



1280 Route 46 West, Suite 9, Parsippany NJ, 07054

Melanie Bachman  
Executive Director  
CT Siting Council  
10 Franklin Square  
New Britain, CT 06051

Re: Notice of Exempt Modification Application  
119 Empire Ave, Meriden, CT 06450

Latitude: N41.57305  
Longitude: W72.7791

Dear Ms. Bachman:

Sprint currently maintains 6 existing panel antennas and 6 remote radio units at the 105' centerline level of the existing water tank. Sprint proposes to swap 6 panel antennas and 3 remote radio unit and add three remote radio heads at the 105' centerline on the tank. Sprint further proposes to add 4 hybrid cable and 48 Antenna to RRH jumper cables. Sprint is performing a new high-performance upgrade for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, for construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to Mayor Kevin Scarpati for the City of Meriden as well as Bob Seale, Director of Development & Enforcement for the City of Meriden and Crown Castle, Manager of the tank.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site. Also included is documentation of the structural sufficiency of the tower with proposed modifications to accommodate the revised antenna configuration as well as the latest CSC decision, tax sheet and tax map.

### **Existing Facility**

CSC Summary Statement – CT43XC841 – 119 Empire Ave, Meriden CT 06450

The Communications Tower facility is located at 119 Empire Ave, Meriden CT and is owned by Crown Castle, the Site coordinates are: N41.57305 W72.7791.

The existing facility consists of a 106' Water Tank. Sprint currently operates wireless communications equipment inside of a shelter at the facility and has 9 antennas and 6 RRU's mounted on at centerline of 105' feet.

## **Statutory Considerations**

The planned modifications to the facility fall within the activities explicitly provided for in R.C.S.A. 16-50j-72(b)(2)

1. The height of the overall structure will be unaffected.
2. The proposed changes will not require an extension of the property boundaries.
3. The proposed additions will not increase the noise level at the existing facility by six decibels or more, or to levels that exceed state and/or local criteria
4. The changes will not increase the calculated “worst case” power density for the combined operations at the site to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully submitted,



Ryan G Bailey  
Charles Cherundolo Consulting  
856-625-1596  
[ryan@mackenzierealtyconsulting.com](mailto:ryan@mackenzierealtyconsulting.com)

Additional Recipients:

Mayor Kevin Scarpati for the City of Meriden– Via FedEx  
Michael Halloran, Zoning Officer for the Town of Norfolk - Via FedEx  
Crown Castle, manager of the tower – Via FedEx



201 STATE ROUTE 17 NORTH  
RUTHERFORD, NJ 07070  
PHONE: (201) 684-4000 FAX: (201) 684-4223

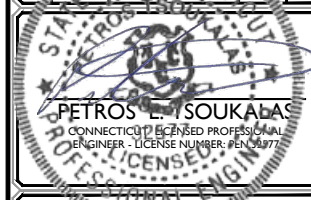


Charles Cherundolo Consulting, Inc.  
713 Clover Lane  
Moscow, PA 18444  
Phone: 973-207-4248  
Fax: 570-842-5592



SCALE: AS SHOWN JOB NUMBER: 17924021A

REV.	DATE	DESCRIPTION	BY
2	05/14/18	REVISED PER COMMENTS	JCM JRF
1	04/17/18	REVISED PER NEW RFD'S	JCM PET
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS PET
B	09/27/17	REVISED PER COMMENTS	DTS PET
A	07/27/17	ISSUED FOR REVIEW	AMN FEP
REV.	DATE	DESCRIPTION	CHECKED BY



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER  
SITE ID: CT43XC84I

119 EMPIRE AVENUE  
MERIDEN, CT 06450



RED BANK OFFICE  
331 Newnam Springs Road  
Suite 203  
Red Bank, NJ 07071-5699  
Phone: 732.383.1950  
Fax: 732.383.1984

SHEET TITLE: TITLE SHEET

SHEET NUMBER: T-001.00

# SITE ID: CT43XC84I SITE NAME: MERIDEN/I-691 & CT-15/ATLAS CONTAINER

## 119 EMPIRE AVENUE MERIDEN, CT 06450

### DO MACRO PROJECT

#### SITE INFORMATION

ADDRESS:	119 EMPIRE AVENUE MERIDEN, CT 06450
JURISDICTION:	CITY OF MERIDEN CONNECTICUT SITING COUNCIL
COUNTY :	NEW HAVEN
PROPERTY OWNER:	ATLAS CONTAINER, LLC 8140 TELEGRAPH ROAD SEVERN, MD 21144
APPLICANT:	SPRINT 201 STATE ROUTE 17 NORTH RUTHERFORD, NJ 07070
LATITUDE (NAD 83):	N 41.57305555°
LONGITUDE (NAD 83):	W 72.77916666°
CURRENT USE:	UNMANNED TELECOMMUNICATIONS FACILITY
PROPOSED USE:	NO CHANGE
UTILITY COMPANY:	CONNECTICUT LIGHT AND POWER PHONE: 800-922-4455

#### RF CONFIGURATION

THE CONTRACTOR SHALL OBTAIN THE LATEST RF DATA SHEET AND CONFIRM SAME WITH THE SPRINT CONSTRUCTION MANAGER PRIOR TO START OF CONSTRUCTION. THESE DRAWINGS HAVE BEEN PREPARED BASED ON THE PROJECT SCOPING TRACKER DATED XXXX PROVIDED BY CHERUNDOLO CONSULTING, INC.

#### PROJECT CONTACTS

	NAME:	COMPANY:	PHONE #:
ENGINEER:	PETROS TSOUKALAS	MASER CONSULTING P.A.	856.797.0412
CONSTRUCTION:	BOB GRABOWSKI	CHERUNDOLO CONSULTING	973.207.4248

#### STRUCTURAL STATEMENT

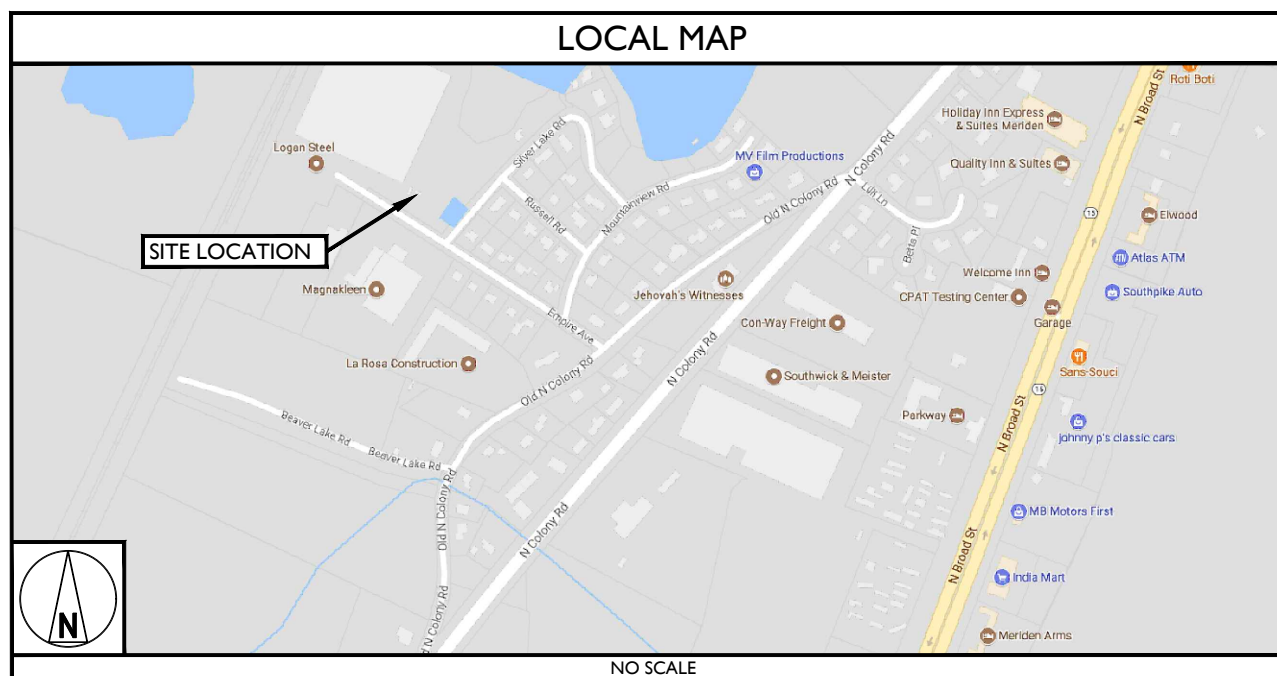
THE PROPOSED ANTENNA AND EQUIPMENT INSTALLATION HAS BEEN EVALUATED INCLUDING THE NEW LOAD CONDITIONS ON THE SUPPORTING ELEMENTS OF THE EXISTING STRUCTURE. THESE PLANS HAVE BEEN DEVELOPED FOR THE PROPOSED TELECOMMUNICATION FACILITY TO BE OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY CHERUNDOLO CONSULTING. MASER HAS INCORPORATED THE SCOPE OF WORK WITHIN THESE PLANS AND HAS CHECKED ELEMENTS OF THE STRUCTURE AFFECTED BY THE SCOPE OF WORK. MASER ASSUMES NO RESPONSIBILITY FOR ANY ELEMENTS OF THE SITE NOT AFFECTED BY THE SCOPE OR FOR CHANGES TO THE SCOPE OF WORK NOT SPECIFICALLY SHOWN ON THESE DRAWINGS.

#### APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

CONSTRUCTION:	_____	DATE:	_____
LEASING/SITE ACQUISITION:	_____	DATE:	_____
RF ENGINEERING:	_____	DATE:	_____
LANDLORD/PROPERTY OWNER:	_____	DATE:	_____

#### LOCAL MAP



#### DRIVING DIRECTIONS

FROM SPRINT OFFICES, RUTHERFORD, NJ: GET ON NJ-3 W FROM VETERANS BLVD AND SERVICE RD. HEAD SOUTH. SLIGHT LEFT TOWARD VETERANS BLVD. TURN LEFT TOWARD VETERANS BLVD. TURN RIGHT TOWARD VETERANS BLVD. TURN RIGHT ONTO VETERANS BLVD. TURN RIGHT ONTO SERVICE RD. TURN LEFT TO MERGE ONTO NJ-3 W. FOLLOW GARDEN STATE PKWY, I-287 E AND CT-15 N TO N COLONY RD IN CONNECTICUT. MERGE ONTO NJ-3 W. CONTINUE ONTO NJ-3 W. SLIGHT RIGHT ONTO THE GARDEN STATE PKWY N RAMP. MERGE ONTO GARDEN STATE PKWY. ENTERING NEW YORK. USE THE RIGHT 2 LANES TO TAKE EXIT 14-1 TO MERGE ONTO I-287 E/I-87 S. KEEP LEFT AT THE FORK TO CONTINUE ON I-287 E. FOLLOW SIGNS FOR WHITE PLAINS/RYE. TAKE EXIT 9N-9S FOR HUTCHINSON PKWY TOWARD HITSTONE BRIDGE/MERRITT PKWY. KEEP LEFT AT THE FORK. FOLLOW SIGNS FOR WESTCHESTER AVE AND MERGE ONTO WESTCHESTER AVE. USE THE RIGHT LANE TO TAKE THE HUTCHINSON PKWY N RAMP TO MERRITT PKWY. MERGE ONTO HUTCHINSON RIVER PKWY N. KEEP RIGHT AT THE FORK TO STAY ON HUTCHINSON RIVER PKWY N. ENTERING CONNECTICUT. CONTINUE ONTO CT-15 N. KEEP LEFT TO STAY ON CT-15 N. CONTINUE ON N COLONY RD. DRIVE TO EMPIRE AVE IN MERIDEN. TURN LEFT ONTO N COLONY RD. TURN RIGHT ONTO OLD N COLONY RD. TURN RIGHT ONTO EMPIRE AVE. DESTINATION WILL BE ON THE RIGHT

COPYRIGHT © 2017, MASER CONSULTING P.A. ALL RIGHTS RESERVED

THIS DRAWING AND ALL THE INFORMATION CONTAINED HEREIN IS AUTHORIZED FOR USE ONLY BY THE PARTY FOR WHOM THE WORK WAS CONTRACTED OR TO WHOM IT IS CERTIFIED. THIS DRAWING MAY NOT BE COPIED, REUSED, DISCLOSED, DISTRIBUTED OR RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE EXPRESS WRITTEN CONSENT OF MASER CONSULTING, P.A.

#### DRAWING INDEX

NYC DOB NUMBER	SHEET TITLE	REV.
T-001.00	TITLE SHEET	2
ANT-001.00	GENERAL NOTES - 1	2
ANT-002.00	GENERAL NOTES - 2	2
ANT-003.00	GENERAL NOTES - 3	2
ANT-004.00	SITE PLAN	2
ANT-005.00	EQUIPMENT ROOM PLAN AND ELEVATION	2
ANT-006.00	ANTENNA ORIENTATION PLAN	2
ANT-007.00	DETAILS	2
ANT-008.00	ANTENNA SCHEDULE, WIRING DIAGRAM, BILL OF MATERIALS AND NOTES	2
ANT-009.00	FIBER PLUMBING DIAGRAMS - 1	2
ANT-010.00	FIBER PLUMBING DIAGRAMS - 2	2
ANT-011.00	CABLE COLOR CODING, DC POWER DETAILS & PANEL SCHEDULES	2
ANT-012.00	ELECTRICAL AND GROUNDING NOTES	2
ANT-013.00	GROUNDING SCHEMATIC AND DETAILS	2

#### APPLICABLE BUILDING CODES & STANDARDS

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

- 2016 CONNECTICUT STATE BUILDING CODE, INCORPORATING THE 2012 INTERNATIONAL BUILDING CODE
- TIA/EIA-222-G OR LATEST EDITION
- NFPA 780-LIGHTNING PROTECTION CODE 2011
- 2014 NATIONAL ELECTRIC CODE OR LATEST EDITION
- ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES MOST RECENT EDITIONS
- CT BUILDING CODE
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES

#### SCOPE OF WORK

SPRINT PROPOSED TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL (3) NEW DUAL BAND ANTENNAS
- REPLACE (3) EXISTING ANTENNAS WITH (3) PROPOSED ANTENNAS
- INSTALL (3) NEW RRH'S BEHIND ANTENNAS
- INSTALL (48) JUMPER CABLES
- INSTALL (4) HYBRID FIBER RISER CABLE



**GENERAL NOTES**

1. CONTRACTOR SHALL NOT COMMENCE ANY WORK UNTIL HE OBTAINS, AT HIS OWN EXPENSE, ALL INSURANCE REQUIRED BY SPRINT, THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
2. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION".
3. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES OR OTHER PUBLIC AUTHORITIES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
5. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS FOR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THIS PROJECT IN ACCORDANCE WITH THE OVERALL INTENT OF THESE DRAWINGS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING DEMOLITION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF REMOVAL OF THIS FACILITY.
7. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR AS REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE REMOVED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
9. THE DEMOLITION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL REMOVAL MEANS AND METHODS. THE DEMOLITION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
10. THE CONTRACTOR IS TO REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. THE CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND RELATED PARTIES. THE SUBCONTRACTOR SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT EFFECTS THEIR WORK.
11. THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON THE SITE AT ALL TIMES AND INSURE THE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. CONTRACTOR FURNISH 3 SETS OF REDLINE "AS-REMOVED" DRAWINGS TO SPRINT UPON COMPLETION OF THE WORK.
12. REPAIR MATERIALS INSTALLED SHALL MEET REQUIREMENTS OF CONTRACTORS DOCUMENTS. NO SUBSTITUTIONS ARE ALLOWED.
13. THE CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
14. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS EXISTING WHICH ARE NOT FOUND TO BE IN THE FIELD.
15. DEMOLITION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST-ACCEPTED PRACTICE. ALL SURFACES SHALL BE REPAIRED TO MATCH THEIR SURROUNDINGS AND PROVIDE WEATHER TIGHT SEAL ON SAME DAY AS REMOVAL.
16. THE CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
18. THE CONTRACTOR SHALL REPAIR ALL EXISTING SURFACES DAMAGED DURING REMOVAL SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
19. THE CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE AND DISPOSE OF ALL DEBRIS AND RUBBISH. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
20. BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, TEMPORARY WORKS, UNUSED AND USELESS MATERIALS, RUBBISH AND TEMPORARY STRUCTURES.

**FIRESTOPPING NOTES**

1. INSTALL FIRESTOPPING COMPOUND AS CAULKING AT ALL PENETRATIONS THROUGH FIRE RATED PARTITIONS/WALLS AND FLOOR. MAINTAIN FIRE-RATING OF EXISTING ASSEMBLIES.
2. FIRESTOP ACCESSORIES SUCH AS, BUT NOT LIMITED TO, DAMMING MATERIAL, RETAINERS, PRIMERS SHALL BE COMPATIBLE AND AS PER FIRESTOPPING COMPOUND MANUFACTURER'S RECOMMENDATION.
3. PROVIDE DAMMING MATERIAL AT LARGER OPENINGS AND HOLLOW PARTITION SUCH AS METALS STUD WALLS TO CONTAIN FIRE SAFE INSULATION.
4. COORDINATE INSTALLATION OF FIRESTOPPING WITH OTHER WORK IN ORDER TO MINIMIZE THE NEED FOR OTHER TRADES TO CUT OR REMOVE FIRESTOPPING.
5. CLEAN SUBSTRATES OF SUBSTANCES WHICH COULD IMPAIR BOND OF FIRESTOPPING SYSTEM INCLUDING OIL, GREASE, INCOMPATIBLE PRIMERS, AND LOOSE MILL SCALE.
6. FILL CAVITY BETWEEN CONDUIT AND WALL/FLOOR OPENING WITH FIRE INSULATION.
7. SEAL ALL PENETRATIONS AFTER CABLES AND/OR CONDUITS ARE REMOVED WITH FIRESTOPPING PUTTY.



Customer Loyalty (through) Client Satisfaction  
 www.maserconsulting.com  
 Engineers ■ Planners ■ Surveyors  
 Landscape Architects ■ Environmental Scientists

Copyright © 2018 Maser Consulting Connecticut. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting Connecticut.



201 STATE ROUTE 17 NORTH  
 RUTHERFORD, NJ 07070  
 PHONE: (201) 684-4000 FAX: (201) 684-4223



Charles Cherundolo Consulting, Inc.  
 713 Clover Lane  
 Moscow, PA 18444  
 Phone: 973-207-4248  
 Fax: 570-842-5592



PROTECT YOURSELF

ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

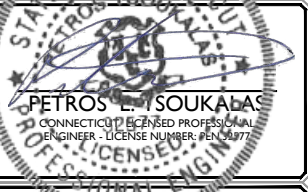
Know what's below.

Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	JOB NUMBER:
AS SHOWN	17924021A

2	05/14/18	REVISED PER COMMENTS	JCM	JRF	
1	04/17/18	REVISED PER NEW REFS	JCM	PET	
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS	PET	
B	09/27/17	REVISED PER COMMENTS	DTS	PET	
A	07/27/17	ISSUED FOR REVIEW	AMN	FEP	
REV	DATE	DESCRIPTION	BY	CHECKED BY	



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING IN THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER  
 SITE ID: CT43XC841

119 EMPIRE AVENUE  
 MERIDEN, CT 06450



RED BANK OFFICE  
 331 Newnan Springs Road  
 Suite 203  
 Red Bank, NJ 07701-5699  
 Phone: 732.383.1950  
 Fax: 732.383.1984

SHEET TITLE:  
 GENERAL NOTES - I

SHEET NUMBER:  
 ANT-001.00

## SECTION 01 100 - SCOPE OF WORK

THE WORK:  
THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE CONSTRUCTION DRAWINGS AND ASSOCIATED OUTLINE SPECIFICATIONS AND THE SITE SPECIFIC WORK ORDER, DESCRIBE THE WORK TO BE PERFORMED BY THIS CONSTRUCTION CONTRACTOR (SUPPLIER).

### RELATED DOCUMENTS:

- THE REQUIREMENTS OF EACH SECTION OF THIS SPECIFICATION APPLY TO ALL SECTIONS, INDIVIDUALLY AND COLLECTIVELY.
- RELATED DOCUMENTS: THE CONTRACTOR SHALL COMPLY WITH THE MOST CURRENT VERSION OF THE FOLLOWING SUPPLEMENTAL REQUIREMENTS FOR INSTALLATION AND TESTING.
  - EN-2012-001: (FIBER OPTIC, DC CABLE, AND DC CIRCUIT BREAKER TAGGING STANDARDS)
  - 2.TS-0200 - (TRANSMISSION ANTENNA LINE ACCEPTANCE STANDARDS)
  - 3.EL-0568: (FIBER TESTING POLICY)
  - 4.NP-312-201: (EXTERIOR GROUNDING SYSTEM TESTING)
  - 5.NP-760-500: ETHERNET, MICROWAVE, TESTING AND ACCEPTANCE

### PRECEDENCE:

SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

### NATIONALLY RECOGNIZED CODES AND STANDARDS:

THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

- GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
- GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
- GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY -GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
- NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE - "NEC") AND NFPA 101 (LIFE SAFETY CODE).
- AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
- INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
- AMERICAN CONCRETE INSTITUTE (ACI)
- AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
- CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
- AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
- PORTLAND CEMENT ASSOCIATION (PCA)
- NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
- BRICK INDUSTRY ASSOCIATION (BIA)
- AMERICAN WELDING SOCIETY (AWS)
- NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
- SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
- DOOR AND HARDWARE INSTITUTE (DHI)
- OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
- APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

### DEFINITIONS:

- WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
- COMPANY: "SPRINT"; SPRINT NEXTEL CORPORATION AND ITS OPERATING ENTITIES.
- ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
- CONTRACTOR: CONSTRUCTION CONTRACTOR, SUPPLIER, CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
- THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
- CONSTRUCTION MANAGER - ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT.

