Sprint Spectrum, L.P.
("Sprint")

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October 28, 2016

Honorable Robert Stein, Chairman
and Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: **Request for Tower Share**
Sprint Spectrum, L.P. ("Sprint") Request for Approval of the Shared Use of an Existing Tower at 1367 East Street, New Britain, CT 06053.
Sprint site number: CT25XC098

Dear Chairman Stein and Members of the Council:

Sprint proposes to share an existing telecommunications tower located at 1367 East Street, New Britain, CT (the facility). The subject parcel is identified by the City of New Britain as Map and Block A5A, Lot 7. The property is owned by Elizabeth B. Byer and William Mancoll and Anita Mancoll, Trustees under the Anita Mancoll Revocable Trust dated March 30, 2005, c/o Carey Wiping Materials of same address. It is roughly 1.4± acres and accommodates Carey Wiper & Supply's one-story industrial building plus the facility that currently houses MetroPCS within the bounds of its existing fenced tower compound. The facility is and will continue to be owned and operated by Message Center Management, Inc. of 40 Woodland Street, Hartford, CT, 06105.

Pursuant to Connecticut General Statues Section 16-50aa (the Statute), Sprint requests a finding from the Connecticut Siting Council that the shared use of this facility is technically, legally, environmentally and economically feasible, will meet safety concerns, will avoid the unnecessary proliferation of towers and is in the public interest. Sprint further requests an order approving the shared use of this facility.

The purpose of this request is to use an existing tower to develop Sprint's wireless network to provide high speed wireless data and to develop wireless service within the State of Connecticut and in this part of New Britain, CT: thus avoiding the need for an additional tower in New Britain.

Sprint is licensed by the Federal Communications Commission ("FCC") to provide multiple technologies, including Code Division Multiple Access ("CDMA"), as well as long-term evolution ("LTE") services in Hartford County. Sprint is building and enhancing its network to take advantage of its licensed spectrum, and improve its broadband high speed wireless voice and data services.

Existing Facility & Proposed Modification

The existing facility is and will continue to be a 175' lattice tower located at 1367 East Street. Site coordinates (NAD83) are N41° 41' 23.55" and W72° 45' 30.29". Currently there is one other commercial wireless carrier located on this tower; and two (including Nextel at 125') have decommissioned (Nextel in 2013), whereby Sprint now intends to use the vacant space at the tower top space. The site plan of the facility is included in the proposed Construction Drawings, prepared by Hudson Design Group, LLC dated October 5, 2016 and enclosed herewith.

Sprint intends to install six (6) APXVSPP18-C RFS panel antennas, six (6) APXVTM14 RFS panel antennas, two (2) MW dish antennas and six (6) ALU RRUs mounted on the existing antenna frame abandoned by NorthCoast on the existing lattice tower. Sprint will install six (6) 1-1/4" fiber cables and five (5) 1-5/8" coax lines on the tower.

Sprint intends to enter into a new agreement, at this tower height, in order to license the portion of space abandoned by NorthCoast along with the existing a 10'-0" x 20'-2" concrete pad, and to install three (3) new cabinets along with one (1) telco cabinet on an H-frame thereon; equipment will thus remain within the existing fenced compound. An existing ice bridge will be reused to connect the equipment with the tower. A GPS antenna will be located on the ice bridge.

Consistent with the requirements of the Statute, it is feasible for Sprint to collocate at this facility. Sprint is proposing to collocate on the existing lattice tower that will continue to remain the ownership of Message Center Management. Included with this application is a Structural Analysis Report from Hudson Design Group, LLC dated September 26, 2016 that shows that the existing tower can support Sprint's proposed equipment.

The Proposal is Legally Feasible.

The Council has authority, pursuant to statute, to issue an order approving of the shared use of this tower. By issuing an order approving Sprint's shared use of this tower, Sprint will be able to proceed with obtaining a building permit for the proposed installation. Message Center Management has executed a Letter of Authorization that approved Sprint's Request for Tower Share filing on October 27, 2016, which approval is included with this application. Sprint's proposal is legally feasible.

Sprint is a telecommunication provider licensed by the FCC to provide service in the State of Connecticut, including but not limited to Hartford County. Sprint will enter into an agreement with the owner of this facility, Message Center Management, for the location of this proposed equipment on the existing tower so that it may provide telecommunications services to the surrounding community. Consequently, the proposal is legally feasible.

The Proposal is Environmentally Feasible.

Pursuant to the Statute, the proposal will be environmentally feasible for the following reasons:

- The overall impact on the City of New Britain will be decreased with the sharing of a single tower versus the proliferation of multiple towers.
- There will be no material increase in the visibility of the tower with the addition of the new technology in the form of nearly-identical antennas and associated equipment set to what was previously allowed at this height and space on this same tower.
- There will be no increased impact on air quality because no air pollutants will be generated during normal operation of the facility.
- There will only be a brief, slight increase in noise pollution while the site is under construction.
- During construction, the proposed project will generate a small amount of traffic as construction takes place. Upon completion, traffic will be limited to an average of one trip per month for maintenance and inspections.
- There will be no adverse impact to the health and safety of the surrounding community or workers at the facility due to the addition of Sprint's new antennas to the tower. Sprint has performed an analysis of the radio frequency field emanating from the transmitting antennas on the tower to ensure compliance with the National Council on Radiation Protection and measurements (NCRP) standard for maximum permissible exposure (MPE) adopted by the FCC. The analysis dated October 28, 2016 indicates that Sprint and other antennas on the tower will cumulatively emit 1.86% of the NCRP standard for maximum permissible exposure. The report indicates that maximum level of exposure will be well below the FCC's mandated radio frequency exposure limits. The report is enclosed herewith and the calculations are below.

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXV5PP18-C-A20	Make / Model:	RFS APXV5PP18-C-A20	Make / Model:	RFS APXV5PP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	175 feet	Height (AGL):	175 feet	Height (AGL):	175 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts
ERP (W):	5,981.20	ERP (W):	5,981.20	ERP (W):	5,981.20
Antenna A1 MPE%:	0.88 %	Antenna B1 MPE%:	0.88 %	Antenna C1 MPE%:	0.88 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.85 dBd	Gain:	15.85 dBd	Gain:	15.85 dBd
Height (AGL):	175 feet	Height (AGL):	175 feet	Height (AGL):	175 feet
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	4,615.10	ERP (W):	4,615.10	ERP (W):	4,615.10
Antenna A2 MPE%:	0.58 %	Antenna B2 MPE%:	0.58 %	Antenna C2 MPE%:	0.58 %

Site Composite MPE%	
Carrier	MPE%
Sprint - Max per sector	1.46 %
Neutel	0.40 %
Site Total MPE %:	1.86 %

Sprint Sector A Total:	1.46 %
Sprint Sector B Total:	1.46 %
Sprint Sector C Total:	1.46 %
Site Total:	1.86 %

- Sprint expects to enhance safety in this portion of New Britain by improving wireless telecommunications for local residents and travelers. Sprint is currently developing its network to provide its customers with quality and reliable coverage to comply with their FCC license, the site is a necessary part of Sprint's network development.

- Specifically, this proposal is designed to provide reliable wireless coverage for this section of New Britain, CT.

Conclusions:

For the reasons stated above, the attachment of Sprint's antennas and associated equipment to the tower would meet all the requirements set forth in the Statute. The proposal is legally, technically, economically and environmentally feasible and meets all public safety concerns. Therefore, Sprint respectfully requests that the Council approve this request for the shared use of this tower located at 1367 East Street, New Britain, CT.

Respectfully yours,

Alex Murshteyn
Real Estate Consultant – Site Acquisition
c/o Sprint Spectrum L.P. (Sprint)
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (508) 821-0159
AMurshteyn@centerlinecommunications.com

Enclosures (5)

cc: Mayor Erin E. Stewart, City of New Britain
Christopher Gelinas, National Sales Manager, Message Center Management, Inc.
Elizabeth B. Byer and William Mancoll and Anita Mancoll,
Trustees under the Anita Mancoll Revocable Trust
Florence Nicolas, New England Market Real Estate Manager, Sprint Spectrum, L.P. (e-mail)

Sprint

MCM
Message Center Management
Keep Your Sites On Air

LETTER OF AUTHORIZATION

SITE No.: CT25XC098

SITE NAME: New Britain - CCSU

ADDRESS: Tower at 1367 East Street, New Britain, Connecticut

Message Center Management ("MCM"), owner of the above-described facility, authorizes Sprint Spectrum, L.P. ("Sprint") and/or their agent, to act as our nonexclusive agent for the sole purpose of filing and consummating any land use or building permit application(s) necessary to obtain approval of the applicable jurisdiction for Sprint's installation of the antennas and related telecommunications equipment on the above-described facility.

We understand that this application may be denied, modified or approved with conditions, and that any such conditions of approval or modifications will be the sole responsibility of the carrier and will be complied with prior to issuance of a building permit.

Signature: Virginia King

Print Name: VIRGINIA KING

Title: PROJ. MGMT

STRUCTURAL ANALYSIS REPORT

For

CT25XC098

NEW BRITAIN - CCSU

1367 EAST STREET
NEW BRITAIN, CT 06053

Antennas Mounted to the Tower

Prepared for:

Sprint VISION

MCM
Message Center Management
Keep Your Sites On Us®

Dated: September 26, 2016

Prepared by:

Hudson Design Group LLC

1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupllc.com

STATE OF CONNECTICUT
GI KAI WANG
No. 28260
LICENSED PROFESSIONAL ENGINEER

9/26/2016

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by SPRINT to conduct a structural evaluation of the 175' self-supporting tower supporting the proposed SPRINT's antennas located at elevation 175' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of SPRINT's antennas listed below.

Record drawings of the existing tower prepared by PiROD Inc., dated June 13, 2001, were available for our use. Geotechnical Evaluation Report prepared by Edwards and Kelcey, dated June 11, 2001, was also available and obtained for our use. Tower mapping report prepared by ProVertic LLC, dated August 23, 2016, was provided to this office.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing tower and foundation **are in conformance** with the ANSI/TIA-222-F Standard for the loading considered under the criteria listed in this report. The tower structure is rated at **86.8%** - (Legs at Tower Section T5 from EL.100' to EL.120' Controlling).

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	Lightning Rod	175'	Tower Leg
SPRINT	***(6) APXVSPP18-C Antennas***	***175'***	T - Frame
SPRINT	***(3) APXVTM14 Antennas***	***175'***	T - Frame
SPRINT	***(3) RRH-1900***	***175'***	T - Frame
SPRINT	***(3) RRH-800***	***175'***	T - Frame
SPRINT	***(3) TD RRH8X20-25***	***175'***	T - Frame
SPRINT	***VHLP2.5-180***	***175'***	T - Frame
SPRINT	***VHLP2-18***	***175'***	T - Frame
	(3) Kathrein 742 213 Antennas	165'	Tower Leg

Proposed SPRINT Appurtenances shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Legs	**86.8 %**	100 – 120	PASS	**Controlling**
Diagonals	51.1 %	165 – 175	PASS	
Sec. Horizontal	17.1 %	100 – 120	PASS	
Top Girts	38.9 %	165 – 175	PASS	
Bottom Girts	20.1 %	130 – 150	PASS	

FOUNDATION ANALYSIS RESULTS SUMMARY:

	Design Reactions (DL + WL)	Base Reactions (DL + WL)	Pass/Fail	Comments
AXIAL	**41.8 k**	30.4 k	PASS	
SHEAR	**47.8 k**	24.3 k	PASS	
MOMENT	**5106 ft-k**	2436 ft-k	PASS	

DESIGN CRITERIA:

1. EIA/TIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   City/Town: New Britain
   County: Hartford
   Wind Load: 80 mph (fastest mile)
   100 mph (3 second gust)
   Nominal Ice Thickness: 0.5 inch

2. Approximate height above grade to proposed antennas: 175'

*Calculations and referenced documents are attached.

ASSUMPTIONS:

1. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.

2. The tower and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

3. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

4. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas, RRHs and dishes be mounted on the existing T-frame supported by the tower.

ONGOING AND PERIODIC INSPECTION AND MAINTENANCE:

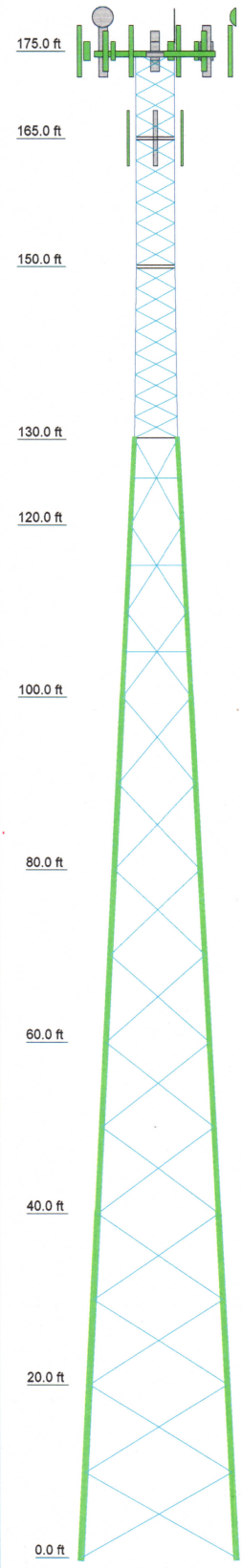
After the Contractor has successfully completed the installation and the work has been accepted, the Owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

The owner shall refer to TIA/EIA-222-F for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system be performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F section 14.1, Note 1: It is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.

Photo 1: Photo illustrating the Tower with Appurtenances shown.

Hudson Design Group LLC

CALCULATIONS



Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	Pirod 105220		Pirod 105219		Pirod 105218	Pirod 105217	Pirod 105244	SR 2 1/4	SR 1 3/4	
Leg Grade					A572-50					
Diagonals	L3 1/2x3 1/2x5/16		L3x3x5/16		L3x3x3/16		A	SR 1	SR 7/8	SR 3/4
Diagonal Grade					A36			A572-50		
Top Girts					N.A.			SR 1	SR 7/8	SR 3/4
Bottom Girts					N.A.			SR 1	SR 7/8	SR 3/4
Sec. Horizontals			N.A.			L3x3x3/16	A	N.A.		4.5
Face Width (ft)	18	16	14	12	10	8	6	5		
# Panels @ (ft)	13 @ 10							8 @ 2.45833	6 @ 2.44444	4 @ 2.41667
Weight (lb)	26239.2	4892.2	4519.3	3894.9	3783.4	2758.5	2471.3	1574.2	1074.3	800.8	470.4

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	175	RRH-1900	175
PiROD 12' T-Frame (SPRINT)	175	RRH-1900	175
PiROD 12' T-Frame	175	RRH-800	175
PiROD 12' T-Frame	175	RRH-800	175
APXVSPP18-C w/mount pipe	175	RRH-800	175
APXVSPP18-C w/mount pipe	175	TD-RRH8x20-25	175
APXVSPP18-C w/mount pipe	175	TD-RRH8x20-25	175
APXVTM14 w/mount pipe	175	TD-RRH8x20-25	175
APXVTM14 w/mount pipe	175	VHLP2.5-180	175
APXVTM14 w/mount pipe	175	VHLP2-18	175
APXVSPP18-C w/mount pipe	175	Kathrein 742 213 w/mount pipe	165
APXVSPP18-C w/mount pipe	175	Kathrein 742 213 w/mount pipe	165
APXVSPP18-C w/mount pipe	175	Kathrein 742 213 w/mount pipe	165
RRH-1900	175		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L2 1/2x2 1/2x3/16		

MATERIAL STRENGTH

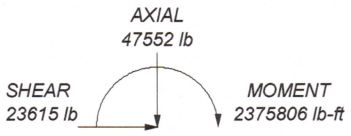
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

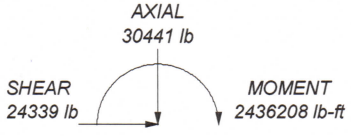
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 86.8%

