CITY OF CAMBRIDGE
MASSACHUSETTS
BOARD OF ZONING APPEAL
831 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139
617 349-6100

BZA APPLICATION FORM

Plan No: BZA-017241-2020

GENERAL INFORMATION

The undersigned hereby petitions the Board of Zoning Appeal for the following:

Special Permit : √ **Variance :** _____ **Appeal :** _____

PETITIONER : New Cingular Wireless PCS, LLC ("AT&T") - C/O Brown Rudnick LLP, Michael R.

PETITIONER'S ADDRESS : 10 Memorial Boulevard Providence, RI 02903

LOCATION OF PROPERTY : 10 Canal Pk Cambridge, MA 02141

TYPE OF OCCUPANCY : Wireless Communication Services **ZONING DISTRICT :** Business A Zone /PUD-4

REASON FOR PETITION :

Additions

DESCRIPTION OF PETITIONER'S PROPOSAL :

AT&T has Transmission Equipment mounted on the existing building at the 81' 6" AGL antenna centerline mark. AT&T is seeking to modify its facility as follows: remove 3 existing panel antennas (1 per sector) and replace them with an equal number of new panel antennas on new mounting brackets; remove 6 remote radio units and replace them with 12 remote radio units (for a gain of 6 remote radio units); install 3 surge arrestors, 3 diplexers, and 6 power cables and other equipment all as per supporting statements and plans submitted herewith.

SECTIONS OF ZONING ORDINANCE CITED :

Article 4.000 Section 4.32.G.1 (Telecommunications Facility).
Article 4.000 Section 4.40 (Footnote 49) (Telecommunications Facility).
Article 10.000 Section 10.40 (Special Permit).
Article 6409 Section (Middle-Class Tax Relief Act).

Original Signature(s) : _____
(Petitioner(s) / Owner)

Michael R. Dolan, Esq.
(Print Name)

Address : Brown Rudnick LLP
10 Memorial Boulevard
Providence, RI 02903

Tel. No. : 401-276-2610

E-Mail Address : mdolan@brownrudnick.com

Date : January 15, 2020

BZA APPLICATION FORM - OWNERSHIP INFORMATION

To be completed by OWNER, signed before a notary and returned to The Secretary of the Board of Zoning Appeals.

I/We Ten Canal Park Massachusetts LLC
(OWNER)

Address: 1270 Soldiers Field Road Boston, MA 02135

State that I/We own the property located at 10 Canal Park Cambridge, MA 02141,
which is the subject of this zoning application.

The record title of this property is in the name of
Ten Canal Park Massachusetts LLC

*Pursuant to a deed of duly recorded in the date 5/10/16, Middlesex South County Registry of Deeds at Book 01489, Page 55; or Middlesex Registry District of Land Court, Certificate No. _____
Book _____ Page _____.

*SIGNATURE BY LAND OWNER OR AUTHORIZED TRUSTEE, OFFICER OR AGENT** Thomas Tarantino, V.P. President, duly authorized

Written evidence of Agent's standing to represent petitioner may be requested.

Commonwealth of Massachusetts, County of Suffolk

The above-name Thomas Tarantino personally appeared before me, this _____ of _____, 20___, and made oath that the above statement is true.

_____ Notary

My commission expires May 27, 2022 (Notary Seal).

RICHARD M. CLARK, JR. NOTARY PUBLIC COMMONWEALTH OF MASSACHUSETTS MY COMMISSION EXPIRES MAY 27 2022

- If ownership is not shown in recorded deed, e.g. if by court order, recent deed, or inheritance, please include documentation.

BZA APPLICATION FORM

SUPPORTING STATEMENT FOR A SPECIAL PERMIT

Please describe in complete detail how you meet each of the following criteria referring to the property and proposed changes or uses which are requested in your application. Attach sheets with additional information for special permits which have additional criteria, e.g.; fast food permits, comprehensive permits, etc., which must be met.

Granting the Special Permit requested for 10 Canal Pk Cambridge, MA 02141 (location) would not be a detriment to the public interest because:

A) Requirements of the Ordinance can or will be met for the following reasons:

The proposed modifications do not significantly expand the existing use and the new replacement antennas and new equipment will be mounted in a manner similar to the existing equipment. By modifying an existing installation, the need to construct an additional facility in the immediate area is eliminated.

B) Traffic generated or patterns of access or egress would not cause congestion hazard, or substantial change in established neighborhood character for the following reasons:

AT&T's Facility is unmanned and there will be no increase in the amount of traffic to and from the site as a result of the proposed modification. Maintenance visits to the existing facility average one or two per month.

C) The continued operation of or the development of adjacent uses as permitted in the Zoning Ordinance would not be adversely affected by the nature of the proposed use for the following reasons:

The modifications to AT&T's existing facility will be located on the roof of the building as is AT&T's existing facility. The replacement antennas and additional equipment will be installed in a manner similar to the existing antennas and equipment.

D) Nuisance or hazard would not be created to the detriment of the health, safety and/or welfare of the occupant of the proposed use or the citizens of the City for the following reasons:

The facility will continue to be passive in nature and will not produce smoke, odors, waste, unreasonable noise or significant amounts of traffic.

E) For other reasons, the proposed use would not impair the integrity of the district or adjoining district or otherwise derogate from the intent or purpose of this ordinance for the following reasons:

The proposed modifications will allow AT&T to continue to provide adequate wireless communications services to this area of Cambridge, and will allow the City to satisfy its obligations under the Spectrum Act.

BZA APPLICATION FORM

DIMENSIONAL INFORMATION

APPLICANT: New Cingular Wireless PCS, LLC
Brown Rudnick LLP - for the Applicant **PRESENT USE/OCCUPANCY:**

LOCATION: 10 Canal Pk Cambridge, MA 02141 **ZONE:** Business A Zone /PUD-4

PHONE: 401-276-2610 **REQUESTED USE/OCCUPANCY:** no change proposed

		EXISTING CONDITIONS	*REQUESTED CONDITIONS*	*ORDINANCE REQUIREMENTS* [1]	
TOTAL GROSS FLOOR AREA:		na	no change	na	(max.)
LOT AREA:		na	no change	na	(min.)
RATIO OF GROSS FLOOR AREA TO LOT AREA: [2]		na	no change	na	(max.)
LOT AREA FOR EACH DWELLING UNIT:		na	no change	na	(min.)
SIZE OF LOT:	WIDTH	na	no change	na	(min.)
	DEPTH	na	no change	na	
SETBACKS IN FEET:	FRONT	na	no change	na	(min.)
	REAR	na	no change	na	(min.)
	LEFT SIDE	na	no change	na	(min.)
	RIGHT SIDE	na	no change	na	(min.)
SIZE OF BLDG.:	HEIGHT	71' 6"	no change	na	(max.)
	LENGTH	na	no change	na	
	WIDTH	na	no change	na	
RATIO OF USABLE OPEN SPACE TO LOT AREA: [3]		na	no change	na	(min.)
NO. OF DWELLING UNITS:		na	no change	na	(max.)
NO. OF PARKING SPACES:		na	no change	na	(min./max)
NO. OF LOADING AREAS:		na	no change	na	(min.)
DISTANCE TO NEAREST BLDG. ON SAME LOT:		na	no change	na	(min.)

Describe where applicable, other occupancies on same lot, the size of adjacent buildings on same lot, and type of construction proposed, e.g.; wood frame, concrete, brick, steel, etc.

This application is for a modification of AT&T's existing wireless communications services facility located on the existing building on the property. There are other existing uses within the building on the property which are not subject to this project.

1. SEE CAMBRIDGE ZONING ORDINANCE ARTICLE 5.000, SECTION 5.30 (DISTRICT OF DIMENSIONAL REGULATIONS).
2. TOTAL GROSS FLOOR AREA (INCLUDING BASEMENT 7'-0" IN HEIGHT AND ATTIC AREAS GREATER THAN 5') DIVIDED BY LOT AREA.
3. OPEN SPACE SHALL NOT INCLUDE PARKING AREAS, WALKWAYS OR DRIVEWAYS AND SHALL HAVE A MINIMUM DIMENSION OF 15'.

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

PO Box 198, Hampstead, NH 03841 603-303-9959 Email: donald_haes_chp@comcast.net

August 1, 2019

RE: Installation of a panel antennas and associated equipment for the upgrade to the existing AT&T Mobility PWS facility mounted on the rooftop of the building at 10 Canal Park, Cambridge, MA.

PURPOSE

I have reviewed the information pertinent to the proposed installation at the above location. To determine regulatory compliance, theoretical calculations of maximal radio-frequency (RF) fields have been prepared. The physical conditions are that AT&T Mobility proposes to perform the following changes to their existing personal wireless services (PWS) equipment on the rooftop of the building at 10 Canal Park, Cambridge, MA (See Figure 2): Exchange three (3) panel antennas and three (3) remote radio head units with three (3) new panel antennas and nine (9) remote radio head units.

This report considers the contributions of the proposed AT&T Mobility PWS transmitters operating at their proposed FCC licensed capacity. The calculated values of RF fields are presented as a percent of current Maximum Permissible Exposures (%MPE) as adopted by the Federal Communications Commission (FCC),[i,ii] and those established by the Massachusetts Department of Public Health (MDPH).[iii]

SUMMARY

Theoretical RF field calculations data indicate the summation of the proposed AT&T Mobility PWS RF contributions would be within the established RF exposure guidelines; see Figures 3a, 3b, and 3c. This includes all publicly accessible areas, and the surrounding neighborhood in general. RF field levels within the building would be below guidelines for RF exposure as well; see Table 3. The results support compliance with the pertinent sections of the Massachusetts Department of Public Health regulations regarding PWS facilities, and the FCC's guidelines for RF exposure.

Based on the results of the theoretical RF fields I have calculated, it is my expert opinion that this facility would continue to comply with all regulatory guidelines for RF exposure with the proposed AT&T Mobility antenna and transmitter installations.

EXPOSURE LIMITS AND GUIDELINES

RF exposure guidelines enforced by the FCC were established by the American National Standards Institute (ANSI)[iv] and the National Council on Radiation Protection and Measurement (NCRP).[v] The RF exposure guidelines are listed for RF workers and members of the public. The applicable FCC RF exposure guidelines for the public are listed in Table 1 and depicted in Figure 1. All listed values are intended to be averaged over any contiguous 30-minute period.

Table 1: Maximum Permissible Exposure (MPE) Values in Public Areas

Frequency Bands	Electric Fields	Magnetic Fields	Equivalent Power Density
0.3 – 1.34 MHz	614 (V/m)	1.63 (A/m)	(100) mW/cm^2
1.34 - 30 MHz	824/*f* (V/m)	2.19/*f* (A/m)	(100) mW/cm^2
30 - 300 MHz	27.5 (V/m)	0.073 (A/m)	0.2 mW/cm^2
300 - 1500 MHz	--	--	*f*/1500 mW/cm^2
1500 - 100,000	--	--	1.0 mW/cm^2

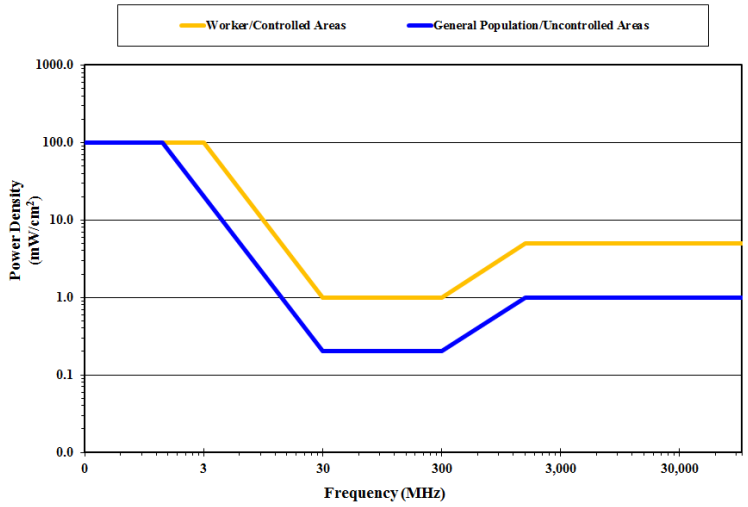


Figure 1: FCC Limits for Maximum Permissible Exposure (MPE)

NOTE: FCC 5% Rule – At multiple transmitter sites, actions necessary to bring the area into compliance with the RF exposure guidelines are the shared responsibility of all licensees whose transmitters produce RF field levels in excess of 5% of the applicable FCC MPEs.

Table 2: Proposed Radio and Antenna Inventory for AT&T Mobility PWS Facility Building at 10 Canal Park, Cambridge, MA

Remote Radio Head Unit (RRH or RRU) See Appendix A Data			**Antenna See Appendix B for Radiation Patterns**					
Model	Frequency (MHz)[†]/ Technology	# Tx X Output Power (watts)[‡]	Number / Port	Manufacturer/ Model	Gain (dBd)	**ERP** (watts)[*,**]	Centerline Height / Azimuth (‘AGL / º)	Electrical / Mechanical Down-Tilt (º)
Sector A								
RRUS-11	849 / UMTS	1 X 20	1-1	Kathrein / 800-10766	16.4	873	81½’ @ 305º	E / 4º
RRUS-32 (B29)	719 / LTE-700	4 X 20	2-1	CCI / HPA-65-BUU	13.0	1596	81½’ @ 305º	E / 2º
RRUS-4478 (B5)	849 / LTE-850	2 X 20	2-2		14.0	1005	81½’ @ 305º	E / 3º
RRUS-32	2350 / WCS	4 X 7.5	2-3		17.6	1726	81½’ @ 305º	E / 2º
RRUS-4478	777 / LTE-700	2 X 40	3-1	Kathrein / 800-10966	12.0	1268	81½’ @ 305º	E / 3º
RRUS-32 (B66)	2170 / AWS	4 X 25	3-3		16.0	3981	81½’ @ 305º	E / 3º
RRUS-11	719 / LTE-700	2 X 20	4-1	CCI / HPA-65-BUU	15.3	1355	81½’ @ 305º	E / 3º
RRUS-12	1948 / PCS	2 X 40	4-3		16.9	3909	81½’ @ 305º	E / 2º
Sector B								
RRUS-11	849 / UMTS	1 X 20	1-1	Kathrein / 800-10766	16.4	873	81½’ @ 125º	E / 4º
RRUS-32 (B29)	719 / LTE-700	4 X 20	2-1	CCI / HPA-65-BUU	13.0	1596	81½’ @ 125º	E / 2º
RRUS-4478 (B5)	849 / LTE-850	2 X 20	2-2		14.0	1005	81½’ @ 125º	E / 3º
RRUS-32	2350 / WCS	4 X 7.5	2-3		17.6	1726	81½’ @ 125º	E / 2º
RRUS-4478	777 / LTE-700	2 X 40	3-1	Kathrein / 800-10966	12.0	1268	81½’ @ 125º	E / 3º
RRUS-32 (B66)	2170 / AWS	4 X 25	3-3		16.0	3981	81½’ @ 125º	E / 3º
RRUS-11	719 / LTE-700	2 X 20	4-1	CCI / HPA-65-BUU	15.3	1355	81½’ @ 125º	E / 3º
RRUS-12	1948 / PCS	2 X 40	4-3		16.9	3909	81½’ @ 125º	E / 2º

Sector C								
RRUS-11	849 / UMTS	2 X 20	1-1	CCI / SBNHH-1D65A	13.0	798	81½' @ 215º	E / 4º
RRUS-32 (B29)	719 / LTE-700	4 X 20	2-1	CCI / HPA-65-BUU	13.0	1596	81½' @ 215º	E / 2º
RRUS-4478 (B5)	849 / LTE-850	2 X 20	2-2		14.0	1005	81½' @ 215º	E / 2º
RRUS-32	2350 / WCS	4 X 7.5	2-3		17.6	1726	81½' @ 215º	E / 2º
RRUS-4478	777 / LTE-700	2 X 40	3-1	Kathrein / 800-10966	12.0	1268	81½' @ 215º	E / 3º
RRUS-32 (B66)	2170 / AWS	4 X 25	3-3		16.0	3981	81½' @ 215º	E / 3º
RRUS-11	719 / LTE-700	2 X 20	4-1	CCI / HPA-65-BUU	15.3	1355	81½' @ 215º	E / 3º
RRUS-12	1948 / PCS	2 X 40	4-3		16.9	3909	81½' @ 215º	E / 2º

Table Notes

† Transmitter (Tx) Frequency: Central transmit frequency used to account for multiple channels.

‡ Maximum rated output power (per channel).

⁂ **ERP**: Effective Radiated Power is the directional (RF) power (in watts) that would have to be radiated by a half-wave dipole antenna to give the same radiation intensity as the actual source at a distant receiver located in the direction of the antenna's strongest beam (main lobe).
ERP measures the combination of the power emitted by the transmitter and the ability of the antenna to direct that power in a given direction. It is equal to the input power to the antenna multiplied by the gain of the antenna. (Source Wiki).

Personal Wireless Services (PWS) Technologies

AWS: Advanced Wireless Services
LTE: Long Term Evolution (a.k.a. "4G")
PCS: Personal Communication System
UMTS: Universal Mobile Telecommunications Services
WCS: Wireless Communication Service

THEORETICAL RF FIELD CALCULATIONS - GROUND LEVELS

METHODOLOGY

These calculations are based on what are called "worst-case" estimates. That is, the estimates assume 100% use of all transmitters simultaneously, and assume the surrounding area is a flat plane.

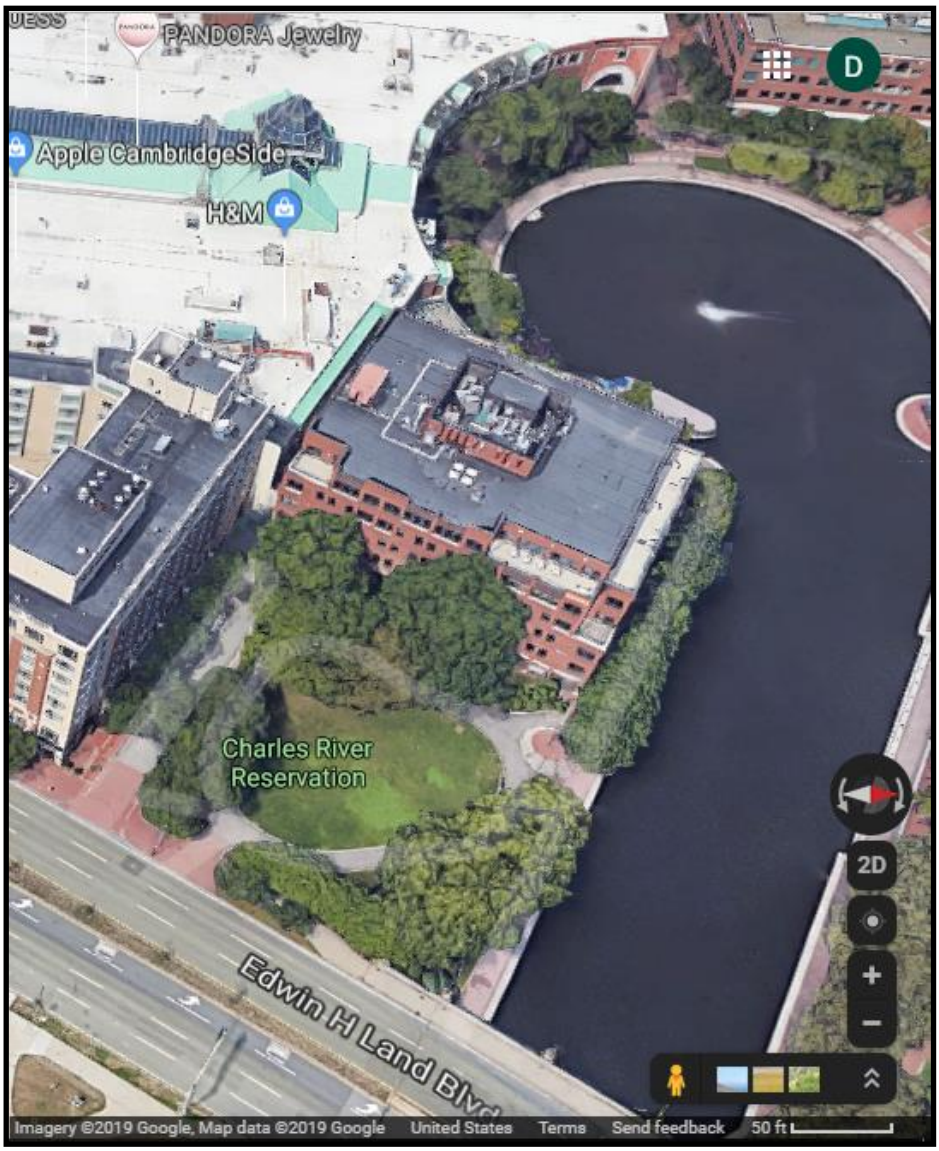


Figure 2: Building at 10 Canal Park, Cambridge, MA
(Picture courtesy Google Maps©2019 and may not represent current conditions)

The calculations are based on the following information:

1. Effective Radiated Power (ERP) (See Table 2 and Appendix A data).
2. Antenna height (centerline, above ground level (AGL)).
   Trigonometry was used to determine the resultant "RANGE", and the antenna depression angle.
3. Antenna vertical radiation patterns; the source of the negative gain (G) values. See Appendix B. "Directional" antennas are designed to focus the RF signal, resulting in "patterns" of signal loss and gain. Antenna vertical radiation patterns display the loss of signal strength relative to the direction of propagation due to elevation angle changes.

The magnitude of the RF field (the power density (S)) from an isotropic RF source is calculated making use of the power density formula as outlined in FCC's OET Bulletin 65, Edition 97-01: [vi]

$$\mathbf{S = \frac{P \cdot G}{4 \cdot \pi \cdot R^2}}$$

Where: P → Power to antenna (watts)
G → Gain of antenna
R → Distance (range) from antenna source to point of intersection with the ground (feet)
R^2 = (Height)^2 + (Horizontal distance)^2

Since: P · G = EIRP (Effective Isotropic Radiated Power), and for the situation of off-axis power density calculations, apply the negative elevation gain (G^E) value from the vertical radiation patterns with the following formula:

$$\mathbf{S = \frac{EIRP \cdot G^E}{4 \cdot \pi \cdot R^2}}$$

Ground reflections may add in-phase with the direct wave, and essentially double the electric field intensity. Because power density is proportional to the *square* of the electric field, the power density may quadruple, that is, increase by a factor of four (4).

