

# SITE NAME: NEWBURGH MALL

## NATIONAL SITE ID: 321G4060

### CASPR #: 2191351888



## LTE#: NWL04060, FA#: 10123650, SITE#: PGHK060

### MONOPOLE



NEW CINGULAR WIRELESS PCS, LLC  
340 MOUNT KEMBLE AVENUE  
MORRISTOWN, NJ 07960



**BLACK & VEATCH**

BLACK & VEATCH CORPORATION  
45 EISENHOWER DRIVE SUITE 240  
PARAMUS, NJ 07652



- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.  
1279 ROUTE 300  
Newburgh, NY 12550  
Phone: (845) 567-6656  
Fax: (845) 567-8703  
www.tectonicengineering.com

PROJECT NO: 6307.321G4060

DRAWN BY: MT

CHECKED BY: MP/TN

REV	DATE	DESCRIPTION
1	01/02/13	PER STR. ANALYSIS REPORT
2	11/21/12	FOR CONSTRUCTION
3	11/13/12	ISSUED FOR PERMIT



UNAUTHORIZED ALTERATION OR ADDITIONS TO A PLAN BEARING A LICENSED ENGINEER'S OR SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

SITE NAME: NEWBURGH MALL  
SITE #: 321G4060  
ADDRESS: 7 MEADOW HILL ROAD  
NEWBURGH, NY 12550  
LTE

SHEET TITLE  
TITLE SHEET

SHEET NUMBER  
T-1

**ENGINEERING**  
2010 BUILDING CODE OF NEW YORK STATE  
NFPA 70 - NATIONAL ELECTRIC CODE  
2010 FIRE CODE OF NEW YORK STATE  
2010 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE

**GENERAL NOTES**  
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

**PROJECT DESCRIPTION**  
UPGRADE OF EXISTING TELECOMMUNICATIONS FACILITY, INCLUDING INSTALLATION OF (3) NEW ANTENNAS, (6) RADIO HEAD UNITS, JUNCTION BOXES AND ASSOCIATED APPURTENANCES ON AN EXISTING MONOPOLE AND A RACK IN THE EXISTING EQUIPMENT SHELTER AT GRADE.

**SITE INFORMATION**

PROPERTY OWNER: MALL ACCESS LLC  
ADDRESS: 5020 RTE 9W STE 101  
NEWBURGH NY 12550

TOWER OWNER: CROWN COMMUNICATIONS  
46 BROADWAY, ALBANY, NY 12204

SITE CONTACT: CROWN COMMUNICATIONS  
46 BROADWAY, ALBANY, NY 12204

COUNTY: ORANGE

LATITUDE (NAD 83): 41.52167 FROM RFDS

LONGITUDE (NAD 83): -74.07361

ZONING JURISDICTION: TOWN OF NEWBURGH

ZONING DISTRICT: IB-INTERSTATE BUSINESS

SECTION: 60-3  
BLOCK: 35  
LOT: 1

OCCUPANCY GROUP: TELECOMMUNICATION FACILITY

POWER COMPANY: CENTRAL HUDSON GAS & ELECTRIC  
(845) 452-2700

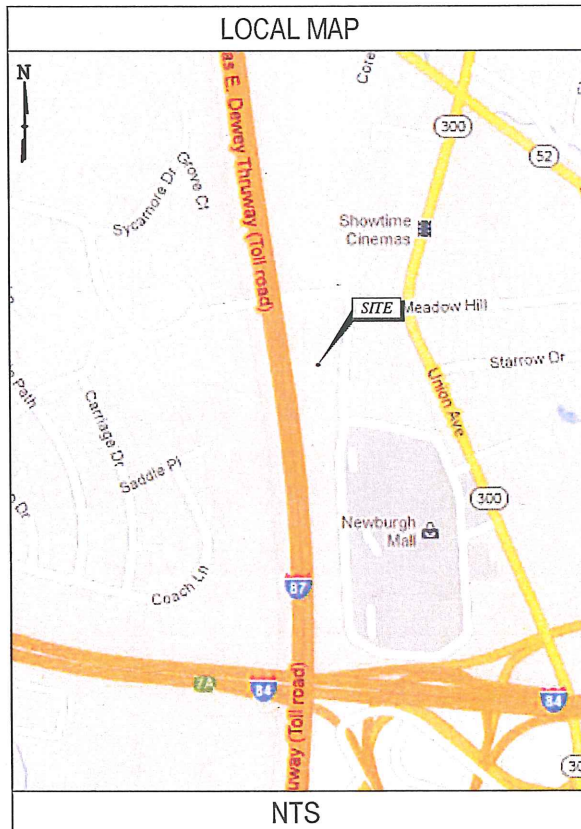
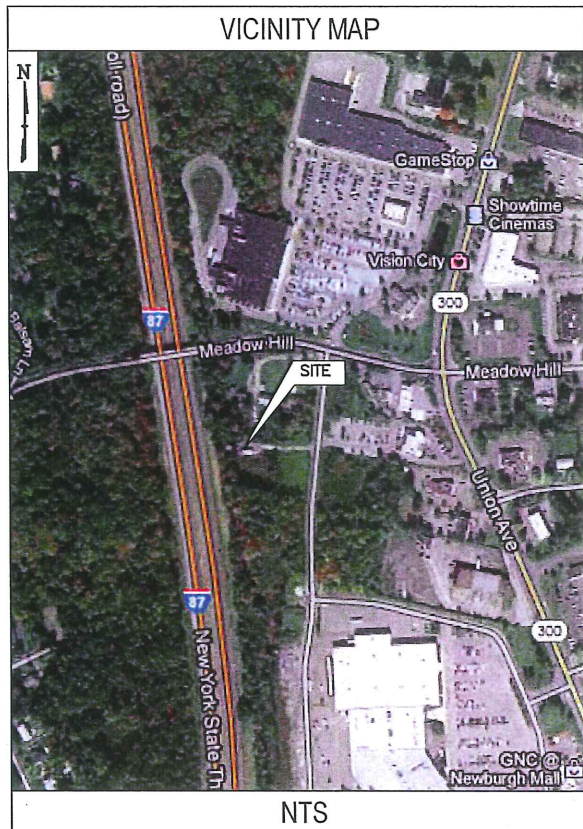
TELEPHONE COMPANY: VERIZON  
(800) 843-2255

SITE ACQUISITION MANAGER: BLACK & VEATCH  
DOUG FETKOWITZ  
(201) 310-9408

A/E CONTACT: TECTONIC  
MIKE PATEL  
(845) 567-6656

CONSTRUCTION MANAGER: BLACK & VEATCH  
JASON RAYMOND  
(315) 378-2537

RF ENGINEER: BLACK & VEATCH  
GENE CHANG  
(201) 289-0908



**DRAWING INDEX**

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
A-1	SITE PLAN & SHELTER PLAN
A-2	ELEVATION, ANTENNA PLANS & DETAILS
A-3	ANTENNA & EQUIPMENT DETAILS
E-1	ELECTRICAL DC ONE-LINE DIAGRAM
G-1	GROUNDING PLAN & NOTES
G-2	GROUNDING DETAILS
GN-1	NOTES

**DO NOT SCALE DRAWINGS**

THESE DRAWINGS ARE FORMATTED FOR 24"x36". OTHER SIZED VERSIONS ARE NOT PRINTED TO THE SCALE SHOWN. CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

**RF DATA SHEET NOTE**  
NEW ANTENNA INFORMATION SHOWN TAKEN FROM AT&T RFDS VERSION, V03.1, DATED 08/03/12.

**DRIVING DIRECTIONS**

FROM AT&T OFFICE HEAD NORTHEAST ON US-202 N-MT KEMBLE AVE TOWARD ZAMROK WAY. TURN RIGHT ONTO MACCULLOCH AVE. TURN LEFT AT THE 3RD CROSS STREET ONTO MILLER RD. TURN RIGHT ONTO COUNTY ROAD 510-SOUTH ST CONTINUE TO FOLLOW SOUTH ST. SLIGHT LEFT ONTO MADISON AVE. TURN LEFT TO MERGE ONTO I-287 N. ENTERING NEW YORK. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR I-87 N/NY-17 N-ALBANY AND MERGE ONTO I-87 N-NY-17 N. CONTINUE TO FOLLOW I-87 N. TAKE EXIT 17 FOR NEW YORK 300-NEW YORK 17K TOWARD NEWBURGH. TURN LEFT ONTO UNION AVE. TAKE THE 3RD LEFT ONTO MEADOW HILL. DESTINATION WILL BE ON THE LEFT AT 7 MEADOW HILL RD NEWBURGH, NY 12550.