MAX. CORNER REACTIONS AT BASE:
DOWN: 168240 lb
SHEAR: 10667 lb

UPLIFT: -143384 lb
SHEAR: 14136 lb



TORQUE 8879 lb-ft
69 mph WIND - 0.5000 in ICE



TORQUE 10448 lb-ft
REACTIONS - 80 mph WIND

Hudson Design Group LLC
1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

Job: CT25XC098 NEW BRITAIN, CT		
Project: 175 ft Self Supporting Tower		
Client: SPRINT	Drawn by: kw	App'd:
Code: TIA/EIA-222-F	Date: 09/26/16	Scale: NTS
Path: C:\Users\kwang\Documents\HUDSON DESIGN GROUP\AAA\CT25XC098 Rev - SST (Sprint)\CT25XC098\CT25XC098 Rev.eri		Dwg No. E-1

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Tower Input Data

The main tower is a 3x free standing tower with an overall height of 175.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 4.50 ft at the top and 18.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 69 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	175.00-165.00			4.50	1	10.00
T2	165.00-150.00			4.50	1	15.00
T3	150.00-130.00			4.50	1	20.00
T4	130.00-120.00			5.00	1	10.00
T5	120.00-100.00			6.00	1	20.00
T6	100.00-80.00			8.00	1	20.00
T7	80.00-60.00			10.00	1	20.00
T8	60.00-40.00			12.00	1	20.00
T9	40.00-20.00			14.00	1	20.00
T10	20.00-0.00			16.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
T1	175.00-165.00	2.42	X Brace	No	No	2.0000	2.0000
T2	165.00-150.00	2.44	X Brace	No	No	2.0000	2.0000
T3	150.00-130.00	2.46	X Brace	No	No	2.0000	2.0000
T4	130.00-120.00	10.00	X Brace	No	Yes	0.0000	0.0000
T5	120.00-100.00	10.00	X Brace	No	Yes	0.0000	0.0000
T6	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T7	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T8	60.00-40.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T9	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 175.00-165.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 165.00-150.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 150.00-130.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T4 130.00-120.00	Truss Leg	Pirod 105244	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 120.00-100.00	Truss Leg	Pirod 105217	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T6 100.00-80.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T7 80.00-60.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T8 60.00-40.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T9 40.00-20.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T10 20.00-0.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 175.00-165.00	Solid Round	3/4	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 165.00-150.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 150.00-130.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T4 130.00-120.00	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

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Phone: (978) 557-5553
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Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T5 120.00-100.00	Equal Angle	L3x3x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 1/4 (SPRINT)	C	Yes	Ar (CfAe)	175.00 - 8.00	5	5	1.5500	1.5500		0.66
*********										
1 5/8	C	Yes	Ar (CfAe)	165.00 - 8.00	6	3	1.9800	1.9800		1.04

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Lightning Rod	B	From Leg	0.00 0.00 3.00	0.0000	175.00	No Ice 1/2" Ice	0.75 1.25	0.75 1.25	10.00 40.00
**********									
PiROD 12' T-Frame (SPRINT)	A	From Leg	2.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	360.00 490.00
PiROD 12' T-Frame	B	From Leg	2.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	360.00 490.00
PiROD 12' T-Frame	C	From Leg	2.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	360.00 490.00
APXVSPP18-C w/mount pipe	A	From Leg	4.00 6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	82.55 150.56
APXVSPP18-C w/mount pipe	B	From Leg	4.00 6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	82.55 150.56
APXVSPP18-C w/mount pipe	C	From Leg	4.00 6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	82.55 150.56
APXVTM14 w/mount pipe	A	From Leg	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	7.21 7.77	5.03 5.89	91.90 147.31
APXVTM14 w/mount pipe	B	From Leg	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	7.21 7.77	5.03 5.89	91.90 147.31
APXVTM14 w/mount pipe	C	From Leg	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	7.21 7.77	5.03 5.89	91.90 147.31

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
APXVSPP18-C w/mount pipe	A	From Leg	4.00 -6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	82.55 150.56
APXVSPP18-C w/mount pipe	B	From Leg	4.00 -6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	82.55 150.56
APXVSPP18-C w/mount pipe	C	From Leg	4.00 -6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	82.55 150.56
RRH-1900	A	From Leg	3.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	2.71 2.95	3.66 3.92	60.00 88.32
RRH-1900	B	From Leg	3.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	2.71 2.95	3.66 3.92	60.00 88.32
RRH-1900	C	From Leg	3.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	2.71 2.95	3.66 3.92	60.00 88.32
RRH-800	A	From Leg	3.00 6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	2.49 2.71	3.22 3.46	64.00 91.74
RRH-800	B	From Leg	3.00 6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	2.49 2.71	3.22 3.46	64.00 91.74
RRH-800	C	From Leg	3.00 6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	2.49 2.71	3.22 3.46	64.00 91.74
TD-RRH8x20-25	A	From Leg	3.00 6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	4.72 5.01	1.70 1.92	70.00 97.15
TD-RRH8x20-25	B	From Leg	3.00 6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	4.72 5.01	1.70 1.92	70.00 97.15
TD-RRH8x20-25	C	From Leg	3.00 6.00 0.00	0.0000	175.00	No Ice 1/2" Ice	4.72 5.01	1.70 1.92	70.00 97.15
**********									
Kathrein 742 213 w/mount pipe	A	From Leg	1.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	5.31 5.85	4.65 5.96	44.75 88.79
Kathrein 742 213 w/mount pipe	B	From Leg	1.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	5.31 5.85	4.65 5.96	44.75 88.79
Kathrein 742 213 w/mount pipe	C	From Leg	1.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	5.31 5.85	4.65 5.96	44.75 88.79

Dishes

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Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft	°	°	ft	ft		ft^2	lb
VHLP2.5-180	A	Paraboloid w/o Radome	From Leg	4.00 -6.00 4.00	0.0000		175.00	2.50	No Ice 1/2" Ice	4.90 5.24	69.00 95.89
VHLP2-18	B	Paraboloid w/o Radome	From Leg	4.00 -6.00 4.00	0.0000		175.00	2.16	No Ice 1/2" Ice	3.66 3.95	25.00 50.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	23	168224.22	9340.91	-5144.68
	Max. H_x	10	166404.27	14249.07	-7947.24
	Max. H_z	17	-132912.14	-16618.36	9332.52
	Min. Vert	4	-141425.87	-12284.14	6774.40
	Min. H_x	17	-132912.14	-16618.36	9332.52
	Min. H_z	10	166404.27	14249.07	-7947.24
Leg B	Max. Vert	19	168239.92	-9385.73	-5069.59
	Max. H_x	25	-133864.41	16667.66	9370.57
	Max. H_z	25	-133864.41	16667.66	9370.57
	Min. Vert	12	-142612.15	12345.49	6820.56
	Min. H_x	6	166410.94	-14304.98	-7853.01
	Min. H_z	6	166410.94	-14304.98	-7853.01
Leg A	Max. Vert	15	167181.92	0.14	10640.57
	Max. H_x	10	-68653.07	434.10	-6900.95
	Max. H_z	2	166042.71	-0.72	16307.47
	Min. Vert	8	-143384.23	22.21	-14135.54
	Min. H_x	18	15104.53	-379.34	-4390.56
	Min. H_z	21	-135237.89	17.12	-19163.06

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	30441.21	0.00	-0.00	4008.16	173.65	0.00
Dead+Wind 0 deg - No Ice	30441.21	-142.60	-24339.05	-2430172.56	25823.62	347.29
Dead+Wind 30 deg - No Ice	30441.21	11785.59	-20424.84	-2056114.53	-1188054.51	4730.84
Dead+Wind 60 deg - No Ice	30441.21	20225.87	-11684.55	-1179404.76	-2047383.29	8634.51
Dead+Wind 90 deg - No Ice	30441.21	23561.94	3.57	4678.21	-2374599.72	10447.66
Dead+Wind 120 deg - No Ice	30441.21	20982.11	12334.47	1250808.28	-2090595.23	10434.44
Dead+Wind 150 deg - No Ice	30441.21	11755.87	20586.27	2093206.83	-1182677.25	6074.58
Dead+Wind 180 deg - No Ice	30441.21	18.26	23493.77	2393316.04	-3104.76	650.31
Dead+Wind 210 deg - No Ice	30441.21	-11721.73	20540.27	2084927.17	1176896.43	-4530.50
Dead+Wind 240 deg - No Ice	30441.21	-21051.45	12209.85	1228372.54	2103428.35	-7347.82
Dead+Wind 270 deg - No Ice	30441.21	-23612.77	-89.51	-12071.52	2384092.33	-9611.67
Dead+Wind 300 deg - No Ice	30441.21	-20304.31	-11750.93	-1191345.09	2061842.45	-8308.32
Dead+Wind 330 deg - No Ice	30441.21	-11914.38	-20474.87	-2065113.83	1211572.15	-4753.67
Dead+Ice+Temp	47551.99	0.00	-0.00	11043.80	49.63	0.00
Dead+Wind 0 deg+Ice+Temp	47551.99	-115.42	-23614.60	-2359020.79	20858.29	310.82
Dead+Wind 30 deg+Ice+Temp	47551.98	11558.94	-20030.04	-2009473.25	-1165574.31	4077.48
Dead+Wind 60 deg+Ice+Temp	47551.99	19905.29	-11497.90	-1151933.64	-2012661.31	7412.47
Dead+Wind 90 deg+Ice+Temp	47551.99	23110.95	2.90	11631.14	-2329922.34	8879.27
Dead+Wind 120 deg+Ice+Temp	47551.99	20373.77	11939.60	1220023.53	-2038625.65	8703.19
Dead+Wind 150 deg+Ice+Temp	47551.99	11535.37	20159.85	2055081.68	-1161291.98	5105.48
Dead+Wind 180 deg+Ice+Temp	47551.99	14.78	23096.01	2355237.52	-2611.99	494.51
Dead+Wind 210 deg+Ice+Temp	47551.99	-11507.74	20122.61	2048364.66	1156416.59	-3917.13
Dead+Wind 240 deg+Ice+Temp	47551.99	-20429.89	11838.73	1201821.50	2048852.05	-6251.18
Dead+Wind 270 deg+Ice+Temp	47551.99	-23152.09	-72.45	-1958.16	2337439.78	-8202.94
Dead+Wind 300 deg+Ice+Temp	47551.99	-19968.78	-11551.62	-1161621.52	2024208.80	-7119.17
Dead+Wind 330 deg+Ice+Temp	47551.99	-11663.23	-20070.52	-2016775.06	1184470.89	-4045.77
Dead+Wind 0 deg - Service	30441.21	-55.70	-9507.44	-946853.06	10194.12	137.31
Dead+Wind 30 deg - Service	30441.21	4603.75	-7978.45	-800726.52	-463975.36	1847.24
Dead+Wind 60 deg - Service	30441.21	7900.73	-4564.28	-458266.47	-799661.57	3373.14
Dead+Wind 90 deg - Service	30441.21	9203.88	1.40	4272.81	-927477.12	4081.73
Dead+Wind 120 deg - Service	30441.21	8196.14	4818.15	491062.12	-816562.91	4074.29
Dead+Wind 150 deg - Service	30441.21	4592.14	8041.51	820107.77	-461883.50	2370.45

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Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 180 deg - Service	30441.21	7.13	9177.25	937351.64	-1106.91	254.87
Dead+Wind 210 deg - Service	30441.21	-4578.80	8023.54	816874.76	459837.18	-1767.21
Dead+Wind 240 deg - Service	30441.21	-8223.22	4769.47	482301.33	821788.22	-2868.99
Dead+Wind 270 deg - Service	30441.21	-9223.74	-34.96	-2268.69	931398.88	-3756.50
Dead+Wind 300 deg - Service	30441.21	-7931.37	-4590.21	-462930.49	805524.34	-3245.84
Dead+Wind 330 deg - Service	30441.21	-4654.06	-7998.00	-804242.06	473375.89	-1854.89

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-30441.21	-0.00	-0.00	30441.21	0.00	0.000%
2	-142.60	-30441.21	-24339.05	142.60	30441.21	24339.05	0.000%
3	11785.59	-30441.21	-20424.84	-11785.59	30441.21	20424.84	0.000%
4	20225.87	-30441.21	-11684.55	-20225.87	30441.21	11684.55	0.000%
5	23561.94	-30441.21	3.57	-23561.94	30441.21	-3.57	0.000%
6	20982.11	-30441.21	12334.47	-20982.11	30441.21	-12334.47	0.000%
7	11755.87	-30441.21	20586.27	-11755.87	30441.21	-20586.27	0.000%
8	18.26	-30441.21	23493.77	-18.26	30441.21	-23493.77	0.000%
9	-11721.73	-30441.21	20540.27	11721.73	30441.21	-20540.27	0.000%
10	-21051.45	-30441.21	12209.85	21051.45	30441.21	-12209.85	0.000%
11	-23612.77	-30441.21	-89.51	23612.77	30441.21	89.51	0.000%
12	-20304.31	-30441.21	-11750.93	20304.31	30441.21	11750.93	0.000%
13	-11914.38	-30441.21	-20474.87	11914.38	30441.21	20474.87	0.000%
14	0.00	-47551.99	-0.00	-0.00	47551.99	0.00	0.000%
15	-115.42	-47551.99	-23614.62	115.42	47551.99	23614.60	0.000%
16	11558.99	-47551.99	-20030.03	-11558.94	47551.98	20030.04	0.000%
17	19905.29	-47551.99	-11497.90	-19905.29	47551.99	11497.90	0.000%
18	23110.97	-47551.99	2.90	-23110.95	47551.99	-2.90	0.000%
19	20373.79	-47551.99	11939.61	-20373.77	47551.99	-11939.60	0.000%
20	11535.38	-47551.99	20159.86	-11535.37	47551.99	-20159.85	0.000%
21	14.78	-47551.99	23096.01	-14.78	47551.99	-23096.01	0.000%
22	-11507.75	-47551.99	20122.63	11507.74	47551.99	-20122.61	0.000%
23	-20429.91	-47551.99	11838.74	20429.89	47551.99	-11838.73	0.000%
24	-23152.11	-47551.99	-72.44	23152.09	47551.99	72.45	0.000%
25	-19968.78	-47551.99	-11551.62	19968.78	47551.99	11551.62	0.000%
26	-11663.23	-47551.99	-20070.53	11663.23	47551.99	20070.52	0.000%
27	-55.70	-30441.21	-9507.44	55.70	30441.21	9507.44	0.000%
28	4603.75	-30441.21	-7978.45	-4603.75	30441.21	7978.45	0.000%
29	7900.73	-30441.21	-4564.28	-7900.73	30441.21	4564.28	0.000%
30	9203.88	-30441.21	1.40	-9203.88	30441.21	-1.40	0.000%
31	8196.14	-30441.21	4818.15	-8196.14	30441.21	-4818.15	0.000%
32	4592.14	-30441.21	8041.51	-4592.14	30441.21	-8041.51	0.000%
33	7.13	-30441.21	9177.25	-7.13	30441.21	-9177.25	0.000%
34	-4578.80	-30441.21	8023.54	4578.80	30441.21	-8023.54	0.000%
35	-8223.22	-30441.21	4769.47	8223.22	30441.21	-4769.47	0.000%
36	-9223.74	-30441.21	-34.96	9223.74	30441.21	34.96	0.000%
37	-7931.37	-30441.21	-4590.21	7931.37	30441.21	4590.21	0.000%
38	-4654.06	-30441.21	-7998.00	4654.06	30441.21	7998.00	0.000%

Maximum Tower Deflections - Service Wind

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	175 - 165	5.294	35	0.3534	0.0431
T2	165 - 150	4.539	35	0.3456	0.0397
T3	150 - 130	3.486	35	0.3007	0.0339
T4	130 - 120	2.340	35	0.2279	0.0250
T5	120 - 100	1.904	35	0.1844	0.0183
T6	100 - 80	1.235	35	0.1297	0.0115
T7	80 - 60	0.757	35	0.0922	0.0071
T8	60 - 40	0.418	35	0.0651	0.0049
T9	40 - 20	0.188	31	0.0391	0.0031
T10	20 - 0	0.053	31	0.0193	0.0014

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
179.00	VHLP2.5-180	35	5.294	0.3534	0.0431	55007
175.00	Lightning Rod	35	5.294	0.3534	0.0431	55007
165.00	Kathrein 742 213 w/mount pipe	35	4.539	0.3456	0.0397	28822

