



Jon Ritter

16 Chestnut Street, Suite 420  
Foxboro, MA 02035  
Tel (774) 264-0016  
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1/13/2015

Melanie Bachman  
Acting Executive Director  
Connecticut Siting Counsel  
10 Franklin Square  
New Britain, CT 06051

Re: **Notice of Exempt Modification**  
**99 Meadow St, Hartford, CT 06114**  
**41.7439096 /-72.6705259**

Dear Ms. Bachman:

T-Mobile Northeast, LLC (T-Mobile) currently maintains six (6) antennas at the One Hundred and Twenty Three foot (123') level of the existing One-Hundred Fifty foot (150') Monopole at 99 Meadow Street, Hartford, CT. The monopole tower is owned by American Tower Corporation. The property is owned by Meadow Street Realty LLC. T-Mobile now intends to add Three (3) new 700MHz antennas. These antennas would be installed at the one hundred and twenty three (123') foot level of the tower. T-Mobile will remove three (3) antennas at the one hundred and twenty three (123') foot level to complete the project.

This facility was not originally approved by the Connecticut Siting Council. The City of Hartford was contacted for a date of approval and provided a letter stating they were unable to locate the original zoning decision or any conditions thereof. That letter is included as part of this submission, signed by Lynda Crespo from the planning department.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73 a copy of this letter is being sent to the Chief Elected Official, Mayor, Luke Bronin for the City of Hartford, as well as the property owner and the tower owner.

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

- 1) The proposed modification will not result in an increase in the height of the existing structure.
- 2) The modifications will not require an extension of the site boundary.
- 3) The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
- 4) The operation and replacement of antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
- 5) The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
- 6) The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile Northeast LLC respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitute an exempt modification under R.C.S.A § 16-50j-72(b)(2)

Sincerely,

*Jonathan H Ritter*

**Jon Ritter**

On behalf of American Tower Corporation  
c/o Tower Resource Management, Inc.  
16 Chestnut Street, Suite 420  
Foxboro, MA 02035  
774-264-0016  
jritter@trmcom.com

cc: **Chief Elected Official, Mayor, Luke Bronin, City of Hartford**  
**American Tower Corporation**  
**Meadow Street Realty LLC**

Exhibit 1

Site Plan

Exhibit 2

Power Density Report

Exhibit 3

Structural Analysis



**AMERICAN TOWER®**  
CORPORATION

<b>Structural Evaluation</b>	
ATC Site Number & Name	<b>302468, Petro Lock, CT</b>
Carrier Site Number & Name	<b>CT11661A, N/A</b>
Site Location	99 Meadow Street Hartford, CT 06114-1598, Hartford County 41.743197 N / -72.667500 W
Tower Description	<b>147.9 ft Monopole</b>
Basic Wind Speed	80 mph (Fastest Mile)
Basic Wind Speed w/ Ice	69 mph (Fastest Mile) w/ ½" ice
Code	TIA/EIA-222-F / 2003 IBC, Sec. 1609.1.1, Exception (5) & Sec. 3108.4 / 2005 Connecticut Supplement / 2009 Connecticut Amendment

**Existing and Reserved Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
147.0	149.0	4	Decibel DB844H90E-XY	Platform w/ Handrails	(12) 1 5/8" Coax	Sprint Nextel
		8	Andrew 844G65VTZASX			
136.0	137.0	6	Ericsson RRUS 11 (Band 12) (55 lb)	Low Profile Platform	(2) 0.78" 8 AWG 6 (1) 0.39" Cable (1) 3" conduit	AT&T Mobility
	135.0	6	LGP LGP21903			
		6	Powerwave LGP21401			
	134.0	1	Raycap DC6-48-60-18-8F			
135.0	137.0	6	Powerwave 7750.00	Low Profile Platform	(12) 1 5/8" Coax	
		2	KMW AM-X-CD-16-65-00T-RET			
		1	Andrew SBNH-1D6565C			
123.0	123.0	3	RFS APX16DWV-16DWVS-E-A20	T-Arm	(12) 1 5/8" Coax	T-Mobile
113.0	113.0	3	RFS APXV18-206517	Flush	(6) 1 5/8" Coax	Metro PCS
98.0	98.0	3	RFS IBC1900HG-2A	Low Profile Platform	(4) 1 1/4" Hybriflex	Sprint Nextel
		3	RFS IBC1900BB-1			
		3	Alcatel-Lucent 800MHz 2X50W RRH w/ Filter			
		3	Alcatel-Lucent 4x40W RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
		3	RFS APXVTM14-C-I20			
		3	RFS APXVSP18-C-A20			
89.0	89.0	3	Horizon Compact	Side Arms	(6) 5/16" (0.31") Coax (3) 1/2" Coax (1) 2" conduit	Clearwire
		3	NextNet BTS-2500			
		2	DragonWave A-ANT-18G-2-C			
		3	Argus LLPX310R			
		1	DragonWave A-ANT-11G-2.5-C			
79.0	79.0	3	Alcatel-Lucent RRH2X60-AWS	Low Profile Platform	(2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent RRH2x60			
		2	RFS DB-T1-6Z-8AB-OZ			
		12	Commscope SBNHH-1D65B			
20.0	20.0	1	Lucent KS-24019	Flsh	(1) 1/2" Coax	Sprint Nextel