**CONTACT INFORMATION**

ENGINEER: TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C.  
1279 ROUTE 300  
NEWBURGH, NY 12550

CONTACT: MIKE PATEL

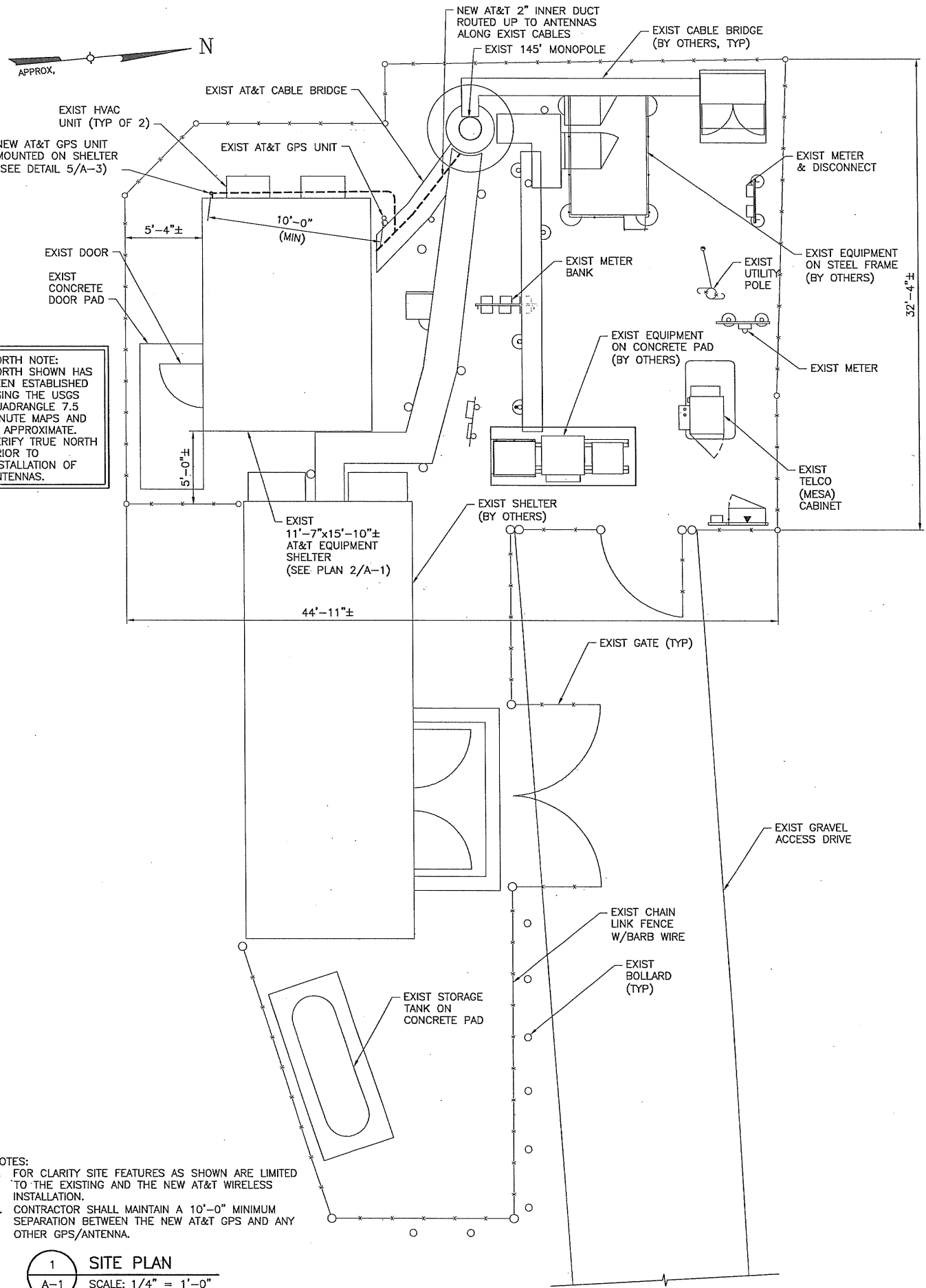
PHONE: (845) 567-6656 (EXT. 808)

**Dig Safely.**  
New York

800-962-7962  
www.digsafelynewyork.com

- Call Before You Dig
- Wait The Required Time
- Confirm Utility Response
- Respect The Marks
- Dig With Care

ORIGINAL SIZE IN INCHES



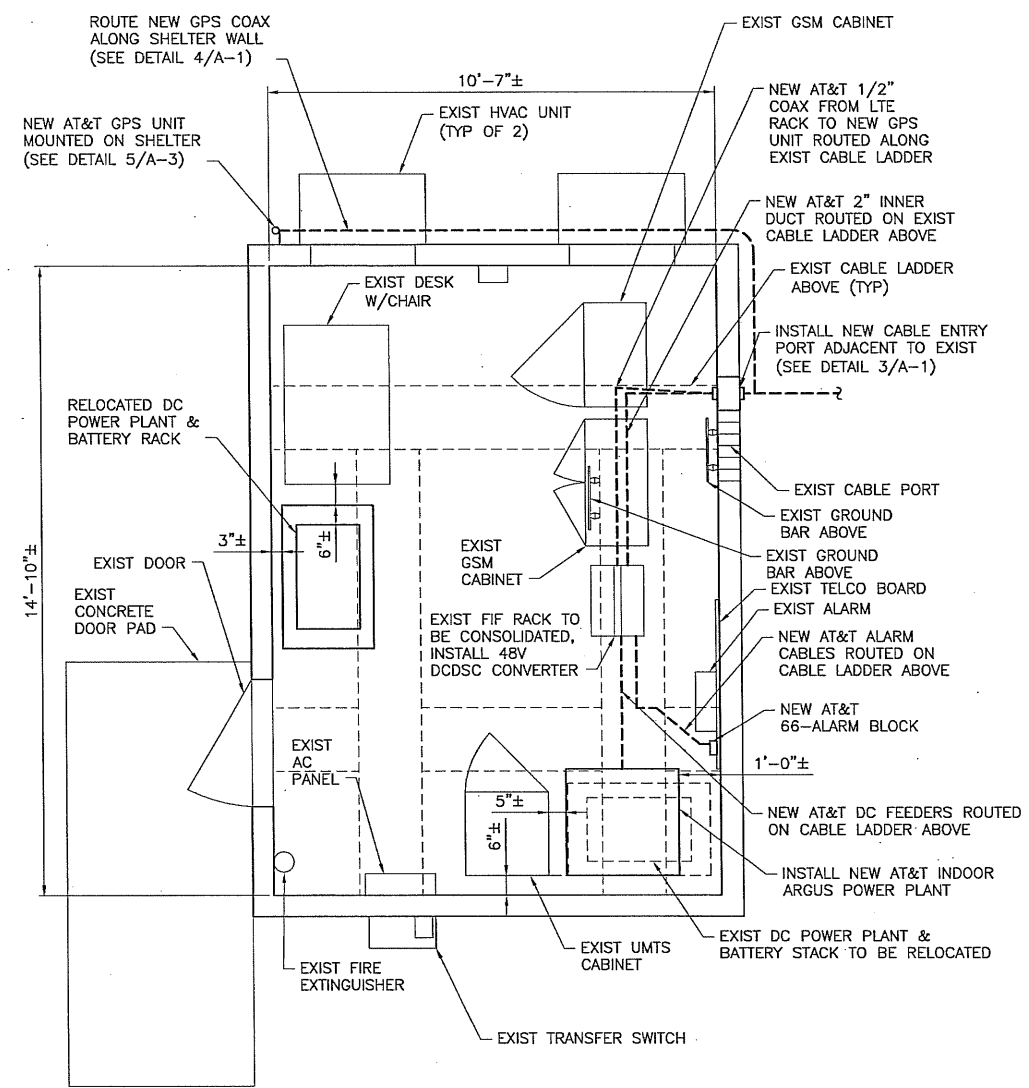
**NORTH NOTE:**  
NORTH SHOWN HAS BEEN ESTABLISHED USING THE USGS QUADRANGLE 7.5 MINUTE MAPS AND IS APPROXIMATE. VERIFY TRUE NORTH PRIOR TO INSTALLATION OF ANTENNAS.

