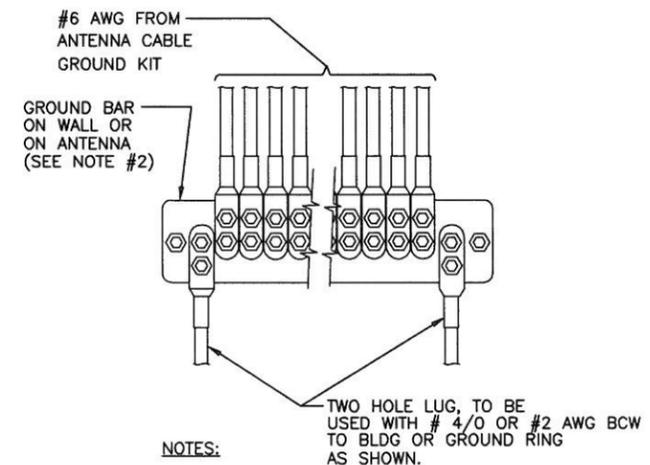
- NOTES:
- ALL BOLTS, NUTS, WASHERS AND LOCK WASHERS SHALL BE 18-8 STAINLESS STEEL.
  - ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

**GROUNDING - STANDARD DETAIL GROUND BAR** 5  
N.T.S. E-3



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

**TYPICAL GROUND ROD DETAIL** 6  
N.T.S. E-3



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

**GROUNDING - STANDARD DETAIL INSTALLATION OF GROUND WIRE GROUND BAR** 7  
N.T.S. E-3

FOR CONSTRUCTION

PREPARED FOR:  
**Verizon Wireless**  
400 FRIBERG PARKWAY  
WESTBOROUGH, MA 01581  
(508) 330-3330 TEL

**Hudson Design Group LLC**  
1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 3090  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

COMMONWEALTH OF MASSACHUSETTS  
DANIEL P. HAMMON  
REGISTERED PROFESSIONAL ENGINEER  
No. 40720

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	02/10/16	FOR CONSTRUCTION	CP

SITE NAME:  
**AMESBURY RIVERSIDE MA**

SITE ADDRESS:  
27 SOUTH HUNT RD  
AMESBURY, MA 01913

SHEET TITLE  
**ELECTRICAL / GROUNDING DETAILS**

SHEET NUMBER  
**E-3**



Date	5/7/2014	Project Description	-4 Antennas per face, AWS/PCS 4 Branch receive (2) 6x12 hybrid coax, (2) 1g junction boxes at antennas, and (2) 1g junction boxes in equipment room (3) 700 RRH and (3) AWS RRH and (3) PCS RRH - 800 Antennas unused
RF Eng	John Walsh		
Site Name	AMESBURY, RIVERSIDE, MA (Jon Scott Raw)		
Structure	Monopole		

700	ALPHA		BETA		GAMMA	
	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW
Ant Vendor	COMBSCOPE					
Ant Model	LHX-6914DS-A1M					
Quantity	1					
Centerline (feet)	99					
Azimuth (ETN)	0					
Tilt - Mechanical (- down, + up)	0					
Tilt - Electrical (- down, + up)	-1					
Gain (dBi)	13.7					
Horizontal BW	68.8					
Vertical BW	11.8					
Dimensions - L x W x H (in)	72.7 x 11.9 x 7.1		72.7 x 11.9 x 7.1		72.7 x 11.9 x 7.1	
Weight (lbs)	39.3					

850	ALPHA		BETA		GAMMA	
	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW
Ant Vendor	COMBSCOPE					
Ant Model	LHX-6914DS-A1M					
Quantity	1					
Centerline (feet)	99					
Azimuth (ETN)	0					
Tilt - Mechanical (- down, + up)	0					
Tilt - Electrical (- down, + up)	-1					
Gain (dBi)	13.7					
Horizontal BW	68.8					
Vertical BW	11.8					
Dimensions - L x W x H (in)	72.7 x 11.9 x 7.1		72.7 x 11.9 x 7.1		72.7 x 11.9 x 7.1	
Weight (lbs)	39.3					

