

Copyright 2018 - Ramaker & Associates, Inc. - All Rights Reserved  
 DRAWN BY: CMJ  
 CHECKED BY: PJP

**PROJECT INFORMATION:**

**SITE INFORMATION**

SITE ADDRESS: 131 CHADWICK STREET  
 PORTLAND, ME 04106  
 LAT: 43.6514  
 LONG: -70.2743  
 ELEV: 149.2' (A.M.S.L.)  
 SITE TYPE: ROOFTOP  
 COUNTY: CUMBERLAND  
 JURISDICTION: CITY OF PORTLAND

**APPLICANT**

SPRINT  
 5 WAYSIDE DRIVE  
 BURLINGTON, MA 01803  
 CONTACT: CHAD WAGNER  
 PHONE: 617-529-0973  
 EMAIL: Chad.Wagner@sprint.com

**LANDLORD**

BOWDOIN DEVELOPMENT LLC  
 131 CHADWICK STREET  
 PORTLAND, ME 04102

**EQUIPMENT LIST**

**COMPANY FURNISHED MATERIALS:**

- (3) 800 RRHS (ALCATEL LUCENT RRH 2x50-800)
- (3) 2.5 RRHS (ALCATEL LUCENT TD-RRH 8x20-25)
- (3) 800/2.5 DUAL BAND PANEL ANTENNAS (RFS APXVTSM18-C-120)

**CONTRACTOR MINOR MATERIALS INCLUDE:**

- CONDUITS & FITTINGS
- ANTENNA MOUNTING PIPES
- HYBRID CABLE

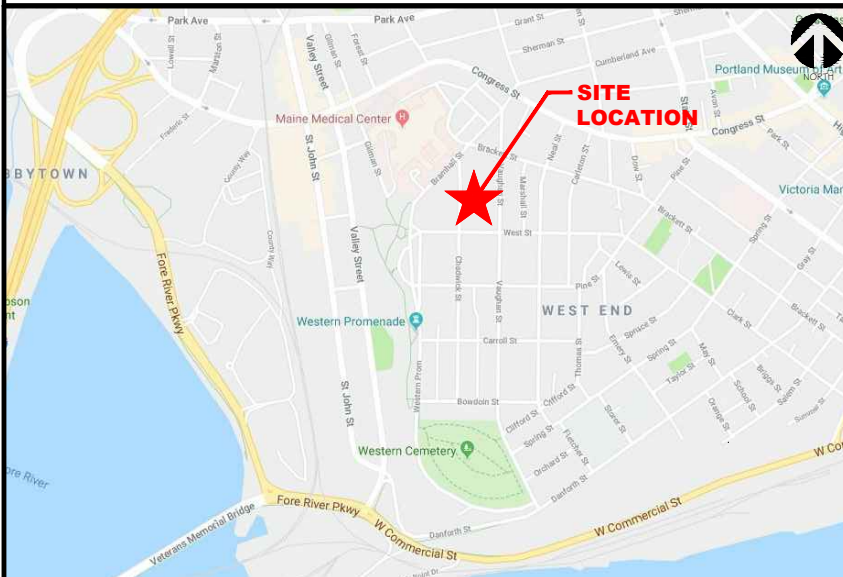
**A&E FIRM**

RAMAKER & ASSOCIATES, INC.  
 855 COMMUNITY DRIVE  
 SAUK CITY, WI 53583  
 PHONE: (608) 643-4100

**SITE ACQUISITION**

CENTERLINE COMMUNICATIONS  
 CONTACT: SUSAN MASSE  
 PHONE: (401) 332-1321  
 EMAIL: smasse@clinellc.com

**VICINITY MAP:**



**AERIAL MAP:**



**SHEET INDEX:**

SHEET NUMBER	SHEET DESCRIPTION	REVISION
T-1	COVER SHEET & SITE PLAN	A
SP-1	SPECIFICATIONS	A
SP-2	SPECIFICATIONS	A
A-1	EQUIPMENT LAYOUT & SITE ELEVATION	A
A-2	ANTENNA LAYOUTS & SCHEDULES	A
A-3	EQUIPMENT DETAILS	A
A-4	CABLE SPECS & MARKING NOTES	A
A-5	CABLE MARKING NOTES	A
E-1	ELECTRICAL DETAILS	A
G-1	GROUNDING DETAILS	A
S-1	STRUCTURAL DETAILS	A

**CODE COMPLIANCE:**

ALL WORK SHALL BE PERFORMED AND MATERIALS 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 THESE CODES.

- INTERNATIONAL BUILDING CODE
- INTERNATIONAL MECHANICAL CODE
- ANSI/TIA-222 STRUCTURAL STANDARD
- NFPA 780 - LIGHTNING PROTECTION CODE
- UNIFORM PLUMBING CODE
- NATIONAL ELECTRICAL CODE

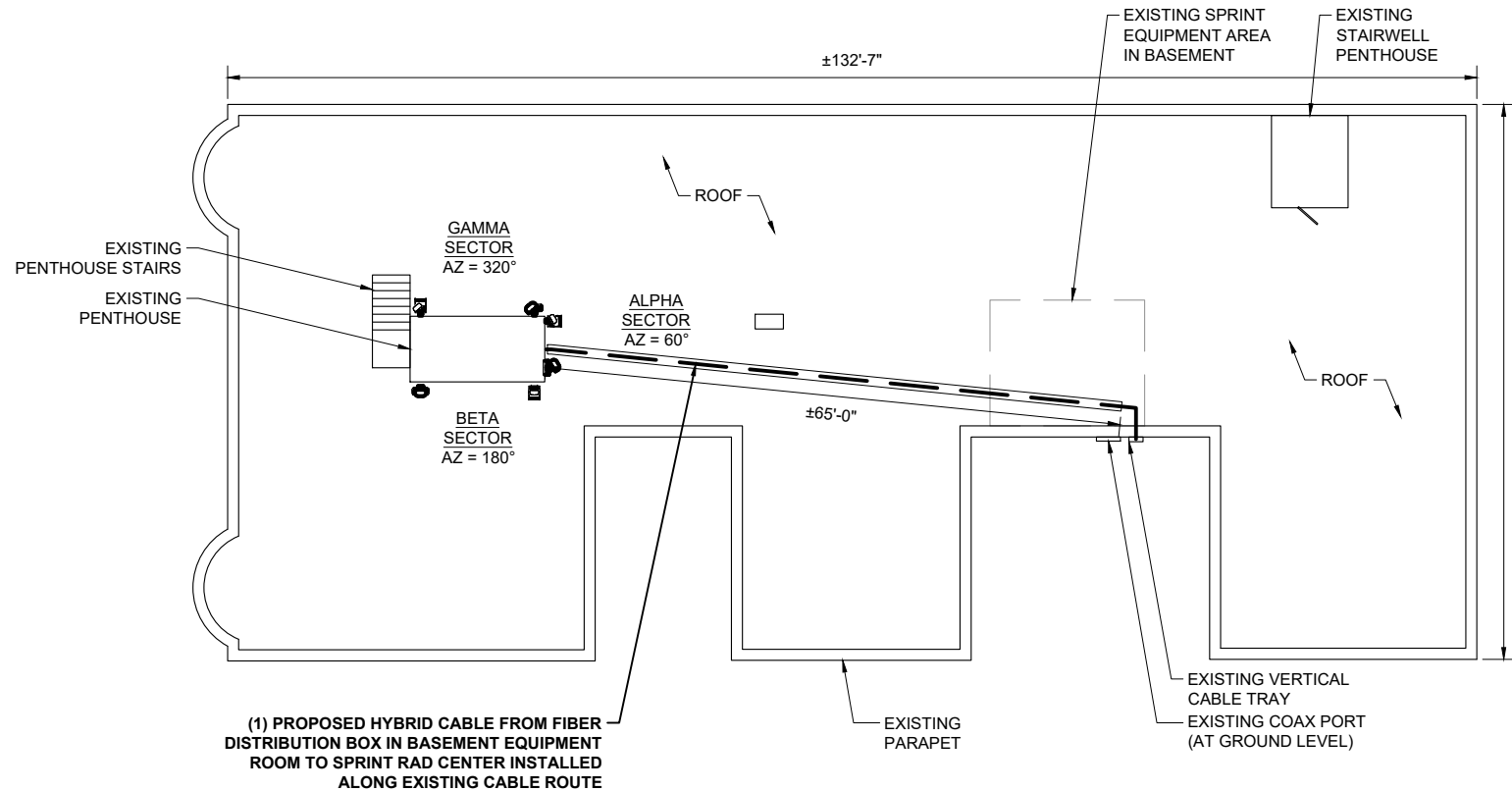


**DO MACRO UPGRADE**

Reviewed for Code Compliance  
 Permitting and Inspections Department  
 Approved with Conditions

07/26/2018

**SITE CASCADE:  
 NM03XC065**



**OVERALL SITE PLAN**

SCALE: 1" = 20'



6391 SPRINT PARKWAY  
 OVERLAND PARK, KS 66251



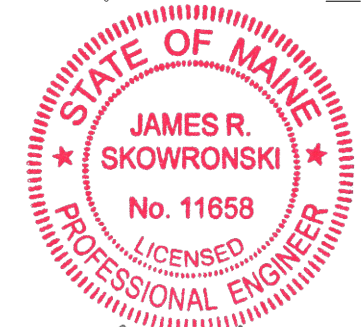
95 RYAN DRIVE, SUITE 1  
 RAYNHAM, MA 02767  
 OFFICE: (844) 748-8878



100% EMPLOYEE-OWNED  
 855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com

Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal:  
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Maine.



Signature: *James R. Skowronski* Date: 6/26/2018

MARK	DATE	DESCRIPTION
1	06/26/18	MOUNTING DETAILS

ISSUE PHASE	FINAL	DATE ISSUED
		05/16/2018

PROJECT TITLE:  
**PORTLAND SOUTH  
 CHADWICK  
 NM03XC065**

PROJECT INFORMATION:  
 131 CHADWICK STREET  
 PORTLAND, ME 04102  
 CUMBERLAND COUNTY

SHEET TITLE:  
 COVER SHEET & SITE PLAN

SCALE: NONE

PROJECT NUMBER	39053
SHEET NUMBER	T-1

I:\39000\39053\CAD\NM03XC065\_DO MACRO CDs.dwg Pnted by: bschoepp on Jun 26, 2018 - 4:15:08pm

This document contains confidential or proprietary information of Ramaker & Associates, Inc. Neither this document nor the information herein is to be reproduced, distributed, used or disclosed either in whole or in part except as authorized by Ramaker and Associates, Inc.

**SECTION 01 100 - SCOPE OF WORK**

**THE WORK:**  
 SHALL COMPLY WITH ALL APPLICABLE ADOPTED CODES AND STANDARDS, AND PORTIONS THEREOF.

**PRECEDENCE:**  
 SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE.

**SITE FAMILIARITY:**  
 CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.

**ON-SITE SUPERVISION:**  
 THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

**DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE:**  
 THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

- A. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONING SYSTEM. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
- B. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
- C. MARK THE FIELD SET OF DRAWINGS IN RED, DOCUMENTING ANY CHANGES FROM THE CONSTRUCTION DOCUMENTS.

**METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION:**  
 CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN:

- A. COAX COLOR CODING SWEEPS AND FIBER TESTING TS-0200 AND EL-0568
- B. CABLE LABELING EN-2012-00
- C. APPLICABLE INSTALLATION MOPS IDENTIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS

**SECTION 01 200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT**

- A. COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DRAWINGS.
- B. CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT TO ENSURE IT IS PROTECTED AND HANDLED PROPERLY THROUGHOUT THE CONSTRUCTION DURATION.
- C. CONTRACTOR IS RESPONSIBLE FOR RECEIPT OF SPRINT FURNISHED EQUIPMENT AT CELL SITE OR CONTRACTORS LOCATION. CONTRACTOR TO COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

**SECTION 01 300 - CELL SITE CONSTRUCTION**

**NOTICE TO PROCEED:**  
 NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF WORK ORDER.

**SITE CLEANLINESS:**  
 CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

**SECTION 01 400 - SUBMITTALS & TESTS**

**ALTERNATES:**  
 AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED.

**TESTS AND INSPECTIONS:**

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  - 1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
  - 2. AGL, AZIMUTH AND DOWNTILT: PROVIDE AN AUTOMATED REPORT UPLOADED TO SITERRA USING A COMMERCIAL MADE-FOR THE PURPOSE ELECTRONIC ANTENNA ALIGNMENT TOOL (AAT). INSTALLED AZIMUTH, CENTERLINE AND DOWNTILT MUST CONFORM WITH RF CONFIGURATION DATA.
  - 3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
  - 4. ALL TESTING REQUIRED BY APPLICABLE INSTALLATION MOPS.
- C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
  - 1. AZIMUTH, DOWNTILT, AGL FROM SUNSIGHT INSTRUMENTS - ANTENNALIGN ALIGNMENT TOOL (AAT).
  - 2. SWEEP AND FIBER TESTS.
  - 3. SCALABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT.
  - 4. ALL AVAILABLE JURISDICTIONAL PERMIT AND OCCUPANCY INFORMATION.
  - 5. PDF SCAN OF REDLINES PRODUCED IN FIELD.
  - 6. A PDF SCAN OF REDLINE MARK-UPS SUITABLE FOR USE IN ELECTRONIC AS-BUILT DRAWING PRODUCTION.
  - 7. LIEN WAIVERS.
  - 8. FINAL PAYMENT APPLICATION.
  - 9. REQUIRED FINAL CONSTRUCTION PHOTOS.
  - 10. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS.
  - 11. APPLICABLE POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINT'S DOCUMENT REPOSITORY OF RECORD).
  - 12. CLOSEOUT PHOTOGRAPHS AND CLOSEOUT CHECKLIST: SPRINT WILL PROVIDE SEPARATE GUIDANCE.

**SECTION 11 700 - ANTENNA ASSEMBLY, REMOTE RADIO UNITS AND CABLE INSTALLATION**

**SUMMARY:**  
 THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRU'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

**ANTENNAS AND RRU'S:**  
 THE NUMBER AND TYPE OF ANTENNAS AND RRU'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

**HYBRID CABLE:**  
 HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS.

**JUMPERS AND CONNECTORS:**  
 FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRU'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12-50, CR 540, OR FXL 540. SUPER-FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRU'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE, MIN. LENGTH FOR JUMPER SHALL BE 10'-0".

**REMOTE ELECTRICAL TILT (RET) CABLES:**

**MISCELLANEOUS:**  
 INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.

**ANTENNA INSTALLATION:**  
 THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.

- A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE.
- B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.

**HYBRID CABLE INSTALLATION:**

- A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.
- C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.
  - 1. FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE INSTALLED INSIDE MONOPOLE WITH CABLE SUPPORT GRIPS AS REQUIRED BY THE MANUFACTURER.
  - 2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
    - a. FIBER: SUPPORT FIBER BUNDLES USING 1/2" VELCRO STRAPS OF THE REQUIRED LENGTH AT 18" O.C. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.
    - b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.
  - 3. FASTENING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CLIPS.
  - 4. CABLE INSTALLATION:
    - a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE, NOTIFY THE CONSTRUCTION MANAGER.
    - b. CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSOVERS.
    - c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM BEND RADIUS.
  - 5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.
  - 6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 REV 4.
  - 7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1

**WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:**

- A. ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.
- B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.
  - 1. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2" ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE 3M COLD SHRINK CXS SERIES OR EQUAL.
  - 2. SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF-AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF-AMALGAMATING TAPE.
  - 3. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
  - 4. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE



6391 SPRINT PARKWAY  
 OVERLAND PARK, KS 66251



95 RYAN DRIVE, SUITE 1  
 RAYNHAM, MA 02767  
 OFFICE: (844) 748-8878



100% EMPLOYEE-OWNED  
 855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com

Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal:



Reviewed for Code Compliance  
 Permitting and Inspections Department  
 Approved with Conditions

07/26/2018


1	06/26/18	MOUNTING DETAILS
---	----------	------------------

MARK	DATE	DESCRIPTION
------	------	-------------

ISSUE PHASE	FINAL	DATE ISSUED	05/16/2018
-------------	-------	-------------	------------

PROJECT TITLE:  
**PORTLAND SOUTH CHADWICK NM03XC065**

PROJECT INFORMATION:  
 131 CHADWICK STREET  
 PORTLAND, ME 04102  
 CUMBERLAND COUNTY

SHEET TITLE:  
 SPECIFICATIONS

SCALE: NONE

PROJECT NUMBER	39053
SHEET NUMBER	SP-1

**SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE STATIONS (MMBS) AND RELATED EQUIPMENT**

SUMMARY:

- A. THIS SECTION SPECIFIES MMBS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).
- B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRED BY THE APPLICABLE INSTALLATION MOPS.
- C. COMPLY WITH MANUFACTURER'S INSTALLATION AND START-UP REQUIREMENTS.

DC CIRCUIT BREAKER LABELING

- A. NEW DC CIRCUIT IS REQUIRED IN MMBS CABINET SHALL BE CLEARLY IDENTIFIED AS TO RRU BEING SERVICED.

**SECTION 26 100 - BASIC ELECTRICAL REQUIREMENTS**

SUMMARY:

THIS SECTION SPECIFIES BASIC ELECTRICAL REQUIREMENTS FOR SYSTEMS AND COMPONENTS.

QUALITY ASSURANCE:

- A. ALL EQUIPMENT FURNISHED UNDER DIVISION 26 SHALL CARRY UL LABELS AND LISTINGS WHERE SUCH LABELS AND LISTINGS ARE AVAILABLE IN THE INDUSTRY.
- B. MANUFACTURERS OF EQUIPMENT SHALL HAVE A MINIMUM OF THREE YEARS EXPERIENCE WITH THEIR EQUIPMENT INSTALLED AND OPERATING IN THE FIELD IN A USE SIMILAR TO THE PROPOSED USE FOR THIS PROJECT.
- C. **MATERIALS AND EQUIPMENT:** ALL MATERIALS AND EQUIPMENT SPECIFIED IN DIVISION 26 OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER AND SHALL BE NEW, OF THE BEST QUALITY AND DESIGN, AND FREE FROM DEFECTS.

SUPPORTING DEVICES:

- A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:
  - 1. ALLIED TUBE AND CONDUIT.
  - 2. B-LINE SYSTEM.
  - 3. UNISTRUT DIVERSIFIED PRODUCTS.
  - 4. THOMAS & BETTS.
- B. FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:
  - 1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
  - 2. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
  - 3. FASTEN BY MEANS OF WOOD SCREWS ON WOOD.
  - 4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS.
  - 5. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY.
  - 6. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL.
  - 7. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED.
  - 8. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES.
  - 9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

SUPPORTING DEVICES:

- A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC.
- B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.
- C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:
  - 1. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.
  - 2. USE VIBRATION AND SHOCK-RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL IDENTIFICATION:

- A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.
- B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

**SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT**

CONDUIT:

- A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR UNDERGROUND RUNS. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED - SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.
- B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.
- C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS ELBOWS.
- D. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.
- E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6-FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRED BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.
- F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (21MM).

HUBS AND BOXES:

- A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED. HUB SHALL INCLUDE LOCKNUT AND NEOPRENE O-RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION.
- B. CABLE TERMINATION FITTINGS FOR CONDUIT
  - 1. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O-Z/GEDNEY OR EQUAL BY ROXTEC.
  - 2. CABLE TERMINATORS FOR LFMC SHALL BE ETCO - CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.
- C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE-HINDS WAB SERIES OR EQUAL.
- D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKET COVERS. OUTLET BODIES SHALL BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION. PROVIDE CROUSE-HINDS FORM 8 OR EQUAL.
- E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE-HINDS, COOPER, ADALET, APPLETON, O-Z GEDNEY, RACO, OR APPROVED EQUAL.

SUPPLEMENTAL GROUNDING SYSTEM:

- A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM TO THE EXTENT INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON-MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS EXCEPT AS OTHERWISE NOTED.
- B. SUPPLEMENTAL GROUNDING SYSTEM: ALL CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO HOLE SPADES WITH NO-OX.
- C. STOLEN GROUND-BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CM FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

EXISTING STRUCTURE:

- A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE-ENERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

CONDUIT AND CONDUCTOR INSTALLATION:

- A. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
- B. CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.



6391 SPRINT PARKWAY  
OVERLAND PARK, KS 66251



95 RYAN DRIVE, SUITE 1  
RAYNHAM, MA 02767  
OFFICE: (844) 748-8878



100% EMPLOYEE-OWNED  
855 Community Dr, Sauk City, WI 53583  
608-643-4100 www.Ramaker.com

Sauk City, WI • Willmar, MN  
Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal:



Reviewed for Code Compliance  
Permitting and Inspections Department  
Approved with Conditions