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	175 - 165	Leg	1 3/4	3	-13849.30	69305.33	20.0	Pass
T2	165 - 150	Leg	1 3/4	36	-37799.60	68864.64	54.9	Pass
T3	150 - 130	Leg	2 1/4	79	-69579.90	127013.43	54.8	Pass
T4	130 - 120	Leg	Pirod 105244	136	-67201.60	123608.69	69.8	Pass
T5	120 - 100	Leg	Pirod 105217	148	-75443.10	184672.48	86.8	Pass
T6	100 - 80	Leg	Pirod 105218	169	-99934.00	258238.08	38.7	Pass
T7	80 - 60	Leg	Pirod 105219	185	-115504.00	343622.06	33.6	Pass
T8	60 - 40	Leg	Pirod 105219	200	-131809.00	343622.06	38.4	Pass
T9	40 - 20	Leg	Pirod 105220	215	-149063.00	440811.08	33.8	Pass
T10	20 - 0	Leg	Pirod 105220	230	-167143.00	440811.08	37.9	Pass
T1	175 - 165	Diagonal	3/4	15	-2217.85	4340.55	51.1	Pass
T2	165 - 150	Diagonal	7/8	48	-2741.64	8000.00	34.3	Pass
T3	150 - 130	Diagonal	1	89	-2651.64	11639.90	22.8	Pass
T4	130 - 120	Diagonal	L2 1/2x2 1/2x3/16	140	-5513.49	11339.12	48.6	Pass
T5	120 - 100	Diagonal	L3x3x3/16	152	-4114.84	15208.86	27.1	Pass
T6	100 - 80	Diagonal	L3x3x3/16	173	-3198.73	12531.43	25.5	Pass
T7	80 - 60	Diagonal	L3x3x5/16	188	-3526.29	16062.12	22.0	Pass
T8	60 - 40	Diagonal	L3x3x5/16	203	-3852.53	13041.66	29.5	Pass
T9	40 - 20	Diagonal	L3x3x5/16	218	-4158.36	10712.63	38.8	Pass
T10	20 - 0	Diagonal	L3 1/2x3 1/2x5/16	239	-6256.25	15685.41	39.9	Pass
T4	130 - 120	Secondary Horizontal	L2 1/2x2 1/2x3/16	146	-1668.67	15595.57	10.7	Pass
T5	120 - 100	Secondary Horizontal	L3x3x3/16	167	-3116.01	18240.64	17.1	Pass
T1	175 - 165	Top Girt	3/4	4	-899.87	2311.14	38.9	Pass
T2	165 - 150	Top Girt	7/8	37	-534.10	4281.69	12.5	Pass
T3	150 - 130	Top Girt	1	82	-427.77	7431.82	5.8	Pass
T1	175 - 165	Bottom Girt	3/4	7	-463.98	2311.14	20.1	Pass
T2	165 - 150	Bottom Girt	7/8	40	-551.07	4281.69	12.9	Pass
T3	150 - 130	Bottom Girt	1	86	-1202.86	5989.68	20.1	Pass

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Job	Page
CT25XC098 NEW BRITAIN, CT	9 of 9
Project	**Date**
175 ft Self Supporting Tower	17:15:28 09/26/16
Client	**Designed by**
SPRINT	kw

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
							Summary	
						Leg (T5)	86.8	Pass
						Diagonal (T1)	51.1	Pass
						Secondary Horizontal (T5)	17.1	Pass
						Top Girt (T1)	38.9	Pass
						Bottom Girt (T3)	20.1	Pass
						RATING =	**86.8**	**Pass**

SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY A&E VENDOR).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.
* SPRINT CORPORATION SHALL PROVIDE WRITTEN ACCEPTANCE/APPROVAL FOR THE COMPLETION OF ALL TOWER/FOUNDATION STRUCTURAL MODIFICATIONS INCLUDING (AS NECESSARY) CONTROLLED CONSTRUCTION INSPECTIONS, SHOP-DRAWING APPROVALS, MATERIALS TEST RESULTS, AND FINAL ENGINEER'S AFFIDAVIT.

Sprint

NOTE:

OWNER AND TENANT MAY, FROM TIME TO TIME AT TENANT'S OPTION, REPLACE THIS EXHIBIT WITH AN EXHIBIT SETTING FORTH THE LEGAL DESCRIPTION OF THE SITE, OR WITH ENGINEERED OR AS-BUILT DRAWING DEPICTING THE SITE OR ILLUSTRATING STRUCTURAL MODIFICATIONS OR CONSTRUCTION PLANS OF THE SITE. ANY VISUAL OR TEXTUAL REPRESENTATION OF THE EQUIPMENT LOCATED WITHIN THE SITE CONTAINED IN THESE OTHER DOCUMENTS IS ILLUSTRATIVE ONLY, AND DOES NOT LIMIT THE RIGHTS OF SPRINT AS PROVIDED FOR IN THE AGREEMENT. THE LOCATIONS OF ANY ACCESS AND UTILITY EASEMENTS ARE ILLUSTRATIVE ONLY. ACTUAL LOCATIONS MAY BE DETERMINED BY TENANT AND/OR THE SERVICING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

STRUCTURAL NOTE:
STRUCTURAL INFORMATION TAKEN FROM STRUCTURAL ANALYSIS REPORT PERFORMED BY HUDSON DESIGN GROUP LLC DATED: SEPTEMBER 26, 2016

PROJECT: NV AND 2.5 EQUIPMENT DEPLOYMENT

SITE NAME: NEW BRITAIN-CCSU

SITE CASCADE: CT25XC098

MARKET: NORTHERN CONNECTICUT

SITE ADDRESS: 1367 EAST STREET
NEW BRITAIN, CT 06053

SITE TYPE: 175' SELF SUPPORTING TOWER

SITE INFORMATION

PROPERTY OWNER:
ELIZABETH B. BYER
WILLIAM & ANITA MANCOLL TRUSTEES
C/O CAREY WIPING MATERIALS
1367 EAST STREET
NEW BRITAIN, CT 06053

LATITUDE (NAD83):
GOOGLE EARTH 2-C CONFIRMATION
41° 41' 22.30" N
41.689528°

LONGITUDE (NAD83):
GOOGLE EARTH 2-C CONFIRMATION
-72° 45 32.90" W
-72.759139°

COUNTY:
HARTFORD, CT

ZONING JURISDICTION:
TOWN OF NEW BRITAIN

ZONING DISTRICT:
B1 - NEIGHBORHOOD BUSINESS

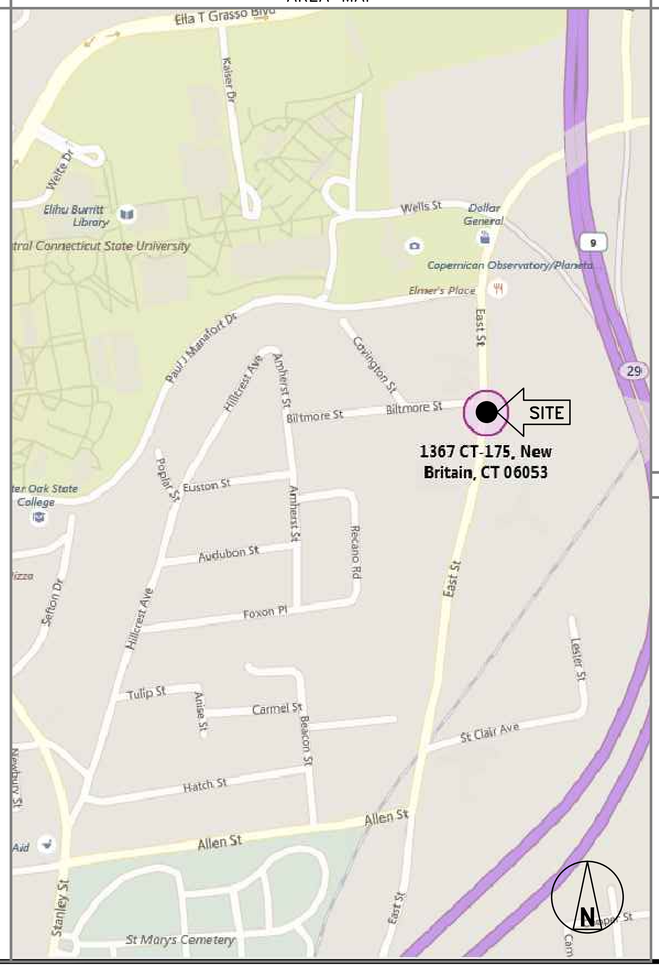
POWER COMPANY:
CONNECTICUT LIGHT & POWER

SPRINT MARKET MANAGER:
PETER GIARD
PHONE: 508-801-0074
peter.giard@sprint.com

SPRINT CM:
MICHAEL DELIA
PHONE: 781-316-6348
michael.delia@sprint.com

EQUIPMENT SUPPLIER:
ALCATEL-LUCENT
600 MOUNTAIN AVENUE
MURRAY HILL, NJ 07974

AREA MAP



PROJECT DESCRIPTION

SPRINT EQUIPMENT MODIFICATIONS REQUIRED TO SUPPORT MODERNIZATION OF AN EXISTING WIRELESS COMMUNICATIONS FACILITY AND UTILIZATION OF FCC BROADBAND SPECTRUM LICENSE FOR 2.5GHz FREQUENCY, INCLUDING INSTALLATION OF:

GROUND-LEVEL RAN EQUIPMENT, CONSISTING OF:
* INSTALL NEW (3) NEW CABINETS WITH 2.5 RADIO ACCESS NETWORK (RAN) EQUIPMENT & BBU KIT
* (1) H-FRAME WITH FIBER DISTRIBUTION BOX AND TELCO CABINET

MONOPOLE-TOP EQUIPMENT, INCLUDING INSTALLATION OF:
* (6) PANEL ANTENNAS
* (9) REMOTE RADIO HEADS (RRH)
* (6) HYBRID CABLE, AND ASSOCIATED FIBER, DC POWER, COAXIAL CABLE JUMPERS AND ANTENNA REMOTE ELECTRICAL-TILT (RET) CABLE
* (5) COAX CABLES
* (1) GPS ANTENNA
* (2) MICROWAVE DISHES

SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDE BY SPRINT REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AND ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, ADMINISTRATIVE REVIEW).

GENERAL NOTES

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
- ADA COMPLIANCE NOT REQUIRED.
- POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
- NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
BUILDING CODE: 2009 IBC WITH NEW HAMPSHIRE AMENDMENTS
ELECTRICAL CODE: 2005 NATIONAL ELECTRICAL CODE
STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

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DRAWING INDEX

SHEET NO:	SHEET TITLE	REV	CHK	BY
T-1	TITLE SHEET	0	BB	DJM
SP-1	OUTLINE SPECIFICATIONS	0	BB	DJM
SP-2	OUTLINE SPECIFICATIONS	0	BB	DJM
SP-3	OUTLINE SPECIFICATIONS	0	BB	DJM
A-1	COMPOUND PLAN	0	BB	DJM
A-2	EQUIPMENT PLAN	0	BB	DJM
A-3	ELEVATION	0	BB	DJM
A-4	ANTENNA PLANS	0	BB	DJM
A-5	RAN WIRING DIAGRAM	0	BB	DJM
A-6	EQUIPMENT DETAILS	0	BB	DJM
A-7	EQUIPMENT DETAILS	0	BB	DJM
A-8	EQUIPMENT DETAILS	0	BB	DJM
S-1	ANTENNA MOUNTING DETAILS	0	BB	DJM
E-1	ONE LINE DIAGRAM	0	BB	DJM
E-2	GROUNDING DETAILS AND NOTES	0	BB	DJM

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.

SPRINT: _____ DATE: _____

CONSTRUCTION MANAGER: _____ DATE: _____

LEASING/ SITE ACQUISITION: _____ DATE: _____

RF ENGINEER: _____ DATE: _____

LANDLORD/ TOWER OWNER: _____ DATE: _____

Sprint
1 INTERNATIONAL BLVD. SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

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

STATE OF CONNECTICUT
DEREK J. CREASER
PROFESSIONAL ENGINEER
LICENSED

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	10/05/16	ISSUED FOR CONSTRUCTION	DJM

SITE NUMBER:
CT25XC098
SITE NAME:
NEW BRITAIN CCSU
SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

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

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
1. GR–78–CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
2. GR–1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
3. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
4. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
5. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
6. AMERICAN CONCRETE INSTITUTE (ACI)
7. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
8. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
9. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
10. PORTLAND CEMENT ASSOCIATION (PCA)
11. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
12. BRICK INDUSTRY ASSOCIATION (BIA)
13. AMERICAN WELDING SOCIETY (AWS)
14. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
15. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
16. DOOR AND HARDWARE INSTITUTE (DHI)
17. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
18. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B. COMPANY: SPRINT CORPORATION
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
E. 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.
F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.
G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 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.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 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.

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

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS 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.
B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.
C . 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.

1.10 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.

1.11 UTILITIES 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:

1.12 PERMITS / FEES: 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.

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

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

A. TOP HAT
B. HOW TO INSTALL A NEW CABINET
C. BASE BAND UNIT IN EXISTING UNIT
D. INSTALLATION OF BATTERIES
E. INSTALLATION OF HYBRID CABLE
F. INSTALLATION OF RRH'S
G. CABLING
H. SPRINT TS–0200 (CURRENT VERSION) – ANTENNA LINE ACCEPTANCE STANDARDS
I. SPRINT CELL SITE ENGINEERING NOTICE – EN 2012–001, REV 1.
J. COMMISSIONING MOPS
K. SPRINT CELL SITE ENGINEERING NOTICE – EN–2013–002
L. SPRINT ENGINEERING LETTER – EL–0504
M. SPRINT ENGINEERING LETTER – EL–0568
N. SPRINT TECHNICAL SPECIFICATION – TS–0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

A. 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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 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 LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 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.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD–PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

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

3.5 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

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

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

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

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

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 – CELL SITE CONSTRUCTION

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED:

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

B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE–GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H–FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNAL AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND–OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. 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.

B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
1. 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.
2. 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.

D. 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

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.
1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
2. PROJECT PROGRESS REPORTS.
3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

CONTINUE SHEET SP–2

Sprint
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MAHWAH, NJ 07495
TEL: (800) 357-7641

MCM
Message Center Management
Keep Your Sites On Air

Hudson Design Group LLC
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STATE OF CONNECTICUT
DEREK J. CREASER
PROFESSIONAL ENGINEER

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	10/05/16	ISSUED FOR CONSTRUCTION	DJM

SITE NUMBER:
CT25XC098
SITE NAME:
NEW BRITAIN CCSU
SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP–1

CONTINUED FROM SP-1:

SECTION 01 400 – SUBMITTALS, TESTS, AND INSPECTIONS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.
1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN.

C. 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.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. COAX SWEEPS AND FIBER TESTS PER SPRINT TS-0200 (CURRENT VERSION) ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;
1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPS

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPS

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY: WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
1. THE THIRD PARTY TESTING 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.
2. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS:

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. 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.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)
7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
11. ALL AVAILABLE JURISDICTIONAL INFORMATION
12. PDF SCAN OF REDLINES PRODUCED IN FIELD

E. THE 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.

F. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.
1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
2. STRUCTURAL BACKFILL COMPACTION REPORTS.
3. SITE RESISTANCE TO EARTH TEST.
4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;
1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
4. TOWER, ANTENNAS 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 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.
5. 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;
6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
7. 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.
8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 500 – PROJECT REPORTING

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY 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.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:
1. SHELTER AND TOWER OVERVIEW.
2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
5. PHOTOS OF TOWER SECTION STACKING.
6. CONCRETE TESTING / SAMPLES.
7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.
10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
11. COAX CABLE ENTRY INTO SHELTER.
12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
25. ALL BTS GROUND CONNECTIONS.
26. ALL GROUND TEST WELLS.
27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
30. GPS ANTENNAS.
31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
32. DOGHOUSE/CABLE EXIT FROM ROOF.
33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
34. MASTER BUS BAR.
35. TELCO BOARD AND NIU.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SURGE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING-TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING -TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

SECTION 07 500 – ROOF CUTTING, PATCHING AND REPAIR

SUMMARY:
THIS SECTION SPECIFIES CUTTING AND PATCHING EXISTING ROOFING SYSTEMS WHERE CONDUIT OR CABLES EXIT THE BUILDING ONTO THE ROOF OR BUILDING-MOUNTED ANTENNAS, AND AS REQUIRED FOR WATERTIGHT PERFORMANCE. ROOFTOP ENTRY OPENINGS IN MEMBRANE ROOFTOPS SHALL BE CONSTRUCTED TO COMPLY WITH LANDLORD, ANY EXISTING WARRANTY, AND LOCAL JURISDICTIONAL STANDARDS.