PCS CDMA	ALPHA		BETA		GAMMA	
	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW
Ant Vendor						
Ant Model						
Quantity						
Centerline (feet)						
Azimuth (ETN)						
Tilt - Mechanical (- down, + up)						
Tilt - Electrical (- down, + up)						
Gain (dBi)						
Horizontal BW						
Vertical BW						
Dimensions - L x W x H (in)						
Weight (lbs)						

AWS	ALPHA		BETA		GAMMA	
	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW
Ant Vendor	ANDREW					
Ant Model	88H4-D0916DS					
Quantity	1					
Centerline (feet)	99					
Azimuth (ETN)	0					
Tilt - Mechanical (- down, + up)	0					
Tilt - Electrical (- down, + up)	-1					
Gain (dBi)	16.89					
Horizontal BW	68.8					
Vertical BW	7					
Dimensions - L x W x H (in)	80.91 x 12.01 x 6.8		80.91 x 12.01 x 6.8		80.91 x 12.01 x 6.8	
Weight (lbs)	31.72					

PCS LTE	ALPHA		BETA		GAMMA	
	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW
Ant Vendor	ANDREW					
Ant Model	88H4-D0916DS					
Quantity	1					
Centerline (feet)	99					
Azimuth (ETN)	0					
Tilt - Mechanical (- down, + up)	0					
Tilt - Electrical (- down, + up)	-1					
Gain (dBi)	16.89					
Horizontal BW	68.2					
Vertical BW	7					
Dimensions - L x W x H (in)	80.91 x 12.01 x 6.8		80.91 x 12.01 x 6.8		80.91 x 12.01 x 6.8	
Weight (lbs)	31.72					

GPS Vendor	PCTel
GPS Model	GPS-TMG-IR-26NCB
Quantity	1

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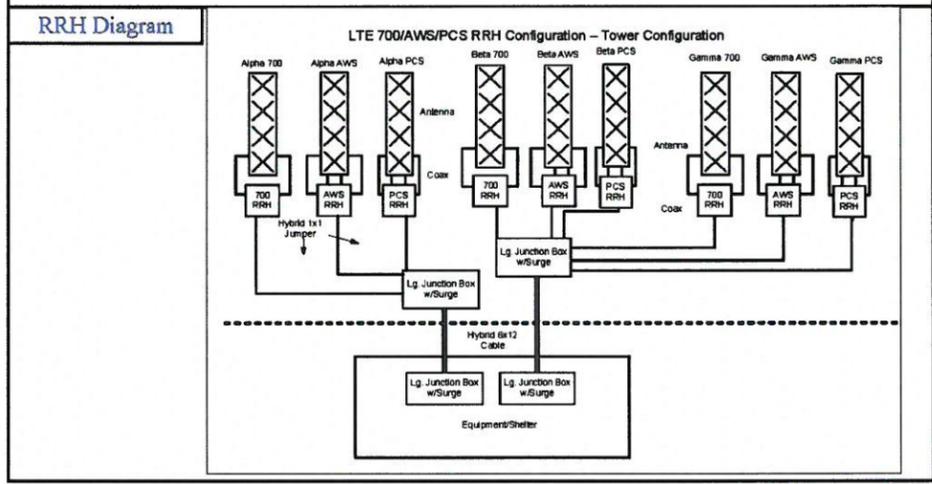
**RF ANTENNA DESIGN**  
SCALE: N.T.S.