- NOTES:**
- FOR CLARITY SITE FEATURES AS SHOWN ARE LIMITED TO THE EXISTING AND THE NEW AT&T WIRELESS INSTALLATION.
  - CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE NEW AT&T GPS AND ANY OTHER GPS/ANTENNA.

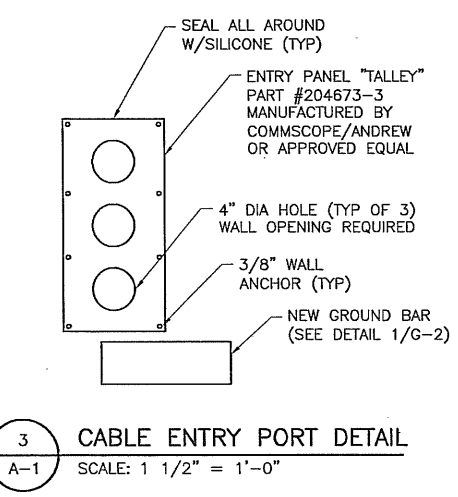
**1 SITE PLAN**  
A-1 SCALE: 1/4" = 1'-0"

**NOTE:**  
CONTRACTOR TO RELOCATE & MOVE EXIST BATTERY RACK AS REQUIRED TO ACCOMMODATE MINIMUM CLEARANCE REQUIREMENTS OF ARGUS POWER PLANT AS PER MANUFACTURER'S SPECS. IT IS ASSUMED THAT THE NEW POWER PLANT WEIGHS SAME AS EXISTING BEING REPLACED. ALL CABLING HOOK-UPS AS PER AT&T & MANUFACTURER SPECIFICATIONS.

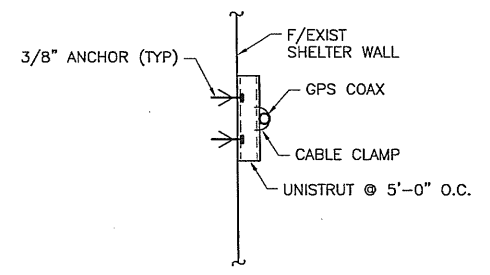
LEGEND	
	EXISTING
	NEW



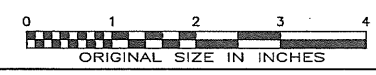
**2 SHELTER PLAN**  
A-1 SCALE: 1/2" = 1'-0"



**3 CABLE ENTRY PORT DETAIL**  
A-1 SCALE: 1 1/2" = 1'-0"



**4 DETAIL**  
A-1 SCALE: 1 1/2" = 1'-0"



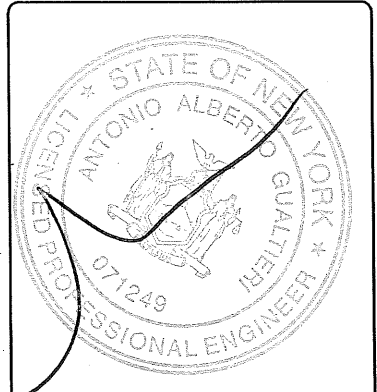
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**LTE**

**SHEET TITLE**  
**SITE PLAN & SHELTER PLAN**

**SHEET NUMBER**  
**A-1**

STRUCTURAL ANALYSIS BY PAUL J. FORD & COMPANY DATED, JULY 31, 2012.

NORTH NOTE:  
NORTH SHOWN HAS BEEN ESTABLISHED USING THE USGS QUADRANGLE 7.5 MINUTE MAPS AND IS APPROXIMATE. VERIFY TRUE NORTH PRIOR TO INSTALLATION OF ANTENNAS.

**LEGEND**

	EXISTING
	NEW

**ANTENNA AND TRANSMISSION CABLES REQUIREMENT**

SECTOR	ANTENNA TYPE	TECHNOLOGY	ANTENNA AZIMUTH	STATUS	TRANSMISSION CABLE		
					QTY.	LENGTH	TYPE
A1	ANDREW DBXLH-8585A-VTM	GSM	0°	REMAIN	1	145'	1 5/8" COAX
A2	ANDREW SBNH-1D6565A	LTE	0°	NEW	1	145'	FIBER
A3	ANDREW DBXLH-8585A-VTM	UMTS	0°	REMAIN	2	145'	1 5/8" COAX
B1	ANDREW DBXLH-8585A-VTM	GSM	120°	REMAIN	1	145'	1 5/8" COAX
B2	ANDREW SBNH-1D6565A	LTE	120°	NEW	1	145'	FIBER
B3	ANDREW DBXLH-8585A-VTM	UMTS	120°	REMAIN	2	145'	1 5/8" COAX
C1	ANDREW DBXLH-8585A-VTM	GSM	240°	REMAIN	1	145'	1 5/8" COAX
C2	ANDREW SBNH-1D6565A	LTE	240°	NEW	1	145'	FIBER
C3	ANDREW DBXLH-8585A-VTM	UMTS	240°	REMAIN	2	145'	1 5/8" COAX
GPS	-	-	-	NEW	1	25'	1/2" COAX

NOTE: FIBER LENGTHS PROVIDED ARE ESTIMATED BASED ON VISUAL INSPECTION FROM GROUND AND INFORMATION PROVIDED BY THE CLIENT.

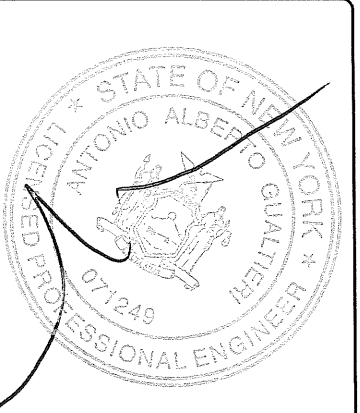
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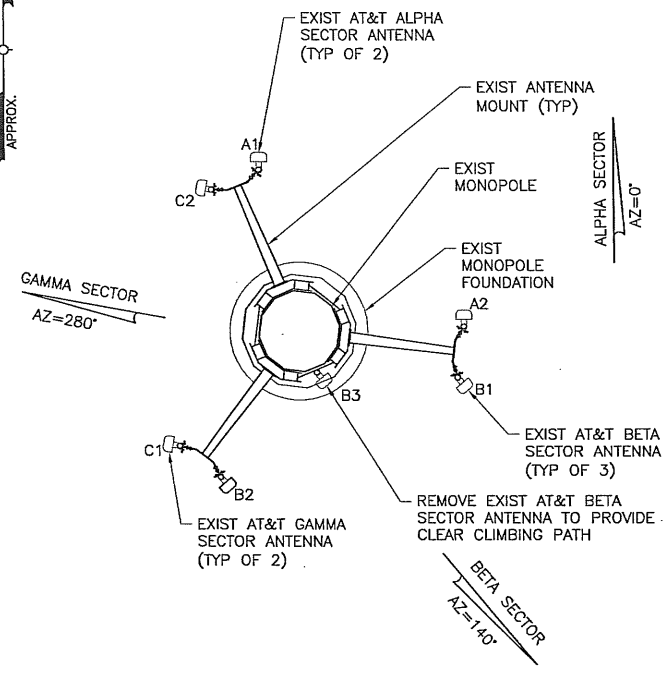
SHEET TITLE  
ELEVATION, ANTENNA  
PLANS & DETAILS