07/26/2018


1	06/26/18	MOUNTING DETAILS
---	----------	------------------

MARK	DATE	DESCRIPTION
ISSUE	FINAL	DATE ISSUED 05/16/2018

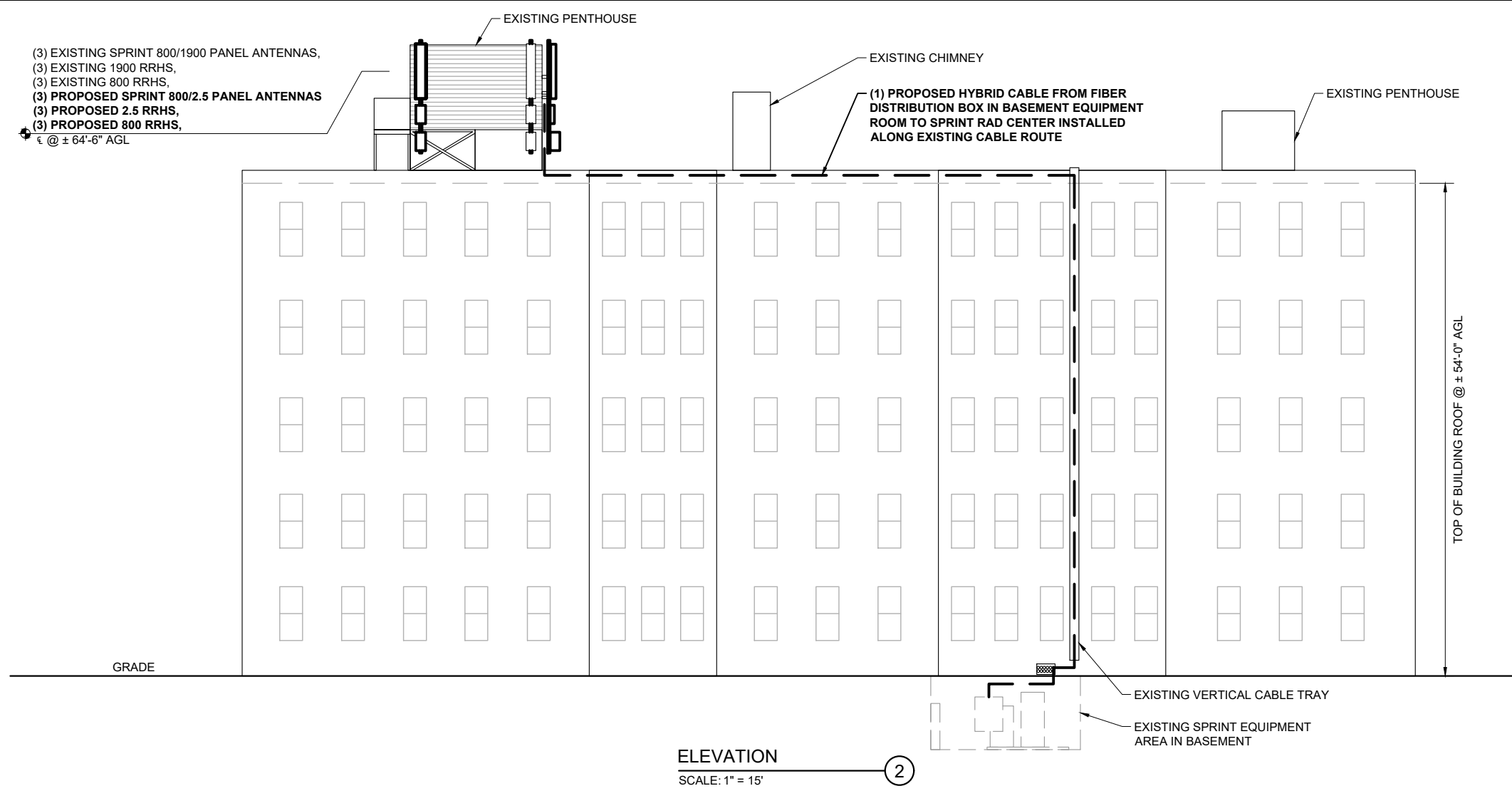
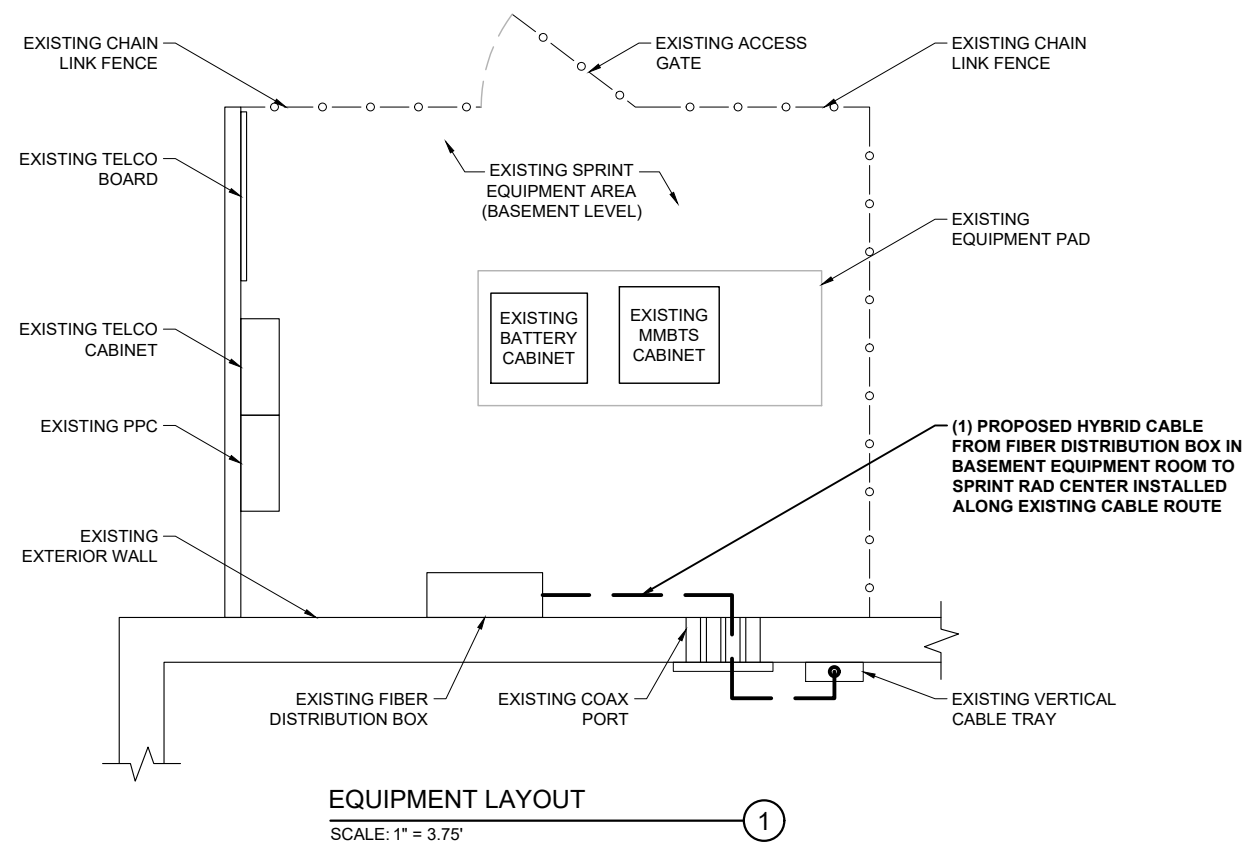
PROJECT TITLE:  
**PORTLAND SOUTH CHADWICK NM03XC065**

PROJECT INFORMATION:  
131 CHADWICK STREET  
PORTLAND, ME 04102  
CUMBERLAND COUNTY

SHEET TITLE:  
SPECIFICATIONS

SCALE: NONE

PROJECT NUMBER	39053
SHEET NUMBER	SP-2



6391 SPRINT PARKWAY  
 OVERLAND PARK, KS 66251



95 RYAN DRIVE, SUITE 1  
 RAYNHAM, MA 02767  
 OFFICE: (844) 748-8878



855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com  
 Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR

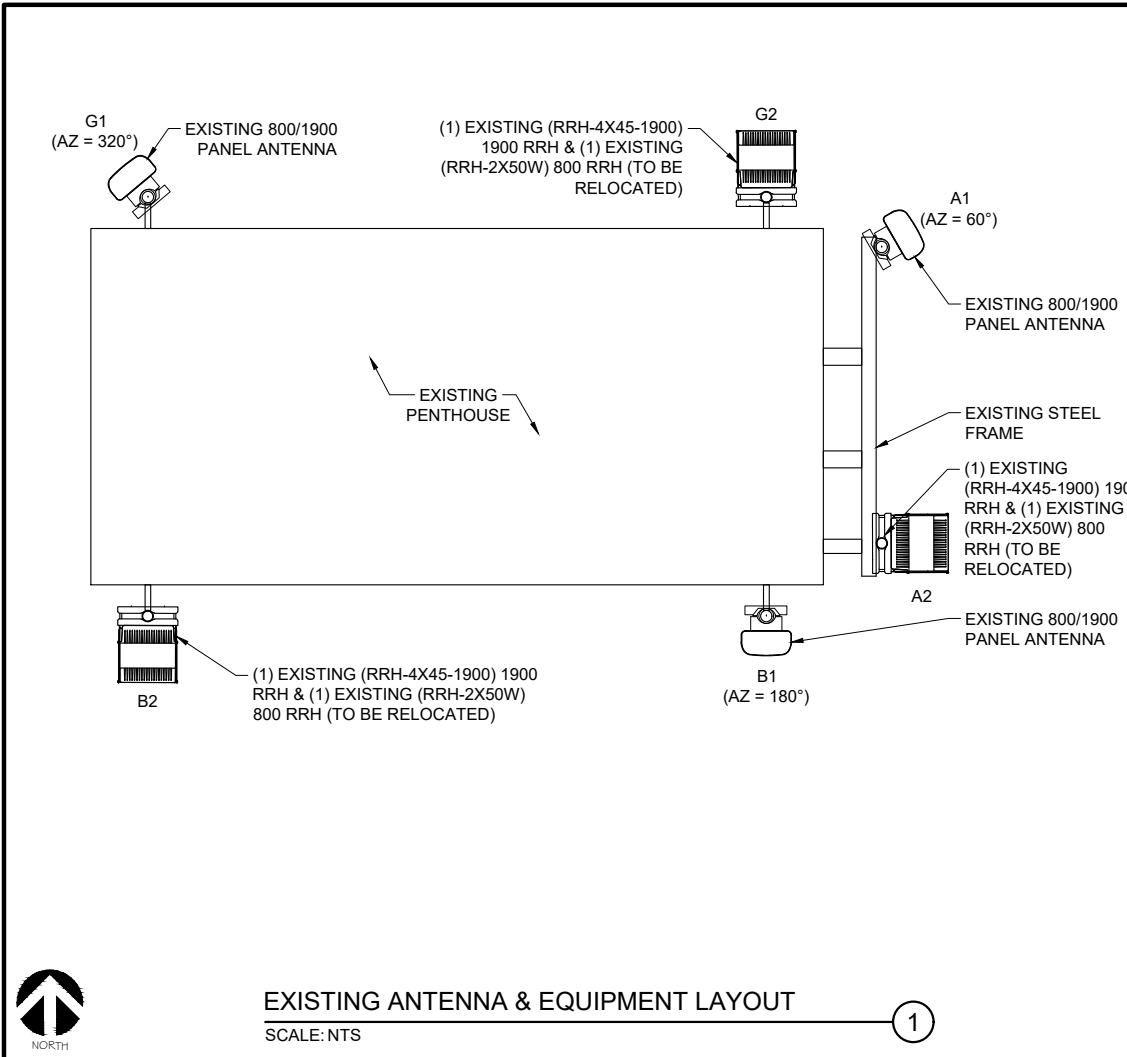
Certification & Seal:



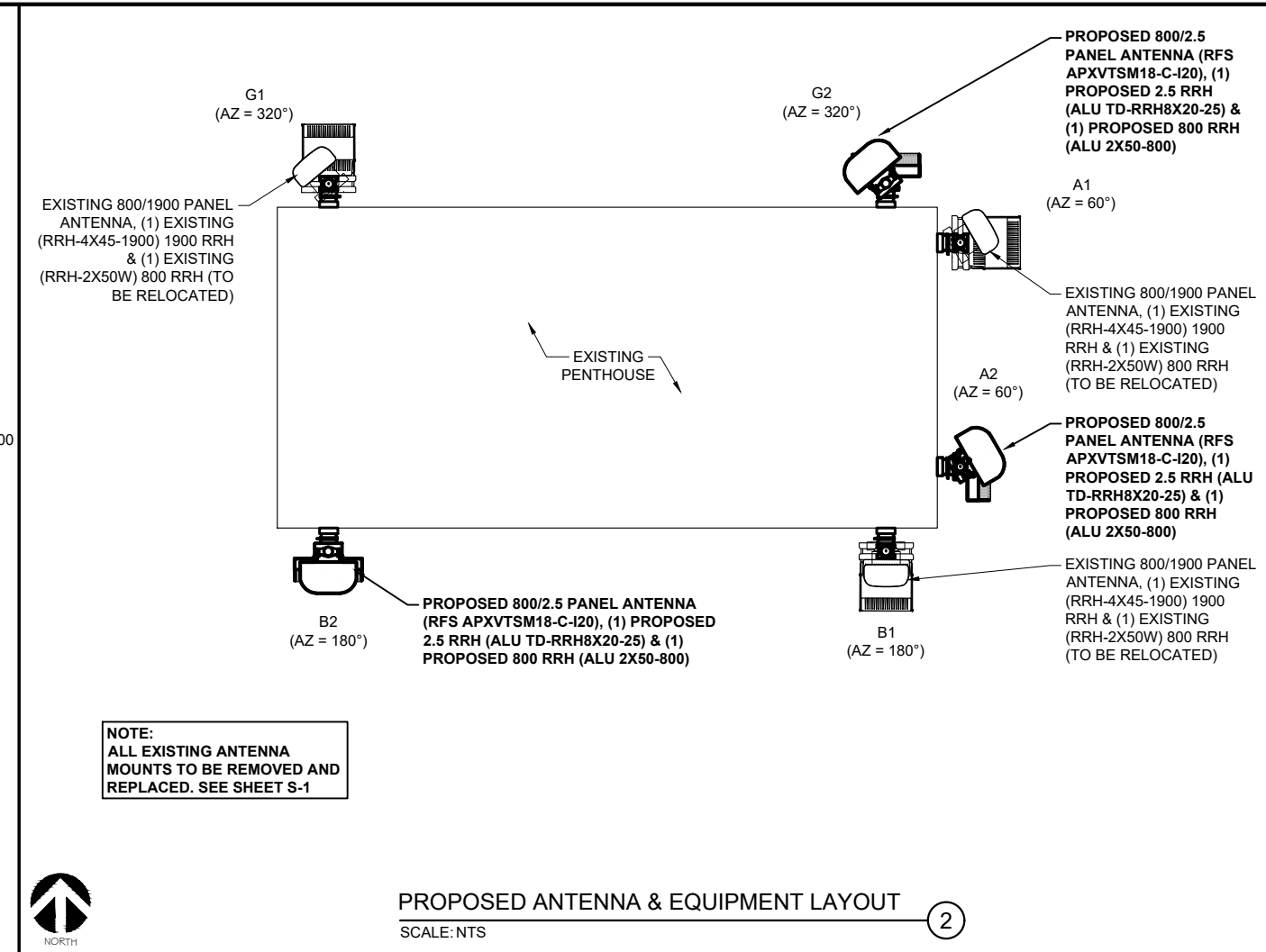
Reviewed for Code Compliance  
 Permitting and Inspections Department  
 Approved with Conditions