RF Coax	ALPHA		BETA		GAMMA	
	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW
Main Line #1 - Diameter						
Main Line #1 - Quantity						
Main Line #2 - Diameter						
Main Line #2 - Quantity						
# of Jumpers (At Antennas)	10		10		10	
# of Jumpers (At Equipment)						

Splitters/Duplexers	ALPHA		BETA		GAMMA	
	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW
At Antennas - Vendor						
At Antennas - Model						
At Antennas - Quantity						
At Equipment - Vendor						
At Equipment - Model						
At Equipment - Quantity						

LTE RRH	ALPHA		BETA		GAMMA	
	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW
LTE 700 - Vendor	ALU					
LTE 700 - Model	9442					
LTE 700 - Quantity	1					
LTE 700 - Size (L x W x D) (in)	20 x 17 x 10		20 x 17 x 10		20 x 17 x 10	
LTE 700 - Weight Installed (lbs)	51					
LTE 2100 - Vendor	ALU					
LTE 2100 - Model	RRH2x00-AWS					
LTE 2100 - Quantity	1					
LTE 2100 - Size (L x W x D) (in)	37 x 11 x 6		37 x 11 x 6		37 x 11 x 6	
LTE 2100 - Weight Installed (lbs)	55					
LTE 1900 - Vendor	ALU					
LTE 1900 - Model	PCS B25 RRM4x30					
LTE 1900 - Quantity	1					
LTE 1900 - Size (L x W x D) (in)	22 x 12 x 9.5		22 x 12 x 9.5		22 x 12 x 9.5	
LTE 1900 - Weight Installed (lbs)	55					

RRH Feeder System	EXISTING		NEW	
	Hybrid 6x12 Cable - Quantity	2		4
Hybrid 4x8 Cable - Quantity	0		0	
Hybrid 1x1 Jumper - Quantity	9		0	



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G.C. TO VERIFY LATEST RF ANTENNA  
PRIOR TO CONSTRUCTION.



CHECKED BY:

APPROVED BY:

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	02/10/16	ISSUED FOR CONSTRUCTION	CP

SITE NAME:  
AMESBURY RIVERSIDE  
MA

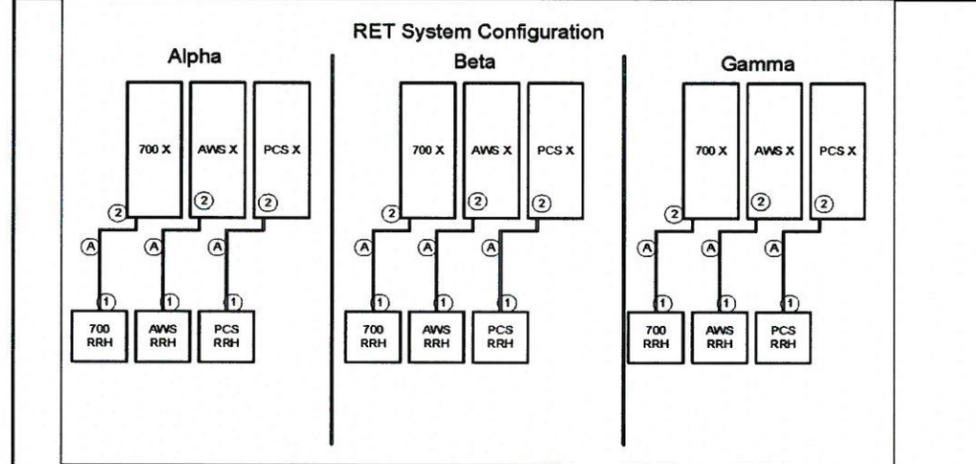
SITE ADDRESS:  
27 SOUTH HUNT ROAD  
AMESBURY, MA 01913

SHEET TITLE  
RF ANTENNA DESIGN

SHEET NUMBER  
**RF-2**

RET System	ALPHA		BETA		GAMMA	
	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW
# of Main AISG Cable (at antennas only)		3		3		3
# of Main AISG Cable (in shelter only)		0		0		0
# of Main AISG Cable (home run from shelter to antennas)		0		0		0
# of Bias-Ts at Antennas		0		0		0
# of Bias-Ts in Shelter		0		0		0
# of AISG Jumpers - To Same Antenna		0		0		0
# of AISG Jumpers - To Different Antenna, Same Sector		0		0		0
# of AISG Jumpers - To Different Antenna, Different Sector		0		0		0