SHEET NUMBER  
A-2

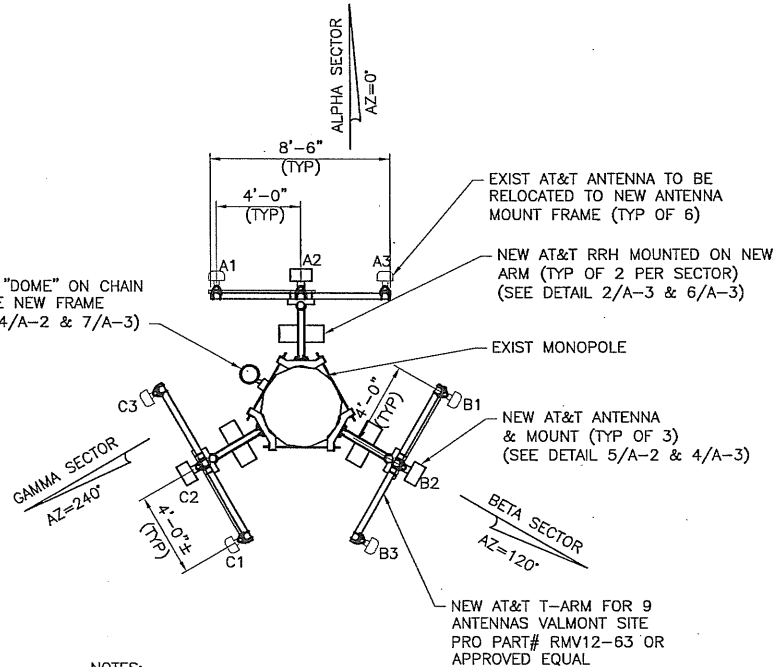


- NOTES:
- FOR CLARITY SITE FEATURES AS SHOWN ARE LIMITED TO THE EXISTING AND THE NEW AT&T WIRELESS INSTALLATION.
  - CONTRACTOR SHALL FIELD VERIFY THE ADEQUACY TO ROUTE THE INNERDUCT PRIOR TO CONSTRUCTION. FIELD LOCATION SHALL BE IN ACCORDANCE WITH THE STRUCTURAL ANALYSIS REPORT AND SHALL BE APPROVED BY THE CONSTRUCTION MANAGER.
  - CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE NEW AT&T GPS AND ANY OTHER GPS/ANTENNA.
  - "ONE (1) RET 1/2" CABLE WILL BE INSTALLED IF REQUIRED FROM THE AT&T EQUIPMENT TO THE ANTENNAS ALONG EXISTING COAX CABLES". ADDITIONALLY, IF THE TRANSMISSION CABLE LENGTH IS TO EXCEED 197 FEET, AN ANDREWS RET CABLE GROUNDING KIT (ATGK-CABLE) WILL NEED TO BE INSTALLED AT MIDPOINT OF CABLE RUN.

1 ELEVATION  
A-2 SCALE: 3/32" = 1'-0"

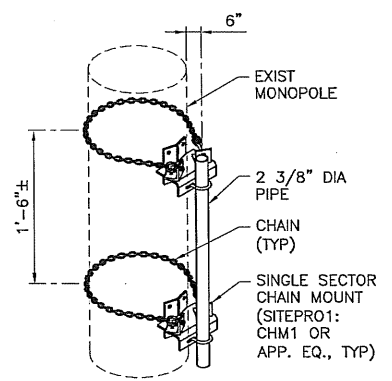


2 EXIST ANTENNA PLAN  
A-2 SCALE: 1/4" = 1'-0"



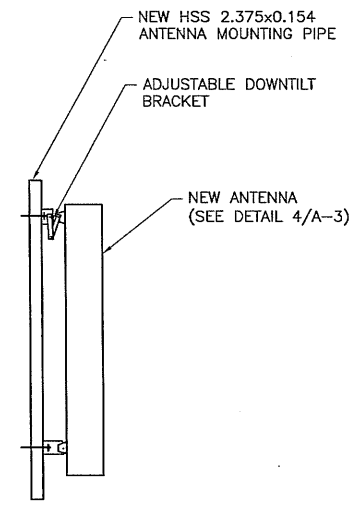
- NOTES:
- LOCATION OF NEW APPURTENANCES AS SHOWN IS GENERIC. CONTRACTOR SHALL INSTALL THE UNITS AS NOTED IN THE STRUCTURAL ANALYSIS REPORT AND APPROVED BY THE CONSTRUCTION MANAGER.
  - RAYCAP SURGE SUPPRESSOR SHALL NOT BE MOUNTED MORE THAN 15FT FROM RRH UNITS.
  - REPLACE EXIST POLE RING MOUNT IF REQUIRED.

3 NEW ANTENNA PLAN  
A-2 SCALE: 1/4" = 1'-0"



NOTE: CONTRACTOR SHALL LOCATE THE MOUNT SUCH THAT IT WILL NOT INTERFERE WITH THE EXISTING CLIMBING PEGS AND SAFETY CABLE.

4 RAYCAP DOME MOUNT  
A-2 SCALE: N.T.S.

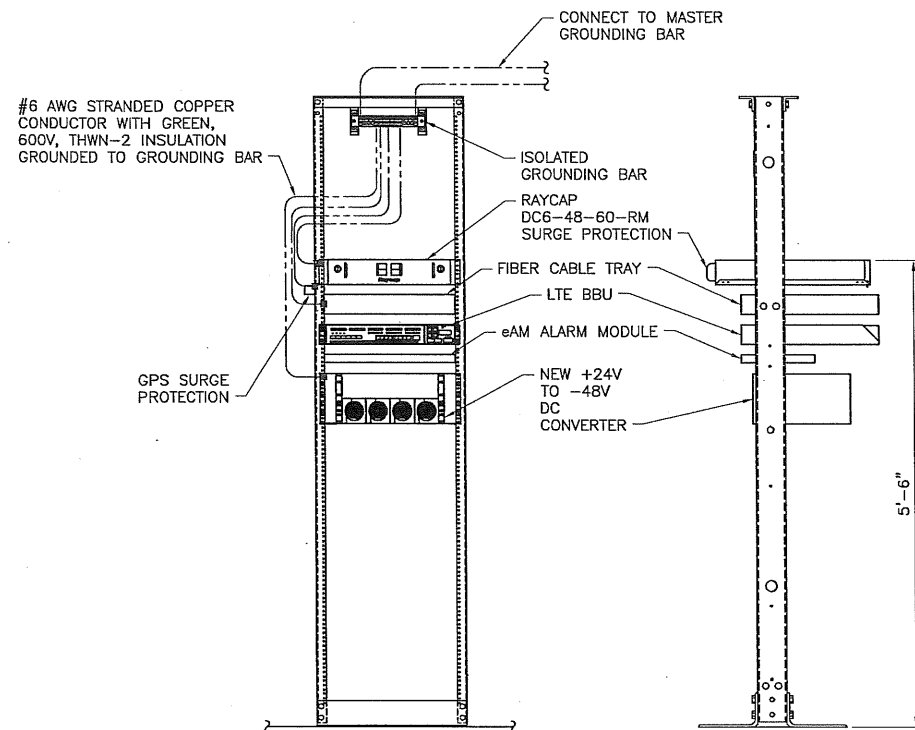


5 SECTION  
A-2 SCALE: 3/4" = 1'-0"

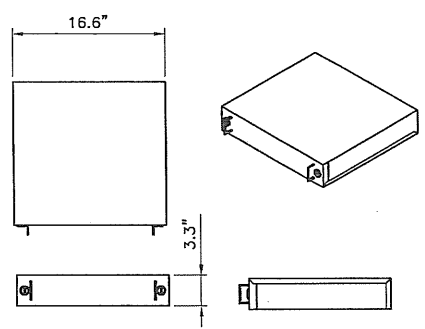
**LTE FIBER LENGTHS**

RAYCAP "DOME" (SQUID)	RAYCAP "DOME" (SQUID) TO SECTOR LTE ANTENNA		
	ALPHA	BETA	GAMMA
145'±	7'±	10'±	12'±





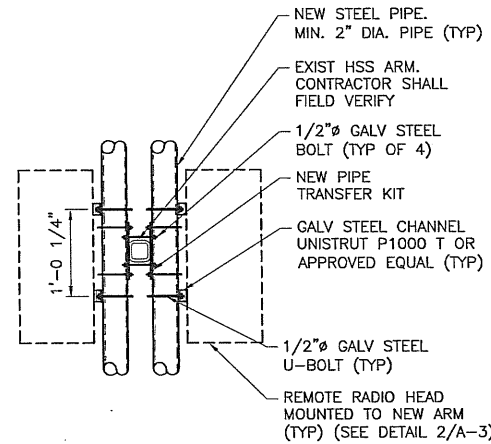
1 19" LTE EQUIPMENT RACK  
A-3 SCALE: NTS



**RAYCAP DC6-48-60-RM**

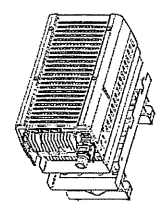
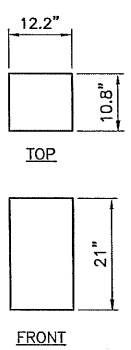
NOMINAL OPERATING VOLTAGE: 48 VDC  
 NOMINAL DISCHARGE CURRENT: 20 kA 8/20µs  
 MAXIMUM DISCHARGE CURRENT: 60 kA 8/20µs  
 MAXIMUM CONTINUOUS OPERATING VOLTAGE: 75 VDC  
 VOLTAGE PROTECTION RATING: 400 V  
 TOTAL WEIGHT: 53 lbs

3 RACK MOUNT DC SURGE SUPPRESSOR  
A-3 SCALE: NTS

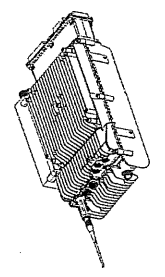
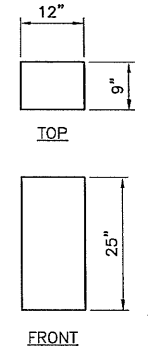


NOTE: MOUNTING OF RRH TO UNISTRUT CHANNEL SHALL BE PER MANUFACTURER DIRECTION. SEPARATION OF CHANNELS SHALL BE PER MANUFACTURER'S MOST CURRENT SPECIFICATION/INSTRUCTIONS.