07/26/2018

MARK	DATE	DESCRIPTION
1	06/26/18	MOUNTING DETAILS
ISSUE PHASE	FINAL	DATE ISSUED 05/16/2018
PROJECT TITLE: <b>PORTLAND SOUTH CHADWICK NM03XC065</b>		
PROJECT INFORMATION: 131 CHADWICK STREET PORTLAND, ME 04102 CUMBERLAND COUNTY		
SHEET TITLE: EQUIPMENT LAYOUT & SITE ELEVATION		
SCALE: AS NOTED		
PROJECT NUMBER	39053	
SHEET NUMBER	A-1	



**EXISTING ANTENNA & EQUIPMENT LAYOUT**  
 SCALE: NTS



**PROPOSED ANTENNA & EQUIPMENT LAYOUT**  
 SCALE: NTS

**ANTENNA & EQUIPMENT SCHEDULES**  
 SCALE: N.T.S.

ANTENNA & EQUIPMENT SCHEDULE												
SECTOR	ANTENNA MODEL NUMBER	ANTENNA MANUFACTURER	HYBRID CABLES	AZIMUTH	RAD CENTER	ELECT D-TILT	MECH D-TILT	RRU MODEL NUMBER	RRU MANUFACTURER	JUMPER SIZE	JUMPER QTY	JUMPER LENGTH
A1	APXVSP18-C-A20	RFS	(E) HYBRID CABLE (± 160'-0")	60°	64'-6"	0°	0°	RRH 2X50-800	ALU	1/2"	2	8'
								RRH 4X45-1900	ALU	1/2"	4	8'
A2	APXVTSM18-C-I20	RFS	(P) AUX HYBRID CABLE (± 160'-0")	60°	64'-6"	0°	0°	RRH 2X50-800	ALU	1/2"	2	8'
								TD-RRH8X20-25	ALU	1/2"	8	8'
B1	APXVSP18-C-A20	RFS	(E) HYBRID CABLE (± 160'-0")	180°	64'-6"	0°	0°	RRH 2X50-800	ALU	1/2"	2	8'
								RRH 4X45-1900	ALU	1/2"	4	8'
B2	APXVTSM18-C-I20	RFS	SHARED WITH (P) HYBRID CABLE	180°	64'-6"	0°	0°	RRH 2X50-800	ALU	1/2"	2	8'
								TD-RRH8X20-25	ALU	1/2"	8	8'
G1	APXVSP18-C-A20	RFS	(E) HYBRID CABLE (± 160'-0")	320°	64'-6"	0°	0°	RRH 2X50-800	ALU	1/2"	2	8'
								RRH 4X45-1900	ALU	1/2"	4	8'
G2	APXVTSM18-C-I20	RFS	SHARED WITH (P) HYBRID CABLE	320°	64'-6"	0°	0°	RRH 2X50-800	ALU	1/2"	2	8'
								TD-RRH8X20-25	ALU	1/2"	8	8'



6391 SPRINT PARKWAY  
 OVERLAND PARK, KS 66251



95 RYAN DRIVE, SUITE 1  
 RAYNHAM, MA 02767  
 OFFICE: (844) 748-8878



100% EMPLOYEE-OWNED  
 855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com

Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR



Reviewed for Code Compliance  
 Permitting and Inspections Department  
 Approved with Conditions

07/26/2018

1	06/26/18	MOUNTING DETAILS
MARK	DATE	DESCRIPTION
ISSUE PHASE	FINAL	DATE ISSUED 05/16/2018

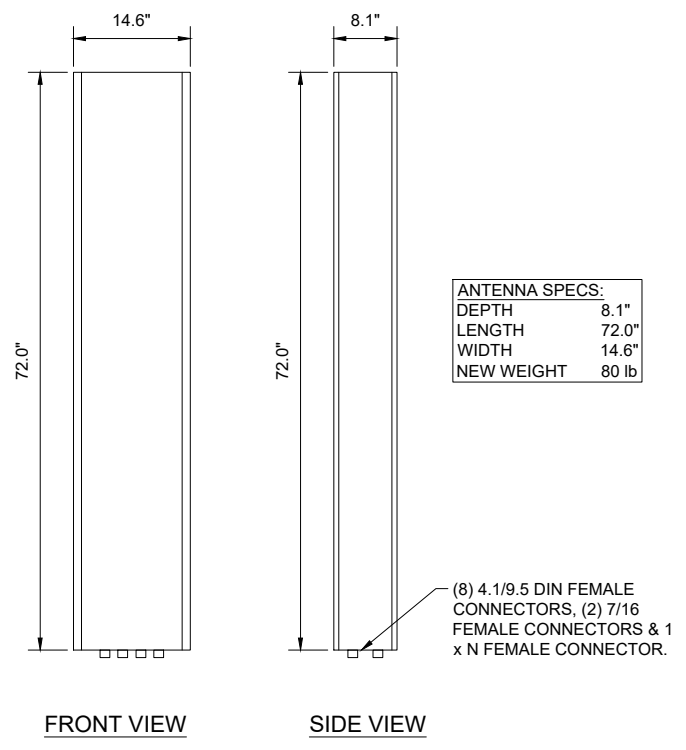
PROJECT TITLE:  
**PORTLAND SOUTH CHADWICK NM03XC065**

PROJECT INFORMATION:  
 131 CHADWICK STREET  
 PORTLAND, ME 04102  
 CUMBERLAND COUNTY

SHEET TITLE:  
 ANTENNA LAYOUTS & EQUIPMENT SCHEDULE

SCALE:  
 AS NOTED

PROJECT NUMBER	39053
SHEET NUMBER	A-2



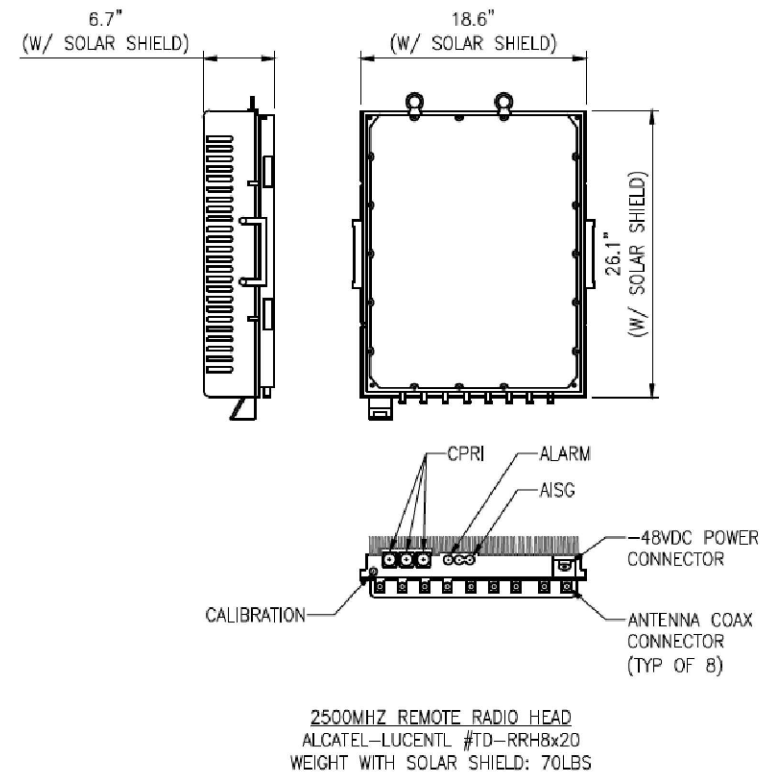
**ANTENNA SPECS:**

DEPTH	8.1"
LENGTH	72.0"
WIDTH	14.6"
NEW WEIGHT	80 lb

(8) 4.1/9.5 DIN FEMALE CONNECTORS, (2) 7/16 FEMALE CONNECTORS & 1 X N FEMALE CONNECTOR.

**PROPOSED 800/2.5 PANEL ANTENNA (RFS APXVTSM18-C-I20)**

SCALE: NTS 1



**PROPOSED 2.5 GHZ RRH (ALU TD-RRH8x20)**

SCALE: NTS 2

**800MHz 2X50W Remote Radio Head (RRH)**

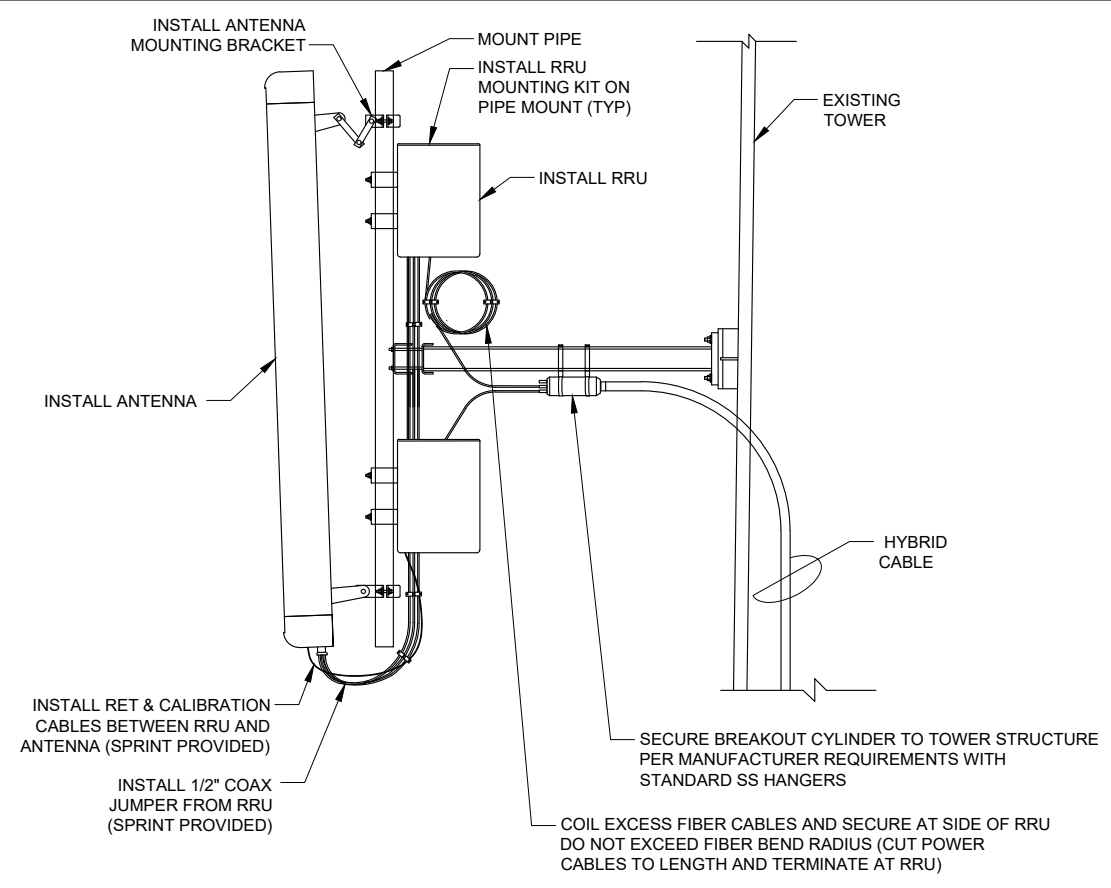
- Simultaneous CDMA & LTE Multi technology RRH 862-869 MHz
- Any combination of CDMA and LTE carriers supported by 100W RF Power
  - 2 CPRI-like Optical Connections for daisy chaining
  - Software Switchable External Filter for use before Public Safety is cleared
- Dimensions: w/o Filter    w/ Filter
- Height: 480 mm (19")    480 mm (19")
  - Width: 330 mm (13")    330 mm (13")
  - Depth: 218 mm (8.6")    310 (12.2")
  - Weight: 24 kg (53 lbs)    29 kg (64 lbs)
  - 49 liters, <29kg
- Power Supply: -48 VDC  
 Power Consumption: <400W Typical  
 Operating Temp range -40° C to +55° C  
 Option to mount on Ground at tower base



Alcatel-Lucent's 800 RRH satisfies Sprint's requirements.