**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
123.0	123.0	6	RFS APXV18-206516L-C	-	(6) 1 5/8" Coax	T-Mobile
		3	RFS ATMAA1412D-1A20			
		3	RFS ATMPP1412D-1CWA			

**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
123.0	123.0	3	Kathrein Smart Bias Tee	T-Arm	-	T-Mobile
		3	Andrew LNX-6515DS-VTM			
		3	Ericsson KRY 112 144/1			
		3	Ericsson KRY 112 489/1			

<sup>1</sup>Mount elevation is defined as height above bottom of steel structure to bottom of mount, RAD elevation is defined as center of antenna above grade level (AGL).

The existing and proposed loads listed in the tables above are compared to the tower’s current design capacity or previous structural analysis. The tower should be re-evaluated as future loads are added or if actual loads are found different from those listed in the tables. The subject tower and foundation **are adequate** to support the above stated loads in conformance with specified requirements.

Reviewed by:  
William Garrett, PE  
Chief Engineer



RDB/NEK

Nov 13 2015 3:10 PM

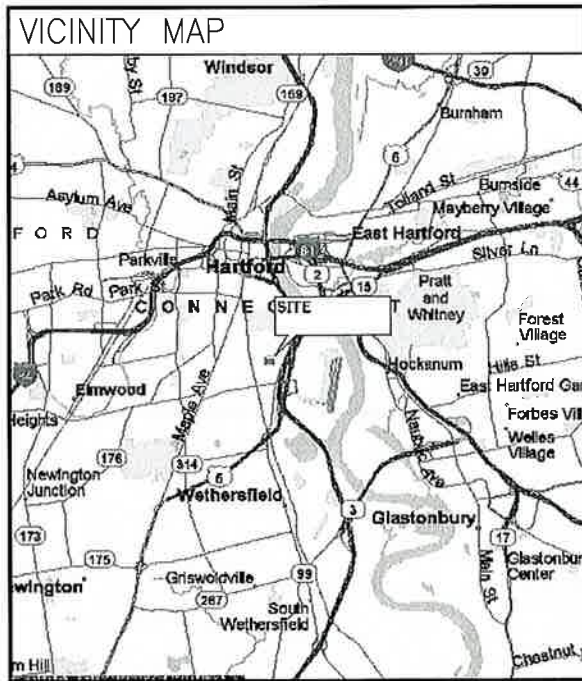
# T-MOBILE NORTHEAST LLC

## CT11661A

### HARTFORD SOUTH2/FRNKLN AV

99 MEADOW STREET  
HARTFORD, CT 06114

(704Bu CONFIGURATION)



**DO NOT SCALE DRAWINGS**  
CONTRACTOR SHALL VERIFY PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

**CALL:**  
**'CALL BEFORE YOU DIG'**  
**WWW.CBYD.COM**  
**CALL 811 OR 1-800-922-4455**  
CALL THREE WORKING DAYS PRIOR TO DIGGING  
SAFETY PRECAUTIONS SHALL BE IMPLEMENTED BY CONTRACTORS AT ALL TRENCHING IN ACCORDANCE WITH CURRENT OSHA STANDARDS.

**COLOR CODE FOR UTILITY LOCATIONS**

ELECTRIC - RED	SEWER SURVEY - GREEN
GAS/OIL - YELLOW	PROPOSED EXCAVATION - PINK
TEL/CATV - ORANGE	RECLAIMED WATER - WHITE
WATER - BLUE	

- ### GENERAL NOTES
1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES.
  2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONSTRUCT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
  3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE T-MOBILE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF THE CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES, THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXPENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
  4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING OF ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
  5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
  6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
  7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
  8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUM OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
  9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT.
  10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND INSPECTIONS WHICH ARE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY, OR LOCAL GOVERNMENT AUTHORITY.
  11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC., DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
  12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
  13. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS, AS WELL AS THE LATEST EDITIONS OF ANY PERTINENT STATE SAFETY REGULATIONS.
  14. THE CONTRACTOR SHALL NOTIFY THE T-MOBILE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE T-MOBILE REPRESENTATIVE.
  15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC., ON THE JOB.
  16. THE CONTRACTOR SHALL RETURN ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION AT THE COMPLETION OF WORK.