### SITE FAMILIARITY:

CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

### POINT OF CONTACT:

COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

### 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. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

### DRAWINGS REQUIRED AT JOBSITE:

THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

- THE JOBSITE DRAWINGS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.
- DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

### USE OF JOB SITE:

THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

### UTILITY SERVICES:

WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

### PERMITS/FEE:

WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

### CONTRACTOR:

CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

### USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

CONTRACTOR WILL UTILIZE ITS BEST EFFORTS TO WORK WITH SPRINT ELECTRONIC PROJECT MANAGEMENT SYSTEMS. CONTRACTOR UNDERSTANDS THAT SUFFICIENT INTERNET ACCESS, EQUIVALENT TO "BROADBAND"

OR BETTER, IS REQUIRED TO TIMELY AND EFFECTIVELY UTILIZE SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS AND AGREES TO MAINTAIN APPROPRIATE CONNECTIONS FOR CONTRACTOR'S STAFF AND OFFICES THAT ARE COMPATIBLE WITH SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS

### TEMPORARY UTILITIES AND FACILITIES:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSOR'S OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

### ACCESS TO WORK:

THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

### DIMENSIONS:

VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

### EXISTING CONDITIONS:

NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

## SECTION 01 200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT

### FURNISHED MATERIALS:

COMPANY FURNISHED MATERIALS AND EQUIPMENT TO BE INSTALLED BY THE CONTRACTOR (OFIC) IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

### RECEIPT OF MATERIAL AND EQUIPMENT:

- THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
  - ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
  - VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
  - TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
- RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
- PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
- COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

### DELIVERABLES:

- COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.
- IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

## SECTION 01 300 - CELL SITE CONSTRUCTION

### NOTICE TO PROCEED:

- NO WORK SHALL COMMENCE PRIOR TO COMPANY'S ISSUANCE OF THE WORK ORDER.
- UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

### GENERAL REQUIREMENTS FOR CONSTRUCTION:

- 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.
- EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.
- CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
  - IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
  - CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.
- CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

### FUNCTIONAL REQUIREMENTS:

- THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. CONTRACTOR SHALL TAKE ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.
- SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.
- MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES
- PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  - PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
  - PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
  - MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND BACKHAUL (FIBER, COPPER, OR MICROWAVE).
  - INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
  - INSTALL ABOVE GROUND GROUNDING SYSTEMS, CONDUIT AND BOXES.
  - PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
  - INSTALL "H-FRAMES", CABINETS AND PADS AND PLATFORMS AS INDICATED.
  - INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
  - ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
  - PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
    - PROVIDE SLABS AND EQUIPMENT PLATFORMS.
    - INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
    - PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
    - CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER.
    - INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
    - INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
    - INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
    - CONDUCT ALL REQUIRED TESTS AND INSPECTIONS
    - PERFORM, DOCUMENT, AND CLOSE OUT ALL JURISDICTIONAL PERMITTING REQUIREMENTS AND ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
    - PERFORM ALL ADDITIONAL WORK AS IDENTIFIED IN SCOPE OF SERVICES ATTACHED TO THE SUPPLIER AGREEMENT FOR THIS PROJECT. THIS WORK MAY INCLUDE COMMISSIONING, INTEGRATION, SPECIAL WAREHOUSING, REVERSE LOGISTICS ACTIVITIES, ETC. PERFORM COMMISSIONING AND INTEGRATION ACTIVITIES PER APPLICABLE MOPS.

### DELIVERABLES:

- THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TEST REPORTS AND DOCUMENTATION INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
  - PRODUCT SPECIFICATIONS FOR MATERIALS OR SPECIAL CONSTRUCTION IF REQUESTED BY SPRINT
  - ACTUALIZE ALL CONSTRUCTION RELATED MILESTONES IN SITERRA AND COMPLETE ALL ON-LINE FORMS AND COMPLETE DOCUMENT UP-LOADS. UPLOAD ALL REQUIRED CLOSEOUT DOCUMENTS AND FINAL SITE PHOTOS
  - SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT LEFT ON SITE INSIDE BASE OF MAIN RF CABINET IN A PROTECTIVE POUCH.
  - ALL REQUIRED TEST REPORTS.
  - REQUIRED CLOSEOUT DOCUMENTATION INCLUDING BUT NOT LIMITED TO:
    - ALL JURISDICTIONAL PERMITTING AND OCCUPANCY INFORMATION
    - PDF SCAN OF REDLINES PRODUCED IN THE FIELD
    - ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS
    - LIEN WAIVERS
    - FINAL PAYMENT APPLICATION
    - REQUIRED FINAL CONSTRUCTION PHOTOS
    - CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
    - LISTS OF SUBCONTRACTORS
- PROVIDE ADDITIONAL DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.
  - ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
  - PROJECT PROGRESS REPORTS.
  - PRE-CONSTRUCTION MEETING NOTES.

## SECTION 01 400 - TESTS, INSPECTIONS, SUBMITTALS, AND PROJECT CLOSEOUT

### TESTS AND INSPECTIONS:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  - COAX SWEEPS AND FIBER TESTS PER TS-0200 (CURRENT VERSION) ANTENNA LINE ACCEPTANCE STANDARDS
  - POST CONSTRUCTION HEIGHT VERIFICATION, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
  - CONCRETE BREAK TESTS
  - SITE RESISTANCE TO EARTH TEST
  - STRUCTURAL BACKFILL COMPACTION TESTS
  - 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.
  - ADDITIONAL TESTING AS REQUIRED ELSEWHERE IN THIS SPECIFICATION.

### SUBMITTALS:

- THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
- UPLOAD THE FOLLOWING TO SITERRA AS APPLICABLE INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  - CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
  - CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
  - CHEMICAL GROUNDING SYSTEM.
  - REINFORCEMENT CERTIFICATIONS
  - STRUCTURAL BACKFILL TEST RESULTS
  - SWEEP AND FIBER TESTS
  - ANTENNA AZIMUTH AND DOWN-TILT VERIFICATION
  - POST CONSTRUCTION HEIGHT VERIFICATION
  - ADDITIONAL SUBMITTALS MAY BE REQUIRED FOR SPECIAL CONSTRUCTION OR MINOR MATERIALS
- ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

### TESTING BY THIRD PARTY AGENCY:

- EMPLOY AN AGENCY OF ENGINEERS AND SCIENTISTS WHO IS REGULARLY ENGAGED IN FIELD AND LABORATORY TESTING AND ANALYSIS. AGENCY SHALL HAVE BEEN IN BUSINESS A MINIMUM OF FIVE YEARS, AND BE LICENSED AS PROFESSIONAL ENGINEERS IN THE STATE WHERE THE PROJECT IS LOCATED. AGENCY IS SUBJECT TO APPROVAL BY COMPANY.
  - AGENCY MUST HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
  - AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
  - EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASHTO, AND OTHER METHODS IS NEEDED.
- REQUIRED THIRD PARTY TESTS:
  - SITE RESISTANCE TO EARTH TEST PER NP-312-201
  - CONCRETE CYLINDER BREAK TESTS FOR TOWER PIER AND ANCHORS PER NATIONALLY RECOGNIZED STANDARDS
  - STRUCTURAL SOILS COMPACTION TESTS PER NATIONALLY RECOGNIZED STANDARDS
  - REBAR PLACEMENT VERIFICATION WITH REPORT
  - TESTING TENSION STUDY FOR ROCK ANCHORS
  - ALL THIRD PARTY TESTS AS REQUIRED BY LOCAL JURISDICTION
- REQUIRED TESTS BY CONTRACTOR
  - COAX SWEEP TESTS PER SPRINT STANDARD TS-0200
  - FIBER TESTS PER SPRINT STANDARD EL-0568
  - MICROWAVE LINK TESTS PER NP-760-500
  - ANTENNA AZIMUTHS AND DOWN TILT USING ELECTRONIC ALIGNMENT TOOL PER ANTENNA INSTALLATION SPECIFICATION HEREIN.
  - POST CONSTRUCTION HEIGHT VERIFICATION AS REQUIRED HERewith IN THE TOWER INSTALLATION SPECIFICATIONS.
  - ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED HERewith IN THE ASPHALT PAVING SPECIFICATIONS.
  - FIELD QUALITY CONTROL TESTING AS SPECIFIED HERewith IN THE CONCRETE PAVING SPECIFICATIONS.
  - TESTING REQUIRED HERewith UNDER SPECIFICATIONS FOR AGGREGATE BASE FOR ROADWAYS
  - ALL OTHER TESTS REQUIRED BY LOCAL JURISDICTION
- INSPECTIONS BY COMPANY: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN INSPECTION ACTIVITIES, FINAL ACCEPTANCE / PUNCH WALK REVIEW, AND/OR AS A RESULT OF TESTING
- SPRINT RESERVES THE RIGHT TO INSPECT THE CONSTRUCTION SITE AT ANY TIME VIA SITE WALKS AND/OR PHOTO REVIEWS. CONTRACTOR SHALL GIVE SPRINT 24 HOURS NOTICE PRIOR TO THE COMMENCEMENT OF THE FOLLOWING CONSTRUCTION ACTIVITIES AND PHOTOGRAPHS OF THE IN-PROGRESS WORK.
  - GROUNDING SYSTEM AND BURIED UTILITIES INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
  - FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
  - COMPACTION OF BACKFILL MATERIALS, AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS, ASPHALT PAVING, AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
  - PRE AND POST CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES. PRIOR TO CONSTRUCTION ACTIVITIES AND AFTER CONSTRUCTION IS COMPLETE, PROVIDE PHOTOGRAPHIC DOCUMENTATION OF ROOF, FLASHINGS, AND PARAPETS, BOTH BEFORE AND AFTER CONSTRUCTION IS COMPLETE.
  - TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
  - TOWER TOP AND INACCESSIBLE EQUIPMENT (RRUS, ANTENNAS, AND CABLEING): PROVIDE PHOTOS OF THE BACKS OF ALL ANTENNAS, RRUS, COMBINERS, FILTERS, FIBER AND DC CABLEING, CABLE COLOR CODING, EQUIPMENT GROUNDING AND CONNECTOR WATER PROOFING INCLUDING NAME PLATE AND SERIAL NUMBER FOR ALL SERIALIZED EQUIPMENT.



Customer Loyalty through Client Satisfaction  
www.maserconsulting.com  
Engineers ■ Planners ■ Surveyors  
Landscape Architects ■ Environmental Scientists

Copyright © 2018 Maser Consulting Connecticut All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting Connecticut.



201 STATE ROUTE 17 NORTH  
RUTHERFORD, NJ 07070  
PHONE: (201) 684-4000 FAX: (201) 684-4223

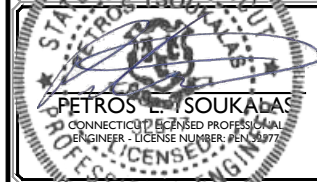


Charles Cherundolo Consulting, Inc.  
713 Clover Lane  
Moscow, PA 18444  
Phone: 973-207-4248  
Fax: 570-842-5592



SCALE: AS SHOWN JOB NUMBER: 17924021A

NO.	DATE	DESCRIPTION	BY	CHECKED BY
2	05/14/18	REVISED PER COMMENTS	JCH	JRF
1	04/17/18	REVISED PER NEW REFS	JCH	PET
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS	PET
B	09/27/17	REVISED FOR REVIEW	DTS	PET
A	07/27/17	ISSUED FOR REVIEW	AMN	FEP
REV	DATE	DESCRIPTION	BY	CHECKED BY



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING WITH THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME: MERIDEN/I-961  
& CT-15/ATLAS CONTAINER  
SITE ID: CT43XC841

119 EMPIRE AVENUE  
MERIDEN, CT 06450



SHEET TITLE:

GENERAL NOTES - 2

SHEET NUMBER:

ANT-002.00



**PROJECT CLOSEOUT:**

- A. FINAL ACCEPTANCE PUNCH WALK AND INSPECTION: AS IDENTIFIED IN THE SCOPE OF SERVICES, SPRINT WILL CONDUCT A FINAL PUNCH WALK OR FINAL DESK TOP PHOTO REVIEW (SITE MODIFICATIONS). PUNCH WALKS MUST BE SCHEDULED IN ADVANCE AS REQUIRED. AT THE PUNCH WALK / REVIEW, SPRINT MAY IDENTIFY CRITICAL DEFICIENCIES WHICH MUST BE CORRECTED PRIOR TO PUTTING SITE ON AIR. MINOR DEFICIENCIES MUST BE CORRECTED WITHIN 30 DAYS EXCEPT AS OTHERWISE REQUIRED. VERIFICATIONS OF CORRECTIONS MAY BE MADE BY COMPANY DURING A REPEAT SITE WALK OR DESK TOP PHOTO REVIEW AT COMPANY'S SOLE DISCRETION.
- B. CLOSEOUT DOCUMENTATION: ALL CLOSEOUT DOCUMENTATION AND PHOTOGRAPHS SHALL BE UPLOADED PRIOR TO FINAL ACCEPTANCE. SPRINT WILL REVIEW CLOSEOUT DOCUMENTATION FOR PRESENCE AND CONTENT. CLOSEOUT DOCUMENTATION SHALL INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING AS APPLICABLE:
  - 1. COAX SWEEP TESTS;
  - 2. FIBER TESTS;
  - 3. JURISDICTION FINAL INSPECTION DOCUMENTATION
  - 4. REINFORCEMENT CERTIFICATION (MILL CERTIFICATION)
  - 5. CONCRETE MIX DESIGN AND PRODUCT DATA (TOWER FOUNDATION)
  - 6. LIEN WAIVERS AND RELEASES.
  - 7. POST -CONSTRUCTION HEIGHT VERIFICATION
  - 8. JURISDICTION CERTIFICATE OF OCCUPANCY
  - 9. ELECTRONIC ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
  - 10. STRUCTURAL BACKFILL TEST RESULTS (IF APPLICABLE)
  - 11. CELL SITE UTILITY SETUP
  - 12. AS-BUILT REDLINE CONSTRUCTION DRAWINGS (PDF SCAN OF FIELD MARKS)
  - 13. AS-BUILT CONSTRUCTION DRAWINGS IN DWG AND PDF FORMATS
  - 14. LIST OF SUB CONTRACTORS
  - 15. APPROVED PERMITTING DOCUMENTS
  - 16. FINAL SITE PHOTOS UP-LOADED TO SITERRA. INCLUDE THE FOLLOWING AS APPLICABLE:
    - a. TOWER, ANTENNAS, RRUS, AND MAINLINE; INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX/CABLE LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING - TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
    - b. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
    - c. SITE LAYOUT - PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
    - d. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL. CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.

**PROJECT PHOTOGRAPHS:**

- A. PROVIDE PROJECT CLOSEOUT GENERAL ARRANGEMENT PHOTOS OF ALL NEW WORK. THE FOLLOWING LIST REPRESENTS MINIMUM REQUIREMENTS AND MINIMUM QUANTITY. ADDITIONAL PHOTOS MAY BE REQUIRED TO ADEQUATELY DOCUMENT THE WORK.
  - 1. ASR AND RF MPE SIGNAGE (IF NOT IN PLACE, SUPPLIER NOTIFIES EMS FIELD REPRESENTATIVE)
  - 2. BACK OF ANTENNAS AND RRUS (1 EACH SECTOR)
  - 3. BACK OF ANTENNAS AND RRUS (1 EACH SECTOR) CLOSE UP SHOWING WEATHERPROOFING AND GROUNDING (AS REQUIRED). CLOSE-UP OF BACK SIDE OF EACH PERMANENT RRU SHOWING SERIAL NUMBER/BAR CODE.
  - 4. VIEW (1 EACH SECTOR) ALONG THE AZIMUTH AND TILT OF THE ANTENNAS
  - 5. TOP OF TOWER FROM GROUND, 1 EACH SECTOR
  - 6. MAINLINE HYBRID CABLE ROUTE DOWN TOWER SHOWING FASTENERS AND SUPPORT
  - 7. MAINLINE/HYBRID CABLE ROUTE ALONG ICE BRIDGE OR IN CABLE TRAY SHOWING FASTENERS AND SUPPORT
  - 8. GROUND MOUNTED RRU RACKS (FRONT AND BACK)
  - 9. FRONT, SIDE AND BACK ELEVATIONS OF ALL GROUND CABINETS
  - 10. VIEW OF COMPOUND FROM A DISTANCE
    - 11. VIEW OF EACH GROUND CABINET (POWER, RF, FIBER SPOOL, PPC POWER, PPC TELCO WITH DOOR OPEN)
    - 12. BACKHAUL FIBER MEET-ME-POINT AND CONDUIT ROUTE (MICROWAVE INSTALLATION IF NOT FIBER)
    - 13. AAV NETWORK INTERFACE DEVICE OR MICROWAVE RADIO INSTALLATION

**DEFICIENCY CORRECTIONS:**  
 CONTRACTOR IS RESPONSIBLE FOR ALL CORRECTIONS TO DEFICIENCIES IDENTIFIED THROUGH TESTING, REVIEW OF SUBMITTALS, INSPECTIONS AND CLOSEOUT REVIEWS.

**SECTION 01 500 - PROJECT REPORTING**

**WEEKLY REPORTS:**

- A. CONTRACTOR SHALL REPORT TO SPRINT AT MINIMUM ON A WEEKLY BASIS VIA SITERRA BY UPDATING ALL APPLICABLE POST END KEEPING MILESTONES WITH ACTUAL AND FORECASTED COMPLETION DATES.
- B. ADDITIONAL REQUIREMENTS FOR REPORTING MAY BE IDENTIFIED ELSEWHERE OR REQUIRED BY THE SCOPE OF SERVICES OR SPRINTS LOCAL MARKET CONSTRUCTION MANAGER. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.  
 PROJECT CONFERENCE CALLS:  
 SPRINT MAY HOLD PERIODIC PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.  
 FINAL PROJECT ACCEPTANCE: PRIOR TO SPRINTS FINAL PROJECT ACCEPTANCE, ALL REQUIRED MILESTONE ACTUALS MUST BE UPDATED IN SITERRA AND ALL REQUIRED REPORTING TASKS MUST BE COMPLETE.

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

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

**ANTENNAS AND RRUS:**  
 THE NUMBER AND TYPE OF ANTENNAS AND RRUS 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 RRUS 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 RRUS 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 RADIUS.
- 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 (CURRENT VERSION).
  - 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

**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 (SPEC).
- 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**

- 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 ETCCO - 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.



Customer Loyalty through Client Satisfaction  
 www.maserconsulting.com  
 Engineers ■ Planners ■ Surveyors  
 Landscape Architects ■ Environmental Scientists

Copyright © 2018 Maser Consulting Connecticut All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting Connecticut.



201 STATE ROUTE 17 NORTH  
 RUTHERFORD, NJ 07070  
 PHONE: (201) 684-4000 FAX: (201) 684-4223

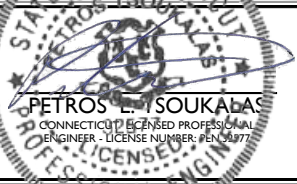


Charles Cherundolo Consulting, Inc.  
 713 Clover Lane  
 Moscow, PA 18444  
 Phone: 973-207-4248  
 Fax: 570-842-5592

**811** PROTECT YOURSELF  
 ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE  
 Know what's below.  
 Call before you dig.  
 FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	JOB NUMBER:
AS SHOWN	17924021A

NO.	DATE	DESCRIPTION	BY	CHECKED BY
2	05/14/18	REVISED PER COMMENTS	JCM	JRF
1	04/17/18	REVISED PER NEW REFS	JCM	PET
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS	PET
B	09/27/17	REVISED PER REVIEW	DTS	PET
A	07/27/17	ISSUED FOR REVIEW	AMN	FEP



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING IN THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

**SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER**  
**SITE ID: CT43XC841**

119 EMPIRE AVENUE  
 MERIDEN, CT 06450

**RED BANK OFFICE**  
 331 Newman Springs Road  
 Suite 203  
 Red Bank, NJ 07701-5699  
 Phone: 732.383.1950  
 Fax: 732.383.1984

SHEET TITLE:

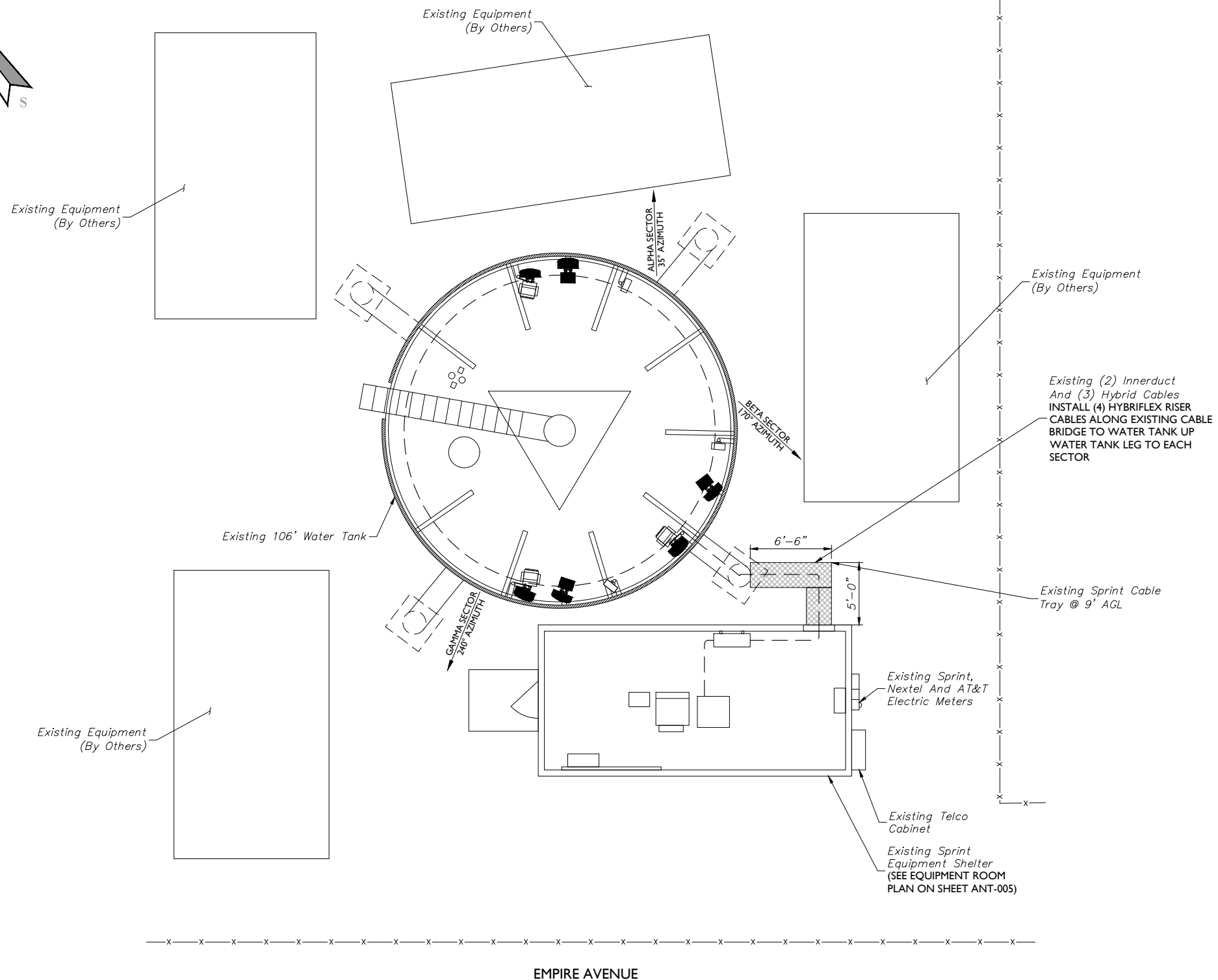
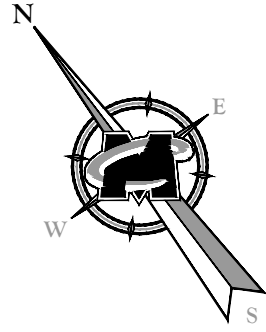
GENERAL NOTES - 3

SHEET NUMBER:

ANT-003.00

**GENERAL NOTES:**

1. SITE INFORMATION OBTAINED FROM THE FOLLOWING:
  - A. DRAWINGS ENTITLED "MERIDEN/I-691 & CT-15/ATLAS CONTAINER", PREPARED BY A SAXON DESIGN GROUP, OF TOM'S RIVER, NEW JERSEY DATED 03/04/14.
2. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



EMPIRE AVENUE

**SITE PLAN**



SCALE: 1" = 5'  
(DO NOT SCALE 11"X17" DRAWINGS)

**LEGEND**

- LIGHT LINE WORK INDICATES EXISTING OBJECTS
- HEAVY LINE WORK INDICATED PROPOSED OBJECTS



Customer Loyalty through Client Satisfaction  
www.mascconsulting.com  
Engineers ■ Planners ■ Surveyors  
Landscape Architects ■ Environmental Scientists

Copyright © 2018 Maser Consulting Connecticut. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting Connecticut.