**PROPOSED 800 MHZ RRH (ALU 800 MHZ 2x50W)**

SCALE: NTS 3



**EQUIPMENT MOUNTING DETAIL**

SCALE: NTS 4



6391 SPRINT PARKWAY  
 OVERLAND PARK, KS 66251



95 RYAN DRIVE, SUITE 1  
 RAYNHAM, MA 02767  
 OFFICE: (844) 748-8878



100% EMPLOYEE-OWNED  
 855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com  
 Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR



Reviewed for Code Compliance  
 Permitting and Inspections Department  
 Approved with Conditions

**07/26/2018**

MARK	DATE	DESCRIPTION
1	06/26/18	MOUNTING DETAILS
ISSUE PHASE	FINAL	DATE ISSUED 05/16/2018

PROJECT TITLE:  
**PORTLAND SOUTH CHADWICK NM03XC065**

PROJECT INFORMATION:  
 131 CHADWICK STREET  
 PORTLAND, ME 04102  
 CUMBERLAND COUNTY

SHEET TITLE:  
**EQUIPMENT DETAILS**

SCALE:  
 AS NOTED

PROJECT NUMBER	39053
SHEET NUMBER	A-3

**HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE**  
 MANUFACTURER: RFS

CABLE	LENGTH	DC CONDUCTOR	CABLE DIAMETER
*Fiber Only	Varies	Use NV Hybridflex	5/8"
Hybridflex	<200'	8 AWG	1-1/4"
Hybridflex	225-300'	6 AWG	1-1/4"
Hybridflex	325-375'	4 AWG	1-1/4"

**RFS HYBRIFLEX RISER CABLE SCHEDULE**

FIBER ONLY (EXISTING DC POWER)	Hybrid cable	
MN-HB058-M12-050F	12x multi-mode fiber pairs, Top:Outdoor protected connectors, Bottom:LC Connectors, 5/8 cable, 50 ft	50 ft
MN-HB058-M12-075F		75 ft
*MN-HB058-M12-100F		100 ft
MN-HB058-M12-125F		125 ft
MN-HB058-M12-150F		150 ft
MN-HB058-M12-175F		175 ft
MN-HB058-M12-200F		200 ft

8 AWG Power	Hybrid cable	
MN-HB114-08U3M12-050F	3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC connectors. 1 1/4 cable, 50 ft	50 ft
MN-HB114-08U3M12-075F		75 ft
MN-HB114-08U3M12-100F		100 ft
MN-HB114-08U3M12-125F		125 ft
MN-HB114-08U3M12-150F		150 ft
MN-HB114-08U3M12-175F		175 ft
MN-HB114-08U3M12-200F		200 ft

6 AWG Power	Hybrid cable	
MN-HB114-13U3M12-225F	3x 6 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC connectors. 1 1/4 cable, 225 ft	225 ft
MN-HB114-13U3M12-250F		250 ft
MN-HB114-13U3M12-275F		275 ft
MN-HB114-13U3M12-300F		300 ft

4 AWG Power	Hybrid cable	
MN-HB114-21U3M12-325F	3x 4 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC connectors. 1 1/4 cable, 325 ft	325 ft
MN-HB114-21U3M12-350F		350 ft
MN-HB114-21U3M12-375F		375 ft

**RFS HYBRIFLEX JUMPER CABLE SCHEDULE**

FIBER ONLY	Hybrid Jumper cable	
MN-HBF012-M3-5F1	5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
MN-HBF012-M3-10F1		10 ft
*MN-HBF012-M3-15F1		15 ft
SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15' NOTIFY SPRINT CM OF ANY DISCREPANCY		

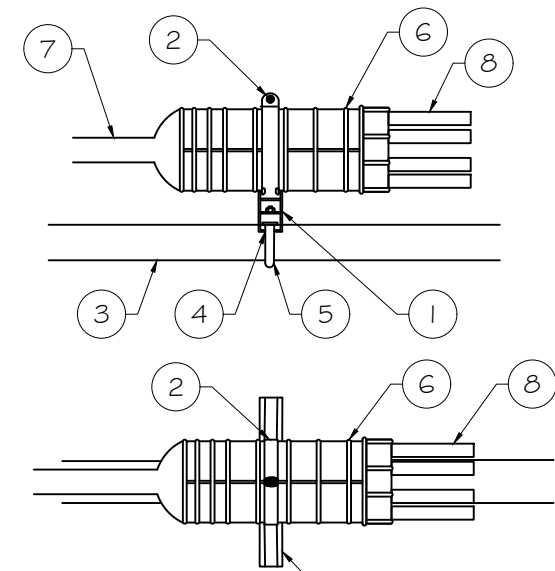
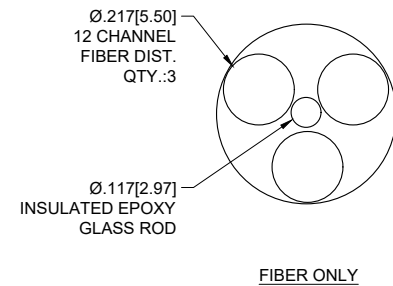
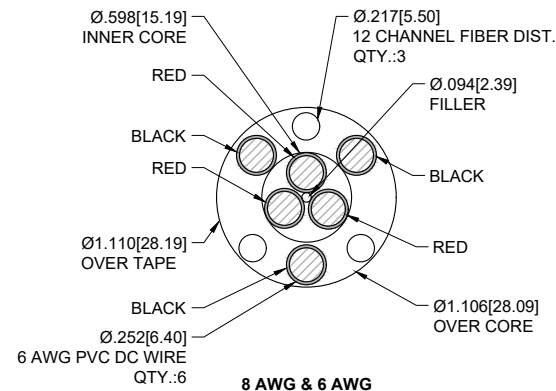
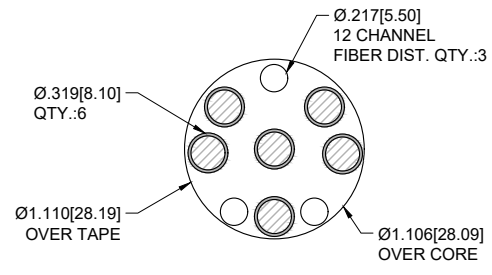
8 AWG POWER	Hybrid Jumper cable	
MN-HBF058-08U1M3-5F1	5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC connectors, 5/8 cable	5 ft
MN-HBF058-08U1M3-10F1		10 ft
MN-HBF058-08U1M3-15F1		15 ft
SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15' NOTIFY SPRINT CM OF ANY DISCREPANCY		

6 AWG POWER	Hybrid Jumper cable	
MN-HBF058-13U1M3-5F1	5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC connectors, 5/8 cable	5 ft
MN-HBF058-13U1M3-10F1		10 ft
MN-HBF058-13U1M3-15F1		15 ft
SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15' NOTIFY SPRINT CM OF ANY DISCREPANCY		

4 AWG POWER	Hybrid Jumper cable	
MN-HBF078-21U1M3-5F1	5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC connectors, 7/8 cable	5 ft
MN-HBF078-21U1M3-10F1		10 ft
MN-HBF078-21U1M3-15F1		15 ft
SPECIAL INSTALLATION NOTE: JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA SHALL NOT EXCEED 15' NOTIFY SPRINT CM OF ANY DISCREPANCY		



- NOTES:**
- 1 1/8" x 1 1/2" UNISTRUT, 6" LONG
  - 2 4" PIPE HANGER
  - 3 EXISTING SUPPORT PIPE
  - 4 NEW STANDOFF BRACKET ANDREW PART NO. 30848-4. CONTRACTOR TO SUPPLY 3/8" CONNECTION HARDWARE
  - 5 NEW ROUND MEMBER ADAPTED SIZED FOR PIPE SUPPORT
  - 6 NEW CABLE BREAKOUT UNIT
  - 7 NEW HYBRID CABLE
  - 8 NEW FIBER & POWER CABLES FROM BREAKOUT

**HYBRID BREAKOUT DETAIL**  
 SCALE: NTS

Hybrid Cable Color Map(Legacy NV cable only)				
ID	NV HFC (One per sector)			
Freq	1.9 GHz	800 MHz	800 MHz or 1.9MHz 2nd RRH	2.5 GHz
Circuit(Eltek)	C*12,13,14	NC*13,14,15	NC16,17,18	NC10,11,12
Return STA	White/Red Stripe	White/Black Stripe	**White/Blue Stripe White/Brown Stripe	**White/Blue Stripe White/Brown Stripe
-48VDC STA	Red	Black	Blue/Brown	Blue/Brown

ID	Aux HFC-STA ONLY		
Freq	2.5 GHz-S1	2.5 GHz-S2	2.5 GHz-S3
Circuit	NC10	NC11	NC12
Return	White/Red Stripe	White/Black Stripe	White/Blue stripe
-48VDC	Red	Black	Blue

\*C=Critical, NC=NonCritical Buss  
 \*\*STA Bi-Wired Pairs. Either 1.9, 800 2nd RRH or 2.5 can use this dual pair.  
 \*\*\* Use only one freq band RRH. To deploy more than 4 RRHs/sector a second Ecab must be deployed.