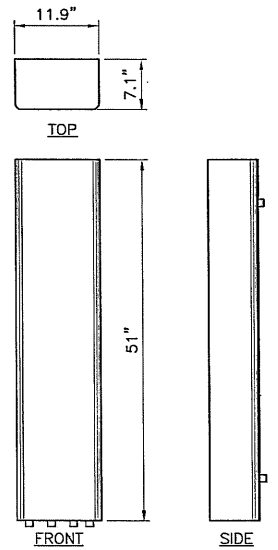
6 RRH MOUNT PLAN  
A-3 SCALE: N.T.S.



700 MHz RRH  
(WEIGHT: 51 LBS)

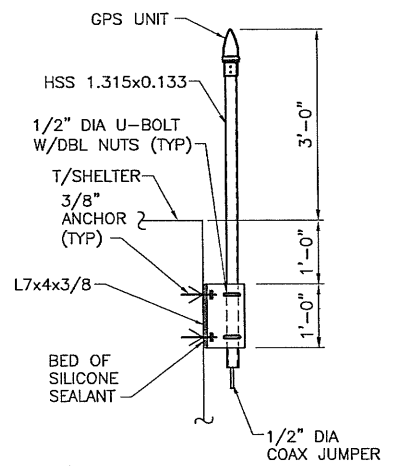


AWS LTE RRH  
(WEIGHT: 43 LBS)



ANDREW SBNH-1D6565A  
(WEIGHT: 34.8 LBS)

4 ANTENNA DETAIL  
A-3 SCALE: 1" = 1'-0"



5 GPS UNIT MOUNT ON WALL  
A-3 SCALE: 3/4" = 1'-0"

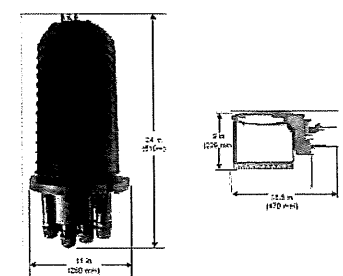
**DC6-48-60-18-8F**

DC Surge Suppression Solution

The DC6-48-60-18-8F is a dual chambered, DC surge suppression system for use in multi-circuit, distributed antenna systems. The system will protect up to 6 Remote Radio Heads from voltage surges and lightning, and connect up to 18 fiber pairs. The system is enclosed in an IP 68 rated, waterproof enclosure.

**FEATURES**

- Protects up to 6 Remote Radio Heads, each with its own protection circuit.
- Flexible design allows for installation at the top of a tower for Remote Radio Head protection.
- Indicates fiber disconnections for up to 18 ports of fiber.
- LED indicators on individual circuit provide visual indication of suppressor status.
- Removes excess heat for remote monitoring of the suppressor status.
- Patented SparkAssist technology provides over 50 kA of surge current capacity per circuit.
- Suppressor suppression modules are fully assigned to UL 1449-3rd Edition Safety Standards, meeting all interconnect and high current fault requirements to facilitate use in ODM applications.
- Factory recommends that DC protection system be installed within 2 meters or 6 feet of the radio.
- Dome design is lightweight and aerodynamic providing maximum flexibility for installation on top of towers.
- Patent pending.



7 RAYCAP "DOME" DETAIL  
A-3 SCALE: N.T.S.

2 RRH DETAILS  
A-3 SCALE: NTS



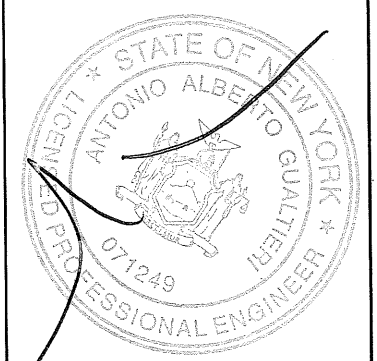
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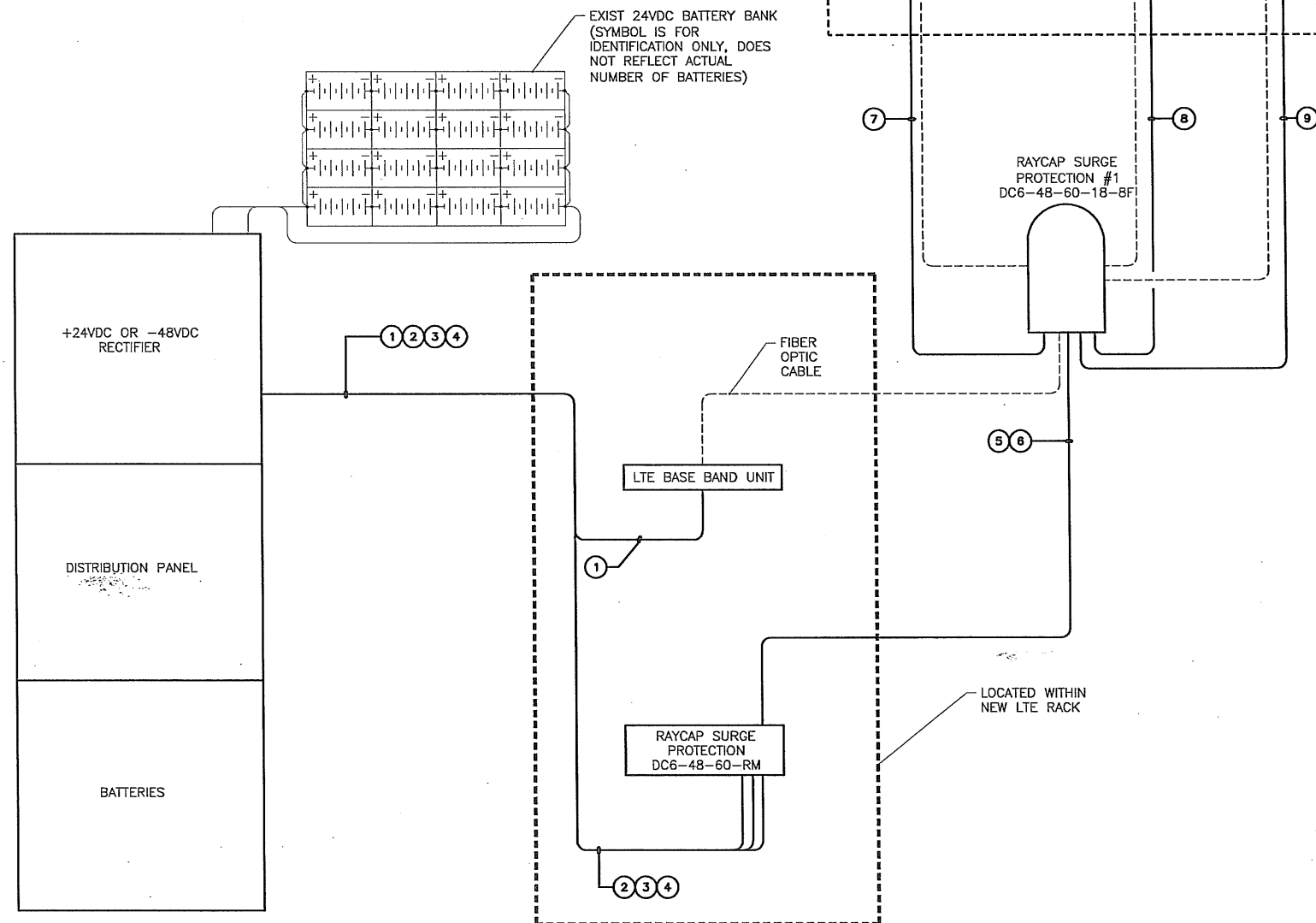
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ANTENNA & EQUIPMENT  
DETAILS