201 STATE ROUTE 17 NORTH  
RUTHERFORD, NJ 07070  
PHONE: (201) 684-4000 FAX: (201) 684-4223



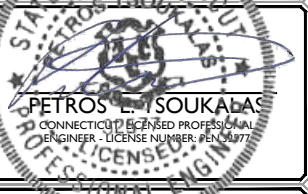
Charles Cherundolo Consulting, Inc.  
713 Clover Lane  
Moscow, PA 18444  
Phone: 973-207-4248  
Fax: 570-842-5592



**PROTECT YOURSELF**  
ALL STATES REQUIRE NOTIFICATION OF EXCAVATIONS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE.  
Know what's below.  
Call before you dig.  
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	AS SHOWN	JOB NUMBER:	17924021A
--------	----------	-------------	-----------

REV	DATE	DESCRIPTION	BY	CHECKED BY
2	05/14/18	REVISED PER COMMENTS	JCM	JRF
1	04/17/18	REVISED PER NEW RFD'S	JCM	PET
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS	PET
B	09/27/17	REVISION	DTS	PET
A	07/27/17	ISSUED FOR REVIEW	AMN	FEP



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING IN THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

**SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER**  
**SITE ID: CT43XC841**

119 EMPIRE AVENUE  
MERIDEN, CT 06450



**RED BANK OFFICE**  
331 Newnan Springs Road  
Suite 203  
Red Bank, NJ 07701-5699  
Phone: 732.383.1950  
Fax: 732.383.1984

SHEET TITLE:

SITE PLAN

SHEET NUMBER:

ANT-004.00

Copyright © 2018 Maser Consulting Connecticut. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting Connecticut.

**Sprint**  
 201 STATE ROUTE 17 NORTH  
 RUTHERFORD, NJ 07070  
 PHONE: (201) 684-4000 FAX: (201) 684-4223

**Cherundolo Consulting**  
 Charles Cherundolo Consulting, Inc.  
 713 Clover Lane  
 Moscow, PA 18444  
 Phone: 973-207-4248  
 Fax: 570-842-5592

**811** PROTECT YOURSELF  
 ALL STATES REQUIRE NOTIFICATION OF EXCAVATIONS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE.  
 Call before you dig.  
 FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	JOB NUMBER:			
AS SHOWN	17924021A			
2	05/14/18	REVISED PER COMMENTS	JCM	JRF
1	04/17/18	REVISED PER NEW REFS	JCM	PET
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS	PET
B	09/27/17	REVISED PER REVIEW	DTS	PET
A	07/27/17	ISSUED FOR REVIEW	AMN	FEP
REV	DATE	DESCRIPTION	BY	CHECKED BY

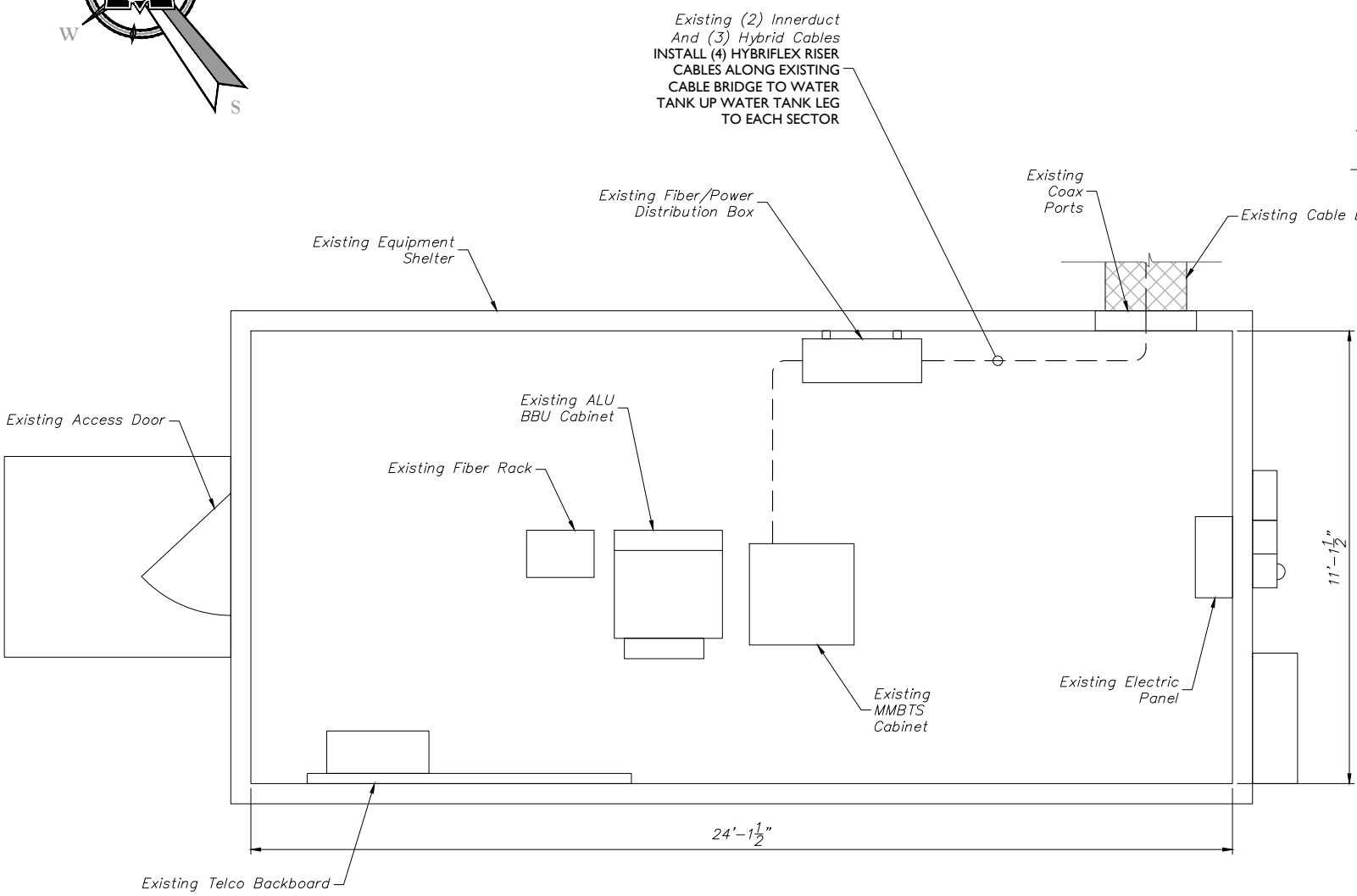
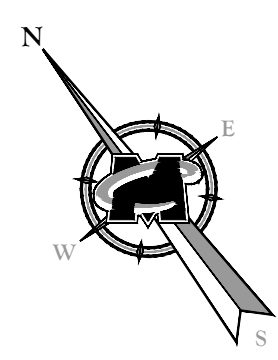
**PETROS E. SOUKALAS**  
 CONNECTICUT LICENSED PROFESSIONAL ENGINEER - LICENSE NUMBER: PE-10777  
 STATE OF CONNECTICUT PROFESSIONAL ENGINEERING BOARD

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING IN THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

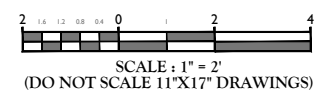
**SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER**  
**SITE ID: CT43XC841**  
 119 EMPIRE AVENUE  
 MERIDEN, CT 06450

**RED BANK OFFICE**  
 331 Newman Springs Road  
 Suite 203  
 Red Bank, NJ 07701-5699  
 Phone: 732.383.1950  
 Fax: 732.383.1984

SHEET TITLE:  
**EQUIPMENT ROOM PLAN AND ELEVATION**  
 SHEET NUMBER:  
**ANT-005.00**

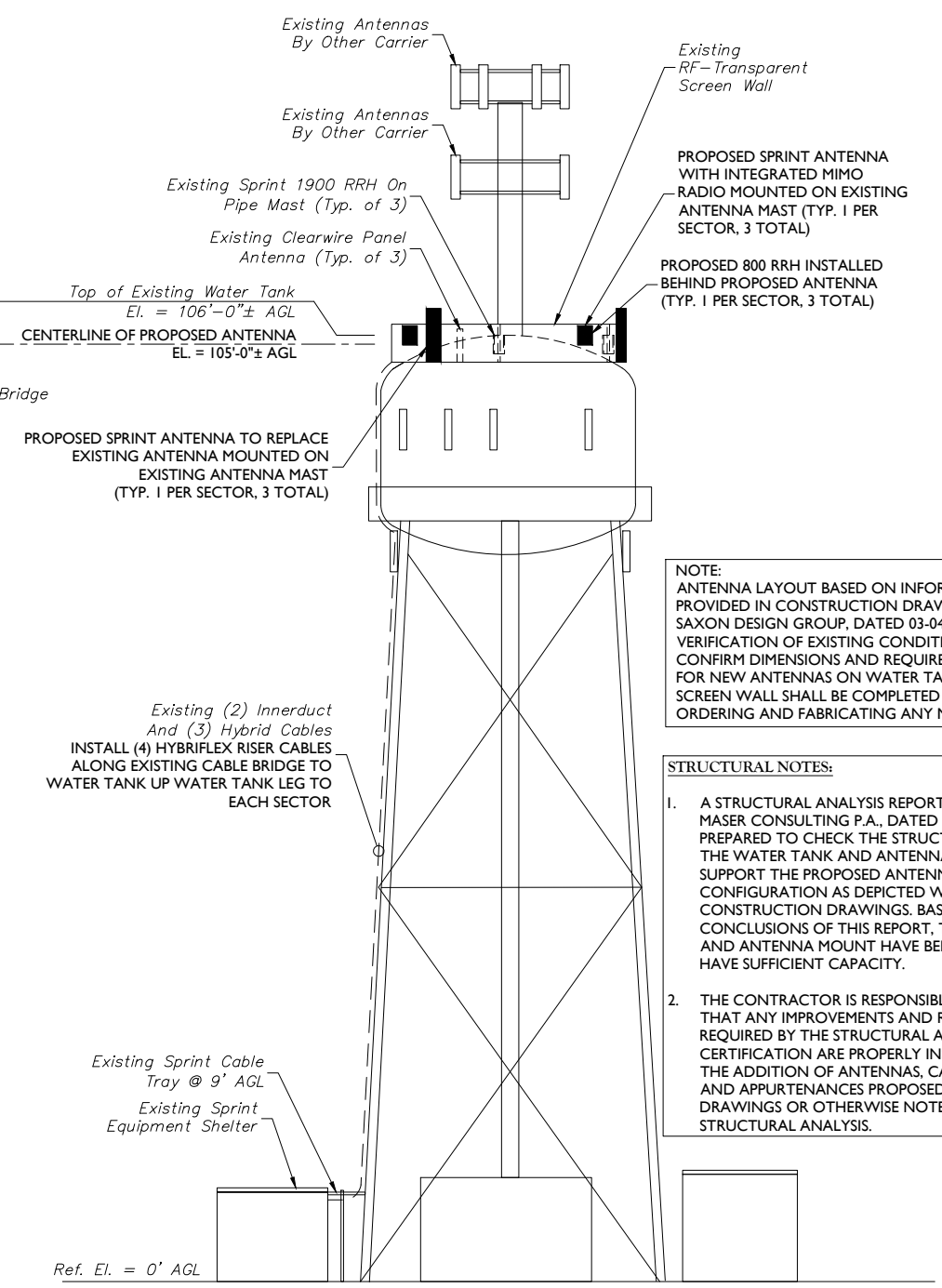


**EQUIPMENT ROOM PLAN**

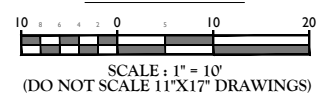


- NOTES:**
- INSTALL ANY SPRINT BATTERIES, IF PROVIDED.
  - INSTALL 3RD BREAKER RAIL AND ANY NECESSARY CONDUIT, FIBER AND DC CONDUCTOR BETWEEN BTS AND FMB, IF SUPPLIED.

**LEGEND**  
 LIGHT LINE WORK INDICATES EXISTING OBJECTS  
 HEAVY LINE WORK INDICATED PROPOSED OBJECTS



**ELEVATION**

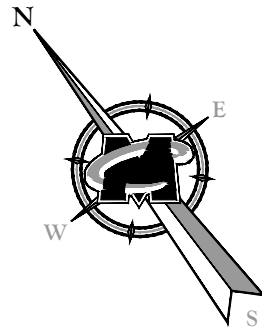
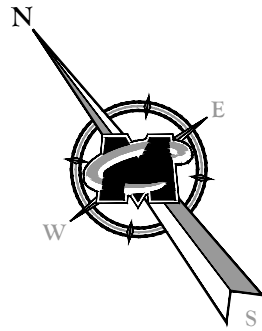


**NOTE:**  
 ANTENNA LAYOUT BASED ON INFORMATION PROVIDED IN CONSTRUCTION DRAWINGS BY A SAXON DESIGN GROUP, DATED 03-04-14. FIELD VERIFICATION OF EXISTING CONDITIONS TO CONFIRM DIMENSIONS AND REQUIRED CLEARANCES FOR NEW ANTENNAS ON WATER TANK BEHIND SCREEN WALL SHALL BE COMPLETED PRIOR TO ORDERING AND FABRICATING ANY MATERIALS.

**STRUCTURAL NOTES:**

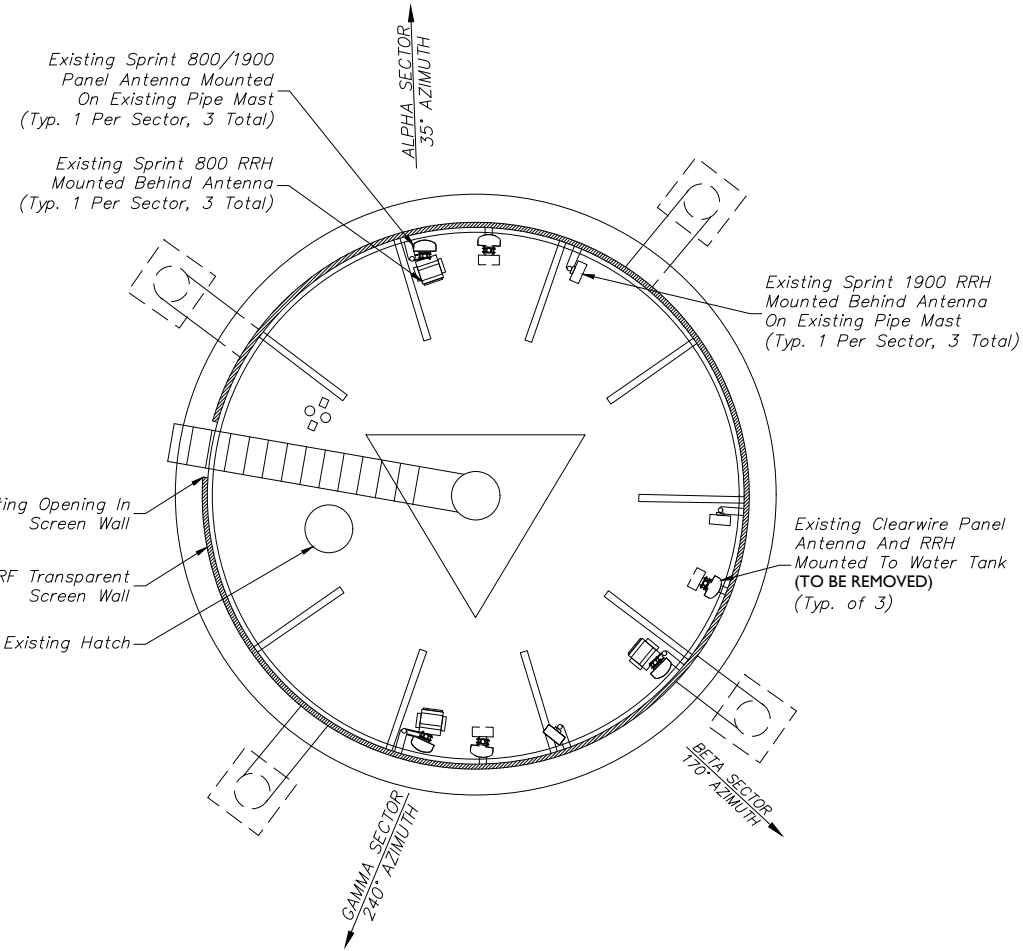
- A STRUCTURAL ANALYSIS REPORT PREPARED BY MASER CONSULTING P.A., DATED 05/14/18 HAS BEEN PREPARED TO CHECK THE STRUCTURAL CAPACITY OF THE WATER TANK AND ANTENNA MOUNT TO SUPPORT THE PROPOSED ANTENNA AND EQUIPMENT CONFIGURATION AS DEPICTED WITHIN THESE CONSTRUCTION DRAWINGS. BASED ON THE CONCLUSIONS OF THIS REPORT, THE WATER TANK AND ANTENNA MOUNT HAVE BEEN DETERMINED TO HAVE SUFFICIENT CAPACITY.
- THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, CABLES, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.



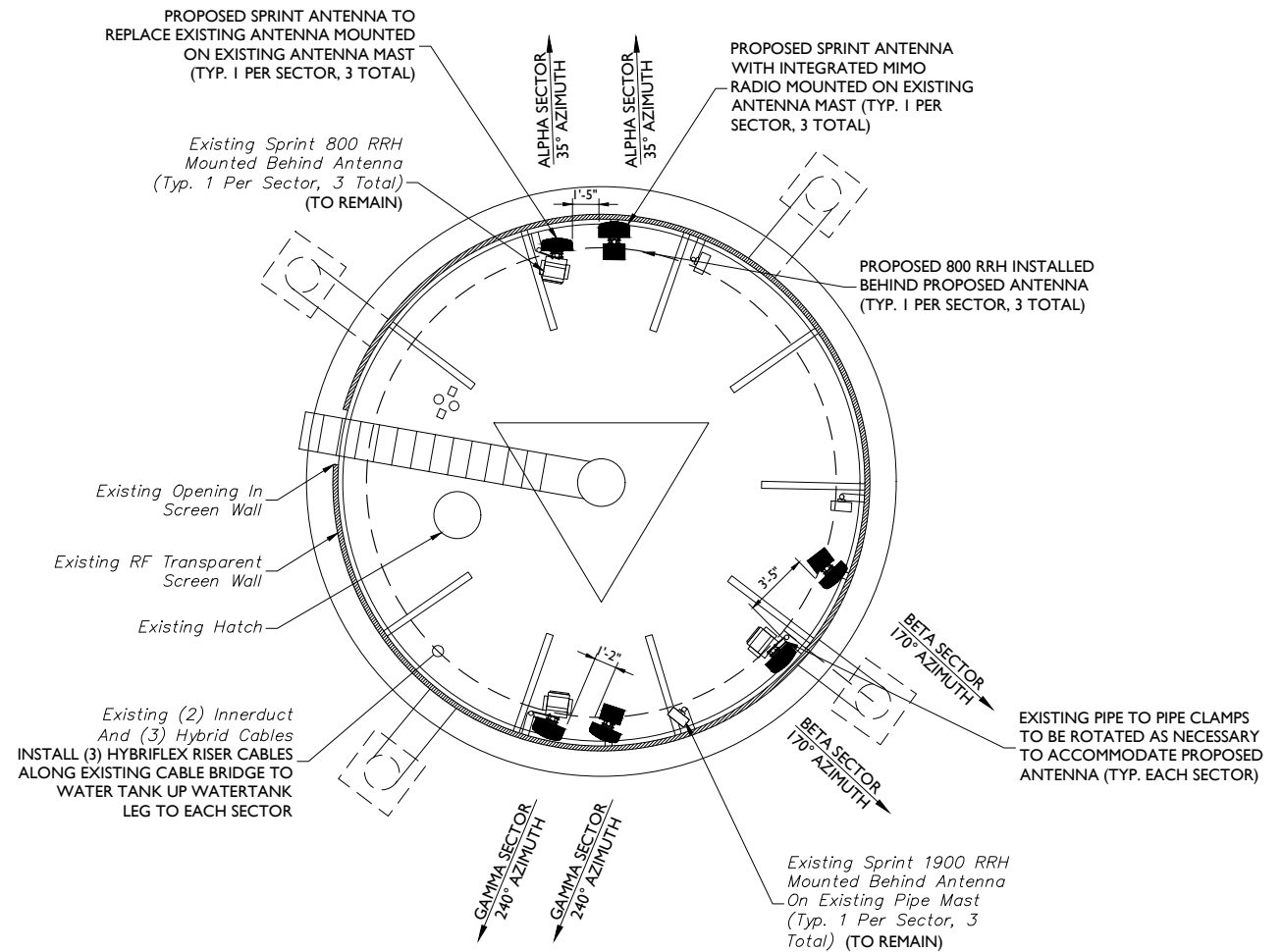
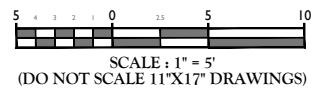


NOTE:  
ANTENNA LAYOUT BASED ON INFORMATION PROVIDED IN CONSTRUCTION DRAWINGS BY A SAXON DESIGN GROUP, DATED 03-04-14. FIELD VERIFICATION OF EXISTING CONDITIONS TO CONFIRM DIMENSIONS AND REQUIRED CLEARANCES FOR NEW ANTENNAS ON WATER TANK BEHIND SCREEN WALL SHALL BE COMPLETED PRIOR TO ORDERING AND FABRICATING ANY MATERIALS.