**HYBRID CABLE COLOR CODING**  
 SCALE: NTS

**HYBRID CABLE SPECIFICATIONS**  
 SCALE: NTS



6391 SPRINT PARKWAY  
 OVERLAND PARK, KS 66251



95 RYAN DRIVE, SUITE 1  
 RAYNHAM, MA 02767  
 OFFICE: (844) 748-8878



100% EMPLOYEE-OWNED  
 855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com  
 Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR



Reviewed for Code Compliance  
 Permitting and Inspections Department  
 Approved with Conditions

07/26/2018

MARK	DATE	DESCRIPTION
1	06/26/18	MOUNTING DETAILS

PROJECT TITLE:  
**PORTLAND SOUTH  
 CHADWICK  
 NM03XC065**

PROJECT INFORMATION:  
 131 CHADWICK STREET  
 PORTLAND, ME 04102  
 CUMBERLAND COUNTY

SHEET TITLE:  
 CABLE SPECS &  
 MARKING NOTES

SCALE:  
 AS NOTED

PROJECT NUMBER	39053
SHEET NUMBER	A-4

RRH-1 800							
Sector #	Radio Port #	First Ring	Second Ring	Third Ring	Space	Sector #	Frequency-Radio #
1	1	Green	No tape	No tape		Yellow	Green
1	2					Yellow	Green
2	1	Green	Green	No tape		Yellow	Green
2	2			No tape		Yellow	Green
3	1	Green	Green	Green		Yellow	Green
3	2					Yellow	Green

RRH-2 800							
Sector #	Radio Port #	First Ring	Second Ring	Third Ring	Space	Sector #	Frequency-Radio #
1	1	Green	No tape	No tape		Yellow	Orange
1	2					Yellow	Orange
2	1	Green	Green	No tape		Yellow	Orange
2	2			No tape		Yellow	Orange
3	1	Green	Green	Green		Yellow	Orange
3	2					Yellow	Orange

RRH-1 1900							
Sector #	Radio Port #	First Ring	Second Ring	Third Ring	Space	Sector #	Frequency-Radio #
1	1	Green	No tape	No tape		Yellow	Red
1	2					Yellow	Red
1	3	Brown	No tape	No tape		Yellow	Red
1	4	White	No tape	No tape		Yellow	Red
2	1	Green	Green	No tape		Yellow	Red
2	2			No tape		Yellow	Red
2	3	Brown	Brown	No tape		Yellow	Red
2	4	White	White	No tape		Yellow	Red
3	1	Green	Green	Green		Yellow	Red
3	2					Yellow	Red
3	3	Brown	Brown	Brown		Yellow	Red
3	4	White	White	White		Yellow	Red

RRH-2 1900							
Sector #	Radio Port #	First Ring	Second Ring	Third Ring	Space	Sector #	Frequency-Radio #
1	1	Green	No tape	No tape		Yellow	Brown
1	2					Yellow	Brown
1	3	Brown	No tape	No tape		Yellow	Brown
1	4	White	No tape	No tape		Yellow	Brown
2	1	Green	Green	No tape		Yellow	Brown
2	2			No tape		Yellow	Brown
2	3	Brown	Brown	No tape		Yellow	Brown
2	4	White	White	No tape		Yellow	Brown
3	1	Green	Green	Green		Yellow	Brown
3	2					Yellow	Brown
3	3	Brown	Brown	Brown		Yellow	Brown
3	4	White	White	White		Yellow	Brown

RRH-3 1900							
Sector #	Radio Port #	First Ring	Second Ring	Third Ring	Space	Sector #	Frequency-Radio #
1	1	Green	No tape	No tape		Yellow	
1	2					Yellow	
1	3	Brown	No tape	No tape		Yellow	
1	4	White	No tape	No tape		Yellow	
2	1	Green	Green	No tape		Yellow	
2	2			No tape		Yellow	
2	3	Brown	Brown	No tape		Yellow	
2	4	White	White	No tape		Yellow	
3	1	Green	Green	Green		Yellow	
3	2					Yellow	
3	3	Brown	Brown	Brown		Yellow	
3	4	White	White	White		Yellow	

RRH-1 2500							
Sector #	Radio Port #	First Ring	Second Ring	Third Ring	Space	Sector #	Frequency-Radio #
1	1	Green	No tape	No tape		Yellow	White
1	2					Yellow	White
1	3	Brown	No tape	No tape		Yellow	White
1	4	White	No tape	No tape		Yellow	White
1	5	Red	No tape	No tape		Yellow	White
1	6	Gray	No tape	No tape		Yellow	White
1	7		No tape	No tape		Yellow	White
1	8	Orange	No tape	No tape		Yellow	White
2	1	Green	Green	No tape		Yellow	White
2	2			No tape		Yellow	White
2	3	Brown	Brown	No tape		Yellow	White
2	4	White	White	No tape		Yellow	White
2	5	Red	Red	No tape		Yellow	White
2	6	Gray	Gray	No tape		Yellow	White
2	7		No tape	No tape		Yellow	White
2	8	Orange	Orange	No tape		Yellow	White
3	1	Green	Green	Green		Yellow	White
3	2					Yellow	White
3	3	Brown	Brown	Brown		Yellow	White
3	4	White	White	White		Yellow	White
3	5	Red	Red	Red		Yellow	White
3	6	Gray	Gray	Gray		Yellow	White
3	7		No tape	No tape		Yellow	White
3	8	Orange	Orange	Orange		Yellow	White

RRH-2 2500							
Sector #	Radio Port #	First Ring	Second Ring	Third Ring	Space	Sector #	Frequency-Radio #
1	1	Green	No tape	No tape		Yellow	
1	2					Yellow	
1	3	Brown	No tape	No tape		Yellow	
1	4	White	No tape	No tape		Yellow	
1	5	Red	No tape	No tape		Yellow	
1	6	Gray	No tape	No tape		Yellow	
1	7		No tape	No tape		Yellow	
1	8	Orange	No tape	No tape		Yellow	
2	1	Green	Green	No tape		Yellow	
2	2			No tape		Yellow	
2	3	Brown	Brown	No tape		Yellow	
2	4	White	White	No tape		Yellow	
2	5	Red	Red	No tape		Yellow	
2	6	Gray	Gray	No tape		Yellow	
2	7		No tape	No tape		Yellow	
2	8	Orange	Orange	No tape		Yellow	
3	1	Green	Green	Green		Yellow	
3	2					Yellow	
3	3	Brown	Brown	Brown		Yellow	
3	4	White	White	White		Yellow	
3	5	Red	Red	Red		Yellow	
3	6	Gray	Gray	Gray		Yellow	
3	7		No tape	No tape		Yellow	
3	8	Orange	Orange	Orange		Yellow	

RRH-3 2500							
Sector #	Radio Port #	First Ring	Second Ring	Third Ring	Space	Sector #	Frequency-Radio #
1	1	Green	No tape	No tape		Yellow	Gray
1	2					Yellow	Gray
1	3	Brown	No tape	No tape		Yellow	Gray
1	4	White	No tape	No tape		Yellow	Gray
1	5	Red	No tape	No tape		Yellow	Gray
1	6	Gray	No tape	No tape		Yellow	Gray
1	7		No tape	No tape		Yellow	Gray
1	8	Orange	No tape	No tape		Yellow	Gray
2	1	Green	Green	No tape		Yellow	Gray
2	2			No tape		Yellow	Gray
2	3	Brown	Brown	No tape		Yellow	Gray
2	4	White	White	No tape		Yellow	Gray
2	5	Red	Red	No tape		Yellow	Gray
2	6	Gray	Gray	No tape		Yellow	Gray
2	7		No tape	No tape		Yellow	Gray
2	8	Orange	Orange	No tape		Yellow	Gray
3	1	Green	Green	Green		Yellow	Gray
3	2					Yellow	Gray
3	3	Brown	Brown	Brown		Yellow	Gray
3	4	White	White	White		Yellow	Gray
3	5	Red	Red	Red		Yellow	Gray
3	6	Gray	Gray	Gray		Yellow	Gray
3	7		No tape	No tape		Yellow	Gray
3	8	Orange	Orange	Orange		Yellow	Gray



6391 SPRINT PARKWAY  
OVERLAND PARK, KS 66251



95 RYAN DRIVE, SUITE 1  
RAYNHAM, MA 02767  
OFFICE: (844) 748-8878



100% EMPLOYEE-OWNED  
855 Community Dr, Sauk City, WI 53583  
608-643-4100 www.Ramaker.com  
Sauk City, WI • Willmar, MN  
Woodcliff Lake, NJ • Bayamon, PR



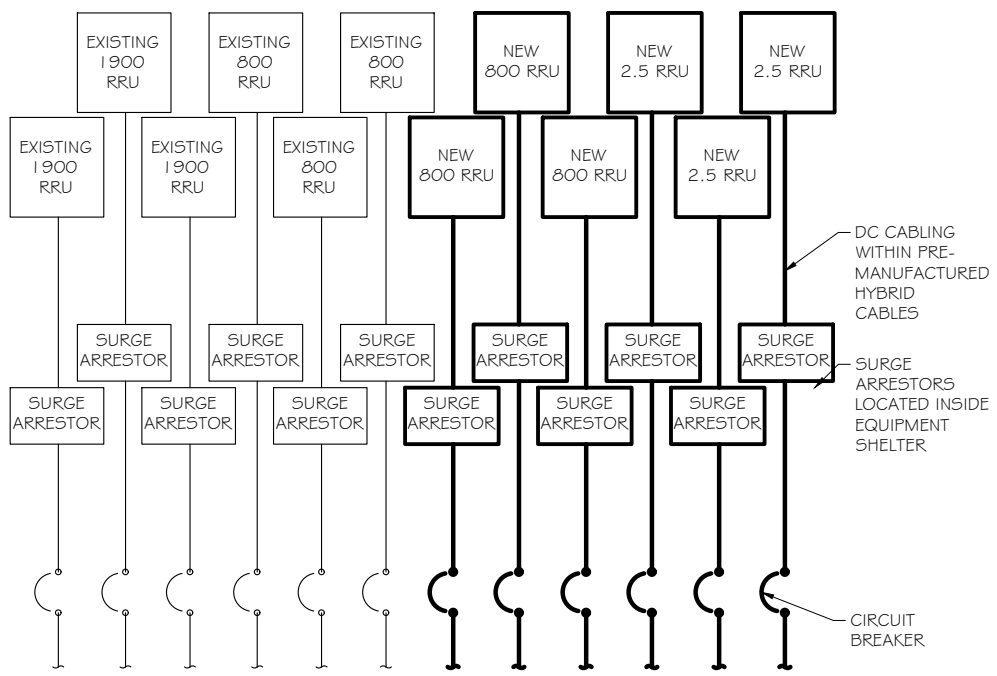
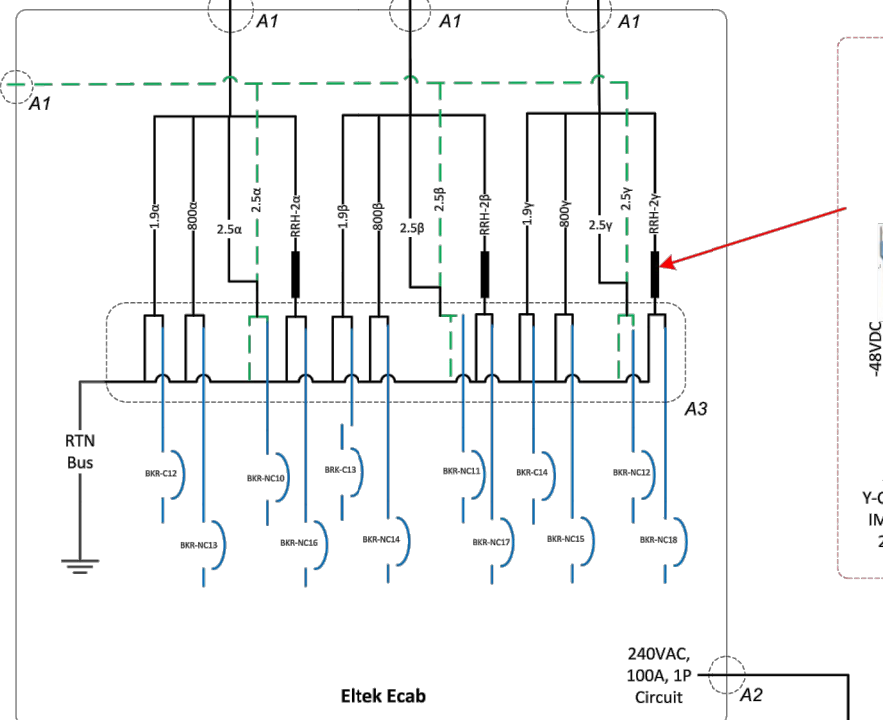
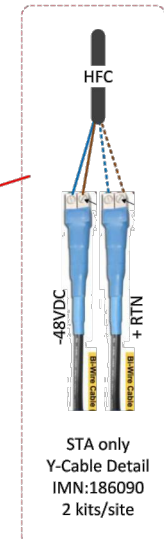
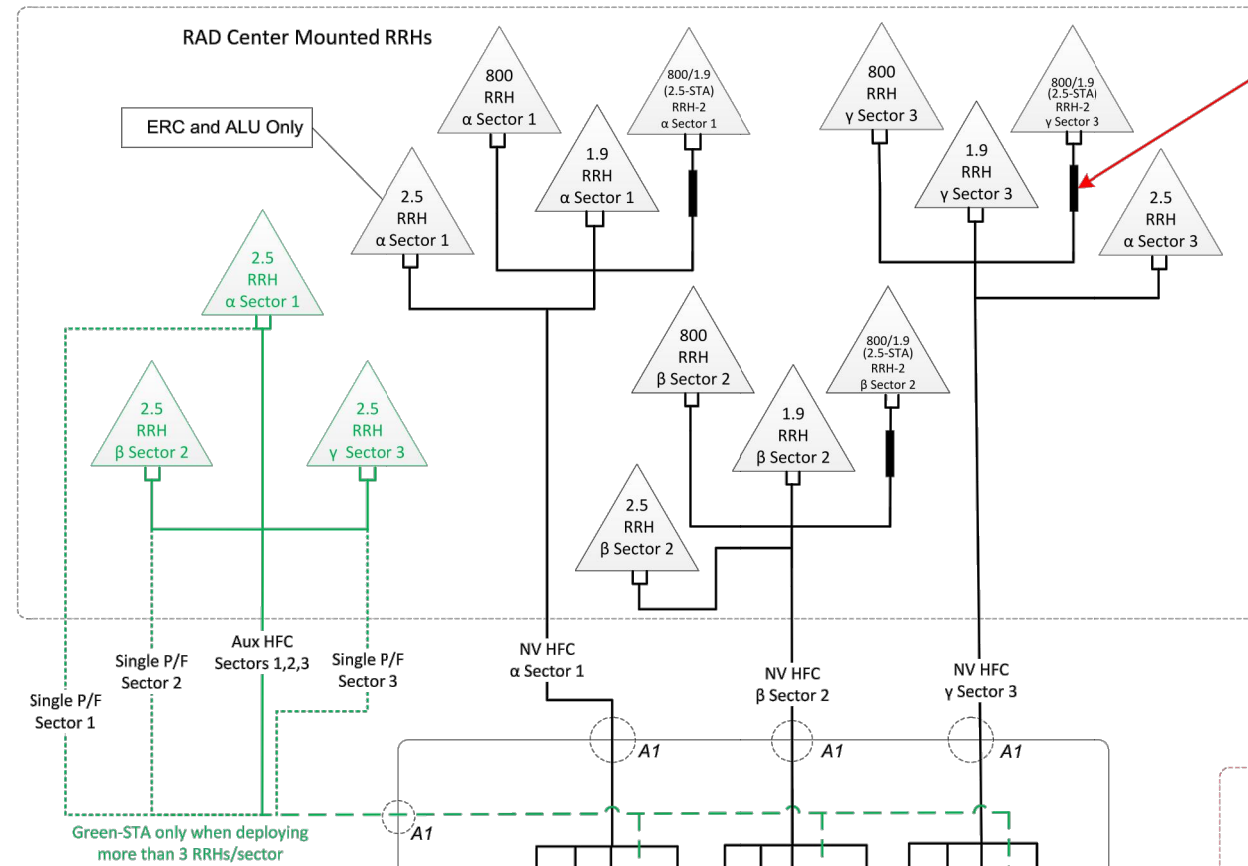
Reviewed for Code Compliance  
Permitting and Inspections Department  
Approved with Conditions