SHEET NUMBER  
A-3

DC CIRCUIT SCHEDULE			
	FROM	TO	CONFIGURATION
①	-48VDC DISTRIBUTION PANEL	LTE BASE BAND UNIT	(1) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
②	-48VDC DISTRIBUTION PANEL	RAYCAP SURGE PROTECTION DC6-48-60-RM	(1) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
③	-48VDC DISTRIBUTION PANEL	RAYCAP SURGE PROTECTION DC6-48-60-RM	(1) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
④	-48VDC DISTRIBUTION PANEL	RAYCAP SURGE PROTECTION DC6-48-60-RM	(1) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑤	RAYCAP SURGE PROTECTION DC6-48-60-RM	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	(1) 6-#8 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑥	RAYCAP SURGE PROTECTION DC6-48-60-RM	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	(1) 6-#8 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑦	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	RRH REMOTE RADIO HEAD #1	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑧	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	RRH REMOTE RADIO HEAD #2	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑨	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	RRH REMOTE RADIO HEAD #3	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE

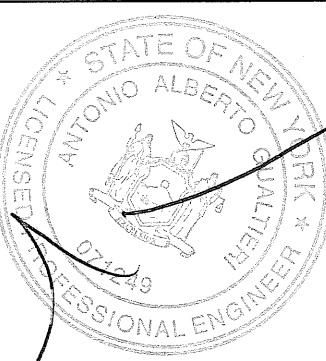


- ### ELECTRICAL NOTES
1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND COORDINATING ALL REQUIRED LOCAL BUILDING DEPARTMENT INSPECTIONS AND APPROVALS. ALL ELECTRICAL WORK IS TO BE PERFORMED BY AN INDIVIDUAL LICENSED IN THE JURISDICTION OF THE PROPOSED WORK.
  2. THE ENTIRE SYSTEM SHALL CONFORM TO ALL STATE AND LOCAL BUILDING CODES AND THE LATEST ADOPTED ADDITION OF THE NATIONAL ELECTRIC CODE.
  3. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS INDICATED ON THESE DRAWINGS.
  4. ALL EXTERIOR DEVICES SHALL BE RATED FOR EXTERIOR USE "3R".
  5. THE CONTRACTOR IS RESPONSIBLE FOR ALL CLEARING AND EXCAVATING FOR NEW UTILITY POLES OR UNDERGROUND UTILITY RUNS. COORDINATE WITH THE LOCAL UTILITY COMPANIES TO DETERMINE WHAT DEVICES ARE SUPPLIED AND INSTALLED AS THE SECONDARY ELECTRIC AND TELEPHONE SERVICE VERSUS UTILITY COMPANIES RESPONSIBILITIES.
  6. ALL MATERIALS AND DEVICES INSTALLED SHALL BE NEW AND IN WORKING ORDER. DEVICES AND MATERIALS SHALL BE LISTED AND BEAR THE "UL" SEAL OF APPROVAL AND INSPECTION LABEL "J".
  7. THE CONTRACTOR IS TO DEMONSTRATE TO A CLIENT'S PROJECT MANAGER THAT THE SYSTEM IS FULLY ENERGIZED AND WORKING AS INTENDED. CONDUCT CONTINUITY, SHORT CIRCUIT AND FALL OF POTENTIAL GROUNDING TEST. SUBMIT TEST RESULTS TO THE PROJECT MANAGER.
  8. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.
  9. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULL BOX, J-BOX, SWITCH PLATE, ETC., IN COMPLIANCE WITH OSHA. "SPARE" OR "SPACE"
  10. LABEL EACH PANEL BOARD CIRCUIT DIRECTORY CARD, IDENTIFY THE "LOAD SERVED", "SPARE" OR "SPACE"
  11. THE ENTIRE ELECTRICAL SYSTEM SHALL BE GROUNDED. GROUNDDING SHALL BE #2 AWG SOLID TINNED ANNEALED COPPER, UNLESS OTHERWISE NOTED.
  12. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACK FILLING AND REPAIRING OF EXISTING SURFACES CUT AND REMOVED FOR UNDERGROUND UTILITY RUNS.
  13. THE CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, PATCHING, DRILLING, CHASING, HOLES AND SLEEVES IN EXISTING BUILDING WALLS AND FLOORS REQUIRED TO INSTALL THE NEW ELECTRICAL SERVICE. FIRE RATED WALL SHALL BE PATCH WITH 3M FIRE SEAL OR EQUAL, RATING AS REQUIRED. ALL PENETRATIONS THRU EXTERIOR WALLS SHALL BE CAULKED WEATHER TIGHT.
  14. THE CONTRACTOR IS TO SUPPLY ALL HANGERS, SUPPORTS, FASTENERS AND HARDWARE FOR A COMPLETE INSTALLATION. ALL OF THE ABOVE SHALL BE ZINC-COATED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL FIELD CONDITIONS PRIOR TO ORDERING LENGTHS OF MATERIAL.
  15. PRIOR TO THE WIRE INSTALLATION OR BACK FILL OF THE UTILITY TRENCH, THE CONTRACTOR IS TO COORDINATE ALL INSPECTIONS OF THE CONDUIT, SWEEPS AND ANY UTILITY POLE RISERS WITH THE LOCAL UTILITY COMPANY.
  16. ALL SECONDARY CONDUITS USED FOR EXTERIOR UNDERGROUND UTILITIES SHALL BE PVC SCHEDULE #40, SCHEDULE #80 UNDER ROADWAYS. MINIMUM BEND RADIUS SHALL BE 36". ALL CONDUITS SHALL HAVE MINIMUM OF TWO (2) DRAG LINES. PULL BOXES ARE TO BE INSTALLED WHEN LENGTHS EXCEED 100 FEET. COORDINATE SIZE OF CONDUITS REQUIRED BY THE UTILITY COMPANIES.
  17. ALL CIRCUIT BREAKERS, FUSES AND FIELD INSTALLED ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM SHORT CIRCUIT TO WHICH THEY MAY BE SUBJECT AND MINIMUM RATING OF 22,000 A.I.C.
  18. GENERAL CONTRACTOR IS TO COORDINATE ALL OF HIS WORK TO MINIMIZE THE DISTURBANCE TO THE EXISTING SITE OCCUPANTS' WORKERS OR ACCESS REQUIRED BY THE GENERAL PUBLIC OR MAINTENANCE PERSONNEL.
  19. ANY DISRUPTION OF THE EXISTING ELECTRICAL SERVICE MUST BE COORDINATED WITH THE OTHER SITE OCCUPANTS.
  20. ANY DISRUPTION OF THE EXISTING SITE CONDITIONS SHALL BE RETURNED TO THEIR PREVIOUS CONDITION OR BETTER.
  21. BBU REQUIRES ONE (1) 1/0 CIRCUIT WITH SINGLE POLE 60 AMP BREAKER.
  22. RRH REQUIRES THREE (3) #8 CIRCUITS WITH THREE (3) SINGLE POLE 10 AMP BREAKERS.