Since ERP is routinely used, convert ERP into EIRP by multiplying by the factor of 1.64 (the gain of a ½-wave dipole relative to an isotropic radiator).

$$\mathbf{S = \frac{4 \cdot (ERP \cdot 1.64) \cdot G^E}{4 \cdot \pi \cdot R^2} = \frac{ERP \cdot 1.64 \cdot G^E}{\pi \cdot R^2} = \frac{0.522 \cdot ERP \cdot G^E}{R^2}}$$

To calculate the % MPE, use the formula:

$$\mathbf{\%\ MPE = \frac{S}{MPE} \cdot 100}$$

Note that any loss along the horizontal direction was neglected which means the results would be the maximum values in any direction. The resultant values are thus conservative in that they over predict actual resultant power densities. The data used to prepare the theoretical RF field calculations are outlined in Table 2. The results of the theoretical Cumulative Maximum Percent MPE - vs. - Distance calculations are shown in Figures 3a,3b, and 3c, as plotted against linear distance from the base of the building along the A sector (305º), B sector (125º), and c sectors (215º).

OBSERVATIONS IN CONSIDERATION WITH FCC RULES §1.1307(B) & §1.1310

Will it be physically possible to stand next to or touch any omnidirectional antenna and/or stand in front of a directional antenna?

NO; access to the rooftop is restricted, and the site will adhere to existing RF safety guidelines regarding the transmitting antennas, including appropriate signage.

RESULTS

The results of the %MPE calculations for the summation of the proposed AT&T Mobility RF emissions are depicted in Figures 3a,3b, and 3c, as plotted against linear distance from the base of the building along the A sector (305º), B sector (125º), and c sectors (215º). The values have been calculated for a height of six feet above ground level in accordance with regulatory rationale. Values for 16' AGL have also been calculated as in my previous reports. A logarithmic scale was used to plot the calculated values in order to compare with the MPE of 100%, which is so much larger that it would be off the page in a linear plot.

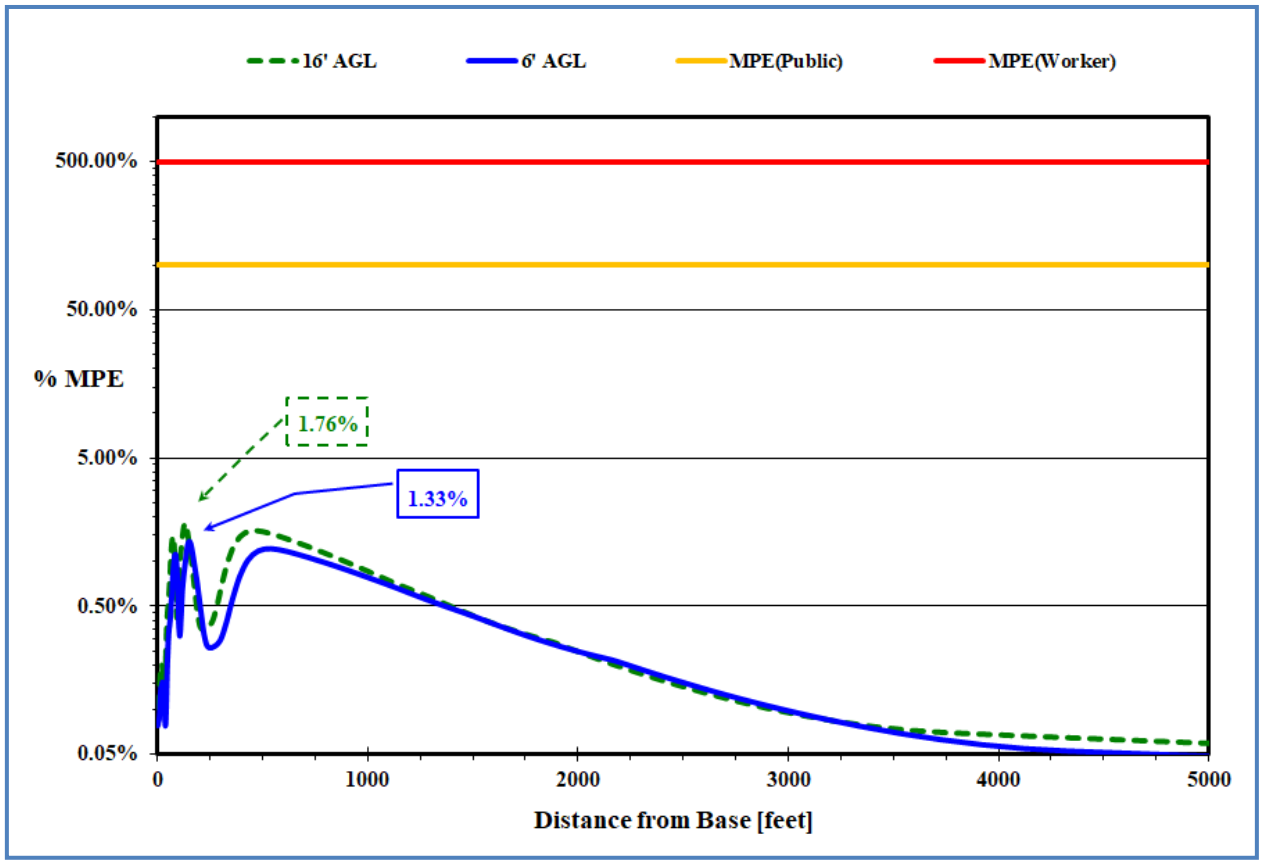


Figure 3a: Theoretical Cumulative Maximum Percent MPE - vs. - Distance
AT&T Mobility PWS RF Emissions Along the A Sector (305º)
10 Canal Park, Cambridge, MA

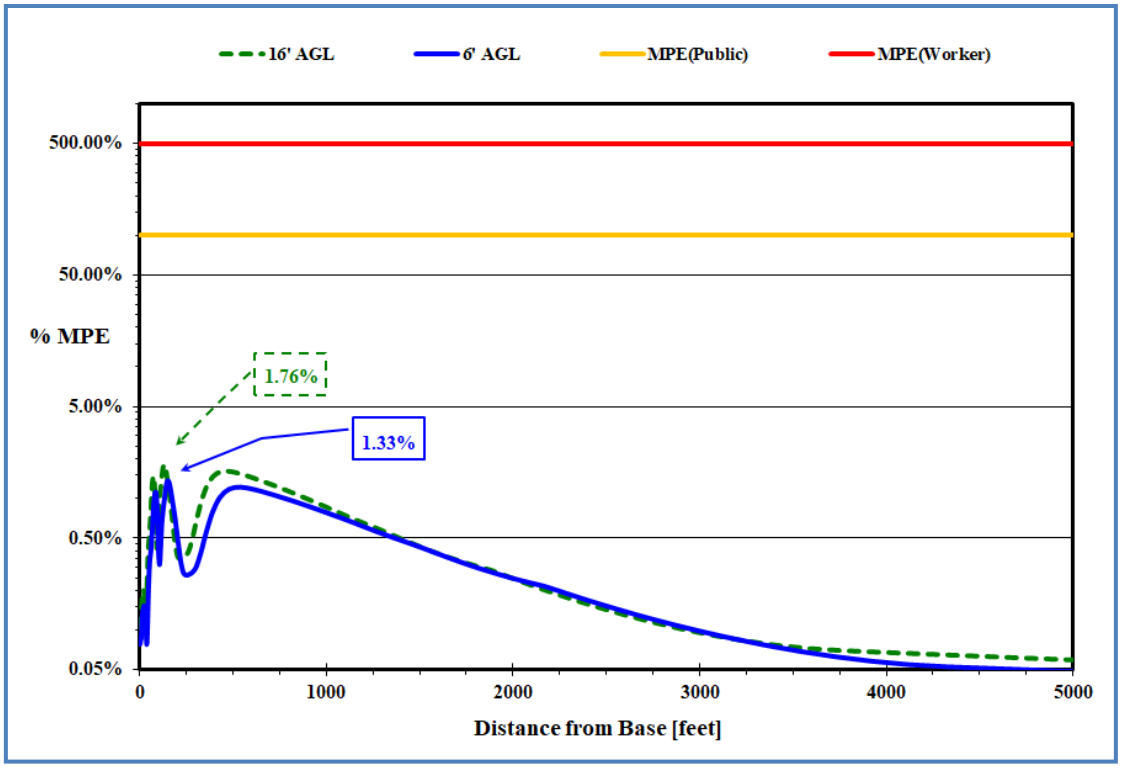


Figure 3b: Theoretical Cumulative Maximum Percent MPE - vs. - Distance
AT&T Mobility PWS RF Emissions Along the B Sector (125º)
10 Canal Park, Cambridge, MA

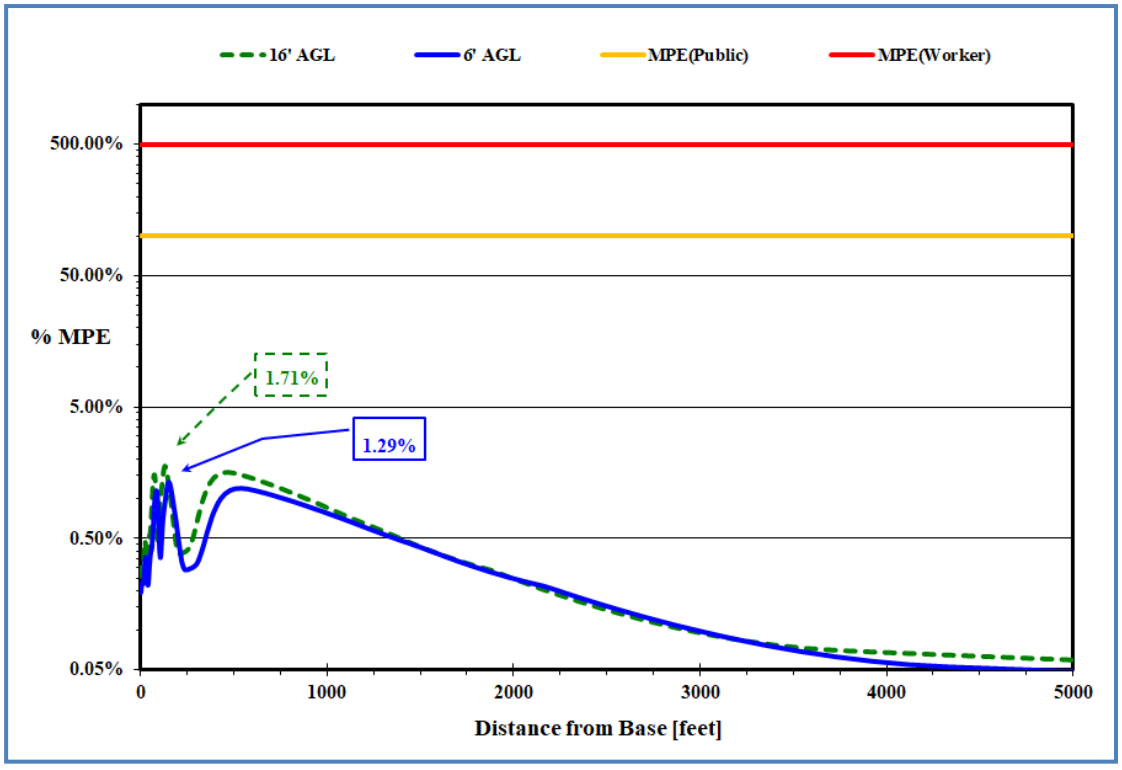


Figure 3c: Theoretical Cumulative Maximum Percent MPE - vs. - Distance
AT&T Mobility PWS RF Emissions Along the C Sector (215º)
10 Canal Park, Cambridge, MA

THEORETICAL RF FIELD CALCULATIONS - WITHIN THE BUILDING (UNDER THE ANTENNAS)

METHODOLOGY

In addition to intensity losses at angles away from the main beam (90° down), there are losses due to attenuation by building materials. A good approximation of these losses is -10 dB, or a factor of 1/10 ($10^{(-10/10)} = 0.1$). Thus, a modified equation to use for the area below the antennas is as follows:

$$S = \frac{4 \cdot [ERP \cdot 1.64] \cdot G^{(\text{antenna loss})} \cdot G^{(\text{building materials loss})}}{4 \cdot \pi \cdot R^2}$$

The calculations using the equation above were repeated for the locations 10' below each antenna sector using the data in Table 2. The results are listed in Table 3 below.

Table 3: Transmitter and Antenna Data and Supporting Parameters for Exposure Guidelines Calculations
AT&T Mobility PWS Facility at 10 Canal Park, Cambridge, MA

Frequency (MHz)†/ Technology	Antenna Number	Manufacturer/ Model	**ERP** (watts)	Gain (dBd) at 90º	Total % MPE 10' Below
Sector A					
849 / UMTS	1	Kathrein / 800-10766	873	-67.63	0.45% MPE Or 224 Times Below FCC Exposure Guidelines
719 / LTE-700	2	CCI / HPA-65-BUU	1596	-33.61	
849 / LTE-850			1005	-36.81	
2350 / WCS			1726	-41.23	
777 / LTE-700	3	Kathrein / 800-10966	1268	-44.23	
2170 / AWS			3981	-28.37	
719 / LTE-700	4	CCI / HPA-65-BUU	1355	-46.38	
1948 / PCS			3909	-50.22	
Sector B					
849 / UMTS	1	Kathrein / 800-10766	873	-67.63	0.45% MPE Or 224 Times Below FCC Exposure Guidelines
849 / UMTS	2	CCI / HPA-65-BUU	1596	-33.61	
719 / LTE-700			1005	-36.81	
849 / LTE-850			1726	-41.23	
2350 / WCS	3	Kathrein / 800-10966	1268	-44.23	
777 / LTE-700			3981	-28.37	
2170 / AWS	4	CCI / HPA-65-BUU	1355	-46.38	
719 / LTE-700			3909	-50.22	
Sector C					
849 / UMTS	1	CCI / SBNHH-1D65A	873	-20.83	1.10% MPE Or 91 Times Below FCC Exposure Guidelines
719 / LTE-700	2	CCI / HPA-65-BUU	1596	-33.61	
849 / LTE-850			1005	-36.81	
2350 / WCS			1726	-41.23	
777 / LTE-700	3	Kathrein / 800-10966	1268	-44.23	
2170 / AWS			3981	-28.37	
719 / LTE-700	4	CCI / HPA-65-BUU	1355	-46.38	
1948 / PCS			3909	-50.22	

CONCLUSION

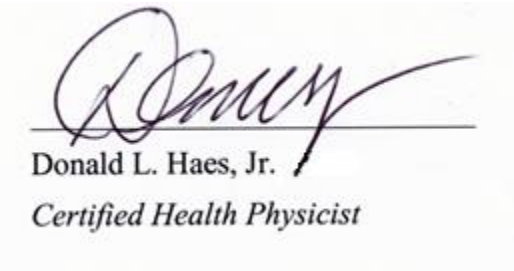
Theoretical RF field calculations data indicate the summation of the proposed AT&T Mobility PWS RF contributions would be within the established RF exposure guidelines; see Figures 3a, 3b, and 3c. This includes all publicly accessible areas, and the surrounding neighborhood in general. RF field levels within the building would be below guidelines for RF exposure as well; see Table 3. The results support compliance with the pertinent sections of the Massachusetts Department of Public Health regulations regarding PWS facilities, and the FCC's guidelines for RF exposure.

The number and duration of calls passing through PWS facilities cannot be accurately predicted. Thus, to estimate the highest RF fields possible from operation of these installations, the maximal amount of usage was considered. Even in this so-called "worst-case," the resultant increase in RF field levels are far below established levels considered safe.

Based on the results of the theoretical RF fields I have calculated, it is my expert opinion that this facility would continue to comply with all regulatory guidelines for RF exposure with the proposed AT&T Mobility antenna and transmitter installations.

Feel free to contact me if you have any questions.

Sincerely,



Donald L. Haes, Jr.
Certified Health Physicist

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

PO Box 198, Hampstead, NH 03841 617-680-6262 Email: donald_haes_chp@comcast.net

STATEMENT OF CERTIFICATION

1. I certify to the best of my knowledge and belief, the statements of fact contained in this report are true and correct.

2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are personal, unbiased professional analyses, opinions and conclusions.

3. I have no present or prospective interest in the property that is the subject of this report and I have no personal interest or bias with respect to the parties involved.

4. My compensation is not contingent upon the reporting of a predetermined energy level or direction in energy level that favors the cause of the client, the amount of energy level estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.

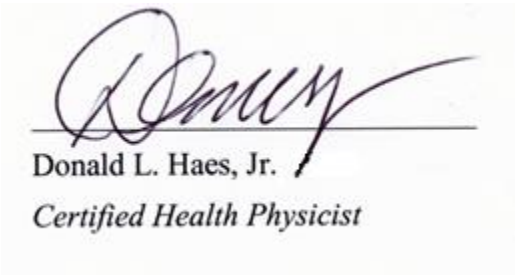
5. This assignment was not based on a requested minimum environmental energy level or specific power density.

6. My compensation is not contingent on an action or event resulting from the analyses, opinions, or conclusions in, or the use of, this report.

7. The consultant has accepted this assessment assignment having the knowledge and experience necessary to complete the assignment competently.

8. My analyses, opinions, and conclusions were developed and this report has been prepared, in conformity with the *American Board of Health Physics* (ABHP) statements of standards of professional responsibility for Certified Health Physicists.

Date: August 1, 2019



DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

PO Box 198, Hampstead, NH 03841 617-680-6262 Email: donald_haes_chp@comcast.net

SUMMARY OF QUALIFICATIONS

- **Academic Training -**
  - Graduated from Chelmsford High School, Chelmsford, MA; June 1973.
  - Completed Naval Nuclear Naval Nuclear Power School, 6-12/1976.
  - Completed Naval Nuclear Reactor Plant Mechanical Operator and Engineering Laboratory Technician (ELT) schools and qualifications, Prototype Training Unit, Knolls Atomic Power Laboratory, Windsor, Connecticut, 1-9/1977.
  - Graduated Magna Cum Laude from University of Lowell with a Bachelor of Science Degree in *Radiological Health Physics*; 5/1987.
  - Graduated from University of Lowell with a Master of Science Degree in *Radiological Sciences and Protection*; 5/1988.

- **Certification -**
  - Board Certified by the American Board of Health Physics 1994; renewed 1998, 2002, 2006, 2010, 2014, and 2018. Expiration 12/31/2022.
  - Board Certified by the Board of Laser Safety 2008; renewed 2011, 2014, 2017. Expiration 12/31/2020.

- **Employment History -**
  - Consulting Health Physicist; Ionizing/Nonionizing Radiation, 1988 - present.
  - Radiation, RF and Laser Safety Officer; BAE Systems, 2005–2018 (retired).
  - Assistant Radiation Safety Officer; MIT, 1988 – 2005 (retired).
  - Radiopharmaceutical Production Supervisor - DuPont/NEN, 1981 – 1988 (retired).
  - United States Navy; Nuclear Power Qualifications, 1975 – 1981 (Honorably Discharged).

- **Professional Societies -**
  - Health Physics Society [HPS].
  - American Academy of Health Physics [AAHP]
  - Institute of Electrical and Electronics Engineers [IEEE];
  - International Committee on Electromagnetic Safety [ICES] (ANSI C95 series).
  - Laser Institute of America [LIA].
  - Board of Laser Safety [BLS].
  - American National Standards Institute Accredited Standards Committee [ASC Z136].
  - Committee on Man and Radiation [COMAR].

APPENDIX A

SPECIFIC REMOTE RADIO HEAD UNITS

RRUS 11

2x10 W or 1x20 W Maximum nominal output power 2x20 W or 1x40 W (1x30 W), 2x30 W, 2x40 W(1) require license keys(2) Number of carriers Without license key: one carrier With license keys: up to four carriers

1920 to 1980 MHz uplink
2110 to 2170 MHz downlink
B1 for WCDMA and LTE
1850 to 1910 MHz uplink
1930 to 1990 MHz downlink
B2 for WCDMA and LTE
1710 to 1755 MHz uplink
2110 to 2155 MHz downlink
B4 for WCDMA and LTE
824 to 849 MHz uplink
869 to 894 MHz downlink
B5 for WCDMA and LTE
2,500 to 2,570 MHz uplink
2,620 to 2,690 MHz downlink
B7 for LTE
699 to 715 MHz uplink
729 to 745 MHz downlink
B12 for LTE (3)
832 to 862 MHz uplink
791 to 821 MHz downlink
B20 for LTE
1850 to 1915 MHz uplink
1930 to 1995 MHz downlink
B25 for LTE
1850 to 1910 MHz uplink
1930 to 1990 MHz downlink
B25 for CDMA
Frequency
817 MHz to 824 MHz uplink
862 MHz to 869 MHz downlink
B26A for CDMA and LTE

RRUS 32

EUT information
Product name RRUS 32A Band 66A Transceiver
Model RRUS 32A B66A
Part number KRC 161 601/1
Revision R1A
Serial Number D16S140661
Antenna Ports 4 TX/RX Ports
IBW LTE: 70 MHz, WCDMA: 45 MHz
FDD 400MHz
Frequency TX (DL) LTE: 2110 – 2180 MHz
TX (DL) WCDMA: 2110 – 2155 MHz
RX (UL) LTE: 1710 – 1780 MHz
RX (UL) WCDMA: 1710 – 1755 MHz
Nominal O/P per Antenna Port Single Carrier: 1 x 30 W (44.77 dBm)
Multi-Carrier: 2 x 15 W (41.76 dBm)
Multi-Carrier: 3 x 10 W (40 dBm)
Multi-Carrier: 4 x 7.5 W (38.75 dBm)
Accuracy (Nominal): +/- 0.1 PPM
Nominal Voltage: -48 VDC @ 20A
RAT: LTE: SC, MC

WCDMA: SC, MC
Multi RAT (W + L) MC
Modulation: LTE: QPSK, 16 QAM, 64 QAM
WCDMA: QPSK, 16 QAM, 64 QAM
Channel Bandwidth: LTE: 5, 10, 15, 20 MHz
WCDMA: 4.2 to 5 MHz
Maximum Combined OBW per Port: 70 MHz
Digital Interface CPRI: 2.5 Gbps / 5 Gbps / 10 Gbps (Data 1, Data 2)
Channel Raster: 100 kHz for LTE, 200 kHz for WCDMA
Multi-carrier: Single Antenna, Tx Diversity, MIMO closed loop (4x2 MIMO and 4-way receiver diversity for LTE)
Operating Temperature: -40 to 55°C
Total Power based on IBW: 4 x 30W
Supported Carrier Configurations: LTE: BW(MHz) = 5, 10,15 (1-4); BW= 20 (1-3)
MSR Maximum Carrier Configurations 70 MHz

RRUS 4478

DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Radio Unit
MANUFACTURER	Ericsson AB
PRODUCT NAME	Radio 4478 B5
PART NUMBER	KRC 161 689/1 KRC 161 689/3[2]
IC Model Name	AS161689
SERIAL NUMBER	B440820312
HARDWARE VERSION	R2A
SOFTWARE VERSION	CXP9013268%15_R78AN+
TRANSMITTER OPERATING RANGE	869 - 894 MHz
MODULATIONS	WCDMA: QPSK, 16QAM, 64QAM LTE & NR: QPSK, 16QAM, 64QAM, 256QAM
ITU DESIGNATION OF EMISSION	WCDMA: 4M19F9W
	LTE 1,4 MHz BW channel: 1M11W7D
	LTE 3 MHz BW channel: 2M70W7D
	LTE 5 MHz BW channel: 4M50W7D
	LTE 10 MHz BW channel: 8M98W7D
	LTE 20 MHz BW channel: 18M9W7D[3]
	NB IoT SA: 224KW7D
	NR 5 MHz BW channel: 4M47W7D
	NR 10 MHz BW channel: 9M29W7D
OUTPUT POWER (RMS) (W or dBm)	4 ports, 40W per port
	NB-IoT SA 1 x 20W (per port)
FCC ID	TA8AKRC161689
IC ID	287AB-AS161689
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	Base station radio

[1] LTE carriers 10MHz and above supports NB IoT
[2] KRC 161 689/3 is the test object, both variants are electrically equivalent, with only mechanical differences in the enclosure.
[3] Carrier aggregation 2 x 10MHz

Signature Audun B Helle
Audun Helle

Date 2019-03-25

No responsibility will be accepted by TÜV SÜD Product Service UK Limited as to the accuracy of the information declared in this document by the manufacturer.