NOTE:  
PROPOSED ANTENNA INSTALLATION MUST MEET SPRINT GUIDELINES FOR SPACING. CONTRACTOR TO VERIFY IN FIELD.



EXISTING ANTENNA LAYOUT



PROPOSED ANTENNA LAYOUT



Customer Loyalty through Client Satisfaction  
www.maserconsulting.com  
Engineers ■ Planners ■ Surveyors  
Landscape Architects ■ Environmental Scientists

Copyright © 2018 Maser Consulting Connecticut. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting Connecticut.



201 STATE ROUTE 17 NORTH  
RUTHERFORD, NJ 07070  
PHONE: (201) 684-4000 FAX: (201) 684-4223

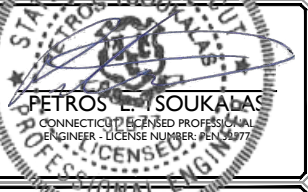


Charles Cherundolo Consulting, Inc.  
713 Clover Lane  
Moscow, PA 18444  
Phone: 973-207-4248  
Fax: 570-842-5592



SCALE:	JOB NUMBER:
AS SHOWN	17924021A

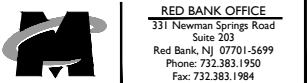
REV	DATE	DESCRIPTION	BY	CHECKED BY
2	05/14/18	REVISED PER COMMENTS	JCM	JRF
1	04/17/18	REVISED PER NEW RFD'S	JCM	PET
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS	PET
B	09/27/17	REVISION FOR REVIEW	DTS	PET
A	07/27/17	ISSUED FOR REVIEW	AMN	FEP



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING IN THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER  
SITE ID: CT43XC841

119 EMPIRE AVENUE  
MERIDEN, CT 06450



RED BANK OFFICE  
331 Newman Springs Road  
Suite 203  
Red Bank, NJ 07701-5699  
Phone: 732.383.1950  
Fax: 732.383.1984

SHEET TITLE:  
ANTENNA ORIENTATION PLANS

SHEET NUMBER:  
ANT-006.00

**Sprint**  
 201 STATE ROUTE 17 NORTH  
 RUTHERFORD, NJ 07070  
 PHONE: (201) 684-4000 FAX: (201) 684-4223

**Cherundolo Consulting**  
 Charles Cherundolo Consulting, Inc.  
 713 Clover Lane  
 Moscow, PA 18444  
 Phone: 973-207-4248  
 Fax: 570-842-5592

**811** PROTECT YOURSELF  
 ALL STATES REQUIRE NOTIFICATION OF EXCAVATIONS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE.  
 Know what's below.  
 Call before you dig.  
 FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	AS SHOWN	JOB NUMBER:	17924021A
REV.	DATE	DESCRIPTION	DESIGNED BY
2	05/14/18	REVISED PER COMMENTS	JCM JRF
1	04/17/18	REVISED PER NEW REDS	JCM PET
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS PET
B	09/27/17	REVISED PER REVIEW	DTS PET
A	07/27/17	ISSUED FOR REVIEW	AMN FEP
REV.	DATE	DESCRIPTION	DESIGNED BY

**PETROS E. SOUKALAS**  
 CONNECTICUT LICENSED PROFESSIONAL ENGINEER - LICENSE NUMBER: PE-10777

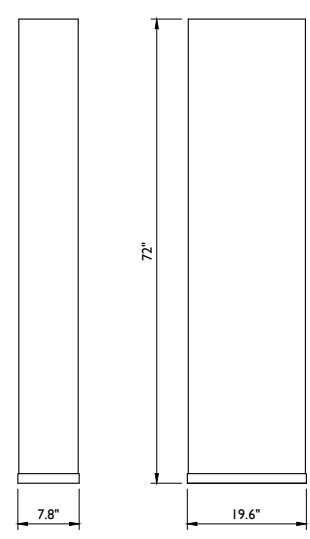
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING IN THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER  
 SITE ID: CT43XC841  
 119 EMPIRE AVENUE  
 MERIDEN, CT 06450

**M** RED BANK OFFICE  
 331 Newman Springs Road  
 Suite 203  
 Red Bank, NJ 07701-5699  
 Phone: 732.383.1950  
 Fax: 732.383.1984

SHEET TITLE: DETAILS

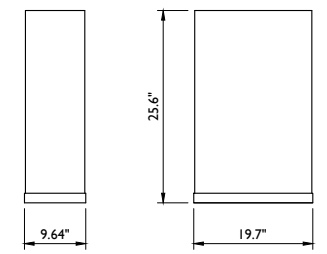
SHEET NUMBER: ANT-007.00



WEIGHT = 84.7 LBS

COMMSCOPE NNVV-65B-R4

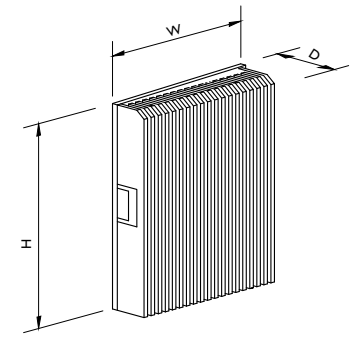
**ANTENNA DETAIL**  
NOT TO SCALE



WEIGHT = 103.7 LBS

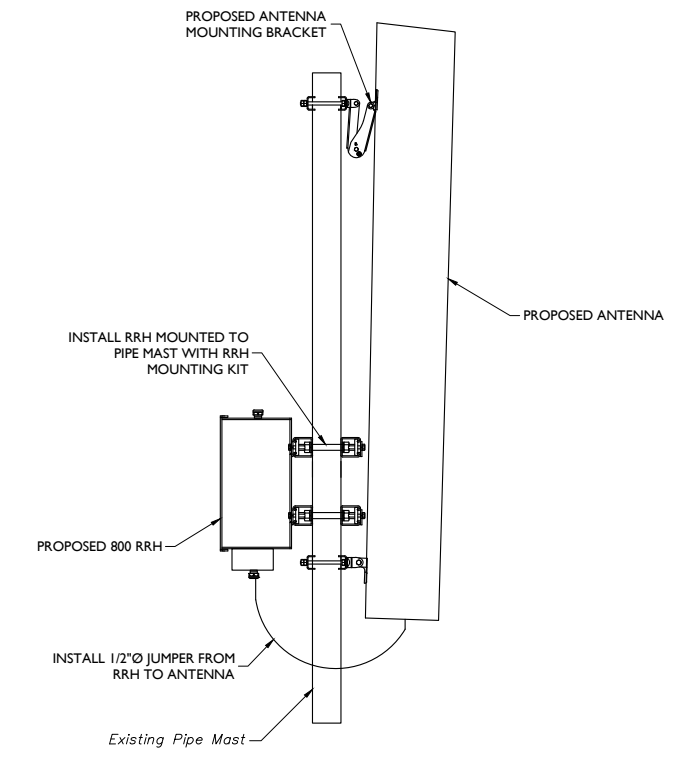
NOKIA AAHC

**ANTENNA DETAIL**  
NOT TO SCALE



MODEL:	HEIGHT (H)	WIDTH (W)	DEPTH (D)	WEIGHT
ALU RRH-2x50-800	16"	13"	10"	69.1 LBS

**RRH SPECIFICATIONS**  
NOT TO SCALE



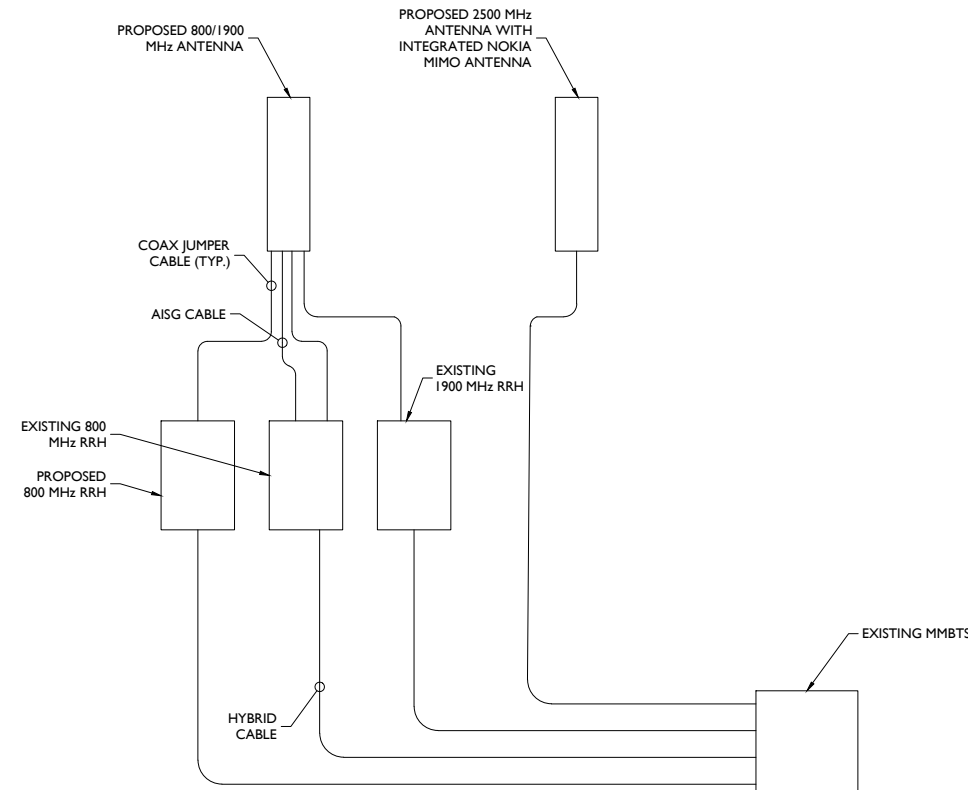
**ANTENNA AND RRH MOUNTING DETAIL**  
NOT TO SCALE

**RF NOTES**

- ACTUAL CABLE LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY SUBCONTRACTOR.
- THE DESIGN IS BASED ON RF DATA SHEETS, SIGNED AND APPROVED.
- RADIO SIGNAL CABLE AND RACEWAY SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC, NFPA 70), CHAPTER 8.
- ALL SPECIFIED MATERIAL FOR EACH LOCATION (E.G., OUTDOORS, INDOORS-OCCUPIED, INDOORS-UNOCCUPIED, PLENUMS, RISER SHAFTS, ETC.) SHALL BE APPROVED, LISTED, OR LABELED AS REQUIRED BY THE NEC.
- HARDLINE AND JUMPER CABLES SHALL BE SUPPORTED WITH HANGERS AND AT INTERVALS AS REQUIRED BY THE MANUFACTURER FOR 125 mph WIND SPEED AND EXPECTED ICE CONDITIONS. FOR SITES WITH TOWER HEIGHT OVER 300' OR ARE LOCATED IN THE EXTREME WEATHER/OPERATION AREAS, THE WORST CASE SCENARIO FOR 150 mph WIND SPEED AND 1" ICE CONDITION SHOULD BE APPLIED. ALL CABLES SHOULD BE SUPPORTED AT HALF THE DISTANCE OF THE MAXIMUM HANGER SPACING FROM THE CABLE CONNECTOR LOCATION TO THE 1ST HANGER. MANUFACTURER RECOMMENDED CABLE SUPPORT ACCESSORIES SHALL BE USED. PLASTIC CABLE TIES ARE NOT ACCEPTABLE. HANGER STACKING LIMIT SHOULD ALSO REFER TO VENDOR'S RECOMMENDATION.
- THE OUTDOOR CABLE SUPPORT SYSTEM SHALL BE PROVIDED WITH AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA CABLE RUNS.
- DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM THE BUILDING OR OUTDOOR BTS CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE COAXIAL CABLE PORT.
- ALL FEEDER LINE AND JUMPER CONNECTORS SHALL BE 7/16 DIN CABLE CONNECTORS THAT MEET IP68 STANDARDS.
- CONNECTORS IN INDOOR APPLICATIONS REQUIRE NO WEATHERPROOFING. OUTDOOR APPLICATIONS REQUIRE WEATHERPROOFING AND THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED:  
  
RE-ENTERABLE AND RE-SEALABLE PLASTIC ENCLOSURE APPROVED BY CABLE MANUFACTURER AND CONTRACTOR IS RECOMMENDED METHOD TO WEATHERPROOF CONNECTORS.  
  
ALSO ACCEPTABLE IS THE USE OF BUTYL RUBBER WEATHERPROOFING KIT APPROVED BY CABLE MANUFACTURE AND CONTRACTOR. START BUTYL RUBBER TAPE APPROXIMATELY 5 INCHES FROM THE CONNECTOR AND WRAP 2 INCHES TOWARD THE CONNECTOR, THEN REVERSE THE TAPE SO THAT THE STICKY SIDE IS UP. TAPE OVER THE CONNECTOR OR SURGE ARRESTOR UNTIL THREE (3) TO FOUR (4) INCHES BEYOND THE CONNECTOR AND REVERSE AGAIN WITH THE STICKY SIDE DOWN FOR ANOTHER TWO INCHES. FINISH WITH TWO LAYERS OF VINYL TAPE. COLD SHRINK IS STRICTLY PROHIBITED. SELF-BONDING, AMALGAMATING TAPE MAYBE USED AS AN ALTERNATIVE TO BUTYL RUBBER TAPE.
- ANTENNAS SHALL BE PAINTED, WHEN REQUIRED, BY THE LANDLORD OR AUTHORITY HAVING JURISDICTION IN ACCORDANCE WITH ANTENNA MANUFACTURERS' SURFACE PREPARATION AND PAINTING REQUIREMENTS.
- CABLE SHIELDS, AND TOWER CONDUITS SHALL BE GROUNDED AT THE TOP OF THE TOWER, WITHIN 10 FEET OF THEIR CONNECTORS, AND AT THE BOTTOM OF THE TOWER ABOUT 6 INCHES BEFORE THEY TURN TOWARD THE FACILITY. THEY SHALL BE GROUNDED AT THE MIDPOINT OF TOWERS THAT ARE BETWEEN 100 FEET AND 200 FEET HIGH, AND AT INTERVALS OF 100 FEET OR LESS ON TOWERS THAT ARE HIGHER THAN 200 FEET.
- APPROVED GROUNDING KITS, WHICH INCLUDE GROUNDING STRAPS, SHALL BE USED TO GROUND THE COAXIAL CABLE SHIELDS, AND CONDUITS. THE GROUND CONDUCTORS FOR THE KITS AT THE TOP OF THE TOWER, AND IN THE MIDDLE SECTION OF THE TOWER, ARE BONDED DIRECTLY TO TOWER STEEL USING BOLTED, OR APPROVED CLAMP CONNECTIONS. EXOTHERMIC WELDS SHALL BE PERMITTED ON TOWERS ONLY WITH THE EXPRESS APPROVAL OF THE TOWER MANUFACTURER OR THE CONTRACTORS STRUCTURAL ENGINEER.
- ALL RADIO SIGNAL CABLE SHALL BE LABELED AND COLOR CODED PER MARKET REQUIREMENTS.
- ANTENNA FEED LINE SYSTEM SWEEP TESTING SHALL BE PERFORMED AND REPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF PROJECT SPECIFICATIONS. CONTRACTOR WILL NOT ACCEPT A RADIO SIGNAL CABLE INSTALLATION WITH UNSATISFACTORY SWEEP TEST RESULTS.
- PIM TESTS SHALL BE PERFORMED ON NEW AND MOVED OR MODIFIED COAXIAL CABLE INSTALLATIONS. TEST SHALL BE PERFORMED AND REPORTED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
- DC CONNECTORS AT OUTDOOR BIAS-Ts OR DIPLEXER/TRIPLEXER PORTS SHALL BE WEATHERPROOFED PER MANUFACTURER RECOMMENDATIONS.
- AISG CONNECTIONS DO NOT REQUIRE ADDITIONAL WEATHERPROOFING UNLESS RECOMMENDED BY MANUFACTURER OR BY MARKET REQUIREMENTS.
- INSTALL ONLY STANDARD RF JUMPER CABLES (e.g. LDF4 OR LCF12) AT TOWER-TOP APPLICATIONS. FLEXIBLE RF CABLES (e.g. FSJ4 OR SCF12) SHALL NOT BE USED.
- CABLES AND CONNECTORS MUST BE PREPARED AND INSTALLED USING THE TOOLS RECOMMENDED BY THE COAXIAL CABLE MANUFACTURER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE CORRECT TOOLS ARE USED FOR THE SIZE AND TYPE OF COAX AND CONNECTOR. ALL ASPECTS OF INSTALLATION OF ALL COAXIAL CABLE SHALL FOLLOW THE CABLE MANUFACTURER'S RECOMMENDATIONS, INCLUDING THOSE FOR PULLING, MOUNTING AND GROUNDING.

PROPOSED ANTENNA CONFIGURATION													
SECTOR	PROPOSED ANTENNA	TECH.	ANTENNA	HEIGHT	WIDTH	DEPTH	WEIGHT	ANTENNA	ANT. CL.	ELECTRICAL	MECHANICAL	LENGTH	
			STATUS	(in)	(in)	(in)	(lbs)	AZIMUTH	ELEV. (ft.)	DOWNTILT	DOWNTILT	HYBRID FLEX (ft)	
ALPHA	A1	COMMSCOPE NNVV-65B-R4	1900	NEW	72	19.6	7.8	84.7	35°	105'	2°	0°	200'
	A2	NOKIA AAHC	800/2500	NEW	25.6	19.7	9.64	103.7	35°	105'	4°	0°	200'
BETA	B1	COMMSCOPE NNVV-65B-R4	1900	NEW	72	19.6	7.8	84.7	170°	105'	2°	0°	180'
	B2	NOKIA AAHC	800/2500	NEW	25.6	19.7	9.64	103.7	170°	105'	4°	0°	180'
GAMMA	C1	COMMSCOPE NNVV-65B-R4	1900	NEW	72	19.6	7.8	84.7	240°	105'	2°	0°	190'
	C2	NOKIA AAHC	800/2500	NEW	25.6	19.7	9.64	103.7	240°	105'	4°	0°	190'

BILL OF MATERIALS				
NUMBER	QUANTITY	DESCRIPTION	MANUFACTURER	MODEL NUMBER
1	3	PANEL ANTENNA	NOKIA	AAHC
2	3	PANEL ANTENNA	COMMSCOPE	NNVV-65B-R4
3	3	800MHZ RRH	ALU	RRH-2X50-800
4	770 LF	1-5/8"Ø HYBRID FIBER RISER (X4)	ALU	TBD
5	48	1/2"Ø JUMPER CABLE (8' LONG)	TBD	TBD
6	3	0.315"Ø AISG CABLE (8' LONG)	COMMSCOPE	ATCB-B01-006



**ANTENNA WIRING DIAGRAM**  
NOT TO SCALE



Customer Loyalty through Client Satisfaction  
www.maserconsulting.com  
Engineers ■ Planners ■ Surveyors  
Landscape Architects ■ Environmental Scientists

Copyright © 2018 Maser Consulting Connecticut. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting Connecticut.