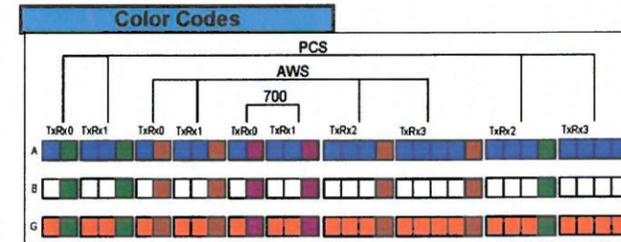
RET System Diagram	LEGEND		
	A	Main AISG cable	1
B	Same antenna AISG jumper	2	1st AISG input
C	Different antenna (same sector) AISG jumper	3, 5, 7, ...	AISG output to jumper
D	Sector to sector AISG jumper	4, 6, 8, ...	AISG input from jumper



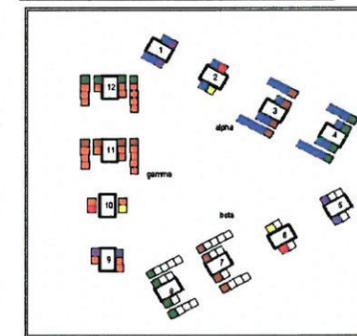
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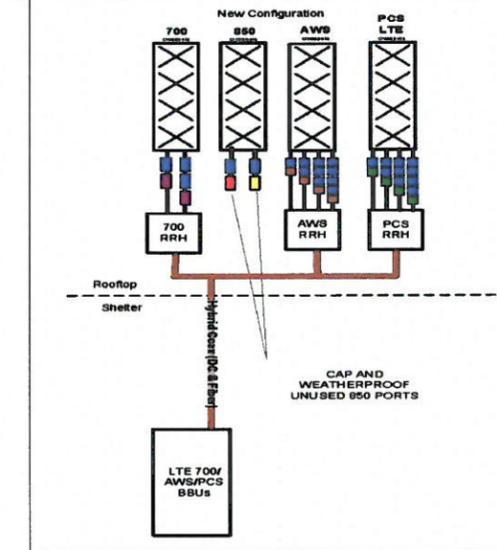


Antenna Array Layout



Alpha	
New Antenna #1	LNX-8514DS-A1M
New Antenna #2	LNX-8514DS-A1M
New Antenna #3	SBFH-1D6519DS
New Antenna #4	SBFH-1D6519DS
Beta	
New Antenna #5	LNX-8514DS-A1M
New Antenna #6	LNX-8514DS-A1M
New Antenna #7	SBFH-1D6519DS
New Antenna #8	SBFH-1D6519DS
Gamma	
New Antenna #9	LNX-8514DS-A1M
New Antenna #10	LNX-8514DS-A1M
New Antenna #11	SBFH-1D6519DS
New Antenna #12	SBFH-1D6519DS

Antenna System Layout



View is from behind antenna array looking outwards

Please evenly space antennas across each sector.

For Xpol antennas, BR/BG/BP are connected to the +45 port, and BY/BBG/BBP are connected to the -45 port.  
For Circular Pole antennas, BR/BG/BP are connected to the Clockwise port, and BY/BBG/BBP are connected to the Counter-Clockwise port.

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Antenna Design

v1.7 - April 22, 2014

RF ANTENNA DESIGN  
SCALE: N.T.S.

1  
RF-3

G.C. TO VERIFY LATEST RF ANTENNA PRIOR TO CONSTRUCTION.

PREPARED FOR:  
**verizon**wireless  
400 FRIBERG PARKWAY  
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1400 OSGOOD STREET  
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TEL: (978) 557-5553  
FAX: (978) 336-5586

CHECKED BY:

APPROVED BY:

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	02/10/18	ISSUED FOR CONSTRUCTION	CP

SITE NAME:  
AMESBURY RIVERSIDE  
MA

SITE ADDRESS:  
27 SOUTH HUNT ROAD  
AMESBURY, MA 01913

SHEET TITLE  
RF ANTENNA DESIGN

SHEET NUMBER  
**RF-3**