Description of the test object

Equipment:	Radio equipment Radio 4478 B14 Product number KRC 161 669/3 FCC ID: TA8AKRC161669-3
Hardware revision state:	RIB
Tested configuration:	Single RAT LTE
Frequency bands: 3GPP B7:	TX: 758 - 768 MHz RX: 788 - 798 MHz
IBW:	10 MHz
Output power:	Max 40 W/ antenna port
Antenna ports:	4 TX/ 4 RX ports
Antenna:	No dedicated antenna, handled during licensing
RF configurations:	Single and multi-carrier, 1-2 carriers/ port TX Diversity, 2x2 MIMO, 4x4 MIMO, Contiguous Spectrum (CS), Carrier Aggregation (CA)
Channel bandwidths:	5 MHz and 10 MHz
Modulations:	QPSK, 16QAM, 64QAM and 256QAM
RF power Tolerance:	+0.6/ -2.0 dB
CPR] speed	Up to 10.1 Gbit]s

The information above is supplied by the manufacturer.

Description of the test object

Equipment:	Product name: RRUS E2 B29 Product number: KRC 161 408/1, RIA FCC ID TA8AKRC161408-1 IC 287AB-AS1614081 IC MODEL NO: AS1614081
Tested configuration:	LTE single RAT
Frequency bands:	TX: 717 - 728 MHz RX: N/A
Antenna ports:	2 TX ports
RF configuration:	Single carrier, multi carrier and MIMO mode 2x2
Nominal output power per antenna port:	Single carrier: Ix 46.0 dBm (l x 40W) Multi carrier: 2x 43.0 dBm (2 x 20W)
Antenna:	No dedicated antenna, handled during licensing
Channel bandwidths:	3 MHz, 5 MHz and 10 MHz
Modulations:	QPSK, 16QAM and 64QAM
Nominal supply voltage:	-48VDC

APPENDIX B

ANTENNA SPECIFIC RADIATION PATTERNS
(FOR EACH PROPOSED ANTENNA FREQUENCY BAND)

ANTENNA #1: (EXISTING)
KATHREIN 800-10766

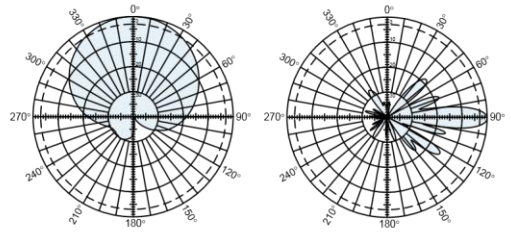
KATHREIN
SCALA DIVISION

800 10766

700 MHz Dual Band 8', 65 Degree Antenna RET

- X-polarized (+45° and -45°).
- UV resistant fiberglass radomes.
- Wideband vector dipole technology.
- DC Grounded metallic parts for impulse suppression.
- RET motor housed inside the radome and field replaceable.

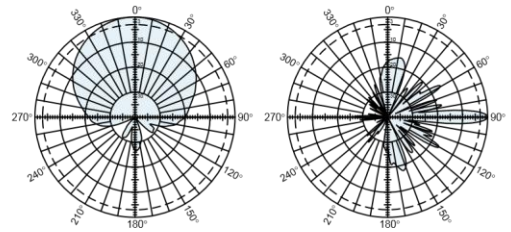
698–894 MHz



Horizontal pattern
±45°- polarization

Vertical pattern
±45°- polarization
0°–10° electrical downtilt

1710–2170 MHz



Horizontal pattern
±45°- polarization

Vertical pattern
±45°- polarization
0°–10° electrical downtilt

Frequency range	698–894 MHz // 1710–2170 MHz
Impedance	50 ohms
VSWR	<1.5:1
Intermodulation (2x20w)	IM3:< -150 dBc
Polarization	+45° and -45°
Connector	4 x 7-16 DIN female (long neck)
Isolation	intrasystem >30 dB // intersystem >35 dB

T specifications:

Logical interface ex factory[1)]	AISG 1.1
Protocols	AISG 1.1 and 3GPP/AISG 2.0 compliant
Hardware interface[2)]	2 x 8pin connector acc. IEC 60130-9; according to AISG: – RCUin (male): Control / Daisy chain in – RCUout (female): Daisy chain out
Power supply	10–30 V
Power Consumption	<1 W (standby); <8.5 W (motor activated)
Adjustment time (full range)	40 seconds
Adjustment cycles	>50,000
Certification	FCC 15.107 Class B Computing Devices

[1)] The protocol of the logical interface can be switched from AISG 1.1 to 3GPP/AISG 2.0 and vice versa with a vendor specific command. Start-up operation of the

General specifications:

See reverse for order information.

IR

RCU 86010149 is possible in an RET system supporting AISG 1.1 or supporting 3GPP/AISG 2.0 after performing a layer 2 reset before address assignment. The protocol can also be changed as follows: AISG 1.1 to 3GPP: Enter "3GPP" into the additional data filed "Installer's ID" and perform a layer 7 reset or a power reset. 3GPP to AISG 1.1: Enter "AISG 1" into the additional datafield "Installer's ID" and perform a layer 2 reset or a power reset. After switching the protocol any other information can be entered into the "Installer's ID" field.

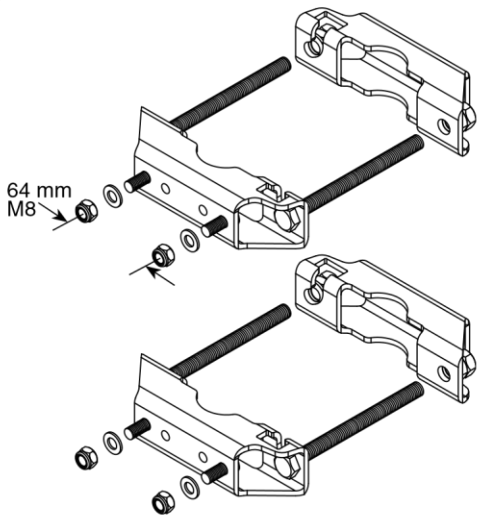
[2)] The tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!

Specifications:	698–806 MHz	824–894 MHz	1710–1755 MHz	1850–1990 MHz	2110–2170 MHz
Gain	16.4 dBi	16.8 dBi	18 dBi	18.5 dBi	18 dBi
Front-to-back ratio	>30 dB (co-polar) 34 dB (average)	>30 dB (co-polar) 34 dB (average)	>27 dB (co-polar) 34 dB (average)	>27 dB (co-polar) 34 dB (average)	>27 dB (co-polar) 34 dB (average)
Maximum input power per input	500 watts (at 50°C)	500 watts (at 50°C)	300 watts (at 50°C)	300 watts (at 50°C)	300 watts (at 50°C)
+45° and -45° polarization horizontal beamwidth	68° (half-power)	65° (half-power)	63° (half-power)	62° (half-power)	63° (half-power)
+45° and -45° polarization vertical beamwidth	9.5° (half-power)	8.7° (half-power)	5.8° (half-power)	5.8° (half-power)	5.8° (half-power)
Electrical downtilt continuously adjustable	0°–10°	0°–10°	0°–10°	0°–10°	0°–10°
Min sidelobe suppression for	0° 5° 10° T	0° 5°10° T	0° 5°10° T	0° 5°10° T	0° 5°10° T
first sidelobe above main beam	16 16 16 dB	18 18 16 dB	18 18 18 dB	18 18 18 dB	18 18 18 dB
average	18 20 18 dB	20 20 20 dB	20 22 20 dB	20 22 20 dB	20 22 20 dB
Cross polar ratio					
Main direction 0°	25 dB (typical)	20 dB (typical)	25 dB (typical)	30 dB (typical)	25 dB (typical)
Sector ±60°	>10 dB, 15 dB (avg)	>10 dB, 12 dB (avg)	>8 dB, 15 dB (avg)	>10 dB, 15 dB (avg)	>8 dB, 15 dB (avg)
Tracking, avg.	1 dB	1 dB	1.5 dB	1.5 dB	1.5 dB
Squint	±2.5°	±2.5°	±3°	±3°	±3°

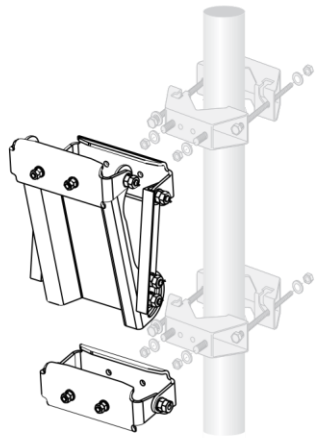
Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com

Weight	58.4 lb (26.5 kg)
Dimensions	96 x 11.8 x 6 inches (2438 x 300 x 152 mm)
Wind load Front/Side/Rear	at 93 mph (150kph) 286 lbf / 106 lbf / 297 lbf (1270 N) / (470 N) / (1320 N)
Mounting category	H (Heavy)
Wind survival rating*	150 mph (240 kph)
Shipping dimensions	104.6 x 12.6 x 7.5 inches (2656 x 320 x 190 mm)
Shipping weight	71.6 lb (32.5 kg)
Mounting	Mounting hardware included for 2 to 4.6 inch (50 to 115 mm) OD masts.

KATHREIN
SCALA DIVISION



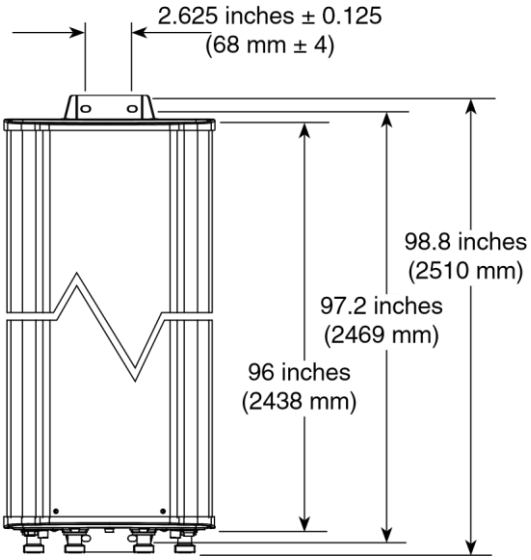
Mounting Brackets
for use with 2-point mount antennas
Mast dia. 2–4.5 inches (50–115 mm)
Weight: 4.4 lb (2 kg)



Mechanical Tilt Brackets
for use with 2-point mount antennas
Weight: 13 lb (5.9 kg)
(Model 850 10007)

Mechanical specifications:

Note: Refer to part number



Order Information:

Model
Description

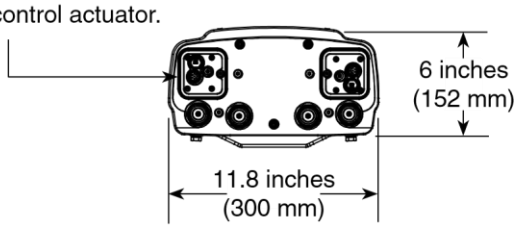
* Mechanical design is based on environmental conditions as stipulated in TIA-222-G-2 (December 2009) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for details.All specifications are subject to change without notice. The latest specifications are available at www.kathrein-scala.com.

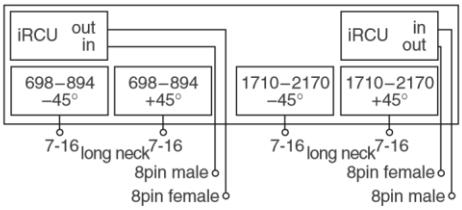
KATHREIN 860 10149

Tested To Comply
With FCC Standards

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

860 10149 for the specifications of the remote control actuator.

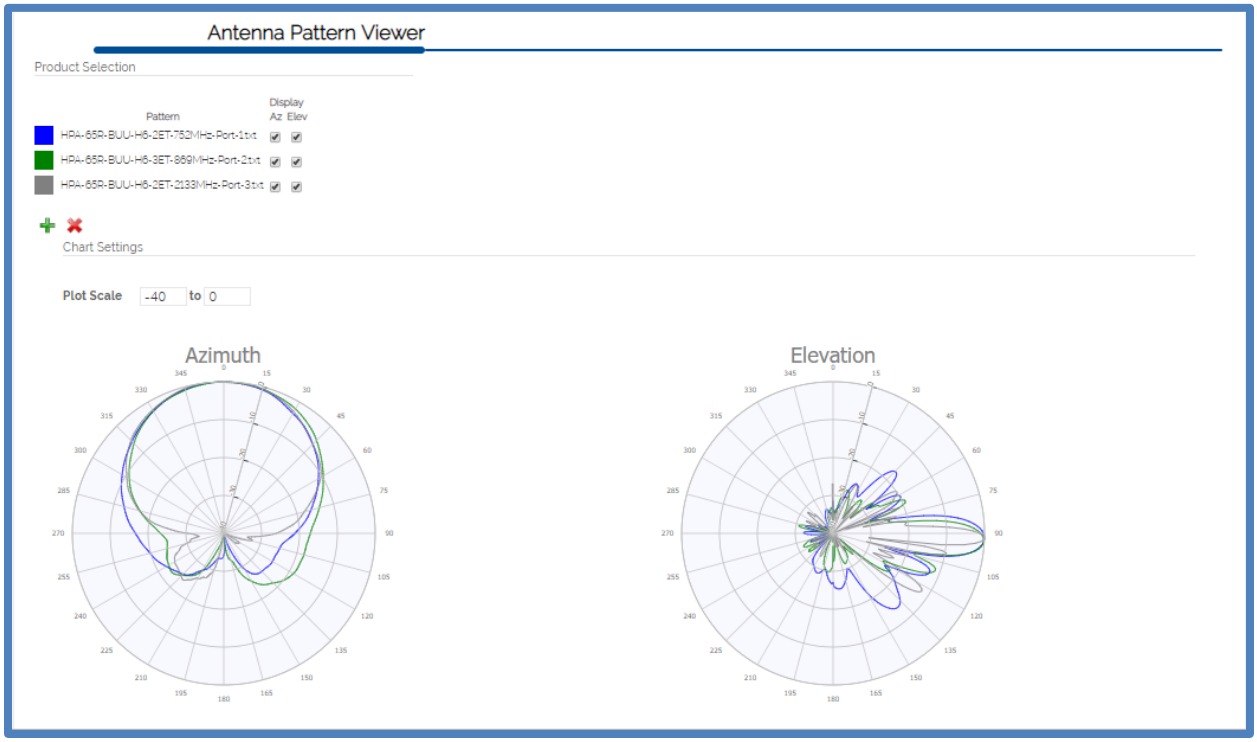




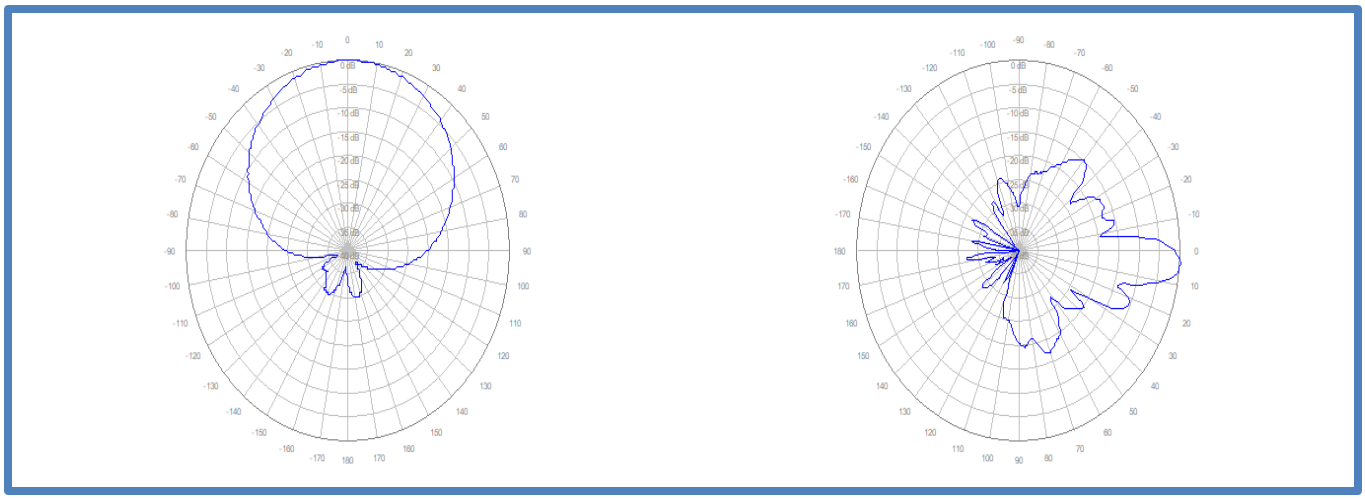
800 10766	Dualband antenna with mounting bracket 0°–10° // 0°–10° electrical downtilt
800 10766 K	Dualband antenna with mounting bracket and mechanical tilt bracket 0°–10° // 0°–10° electrical downtilt

Kathrein Inc., Scala Division Post Office Box 4580
Medford, OR 97501 (USA) Phone: (541) 779-6500
Fax: (541) 779-3991
Email: communications@kathrein.com Internet:
www.kathrein-scala.com

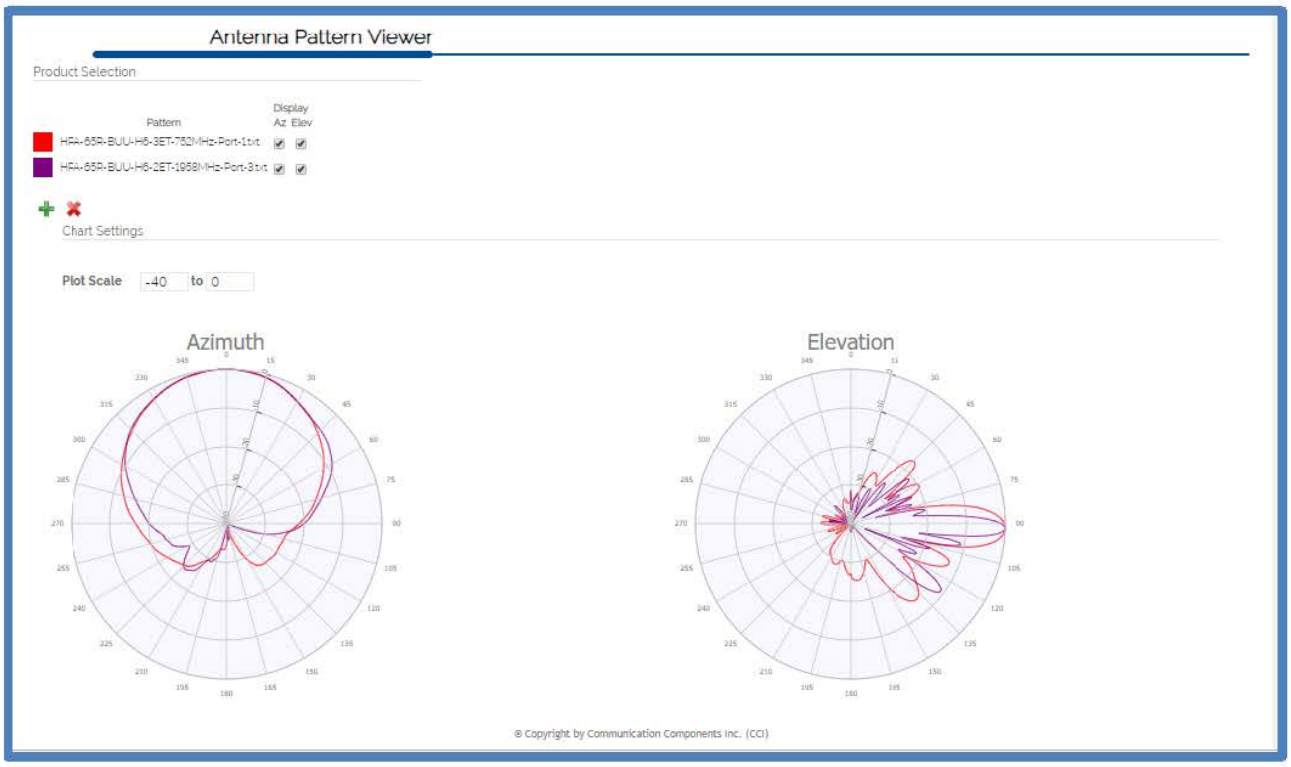
ANTENNA #2: (EXISTING)
CCI HPA-65R-BUU-H8



ANTENNA #3: (*PROPOSED*)
KATHREIN 800-10966



ANTENNA #4: (EXISTING)
CCI HPA-65R-BUU-H8



ENDNOTES

[i]. Federal Register, Federal Communications Commission Rules; *Radiofrequency radiation; environmental effects evaluation guidelines* Volume 1, No. 153, 41006-41199, August 7, 1996. (47 CFR Part 1; Federal Communications Commission).

[ii]. Telecommunications Act of 1996, 47 USC; Second Session of the 104th Congress of the United States of America, January 3, 1996.