1.4 SUBMITTALS:

A. PRE-CONSTRUCTION ROOF PHOTOS: COMPLETE A ROOF INSPECTION PRIOR TO THE INSTALLATION OF SPRINT EQUIPMENT ON ANY ROOFTOP BUILD. AT A MINIMUM INSPECT AND PHOTOGRAPH (MINIMUM 3 EA.) ALL AREAS IMPACTED BY THE ADDITION OF THE SPRINT EQUIPMENT.

B. PROVIDE SIMILAR PHOTOGRAPHS SHOWING ROOF CONDITIONS AFTER CONSTRUCTION (MINIMUM 3 EA.)

C. ROOF INSPECTION PHOTOGRAPHS SHOULD BE UPLOADED WITH CLOSEOUT PHOTOGRAPHS.

SECTION 09 900 – PAINTING

QUALITY ASSURANCE:

A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. COMPLY WITH ALL ENVIRONMENTAL REGULATIONS FOR VOLATILE ORGANIC COMPOUNDS.

CONTINUE SHEET SP-3

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Keep Your Sites On Us

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STATE OF CONNECTICUT
DEREK J. CREASER
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	10/05/16	ISSUED FOR CONSTRUCTION	DJM

SITE NUMBER:
CT25XC098
SITE NAME:
NEW BRITAIN
CCSU
SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP-2

CONTINUED FROM SP–2:

MATERIALS:

A. MANUFACTURERS: BENJAMIN MOORE, ICI DEVOE COATINGS, PPG, SHERWIN WILLIAMS OR APPROVED EQUAL. PROVIDE PREMIUM GRADE, PROFESSIONAL–QUALITY PRODUCTS FOR COATING SYSTEMS.

PAINT SCHEDULE:

A. EXTERIOR ANTENNAE AND ANTENNA MOUNTING HARDWARE: ONE COAT OF PRIMER AND TWO FINISH COATS. PAINT FOR ANTENNAE SHALL BE NON–METALLIC BASED AND CONTAIN NO METALLIC PARTICLES. PROVIDE COLORS AND PATTERNS AS REQUIRED TO MASK APPEARANCE OF ANTENNAE ON ADJACENT BUILDING SURFACES AND AS ACCEPTABLE TO THE OWNER. REFER TO ANTENNA MANUFACTURER'S INSTRUCTIONS WHENEVER POSSIBLE.

B. ROOF TOP CONSTRUCTION: TOUCH UP – PREPARE SURFACES TO BE REPAIRED. FOLLOW INDUSTRY STANDARDS AND REQUIREMENTS OF OWNER TO MATCH EXISTING COATING AND FINISH.

PAINTING APPLICATION:

1. INSPECT SURFACES, REPORT UNSATISFACTORY CONDITIONS IN WRITING; BEGINNING WORK MEANS ACCEPTANCE OF SUBSTRATE.
2. COMPLY WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR PREPARATION, PRIMING AND COATING WORK. COORDINATE WITH WORK OF OTHER SECTIONS.
3. MATCH APPROVED MOCK–UPS FOR COLOR, TEXTURE, AND PATTERN. RE–COAT OR REMOVE AND REPLACE WORK WHICH DOES NOT MATCH OR SHOWS LOSS OF ADHESION.
4. CLEAN UP, TOUCH UP AND PROTECT WORK.

TOUCHUP PAINTING:

1. GALVANIZING DAMAGE AND ALL BOLTS AND NUTS SHALL BE TOUCHED UP AFTER TOWER ERECTION WITH "GALVANOX," "DRY GALV," OR "ZINC–IT."
2. FIELD TOUCHUP PAINT SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. ALL METAL COMPONENTS SHALL BE HANDLED WITH CARE TO PREVENT DAMAGE TO THE COMPONENTS, THEIR PRESERVATIVE TREATMENT, OR THEIR PROTECTIVE COATINGS.

SECTION 11 700 – ANTENNA ASSEMBLY, REMOTE RADIO HEADS AND CABLE INSTALLATION

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

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

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

JUMPERS AND CONNECTORS:
FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRH'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12–50, CR 540, OR FXL 540. SUPER–FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRH'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE. DO NOT USE SUPERFLEX OUTDOORS. JUMPERS SHALL BE FACTORY FABRICATED IN APPROPRIATE LENGTHS WITH A MAXIMUM OF 4 FEET EXCESS PER JUMPER AND HAVE CONNECTORS AT EACH END, MANUFACTURED BY SUPPLIER. IF JUMPERS ARE FIELD FABRICATED, FOLLOW MANUFACTURER'S REQUIREMENTS FOR INSTALLATION OF CONNECTORS

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 CABLES INSTALLATION:

A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.

C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.
   1. FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE PERMANENTLY FASTENED TO THE COAX LADDER AT 4'–0" OC USING NON–MAGNETIC STAINLESS STEEL CLIPS.
   2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBTS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
      a. FIBER: SUPPORT FIBER BUNDLES USING ½" VELCRO STRAPS OF THE REQUIRED LENGTH @ 18" OC. 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 MANUFACTURES RECOMMENDED MAXIMUM BEND RADIUS.
   5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.
   6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 REV 4.
   7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA–NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE – EN 2012–001, REV 1

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:

A. ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.

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

SECTION 11 800 – INSTALLATION OF MULTIMODAL BASE STATIONS (MMBTS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBTS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.

C. COMPLY WITH MANUFACTURERS INSTALLATION AND START–UP REQUIREMENTS

DC CIRCUIT BREAKER LABELING

A. LABEL CIRCUIT BREAKERS ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE – EN 2012–001, REV 1.

SECTION 11 800 – INSTALLATION OF MULTIMODAL BASE TRANSCIEVER STATIONS (MMBTS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBTS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.

C. COMPLY WITH MANUFACTURERS INSTALLATION AND START–UP REQUIREMENTS

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:

D. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.

E. USE VIBRATION AND SHOCK–RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL IDENTIFICATION:

A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.

B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

SECTION 26 200 – ELECTRICAL MATERIALS AND EQUIPMENT

CONDUIT:

A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR ENCASED RUNS IN CONCRETE. 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 REQUIRE 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.
   2. CABLE TERMINATORS FOR LFMC SHALL BE ETCO – CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.

C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE–HINDS WAB SERIES OR EQUAL.

D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKETED 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 AS 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 AS INDICATED.

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.

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STATE OF CONNECTICUT
DEREK J. CREASER
PROFESSIONAL ENGINEER

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

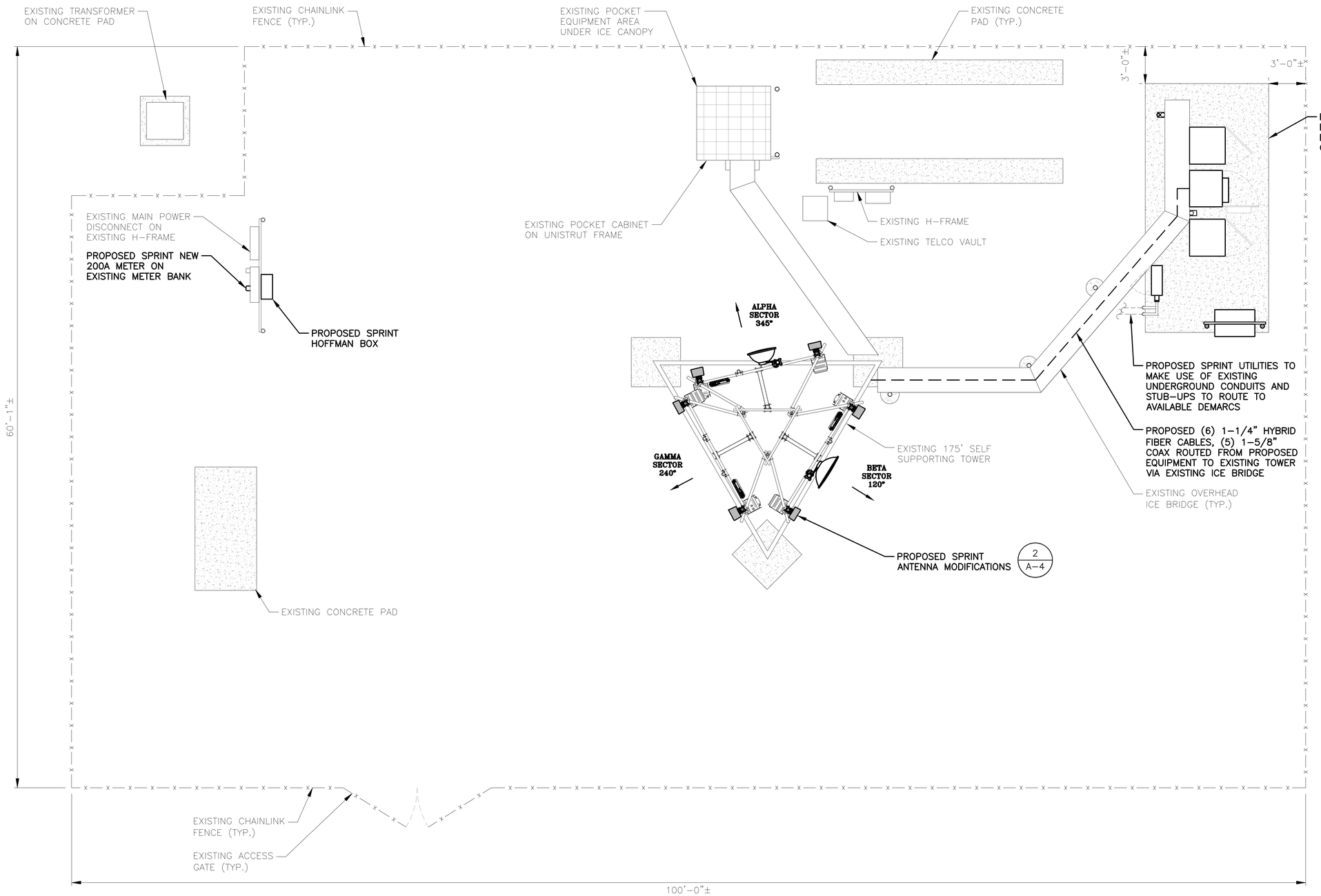
REV.	DATE	DESCRIPTION	BY
0	10/05/16	ISSUED FOR CONSTRUCTION	DJM

SITE NUMBER:
CT25XC098
SITE NAME:
NEW BRITAIN CCSU
SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP–3

STRUCTURAL NOTE:
STRUCTURAL INFORMATION TAKEN FROM STRUCTURAL ANALYSIS REPORT PERFORMED BY HUDSON DESIGN GROUP LLC DATED: SEPTEMBER 26, 2016



COMPOUND PLAN 1/A-1
22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"

GRAPHIC SCALE
0 2 4 8 12 FEET

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SITE ADDRESS:
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SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
A-1

STRUCTURAL NOTE:
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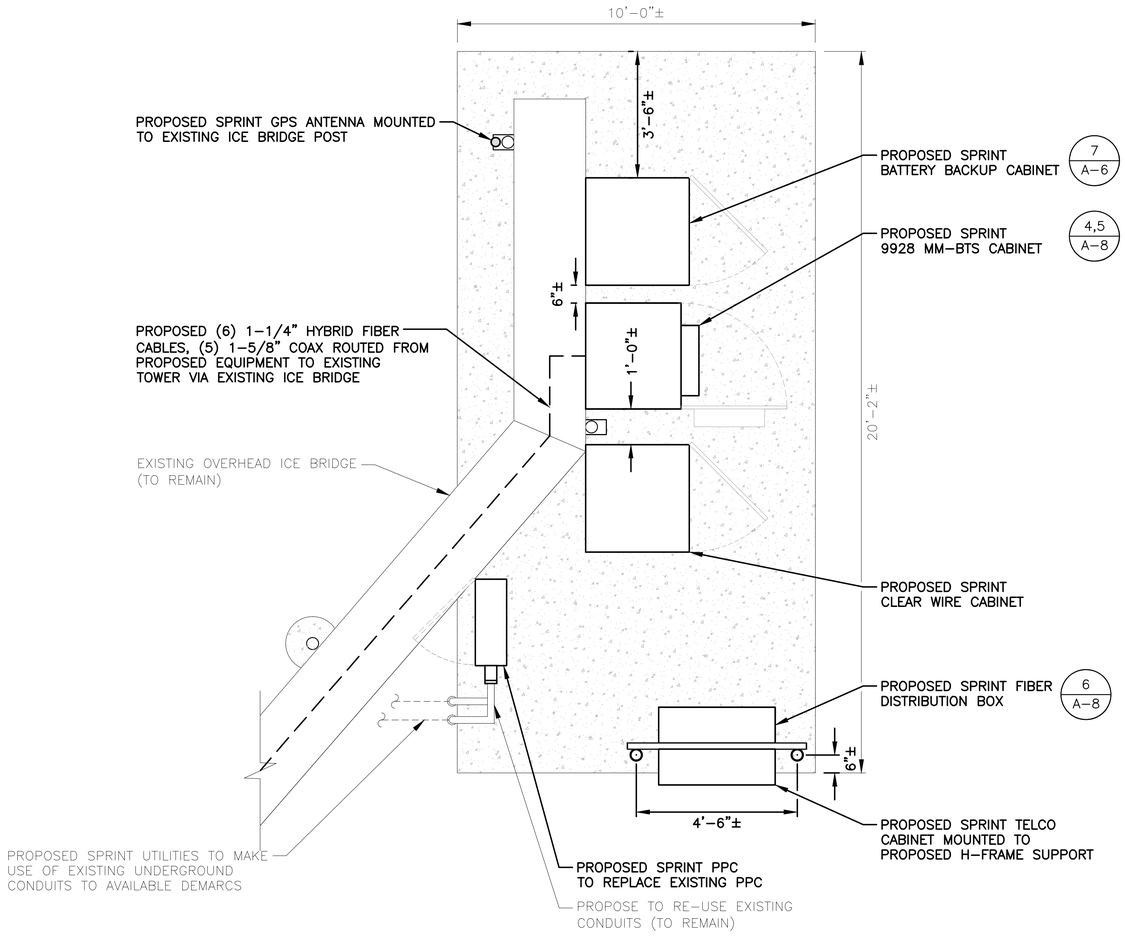