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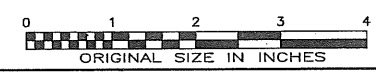
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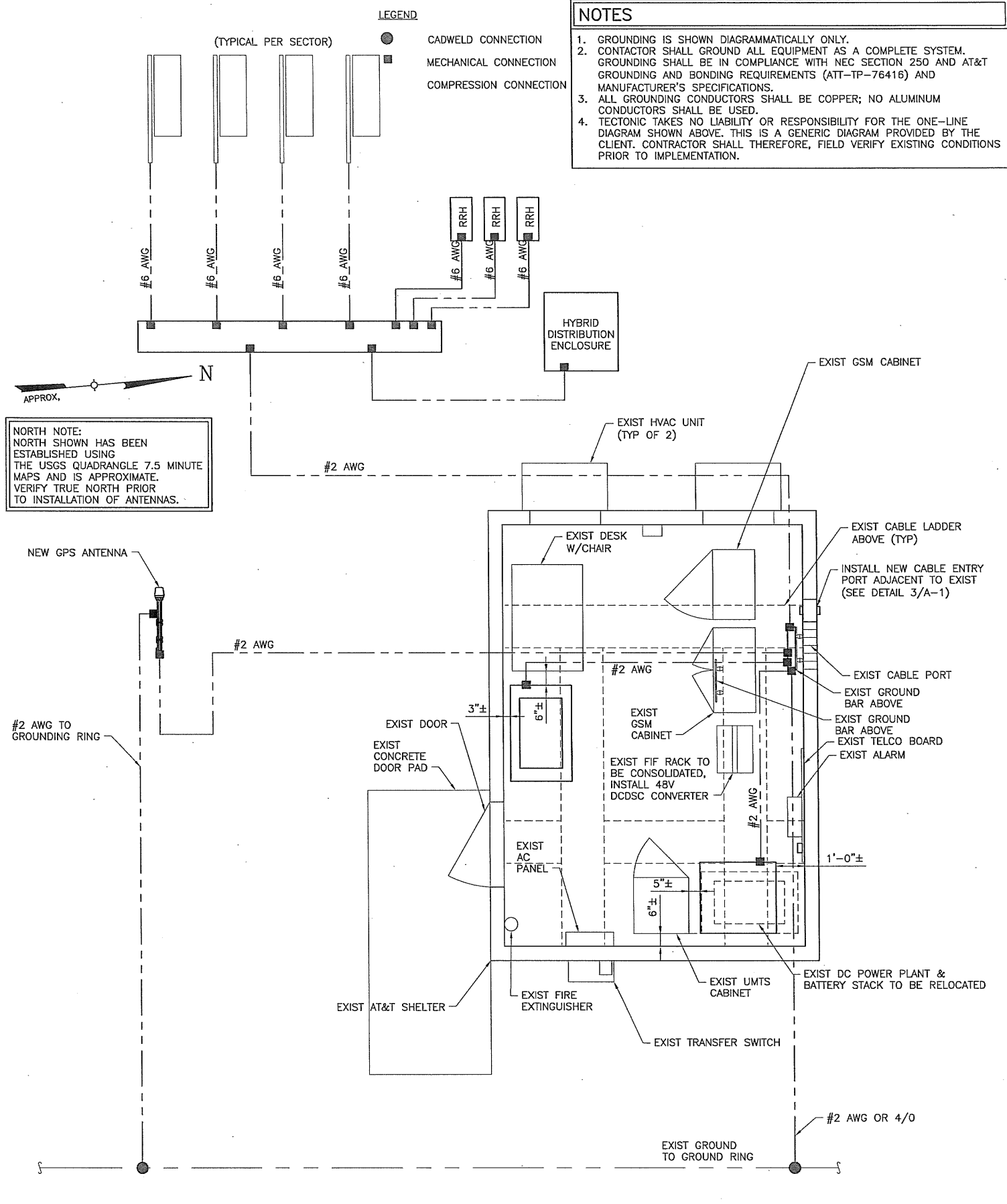
SITE NAME: NEWBURGH MALL  
SITE #: 321G4060  
ADDRESS: 7 MEADOW HILL ROAD  
NEWBURGH, NY 12550  
LTE

SHEET TITLE  
ELECTRICAL DC  
ONE-LINE DIAGRAM

SHEET NUMBER  
E-1

1 ONE-LINE DIAGRAM  
E-1 SCALE: NTS





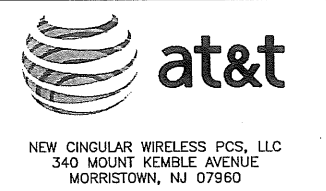
**NORTH NOTE:**  
NORTH SHOWN HAS BEEN ESTABLISHED USING THE USGS QUADRANGLE 7.5 MINUTE MAPS AND IS APPROXIMATE. VERIFY TRUE NORTH PRIOR TO INSTALLATION OF ANTENNAS.

- NOTES**
- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
  - CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND AT&T GROUNDING AND BONDING REQUIREMENTS (ATT-TP-76416) AND MANUFACTURER'S SPECIFICATIONS.
  - ALL GROUNDING CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.
  - TECTONIC TAKES NO LIABILITY OR RESPONSIBILITY FOR THE ONE-LINE DIAGRAM SHOWN ABOVE. THIS IS A GENERIC DIAGRAM PROVIDED BY THE CLIENT. CONTRACTOR SHALL THEREFORE, FIELD VERIFY EXISTING CONDITIONS PRIOR TO IMPLEMENTATION.

- GROUNDING KEY NOTES**
- EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING. (ATT-TP-76416 2.2.3.5/7.5.1)
  - TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS. (ATT-TP-76416 7.5.1)
  - INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUND TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR. (ATT-TP-76416 7.6.4)
  - BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING. (ATT-TP-76416 7.5.2.2)
  - GROUND ROD: UL LISTED COPPER CLAD STEEL, MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG. ALL GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR. (ATT-TP-76416 1.4 / 7.5.1)
  - CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS. (ATT-76416 7.6.5)
  - HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS.
  - EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AND EXOTHERMIC WELD AND INSPECTION SLEEVE. (ATT-TP-76416 7.6.7.2)
  - TOWER EXIT GROUND BAR: #2 AWG SOLID TINNED COPPER BOND TO THE TOWER GROUND RING. (ATT-TP-76416 7.5.5)
  - TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR AND EXTERIOR GROUND RING. (ATT-TP-76416 7.6.8)
  - FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK. BOND THE FRAME GROUND BUS TO THE #1 SECTION OF THE CELL REFERENCE GROUND BAR. (ATT-TP-76416 7.8)
  - INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING. (ATT-TP-76416 7.12.3.1)
  - FENCE AND GATE GROUND: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS. (ATT-TP-76416 7.12.2.2)
  - EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. (ATT-TP-76416 7.4.2.6)
  - ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING. (ATT-TP-76416 7.4.2.6)

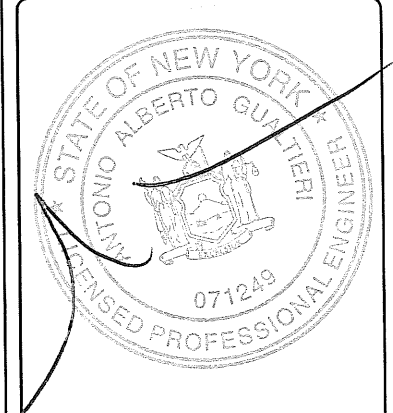
- GROUNDING NOTES**
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUND AS REQUIRED BY ALL APPLICABLE CODES.
  - ALL GROUNDING WORK SHALL BE IN ACCORDANCE WITH AT&T.
  - ALL BUS CONNECTORS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS, T&B OR EQUAL, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL LUGS SHALL BE ATTACHED TO BUSES USING BOLTS, NUTS, AND LOCK WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUND.
  - ALL CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS; T&B #TBM 8 OR EQUIVALENT.
  - ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUND. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
  - ALL COPPER BUSES SHALL BE CLEANED, POLISHED, AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
  - ALL BENDS SHALL BE AS SHALLOW AS POSSIBLE, WITH NO TURN SHORTER THAN AN 8-INCH NOMINAL RADIUS.
  - GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2. ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS, OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUND. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
  - GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 10 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
  - ALL ROOF TOP ANTENNA MOUNTS SHALL BE GROUND WITH A #2 GROUND WIRE CONNECTED TO THE NEAREST GROUND BUS. ALL CONNECTIONS ARE TO BE CAD-WELDED IF POSSIBLE.
  - UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE PROJECT MANAGER.
  - GROUNDING CONNECTION TO TRAVEL IN A DOWNWARD DIRECTION.
  - ALL EXPOSED #2 WIRE MUST BE TINNED NOT BTW.
  - EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUNDING BAR. ROUTE CONDUCTORS TO BURIED GROUNDING RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
  - ALL GROUNDING BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS.
  - ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
  - FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
  - DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUNDING CONDUCTOR DOWN TO GROUNDING BUS.
  - NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUNDING BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION, ON ALL GROUNDING TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
  - SUPPLIED AND INSTALLED BY CONTRACTOR.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUNDING BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
  - ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