[iii]. 105 CMR 122.000: Massachusetts Department of Public Health, *Non-Ionizing Radiation Limits for: The General Public from Non-Occupational Exposure to Electromagnetic Fields, Employees from Occupational Exposure to Electromagnetic Fields, and Exposure from Microwave Ovens*.

[iv]. ANSI/IEEE C95.1-1999: American National Standard, *Safety levels with respect to human exposure to radio frequency electromagnetic fields, from 3 kHz to 300 GHz* **(Updated in 2018)**.

[v]. National Council on Radiation Protection and Measurements (NCRP); *Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields*, NCRP Report 86, 1986.

[vi]. OET Bulletin 65: Federal Communications Commission Office of Engineering and Technology, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*; Edition 97-01, August 1999.

(REVISED)
STRUCTURAL ANALYSIS REPORT

For

MA2884 (LTE 4C/5C/6C/7C)
CAMBRIDGE CANAL PARK
10 Canal Park
Cambridge, MA 02141

Antennas Mounted on Screen Wall and Equipment Shelter
Equipment in Shelter on Roof

Prepared for:

EMPIRE telecom

at&t

Dated: April 11, 2018 (Rev.1)
January 4, 2018

COMMONWEALTH OF MASSACHUSETTS
DANIEL P. HAMM
CIVIL
No. 40720
REGISTERED PROFESSIONAL ENGINEER

Prepared by:

HUDSON Design Group LLC
45 Beechwood Drive
North Andover, MA 01845
Phone: (978) 557-5553
www.hudsondesigngroupllc.com

HUDSON
Design Group LLC

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by AT&T to conduct a structural evaluation of the structure supporting the proposed AT&T equipment located in the areas depicted in the latest HDG construction drawings.

This report represents this office's findings, conclusions and recommendations pertaining to the support of AT&T's proposed equipment.

This office conducted an on-site visual survey of the above areas on November 30, 2017. Attendees included Sergio Anastacio (HDG – Assistant Project Manager).

CONCLUSION SUMMARY:

Building Plans were not available and could not be obtained for our use. A limited visual survey of the structure was completed in or near the areas of the proposed work.

Based on our evaluation, we have determined that the existing structure **IS CAPABLE** of supporting the proposed equipment loading.

APPURTENANCE/EQUIPMENT CONFIGURATION:

(2) 800-10766 Antennas (96.0"x11.8"x6.0" - Wt. = 62 lbs. /each)

(1) SBNHH-1D65A Antennas (55.6"x11.9"x7.1" - Wt. = 34 lbs. /each)

(6) HPA-65R-BUU-H8 Antennas (92.4"x14.8"x7.4" - Wt. = 68 lbs. /each)

(6) RRUS-11 RRH's (19.7"x17.0"x7.2" Wt. = 51 lbs. /each)

(9) RRUS-12 RRH's (20.4"x18.5"x7.5" – Wt. = 58 lbs. /each)

(3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)

(6) Surge Arrestors (24.0"x9.7"Φ – Wt. = 33 lbs. /each)

(3) 800-10966 Antennas (96.0"x20.0"x6.9" Wt. = 115 lbs. /each)

(3) RRUS-E2 RRH's (20.4"x18.5"x7.5" – Wt. = 53 lbs. /each)

(3) RRUS-32 B66 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)

(3) B14 4478 RRH's (18.2"x13.4"x8.3" – Wt. = 60 lbs. /each)

(3) DBC0061F1V51-2 Diplexers (8.0"x6.2"x6.5" – Wt. = 26 lbs. /each)

(3) Surge Arrestors (24.0"x9.7"Φ – Wt. = 33 lbs. /each)

**Proposed Loading Shown in Bold.*

HUDSON
Design Group LLC

DESIGN CRITERIA:

1. Massachusetts State Building code 9th edition and ASCE 7-10, Minimum Design Loads for Buildings and Other Structures.
2. Wind Analysis:

Reference Wind Speed:	128 mph	(780 CMR 1604.11)
Category:	B	(ASCE 7-10 Section 26.7.3)

Roof:

Ground Snow, Pg:	40 psf	(780 CMR 1604.11)
Occupancy Category:	II	(ASCE 7-10 Table 1.5-1)
Importance Factor (I):	1.0	(ASCE 7-10 Table 1.5-2)
Exposure Factor (Ce):	0.9	(Fully Exposed, Table 7-2)
Thermal Factor (Ct):	1.0	(ASCE 7-10 Table 7-3)

Calculated Flat Roof Snow Load:

Pf=0.7*Ce*Ct*I*Pg:	30 psf (min.)	(ASCE 7-10 Equation 7.3-1)

3. EIA/TIA -222- G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

City/Town:	Cambridge
County:	Middlesex
Wind Load:	105 mph
Nominal Ice Thickness:	1 inch

4. Approximate height above grade to the center of the antennas:

   81'-6"+/-

HUDSON Design Group LLC

ANTENNA SUPPORT RECOMMENDATIONS:

- The new Alpha and Beta sector antennas are proposed to be mounted on new pipe masts installed on new mounts secured to the existing screen wall with epoxy anchors

- The new Gamma sector antennas are proposed to be mounted on new pipe masts installed on new stand-off mounts secured to the existing equipment shelter with thru-bolts and backer plates.

RRH SUPPORT RECOMMENDATIONS:

- The new Alpha and Beta sector RRH's are proposed to be installed on the existing RRH non-penetrating ballast mounts located on the roof.

  Reference the chart below for the minimum ballast requirements.

MINIMUM BALLAST REQUIREMENTS	
NUMBER OF PROPOSED BLOCKS PER SIDE	4
SIZE OF PROPOSED BLOCKS	4"x8"x16" Solid
WEIGHT OF PROPOSED BLOCKS	38 lbs. /each
TOTAL BALLAST WEIGHT	304 lbs.

- The new Gamma sector RRH's are proposed to be installed on new unistrut components secured to the façade of the existing equipment shelter with thru-bolts and backer plates.

Limitations and assumptions:

1. Reference the latest HDG construction drawings for all the equipment locations details.
2. Mount all equipment per manufacturer's specifications.
3. 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.
4. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.
5. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
6. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

HUDSON
Design Group LLC

FIELD PHOTOS:

Photo 1: Sample photo illustrating the existing Alpha sector antennas.

Photo 2: Sample photo illustrating the existing Beta sector antennas.

FIELD PHOTOS (Cont.):

Photo 3: Sample photo illustrating the existing Gamma sector antennas and RRH's.

Photo 4: Sample photo illustrating the existing non-penetrating ballast mounts.

FIELD PHOTOS (Cont.):

Photo 5: Sample photo illustrating the existing equipment.

HUDSON
Design Group LLC

Wind and Ice
Calculations

Date: 4/11/2018
Project Name: Cambridge Canal Park
Project Number: MA2884
Designed By: JN **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

		z=	81.5 (ft)
		z_g=	1200 (ft)
K_z=	**0.932**	α=	7.0

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_e
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.4 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_e K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

		K_h=	#DIV/0!
		K_e=	0 (from Table 2-4)
K_{zt}=	**#DIV/0!**	K_t=	0 (from Table 2-5)
		f=	0 (from Table 2-5)
		z=	81.5
		H=	0 (Ht. of the crest above surrounding terrain)
		K_{zt}=	1.00

(If Category 1 then K_{zt} =1.0)

Category=	1

Date: 4/11/2018
Project Name: Cambridge Canal Park
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Designed By: JN Checked By: MSC

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2.6.7 Gust Effect Factor

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

Gh = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	71.5	Gh=	0.85

2.6.7.2 Guyed Masts Gh= 0.85

2.6.7.3 Pole Structures Gh= 1.1

2.6.9 Appurtenances Gh= 1.0

2.6.7.4 Structures Supported on Other Structures
(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

Gh=	1.35	**Gh=**	**1.35**

2.6.9.2 Design Wind Force on Appurtenances

$$F = q_z * Gh * (EPA)_A$$

$$q_z = 0.00256 * K_z * K_{zt} * K_d * V_{max}^2 * I$$

		K_z=	0.932
		K_{zt}=	1.0
q_z=	**24.99**	K_d=	0.95
$q_{z\ (ice)}$=	**3.63**	V_{max}=	105
		$V_{max\ (ice)}$=	40
		I=	1.0

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95

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Determine Ca:

Table 2-8

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Round	C < 32 (Subcritical)	0.7	0.8	1.2
	32 ≤ C ≤ 64 (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	C > 64 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance, and the section length considered to have uniform wind load).

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.00 in**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (1" Ice)
800-10766 Antenna	96.0	11.8	6.0	7.87	8.14	1.44	**382**	**66**
800-10766 Antenna (Side)	96.0	6.0	11.8	4.00	16.00	1.70	**229**	**45**
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	4.67	1.30	**201**	**35**
SBNHH-1D65A Antenna (Side)	55.6	7.1	11.9	2.74	7.83	1.43	**132**	**25**
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	6.24	1.37	**438**	**74**
HPA-65R-BUU-H8 Antenna (Side)	92.4	7.4	14.8	4.75	12.49	1.58	**254**	**48**
800-10966 Antenna	96.0	20.0	6.9	13.33	4.80	1.30	**586**	**95**
800-10966 Antenna (Side)	96.0	6.9	20.0	4.60	13.91	1.63	**253**	**48**
RRUS-11 RRH	19.7	17.0	7.2	2.33	1.16	1.20	**94**	**17**
RRUS-11 RRH (Side)	19.7	7.2	17.0	0.99	2.74	1.21	**40**	**8**
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.10	1.20	**106**	**19**
RRUS-12 RRH (Side)	20.4	7.5	18.5	1.06	2.72	1.21	**43**	**9**
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.10	1.20	**106**	**19**
RRUS-E2 RRH (Side)	20.4	7.5	18.5	1.06	2.72	1.21	**43**	**9**
RRUS-32 B66 RRH	27.2	12.1	7.0	2.29	2.25	1.20	**93**	**17**
RRUS-32 B66 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	**56**	**11**
B14 4478 RRH	15.0	13.2	7.4	1.38	1.14	1.20	**56**	**11**
B14 4478 RRH (Side)	15.0	7.4	13.2	0.77	2.03	1.20	**31**	**7**
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	1.29	1.20	**14**	**3**
DBC0061F1V51-2 Diplexer (Side)	8.0	6.5	6.2	0.36	1.23	1.20	**15**	**3**
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	**38**	**7**

Date: 4/11/2018
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Project Number: MA2884
Designed By: JN **Checked By:** MSC

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ICE WEIGHT CALCULATIONS

Thickness of ice (in): 1.00
* Density of ice used = 56 PCF

800-10766 Antenna

Weight of ice based on total radial SF area:		
Height (in):	96.0	
Width (in):	11.8	
Depth (in):	6.0	
Total weight of ice on object:		115 lbs
Weight of object:	62 lbs	
Combined weight of ice and object:		177 lbs

SBNHH-1D65A Antenna

Weight of ice based on total radial SF area:		
Height (in):	55.6	
Width (in):	11.9	
Depth (in):	7.1	
Total weight of ice on object:		74 lbs
Weight of object:	34 lbs	
Combined weight of ice and object:		108 lbs

HPA-65R-BUU-H8 Antenna

Weight of ice based on total radial SF area:		
Height (in):	92.4	
Width (in):	14.8	
Depth (in):	7.4	
Total weight of ice on object:		140 lbs
Weight of object:	68 lbs	
Combined weight of ice and object:		208 lbs

800-10966 Antenna

Weight of ice based on total radial SF area:		
Height (in):	96.0	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		176 lbs
Weight of object:	115 lbs	
Combined weight of ice and object:		291 lbs

RRUS-11 RRH

Weight of ice based on total radial SF area:		
Height (in):	19.7	
Width (in):	17.0	
Depth (in):	7.2	
Total weight of ice on object:		39 lbs
Weight of object:	51 lbs	
Combined weight of ice and object:		90 lbs

RRUS-12 RRH

Weight of ice based on total radial SF area:		
Height (in):	20.4	
Width (in):	18.5	
Depth (in):	7.5	
Total weight of ice on object:		43 lbs
Weight of object:	58 lbs	
Combined weight of ice and object:		101 lbs

RRUS-E2 RRH

Weight of ice based on total radial SF area:		
Height (in):	20.4	
Width (in):	18.5	
Depth (in):	7.5	
Total weight of ice on obje		43 lbs
Weight of object:	53 lbs	
Combined weight of ice and object:		96 lbs

RRUS-32 B66 RRH

Weight of ice based on total radial SF area:		
Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		39 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		99 lbs

B14 4478 RRH

Weight of ice based on total radial SF area:		
Height (in):	15.0	
Width (in):	13.2	
Depth (in):	7.4	
Total weight of ice on object:		26 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		86 lbs

DBC0061F1V51-2 Diplexer

Weight of ice based on total radial SF area:		
Height (in):	8.0	
Width (in):	6.2	
Depth (in):	6.5	
Total weight of ice on object:		9 lbs
Weight of object:	26 lbs	
Combined weight of ice and object:		35 lbs

Surge Arrestor

Weight of ice based on total radial SF area:		
Height (in):	24.0	
Width (in):	9.7	
Total weight of ice on object:		35 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		68 lbs

HSS 4x4x1/4

Weight of ice based on total radial SF area:		
Depth (in):	4	
height (in):	12	
Width (in):	4	
Per foot weight of ice on object:		6 lbs/ft

2" pipe

Per foot weight of ice:		
diameter (in):	2.375	
Per foot weight of ice on object:		3 lbs/ft

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Alpha and Beta Sector
Antenna Mount Calculations

Date: 4/11/2018
Project Name: Cambridge Canal Park
Project Number: MA2884
Designed By: JN **Checked By:** MSC

HUDSON Design Group LLC

CHECK CONNECTION CAPACITY (Worse Case)

Reference: Hilti HIT-HY 70 Hybrid Adhesive for Masonry

Epoxy Type =	HIT-HY70	
Anchor Diameter =	3/8	in.
Embedment Depth =	3-1/8	in. (Min.)

Allowable Tensile Load =

F_{Tall} = 905 lbs.

Allowable Shear Load =

F_{Vall}= 1045 lbs.

WIND FORCES

Reaction F = 585 lbs.

GRAVITY LOADS

Ice and Equipment 331 lbs.

No. of Supports = 2
No. of Anchors / Support = 2

Tension Design Load / Anchor =

f_t= 146.25 lbs. < 905 lbs. **Therefore, OK !**

Shear Design Load / Anchor=

f_v= 82.75 lbs. < 1045 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.162	+	0.079	=	0.241	<	1.0	**Therefore, OK !**

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Gamma Sector
Antenna Mount Calculations


Y
Z
X


A500 GrB rectangular
HSS_SQR 4X4X1_4
PIPE 2-1_2x0.203
A53 GrB
A500 GrB rectangular
HSS_SQR 4X4X1_4


Y
Z
X

Design status

- Not designed
- Error on design
- Design O.K.
- With warnings


2
3


Y
Z
X

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Load data

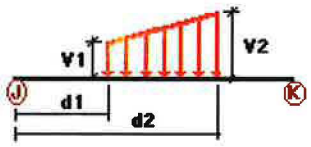
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

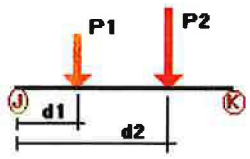
Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wof	Wind Load (NO ICE) (FRONT)	No	WIND
Wos	Wind Load (NO ICE) (SIDE)	No	WIND
Wif	Wind Load (WITH ICE) (FRONT)	No	WIND
Wis	Wind Load (WITH ICE) (SIDE)	No	WIND
Di	Ice Load	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Di	1	y	-0.003	0.00	0.00	No	0.00	No
	2	y	-0.006	0.00	0.00	No	0.00	No
	3	y	-0.006	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	1	y	-0.058	1.00	No
		y	-0.058	8.00	No
Wof	1	z	-0.191	1.00	No
		z	-0.191	9.00	No
Wos	1	x	-0.115	1.00	No

		x	-0.115	9.00	No
Wif	1	z	-0.033	1.00	No
		z	-0.033	9.00	No
Wis	1	x	-0.023	1.00	No
		x	-0.023	9.00	No
Di	1	y	-0.088	1.00	No
		y	-0.088	8.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wof	Wind Load (NO ICE) (FRONT)	No	0.00	0.00	0.00
Wos	Wind Load (NO ICE) (SIDE)	No	0.00	0.00	0.00
Wif	Wind Load (WITH ICE) (FRONT)	No	0.00	0.00	0.00
Wis	Wind Load (WITH ICE) (SIDE)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wof	0.00	0.00	0.00
Wos	0.00	0.00	0.00
Wif	0.00	0.00	0.00
Wis	0.00	0.00	0.00
Di	0.00	0.00	0.00

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Steel Code Check

Report: Summary - For all selected load conditions

Load conditions to be included in design :

LC1=1.2DL+1.6Wof
LC2=1.2DL+1.6Wos
LC3=0.9DL+1.6Wof
LC4=0.9DL+1.6Wos
LC5=1.2DL+Wif+Di
LC6=1.2DL+Wis+Di
LC7=1.2DL
LC8=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**2**	LC1 at 0.00%	0.05	OK	Eq. H1-1b
			LC2 at 100.00%	**0.05**	**OK**	Eq. H1-1b
			LC3 at 0.00%	0.05	OK	
			LC4 at 100.00%	0.05	OK	
			LC5 at 100.00%	0.03	OK	
			LC6 at 100.00%	0.04	OK	
			LC7 at 100.00%	0.02	OK	
			LC8 at 100.00%	0.01	OK	
		3	LC1 at 0.00%	0.05	OK	
			LC2 at 100.00%	**0.05**	**OK**	Eq. H1-1b
			LC3 at 0.00%	0.05	OK	Eq. H1-1b
			LC4 at 100.00%	0.05	OK	
			LC5 at 100.00%	0.03	OK	
			LC6 at 100.00%	0.04	OK	
			LC7 at 100.00%	0.02	OK	
			LC8 at 100.00%	0.01	OK	
	PIPE 2-1_2x0.203	**1**	LC1 at 72.92%	**0.22**	**OK**	Eq. H1-1b
			LC2 at 72.92%	0.13	OK	
			LC3 at 72.92%	0.22	OK	
			LC4 at 72.92%	0.13	OK	
			LC5 at 72.92%	0.03	OK	
			LC6 at 29.17%	0.03	OK	Eq. H1-1b
			LC7 at 29.17%	0.01	OK	
			LC8 at 29.17%	0.01	OK	


N5
N6


Y
Z
X

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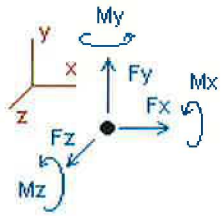
Analysis result

Reactions



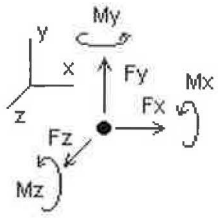
Direction of positive forces and moments

Node	Forces [Kip] FX	FY	FZ	Moments [Kip*ft] MX	MY	MZ
Condition **LC1=1.2DL+1.6Wof**						
5	0.00000	0.48077	0.28948	-0.38911	0.00000	0.00000
6	0.00000	-0.22235	0.32172	-0.00049	0.00000	0.00000
SUM	0.00000	0.25842	0.61120	-0.38960	0.00000	0.00000
Condition **LC2=1.2DL+1.6Wos**						
5	0.18400	0.12921	-0.01612	-0.19480	0.36800	-0.25519
6	0.18400	0.12921	0.01612	-0.19480	0.36800	0.25519
SUM	0.36800	0.25842	0.00000	-0.38960	0.73600	0.00000
Condition **LC3=0.9DL+1.6Wof**						
5	0.00000	0.44847	0.29351	-0.34041	0.00000	0.00000
6	0.00000	-0.25465	0.31769	0.04821	0.00000	0.00000
SUM	0.00000	0.19381	0.61120	-0.29220	0.00000	0.00000
Condition **LC4=0.9DL+1.6Wos**						
5	0.18400	0.09691	-0.01209	-0.14610	0.36800	-0.25519
6	0.18400	0.09691	0.01209	-0.14610	0.36800	0.25519
SUM	0.36800	0.19381	0.00000	-0.29220	0.73600	0.00000
Condition **LC5=1.2DL+Wif+Di**						
5	0.00000	0.26717	0.00352	-0.37371	0.00000	0.00000
6	0.00000	0.19125	0.06248	-0.33175	0.00000	0.00000
SUM	0.00000	0.45842	0.06600	-0.70547	0.00000	0.00000
Condition **LC6=1.2DL+Wis+Di**						
5	0.02300	0.22921	-0.02948	-0.35273	0.04600	-0.03190
6	0.02300	0.22921	0.02948	-0.35273	0.04600	0.03190
SUM	0.04600	0.45842	0.00000	-0.70547	0.09200	0.00000

Condition **LC7=1.2DL**						
5	0.00000	0.12921	-0.01612	-0.19480	0.00000	0.00000
6	0.00000	0.12921	0.01612	-0.19480	0.00000	0.00000
SUM	0.00000	0.25842	0.00000	-0.38960	0.00000	0.00000
Condition **LC8=0.9DL**						
5	0.00000	0.09691	-0.01209	-0.14610	0.00000	0.00000
6	0.00000	0.09691	0.01209	-0.14610	0.00000	0.00000
SUM	0.00000	0.19381	0.00000	-0.29220	0.00000	0.00000

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2DL+1.6Wof
LC2=1.2DL+1.6Wos
LC3=0.9DL+1.6Wof
LC4=0.9DL+1.6Wos
LC5=1.2DL+Wif+Di
LC6=1.2DL+Wis+Di
LC7=1.2DL
LC8=0.9DL

		Forces						Moments					
Node		**Fx** [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
5	Max	0.184	LC2	0.481	LC1	0.294	LC3	-0.14610	LC4	0.36800	LC2	0.00000	LC1
	Min	0.000	LC1	0.097	LC4	-0.029	LC6	-0.38911	LC1	0.00000	LC1	-0.25519	LC2
6	Max	0.184	LC2	0.229	LC6	0.322	LC1	0.04821	LC3	0.36800	LC2	0.25519	LC2
	Min	0.000	LC1	-0.255	LC3	0.012	LC4	-0.35273	LC6	0.00000	LC1	0.00000	LC1

Date: 4/11/2018
Project Name: Cambridge Canal Park
Project Number: MA2884
Designed By: JN **Checked By:** MSC

HUDSON Design Group LLC

CHECK CONNECTION CAPACITY (Worse Case)

Reference: AISC Steel Construction Manual 9th Edition (ASD)

Bolt Type = Threaded Rod
Bolt Diameter = 1/2 in.
Steel Grade = A36

Allowable Tensile Load =
F_{Tall} = 3750 lbs.