07/26/2018

1	06/26/18	MOUNTING DETAILS
MARK	DATE	DESCRIPTION
ISSUE PHASE	FINAL	DATE ISSUED 05/16/2018
PROJECT TITLE:		
PORTLAND SOUTH		
CHADWICK		
NM03XC065		
PROJECT INFORMATION:		
131 CHADWICK STREET		
PORTLAND, ME 04102		
CUMBERLAND COUNTY		
SHEET TITLE:		
CABLE MARKING NOTES		
SCALE:		
AS NOTED		
PROJECT NUMBER	39053	
SHEET NUMBER	A-5	



STA Bi-Wire Kits	
Hybrid Length	IMN
45'-90'	182525
105'-210'	182526
225'-555'	182527



DC ONE-LINE DIAGRAM  
 SCALE: NTS

DC POWER DIAGRAM  
 SCALE: NTS



6391 SPRINT PARKWAY  
 OVERLAND PARK, KS 66251



95 RYAN DRIVE, SUITE 1  
 RAYNHAM, MA 02767  
 OFFICE: (844) 748-8878



100% EMPLOYEE-OWNED  
 855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com  
 Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR



Reviewed for Code Compliance  
 Permitting and Inspections Department  
 Approved with Conditions

07/26/2018

MARK	DATE	DESCRIPTION	DATE ISSUED
1	06/26/18	MOUNTING DETAILS	05/16/2018

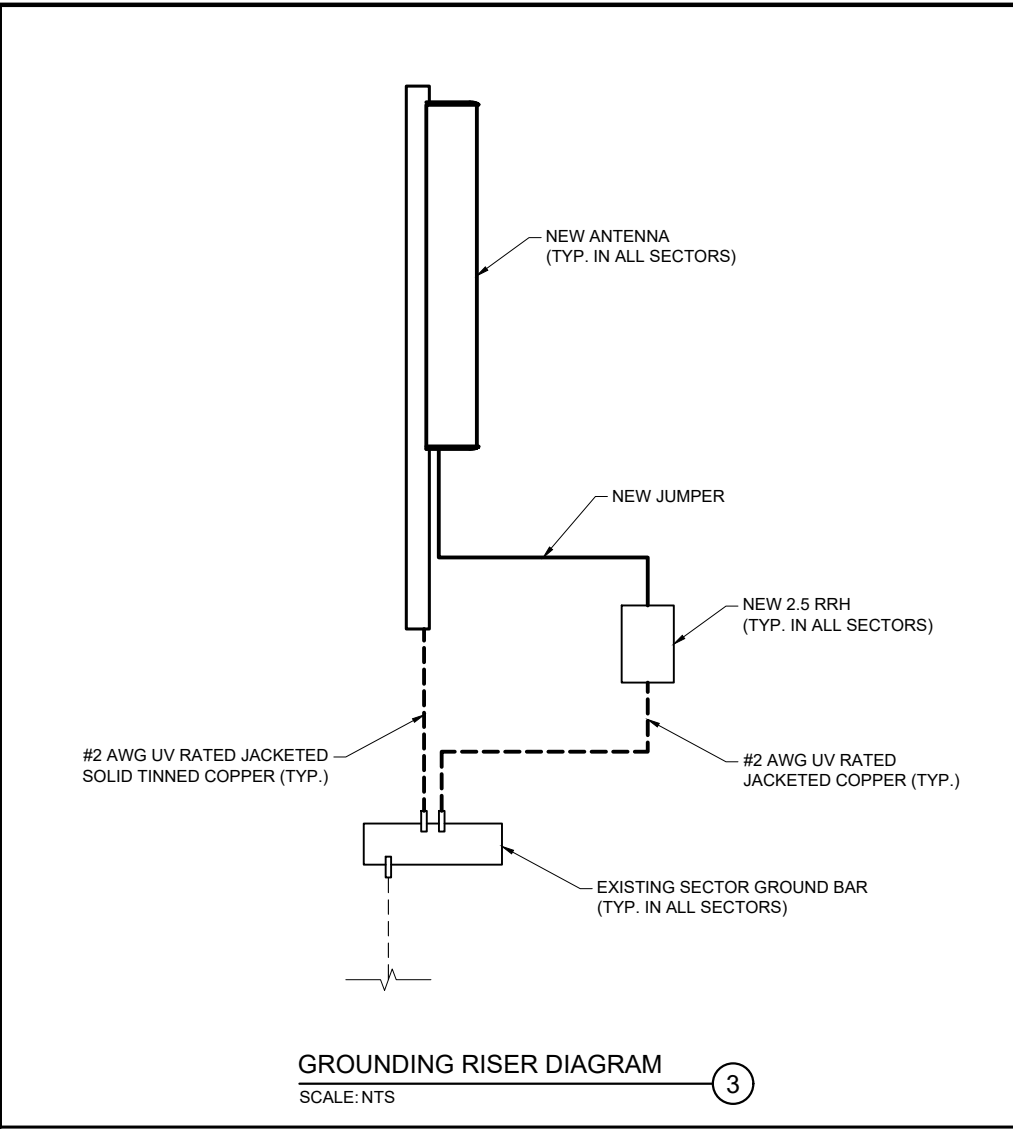
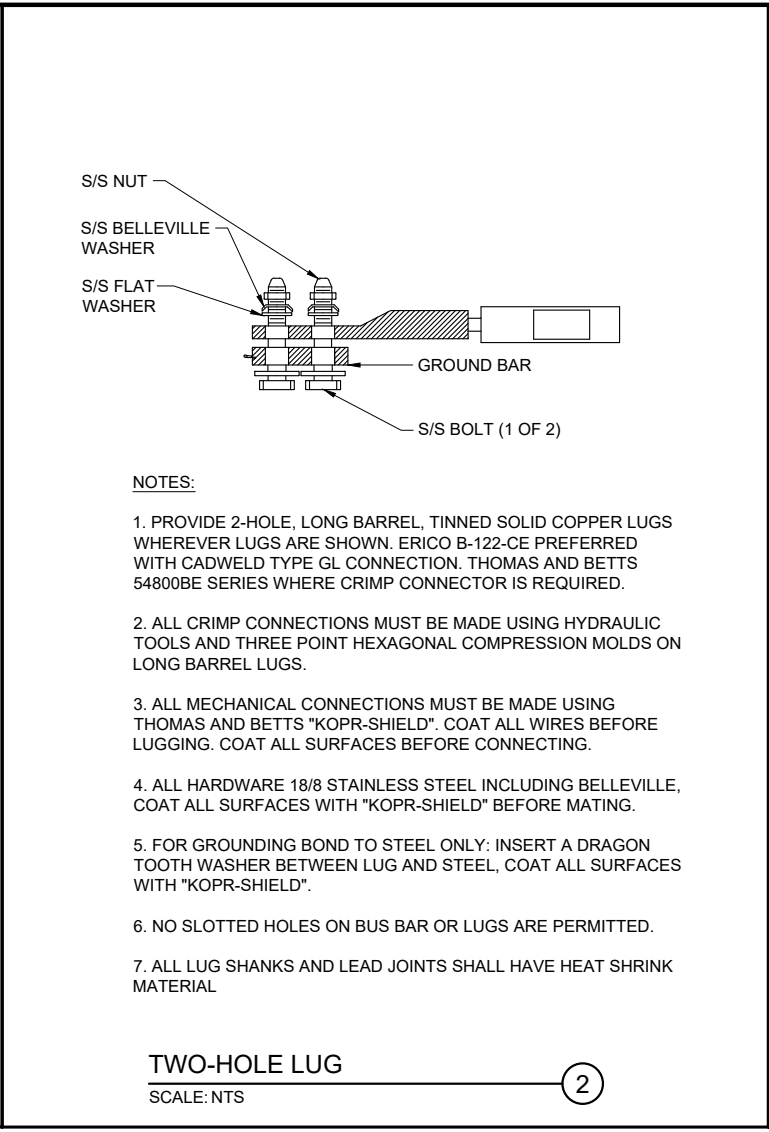
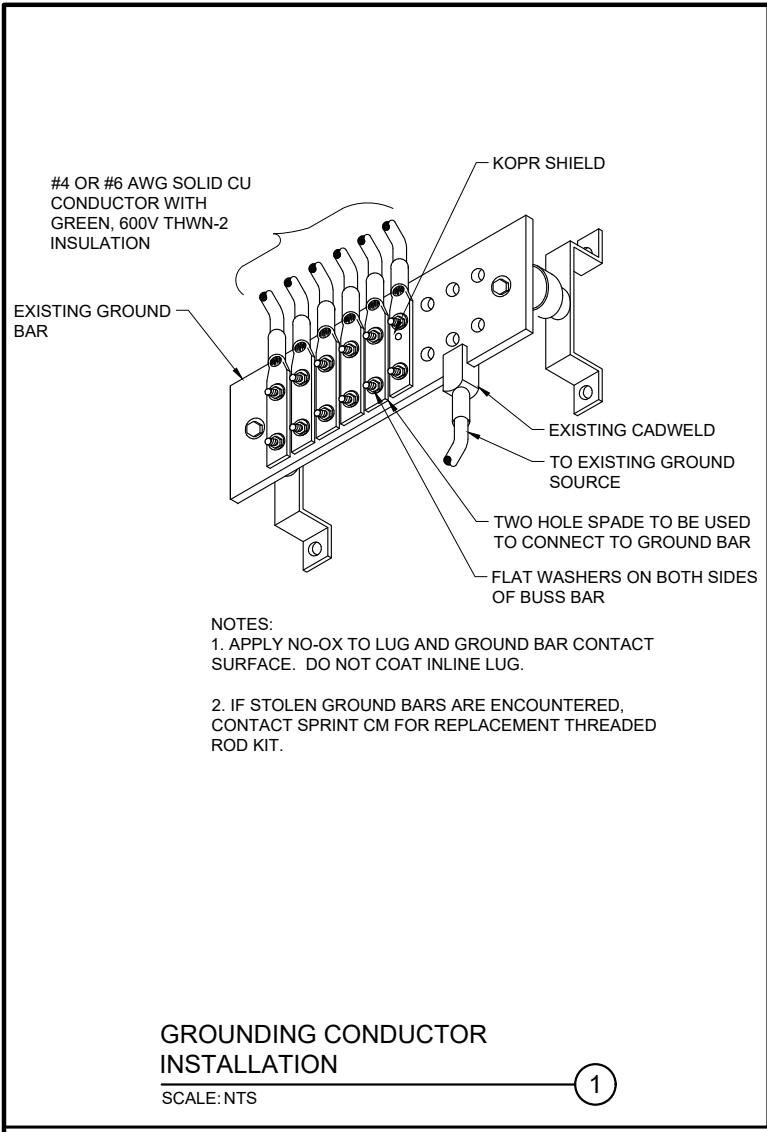
PROJECT TITLE:  
**PORTLAND SOUTH CHADWICK NM03XC065**