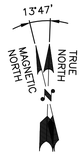

EQUIPMENT PLAN 1 / A-2
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

GRAPHIC SCALE
0 1 2 4 6 FEET

RAN EQUIPMENT PHOTO DETAIL 1 / A-2
SCALE: N.T.S

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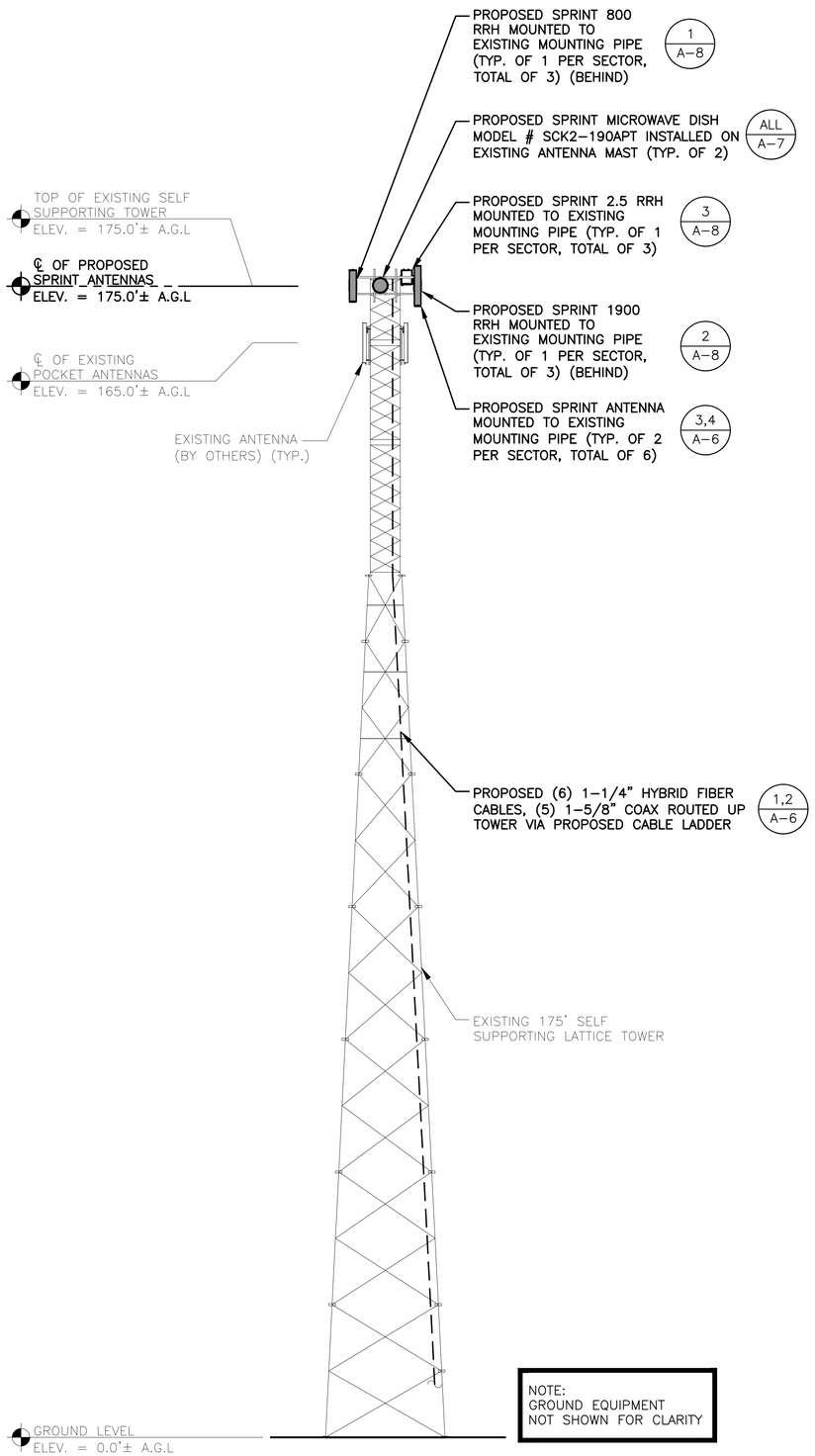
NEW BRITAIN, CT 06053

SHEET TITLE
EQUIPMENT PLAN

SHEET NUMBER
A-2



SOUTH-EAST ELEVATION 1 / A-3

22x34 SCALE: 3/32"=1'-0"

11x17 SCALE: 3/64"=1'-0"

GRAPHIC SCALE

0 5'-4" 10'-8" 21'-4" 32'-0"

SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY A&E VENDOR).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.
* SPRINT CORPORATION SHALL PROVIDE WRITTEN ACCEPTANCE/APPROVAL FOR THE COMPLETION OF ALL TOWER/FOUNDATION STRUCTURAL MODIFICATIONS INCLUDING (AS NECESSARY) CONTROLLED CONSTRUCTION INSPECTIONS, SHOP-DRAWING APPROVALS, MATERIALS TEST RESULTS, AND FINAL ENGINEER'S AFFIDAVIT.

STRUCTURAL NOTE:
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SHEET TITLE
ELEVATION

SHEET NUMBER
A-3

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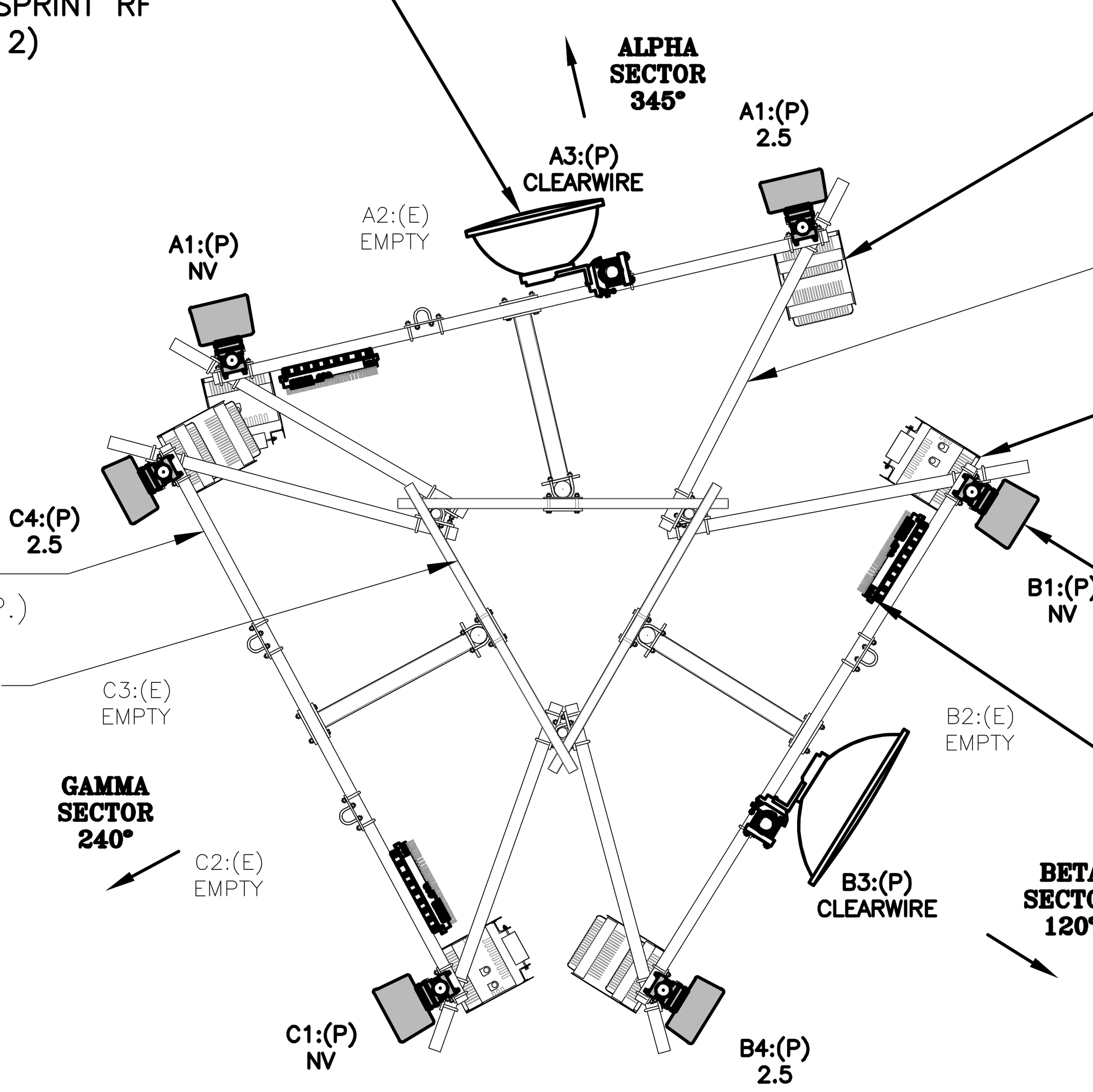
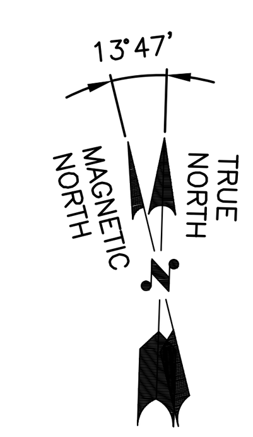
STRUCTURAL NOTE:
STRUCTURAL INFORMATION TAKEN FROM STRUCTURAL ANALYSIS REPORT PERFORMED BY HUDSON DESIGN GROUP LLC DATED: SEPTEMBER 26, 2016

NOTES:
1) VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

ANTENNA STATUS LEGEND:
(E) – EXISTING
(P) – INSTALL
NV – SPRINT ANTENNA
2.5 – SPRINT ANTENNA
EMPTY – EMPTY PIPE MAST
CLEARWIRE – CLEARWIRE ANTENNA

EXISTING PARTIAL ELEVATION PHOTO DETAIL (1 / A-4)
SCALE: N.T.S





PROPOSED ANTENNA PLAN (2 / A-4)
SCALE: N.T.S

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DEREK J. CREASER
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	10/05/16	ISSUED FOR CONSTRUCTION	DJM

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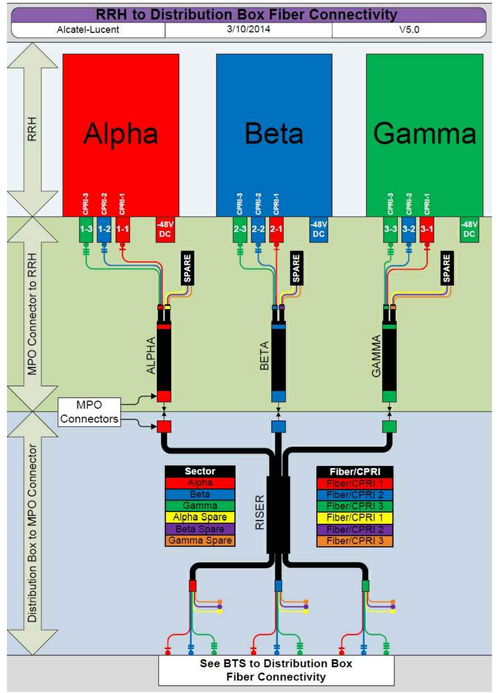
CT25XC098
SITE NAME:
NEW BRITAIN CCSU
SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

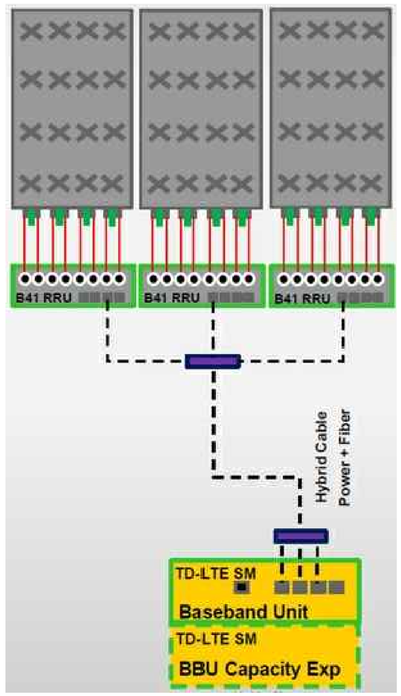
SHEET TITLE
ANTENNA PLANS

SHEET NUMBER
A-4



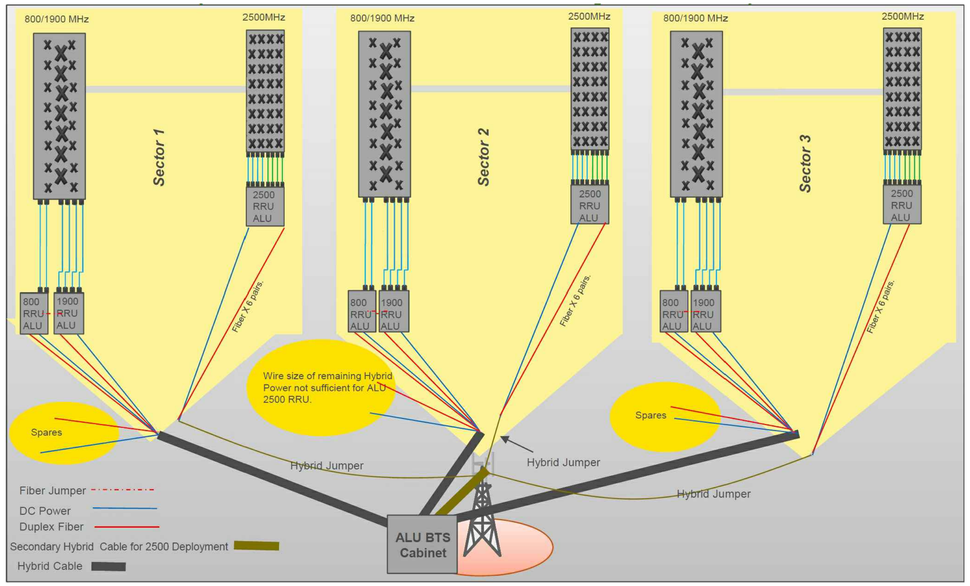
CABLE COLOR CODING DIAGRAM

SCALE: N.T.S.



ALU 2.5 ALU SCENARIO 1

SCALE: N.T.S.

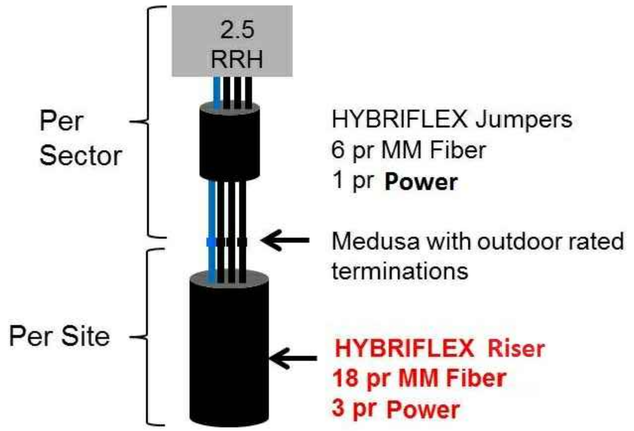


RAN WIRING DIAGRAM: ALU EQUIPMENT

SCALE: N.T.S.

NOTE:

GENERAL CONTRACTOR SHALL VERIFY THAT THE LATEST RF DATA SHEET IS USED FOR EQUIPMENT INSTALLATION.



RFS 2.5 ALU SCENARIO 1

SCALE: N.T.S.

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TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	10/05/16	ISSUED FOR CONSTRUCTION	DJM

SITE NUMBER:
CT25XC098

SITE NAME:
NEW BRITAIN
CCSU

SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

SHEET TITLE
RAN WIRING DIAGRAM

SHEET NUMBER
A-5

HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE			
MANUF: RFS			
CABLE	LENGTH	DC CONDUCTOR	CABLE DIAMETER
FIBER ONLY	VARIES	USE NV HYBRIFLEX	5/8"
HYBRIFLEX	<200'	8 AWG	1-1/4"
(*) HYBRIFLEX	225-300'	6 AWG	1-1/4"
HYBRIFLEX	325-375'	4 AWG	1-1/4"

RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	**Hybrid cable** MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	**Hybrid cable** (*) MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	**Hybrid cable** MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

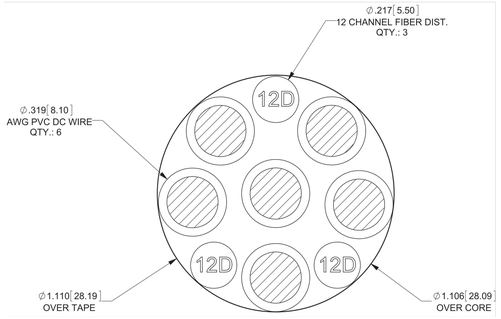
Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
(*)	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	**Hybrid Jumper cable** MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	**Hybrid Jumper cable** MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

* NOTE: SPRINT CM TO CONFIRM HYBRID RISER CABLE AND HYBRID JUMPER CABLE MODEL NUMBERS BEFORE PREPARING BOM.

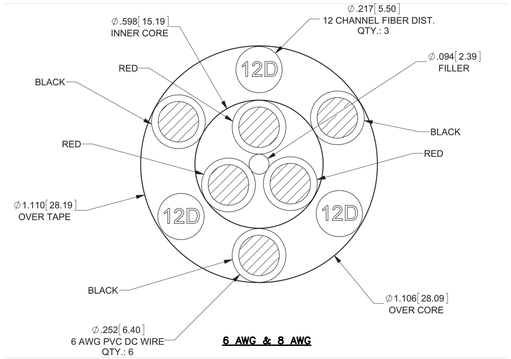
2.5 HYBRID CABLE X-SECTION AND DATA

1 / A-6

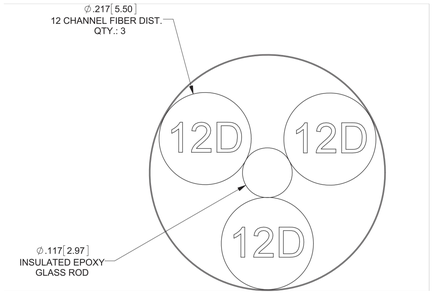
SCALE: N.T.S.