Allowable Shear Load =
F_{Vall}= 1940 lbs.

WIND FORCES

Reaction **F =** 481 lbs.

GRAVITY LOADS

Ice and Equipment 294 lbs.

No. of Supports = 1
No. of Bolts / Support = 4

Tension Design Load /Bolts =
f_t= 120.25 lbs. < 3750 lbs. **Therefore, OK !**

Shear Design Load / Bolts=
f_v= 73.50 lbs. < 1940 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.032	+	0.038	=	0.070	<	1.0	**Therefore, OK !**

HUDSON
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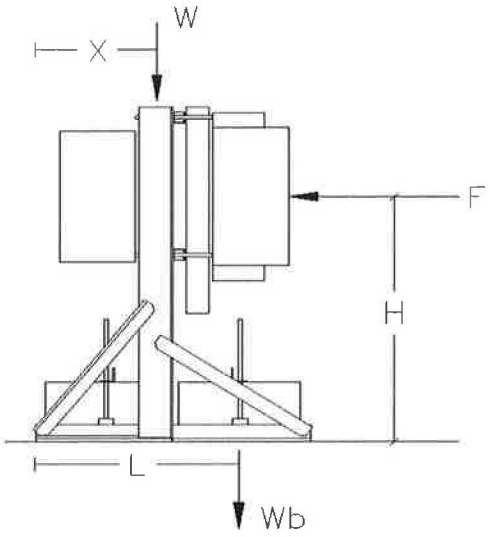
RRH Non-penetrating Ballast Mount Calculations

Date: 4/11/2018
Project Name: Cambridge Canal Park
Project Number: MA2884
Designed By: JN **Checked By:** MSC

HUDSON Design Group LLC

Calculate Total Ballast Required for Ballast Mount

Assume (2) RRH's as projected area



Force (F) =	212 lbs.
Height (H) =	2.75 ft
Weight (W) =	204 lbs.
Frame Width/2 (X) =	1.3 ft
Length (L) =	2.2 ft
Ballast (Wb) =	TBD
Safety Factor (SF) =	1.5

Overturning at Ballast

$\Sigma M = 0 = (F * H) - (W * X) - (Wb * L)$ ---> $Wb = [(F*H*SF-W*X)/L] =$ **277 lbs.**

Determine Number of Blocks Required
(assume 4"x8"x16" solid blocks @ 38 lbs. each)

Number of Blocks Required = 4 BLOCKS PER SIDE

-Total Weight of Fully Loaded Frame = 508 lbs.

-Footprint Area Under Ballast Frame = 10.5 sqft.

-Distributed Load Under Ballast Frame = 48 psf

PROJECT INFORMATION

SCOPE OF WORK:	TELECOMMUNICATIONS FACILITY UPGRADE (LTE 4C/5C/6C/7C/FIRSTNET): BASED OFF OF RFDS DATED: 05/15/18 PTN: 2101A0B8QT, 2101A0B8R9, 2101A0B8N0 & 2101A0B8M0 ROOFTOP: REMOVE: (3) AT&T ANTENNAS, (3) RRUS–11 & (3) RRUS–12 INSTALL: (3) LTE ANTENNAS & (12) RRH'S, (3) DIPLEXERS, (3) SURGE ARRESTORS & (6) DC POWER CABLES EXISTING TO REMAIN: (9) AT&T ANTENNAS, (15) RRH'S, (6) SURGE ARRESTORS, (12) DC POWER CABLES & (6) FIBER RUNS, EQUIPMENT SHELTER: INSTALL: (2) 5216, (1) XMU & (1) IDLe
SITE ADDRESS:	10 CANAL PARK CAMBRIDGE, MA 02141
LATITUDE:	42.36852° N 42° 22' 6.68" N
LONGITUDE:	71.07536° W 71° 4' 31.3" W
TYPE OF SITE:	ROOFTOP/EQUIPMENT SHELTER
BUILDING HEIGHT:	71'–6"±
RAD CENTER:	81'–6"±

SITE NUMBER: MA2884
SITE NAME: CAMBRIDGE CANAL PARK
PROJECT: LTE 4C/5C/6C/7C/FIRSTNET UPGRADE

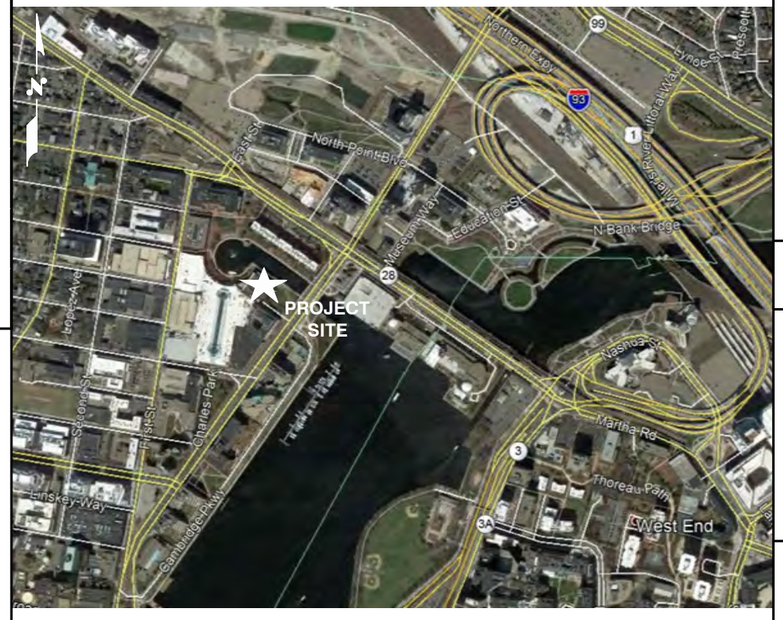
DRAWING INDEX

		REV
T-1	TITLE SHEET	0
GN-1	GENERAL NOTES	0
C-1	SITE PLAN	0
A-1	ROOF & EQUIPMENT PLANS	0
A-2	ANTENNA LAYOUTS	0
A-3	ELEVATION	0
A-4	DETAILS	0
S-1	STRUCTURAL DETAILS	0
G-1	GROUNDING DETAILS	0
RF-1	RF PLUMBING DIAGRAM	0

VICINITY MAP

DIRECTIONS TO SITE:

TAKE I–90 E TOWARDS BOSTON. TAKE EXIT 26 TOWARDS STORROW DRIVE. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR MA–28 N LEVERETT CIRCLE/NORTH STATION. TURN RIGHT ONTO MA 28–N. TURN LEFT ONTO EDWIN H LAND BLVD. THE SITE WILL BE ON THE RIGHT.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

UNDERGROUND SERVICE ALERT

811 DigSafe MA·ME·NH·RI·VT

WWW.DIGSAFE.COM
72 HOURS PRIOR

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

SITE NUMBER: MA2884
SITE NAME:
CAMBRIDGE CANAL PARK
10 CANAL PARK
CAMBRIDGE, MA 02141
MIDDLESEX COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	01/08/20	ISSUED FOR CONSTRUCTION	FM	JC	DPH
0	04/13/18	ISSUED FOR CONSTRUCTION	FM	JC	DPH
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2	01/31/18	ISSUED FOR CONSTRUCTION	FM	JC	DPH
1	01/10/18	ISSUED FOR REVIEW	FM	JC	DPH

SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: FM

COMMONWEALTH OF MASSACHUSETTS — DANIEL P. HAMM — CIVIL — No. 40720 — REGISTERED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE 4C/5C/6C/7C/FIRSTNET)

JOB NUMBER	DRAWING NUMBER	REV
MA2884	T–1	0

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – EMPIRE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
    BUILDING CODE: IBC 2015 & MA STATE BUILDING CODE 780 CMR 9TH EDITION
    ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
    LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

    MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL

    EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
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FAX: (978) 336-5586

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

SITE NUMBER: MA2884
SITE NAME:
CAMBRIDGE CANAL PARK
10 CANAL PARK
CAMBRIDGE, MA 02141
MIDDLESEX COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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1	01/10/18	ISSUED FOR REVIEW	FM	JC	DPH

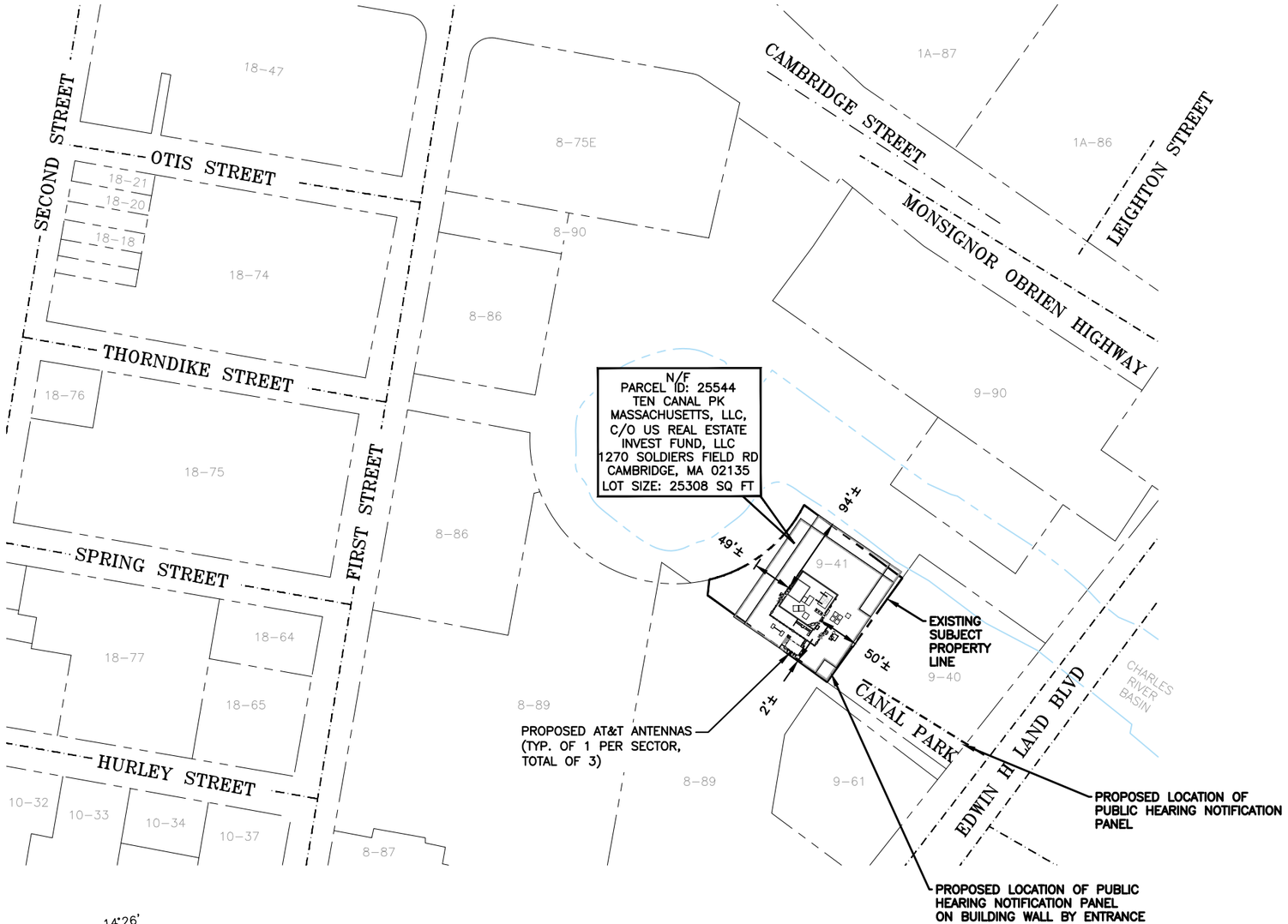
SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: FM

COMMONWEALTH OF MASSACHUSETTS
DANIEL P. HAMM
CIVIL
No. 40720
REGISTERED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE 4C/5C/6C/7C/FIRSTNET)

JOB NUMBER	DRAWING NUMBER	REV
MA2884	GN-1	0



SITE PLAN 1 / C-1
22x34 SCALE: 1"=80'
11x17 SCALE: 1"=160'

0 40' 80' 160' 240'

NOTE:
LOCUS/SITE PLAN PREPARED BY HUDSON DESIGN GROUP, LLC. FROM GIS, ASSESSORS DATA AND OTHER SOURCES, ACCESSED 08/01/19, AND DOES NOT REPRESENT AN ACTUAL FIELD OR BOUNDARY SURVEY.

ZONING INFORMATION		
ZONING DISTRICT:	(RC) RESIDENTIAL COMPATIBILITY DISTRICT	
DIMENSIONS REQUIREMENTS:	REQUIRED	PROPOSED
ANTENNA SETBACKS		
FRONT YARD SETBACK:	N/A	50'±
SIDE YARD SETBACK:	N/A	2'±, 94'±
REAR YARD SETBACK:	N/A	49'±
(ALL MEASUREMENTS ARE IN FEET ± UNLESS OTHERWISE NOTED)		

LEGEND

——— - - ———	SUBJECT PROPERTY LINE
——— - - ———	ABUTTING PROPERTY LINE
MAP XX LOT XX	PARCEL ID
▨	EXISTING BUILDING

GENERAL NOTES:

1. PROPERTY OWNER: TEN CANAL PK MASSACHUSETTS, LLC, C/O US REAL ESTATE INVEST FUND, LLC 1270 SOLDIERS FIELD RD CAMBRIDGE, MA 02135
2. SITE NAME: CAMBRIDGE CANAL PARK
3. SITE ADDRESS: 10 CANAL PARK CAMBRIDGE, MA 02141
4. APPLICANT: AT&T MOBILITY 550 COCHITUATE RD FRAMINGHAM, MA 01701
5. JURISDICTION: CITY OF BOSTON, MA
6. TAX ID PARCEL NUMBER: 25544
7. ZONING JURISDICTION: PLANNED UNIT DEVELOPMENT (PUD-4)
8. FEMA FLOOD HAZARD DESIGNATION: ZONE X
9. PROPERTY LINE INFORMATION (WHEN APPLICABLE) WAS PREPARED USING TAX MAPS, AND PLANS OF RECORD AND SHOULD NOT BE CONSTRUCTED AS A BOUNDARY SURVEY.
10. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY:
    DIG SAFE SYSTEM (MA, ME, NH, RI, VT): GENERAL RESIDENTIAL, AGRICULTURAL, RURAL 1-888-344-7233
    CALL BEFORE YOU DIG (CT): 1-800-922-4455
11. THE WIRELESS TELECOMMUNICATION FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
12. THE WIRELESS TELECOMMUNICATION FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. (THERE IS NO HANDICAP ACCESS REQUIRED).

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

EMPIRE telecom
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COMMONWEALTH OF MASSACHUSETTS
DANIEL P. HAMM
No. 40720
REGISTERED PROFESSIONAL ENGINEER
CIVIL

AT&T

SITE PLAN
(LTE 4C/5C/6C/7C/FIRSTNET)

JOB NUMBER	DRAWING NUMBER	REV
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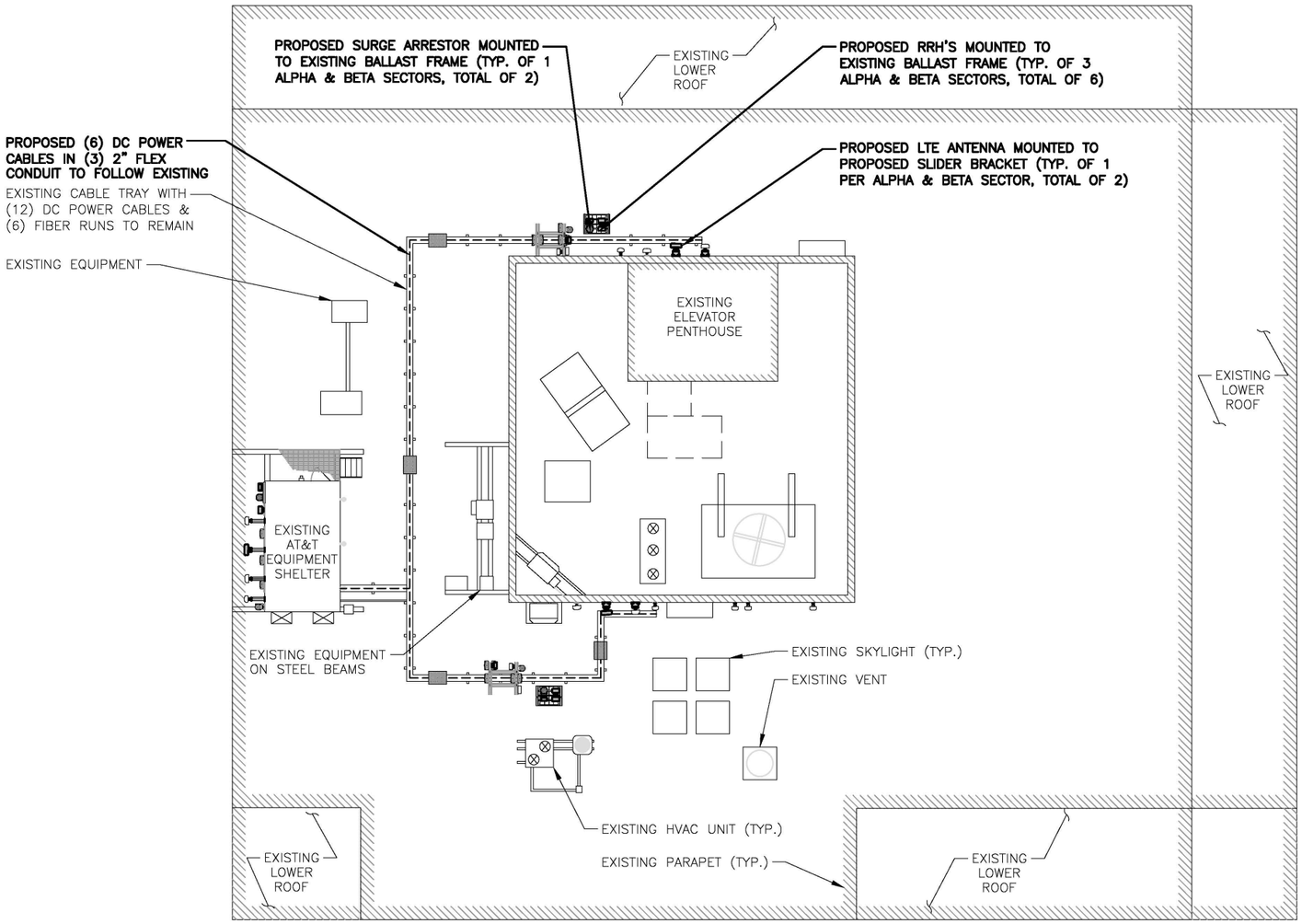
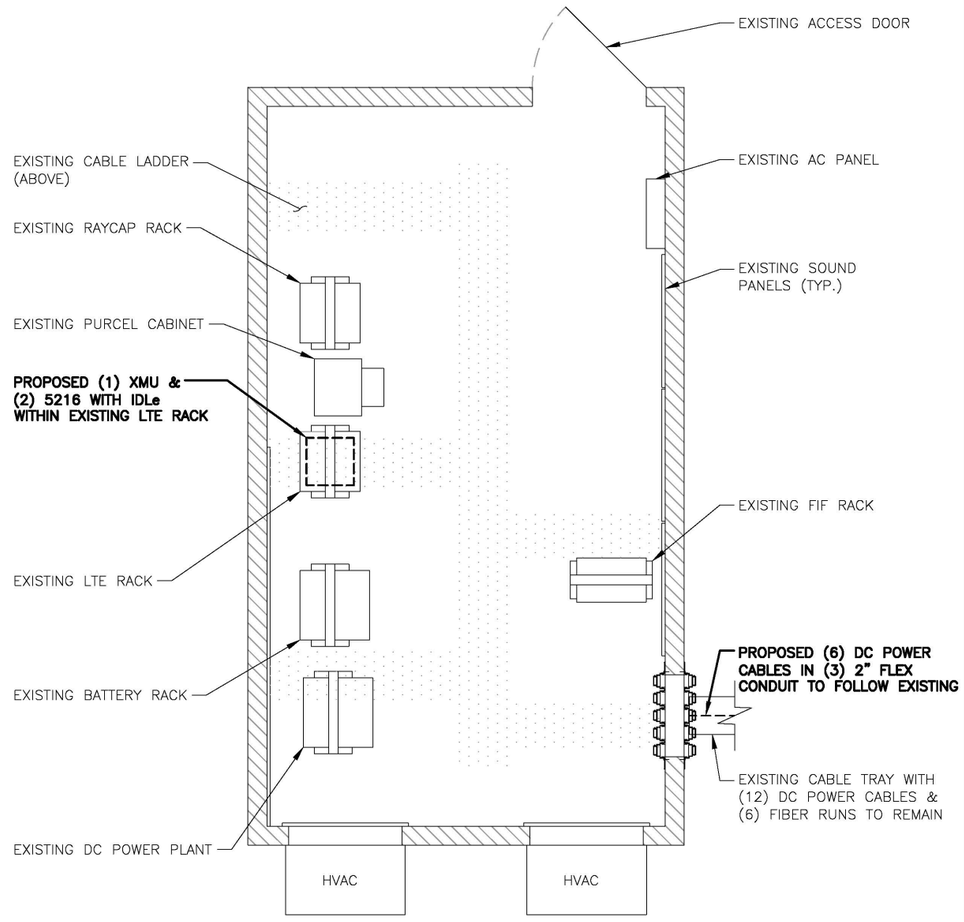
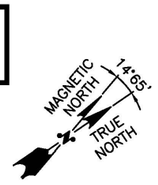
NOTE:

REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: JANUARY 3, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.





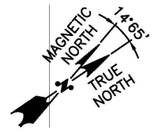
NOTE:
PAINT ALL VISIBLE PROPOSED EQUIPMENT TO MATCH EXISTING SURROUNDINGS.