PROJECT INFORMATION:  
 131 CHADWICK STREET  
 PORTLAND, ME 04102  
 CUMBERLAND COUNTY

SHEET TITLE:  
 ELECTRICAL DETAILS

SCALE:  
 AS NOTED

PROJECT NUMBER	39053
SHEET NUMBER	E-1



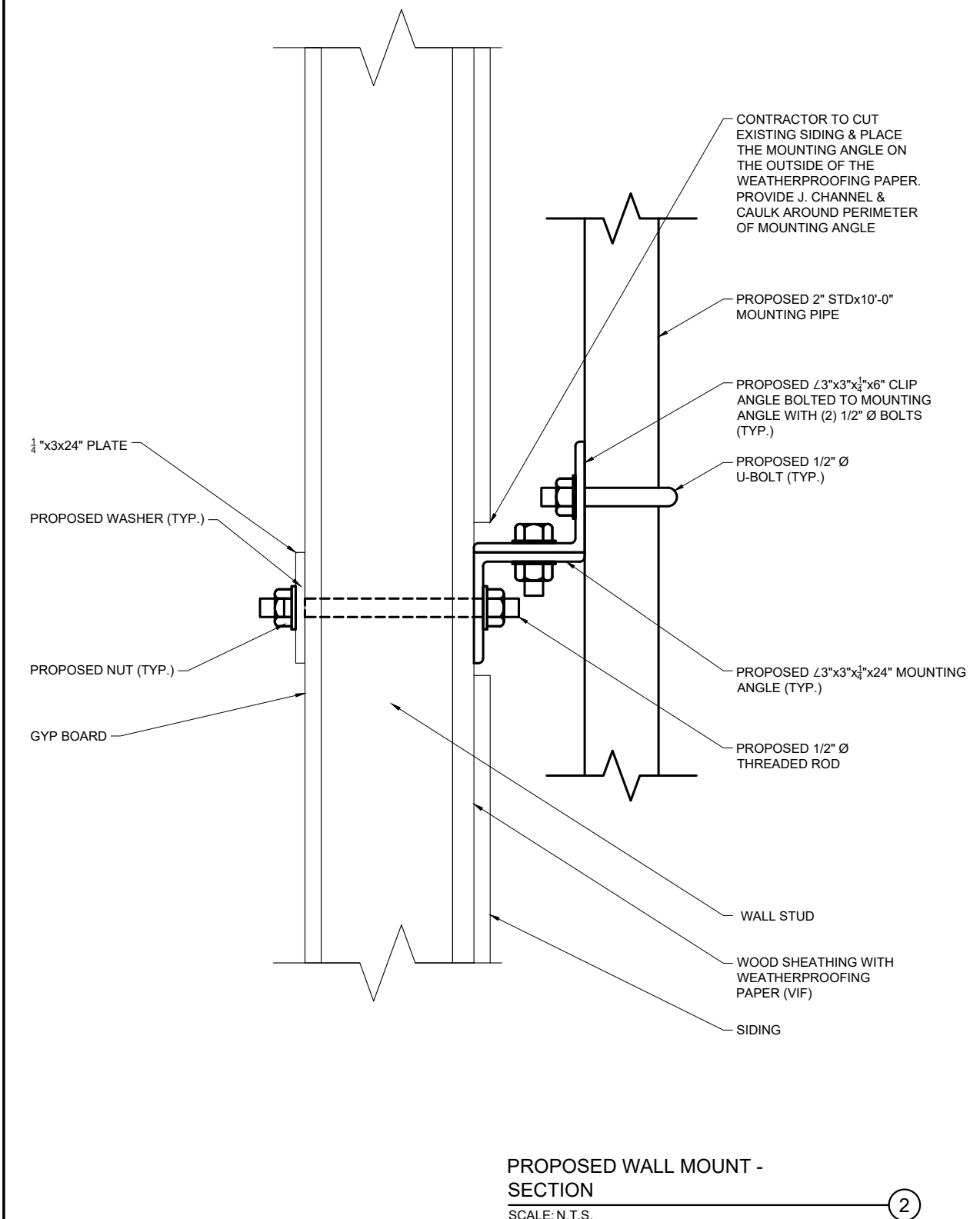
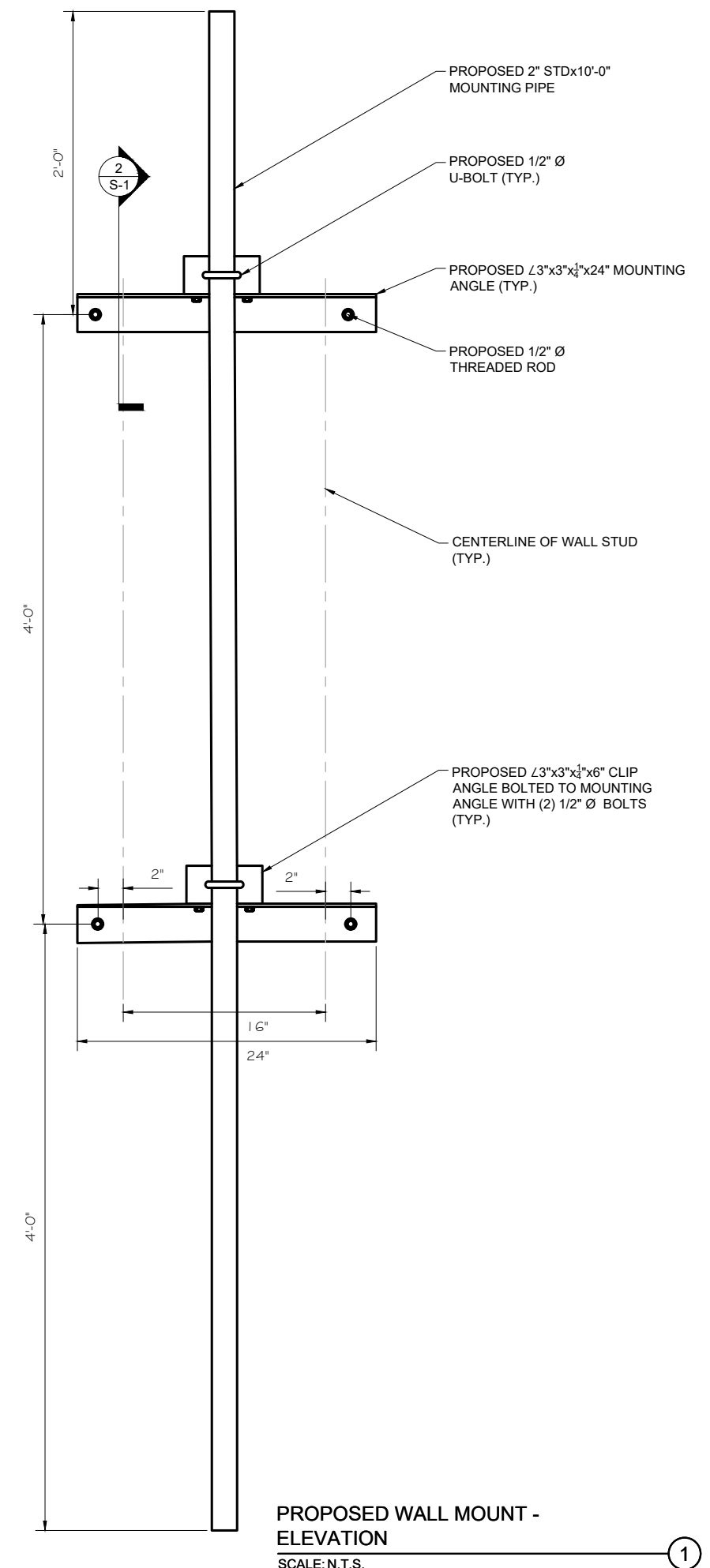
6391 SPRINT PARKWAY  
OVERLAND PARK, KS 66251

95 RYAN DRIVE, SUITE 1  
RAYNHAM, MA 02767  
OFFICE: (844) 748-8878

100% EMPLOYEE-OWNED  
 855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com  
 Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR

Reviewed for Code Compliance  
 Permitting and Inspections Department  
 Approved with Conditions  
**07/26/2018**

1	06/26/18	MOUNTING DETAILS
MARK	DATE	DESCRIPTION
ISSUE PHASE	FINAL	DATE ISSUED 05/16/2018
PROJECT TITLE:		
<b>PORTLAND SOUTH CHADWICK NM03XC065</b>		
PROJECT INFORMATION:		
131 CHADWICK STREET PORTLAND, ME 04102 CUMBERLAND COUNTY		
SHEET TITLE:		
GROUNDING DETAILS		
SCALE: AS NOTED		
PROJECT NUMBER	39053	
SHEET NUMBER	G-1	



**Sprint**

6391 SPRINT PARKWAY  
 OVERLAND PARK, KS 66251

**CENTERLINE COMMUNICATIONS**

95 RYAN DRIVE, SUITE 1  
 RAYNHAM, MA 02767  
 OFFICE: (844) 748-8878

**RAMAKER & ASSOCIATES, INC.**  
 100% EMPLOYEE-OWNED

855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com

Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal:

Reviewed for Code Compliance  
 Permitting and Inspections Department  
 Approved with Conditions  
**07/26/2018**

1	06/26/18	MOUNTING DETAILS
MARK	DATE	DESCRIPTION
ISSUE PHASE	FINAL	DATE ISSUED 05/16/2018
PROJECT TITLE: <b>PORTLAND SOUTH CHADWICK NM03XC065</b>		
PROJECT INFORMATION: 131 CHADWICK STREET PORTLAND, ME 04102 CUMBERLAND COUNTY		
SHEET TITLE: GROUNDING DETAILS		
SCALE: AS NOTED		
PROJECT NUMBER	39053	
SHEET NUMBER	5-1	