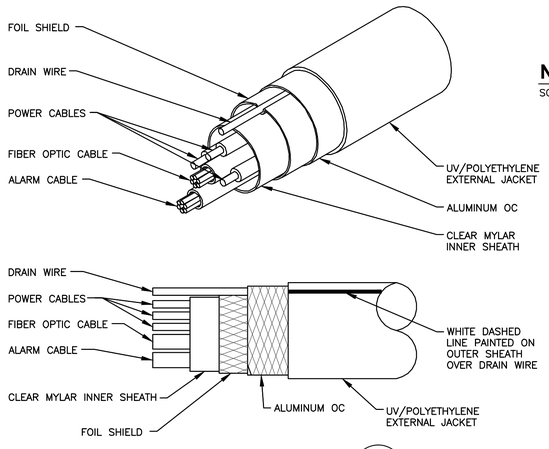
4 AWG



6 AWG & 8 AWG



FIBER ONLY

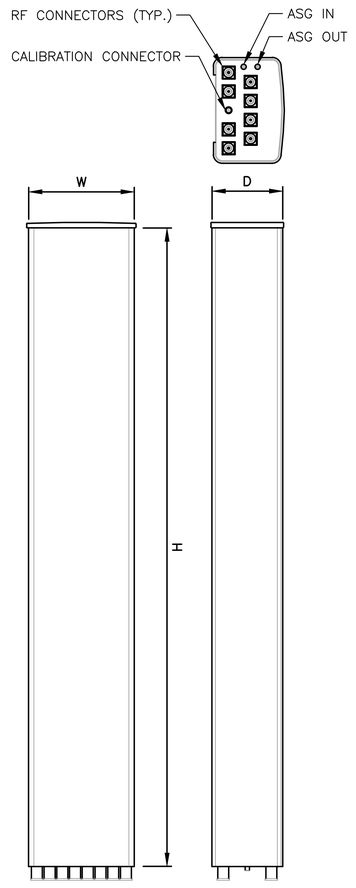


HYBRIFLEX CABLE DETAIL

2 / A-6

SCALE: N.T.S.

NV ANTENNA DIMENSIONS	
MODEL #	APXVSPP18-C-A20
MANUF.	RFS
HEIGHT	72"
WIDTH	11.8"
DEPTH	7.9"
WEIGHT	37 LBS

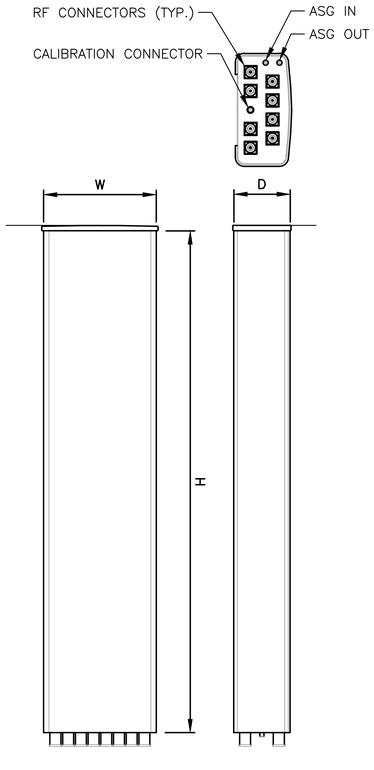


NV ANTENNA SPECIFICATIONS

3 / A-6

SCALE: N.T.S.

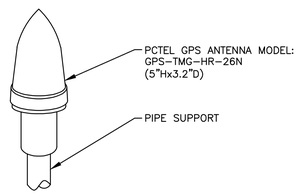
2.5 ANTENNA DIMENSIONS	
MODEL #	APXVTM14-ALU-I20
MANUF.	RFS
HEIGHT	56.3"
WIDTH	12.6"
DEPTH	6.3"
WEIGHT	32 LBS



2.5 ANTENNA SPECIFICATIONS

4 / A-6

SCALE: N.T.S.



GPS ANTENNA DETAIL

5 / A-6

SCALE: N.T.S.

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

STATE OF CONNECTICUT
DEREK J. CREASER
PROFESSIONAL ENGINEER
LICENSED

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	10/05/16	ISSUED FOR CONSTRUCTION	DJM

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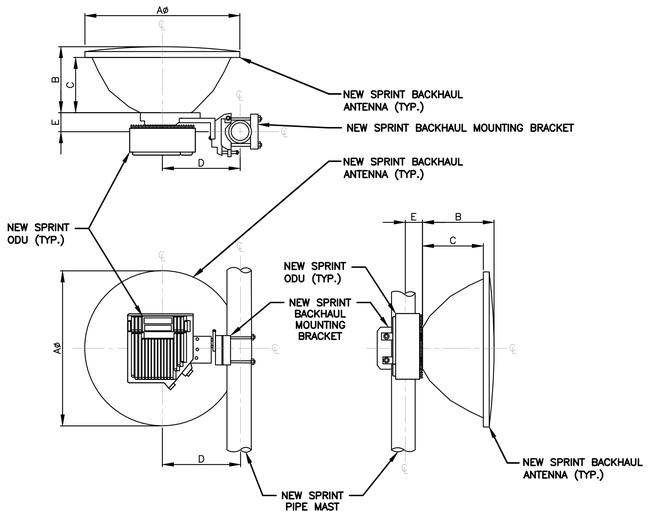
CT25XC098

SITE NAME:
NEW BRITAIN
CCSU

SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6



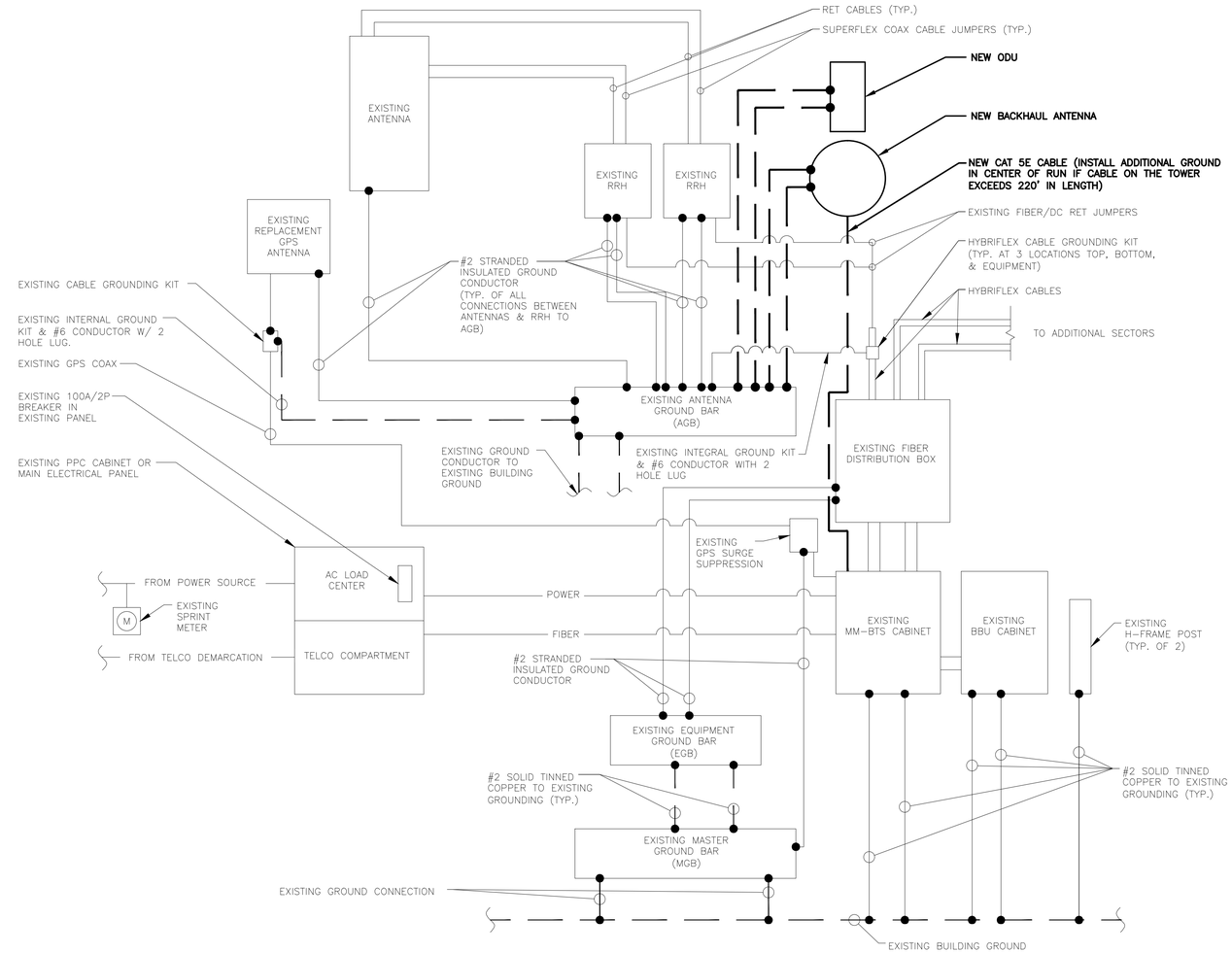
BACKHAUL ANTENNA SPECIFICATIONS	
MANUFACTURER/MODEL – RFS SC2-190AMPT	
Aø	26.4"
B	16.3"
C	11.9"
D	10.6"
E	5.2"
WEIGHT	22.0 LBS

NOTES:

1. REFER TO RF ANTENNA CHART FOR COMPACTLINE ANTENNA AZIMUTH, MOUNTING POSITION AND MOUNTING HEIGHT.
2. VERIFY EXACT COMPACTLINE ANTENNA MODEL AND SIZE WITH RF ENGINEER PRIOR TO INSTALLATION.

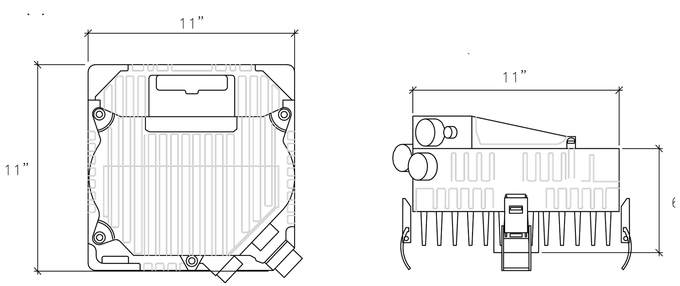
TYPICAL BACKHAUL ANTENNA DETAIL (1 / A-7)

SCALE: N.T.S.



TYPICAL GROUNDING ONE LINE DIAGRAM (2 / A-7)

SCALE: N.T.S.



BACKHAUL ANTENNA ODU SPECIFICATIONS				
MANUFACTURER/ MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
ALCATEL LUCENT 9500 MPR	11.0"	11.0"	6.5"	14.3 LBS

BACKHAUL ANTENNA ODU DETAIL (3 / A-7)

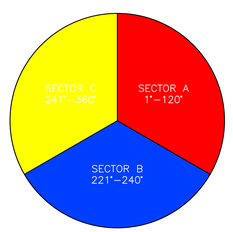
SCALE: N.T.S.

MICROWAVE SWEEPBACK COLOR-CODING		
AZIMUTH	MARKING METHOD COLORED BANDS	MARKING METHOD NUMBER OF BANDS
1°–120°	RED	SMALLEST # THIS RANGE = R1 NEXT LARGER # =R2
121°–240°	BLUE	SMALLEST # THIS RANGE = B1 NEXT LARGER # =B2
241°–360°	YELLOW	SMALLEST # THIS RANGE = Y1 NEXT LARGER # =Y2

NOTES:
LABEL EACH ANTENNA ABOVE THE DOWN-TILT KNOB AND ON THE DOWN-TILT OUTER CAP WITH COLORED TAPE, LABEL AS FOLLOWS:
RED: RFU_1 BLUE: RFU_2 YELLOW: RFU_3

ETHERNET CABLES SHALL BE PLACED INSIDE INNER DUCT AND ATTACHED TO TOWER.

SPRINT SECTOR DIAGRAM AND AZIMUTHS



SECTOR DIAGRAM & AZIMUTH (4 / A-7)

SCALE: N.T.S.

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N. ANDOVER, MA 01845
TEL: (978) 557-5553
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STATE OF CONNECTICUT
DEREK J. CREASER
NO. 21
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: BB

APPROVED BY: DJC

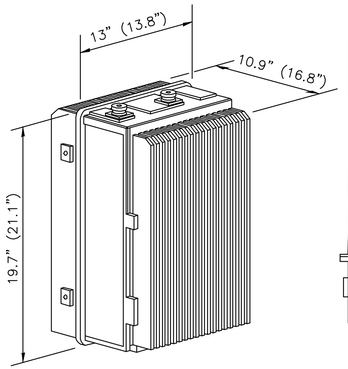
SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	10/05/16	ISSUED FOR CONSTRUCTION	DJM

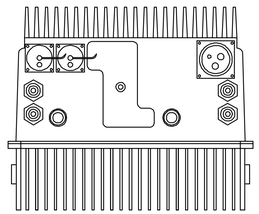
SITE NUMBER:
CT25XC098
SITE NAME:
NEW BRITAIN CCSU
SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-7



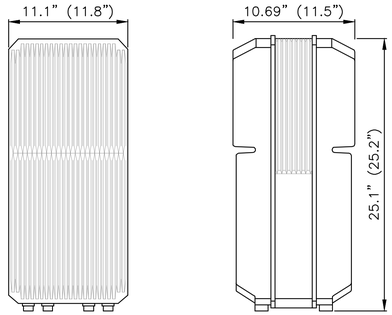
DIMENSIONS WITHIN PARENTHESES ARE FOR THE EXTERIOR SHELL MOUNTING BRACKET, & NOTCH FILTER NOT SHOWN



BOTTOM VIEW

FD-RRH-2x50-800 (1 / A-8)

SCALE: N.T.S.



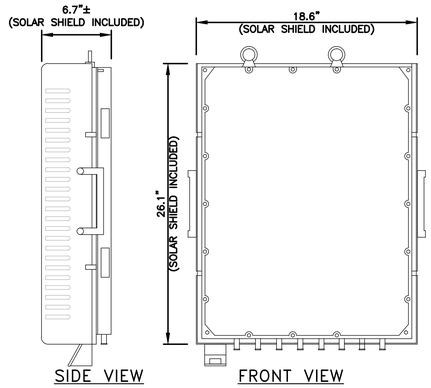
FRONT SIDE

DIMENSIONS WITHIN PARENTHESES ARE FOR THE EXTERIOR SHELL AND MOUNTING BRACKET

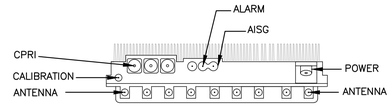
FD-RRH-4x40-1900 (2 / A-8)

SCALE: N.T.S.

MANUF:	ALCATEL-LUCENT
MODEL:	TD-RRH8x20-25
LENGTH:	26.1
WIDTH:	18.6
DEPTH:	6.7
WEIGHT:	70 LBS
AREA:	3.5 SF



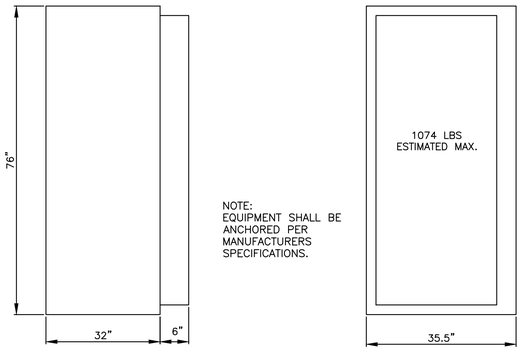
SIDE VIEW FRONT VIEW



PLAN VIEW

2.5 RRH'S (3 / A-8)

SCALE: N.T.S.