### PROJECT SUMMARY

SITE NUMBER:	CT11661A	APPLICANT:	T-MOBILE NORTHEAST LLC 35 GRIFFIN RD SOUTH BLOOMFIELD, CT 06002
SITE NAME:	HARTFORD SOUTH2/FRNKLN AV	PROJECT MANAGER:	AMERICAN TOWER CORPORATION 319 QUARRY ROAD SPRING CITY, PA 19475
SITE ADDRESS:	99 MEADOW STREET HARTFORD, CT 06114	CONTACT:	BRUCE HOFFMASTER 484-942-6339
PROPERTY OWNER:	AMERICAN TOWER CORPORATION	ARCHITECT/ENGINEER:	INFINIGY ENGINEERING 1033 WATERLIET SHAKER ROAD ALBANY, NY 12205
PARCEL:	275-690-115	CONTACT:	ALEX WELLER 518-690-0790
CURRENT ZONING:	12		
JURISDICTION:	CITY OF HARTFORD		
ATC SITE NUMBER:	302468		
LAT./LONG.:	N 41.74320' / W -72.66756'		
CONSTRUCTION TYPE:	-		

### PROJECT DESCRIPTION

<input checked="" type="checkbox"/> EXISTING MONOPOLE	<input checked="" type="checkbox"/> EXISTING CABINET(S)	<input type="checkbox"/> OUTDOOR
<input type="checkbox"/> EXISTING LATTICE TOWER	<input checked="" type="checkbox"/> EXISTING RBS 6102	<input type="checkbox"/> INDOOR
<input type="checkbox"/> EXISTING TRANSMISSION TOWER	<input checked="" type="checkbox"/> EXISTING GSM S12000	<input checked="" type="checkbox"/> EXISTING CONCRETE PAD
<input type="checkbox"/> EXISTING WATER TANK	<input checked="" type="checkbox"/> EXISTING RBS 3106	<input type="checkbox"/> EXISTING STEEL PLATFORM
<input type="checkbox"/> EXISTING BUILDING	<input type="checkbox"/> SITE SUPPORT KIT	<input type="checkbox"/> EXISTING PPC
<input type="checkbox"/> EXISTING FLAGPOLE	<input type="checkbox"/> SITE SUPPORT CABINET	<input checked="" type="checkbox"/> EXISTING PANELBOARD
<input type="checkbox"/> EXISTING FORT WORTH	<input checked="" type="checkbox"/> GPS	

T-MOBILE NORTHEAST LLC PROPOSES THE MODIFICATION OF AN UNMANNED WIRELESS BROADBAND FACILITY. ADDITION OF PROPOSED RBS 6201-ODE TO EXISTING GROUND LEASE AREA. ADDITION OF PROPOSED LTE 700 PANEL ANTENNAS. REUSE, GPS ANTENNA AND EXISTING EQUIPMENT CABINETS.

2005 CONNECTICUT BUILDING CODE WITH 2013 AMENDMENT  
2011 NATIONAL ELECTRIC CODE  
2009 INTERNATIONAL RESIDENTIAL CODE

### SHEET INDEX

SHEET	DESCRIPTION	REVISION
T-1	TITLE SHEET	1
C-1	SITE PLAN	1
C-2	COMPOUND PLAN & ELEVATION	1
C-3	ANTENNA DETAIL & RF SCHEDULE	1
C-4	EQUIPMENT SPECIFICATIONS	1
E-1	GROUNDING AND POWER DIAGRAMS	1
E-2	COAX/FIBER PLUMBING DIAGRAM	1
N-1	GENERAL AND ELECTRICAL NOTES	1



**INFINIGY**  
1033 Waterliet Shaker Rd  
Albany, NY 12205  
Office # (518) 690-0790  
Fax # (518) 690-0793

### SUBMITTALS

DATE	DESCRIPTION	REVISION
10/23/15	FOR PERMIT	0
11/30/15	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: 317-000  
DRAWN BY: MAP  
CHECKED BY: ASW



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NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:  
**CT11661A**