1 A-3

ROOF PLAN 1 A-1
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

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



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

0 1'-0" 2'-0" 4'-0" 6'-0"

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COMMONWEALTH OF MASSACHUSETTS
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ROOF & EQUIPMENT PLANS
(LTE 4C/5C/6C/7C/FIRSTNET)

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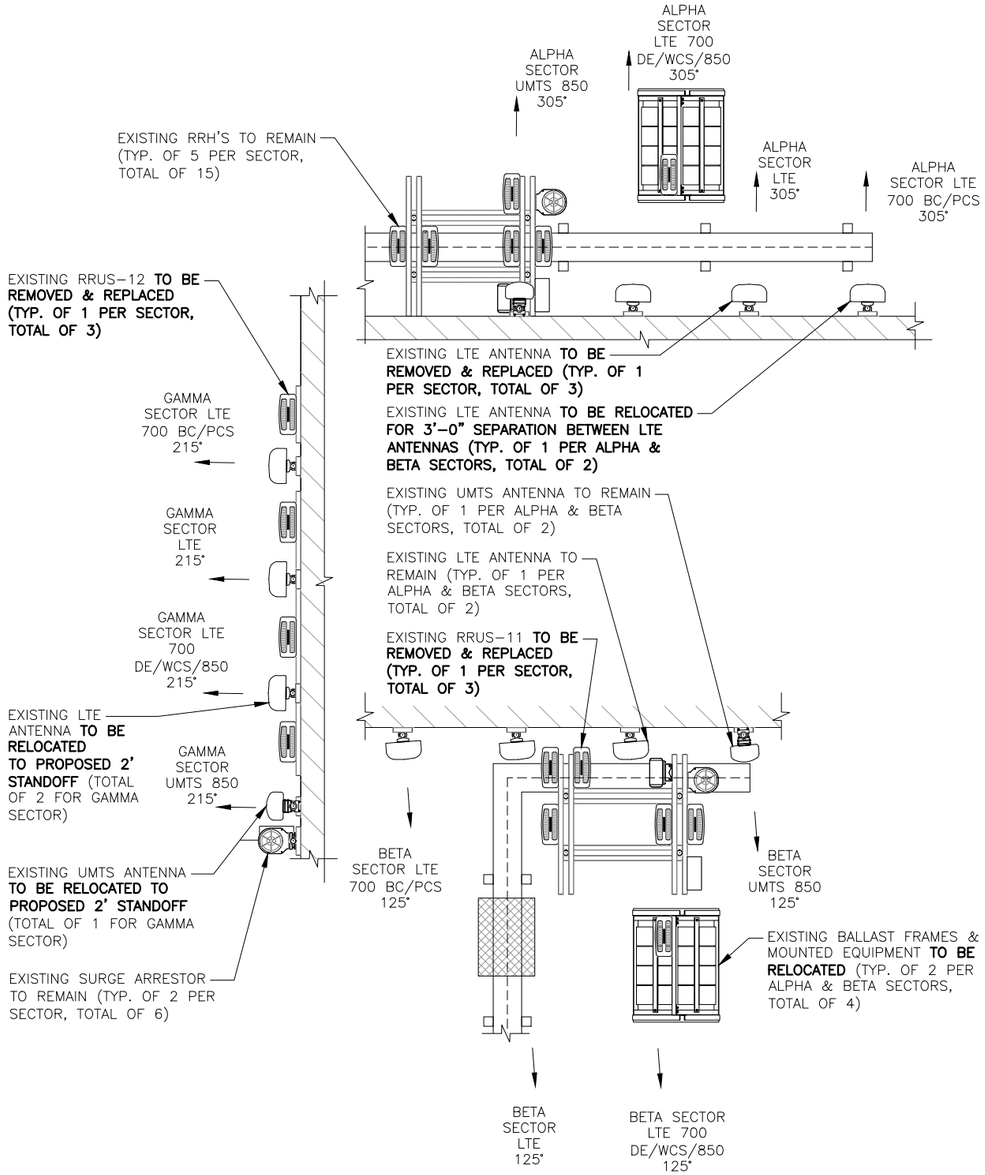
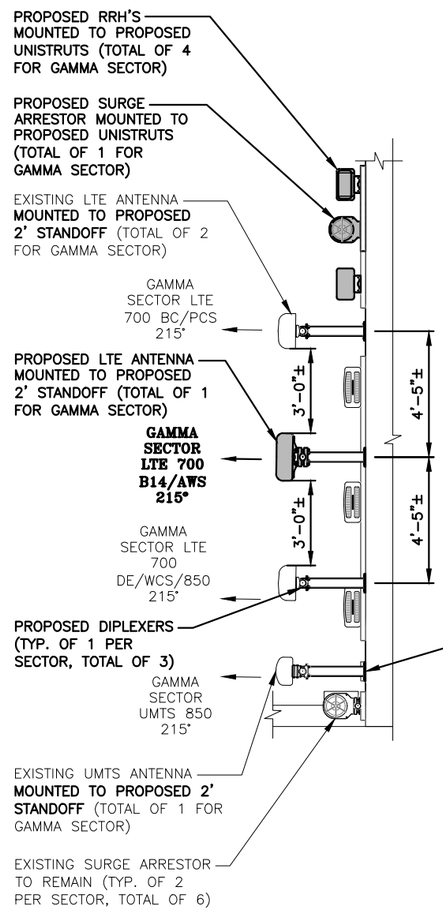
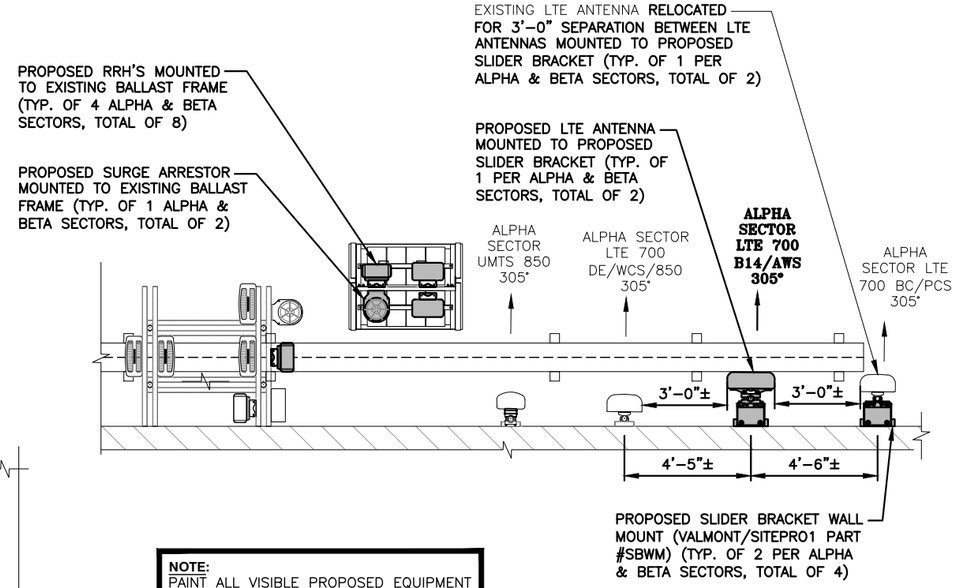


EXISTING ANTENNA LAYOUT (1 / A-2)
SCALE: N.T.S

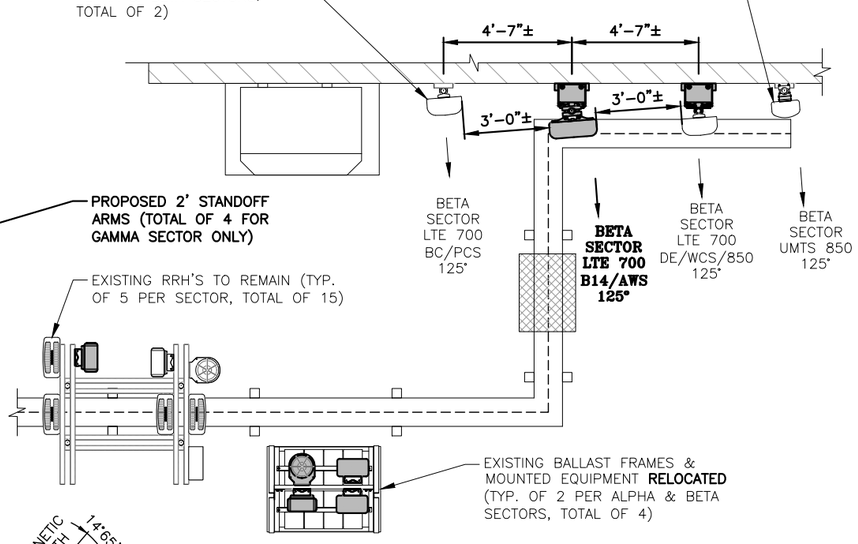
NOTE:
REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: JANUARY 3, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

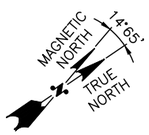
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.





NOTE:
PAINT ALL VISIBLE PROPOSED EQUIPMENT TO MATCH EXISTING SURROUNDINGS.





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

HUDSON Design Group LLC
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FAX: (978) 336-5586

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

SITE NUMBER: MA2884
SITE NAME:
CAMBRIDGE CANAL PARK
10 CANAL PARK
CAMBRIDGE, MA 02141
MIDDLESEX COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	01/08/20	ISSUED FOR CONSTRUCTION	FM	JC	DPH
0	04/13/18	ISSUED FOR CONSTRUCTION	BT	JC	DPH
0	03/12/18	ISSUED FOR CONSTRUCTION	FM	JC	DPH
2	01/31/18	ISSUED FOR CONSTRUCTION	FM	JC	DPH
1	01/10/18	ISSUED FOR REVIEW	FM	JC	DPH

SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: FM

COMMONWEALTH OF MASSACHUSETTS — DANIEL P. HAMM — No. 40720 — REGISTERED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUTS
(LTE 4C/5C/6C/7C/FIRSTNET)

JOB NUMBER	DRAWING NUMBER	REV
MA2884	A-2	0

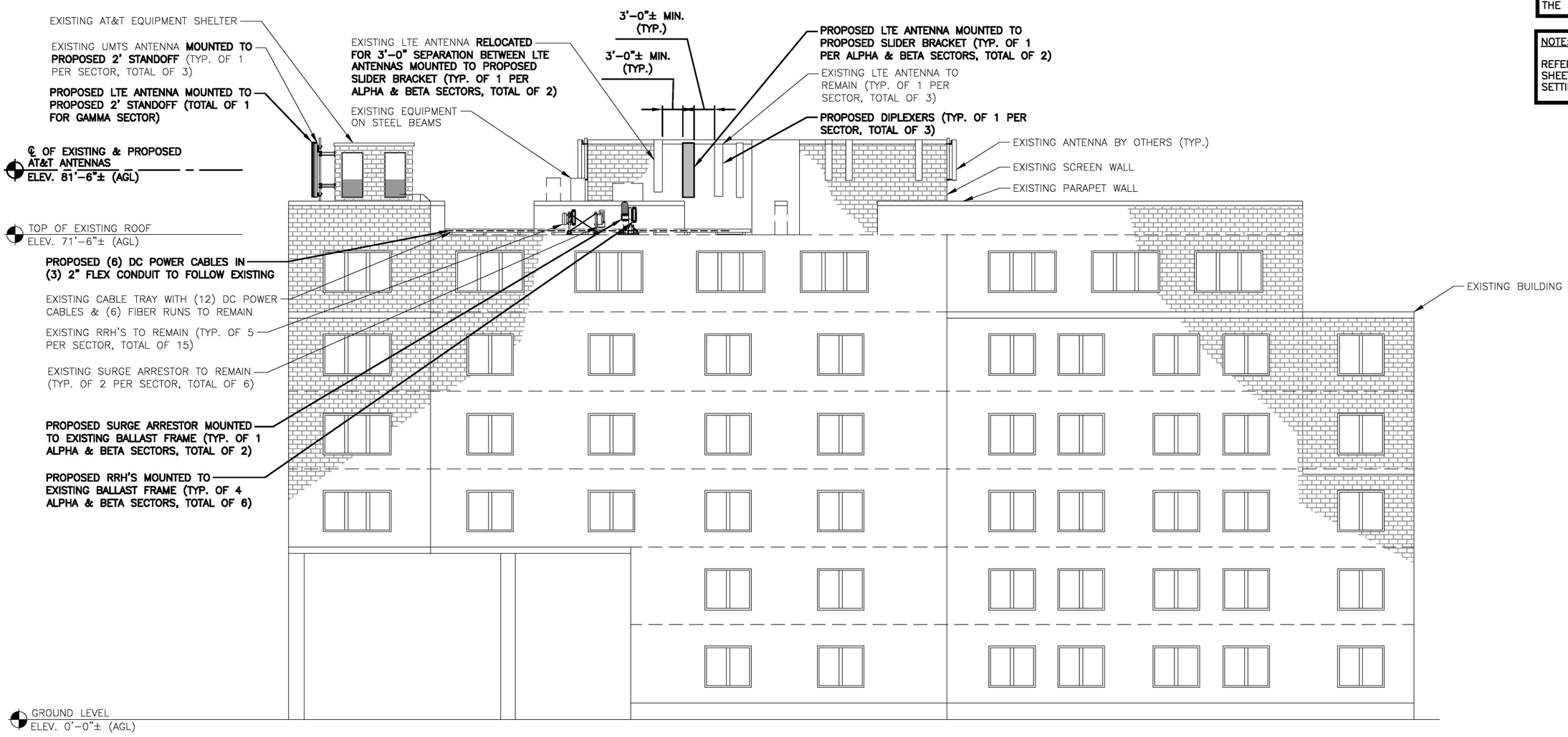
NOTE:
PAINT ALL VISIBLE PROPOSED EQUIPMENT TO MATCH EXISTING SURROUNDINGS.

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: JANUARY 3, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



SOUTH ELEVATION (1 / A-3)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

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SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: FM

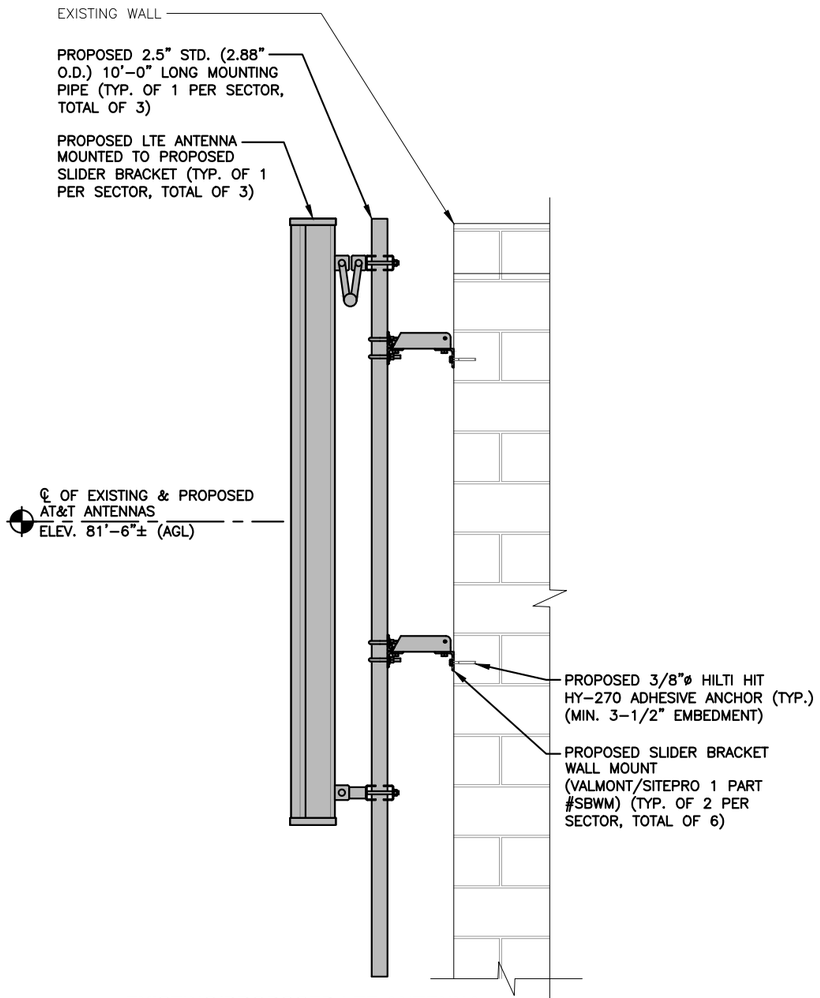
COMMONWEALTH OF MASSACHUSETTS
DANIEL P. HAMM
CIVIL
No. 40720
REGISTERED PROFESSIONAL ENGINEER

AT&T

ELEVATION
(LTE 4C/5C/6C/7C/FIRSTNET)

JOB NUMBER	DRAWING NUMBER	REV
MA2884	A-3	0

NOTE:
PAINT ALL VISIBLE PROPOSED EQUIPMENT TO MATCH EXISTING SURROUNDINGS.



EXISTING/PROPOSED LTE ANTENNA MOUNTING DETAIL (ALPHA & BETA SECTORS) (2 / A-4)
SCALE: N.T.S

FINAL ANTENNA SCHEDULE

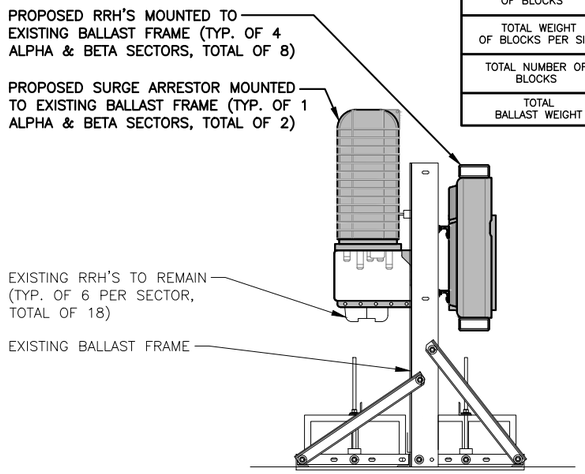
SECTOR	BAND	ANTENNA		SIZE (INCHES) (L X W X D)	RAD CENTER	AZIMUTH	RRU'S		SIZE (INCHES) (L X W X D)	TMA/DIPLEXERS		DC/FIBER
ALPHA	UMTS 850	EXISTING	800-10766	96.0X11.8X6.0	81'-6"±	305°	EXISTING	RRU-11	19.7X17.0X7.2			(6)/(2)
	LTE 700 DE/WCS/850	EXISTING	HPA-65R-BUU-H8	92.4X14.8X7.4	81'-6"±	305°	PROPOSED PROPOSED EXISTING	RRU-E2 B5 4478 RRU-32	20.0X20.4X9.5 18.1X13.4X8.3 27.2X12.1X7.0	PROPOSED	DBC0061F1V51-2	
	LTE 700 B14/AWS	PROPOSED	800-10966	96.0X20.0X6.9	81'-6"±	305°	PROPOSED PROPOSED	B14 4478 RRU-32 B66	18.1X13.4X8.3 27.2X12.1X7.0			
	LTE 700 BC/PCS	EXISTING	HPA-65R-BUU-H8	92.4X14.8X7.4	81'-6"±	305°	EXISTING EXISTING	RRU-11 (2) RRU-12	19.7X17.0X7.2 20.4X18.5X7.5			
BETA	UMTS 850	EXISTING	800-10766	96.0X11.8X6.0	81'-6"±	125°	EXISTING	RRU-11	19.7X17.0X7.2			(6)/(2)
	LTE 700 DE/WCS/850	EXISTING	HPA-65R-BUU-H8	92.4X14.8X7.4	81'-6"±	125°	PROPOSED PROPOSED EXISTING	RRU-E2 B5 4478 RRU-32	20.0X20.4X9.5 18.1X13.4X8.3 27.2X12.1X7.0	PROPOSED	DBC0061F1V51-2	
	LTE 700 B14/AWS	PROPOSED	800-10966	96.0X20.0X6.9	81'-6"±	125°	PROPOSED PROPOSED	B14 4478 RRU-32 B66	18.1X13.4X8.3 27.2X12.1X7.0			
	LTE 700 BC/PCS	EXISTING	HPA-65R-BUU-H8	92.4X14.8X7.4	81'-6"±	125°	EXISTING EXISTING	RRU-11 (2) RRU-12	19.7X17.0X7.2 20.4X18.5X7.5			
GAMMA	UMTS 850	EXISTING	SBNHH-1D65A	55X11.8X7.1	81'-6"±	215°	EXISTING	RRU-11	19.7X17.0X7.2			(6)/(2)
	LTE 700 DE/WCS/850	EXISTING	HPA-65R-BUU-H8	92.4X14.8X7.4	81'-6"±	215°	PROPOSED PROPOSED EXISTING	RRU-E2 B5 4478 RRU-32	20.0X20.4X9.5 18.1X13.4X8.3 27.2X12.1X7.0	PROPOSED	DBC0061F1V51-2	
	LTE 700 B14/AWS	PROPOSED	800-10966	96.0X20.0X6.9	81'-6"±	215°	PROPOSED PROPOSED	B14 4478 RRU-32 B66	18.1X13.4X8.3 27.2X12.1X7.0			
	LTE 700 BC/PCS	EXISTING	HPA-65R-BUU-H8	92.4X14.8X7.4	81'-6"±	215°	EXISTING EXISTING	RRU-11 (2) RRU-12	19.7X17.0X7.2 20.4X18.5X7.5			

FINAL ANTENNA SCHEDULE (1 / A-4)
SCALE: N.T.S

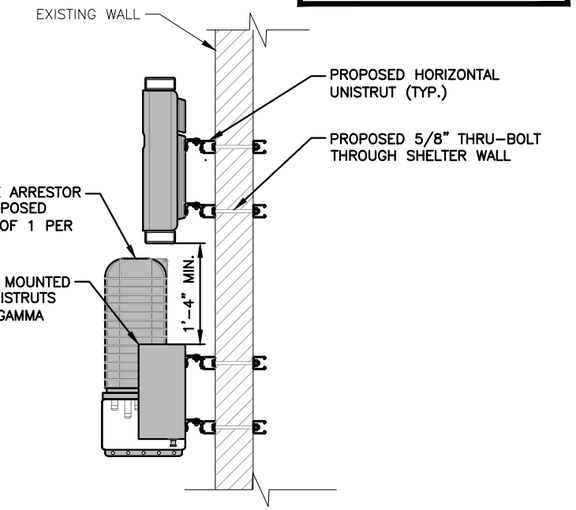
NOTE:
REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: JANUARY 3, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NUMBER OF BLOCKS PER SIDE	4
SIZE OF BLOCKS	4"x8"x16" (SOLID)
WEIGHT OF BLOCKS	38 lbs. EACH
TOTAL WEIGHT OF BLOCKS PER SIDE	152 lbs.
TOTAL NUMBER OF BLOCKS	8
TOTAL BALLAST WEIGHT	304 lbs.