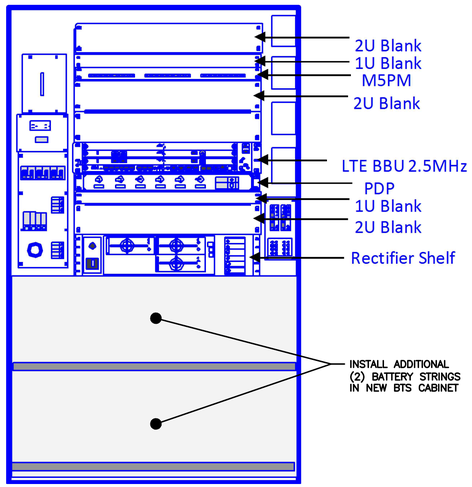


NOTE:
EQUIPMENT SHALL BE ANCHORED PER MANUFACTURERS SPECIFICATIONS.

LEFT SIDE VIEW FRONT VIEW

ALCATEL-LUCENT 9928 OUTDOOR CABINET (4 / A-8)

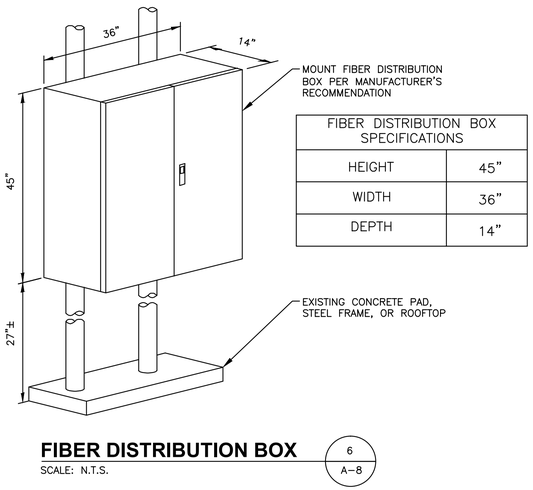
SCALE: N.T.S.



FRONT VIEW

PROPOSED MMBTS OUTDOOR CABINET WITH LTE 2.5 BBU EQUIPMENT (5 / A-6)

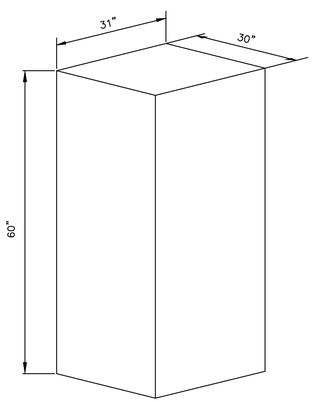
SCALE: N.T.S.



FIBER DISTRIBUTION BOX SPECIFICATIONS	
HEIGHT	45"
WIDTH	36"
DEPTH	14"

FIBER DISTRIBUTION BOX (6 / A-8)

SCALE: N.T.S.

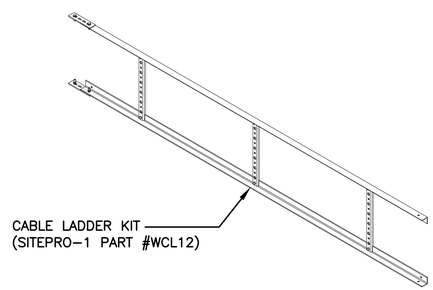


NOTE:
EQUIPMENT SHALL BE ANCHORED PER MANUFACTURERS SPECIFICATIONS.

60ECv2 CABINET SPECIFICATIONS	
HEIGHT	60"
WIDTH	31"
DEPTH	30"
WEIGHT	1625 LBS.

60ECv2 BATTERY BACK-UP CABINET (7 / A-8)

SCALE: N.T.S.



CABLE LADDER KIT DETAIL (8 / A-8)

SCALE: N.T.S.

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STATE OF CONNECTICUT
DEREK J. CREASER
PROFESSIONAL ENGINEER
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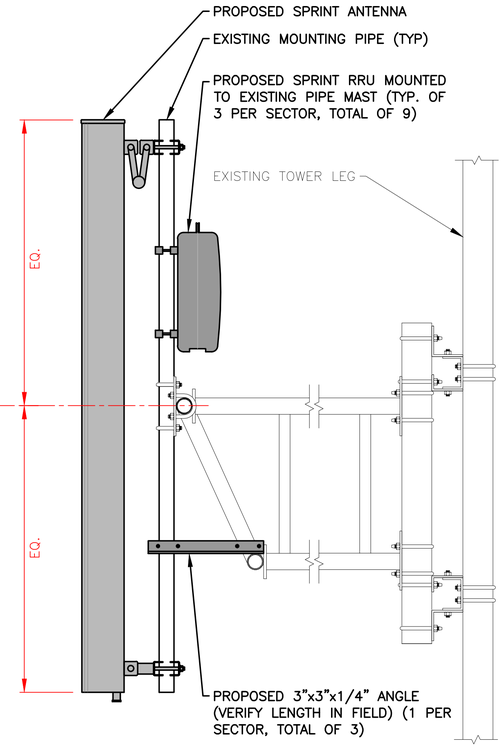
SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-8

ANTENNA INSTALLATION SPECIAL WORK NOTE: ANTENNA INSTALLATION WORKING POINT IS THE VERTICAL CENTERLINE OF THE EXISTING PLATFORM. UNLESS NOTED OTHERWISE, VERTICALLY CENTER ALL PIPE MASTS AND ANTENNAS ON THIS WORKING POINT.



PROPOSED ANTENNA AND RRU MOUNTING DETAIL 1/S-1

SCALE: N.T.S

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NEW BRITAIN, CT 06053

SHEET TITLE

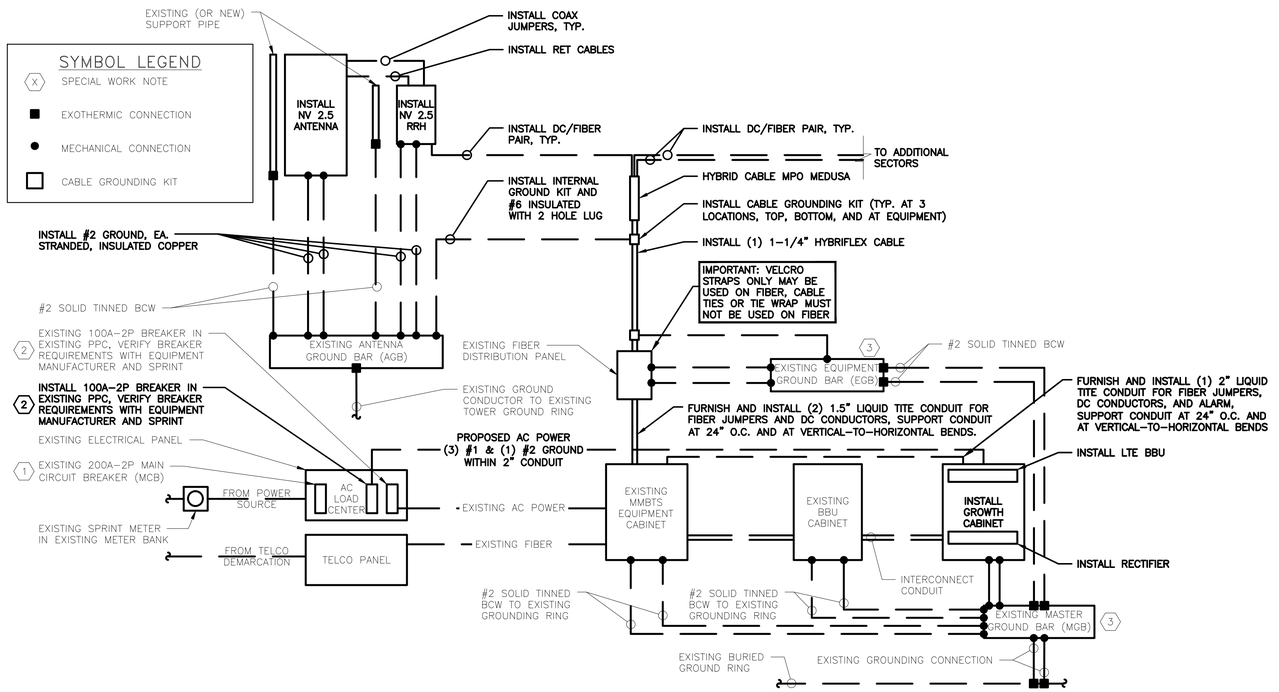
ANTENNA
MOUNTING DETAILS

SHEET NUMBER

S-1

SPECIAL WORK NOTE:

1. G.C. TO FURNISH AND INSTALL ALL COMPONENTS TO UPGRADE EXISTING ELECTRICAL SERVICE, CONDUIT, CONDUCTOR, PPC AND MCB IN ACCORDANCE WITH SPRINT CONSTRUCTION STANDARDS NV 2.5 ADDENDUM "ENGINEERING NOTICE 2013-002 (POWER UPGRADES) REV.0" (OR CURRENT VERSION)
2. G.C. TO FURNISH AND INSTALL UPGRADE THE EXISTING MMBTS BREAKER, CONDUCTOR, AND CONDUIT TO A MINIMUM NEC RATING FOR A 100-AMP, 240V CIRCUIT.
3. FOR NEW OR REPAIRED GROUNDING EQUIPMENT, REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
   -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)
   -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)



TYPICAL POWER AND GROUNDING ONE LINE DIAGRAMS (1 / E-1)
SCALE: N.T.S

ELECTRICAL NOTES

1) ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.

2) THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH LOCAL UTILITY COMPANIES AND SPRINT CONSTRUCTION MANAGER.

3) ALL CONDUITS ROUTED BELOW GRADE SHALL TRANSITION TO RIGID GALVANIZED ELBOWS WITH RIGID GALVANIZED STEEL CONDUIT ABOVE GRADE.

4) ALL METAL CONDUITS SHALL BE PROVIDED WITH GROUNDING BUSHINGS.

5) GENERAL CONTRACTOR SHALL PROVIDE ALL DIRECT BURIED CONDUITS WITH PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.

6) ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.

7) THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIALS DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.

8) GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.

9) ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.

10) BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.

11) ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.

12) RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.

13) RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.

14) FIBER OPTIC CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 770-OPTICAL FIBER CABLES AND RACEWAYS.

15) COMMUNICATIONS CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 800-COMMUNICATIONS SYSTEMS.

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

MCM
Message Center Management
Keep Your Sites On Air

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

STATE OF CONNECTICUT
DEREK J. CREASER
PROFESSIONAL ENGINEER
LICENSED

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	10/05/16	ISSUED FOR CONSTRUCTION	DJM

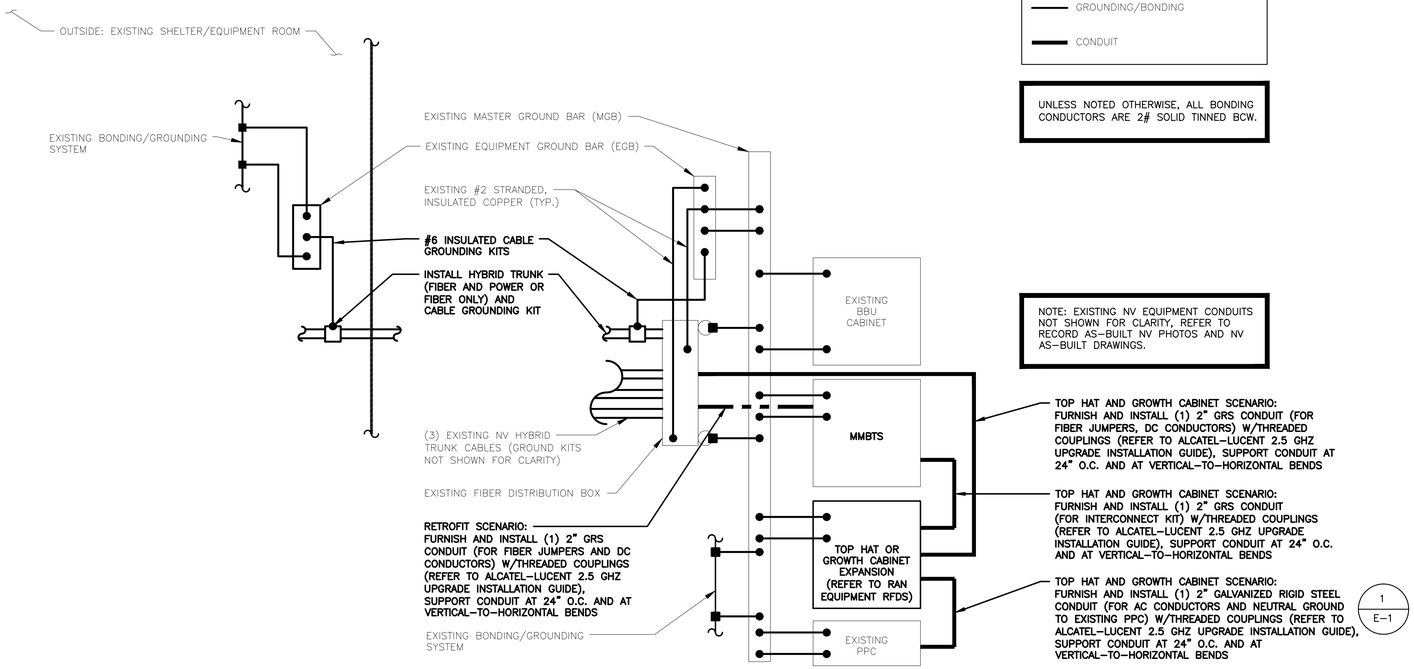
SITE NUMBER:
CT25XC098

SITE NAME:
NEW BRITAIN CCSU

SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

SHEET TITLE
ONE LINE DIAGRAM

SHEET NUMBER
E-1



SYMBOL LEGEND

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- CABLE GROUNDING KIT
- GROUNDING/BONDING
- CONDUIT

UNLESS NOTED OTHERWISE, ALL BONDING CONDUCTORS ARE 2# SOLID TINNED BCW.

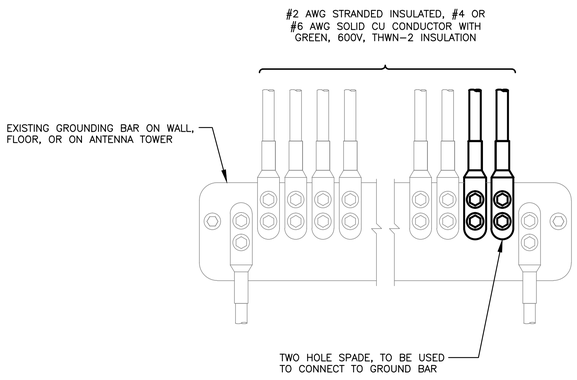
NOTE: EXISTING NV EQUIPMENT CONDUITS NOT SHOWN FOR CLARITY, REFER TO RECORD AS-BUILT NV PHOTOS AND NV AS-BUILT DRAWINGS.

NOTE: HYBRIFLEX (FIBER & POWER) AND HYBRIFLEX (FIBER-ONLY) SHOWN. REFER TO RAN EQUIPMENT RFDS FOR SITE-SPECIFIC SCENARIO.

2.5 RAN EQUIPMENT GROUNDING SCHEMATIC

SCALE: N.T.S.

1 / E-2



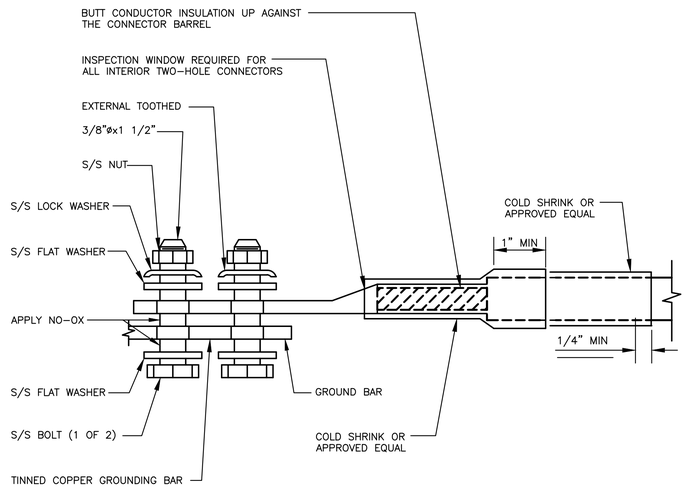
NOTES

1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

SCALE: N.T.S.