SITE NAME:  
HARTFORD SOUTH2/FRNKLN AV

99 MEADOW STREET  
HARTFORD, CT 06114

SHEET TITLE

**TITLE SHEET**

SHEET NUMBER

**T-1**

SHEET 1 OF 8 SHEETS





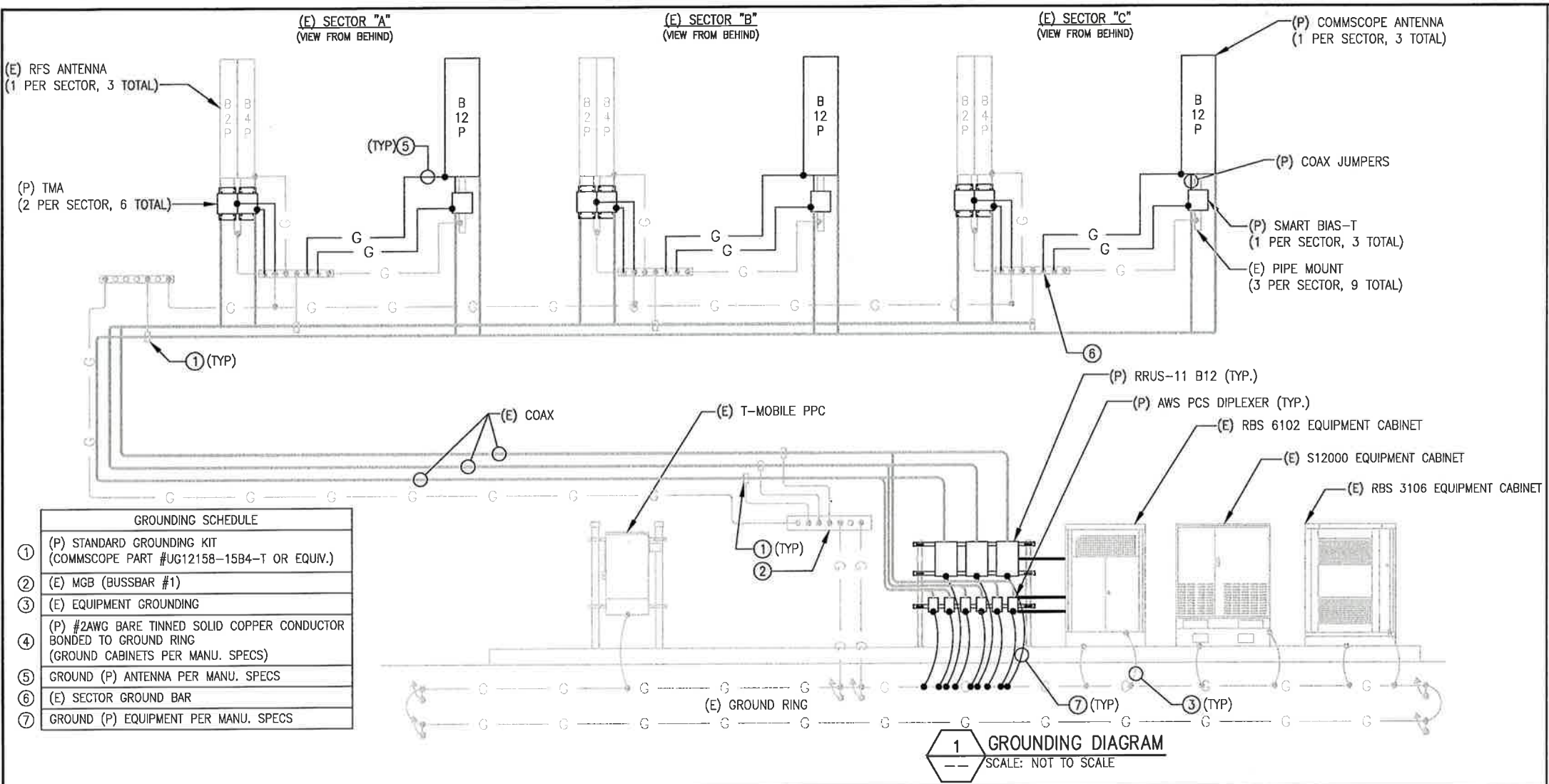








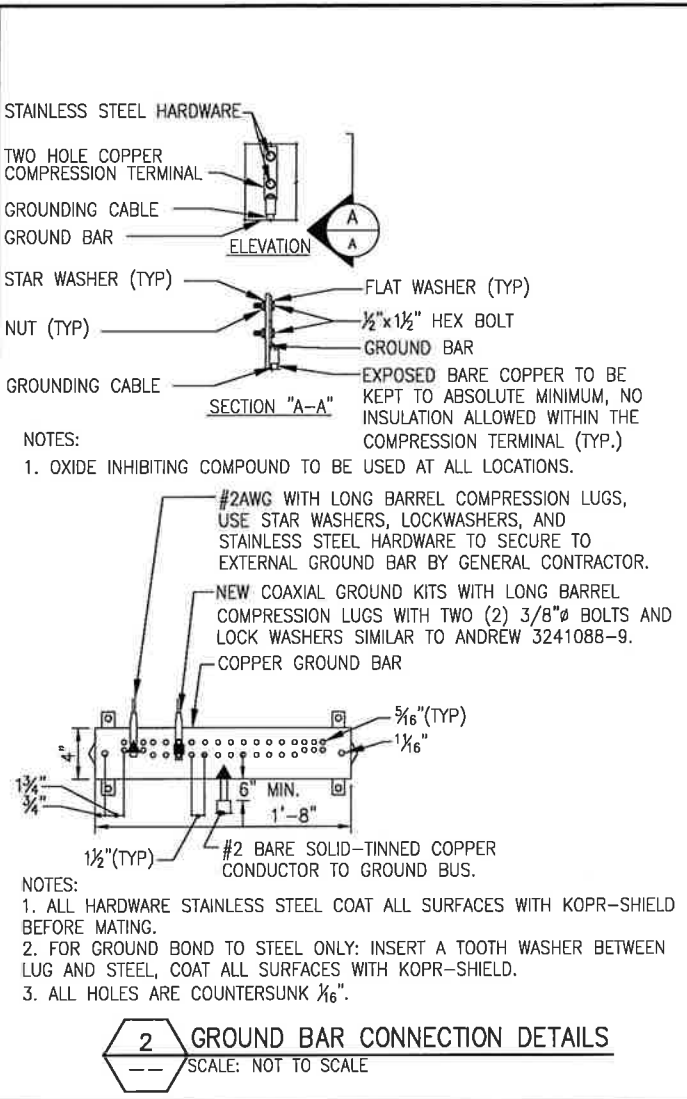




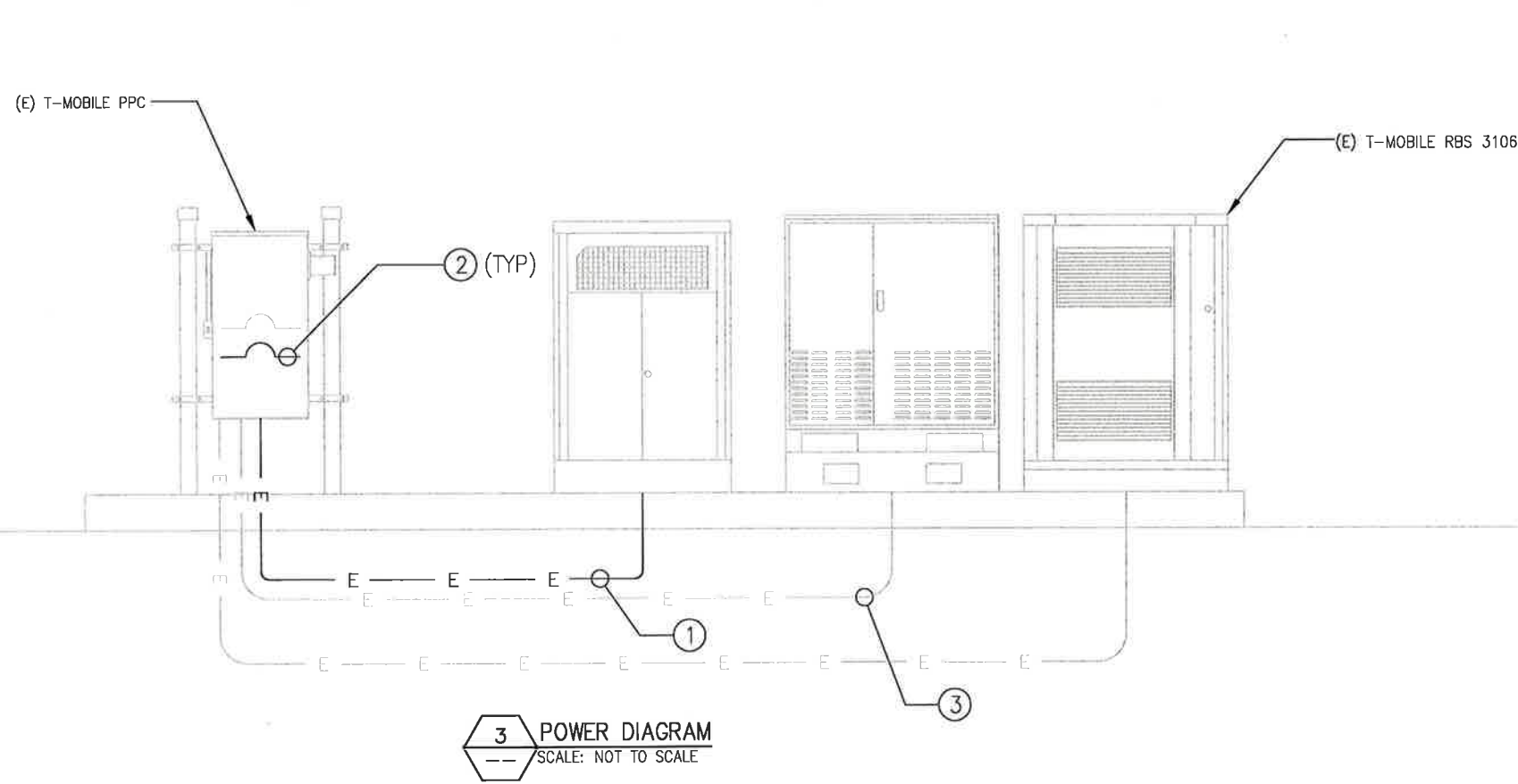
GROUNDING SCHEDULE	
①	(P) STANDARD GROUNDING KIT (COMMSCOPE PART #UG12158-15B4-T OR EQUIV.)
②	(E) MGB (BUSSBAR #1)
③	(E) EQUIPMENT GROUNDING
④	(P) #2AWG BARE TINNED SOLID COPPER CONDUCTOR BONDED TO GROUND RING (GROUND CABINETS PER MANU. SPECS)
⑤	GROUND (P) ANTENNA PER MANU. SPECS
⑥	(E) SECTOR GROUND BAR
⑦	GROUND (P) EQUIPMENT PER MANU. SPECS