201 STATE ROUTE 17 NORTH  
RUTHERFORD, NJ 07070  
PHONE: (201) 684-4000 FAX: (201) 684-4223

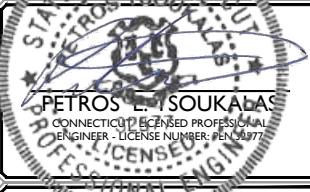


Charles Cherundolo Consulting, Inc.  
713 Clover Lane  
Moscow, PA 18444  
Phone: 973-207-4248  
Fax: 570-842-5592

**811** PROTECT YOURSELF  
ALL STATES REQUIRE NOTIFICATION OF EXCAVATIONS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE  
Know what's below.  
Call before you dig.  
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE: AS SHOWN JOB NUMBER: 17924021A

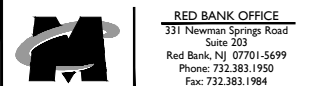
REV	DATE	DESCRIPTION	BY	CHECKED BY
2	05/14/18	REVISED PER COMMENTS	JCM	JRF
1	04/17/18	REVISED PER NEW REFS	JCM	PET
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS	PET
B	09/27/17	REVISED PER REVIEW	DTS	PET
A	07/27/17	ISSUED FOR REVIEW	AMN	FEP



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING IN THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER  
SITE ID: CT43XC841

119 EMPIRE AVENUE  
MERIDEN, CT 06450



RED BANK OFFICE  
331 Newman Springs Road  
Suite 203  
Red Bank, NJ 07701-5699  
Phone: 732.383.1950  
Fax: 732.383.1984

SHEET TITLE: ANTENNA SCHEDULE, WIRING DIAGRAM, BILL OF MATERIALS AND NOTES

SHEET NUMBER: ANT-008.00



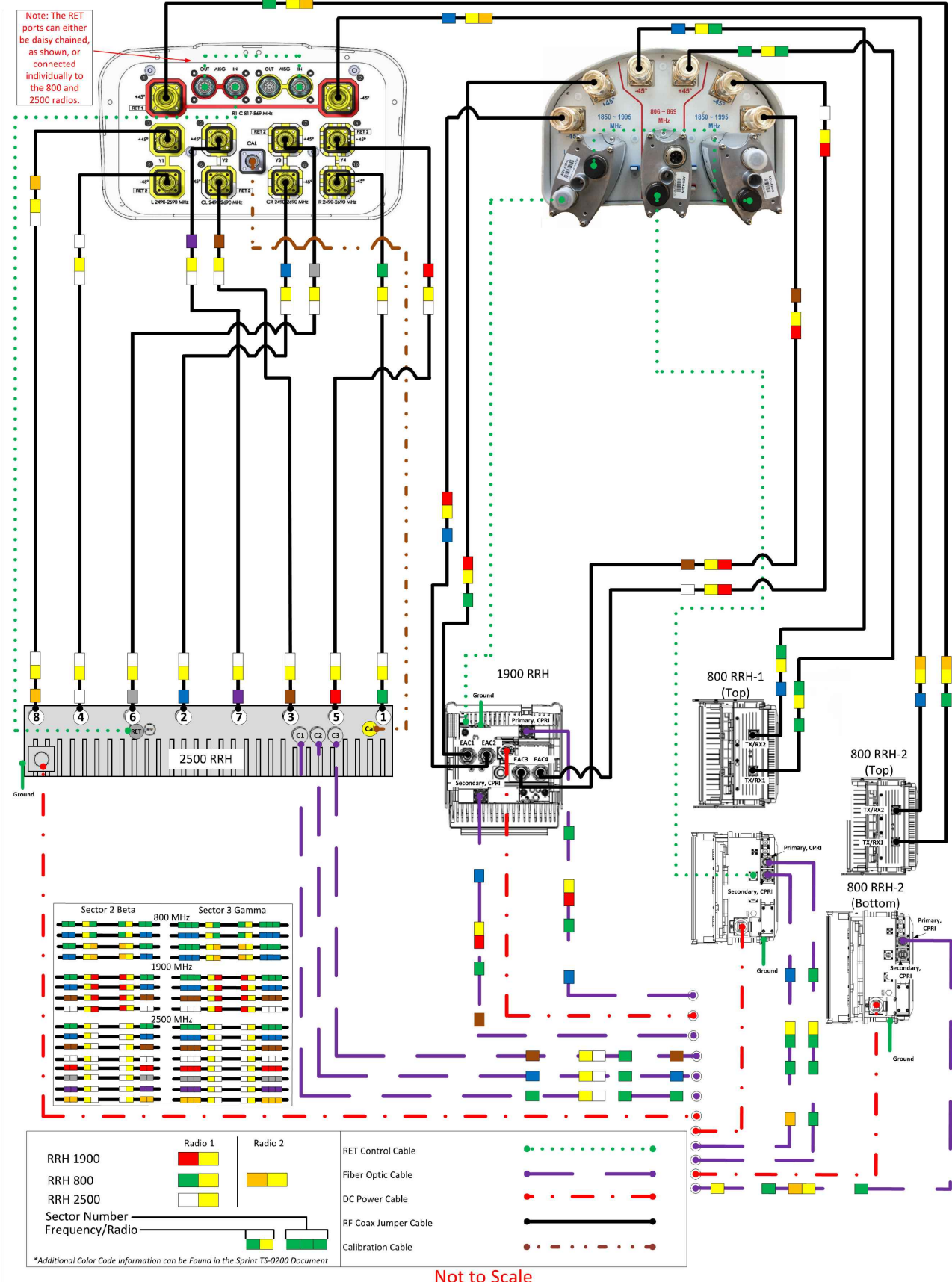


Prepared By  
Mark Elliott  
Approved By  
RAN Hardware & Antenna Teams

Revision Date August 23, 2017  
Revision Number R4  
Approval Date  
DRAFT-Macro Generated



ALU 211 DT465B-2XR & APXVSPP18-C-A20 wo Filters



Not to Scale



Customer Loyalty through Client Satisfaction  
www.maserconsulting.com  
Engineers ■ Planners ■ Surveyors  
Landscape Architects ■ Environmental Scientists

Copyright © 2018 Maser Consulting Connecticut. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting Connecticut.



201 STATE ROUTE 17 NORTH  
RUTHERFORD, NJ 07070  
PHONE: (201) 684-4000 FAX: (201) 684-4223

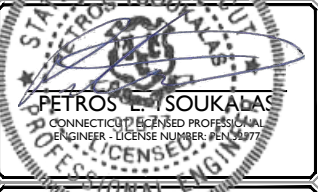


Charles Cherundolo Consulting, Inc.  
713 Clover Lane  
Moscow, PA 18444  
Phone: 973-207-4248  
Fax: 570-842-5592

**811** PROTECT YOURSELF  
ALL STATES REQUIRE NOTIFICATION OF EXCAVATIONS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE.  
Call before you dig.  
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE: AS SHOWN JOB NUMBER: 17924021A

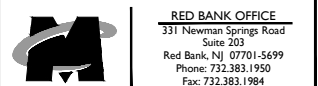
REV	DATE	DESCRIPTION	BY	CHECKED BY
2	05/14/18	REVISED PER COMMENTS	JCM	JRF
1	04/17/18	REVISED PER NEW REDS	JCM	PET
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS	PET
B	09/27/17	REVISED PER REVIEW	DTS	PET
A	07/27/17	ISSUED FOR REVIEW	AMN	FEP



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING IN THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER  
SITE ID: CT43XC841

119 EMPIRE AVENUE  
MERIDEN, CT 06450



RED BANK OFFICE  
331 Newman Springs Road  
Suite 203  
Red Bank, NJ 07701-5699  
Phone: 732.383.1950  
Fax: 732.383.1984

SHEET TITLE:

FIBER PLUMBING DIAGRAMS - 2

SHEET NUMBER:

ANT-010.00



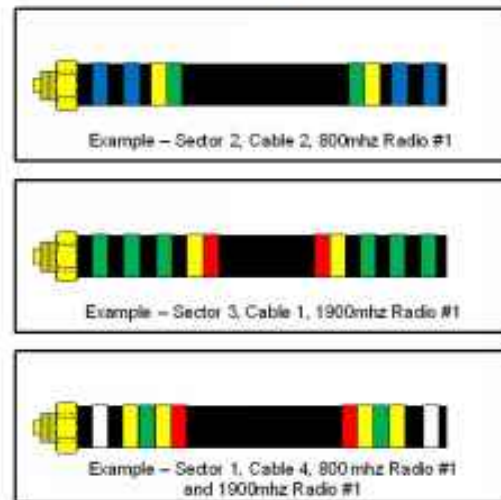
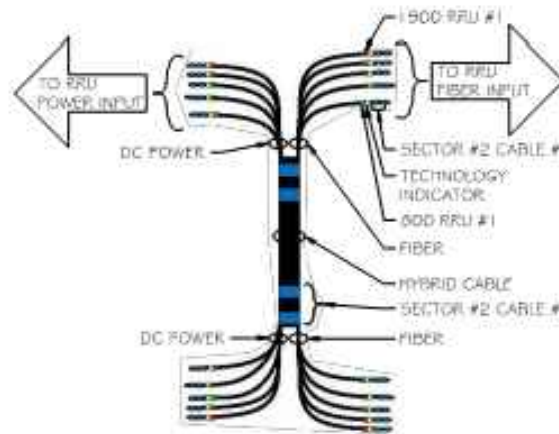
# CABLE MARKING NOTES

- ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.
- THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAKOUT UNIT. THERE SHALL BE 1" SPACE BETWEEN EACH RING.
- A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.
- THE 2" COLORED TAPE(S) SHALL BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.
- SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE SECOND CABLE IDENTIFIED BY BLUE BANDS OF TAPE.
- HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.
- HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.
- INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABEL.

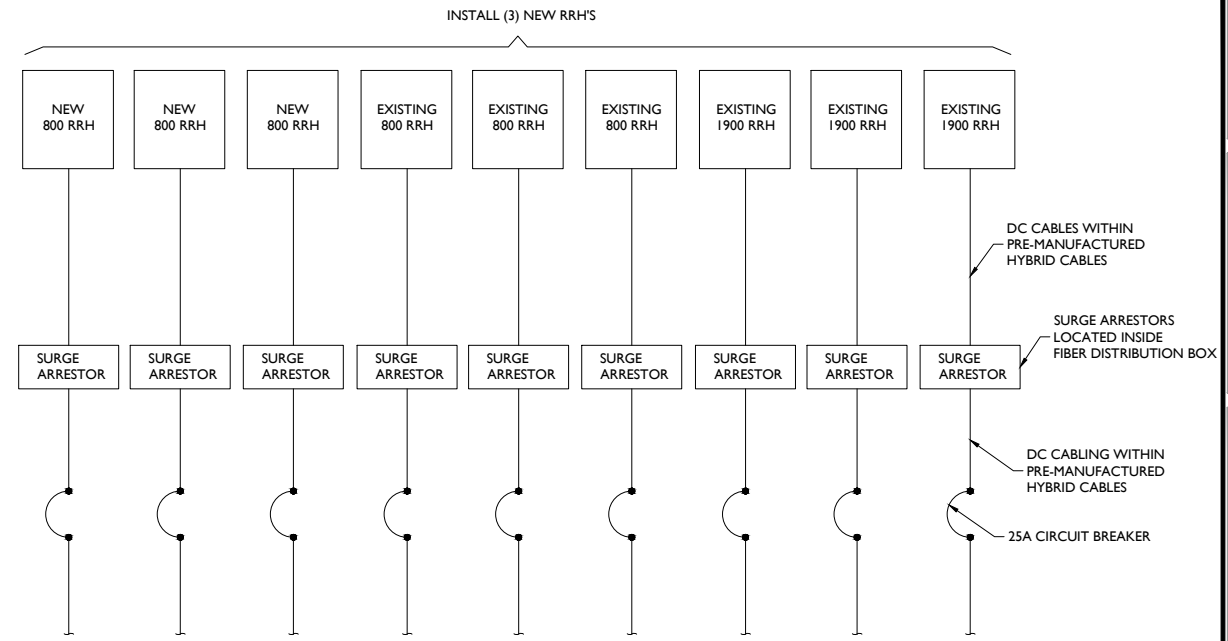
2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

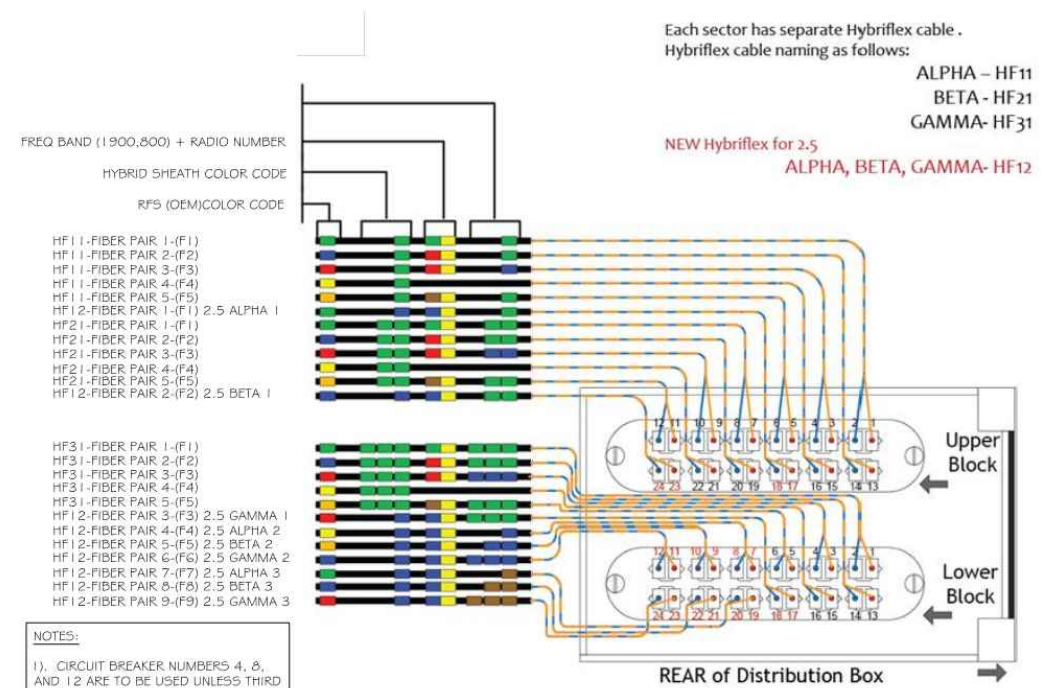
Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
	2	Blue	No Tape	No Tape
	3	Brown	No Tape	No Tape
	4	White	No Tape	No Tape
	5	Red	No Tape	No Tape
	6	Grey	No Tape	No Tape
	7	Purple	No Tape	No Tape
	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
	2	Blue	Blue	No Tape
	3	Brown	Brown	No Tape
	4	White	White	No Tape
	5	Red	Red	No Tape
	6	Grey	Grey	No Tape
	7	Purple	Purple	No Tape
	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
	2	Blue	Blue	Blue
	3	Brown	Brown	Brown
	4	White	White	White
	5	Red	Red	Red
	6	Grey	Grey	Grey
	7	Purple	Purple	Purple
	8	Orange	Orange	Orange



COLOR CODING CHARTS  
NOT TO SCALE



DC ONELINE DIAGRAM  
NOT TO SCALE



- NOTES:
- CIRCUIT BREAKER NUMBERS 4, 8, AND 12 ARE TO BE USED UNLESS THIRD DC RAIL IS REQUIRED FOR MICROWAVE.
  - USE DC POWER LOOP.
  - ALL UNUSED DC FEEDERS TO BE TERMINATED WITH WIRE NUTS AND TAPED.
  - REMOVE ALL DEBRIS FROM INTERIOR OF FIBER DISTRIBUTION BOX WHEN COMPLETE.

TYPICAL FIBER DISTRIBUTION  
NOT TO SCALE

**MASER CONSULTING CONNECTICUT**  
Customer Loyalty through Client Satisfaction  
www.mascosulinc.com  
Engineers ■ Planners ■ Surveyors  
Landscape Architects ■ Environmental Scientists

Copyright © 2018 Maser Consulting Connecticut. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting Connecticut.

**Sprint**  
201 STATE ROUTE 17 NORTH  
RUTHERFORD, NJ 07070  
PHONE: (201) 684-4000 FAX: (201) 684-4223

**Cherundolo Consulting**  
Charles Cherundolo Consulting, Inc.  
713 Clover Lane  
Moscow, PA 18444  
Phone: 973-207-4248  
Fax: 570-842-5592

**811** PROTECT YOURSELF  
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE.  
Know what's below. Call before you dig.  
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE	JOB NUMBER
AS SHOWN	17924021A

REV	DATE	DESCRIPTION	BY	CHECKED BY
2	05/14/18	REVISED PER COMMENTS	JCM	JRF
1	04/17/18	REVISED PER NEW RFS	JCM	PET
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS	PET
B	09/27/17	REVISED FOR REVIEW	DTS	PET
A	07/20/17	ISSUED FOR REVIEW	AMN	FEP

**PETROS E. SOUKALAS**  
CONNECTICUT LICENSED PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN 0477

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING IN THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER  
SITE ID: CT43XC841  
119 EMPIRE AVENUE  
MERIDEN, CT 06450

**RED BANK OFFICE**  
331 Newnam Springs Road  
Suite 203  
Red Bank, NJ 07701-5699  
Phone: 732.383.1950  
Fax: 732.383.1984

SHEET TITLE:  
CABLE COLOR CODING, DC POWER DETAILS & PANEL SCHEDULES

SHEET NUMBER:  
ANT-011.00



GENERAL REQUIREMENTS:

1. THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES, AND PERFORMING ALL OPERATIONS FOR COMPLETE AND OPERATING SYSTEMS. ANY WORK NOT SPECIFICALLY COVERED BY NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED. ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
2. ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE 2011 EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK.
3. THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.
4. ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ENGINEER, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.
5. THE ELECTRICAL CONTRACTOR SHALL SUBMIT, FOR THE ENGINEER'S APPROVAL, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT SPECIFIED.
6. CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS BY OTHER TRADES.
7. PROVIDE OPERATING AND MAINTENANCE MANUALS, PER SPECIFICATIONS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.
8. KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.
9. ALL WORK SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.
10. THE WORK SHALL INCLUDE ALL PANELS, DEVICES, FEEDERS AND BRANCH CIRCUIT WIRING AS REQUIRED FOR THE DISTRIBUTION SYSTEM INDICATED AND CALLED FOR ON THE DRAWINGS, REQUIRED BY SPECIFICATIONS AND AS NECESSARY FOR COMPLETE FUNCTIONAL SYSTEMS PRESENTED AND INTENDED.
11. THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, CONSUMABLES AND SERVICES REQUIRED FOR OBTAINING, DELIVERY, INSTALLATION, CONNECTION, DISCONNECTION, REMOVAL, RELOCATION, REPAIR, REPLACEMENT, TESTING AND COMMISSIONING OF ALL EQUIPMENT AND DEVICES INCLUDED IN OR NECESSARY FOR THE WORK, AS APPLICABLE. THIS INCLUDES SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC.
12. ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES. ALL EQUIPMENT, WALLS, FLOORS, ETC., DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTORS EXPENSE.
13. BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL FULLY ACQUAINT HIMSELF/HERSELF WITH THE JOB CONDITIONS AND DIFFICULTIES THAT WILL PERTAIN TO THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR. EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD NOT HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
14. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES.
15. UPON COMPLETION OF THE ELECTRICAL WORK, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORTS, GROUNDS, AND PROPER OPERATION, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.
16. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST SYSTEMS TO THE SATISFACTION OF OWNER AND ENGINEER. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
17. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRIOR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.
18. EXACT ROUTING OF CONDUITS AND "MC" CABLES SHALL BE DETERMINED IN THE FIELD.
19. IF THE OWNER AND/OR HIS REPRESENTATIVE CONSIDERS ANY WORK TO BE INFERIOR, THE RESPECTIVE CONTRACTOR SHALL REPLACE SAME WITH CONTRACT STANDARD WORK WITHOUT ADDITIONAL CHARGE. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER. LEFT CLEAN AND FREE FROM DEFECTS, AND COMPLETELY OPERABLE.
20. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED. ALL MATERIALS SHALL BE NEW, AND BEAR THE UL LABEL. ALL WORK SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.
21. DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC, AND SHALL BE FOLLOWED AS CLOSELY AS CONDITIONS ALLOW TO COMPLETE THE INTENT OF THE CONTRACT. THE DRAWINGS AND SPECIFICATIONS COMPLIMENT AND VICE VERSA, IS TO BE INCLUDED IN THE SCOPE OF WORK.
22. ALL EQUIPMENT CONNECTIONS SHALL BE INSTALLED PER APPLICABLE SEISMIC REQUIREMENTS.
23. ENGINEER WILL MAKE A FINAL INSPECTION WITH THE OWNER AND CONTRACTOR AND WILL NOTIFY THE CONTRACTOR IN WRITING OF ALL PARTICULARS IN WHICH THIS INSPECTION REVEALS THAT THE WORK IS INCOMPLETE OR DEFECTIVE. THE CONTRACTOR SHALL IMMEDIATELY TAKE SUCH MEASURES AS ARE NECESSARY TO COMPLETE SUCH WORK OR REMEDY SUCH DEFICIENCIES.
24. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING, AND BACKFILL AS REQUIRED FOR ELECTRICAL WORK. BACKFILL SHALL BE SUITABLE MATERIAL PROPERLY COMPACTED TO 95% DENSITY IN EACH LAYER OF SIX (6) INCH DEPTH. CONDUIT SHALL BE MINIMUM 36" BELOW FINISHED GRADE.

PROJECT COORDINATION:

1. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES, PRIOR TO COMMENCING WITH THE WORK.
2. THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH THE DOCUMENTS OF ALL TRADES.
3. THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES. ALL WORK THAT MAY AFFECT OPERATION OF BUILDING SYSTEMS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE.
4. SHUT DOWN OF POWER SHALL BE COORDINATED WITH THE OWNER, ARCHITECT AND PROJECT MANAGER AT LEAST 14 WORKING DAYS PRIOR TO SHUT DOWN. SHUT DOWNS LONGER THAN 2 DAYS SHALL BE COORDINATED WITH THE ABOVE PERSONNEL AT LEAST ONCE A MONTH IN ADVANCE. TEMPORARY POWER FOR CONSTRUCTION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR SHUT DOWNS OVER 2 DAYS.
5. ALL CONDUITS AND DEVICE BOXES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, INCLUDING ALL TECHNOLOGY CONDUITS AND BOXES.
6. INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. TEMPORARY SHUT DOWNS OF ANY SYSTEMS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER AND ARCHITECT.

PROTECTION OF WORK:

1. EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.

WARRANTIES AND BONDS:

1. ALL MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER.
2. OBTAIN AND DELIVER TO THE OWNER'S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

PERMITS:

1. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION FEES FOR ELECTRICAL WORK.

RACEWAYS:

1. ALL CONDUIT SHALL BE MINIMUM SIZE OF 3/4" FOR POWER CIRCUITS AND CONTROL CIRCUITS EXCEPT WHERE FLEXIBLE CONDUIT IS CALLED FOR ON PROJECT DOCUMENTS. ALL EXTERIOR EXPOSED CONDUIT SHALL BE GRC (GALVANIZED RIGID METAL CONDUIT). ALL UNDERGROUND, IN SLAB OR UNDER SLAB SHALL BE RNC (RIGID NONMETALLIC CONDUIT). CHANGE RIGID METALLIC CONDUIT FOR INTERMEDIATE METALLIC CONDUIT BEFORE EXITING OUT OF CONCRETE OR PENETRATING A WALL, FLOOR OR ROOF. EMT IS ALLOWED IN INTERIOR DRY LOCATIONS WHERE NOT SUBJECT TO DAMAGE.
2. ALL FLEXIBLE CONDUIT IN WET OR DRY AREAS SHALL BE LIQUID TIGHT CONDUIT. NONMETALLIC FLEXIBLE CONDUIT IS SPECIFICALLY PROHIBITED.
3. CONDUIT SHALL BE RUN AT RIGHT ANGLES AND PARALLEL TO BUILDING LINES, SHALL BE NEATLY RACKED AND SECURELY FASTENED. JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE INSTALLATION OF WIRES.
4. ALL CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN AN APPROVED MANNER.
5. ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200 LB. TEST NYLON DRAG LINE.
6. ARRANGEMENT OF CONDUIT AND EQUIPMENT SHALL BE AS INDICATED, UNLESS MODIFICATION IS REQUIRED TO AVOID INTERFERENCES.
7. FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1 1/4" AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1" AND SMALLER.
8. THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND TAPES FOR THE PROTECTION, LOCATION AND IDENTIFICATION OF UNDERGROUND CONDUIT INSTALLATION.
9. EXACT ROUTING OF CONDUITS AND CABLES SHALL BE DETERMINED IN FIELD.