PROPOSED RRH & SURGE ARRESTOR MOUNTING DETAIL (ALPHA & BETA SECTORS) (3 / A-4)
SCALE: N.T.S



PROPOSED RRH & SURGE ARRESTOR MOUNTING DETAIL (GAMMA SECTOR) (4 / A-4)
SCALE: N.T.S

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BILLERICA, MA 01862
TEL: (978) 608-8400

SITE NUMBER: MA2884
SITE NAME:
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10 CANAL PARK
CAMBRIDGE, MA 02141
MIDDLESEX COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

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1	01/10/18	ISSUED FOR REVIEW	FM	JC	DPH

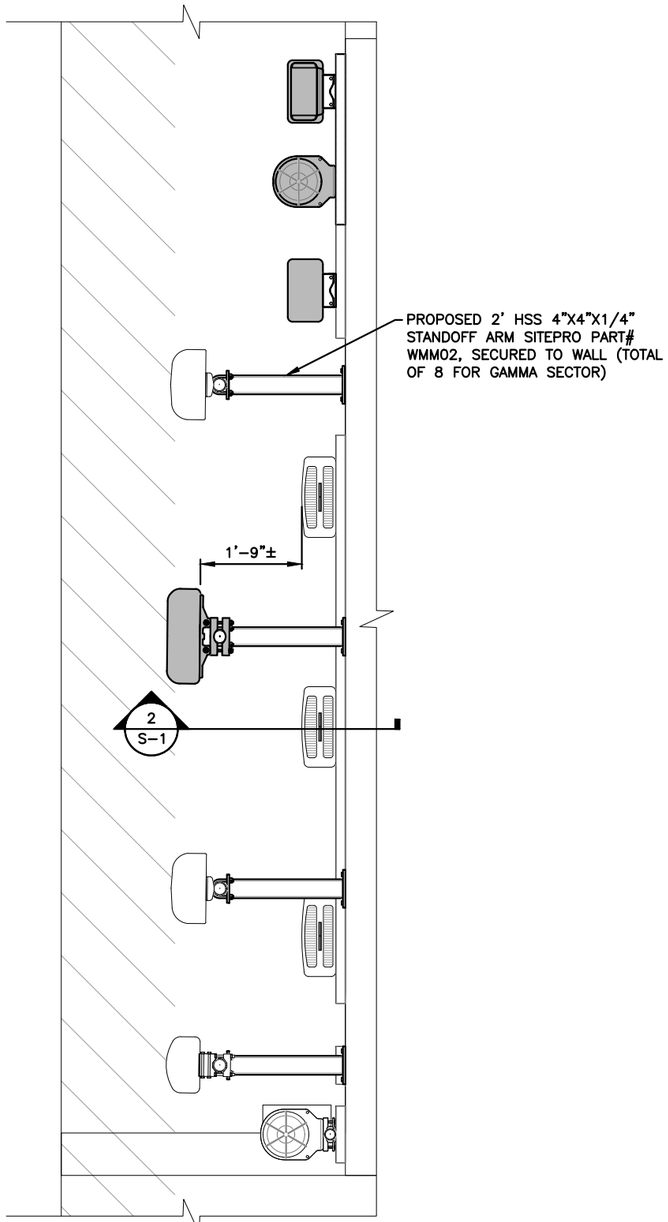
SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: FM

COMMONWEALTH OF MASSACHUSETTS
DANIEL P. HAMM
CIVIL
No. 40720
REGISTERED PROFESSIONAL ENGINEER

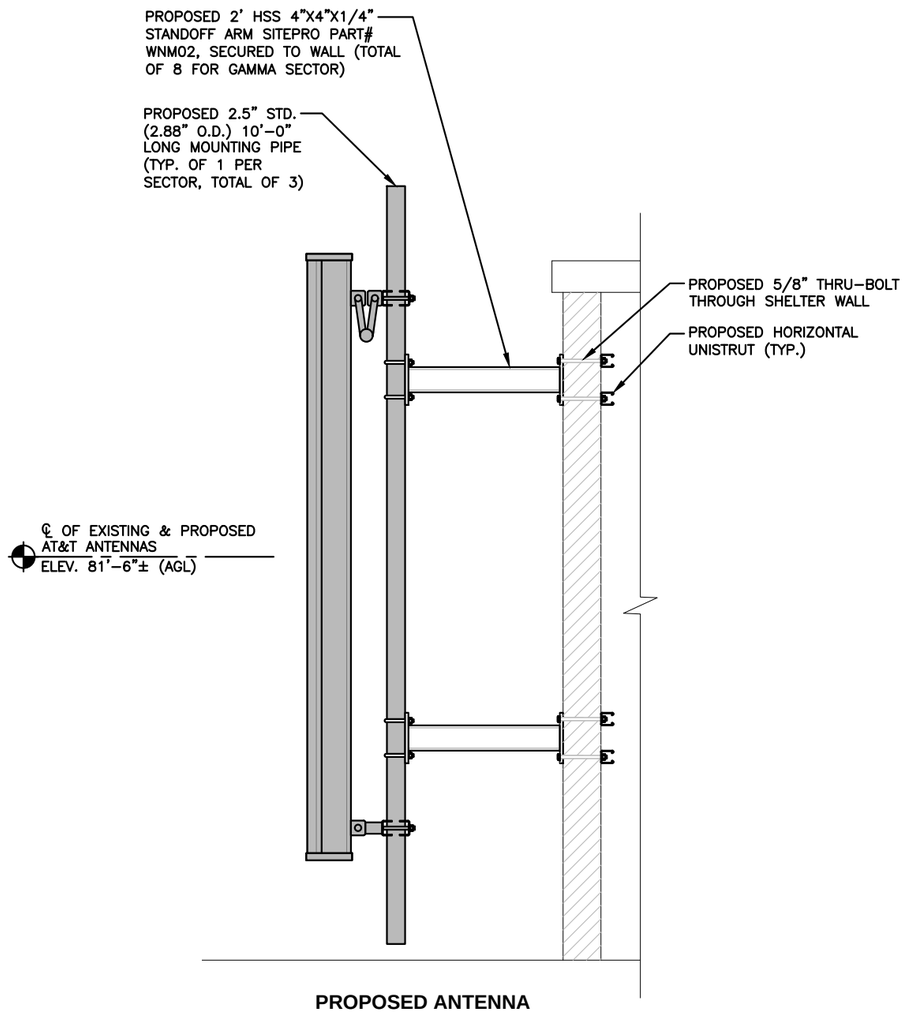
AT&T

DETAILS
(LTE 4C/5C/6C/7C/FIRSTNET)

JOB NUMBER	DRAWING NUMBER	REV
MA2884	A-4	0



GAMMA SECTOR PLAN VIEW (1 / S-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"



PROPOSED ANTENNA & STANDOFF ARM SIDE VIEW DETAIL (2 / S-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
0 0'-6" 1'-0" 2'-0" 3'-0"

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: JANUARY 3, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
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MIDDLESEX COUNTY

at&t
550 COCHITUATE ROAD
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1	01/10/18	ISSUED FOR REVIEW	FM	JC	DPH

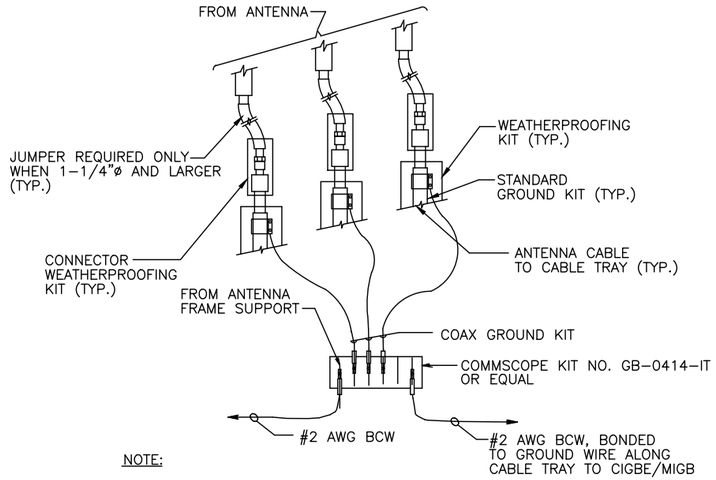
SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: FM

COMMONWEALTH OF MASSACHUSETTS
DANIEL P. HAMM
No. 40720
REGISTERED PROFESSIONAL ENGINEER
CIVIL

AT&T

STRUCTURAL DETAILS
(LTE 4C/5C/6C/7C/FIRSTNET)

JOB NUMBER	DRAWING NUMBER	REV
MA2884	S-1	0

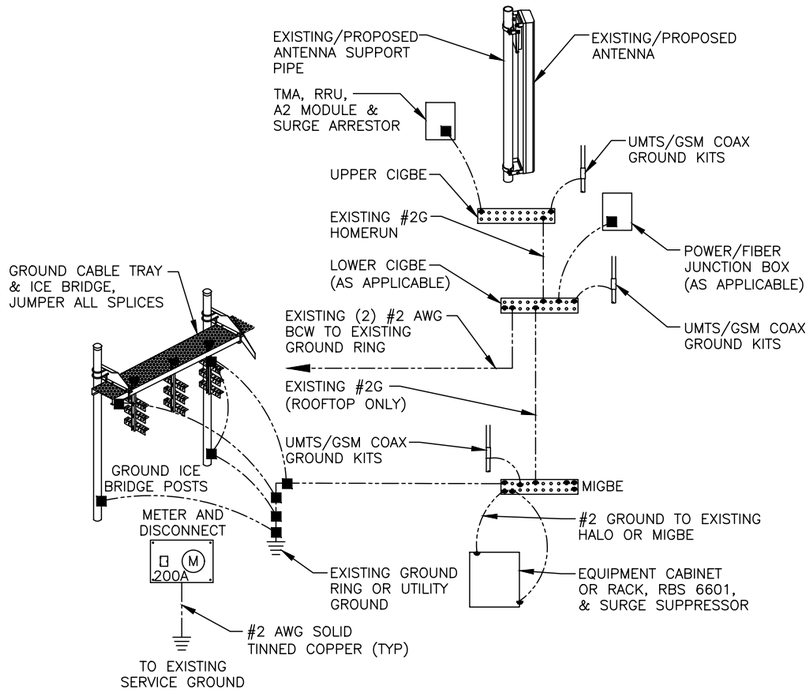


NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

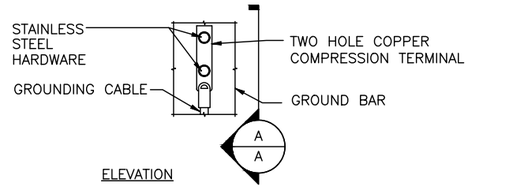
GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S



NOTES:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL (3 / G-1)

SCALE: N.T.S

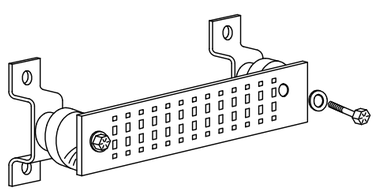
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
-48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED) (4 / G-1)

SCALE: N.T.S

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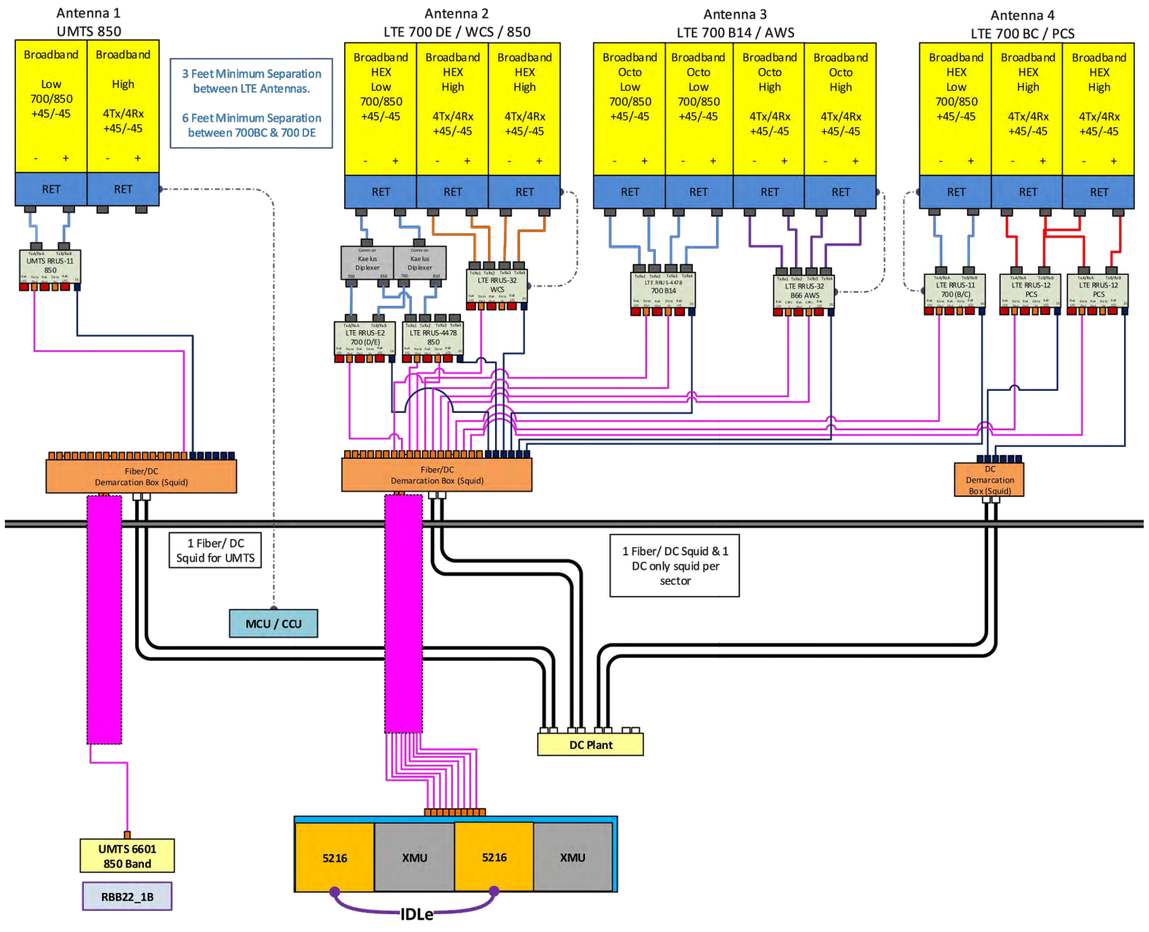
SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: FM

DANIEL P. HAMM CIVIL No.40720 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

AT&T

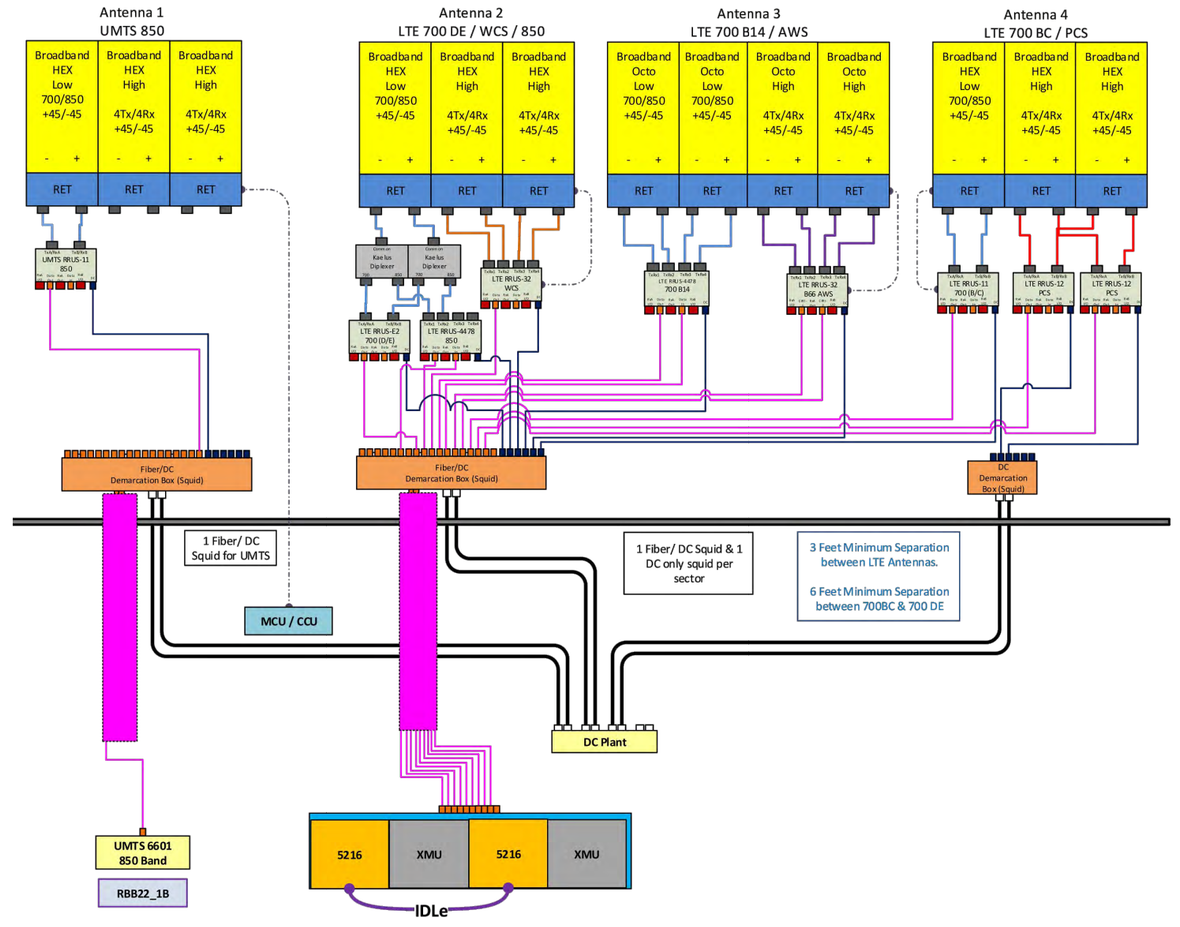
GROUNDING DETAILS
(LTE 4C/5C/6C/7C/FIRSTNET)

JOB NUMBER	DRAWING NUMBER	REV
MA2884	G-1	0



RF PLUMBING DIAGRAM (ALPHA & BETA) 1 RF–1

SCALE: N.T.S



RF PLUMBING DIAGRAM (GAMMA) 2 RF–1

SCALE: N.T.S

NOTES:

1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.

NOTE:

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SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: FM

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RF PLUMBING DIAGRAM
(LTE 4C/5C/6C/7C/FIRSTNET)

JOB NUMBER	DRAWING NUMBER	REV
MA2884	RF–1	0

Prepared For:
EMPIRE TELECOM
Site Name:
CAMBRIDGE CANAL PARK

10 CANAL PARK
CAMBRIDGE, MA 02141

SITE NAME: CAMBRIDGE CANAL PARK

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HDG HUDSON Design Group LLC
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TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP

DATE: 07/01/2019 | REV: 0

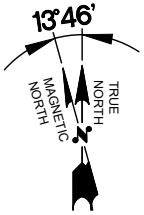
DRAWN BY: KAM

SCALE: N.T.S.

THIS STUDY DOES NOT CLAIM IN ANY WAY TO SHOW THE ONLY AREAS OF VISIBILITY. IT IS MEANT TO SHOW A BROAD REPRESENTATION OF AREAS WHERE THE PROPOSED INSTALLATION MAY BE VISIBLE BASED UPON THE BEST INFORMATION FOR TOPOGRAPHY AND VEGETATION LOCATIONS AVAILABLE TO DATE.

LOCUS MAP

TAKEN FROM GOOGLE.COM ON 06-27-19



LEGEND: ← DIRECTION OF VIEW (#) PHOTO LOCATION

SITE NAME: CAMBRIDGE CANAL PARK

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CAMBRIDGE, MA 02141

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EXISTING CONDITIONS

LOCATION # 1

DATE OF PHOTO: 06/24/2019

DETAIL OF EQUIPMENT

VIEW SOUTHWEST FACING BUILDING FROM CHARLES RIVER DAM RD

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

PREPARED FOR:
EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

HDG HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP

DATE: 07/01/2019 | REV: 0

DRAWN BY: KAM

SCALE: N.T.S.

THIS STUDY DOES NOT CLAIM IN ANY WAY TO SHOW THE ONLY AREAS OF VISIBILITY. IT IS MEANT TO SHOW A BROAD REPRESENTATION OF AREAS WHERE THE PROPOSED INSTALLATION MAY BE VISIBLE BASED UPON THE BEST INFORMATION FOR TOPOGRAPHY AND VEGETATION LOCATIONS AVAILABLE TO DATE.

PROPOSED CONDITIONS

LOCATION # 1

DATE OF PHOTO: 06/24/2019

DETAIL OF EQUIPMENT

VIEW SOUTHWEST FACING BUILDING FROM CHARLES RIVER DAM RD

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

PREPARED FOR:
EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP
DATE: 07/01/2019 | REV: 0
DRAWN BY: KAM
SCALE: N.T.S.

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EXISTING CONDITIONS

LOCATION # 2

DATE OF PHOTO: 06/24/2019

DETAIL OF EQUIPMENT

VIEW NORTHWEST FACING BUILDING FROM EDWIN H LAND BLVD

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141

at&t

550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

PREPARED FOR:

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP

DATE: 07/01/2019 | REV: 0

DRAWN BY: KAM

SCALE: N.T.S.

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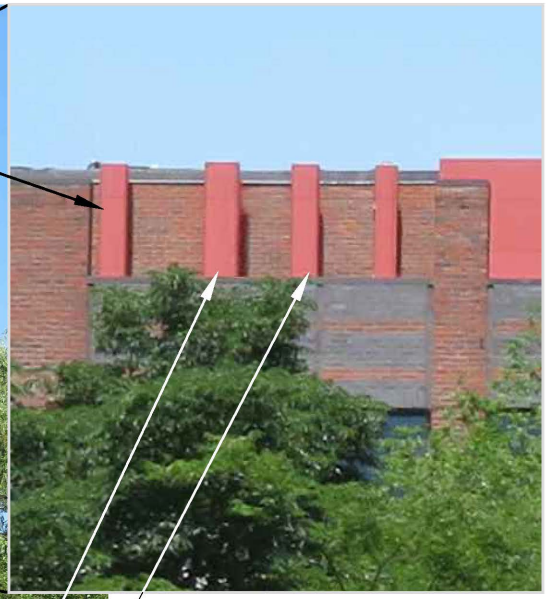
PROPOSED CONDITIONS

LOCATION # 2

DATE OF PHOTO: 06/24/2019



DETAIL OF EQUIPMENT

VIEW NORTHWEST FACING BUILDING FROM EDWIN H LAND BLVD

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

PREPARED FOR:
EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

HDG HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP
DATE: 07/01/2019 | REV: 0
DRAWN BY: KAM
SCALE: N.T.S.