CONDUIT SCHEDULE	
①	(P) UPGRADE WIRE FOR 100A BREAKER
②	(P) 100A BREAKER TO REPLACE EXISTING BREAKER
③	(E) POWER CONDUIT

NOTE:  
 INFINIGY HAS NOT CONDUCTED AN ELECTRICAL LOAD STUDY FOR THIS SITE. CONTRACTOR IS TO VERIFY EXISTING ELECTRICAL LOADING PRIOR TO CONSTRUCTION TO ENSURE EXISTING INCOMING SERVICE CAPACITY. ALL ELECTRICAL INSTALLATION IS TO COMPLY WITH NEC, ADOPTED VERSION.



- NOTES:
- OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
  - ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
  - FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
  - ALL HOLES ARE COUNTERSUNK 1/16".



CONTRACTOR NOTE:  
 CONTRACTOR TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

SUBMITTALS		
DATE	DESCRIPTION	REVISION
10/23/15	FOR PERMIT	0
11/26/15	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
R/E			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: 317-000  
 DRAWN BY: MAP  
 CHECKED BY: ASW



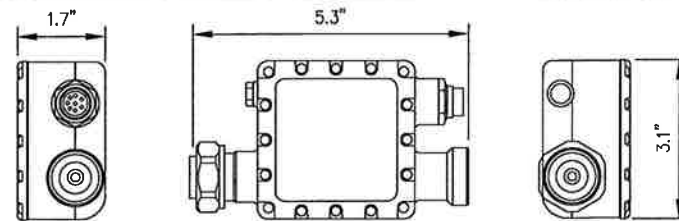
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SITE NUMBER:  
 CT11661A  
 SITE NAME:  
 HARTFORD SOUTH2/FRNKLN AV  
 99 MEADOW STREET  
 HARTFORD, CT 06114