2 / E-2



TWO HOLE LUG

SCALE: N.T.S.

3 / E-2

PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES:

1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250-GROUNDING AND BONDING.
2. GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES" AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING".
3. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
4. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX" OR EQUAL.
5. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
6. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
7. ALL GROUND WIRES SHALL BE #2 SOLID TINNED BCW UNLESS NOTED OTHERWISE.
8. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
9. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
10. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED BCW EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
11. GROUND HYBRIFLEX SHIELD AT TOP, BOTTOM AND AT TRANSITION TO HYBRIFLEX JUMPER CABLES AT EQUIPMENT CABINET ENTRANCE USING MANUFACTURER'S GUIDELINES. WHEN HYBRIFLEX CABLE EXCEEDS 200', GROUND AT INTERVALS NOT EXCEEDING 100'.
12. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
13. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHILD) BEFORE MAKING THE CRIMP CONNECTIONS THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
14. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
15. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
16. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
17. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH SPRINT CONSTRUCTION MANAGER.
18. FOR NEW OR REPAIRED GROUNDING EQUIPMENT. REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
    -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED: 08-24-12 (OR CURRENT VERSION)
    -SPRINT ENGINEERING LETTER EL-0504 DATED: 04-20-12 (OR CURRENT VERSION)

Sprint
1 INTERNATIONAL BLVD. SUITE 800
MAHWAH, NJ 07495
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STATE OF CONNECTICUT
DEREK J. CREASER
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: BB

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SUBMITTALS

REV.	DATE	DESCRIPTION	BY
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SITE NUMBER:
CT25XC098
SITE NAME:
NEW BRITAIN CCSU
SITE ADDRESS:
1367 EAST STREET
NEW BRITAIN, CT 06053

SHEET TITLE
GROUNDING DETAILS AND NOTES

SHEET NUMBER
E-2

Radio Frequency Emissions Analysis Report

Sprint Wireless Facility

October 28, 2016

Analysis Format: Theoretical Calculations

Site ID: CT25XC098

New Britain_CCSU
1367 East Street
New Britain, CT 06053

Centerline Project Number: 950004-001

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	1.86 %

October 28, 2016

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

Emissions Analysis for Site: **CT25XC098 – New Britain_CCSU**

OVERVIEW

Centerline Communications, LLC ("Centerline") has been contracted to provide a Radio Frequency (RF) Analysis for the following Sprint wireless facility to determine whether the facility is in compliance with federal standards and regulations regarding RF emissions. This analysis includes theoretical emissions calculations for all proposed and existing equipment for Sprint.

Analysis Site Data	
Site ID:	CT25XC098
Site Name:	New Britain_CCSU
Site Address:	1367 East Street, New Britain, CT 06053
Site Latitude:	41.689528000000003 N
Site Longitude:	-72.759139000000005 W
Facility Type:	Self Support Tower
Compliance Summary	
Status:	Compliant
Site Composite MPE% (General Public Limit):	1.86%
Sprint Max MPE% (General Public Limit):	1.46%
Is Access Locked or Controlled? :	Controlled
Lock or Control Measures if Present:	Locked Compound Gate

Per the Connecticut Siting Council active MPE database there is **one additional carrier** listed at this site.

FCC GUIDELINES

All power density values used in this report were analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ 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 public 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 public 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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 850 MHz Bands is approximately 567 $\mu W/cm^2$ and the general population exposure limit for the 1900 MHz PCS and 2500 MHz BRS bands is 1000 $\mu W/cm^2$. 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, have been properly trained in RF safety 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, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Sprint Wireless antenna facility located at **1367 East Street, New Britain, 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) 2 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

3) 2 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 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.

5) For the following calculations the sample point was the top of a 6-foot person standing at the base of the Self Support 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.

6) The antennas used in this modeling are the **RFS APXVSPP18-C-A20 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz and 2500 MHz 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.

7) The antenna mounting height centerlines of the proposed antennas are **175 feet** above ground level (AGL) for **Sector A**, **175 feet** above ground level (AGL) for **Sector B** and **175 feet** above ground level (AGL) for Sector C.

8) 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 public threshold limits.

Sprint Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**175 feet**	Height (AGL):	**175 feet**	Height (AGL):	**175 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts
ERP (W):	5,981.20	ERP (W):	5,981.20	ERP (W):	5,981.20
Antenna A1 MPE%	**0.88 %**	Antenna B1 MPE%	**0.88 %**	Antenna C1 MPE%	**0.88 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.85 dBd	Gain:	15.85 dBd	Gain:	15.85 dBd
Height (AGL):	**175 feet**	Height (AGL):	**175 feet**	Height (AGL):	**175 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	4,615.10	ERP (W):	4,615.10	ERP (W):	4,615.10
Antenna A2 MPE%	**0.58 %**	Antenna B2 MPE%	**0.58 %**	Antenna C2 MPE%	**0.58 %**

Site Composite MPE%	
Carrier	**MPE%**
Sprint – Max per sector	**1.46 %**
Nextel	0.40 %
Site Total MPE %:	**1.86 %**

Sprint Sector A Total:	1.46 %
Sprint Sector B Total:	1.46 %
Sprint Sector C Total:	1.46 %
Site Total:	1.86 %

Sprint _ Frequency Band / Technology	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	2	656.33	175	1.65	850 MHz	567	0.29%
Sprint 1900 MHz (PCS) LTE	2	2,334.27	175	5.88	1900 MHz (PCS)	1000	0.59%
Sprint 2500 MHz (BRS) LTE	2	2,307.55	175	5.81	2500 MHz (BRS)	1000	0.58%
						Total:	1.46%

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public 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 public exposure to RF Emissions are shown here:

Sprint Sector	Power Density Value (%)
Sector A:	1.46 %
Sector B:	1.46 %
Sector C:	1.46 %
Sprint Maximum Total (per sector):	1.46 %
Site Total:	1.86 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **1.86 %** of the allowable FCC established general public 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.

Scott Heffernan
RF Engineering Director

Centerline Communications
21 B Street
Burlington, MA 01803

City of New Britain, CT

Property Listing Report | Map Block Lot: A5A 7 | Account: 33001367

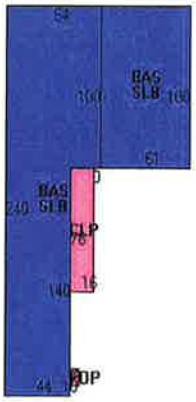
Property Information

Property Location	1367 EAST ST
Owner	BYER ELIZABETH B +
Co-Owner	MANCOLL WILLIAM + ANITA TRUSTEES
Mailing Address	C/O CAREY WIPING MATERIALS NEW BRITAIN CT 06053-2523
Land Use	4000 Industrial MDL-96
Land Class	I
Zoning Code	B1
Census Tract	417200

Neighborhood	104H
Acreage	1.4
Utilities	All Public
Lot Setting/Desc	Level
Additional Info	

Photo

Sketch



Primary Construction Details

Year Built	1957
Stories	1
Building Style	Industrial
Building Use	Ind/Comm
Building Condition	C
Floors	Finished Concr
Total Rooms	

Bedrooms	
Full Bathrooms	0
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Flat
Roof Cover	T&G/Rubber

Exterior Walls	Block/Concrete
Interior Walls	Minimum/Masonr
Heating Type	99
Heating Fuel	Yes
AC Type	None
Gross Bldg Area	19936
Total Living Area	18660

Report Created On 10/28/2016

City of New Britain, CT

Property Listing Report | Map Block Lot A5A 7 | Account 33001367

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	440700	308490
Extras	16300	11410
Improvements	484000	338800
Outbuildings	27000	18900
Land	154000	107800
Total	638000	446600

Outbuilding and Extra Items

Type	Description
Sprinkler Wet	13776.00 S.F.
Paving Asphalt	12000.00 S.F.
Fence-8' Chain	320.00 L.F.
Central A/C	1400.00 S.F.
Fence-8' Chain	900.00 L.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	18660	18660
Slab	0	0
Covered Loading Platform	1216	0
Open Porch	60	0
Total Area	19936	18660

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
BYER ELIZABETH B +	1586/1069	4/5/2005	
BYER ELIZABETH &	1010/ 208	4/17/1989	
ELIZABETH B BYER & ANITA R	709/ 121	1/31/1975	
EAST REALTY CORP	427/ 151	7/27/1956	
SAUL BARTON	426/ 54	4/30/1956	

Report Created On 10/28/2016

City of New Britain

Geographic Information System (GIS)

Date Printed: 10/17/2016

MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The City of New Britain and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 80 feet

0 80 Feet

N W E S

Sprint Spectrum, L.P.
("Sprint")

Alex Murshteyn
Real Estate Consultant
95 Ryan Drive, Suite #1
Raynham, MA 02767
Phone: (508)821-0159
amurshteyn@clinellc.com

October 29, 2016

Honorable Robert Stein, Chairman
and Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: **Request for Tower Share**
Sprint Spectrum, L.P. ("Sprint") Request for Approval of the Shared Use of an Existing Tower at 1367 East Street, New Britain, CT 06053.
Sprint site number: CT25XC098

Dear Chairman Stein and Members of the Council:

Sprint proposes to share an existing telecommunications tower located at 1367 East Street, New Britain, CT (the facility). The subject parcel is identified by the City of New Britain as Map and Block A5A, Lot 7. The property is owned by Elizabeth B. Byer and William Mancoll and Anita Mancoll, Trustees under the Anita Mancoll Revocable Trust dated March 30, 2005, c/o Carey Wiping Materials of same address. It is roughly 1.4± acres and accommodates Carey Wiper & Supply's one-story industrial building plus the facility that currently houses MetroPCS within the bounds of its existing fenced tower compound. The facility is and will continue to be owned and operated by Message Center Management, Inc. of 40 Woodland Street, Hartford, CT, 06105.

Pursuant to Connecticut General Statues Section 16-50aa (the Statute), Sprint requests a finding from the Connecticut Siting Council that the shared use of this facility is technically, legally, environmentally and economically feasible, will meet safety concerns, will avoid the unnecessary proliferation of towers and is in the public interest. Sprint further requests an order approving the shared use of this facility.

The purpose of this request is to use an existing tower to develop Sprint's wireless network to provide high speed wireless data and to develop wireless service within the State of Connecticut and in this part of New Britain, CT: thus avoiding the need for an additional tower in New Britain.

Sprint is licensed by the Federal Communications Commission ("FCC") to provide multiple technologies, including Code Division Multiple Access ("CDMA"), as well as long-term evolution ("LTE") services in Hartford County. Sprint is building and enhancing its network to take advantage of its licensed spectrum, and improve its broadband high speed wireless voice and data services.

Existing Facility & Proposed Modification

The existing facility is and will continue to be a 175' lattice tower located at 1367 East Street. Site coordinates (NAD83) are N41° 41' 23.55" and W72° 45' 30.29". Currently there is one other commercial wireless carrier located on this tower; and two (including Nextel at 125') have decommissioned (Nextel in 2013), whereby Sprint now intends to use the vacant space at the tower top space. The site plan of the facility is included in the proposed Construction Drawings, prepared by Hudson Design Group, LLC dated October 5, 2016 and enclosed herewith.

Sprint intends to install three (3) APXVSPP18-C RFS panel antennas, three (3) APXVTM14 RFS panel antennas, two (2) MW dish antennas and nine (9) ALU RRUs mounted on the existing antenna frame abandoned by NorthCoast on the existing lattice tower. Sprint will install six (6) 1-1/4" fiber cables and five (5) 1-5/8" coax lines on the tower.

Sprint intends to enter into a new agreement, at this tower height, in order to license the portion of space abandoned by NorthCoast along with the existing a 10'-0" x 20'-2" concrete pad, and to install three (3) new cabinets along with one (1) telco cabinet on an H-frame thereon; equipment will thus remain within the existing fenced compound. An existing ice bridge will be reused to connect the equipment with the tower. A GPS antenna will be located on the ice bridge.

Consistent with the requirements of the Statute, it is feasible for Sprint to collocate at this facility. Sprint is proposing to collocate on the existing lattice tower that will continue to remain the ownership of Message Center Management. Included with this application is a Structural Analysis Report from Hudson Design Group, LLC dated September 26, 2016 that shows that the existing tower can support Sprint's proposed equipment.

The Proposal is Legally Feasible.

The Council has authority, pursuant to statute, to issue an order approving of the shared use of this tower. By issuing an order approving Sprint's shared use of this tower, Sprint will be able to proceed with obtaining a building permit for the proposed installation. Message Center Management has executed a Letter of Authorization that approved Sprint's Request for Tower Share filing on October 27, 2016, which approval is included with this application. Sprint's proposal is legally feasible.

Sprint is a telecommunication provider licensed by the FCC to provide service in the State of Connecticut, including but not limited to Hartford County. Sprint will enter into an agreement with the owner of this facility, Message Center Management, for the location of this proposed equipment on the existing tower so that it may provide telecommunications services to the surrounding community. Consequently, the proposal is legally feasible.

The Proposal is Environmentally Feasible.

Pursuant to the Statute, the proposal will be environmentally feasible for the following reasons:

- The overall impact on the City of New Britain will be decreased with the sharing of a single tower versus the proliferation of multiple towers.

- There will be no material increase in the visibility of the tower with the addition of the new technology in the form of nearly-identical antennas and associated equipment set to what was previously allowed at this height and space on this same tower.

- There will be no increased impact on air quality because no air pollutants will be generated during normal operation of the facility.

- There will only be a brief, slight increase in noise pollution while the site is under construction.

- During construction, the proposed project will generate a small amount of traffic as construction takes place. Upon completion, traffic will be limited to an average of one trip per month for maintenance and inspections.

- There will be no adverse impact to the health and safety of the surrounding community or workers at the facility due to the addition of Sprint's new antennas to the tower. Sprint has performed an analysis of the radio frequency field emanating from the transmitting antennas on the tower to ensure compliance with the National Council on Radiation Protection and measurements (NCRP) standard for maximum permissible exposure (MPE) adopted by the FCC. The analysis dated October 28, 2016 indicates that Sprint and other antennas on the tower will cumulatively emit 1.86% of the NCRP standard for maximum permissible exposure. The report indicates that maximum level of exposure will be well below the FCC's mandated radio frequency exposure limits. The report is enclosed herewith and the calculations are below.

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**175 feet**	Height (AGL):	**175 feet**	Height (AGL):	**175 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts	Total TX Power(W):	180 Watts
ERP (W):	5,981.20	ERP (W):	5,981.20	ERP (W):	5,981.20
Antenna A1 MPE%	**0.88 %**	Antenna B1 MPE%	**0.88 %**	Antenna C1 MPE%	**0.88 %**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.85 dBd	Gain:	15.85 dBd	Gain:	15.85 dBd
Height (AGL):	**175 feet**	Height (AGL):	**175 feet**	Height (AGL):	**175 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	4,615.10	ERP (W):	4,615.10	ERP (W):	4,615.10
Antenna A2 MPE%	**0.58 %**	Antenna B2 MPE%	**0.58 %**	Antenna C2 MPE%	**0.58 %**

Site Composite MPE%	
Carrier	**MPE%**
Sprint – Max per sector	**1.46 %**
Nextel	0.40 %
Site Total MPE %:	**1.86 %**

Sprint Sector A Total:	1.46 %
Sprint Sector B Total:	1.46 %
Sprint Sector C Total:	1.46 %
Site Total:	1.86 %

- Sprint expects to enhance safety in this portion of New Britain by improving wireless telecommunications for local residents and travelers. Sprint is currently developing its network to provide its customers with quality and reliable coverage to comply with their FCC license, the site is a necessary part of Sprint's network development.

- Specifically, this proposal is designed to provide reliable wireless coverage for this section of New Britain, CT.

Conclusions:

For the reasons stated above, the attachment of Sprint's antennas and associated equipment to the tower would meet all the requirements set forth in the Statute. The proposal is legally, technically, economically and environmentally feasible and meets all public safety concerns. Therefore, Sprint respectfully requests that the Council approve this request for the shared use of this tower located at 1367 East Street, New Britain, CT.

Respectfully yours,

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Enclosures (5) [see October 28, 2016 filing package]

cc: Mayor Erin E. Stewart, City of New Britain
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Elizabeth B. Byer and William Mancoll and Anita Mancoll,
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