WIRING:

1. ALL WIRE SHALL BE COPPER WITH TYPE THHN/THWN 600 VOLT INSULATION, MINIMUM #12 AWG FOR POWER AND LIGHTING CIRCUITS AND #16 AWG FOR CONTROL CIRCUITS.
2. UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPLICED.
3. ALL COMPUTER CIRCUITS SHALL HAVE SEPARATE NEUTRAL CONDUCTORS. ALL OTHER CIRCUITS MAY SHARE GROUND AND NEUTRAL CONDUCTORS.
4. WHERE EQUIPMENT, LIGHTING FIXTURES AND WIRING DEVICES ARE SHOWN WITH CIRCUIT NUMBERS ONLY, THE MINIMUM BRANCH CIRCUITING REQUIREMENTS SHALL BE AS FOLLOWS.
5. CONTRACTOR SHALL INCREASE SIZE OF CIRCUIT WIRING/CONDUCTORS TO COMPENSATE FOR VOLTAGE DROP.
6. WIRE SIZES SHALL BE INCREASED TO COMPENSATE FOR VOLTAGE DROP AS FOLLOWS:

GROUNDING:

1. PROVIDE A COMPLETE EQUIPMENT GROUND SYSTEM FOR THE ELECTRICAL SYSTEM AS REQUIRED BY ARTICLE 250, OF THE NEC, AND AS SPECIFIED HEREIN.
2. ALL BRANCH CIRCUITS FOR POWER WIRING SHALL CONTAIN A COPPER GROUND WIRE. NO FLEXIBLE METAL CONDUIT OF ANY KIND OR LENGTH SHALL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.
3. THE EQUIPMENT BONDING JUMPER SHALL BE PERMITTED TO BE INSTALLED INSIDE OR OUTSIDE OF A RACEWAY OR ENCLOSURE. WHERE INSTALLED ON OUTSIDE, THE LENGTH OF THE EQUIPMENT BONDING JUMPER SHALL NOT EXCEED 6 FEET AND SHALL BE ROUTED WITH THE RACEWAY OR ENCLOSURE. REFER TO NEC 2011 - 250.102 (E)
4. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
5. ALL WIRES SHALL BE AWG THHN/THWN COPPER UNLESS NOTED OTHERWISE.
6. GROUNDING CONNECTIONS TO GROUND RODS, GROUND RING WIRE, TOWER BASE AND FENCE POSTS SHALL BE EXOTHERMIC ("CADWELDS") UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL. WHERE GROUND WIRES ARE CADWELDED TO GALVANIZED SURFACES, SPRAY CADWELD WITH GALVANIZING PAINT.
7. GROUNDING CONNECTIONS TO GROUND BARS ARE TO BE TWO-HOLE BRASS MECHANICAL CONNECTORS WITH STAINLESS STEEL HARDWARE (INCLUDE SCREW SET). CLEAN GROUND BAR TO SHINY METAL. AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTIOXIDANT COATING.
8. GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURERS' GROUNDING KITS.
9. ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
10. INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 BARE TINNED COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
11. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE ("CADWELDS") TO GROUND RING. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
12. EXOTHERMIC WELDS SHALL BE MADE IN ACCORDANCE WITH ERICO PRODUCTS BULLETIN A-AT.
13. CONSTRUCTION OF GROUND RING AND CONNECTIONS TO EXISTING GROUND RING SYSTEM SHALL BE DOCUMENTED WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PROVIDE PHOTOS TO CARRIER'S CONSTRUCTION MANAGER.
14. ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2/0 TINNED. ALL EXTERIOR GROUND BARS TINNED COPPER.
15. PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF JET LUBE INC.) PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
16. ENGAGE IN INDEPENDENTLY ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED FIVE OHMS TO GROUND BY MEANS OF "FALL OF POTENTIAL TEST". TEST SHALL BE WITNESSED BY CARRIER REPRESENTATIVE, AND RECORDED ON CARRIER'S "GROUND RESISTANCE TEST" FORM.
17. WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1' BELOW GRADE AND SEAL TOP WITH SILICONE MATERIAL.
18. PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.
19. ANY SITE WHERE THE EQUIPMENT (BTS, CABLE BRIDGE, PPC, GENERATOR, ETC.) IS LOCATED WITHIN 6 FEET OF METAL FENCING THE BGR SHALL BE BONDED TO THE NEAREST FENCE POST USING (2) RUNS OF #2 BARE TINNED COPPER WIRE.



Customer Loyalty (through) Client Satisfaction  
www.maserconsulting.com  
Engineers ■ Planners ■ Surveyors  
Landscape Architects ■ Environmental Scientists

Copyright © 2018 Maser Consulting Connecticut. All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Maser Consulting Connecticut.



201 STATE ROUTE 17 NORTH  
RUTHERFORD, NJ 07070  
PHONE: (201) 684-4000 FAX: (201) 684-4223



Charles Cherundolo Consulting, Inc.  
713 Clover Lane  
Moscow, PA 18444  
Phone: 973-207-4248  
Fax: 570-842-5592



PROTECT YOURSELF

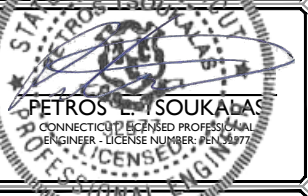
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

Know what's below.  
Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT:  
WWW.CALL811.COM

SCALE:	JOB NUMBER:
AS SHOWN	17924021A

2	05/14/18	REVISED PER COMMENTS	JCM	JRF	
1	04/17/18	REVISED PER NEW RFDs	JCM	PET	
0	11/07/17	ISSUED FOR CONSTRUCTION	DTS	PET	
B	09/27/17	REVISION	DTS	PET	
A	07/27/17	ISSUED FOR REVIEW	AMN	FEP	
REV	DATE	DESCRIPTION	BY	CHECKED BY	



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING IN THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME: MERIDEN/I-961 & CT-15/ATLAS CONTAINER  
SITE ID: CT43XC841

119 EMPIRE AVENUE  
MERIDEN, CT 06450



RED BANK OFFICE  
331 Newman Springs Road  
Suite 203  
Red Bank, NJ 07701-5699  
Phone: 732.383.1950  
Fax: 732.383.1984

SHEET TITLE:  
ELECTRICAL AND GROUNDING NOTES

SHEET NUMBER:  
ANT-012.00





MASER CONSULTING  
— CONNECTICUT —

## Water Tank Finite and Foundation Analysis

FOR  
**CT43XC841**  
Meriden/I-69I & CT-15/Atlas Container  
119 Empire Avenue  
Meriden, CT 06450  
New Haven County

**Water Tank Utilization: 98.0%**  
**Foundation Utilization: 23.3%**

May 14, 2018

*Prepared For*  
**Sprint**  
201 State Route 17 North  
Rutherford, NJ 07070

*Prepared By*  
**Maser Consulting Connecticut**  
331 Newman Springs Road, Suite 203  
Red Bank, NJ 07701  
Tel: 908.303.1950



Petros E. Tsoukalas, P.E.  
Geographic Discipline Leader  
Connecticut License No. 32577

MC Project No. 17924021A





### **Objective:**

The objective of this report is to determine the capacity of the existing water tank, the existing antenna support mounts, and the water tank foundation at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

### **Introduction:**

Maser Consulting Connecticut has performed limited field observations on July 13, 2017 to verify the existing condition of the structure. This structural analysis is only valid for the proposed **Sprint** equipment. Additionally, Maser Consulting Connecticut has reviewed the following documents in completing this report:

- Tower Mapping Report, prepared by Tower Engineering Professional, dated March 12, 2018
- Previous Tower Structural Analysis Report, prepared by CENTEK Engineering, Rev. 1, dated October 21, 2016
- RFDS ID: 111287 provided by Cherundolo Consulting, Inc., dated August 15, 2017

The existing structure is a 111'-0" tall elevated water tank that is currently not in use and does not store water inside. The proposed **Sprint** equipment is to be installed on existing pipes that are attached to the existing concealment framings on top of the water tank dome. This report is based upon this information, as well as the information obtained in the field.

### **Equipment Loading:**

Maser Consulting Connecticut understands the final **Sprint** loading to be the following:

- **(3) Nokia AAHC Antennas (Proposed)**
- **(3) CommScope NNVV-65B-R4 Antennas (Proposed)**
- **(3) RRH-2X50-800 (Proposed)**
- (3) RRH-2X50-800 (Existing)
- (3) RRH-4x45-1900 (Existing)
- (1) Junction Box (Existing)

### **Codes, Standards and Loading:**

Maser Consulting Connecticut utilized the following codes and standards:

- 2016 Connecticut State Building Code, Impetrating the 2012 Building Code
- Structural Standard for Antenna Supporting Structures and Antennas ANSI/TIA-222-G
  - Ultimate Wind Speed – 135 mph (3 Second Gust)
  - Nominal Wind Speed – 105 mph (3 Second Gust)
  - Exposure Category – C
  - Occupancy Category – II
- Specification for Structural Steel Buildings ANSI/AISC 360-10, American Institute of Steel Construction (AISC)

- Welded Carbon Steel Tanks for Water Storage, ANSI/AWWA D100, American Water Works Association (AWWA)
  - Basic Wind Speed – 105 mph (3 Second Gust)
  - Exposure Category - C
  - Structure Class – III

### **Analysis Approach, Assumptions & Design Parameters:**

The analysis approach used in this structural analysis is based on the premise that if the existing water tank, foundation, and existing antenna mounts are structurally adequate to support the proposed equipment per the aforementioned codes and standards, or if the increase in the forces in the structure is deemed to be negligible or acceptable, then the proposed equipment can be installed as intended.

The existing water tank with the existing antenna mounts has been modeled in RISA-3D, a comprehensive structural analysis program. The program performs design checks of structures under user specified loads. The user specified loads have been calculated separately based on the requirements of the above referenced codes. The program performs an analysis based on the steel code to determine the adequacy of the members and produces the reactions at the connection points of the mounts to the existing structure.

The following assumptions were utilized in this report:

- *Structural Steel Angles and Plates are constructed of A36 Steel*
- *Structural Steel Pipes are constructed of A53 Grade B Steel*
- *Structural Steel Round HSS are constructed of A500 Grade B 42 Steel*
- *Structural Steel WF Beams are constructed of A992 Steel*
- *A temperature load of -50° F has been applied to the tank*
- *Foundation and Geotechnical information per previous Tower Structural Analysis Report listed above is accurate*
- *No connection exists between existing Water Tank and Monopole*
- *Existing Water Tank and Monopole are sitting on the same mat foundation*
- *Reactions from Monopole per previous Tower Structural Analysis Report listed above is accurate*
- *Existing Water Tank and its foundation are in good condition free of any defects*

### **Calculations:**

The calculations are found in Appendix A of this report.

### **Conclusion:**

The existing water tank was analyzed locally for the loading in the applicable codes and standards and has been determined to be structurally **ADEQUATE** to support the proposed panel antennas, together with the existing loading, based upon the aforementioned assumptions. The existing water tank was determined to be stressed to **98.0%** of its capacity with maximum utilization occurred at rod members between water tank legs. Additionally, the existing foundation was determined to be stressed to **23.3%** of its capacity with maximum utilization occurred at soil bearing check. Therefore, the proposed **Sprint** installation **CAN** be installed as intended per Maser Consulting Connecticut drawings.

Maser Consulting Connecticut reserves the right to amend this report if additional information about the existing water tank or foundation is provided. The conclusions reached by Maser Consulting Connecticut in this report are only valid for the appurtenances listed in this report. Any change to the installation will require a revision to this structural analysis.

We appreciate the opportunity to be of service on this project. If you should have any questions or require any additional information, please do not hesitate to call our office.

Sincerely,  
Maser Consulting Connecticut



Petros E. Tsoukalas, P.E.  
Geographic Discipline Leader



Dejian Xu, P.E.  
Project Engineer





## **APPENDIX A**

## Wind Load:

### Inputs:

<i>Location:</i>	<b>Meriden, CT</b>	<u><b>AWWA Reference</b></u>
<i>Exposure Category:</i>	Exp := "C"	(Section 3.1.4.2.1, P. 13)
<i>Basic Wind Speed:</i>	V := 105 mph	(Figure 1, p. 14-18)
<i>Gust Effect Factor:</i>	G <sub>h</sub> := 1.0	(Section 3.1.4, p. 11)
<i>Importance Factor:</i>	I := 1.15	(Section 3.1.4, P. 12)

*Terrain Exposure Constants:*  $\alpha := \begin{cases} 7.0 & \text{if Exp = "B"} \\ 9.5 & \text{if Exp = "C"} \\ 11.5 & \text{if Exp = "D"} \end{cases}$  Table 6-2, P. 78 (ASCE 7-05)

$$Z_g := \begin{cases} 1200 & \text{if Exp = "B"} \\ 900 & \text{if Exp = "C"} \\ 700 & \text{if Exp = "D"} \end{cases}$$

$$K_{zmin} := \begin{cases} 0.70 & \text{if Exp = "B"} \\ 0.85 & \text{if Exp = "C"} \\ 1.03 & \text{if Exp = "D"} \end{cases}$$

*Velocity Pressure Coefficient:*  $K_{zv}(z) := 2.01 \cdot \left(\frac{z}{Z_g}\right)^{\frac{2}{\alpha}}$  Table 6-3, P. 79 (ASCE 7-05)

## **Tank Loading:**

### **Tank:**

Bulb Depth:  $BH_{\text{tank}} := 32.5\text{ft}$

Diameter of Tank:  $D_{\text{tank}} := 28\text{ft}$

Height:  $z := 94.75\text{ ft}$  Midpoint of tank bulb

Velocity Pressure Coefficient:  $K_z := K_{zV}(z) = 1.25$  (Table 3, P. 12)

$$q_z := 0.00256 \cdot K_z \cdot V^2 \cdot I \cdot \text{psf} = 40.62 \cdot \text{psf} \quad (\text{Eq. 3-2, P. 11})$$

Velocity Pressure:

Area:  $A_a := BH_{\text{tank}} \cdot D_{\text{tank}} = 910\text{ft}^2$

Force Coefficient:  $C_f := 0.6$

Wind Load:  $P_{\text{tank}} := q_z \cdot G_h \cdot C_f = 24.4 \cdot \text{psf}$

### **Legs:**

2/3 of Height:  $z := 85 \cdot \left(\frac{2}{3}\right) = 56.67\text{ ft}$

Velocity Pressure Coefficient:  $K_z := K_{zV}(z) = 1.12$  (Table 3, P. 12)

Velocity Pressure:  $q_z := 0.00256 \cdot K_z \cdot V^2 \cdot I \cdot \text{psf} = 36.45 \cdot \text{psf}$  (Eq. 3-2, P. 11)

Diameter of Leg:  $d_{\text{leg}} := 22.5\text{in}$

Area:  $A_{\text{leg}} := 85\text{ft} \cdot d_{\text{leg}} = 159.38\text{ft}^2$

Force Coefficient:  $C_f := 0.6$  Table 2, P. 11

Wind Load:  $w_{\text{leg}} := q_z \cdot G_h \cdot C_f \cdot d_{\text{leg}} = 41 \cdot \text{plf}$

### **Horizontals:**

Height:  $z := 43\text{ ft}$

Velocity Pressure Coefficient:  $K_z := K_{zV}(z) = 1.06$  (Table 3, P. 12)

Velocity Pressure:  $q_z := 0.00256 \cdot K_z \cdot V^2 \cdot I \cdot \text{psf} = 34.39 \cdot \text{psf}$  (Eq. 3-2, P. 11)

Force Coefficient:  $C_f := 1.0$  Table 2, P. 11

Depth of member:  $D_{\text{horiz}} := 8\text{in}$

Wind Load:  $w_{\text{horiz}} := q_z \cdot G_h \cdot C_f \cdot D_{\text{horiz}} = 22.9 \cdot \text{plf}$



**Handrail Concealment:**

Height:  $z := 89$  ft

Velocity Pressure Coefficient:  $K_z := K_{zV}(z) = 1.23$  (Table 3, P. 12)

Velocity Pressure:  $q_z := 0.00256 \cdot K_z \cdot V^2 \cdot I \cdot \text{psf} = 40.08 \cdot \text{psf}$  (Eq. 3-2, P. 11)

Force Coefficient:  $C_f := 0.6$  Table 2, P. 11

Wind Load:  $w_{\text{concealment1}} := q_z \cdot G_h \cdot C_f = 24.05 \cdot \text{psf}$

**Top Dome Concealment:**

Height:  $z := 108$  ft

Velocity Pressure Coefficient:  $K_z := K_{zV}(z) = 1.29$  (Table 3, P. 12)

Velocity Pressure:  $q_z := 0.00256 \cdot K_z \cdot V^2 \cdot I \cdot \text{psf} = 41.75 \cdot \text{psf}$  (Eq. 3-2, P. 11)

Force Coefficient:  $C_f := 0.6$  Table 2, P. 11

Wind Load:  $w_{\text{concealment2}} := q_z \cdot G_h \cdot C_f = 25.05 \cdot \text{psf}$

## Design Wind Load On Appurtenances: AT&T

### Inputs:

### ANSI/TIA-222-G Reference

<i>Location:</i>	<b>Meriden, CT</b>	
<i>Basic Wind Speed :</i>	<b>V := 105</b> MPH	(Figure A1-1e, p. 232)
<i>Antenna Centerline:</i>	<b>z := 95ft</b>	
<i>Structure Class:</i>	<b>Class := "II"</b>	(Table 2-1, P. 39)
<i>Exposure Category:</i>	<b>Exp := "C"</b>	(Section 2.6.5.1, p. 12)
<i>Gust Effect Factor:</i>	<b>G<sub>h</sub> := 0.85</b>	(Section 2.6.9, p. 16)
<i>Wind Directionality Factor:</i>	<b>K<sub>d</sub> := 0.85</b>	(Table 2-2, P. 39)
<i>Topographic Category:</i>	<b>Topo := "1"</b>	(Section 2.6.6.2, p. 13)
<i>Crest Height:</i>	<b>CH := 0ft</b>	(Section 2.6.6.4, p. 14)
<i>Importance Factor:</i>	$I := \begin{cases} 1.0 & \text{if Class} = \text{"II"} \\ 1.15 & \text{if Class} = \text{"III"} \end{cases} = 1$	(Table 2-3, P. 39)
<i>Force Coefficient:</i>	$C_{f\_square}(h, w) := \begin{cases} 1.2 & \text{if } \frac{h}{w} \leq 2.5 \\ \left[ 1.2 + \frac{0.2}{4.5} \cdot \left( \frac{h}{w} - 2.5 \right) \right] & \text{if } \frac{h}{w} > 2.5 \wedge \frac{h}{w} \leq 7 \\ \left[ 1.4 + \frac{0.6}{18} \cdot \left( \frac{h}{w} - 7 \right) \right] & \text{if } \frac{h}{w} > 7 \wedge \frac{h}{w} \leq 25 \\ 2.0 & \text{otherwise} \end{cases}$	<p>Table 2-8, P. 42</p> <p>Square Members</p>
	$C_{f\_round}(h, w) := \begin{cases} 0.7 & \text{if } \frac{h}{w} \leq 2.5 \\ \left[ 0.7 + \frac{0.1}{4.5} \cdot \left( \frac{h}{w} - 2.5 \right) \right] & \text{if } \frac{h}{w} > 2.5 \wedge \frac{h}{w} \leq 7 \\ \left[ 0.8 + \frac{0.4}{18} \cdot \left( \frac{h}{w} - 7 \right) \right] & \text{if } \frac{h}{w} > 7 \wedge \frac{h}{w} \leq 25 \\ 1.2 & \text{otherwise} \end{cases}$	<p>Table 2-8, P. 42</p> <p>Round Members</p>

**Terrain Exposure Constants:**  $\alpha := \begin{cases} 7.0 & \text{if Exp} = \text{"B"} \\ 9.5 & \text{if Exp} = \text{"C"} \\ 11.5 & \text{if Exp} = \text{"D"} \end{cases}$       $Z_g := \begin{cases} 1200\text{ft} & \text{if Exp} = \text{"B"} \\ 900\text{ft} & \text{if Exp} = \text{"C"} \\ 700\text{ft} & \text{if Exp} = \text{"D"} \end{cases}$       $K_{zmin} := \begin{cases} 0.70 & \text{if Exp} = \text{"B"} \\ 0.85 & \text{if Exp} = \text{"C"} \\ 1.03 & \text{if Exp} = \text{"D"} \end{cases}$

**Velocity Pressure Coefficient:**  $K_z(z) := \begin{cases} K_z \leftarrow \max \left[ 2.01 \cdot \left( \frac{z}{Z_g} \right)^{\frac{2}{\alpha}}, K_{zmin} \right] \\ K_z \leftarrow \min(K_z, 2.01) \end{cases}$      Table 2-4, P. 40

**Velocity Pressure Coefficient:**  $K_z := K_z(z) = 1.252$      (Section 2.6.5, P. 13)

**Velocity Pressure Coefficient:**  $K_{zt}(z) := K_{zt} \leftarrow \begin{cases} 1.0 & \text{if Topo} = \text{"1"} \\ \text{otherwise} \end{cases}$      (Section 2.6.6.4, p. 14)

$K_e \leftarrow \begin{cases} 0.90 & \text{if Exp} = \text{"B"} \\ 1.00 & \text{if Exp} = \text{"C"} \\ 1.10 & \text{if Exp} = \text{"D"} \end{cases}$      (Table 2-4 p. 40)

$K_t \leftarrow \begin{cases} 0.43 & \text{if Topo} = \text{"2"} \\ 0.53 & \text{if Topo} = \text{"3"} \\ 0.72 & \text{if Topo} = \text{"4"} \end{cases}$      (Table 2-5 p. 40)

$f \leftarrow \begin{cases} 1.25 & \text{if Topo} = \text{"2"} \\ 2.00 & \text{if Topo} = \text{"3"} \\ 1.50 & \text{if Topo} = \text{"4"} \end{cases}$      (Table 2-5 p. 40)

$K_h \leftarrow e^{\left( \frac{f \cdot z}{CH} \right)}$      (Section 2.6.6.4, P. 14)

$\left( 1 + \frac{K_e \cdot K_t}{K_h} \right)^2$      (Section 2.6.6.4, P. 14)

$K_{zt} := K_{zt}(z) = 1$

**Velocity Pressure:**  $q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 \cdot I \cdot \text{psf} = 30.04 \cdot \text{psf}$      (Section 2.6.9.6, P. 25)



### Kathrein 80010121

Antenna Weight:  $D_L := 51.2\text{lb}$

Antenna Dimensions:  $h := 54.9\text{-in}$   $w := 10.3\text{-in}$   $d := 5.9\text{-in}$

Front Wind:

Antenna Area:  $A_a := (h \cdot w) = 3.93\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.33$

Wind Load:  $F_{a.front} := q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a = 132.9\text{lbf}$

Side Wind:

Antenna Area:  $A_a := (h \cdot d) = 2.25\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, d) = 1.48$

Wind Load:  $F_{a.side} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 84.8\text{lbf}$