SHEET TITLE  
**GROUNDING & POWER DIAGRAMS**

SHEET NUMBER  
**E-1**  
 SHEET 6 OF 8 SHEETS



KATHREIN SCALA SMART BIAS T  
 WEIGHT: 3.3 LBS

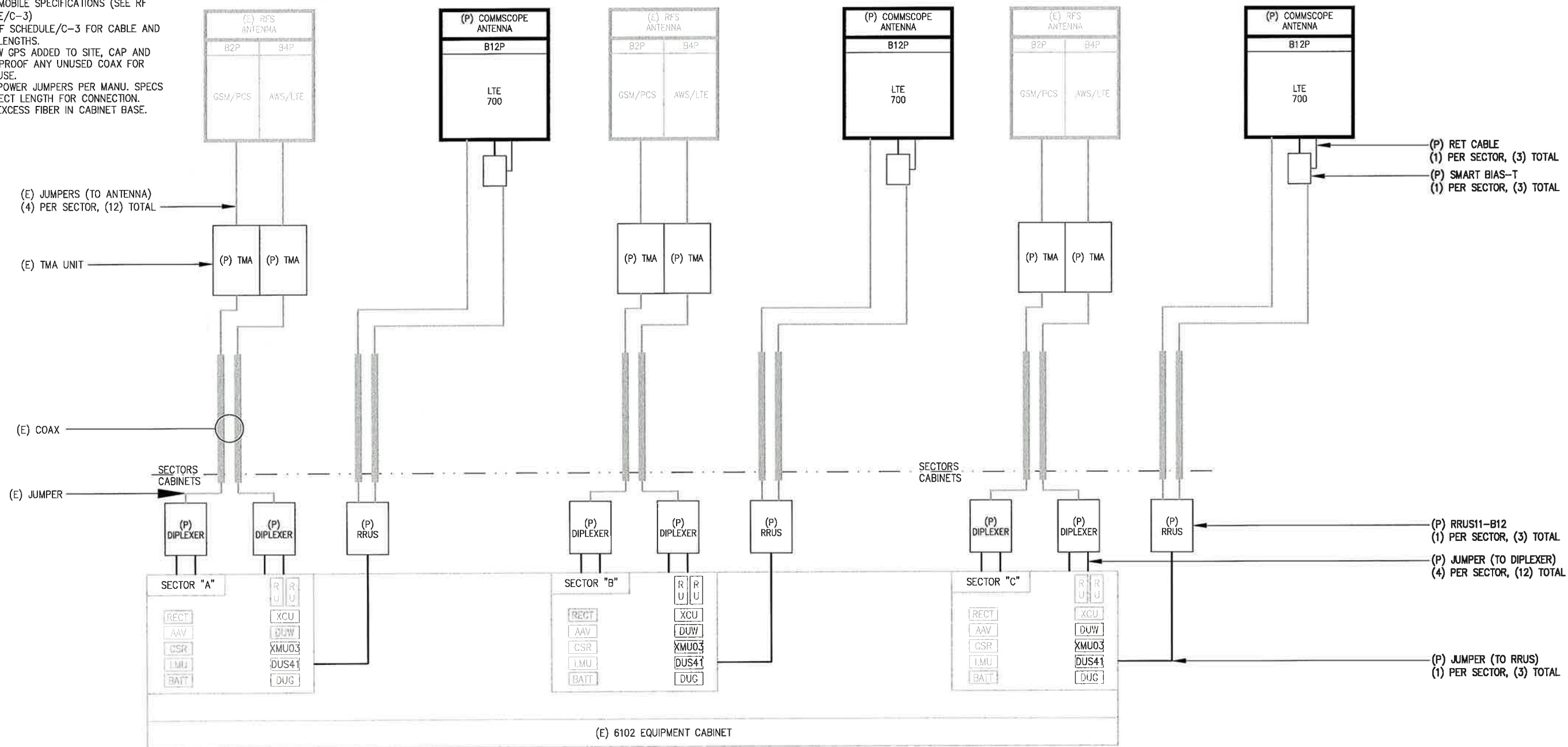
1 SMART BIAS-TEE DETAIL  
 NOT TO SCALE

- NOTES:**
1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS (SEE RF SCHEDULE/C-3)
  2. SEE RF SCHEDULE/C-3 FOR CABLE AND JUMPER LENGTHS.
  3. IF NEW GPS ADDED TO SITE, CAP AND WEATHERPROOF ANY UNUSED COAX FOR FUTURE USE.
  4. TRIM POWER JUMPERS PER MANU. SPECS TO CORRECT LENGTH FOR CONNECTION.
  5. COIL EXCESS FIBER IN CABINET BASE.

SECTOR "A"  
 (VIEW FROM BEHIND)

SECTOR "B"  
 (VIEW FROM BEHIND)

SECTOR "C"  
 (VIEW FROM BEHIND)



(P) RET CABLE  
 (1) PER SECTOR, (3) TOTAL  
 (P) SMART BIAS-T  
 (1) PER SECTOR, (3) TOTAL

(P) RRUS11-B12  
 (1) PER SECTOR, (3) TOTAL  
 (P) JUMPER (TO DIPLEXER)  
 (4) PER SECTOR, (12) TOTAL

(P) JUMPER (TO RRUS)  
 (1) PER SECTOR, (3) TOTAL

2 704Bu CONFIGURATION COAX/FIBER PLUMBING DIAGRAM  
 NOT TO SCALE

**SUBMITTALS**

DATE	DESCRIPTION	REVISION
10/23/15	FOR PERMIT	0
11/30/15	REVISED FOR PERMIT	1

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN			
ZONING			
GPS			
CONSTR			
SITE AC			

PROJECT NO: 317-000  
 DRAWN BY: MAP  
 CHECKED BY: ASW



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SITE NUMBER:  
 CT11661A  
 SITE NAME:  
 HARTFORD SOUTH2/FRNKLN AV  
 99 MEADOW STREET  
 HARTFORD, CT 06114