**1 GROUNDING PLAN**  
G-1 SCALE: NTS



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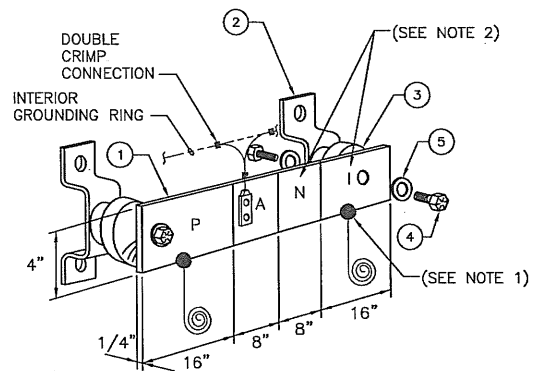
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**SITE NAME: NEWBURGH MALL**  
**SITE #: 321G4060**  
**ADDRESS: 7 MEADOW HILL ROAD**  
**NEWBURGH, NY 12550**  
**LTE**

**SHEET TITLE**  
**GROUNDING PLAN & NOTES**

**SHEET NUMBER**  
**G-1**

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C.			
NO	REQUIRED	PART NUMBER	DESCRIPTION
1	1	1/4"x4"x48"	SOLID GROUNDING BAR
2	2	A-6056	WALL MOUNTING BRACKET
3	2	3061-4	INSULATORS
4	4	3012-1	5/8"-11x1" H.H.C.S.
5	4	3015-8	5/8" LOCKWASHER



1 (MGB) REFERENCE GROUNDING BAR  
G-2 SCALE: NTS

EACH GROUNDING CONDUCTOR TERMINATING ON ANY GROUNDING BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

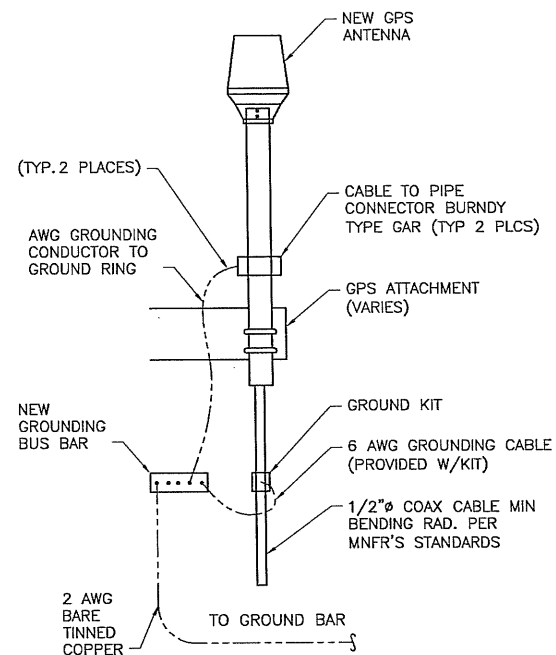
**SECTION "P" - SURGE PROTECTORS**  
 (EC) CELL REFERENCE GROUNDING BAR (IF COLLOCATED)  
 (EC) GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)  
 (EC) TELCO GROUNDING BAR (#2 AWG)  
 (EC) COMMERCIAL POWER COMMON NEUTRAL/GROUNDING BOND (3/0)  
 (EC) FIBER GROUNDING BAR (#2 AWG)  
 (EC) POWER ROOM REFERENCE GROUNDING BAR (#2 AWG)  
 (AT&T) RECTIFIER FRAMES

**SECTION "A" - SURGE ABSORBERS**  
 (EC) INTERIOR GROUNDING RING (#2 AWG)  
 (EC) EXTERNAL EARTH GROUNDING FIELD (BURIED GROUNDING RING) (#2 AWG)  
 (EC) METALLIC COLD WATER PIPE (IF AVAILABLE) (1/0 AWG)  
 (EC) BUILDING STEEL (IF AVAILABLE) (1/0 AWG)

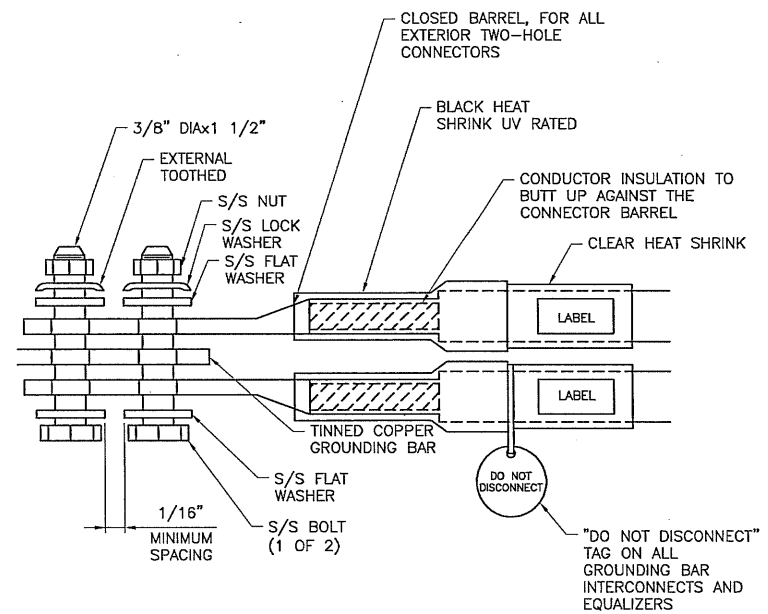
**SECTION "N" - NON-ISOLATED GROUNDING ZONE EQUIPMENT**  
 (EC) MISC. NON-ISOLATED GROUNDING ZONE EQUIPMENT (AT&T)-48V POWER SUPPLY RETURN BARE

**SECTION "I" - ISOLATED GROUNDING ZONE**  
 (AT&T) ALL ISOLATED GROUNDING REFERENCE  
 (AT&T) GROUNDING WINDOW BAR

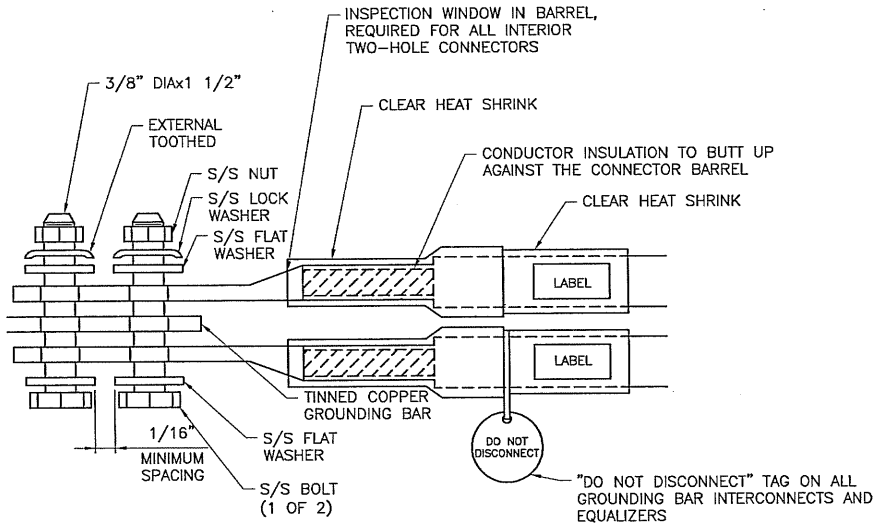
GENERIC DETAILS. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO IMPLEMENTATION. CONTACT CONSTRUCTION MANAGER AND/OR DESIGN ENGINEER FOR APPROVAL.



2 GPS GROUND DETAIL  
G-2 SCALE: NTS



3 EXTERIOR TWO HOLE LUG DETAIL  
G-2 SCALE: NTS



4 INTERIOR TWO HOLE LUG DETAIL  
G-2 SCALE: NTS



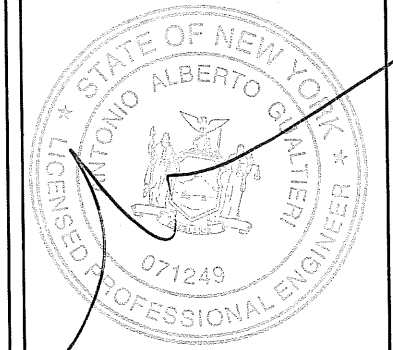
NEW CINGULAR WIRELESS PCS, LLC  
340 MOUNT KEMBLE AVENUE  
MORRISTOWN, NJ 07960

BLACK & VEATCH CORPORATION  
45 EISENHOWER DRIVE SUITE 240  
PARAMUS, NJ 07652

TECTONIC Engineering & Surveying Consultants P.C.  
1279 ROUTE 300  
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