### KMW AM-X-CD-16-65-00T-RET

Antenna Weight:  $D_L := 48.5\text{lb}$

Antenna Dimensions:  $h := 72\text{-in}$   $w := 11.8\text{-in}$   $d := 5.9\text{-in}$

Front Wind:

Antenna Area:  $A_a := (h \cdot w) = 5.9\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.36$

Wind Load:  $F_{a.front} := q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a = 204.9\text{lbf}$

Side Wind:

Antenna Area:  $A_a := (h \cdot d) = 2.95\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, d) = 1.57$

Wind Load:  $F_{a.side} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 118.5\text{lbf}$

## 2 ft Dish

Antenna Weight:  $D_L := 50\text{lb}$  (estimated)

Antenna Dimensions:  $h := 24\cdot\text{in}$   $w := 24\cdot\text{in}$   $d := 18\cdot\text{in}$  (estimated)

Front Wind:

Antenna Area:  $A_a := (h \cdot w) = 4\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.2$

Wind Load:  $F_{a.\text{front}} := q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a = 122.5\text{ lbf}$

Side Wind:

Antenna Area:  $A_a := (h \cdot d) = 3\text{ft}^2$

Force Coefficient:  $C_{f\_round}(h, d) = 0.7$

Wind Load:  $F_{a.\text{side}} := q_z \cdot G_h \cdot C_{f\_round}(h, d) \cdot A_a = 53.6\text{ lbf}$

## Powerwave TT19-08BP111-001 TMA

Weight:  $D_L := 16\text{lb}$

Dimensions:  $h := 9.9\cdot\text{in}$   $w := 6.7\cdot\text{in}$   $d := 5.4\cdot\text{in}$

Front Wind:

Area:  $A_a := (h \cdot w) = 0.46\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.2$

Wind Load:  $F_{a.\text{front}} := (q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a) = 14.1\text{ lbf}$

Side Wind:

Area:  $A_a := (h \cdot d) = 0.37\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, d) = 1.2$

Wind Load:  $F_{a.\text{side}} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 11.4\text{ lbf}$

### Ericsson RRUS 11 B12

Weight:  $D_L := 50.7\text{lb}$

Dimensions:  $h := 19.7\text{-in}$   $w := 17\text{-in}$   $d := 7.2\text{-in}$

Front Wind:

Area:  $A_a := (h \cdot w) = 2.33\text{ ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.2$

Wind Load:  $F_{a,front} := (q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a) = 71.3\text{ lbf}$

Side Wind:

Area:  $A_a := (h \cdot d) = 0.98\text{ ft}^2$

Force Coefficient:  $C_{f\_square}(h, d) = 1.21$

Wind Load:  $F_{a,side} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 30.4\text{ lbf}$

### Junction Box

Weight:  $D_L := 20\text{lb}$  (estimated)

Dimensions:  $h := 24\text{-in}$   $w := 20\text{-in}$   $d := 6\text{-in}$

Front Wind:

Area:  $A_a := (h \cdot w) = 3.33\text{ ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.2$

Wind Load:  $F_{a,front} := (q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a) = 102.1\text{ lbf}$

Side Wind:

Area:  $A_a := (h \cdot d) = 1\text{ ft}^2$

Force Coefficient:  $C_{f\_square}(h, d) = 1.27$

Wind Load:  $F_{a,side} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 32.3\text{ lbf}$

### CCI DTMMBP7819VGIZA

Weight:  $D_L := 50\text{lb}$  (estimated)

Dimensions:  $h := 20\cdot\text{in}$   $w := 20\cdot\text{in}$   $d := 10\cdot\text{in}$  (estimated)

Front Wind:

Area:  $A_a := (h \cdot w) = 2.78\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.2$

Wind Load:  $F_{a,\text{front}} := (q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a) = 85.1\text{lbf}$

Side Wind:

Area:  $A_a := (h \cdot d) = 1.39\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, d) = 1.2$

Wind Load:  $F_{a,\text{side}} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 42.6\text{lbf}$

### Antenna Mount:

#### Pipe 2.0:

Dimensions:  $h := 108\cdot\text{in}$   $w := 2.375\cdot\text{in}$

Area:  $A_a := (h \cdot w) = 1.78\text{ft}^2$

Force Coefficient:  $C_{f\_round}(h, w) = 1.2$

Wind Load:  $F_a := q_z \cdot G_h \cdot C_{f\_round}(h, w) \cdot w = 6.1\cdot\text{plf}$

#### Angle L2.5x2.5:

Dimensions:  $h := 11.5\cdot\text{in}$   $w := 2.5\cdot\text{in}$

Area:  $A_a := (h \cdot w) = 0.2\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.29$

Wind Load:  $F_a := q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot w = 6.9\cdot\text{plf}$



## Design Wind Load On Appurtenances: Sprint

### Inputs:

### ANSI/TIA-222-G Reference

Antenna Centerline:  $z := 105\text{ft}$

Gust Effect Factor:  $G_h := 1$

(Section 2.6.9, p. 16)

Wind Directionality Factor:  $K_d := 0.95$

(Table 2-2, P. 39)

Velocity Pressure:  $q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 \cdot I \cdot \text{psf} = 33.57 \cdot \text{psf}$

(Section 2.6.9.6, P. 25)

### **CommScope NNVV-65B-R4**

Antenna Weight:  $D_L := 84.7\text{lb}$

Antenna Dimensions:  $h := 72 \cdot \text{in}$   $w := 19.6 \cdot \text{in}$   $d := 7.8 \cdot \text{in}$

Front Wind:

Antenna Area:  $A_a := (h \cdot w) = 9.8\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.25$

Wind Load:  $F_{a.\text{front}} := q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a = 411.9\text{lbf}$

Side Wind:

Antenna Area:  $A_a := (h \cdot d) = 3.9\text{ft}^2$

Force Coefficient:  $C_{f\_square}(h, d) = 1.47$

Wind Load:  $F_{a.\text{side}} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 193\text{lbf}$

### Nokia AAHC

Antenna Weight:  $D_L := 103.7 \text{ lb}$

Antenna Dimensions:  $h := 25.6 \text{ in}$   $w := 19.7 \text{ in}$   $d := 9.64 \text{ in}$

Front Wind:

Antenna Area:  $A_a := (h \cdot w) = 3.5 \text{ ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.2$

Wind Load:  $F_{a,front} := q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a = 141.1 \text{ lbf}$

Side Wind:

Antenna Area:  $A_a := (h \cdot d) = 1.71 \text{ ft}^2$

Force Coefficient:  $C_{f\_square}(h, d) = 1.21$

Wind Load:  $F_{a,side} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 69.4 \text{ lbf}$

### Alcatel Lucent RRH2x50-800

Weight:  $D_L := 69.1 \text{ lb}$

Dimensions:  $h := 16 \text{ in}$   $w := 13 \text{ in}$   $d := 10 \text{ in}$

Front Wind:

Area:  $A_a := (h \cdot w) = 1.44 \text{ ft}^2$

Force Coefficient:  $C_{f\_square}(h, w) = 1.2$

Wind Load:  $F_{a,front} := (q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a) = 58.2 \text{ lbf}$

Side Wind:

Area:  $A_a := (h \cdot d) = 1.11 \text{ ft}^2$

Force Coefficient:  $C_{f\_square}(h, d) = 1.2$

Wind Load:  $F_{a,side} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 44.8 \text{ lbf}$

### RRH1900-4X45

Weight:  $D_L := 60\text{lb}$

Dimensions:  $h := 25\cdot\text{in}$   $w := 12.4\cdot\text{in}$   $d := 12.2\cdot\text{in}$  (estimated)

Front Wind:

Area:  $A_a := 0\text{ft}^2$  (shielded by concealment)

Force Coefficient:  $C_{f\_square}(h, w) = 1.2$

Wind Load:  $F_{a.\text{front}} := (q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a) = 0$

Side Wind:

Area:  $A_a := 0\text{ft}^2$  (shielded by concealment)

Force Coefficient:  $C_{f\_square}(h, d) = 1.2$

Wind Load:  $F_{a.\text{side}} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 0$

### Junction Box

Weight:  $D_L := 20\text{lb}$  (estimated)

Dimensions:  $h := 24\cdot\text{in}$   $w := 20\cdot\text{in}$   $d := 6\cdot\text{in}$

Front Wind:

Area:  $A_a := 0\text{ft}^2$  (shielded by concealment)

Force Coefficient:  $C_{f\_square}(h, w) = 1.2$

Wind Load:  $F_{a.\text{front}} := (q_z \cdot G_h \cdot C_{f\_square}(h, w) \cdot A_a) = 0$

Side Wind:

Area:  $A_a := 0\text{ft}^2$  (shielded by concealment)

Force Coefficient:  $C_{f\_square}(h, d) = 1.27$

Wind Load:  $F_{a.\text{side}} := q_z \cdot G_h \cdot C_{f\_square}(h, d) \cdot A_a = 0$

## Antenna Mount:

### Pipe 2.0:

Dimensions:  $h := 72 \cdot \text{in}$   $w := 2.375 \cdot \text{in}$

Area:  $A_a := (h \cdot w) = 1.19 \text{ ft}^2$

Force Coefficient:  $C_{f\_round}(h, w) = 1.2$

Wind Load:  $F_a := q_z \cdot G_h \cdot C_{f\_round}(h, w) \cdot w = 8 \cdot \text{plf}$

## Design Wind Load On Appurtenances: Unknown

### Inputs:

### ANSI/TIA-222-G Reference

Antenna Centerline:  $z := 89 \text{ ft}$

### Unknown Panel

Weight:  $D_L := 50 \text{ lb}$  (estimated)

Dimensions:  $h := 61 \cdot \text{in}$   $w := 6.5 \cdot \text{in}$   $d := 2 \cdot \text{in}$

Wind Load:  $F_{a.\text{front}} := 0$  (shielded by concealment)

### Powerwave TT19-08BP111-001 TMA

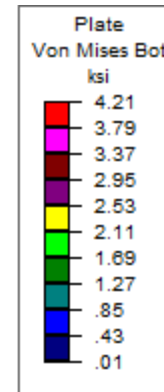
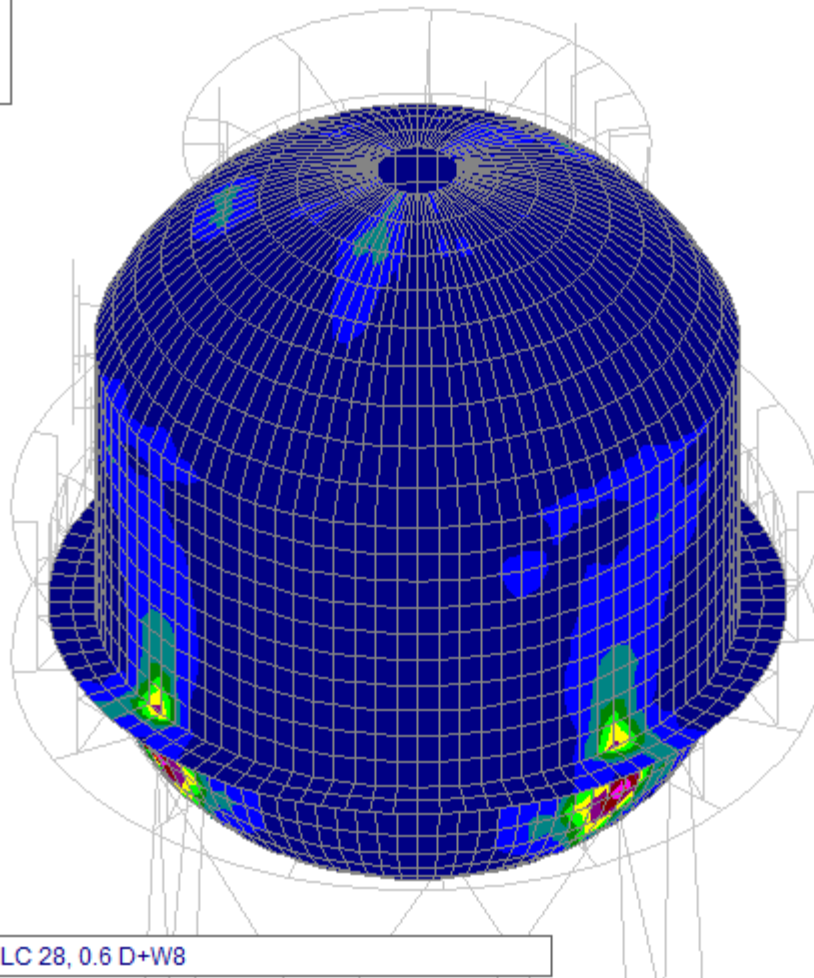
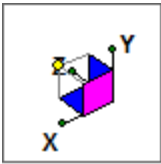
Weight:  $D_L := 16 \text{ lb}$

Dimensions:  $h := 9.9 \cdot \text{in}$   $w := 6.7 \cdot \text{in}$   $d := 5.4 \cdot \text{in}$

Wind Load:  $F_{a.\text{front}} := 0$  (shielded by concealment)



**Plate Check:**



Results for LC 28, 0.6 D+W8

LC	Plate Label	Loc	Sigma1[ksi]	Sigma2[ksi]	Tau Max[ksi]	Angle[rad]	Von Mises[ksi]
28	P2042	T	1.199	-.585	.892	.448	1.575
		B	1.026	-3.393	2.21	.204	4.006
28	P1259	T	1.19	-.563	.877	-.43	1.55
		B	1.004	-3.385	2.194	-.184	3.983
28	P1260	T	1.544	-.19	.867	.544	1.647
		B	.774	-3.071	1.923	.335	3.523

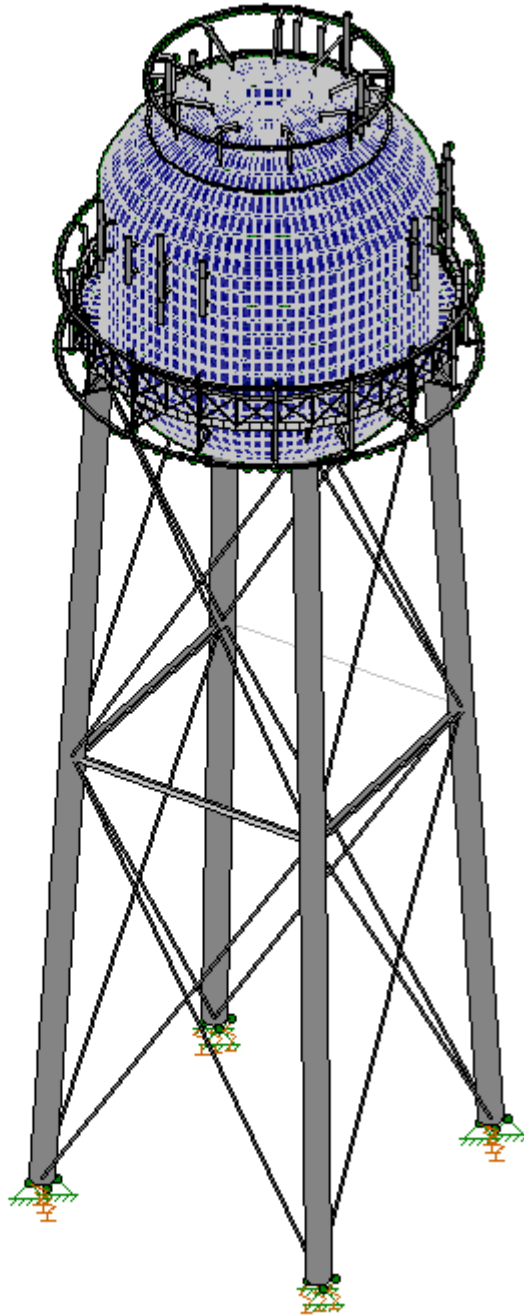
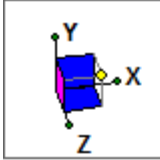
Maximum Applied Stress:  $\sigma_{app} := 4.006\text{-ksi}$  (Obtained from Risa 3D)

Design Stress:  $\sigma_d := \frac{(36\text{-ksi})}{1.67} = 21.56\text{-ksi}$  (36 KSI Steel assumed)

Stress Check:  $\text{Check} := \begin{cases} \text{"OK"} & \text{if } \sigma_{app} \leq \sigma_d \\ \text{"NO GOOD"} & \text{otherwise} \end{cases}$

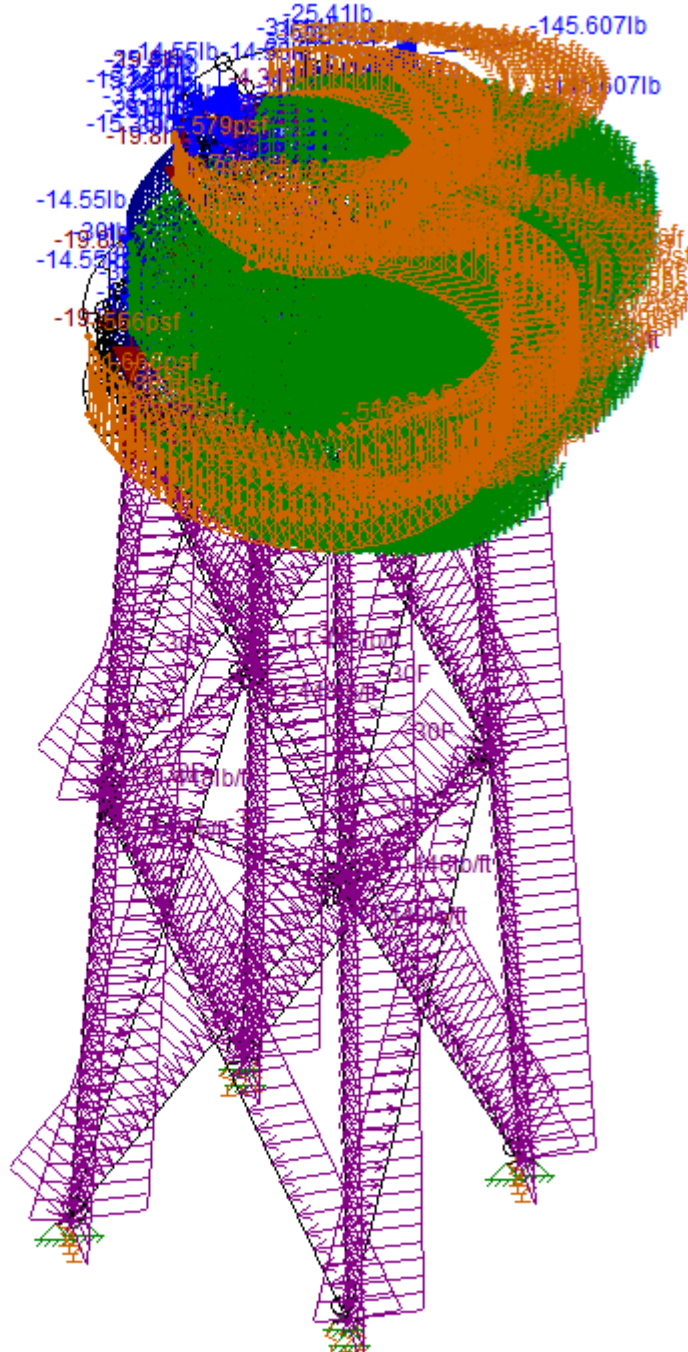
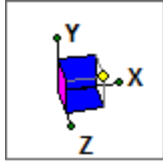
Check = "OK"

## Risa 3D Model and Loading



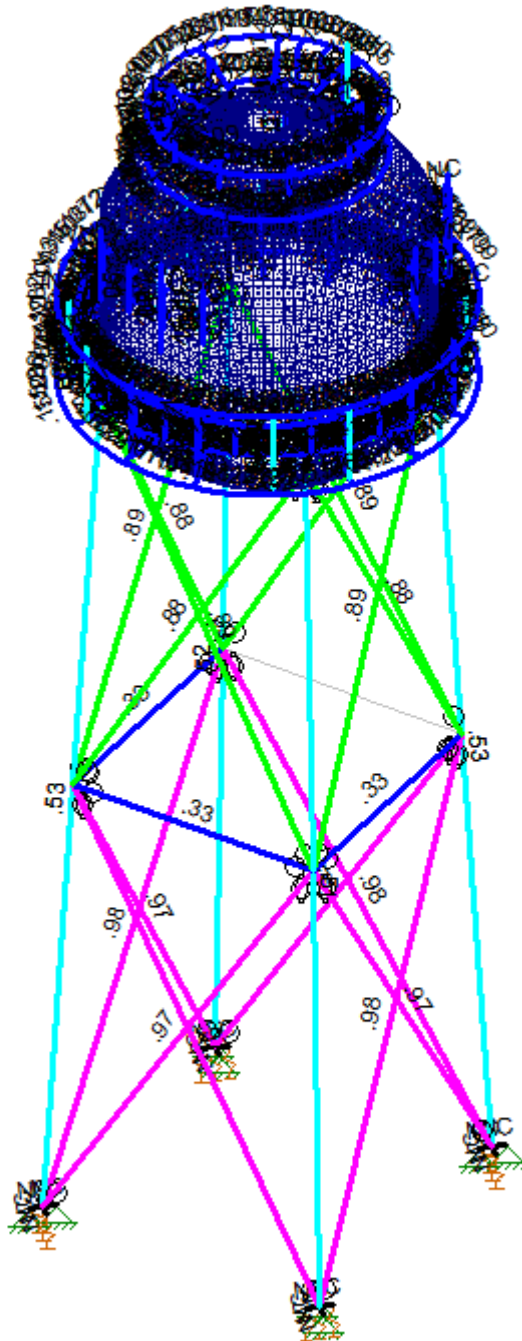
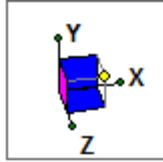
Envelope Only Solution

### Risa 3D Worse Case Loading



Loads: LC 27, 0.6 D+W7  
Envelope Only Solution

### Risa 3D Code Check



Member Code Checks Displayed  
Envelope Only Solution



## Foundation Check:

Water Tank Leg Distance:  $D_{leg} := 27.17\text{ft}$

### Monopole Base Reaction

Per previous Structural Analysis Report, prepared by CENTEK Engineering, Rev. 1, dated October 21, 2016

Overturning Moment:  $OM_t := 2080\text{kip}\cdot\text{ft}$

Shear Force:  $S_t := 25\text{kip}$

Axial Force:  $WT_t := 46\text{kip}$

Converted to Nominal Value:

Overturning Moment:  $OM_{t.asd} := \frac{OM_t}{1.6} = 1300\cdot\text{kip}\cdot\text{ft}$