SHEET TITLE  
**COAX/FIBER  
 PLUMBING  
 DIAGRAM**

SHEET NUMBER

**E-2**

SHEET 7 OF 8 SHEETS





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

**T-Mobile Existing Facility**

**Site ID: CT11661A**

**Hartford South 2/ Frnkln Av  
99 Meadow Street  
Hartford, CT 06114**

**December 31, 2015**

**EBI Project Number: 6215006690**

<b>Site Compliance Summary</b>	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general public allowable limit:	<b>7.66 %</b>



December 31, 2015

T-Mobile USA  
Attn: Jason Overbey, RF Manager  
35 Griffin Road South  
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11661A – Hartford South 2/ Frnkln Av**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **99 Meadow Street, Hartford, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

General population/uncontrolled exposure limits apply to situations in which the general 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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limit for the 700 MHz Band is approximately 467  $\mu\text{W}/\text{cm}^2$ , and the general population exposure limit for the PCS and AWS bands is 1000  $\mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **99 Meadow Street, Hartford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile 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 GSM / UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel
- 2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.
- 5) Since the radios are ground mounted there are additional cabling losses accounted for. For each RF path the following losses were calculated. 0.90 dB of additional cable loss for all 700 MHz Channels, 1.66 dB of additional cable loss for all 1900 MHz channels and 1.46 dB of additional cable loss for all 2100 MHz channels. This is based on manufacturers Specifications for 161 feet of 1-5/8” coax cable on each path.

- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS-E-A20** have a maximum gain of **16.3 dBd** at their main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerline of the proposed antennas is **123 feet** above ground level (AGL).
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

### T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	123	Height (AGL):	123	Height (AGL):	123
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	6,925.75	ERP (W):	6,925.75	ERP (W):	6,925.75
Antenna A1 MPE%	1.82	Antenna B1 MPE%	1.82	Antenna C1 MPE%	1.82
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	123	Height (AGL):	123	Height (AGL):	123
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	703.27	ERP (W):	703.27	ERP (W):	703.27
Antenna A2 MPE%	0.40	Antenna B2 MPE%	0.40	Antenna C2 MPE%	0.40

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	<b>2.21 %</b>
MetroPCS	0.95 %
AT&T	2.18 %
Nextel	0.24 %
Clearwire	0.23 %
Sprint	1.85 %
<b>Site Total MPE %:</b>	<b>7.66 %</b>

T-Mobile Sector 1 Total:	2.21 %
T-Mobile Sector 2 Total:	2.21 %
T-Mobile Sector 3 Total:	2.21 %
<b>Site Total:</b>	<b>7.66 %</b>

T-Mobile_per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	1726.44	123	9.07	2100	1000	0.91 %
T-Mobile 1900 MHz (PCS) GSM/UMTS	2	873.22	123	4.59	1900	1000	0.46 %
T-Mobile 2100 MHz (AWS) UMTS	2	863.22	123	4.53	2100	1000	0.45 %
T-Mobile 700 MHz LTE	1	703.27	123	1.85	700	467	0.40 %
						<b>Total:</b>	<b>2.21 %</b>

## 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 T-Mobile 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:

T-Mobile Sector	Power Density Value (%)
Sector 1:	2.21 %
Sector 2:	2.21 %
Sector 3 :	2.21 %
T-Mobile Per Sector Maximum:	2.21 %
Site Total:	7.66 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **7.66%** 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.



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RF Engineering Director

**EBI Consulting**  
21 B Street  
Burlington, MA 01803



*T-Mobile Northeast, LLC, a subsidiary of T-MOBILE USA, Inc.  
15 Commerce Way – Suite B  
Norton, MA 02766*

**Sent VIA USPS Certified Mail**

January 11, 2016

City of Hartford  
Attn: Planning Department  
250 Constitution Plz, 4<sup>th</sup> Floor  
Hartford, CT 06103

Re: Confirmation of Telecom Facility Tower Documentation  
Site Number: CT11661A  
Site Address: 99 Meadow Street, Hartford, CT

Dear Sir or Madam,

This letter is to confirm that The City of Hartford has no record of the original zoning decision for the telecom facility (monopole) located at 99 Meadow Street, Hartford. Please sign and date below to indicate this is in fact true.

  
\_\_\_\_\_  
City of Hartford Planning Department

1/13/16  
Date

Sincerely,

*Jon Ritter*

Jon Ritter  
Site Acquisition Agent for T-Mobile Northeast, LLC  
T-Mobile MW Project



Tower Resource Management  
16 Chestnut Street, Suite 420  
Foxborough, MA 02035

Mobile: 774-264-0016  
Fax: 774-215-5423  
Email: [jritter@trmcom.com](mailto:jritter@trmcom.com)

Site Number: CT11661A  
Market: Connecticut