Shear Force:  $S_{t.asd} := \frac{S_t}{1.6} = 15.63\cdot\text{kip}$

Axial Force:  $WT_{t.asd} := \frac{WT_t}{1.2} = 38.33\cdot\text{kip}$

### Water Tank Base Reaction

Max. Anchor Uplift Load:  $Up_{wt.a} := 42.8\text{kip} = 42.8\cdot\text{kip}$

Max. Anchor Shear:  $S_{wt.a} := 9.2\text{kip}$

Overall Axial Force:  $WT_{wt} := 79.5\text{kip}$

Worst Case Overturning Moment:  $OM_{wt} := Up_{wt.a} \cdot 2 \cdot D_{leg} \cdot \sqrt{2} = 3289.11\cdot\text{kip}\cdot\text{ft}$

Worst Case Overall Shear:  $S_{wt} := S_{wt.a} \cdot 4 = 36.8\cdot\text{kip}$

### Foundation Data

Per previous Structural Analysis Report, prepared by CENTEK Engineering, Rev. 1, dated October 21, 2016

Height of Pier to Top of Pad:  $H_p := 7\text{ft}$

Thickness of Pad:  $T_f := 2.5\text{ft}$

Width of Footing:  $W_f := 50\text{ft}$

Weight of Monopole Pier:  $WT_{\text{pier.m}} := 105\text{kip}$

Weight of Water Tank Piers:  $WT_{\text{pier.wt}} := 88.998\text{kip}$

Weight of Concrete Pad:  $WT_{\text{pad}} := 776.45\text{kip}$

Weight of Soil Above Footing:  $WT_{s1} := 1211\text{kip}$

### Overturing Check:

Resisting Moment:

Safety Factor of Concrete Dead Load:  $SF_{c.\text{dead}} := 1.25$

Safety Factor of Soil Dead Load:  $SF_{s.\text{dead}} := 2$

Safety Factor of Monopole and Water Tank:  $SF_{s.\text{dead}} := \frac{1}{0.6} = 1.67$

$$M_r := \left( \frac{WT_{\text{pier.m}} + WT_{\text{pier.wt}} + WT_{\text{pad}}}{SF_{c.\text{dead}}} + \frac{WT_{s1}}{SF_{s.\text{dead}}} + \frac{WT_{\text{wt}} + WT_{t.\text{asd}}}{SF_{s.\text{dead}}} \right) \cdot \frac{W_f}{2} = 39341.46 \cdot \text{kip} \cdot \text{ft}$$

Overturing Moment:

$$M_{ot} := OM_{t.\text{asd}} + OM_{wt} + (S_{t.\text{asd}} + S_{wt}) \cdot (H_p + T_f) = 5087.15 \cdot \text{kip} \cdot \text{ft}$$

Overturing Check:  $\text{Test} := \begin{cases} \text{"GOOD"} & \text{if } M_{ot} \leq M_r \\ \text{"No Good"} & \text{otherwise} \end{cases}$

Test = "GOOD"

Safety Factor:  $SF := \frac{M_r}{M_{ot}} \quad SF = 7.7$

### Sliding Check:

Per previous Structural Analysis Report, prepared by CENTEK Engineering, Rev. 1, dated October 21, 2016

Coefficient of Friction Between Concrete:  $\mu := 0.45$

Resisting Friction:

Safety Factor of Concrete Dead Load:  $SF_{c.dead} := 1.25$

Safety Factor of Soil Dead Load:  $SF_{s.dead} := 2$

Safety Factor of Monopole and Water Tank:  $SF_{s.dead} := \frac{1}{0.6} = 1.67$

$$F_r := \left( \frac{WT_{pier.m} + WT_{pier.wt} + WT_{pad}}{SF_{c.dead}} + \frac{WT_{s1}}{SF_{s.dead}} + \frac{WT_{wt} + WT_{t.asd}}{SF_{s.dead}} \right) = 1573.66 \cdot \text{kip}$$

Sliding:

$$F_{sliding} := S_{wt.a} + S_{t.asd} = 24.82 \cdot \text{kip}$$

Sliding Check:  $\text{Test} := \begin{cases} \text{"GOOD"} & \text{if } F_{sliding} \leq F_r \\ \text{"No Good"} & \text{otherwise} \end{cases}$  **Test = "GOOD"**

Safety Factor:  $SF := \frac{F_r}{F_{sliding}}$   $SF = 63.4$

### **Bearing Check:**

Per previous Structural Analysis Report, prepared by CENTEK Engineering, Rev. 1, dated October 21, 2016

Allowable Soil Bearing Capacity:  $q_s := 5000 \text{ psf}$

Eccentricity of Foundation:

$$e_{ot} := \frac{M_{ot}}{W_{T_{pier.m}} + W_{T_{pier.wt}} + W_{T_{pad}} + W_{T_{s1}} + (W_{T_{wt}} + W_{T_{t.asd}})} = 2.21 \text{ ft}$$

$$e_B := \frac{W_f}{6} = 8.33 \text{ ft}$$

Total Vertical Force:

$$W_{T_{total}} := W_{T_{pier.m}} + W_{T_{pier.wt}} + W_{T_{pad}} + W_{T_{s1}} + (W_{T_{wt}} + W_{T_{t.asd}}) = 2299.28 \cdot \text{kip}$$

Maximum Soil Bearing:  $\sigma_{max} := \frac{W_{T_{total}}}{W_f \cdot W_f} + \frac{6M_{ot}}{W_f^3} = 1163.9 \cdot \text{psf}$

Bearing Check: Test :=  $\begin{cases} \text{"GOOD"} & \text{if } \sigma_{max} \leq q_s \\ \text{"No Good"} & \text{otherwise} \end{cases}$

Test = "GOOD"

Safety Factor:  $SF := \frac{q_s}{\sigma_{max}} \quad SF = 4.3$

Minimum Soil Bearing:  $\sigma_{min} := \frac{W_{T_{total}}}{W_f \cdot W_f} - \frac{6M_{ot}}{W_f^3} = 675.53 \cdot \text{psf} > 0 \text{ psf}$

No uplift check for each pier required:





## RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

SPRINT Existing Facility

Site ID: CT43XC841

Meriden/I-691 & CT-15/Atlas Container  
119 Empire Avenue  
Meriden, CT 06450

**June 18, 2018**

**EBC Project Number: 6218004488**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>21.00 %</b>



June 18, 2018

SPRINT

Attn: RF Engineering Manager  
1 International Boulevard, Suite 800  
Mahwah, NJ 07495

## Emissions Analysis for Site: **CT43XC841 – Meriden/I-691 & CT-15/Atlas Container**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **119 Empire Avenue, Meriden, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 850 MHz Band is approximately  $567 \mu\text{W}/\text{cm}^2$ . The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

## CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **119 Empire Avenue, Meriden, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.
- 3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.
- 4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the Nokia AAHC** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **105 feet** above ground level (AGL) for **Sector A**, **105 feet** above ground level (AGL) for **Sector B** and **105 feet** above ground level (AGL) for Sector C.
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general population threshold limits.



## SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	<b>1</b>	Antenna #:	<b>1</b>	Antenna #:	<b>1</b>
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	<b>105 feet</b>	Height (AGL):	<b>105 feet</b>	Height (AGL):	<b>105 feet</b>
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	<b>3.34 %</b>	Antenna B1 MPE%	<b>3.34 %</b>	Antenna C1 MPE%	<b>3.34 %</b>
Antenna #:	<b>2</b>	Antenna #:	<b>2</b>	Antenna #:	<b>2</b>
Make / Model:	Nokia AAHC	Make / Model:	Nokia AAHC	Make / Model:	Nokia AAHC
Gain:	15.05 dBd	Gain:	15.05 dBd	Gain:	15.05 dBd
Height (AGL):	<b>105 feet</b>	Height (AGL):	<b>105 feet</b>	Height (AGL):	<b>105 feet</b>
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	5,118.23	ERP (W):	5,118.23	ERP (W):	5,118.23
Antenna A2 MPE%	<b>1.88 %</b>	Antenna B2 MPE%	<b>1.88 %</b>	Antenna C2 MPE%	<b>1.88 %</b>

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	<b>5.22 %</b>
Nextel	3.20 %
Cingular	2.94 %
AT&T	1.09 %
Verizon Wireless	4.98 %
Clearwire	0.18 %
T-Mobile	3.39 %
<b>Site Total MPE %:</b>	<b>21.00 %</b>

SPRINT Sector A Total:	5.22 %
SPRINT Sector B Total:	5.22 %
SPRINT Sector C Total:	5.22 %
<b>Site Total:</b>	<b>21.00 %</b>

SPRINT _ Frequency Band / Technology Max Power Values (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	105	1.38	850 MHz	567	0.24%
Sprint 850 MHz LTE	2	941.82	105	6.91	850 MHz	567	1.22%
Sprint 1900 MHz (PCS) CDMA	5	511.82	105	9.39	1900 MHz (PCS)	1000	0.94%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	105	9.39	1900 MHz (PCS)	1000	0.94%
Sprint 2500 MHz (BRS) LTE	8	639.78	105	18.77	2500 MHz (BRS)	1000	1.88%
						<b>Total:</b>	<b>5.22%</b>



## Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	5.22 %
Sector B:	5.22 %
Sector C:	5.22 %
SPRINT Maximum Total (per sector):	5.22 %
Site Total:	21.00 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **21.00 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

Internet: [ct.gov/csc](http://ct.gov/csc)

Daniel F. Caruso

Chairman

March 11, 2010

Thomas J. Regan, Esq.  
Brown Rudnick LLP  
CityPlace I, 185 Asylum Street  
Hartford, CT 06103

RE: **EM-CLEARWIRE-080-091230** – Clearwire Corporation notice of intent to modify an existing telecommunications facility located at 119 Empire Avenue, Meriden, Connecticut.

Dear Attorney Regan:

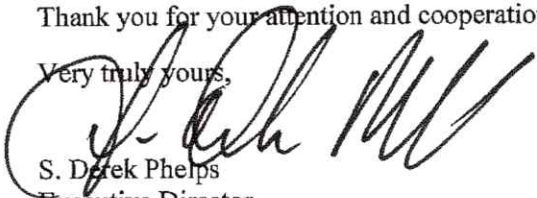
The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated December 30, 2009, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

  
S. Derek Phelps  
Executive Director

SDP/MP

c: The Honorable Michael S. Rohde, Mayor, City of Meriden  
Lawrence Kendzior, City Manager, City of Meriden  
Dominick Caruso, City Planner, City of Meriden  
Atlas Container

Print Card



CITY OF MERIDEN

GIS Services

**Property Information:** Address: 119 EMPIRE AVE Map/Lot: 0417-0154-0007-0000

**Owner Information:** 119 EMPIRE AVENUE LLC Owner Address: 119 EMPIRE AVE  
MERIDEN, CT 06450

**Building Information:**

Card	Units	Rooms	Bed rooms	Year Built	Full Bath	Half Bath	Other Fixtures	Fire Places	Heat Type	Heat Fuel	Roof Mat	Grade	Type	Ext Wall	Finished Area
1	1			1976					Steam w/Boil	Oil		C	Ind Mfg (L)		160,720

Sub Area Summary:

SubArea	Description	SketchedArea	Perimeter	AdjArea	Rate	AreaValue
CPY	CANOPY	10,266	734	10,266	4.57000	\$46,947.00
FFL	1st FLOOR	38,400	880	38,400	44.45000	\$1,707,006.00
FFL	1st FLOOR	12,000	520	12,000	44.45000	\$533,439.38
FFL	1st FLOOR	63,200	1,120	63,200	44.45000	\$2,809,447.25
FFL	1st FLOOR	40,560	972	40,560	44.45000	\$1,803,025.00
FFL	1st FLOOR	1,120	136	1,120	44.45000	\$49,787.68
FFL	1st FLOOR	400	80	400	44.45000	\$17,781.31
FFL	1st FLOOR	480	88	480	44.45000	\$21,337.57
FFL	1st FLOOR	4,560	272	4,560	44.45000	\$202,706.95
LDK	LOAD DOCK	10,266	734	10,266	22.57000	\$231,735.00

Special Features:

Description	Condition	Year	Assessed Value
FENCE-10 CHAIN	AV	1976	\$40,000
PAVING ASPHALT	AV	1976	\$87,500
SHED	AV	1976	\$2,300

**Appraisal Information:** Tax District: 1 District Name: OUTER DISTRICT District Mill Rate: 39.92

Current Values by Card Number					
Card	Building Value	Yard Items	Land Value	Total	Assessed
1	\$1,856,400	\$129,800	\$713,800	\$2,700,000	\$1,890,000
<b>TOTAL PARCEL:</b>					
	\$1,856,400	\$129,800	\$713,800	\$2,700,000	\$1,890,000



**Previous Year Totals**

Year	Building Value	Yard Items	Land Value
2017	\$1,856,400	\$129,800	\$713,800

Special Land Value: \$0

**Land Information:**

Type	Lot Size	Lot Unit	Zoning*
Commercial Building	541,015.00	SF	M-2

Total Acreage:12.42

\*Confirm zoning with Planning Office.

[Zoning map](#) is the official document to determine zone.

**Sales Information:**


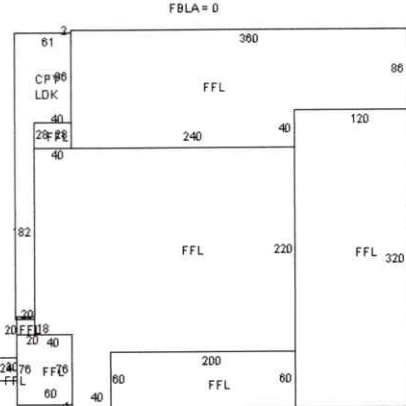
Book	Page	Grantor	Sale Date	Sale Price	Deed Type
4985	258	ATLAS CONTAINER LLC,	4/2/2015	\$1,200,000	Warranty Deed
2756	182	WEYERHAEUSER COMPANY	10/19/2001	\$2,450,000	
2142	136		12/2/1995	\$0	

**Assessor's Permit History:**

Date	Permit Number	Notes	Type
2/14/2018	E-18-69	REPLACE 3 REMOTE RADIO HEADS FOR NEW MODELS TO ITS EXISTING TELECOMMUNICATIONS.	
12/21/2016	B-16-1235	REPLACING ANTENNAE PANELS/ADDING REMOTE RADIO HEADS TO CELL TOWER.	
1/20/2016	P-16-16	GAS PIPING TO CONNECT OWNER SUPPLIED RADIANT HEAT PANELS.Approved by Bldg Dept.	
11/23/2015	B-15-965	NEW ANTENNAE ON NEW PIPE MOUNTS.Approved by Bldg Dept.	
7/23/2015	E-15-322	FIT-OUT LOGAN STEEL.INSTALL NEW LIGHTING AT WAREHOUSE AND OFFICE/WIRE NEW MACHINE TO EXISTING BUSDUCT.	
3/24/2015	B-15-71	NEW ANTENNA W/NEW MASTS/RELOCATE EXISTING TMA.Est complete.	
1/26/2015	E-14-154	CELL TOWER/RUN DC CIRCUITS TO INVERTERS/RADIO HEADS ON CABINETS.Est complete.	
7/26/2013	2377	CELL TOWER.Est complete.	
3/8/2013	611	SPRINT - MODIF. OF TELECOMM. INST. ON WATER TANK, REPL. 3 ANTS. & CABLES AND ADD RRH'S AND NOTCH FILTERS BEHIND ANTS. ON WATER TANK, ADD CIENA EQUIP. ENCL. & FIBER JUNC. BOX & EITHER RETROFIT OR REPL. BTS CABINET WITHIN SPRINT'S EXISTING EQUIP. SHELTER	
6/12/2012	1847	AT&T REMOVE AND REPLACE 9 EXISTING ANTENNAS INSTALL 6 REMOTE RED HEADS AND INSTALL 1 3" CONDUIT TO HOUSE FIBER AND DC POWER ALL TO CODE	C
3/3/2010	503	VERIZON REMOVAL OF EXISTING ANTENNAE ON MONOPOLE& REPLACE WITH 6 LTE ANTENNAE PER PLAN (WILL BE PAINTED TO MATCH EXISTING )	R
3/3/2010	504	SPRINT- MODIFICATIONS TO EXISTING TELECOMMUNICATIONS SITE PER PLANS AND TO CODE(REQUIRES SEPARATE ELECTRICAL PERMIT)	
9/23/2009	2822	REROOF BLDG W/ RUBBER ROOF	
5/29/2009	1586	SWAP EXISTING ANTENNAS ON EXISTING TOWER, ADD ONE TELE CABINET	
7/18/2006	2672	GAS PIPE FOR GENERATOR	CA
3/9/2006	734	NEW AMP SERV ,1PH WIRE	CA

3/9/2006	734	1VERIZON, 1TMOBILE SERV	CA
3/9/2006	734	1VERIZON,1T MOBILE SERV	CA
3/9/2006	734	REVAMP EX SERV	CA
3/9/2006	741	400 AMPS 1PH 3WIRE SERV	CA
11/30/2005	4507	INSTALL VERIZON 12X30 PRE	CA
11/30/2005	4507	T-MOBILE MOUNTED EQUIP	CA
11/30/2005	4507	128' MONOPOLE FOR WIRELES	CA
5/24/2005	1786	INSTALL POWER & GROUNDING	CA
5/24/2005	1786	PREWIRED NEXTEL COMM SHEL	CA
5/13/2005	1626	INSTALL PRE FAB SHELTER,A	CA
5/13/2005	1626	ANTENNAS ON EX WATER TANK	CA
9/9/2003	3154	WIRE CELLULAR EQUIP	CA
7/25/2003	2591	AT&T COMMUN TOWER	CA
4/16/2003	1140	INSTALL 400 AMP SERV	CA
4/16/2003	1140	ALSO INSTALL 200 AMP SERV	CA
11/15/2002	3802	INSTALL PC ANTENNAS ON WA	CA
11/15/2002	3802	SPRINT RADIO EQUIP ON GRO	CA
11/28/2001	3843	3000 AMP SERV UPGRADE	CA
11/28/2001	3843	2000AMP SERV BACKFEED	CA

Property Images

Building photo	Property Sketch
	

74310417-0154-0007-00001





1 inch = 500 feet



CITY OF MERIDEN, CT GIS  
CITY OF MERIDEN, CT

Date: 8/1/2018

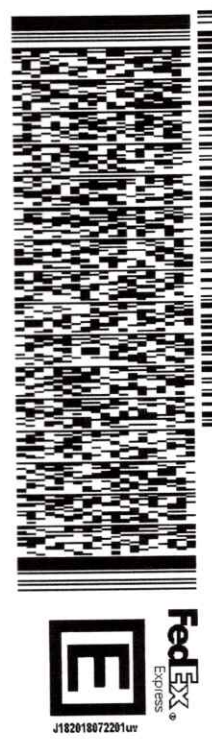


ORIGIN ID:CBZA (973) 477-8032  
SITE:SO-MAN  
CHARLES-CHERUNDULO CONSULTING  
1280 ROUTE 46 WEST  
SUITE 9  
PARISIPANY, NJ 07054  
UNITED STATES US

SHP DATE: 01AUG18  
ACTWGT: 1.00 LB  
CAD: 111040781INNET4040  
BILL SENDER

TO **BOB SEALE**  
**CITY OF MERIDEN**  
**142 EAST MAIN ST**

**MERIDEN CT 06450**  
(203) 630-4081 REF: CTXKX0941 CSC:FLING  
INV. DEPT.  
PO.



TRK# 7728 7633 2557  
0201  
MON - 06 AUG 4:30P  
EXPRESS SAVER  
06450  
CT-US BDL



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

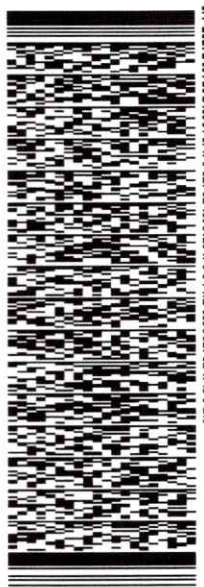


ORIGIN ID:CBZA (973) 477-8032  
STEVE SOFMAN  
CHARLES CHERUNDOLLO CONSULTING  
1280 ROUTE 46 WEST  
SUITE 9  
PARISPPANY, NJ 07054  
UNITED STATES US

SHIP DATE: 01AUG18  
ACTWGT: 00 LB  
CAD: 11040781INNET4040  
BILL SENDER

TO  
**MAYOR KEVIN SCARPATI**  
**CITY OF MERIDEN**  
**142 EAST MAIN ST**

**MERIDEN CT 06450**  
(203) 630-4081 REF: CT43X0941 CSC:FLING  
INV. DEPT.  
PO.



TRK# 7728 7634 3315  
0201  
MON - 06 AUG 4:30P  
EXPRESS SAVER

**K7 RSPA**  
06450  
CT-US BDL



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

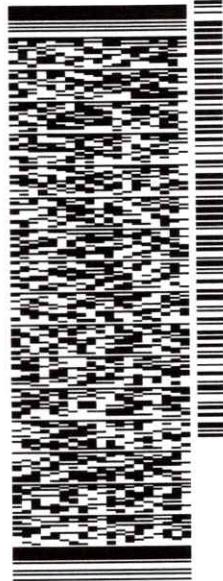
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID:CBZA (973) 477-8032  
STEVE SOFMAN  
CHARLES CHERUNDOLLO CONSULTING  
1280 ROUTE 46 WEST  
SUITE 9  
PARISPPANY, NJ 07054  
UNITED STATES US

SHIP DATE: 01AUG18  
ACTWGT: 1.00 LB  
CAD: 111040781IN/ET4040  
BILL SENDER

TO NATALIE THOMPSON  
CROWN CASTLE  
2000 CORPORATE DR

CANONSBURG PA 15317  
REF: 07K3X0341 CSC:FLING  
DEPT:  
PO:  
INV: (724) 743-6377



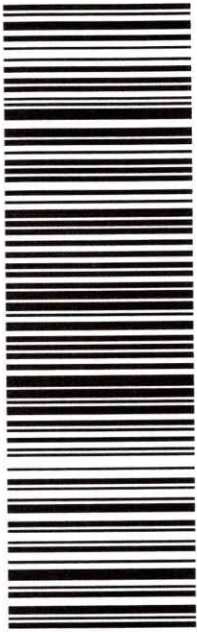
J182018072201uv

TRK# 7728 7637 4634  
0201

MON - 06 AUG 4:30P  
EXPRESS SAVER

SH PITA

15317  
PA-US PIT



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on [fedex.com](http://fedex.com). FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.