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EXISTING CONDITIONS

LOCATION # 3

DATE OF PHOTO: 06/24/2019

DETAIL OF EQUIPMENT

VIEW NORTHWEST FACING BUILDING FROM EDWIN H LAND BLVD

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

PREPARED FOR:

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

HDG HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP

DATE: 07/01/2019 | REV: 0

DRAWN BY: KAM

SCALE: N.T.S.

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PROPOSED CONDITIONS

LOCATION # 3

DATE OF PHOTO: 06/24/2019

VIEW NORTHWEST FACING BUILDING FROM EDWIN H LAND BLVD

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

PREPARED FOR:
EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP
DATE: 07/01/2019 | REV: 0
DRAWN BY: KAM
SCALE: N.T.S.

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EXISTING/PROPOSED CONDITIONS LOCATION # 4 DATE OF PHOTO: 06/24/2019

VIEW NORTHEAST FACING BUILDING FROM EDWIN H LAND BLVD (NOT VISIBLE)

SITE NAME: CAMBRIDGE CANAL PARK
ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

PREPARED FOR:
EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP
DATE: 07/01/2019 REV: 0
DRAWN BY: KAM
SCALE: N.T.S.

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EXISTING CONDITIONS

LOCATION # 5

DATE OF PHOTO: 06/24/2019

DETAIL OF EQUIPMENT

VIEW SOUTHEAST FACING BUILDING FROM LECHMERE CANAL PARK

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141

at&t

550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

PREPARED FOR:

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP

DATE: 07/01/2019 | REV: 0

DRAWN BY: KAM

SCALE: N.T.S.

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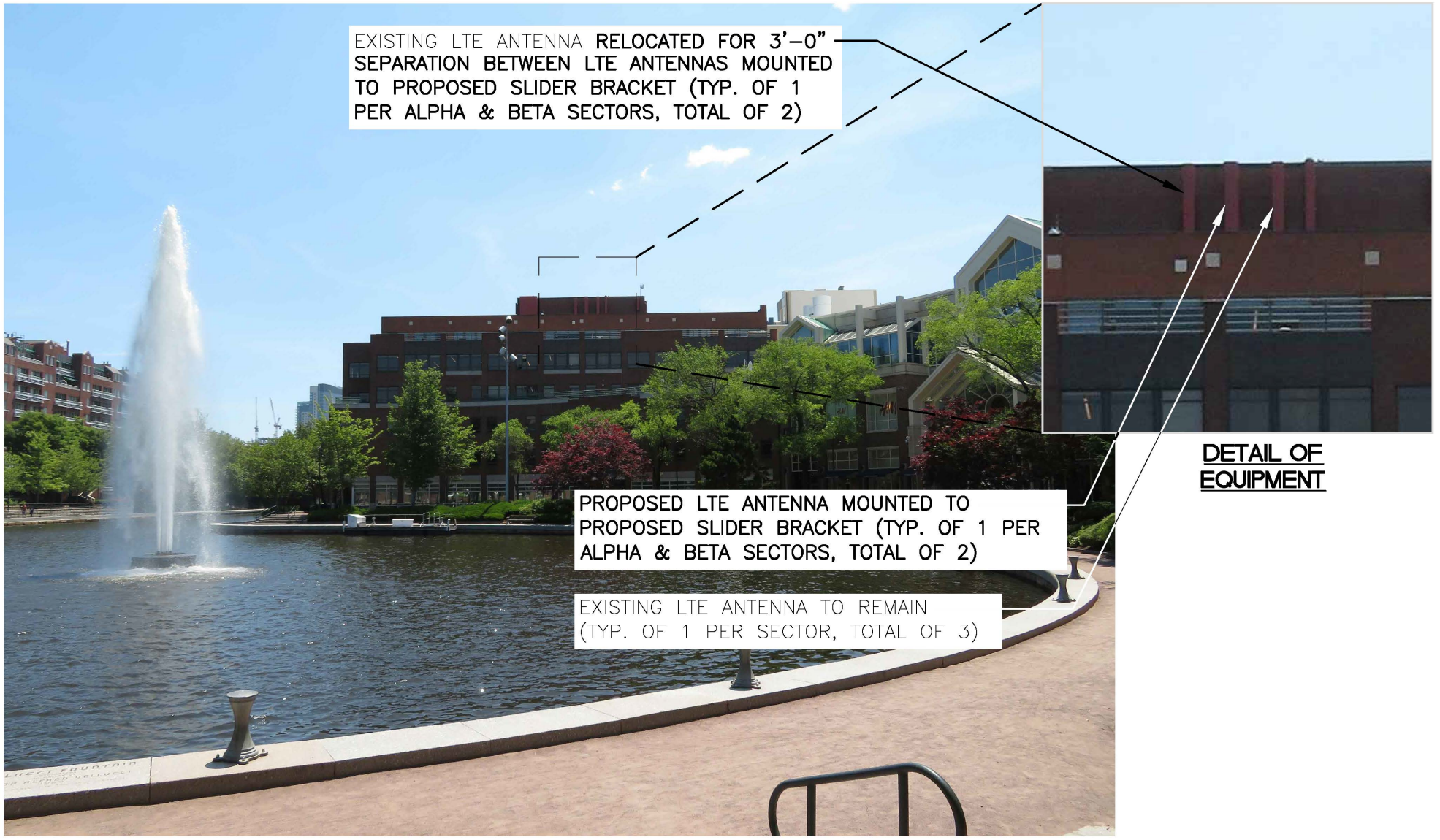
PROPOSED CONDITIONS

LOCATION # 5

DATE OF PHOTO: 06/24/2019



DETAIL OF EQUIPMENT

VIEW SOUTHEAST FACING BUILDING FROM LECHMERE CANAL PARK

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

PREPARED FOR:
EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862
TEL: (978) 608-8400

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP

DATE: 07/01/2019 | REV: 0

DRAWN BY: KAM

SCALE: N.T.S.

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AT&T's FCC Licenses

From: MCNANY, ESTHER
To: Christina Wallis
Cc: Scott Pike; Lauren Groppi; BIDON-LEWIS, RACHELLE; Carolyn Seeley; New England Compliance
Subject: RE: FA 10133905 / MA2268 - LTE 4C, 5C - FCC Licenses?
Date: Thursday, August 15, 2019 12:58:13 PM
Attachments: image001.png
image002.png

Call Signs

Select	Site Compliance	Call Sign	Radio Service	Market	Region	Entity Type
☐	☐	KNKA226	Cellular License	BOSTON, MA - A	NORTHEAST	mobility
☐	☐	KNLF216	PCS Broadband Auction 4, 5	BOSTON-PROVIDENCE - CW-A11	NORTHEAST	mobility
☐	☐	WPOI214	PCS Broadband Auction 4, 5	BOSTON-PROVIDENCE - CW-A7	NORTHEAST	mobility
☐	☐	KNLF954	PCS Broadband Auction 4, 5	BOSTON, MA- CW-D	NORTHEAST	mobility
☐	☐	WQQE234-NE	Public Safety Broadband Nationwide Licen	NW- SP	SPECTRUM LEASING	mobility
☐	☐	WQJU427	700 MHz Lower Band (Blocks A, B, E)	BOSTON-LOWELL-BROCKTON-LAWRENCE-HAVERHILL, MA-NH- WY-B	NORTHEAST	mobility
☐	☐	WQTZ616	700 MHz Lower Band (Blocks A, B, E)	BOSTON-WORCESTER-LAWRENCE-LOWELL-BROCKTON, MA-NH-RI-VT- WY-E	NORTHEAST	mobility
☐	☐	WPWU950	700 MHz Lower Band (Blocks C, D)	BOSTON-LOWELL-BROCKTON-LAWRENCE-HAVERHILL, MA-NH- WZ-C	NORTHEAST	mobility
☐	☐	WPZA235	700 MHz Lower Band (Blocks C, D)	NORTHEAST - WZ-D	NORTHEAST	mobility
☐	☐	WQVN675	AWS (1710-1755 MHz and 2110-2155 MHz)	BOSTON-WORCESTER-LAWRENCE-LOWELL-BROCKTON, MA-NH-RI-VT- AT-J	NORTHEAST	mobility
☐	☐	KNLB297	Wireless Communications Service License	NORTHEAST- WS-D	NORTHEAST	mobility
☐	☐	WPQL634	Wireless Communications Service License	NORTHEAST- WS-C7	NORTHEAST	mobility
☐	☐	KNLB210	Wireless Communications Service License	BOSTON- WS-A	NORTHEAST	mobility
☐	☐	KNLB200	Wireless Communications Service License	BOSTON- WS-B	NORTHEAST	mobility

Esther McNany
Manager Network Compliance
Wireless Engineering, Construction & Operations
(mobile) 860-729-1690 | em668m@att.com

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MOBILIZING **YOUR** WORLD

From: Christina Wallis <cwallis@empiretelecomm.com>
Sent: Thursday, August 15, 2019 7:19 AM
To: MCNANY, ESTHER <em668m@att.com>
Cc: Scott Pike <spike@empiretelecomm.com>; Lauren Groppi <lgroppi@empiretelecomm.com>; BIDON-LEWIS, RACHELLE <rb9471@att.com>; Carolyn Seeley <cseeley@empiretelecomm.com>; New England Compliance <newenglandcompliance@empiretelecomm.com>
Subject: FA 10133905 / MA2268 - LTE 4C, 5C - FCC Licenses?

Good Morning Esther,

SAQ has requested the FCC licenses for FA 10133905 / MA2268. Can you please send us the Call Signs for this site so they can look up the FCC licenses up on the website.

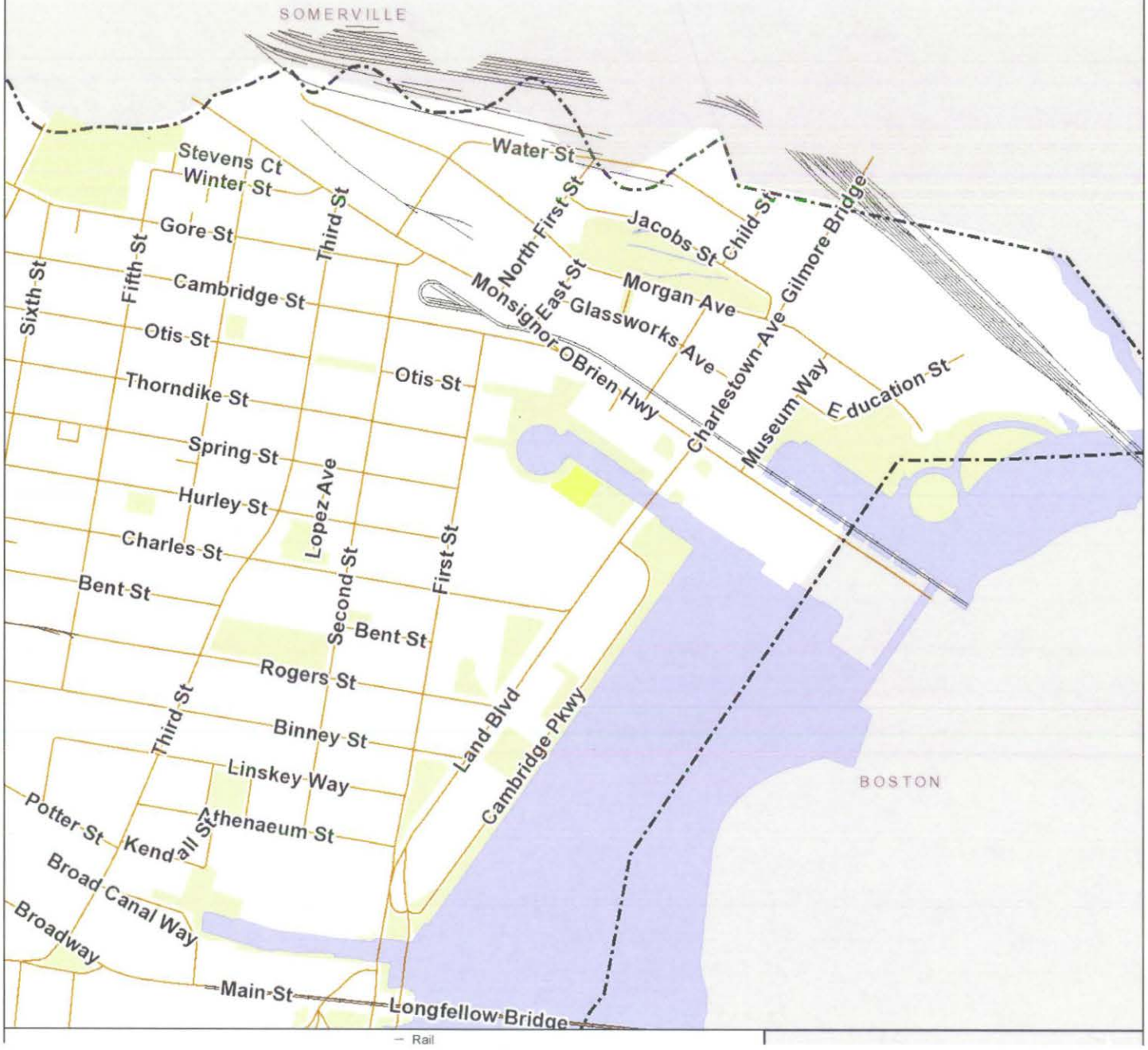
Thank you,
Christina Wallis
Compliance Specialist
16 Esquire Road, Billerica, MA 01862
Cell: (978) 405-4786
cwallis@empiretelecomm.com
newenglandcompliance@empiretelecomm.com

EMPIRE telecom
A Qualtek Company

City of Cambridge

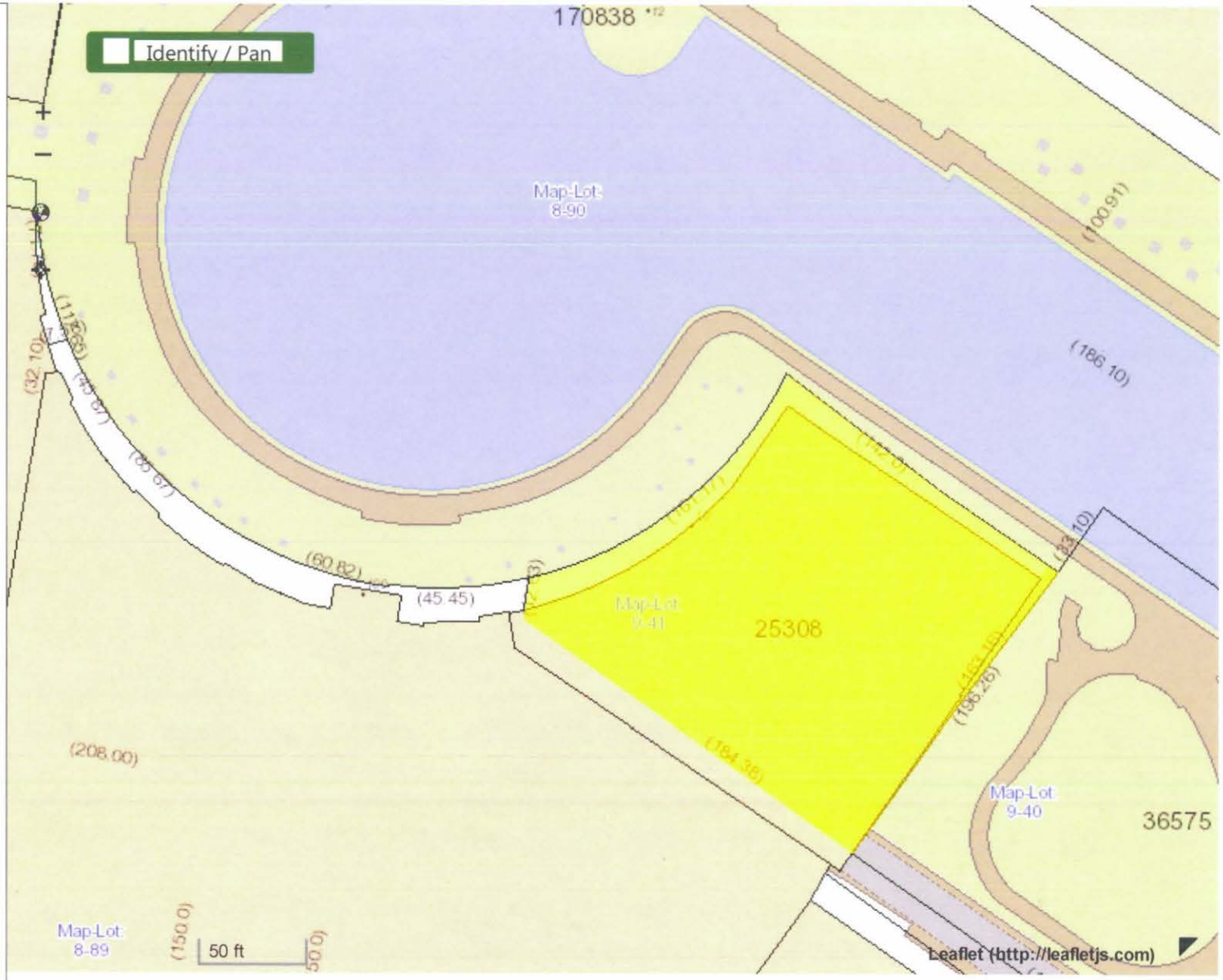
Property Map for 10 CANAL PK.

May 22, 2019



Cambridge CityViewer *City of Cambridge, MA* **(https://www.cambridgema.gov/GIS/interactivemaps/Cambridgecityviewer)**

- Search
- Selection
- Maps
- Draw
- Share



5.1.0 (production)

CITY OF CAMBRIDGE
MASSACHUSETTS
BOARD OF ZONING APPEAL
831 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139
617 349-6100

2020 JAN 17 AM 10:15
OFFICE OF THE CITY CLERK
CAMBRIDGE, MASSACHUSETTS

BZA APPLICATION FORM

Plan No: BZA-017241-2020

GENERAL INFORMATION

The undersigned hereby petitions the Board of Zoning Appeal for the following:

Special Permit : √ **Variance :** _____ **Appeal :** _____

PETITIONER : New Cingular Wireless PCS, LLC ("AT&T") - C/O Brown Rudnick LLP, Michael R.

PETITIONER'S ADDRESS : 10 Memorial Boulevard Providence, RI 02903

LOCATION OF PROPERTY : 10 Canal Pk Cambridge, MA 02141

TYPE OF OCCUPANCY : Wireless Communication Services **ZONING DISTRICT :** Business A Zone /PUD-4

REASON FOR PETITION :

Additions

DESCRIPTION OF PETITIONER'S PROPOSAL :

AT&T has Transmission Equipment mounted on the existing building at the 81' 6" AGL antenna centerline mark. AT&T is seeking to modify its facility as follows: remove 3 existing panel antennas (1 per sector) and replace them with an equal number of new panel antennas on new mounting brackets; remove 6 remote radio units and replace them with 12 remote radio units (for a gain of 6 remote radio units); install 3 surge arrestors, 3 diplexers, and 6 power cables and other equipment all as per supporting statements and plans submitted herewith.

SECTIONS OF ZONING ORDINANCE CITED :

Article 4.000 Section 4.32.G.1 (Telecommunications Facility).
Article 4.000 Section 4.40 (Footnote 49) (Telecommunications Facility).
Article 10.000 Section 10.40 (Special Permit).
Article 6409 Section (Middle-Class Tax Relief Act).

Original Signature(s) : _____
(Petitioner(s) / Owner)

Michael R. Dolan, Esq.
(Print Name)

Address : Brown Rudnick LLP
10 Memorial Boulevard
Providence, RI 02903

Tel. No. : 401-276-2610

E-Mail Address : mdolan@brownrudnick.com

Date : January 15, 2020

10 Canal Pk.


110 Cambridge St
11 First St
ROAD
1A-206
1A-82
18-26
18-47
29 Otis St
18-53
29 Otis St
21 Otis St
17 Otis St
2 First St
8-75
2 Canal Pk
1A-87
2 Leighton St
Leighton St
1 Leighton St
1A-86
18-21
Otis St
18-19
18-17
18-74
8-70
Lechmere Canal Park
35 Monsignor OBrien Hwy
Canal Pk
Monsignor OBrien Hwy
25 First St
8-76
6 Canal Pk
32 First St
1 Canal Pk
12 Canal Pk
8-61
Thorndike St
51 First St
100 Cambridgeside Pl
4 Canal Pk
8-90
18-75
59 First St
61 First St
8-86
69 First St
10 Canal Pk
100 Cambridgeside Pl
9-41
1 Land Blvd
Spring St
73 First St
10 Spring St
18-64
9-89
75 First St
18-77
85 First St
91 First St
9-40
9-90
11 Hurley St
18-65
93 First St
95 First St
Hurley St
First St
9-61
8-89
25 Land Blvd
Charles River Basin
10-34
99 First St
10 Hurley St
101 First St
10-37
105 First St
9-MD
10-35
111 First St
8-87
119 First St
110 First St
Charles St
8-88
113 First St
Cambridgeside Pl
100 Cambridgeside Pl
122 First St
10-30
10-31
10-16
9-31
40 Land Blvd
20 Cambridge Pkwy
117 First St
1 Charles Pk
10-38
121 First St
123 First St
10-44
274-1A
10-39
10-65
Bent St
Charles Park
70 Bent St
148 First St
11-144
16-11
145 First St
1 Rogers St
149 First St
153 First St
57 Land Blvd
Land Blvd
Cambridge Pkwy
155 First St
11-47
16-6
157 First St
1 Rogers Street
31 Rogers St
25 Rogers St
Rooftop Garden at 55 Cambridge Parkway
Rogers St
55 Cambridge Pkwy
11-40
16-34
10 Rogers St
16-35
161 First St
--R1
11-43
Front Park
11-145
11 Binney St

10 Canal Pk

1497

Petitioner

8-61
WOLFRUM, ARTHUR D.,
TRUSTEE JEANNE M. WOLFRUM TRUSTEE
4 CANAL PK., #110
CAMBRIDGE, MA 02141

8-61
KAMALIAN, MOHAMMAD SHERVIN &
SARA EMAMI
4 CANAL PK., #701
CAMBRIDGE, MA 02141

BROWN RUDNICK LLP
C/O MICHAEL R. DOLAN, ESQ.
10 MEMORIL BOULEVARD
PROVIDENCE, RI 02903

8-61
CYRUS LAB, LLC
4 CANAL PK UNIT #PH1
CAMBRIDGE, MA 02139

8-61
YUAN, ELAINE
4 CANAL PARK. UNIT#PH5
CAMBRIDGE, MA 02141

8-61
PUTNAM, PAMELA MAY
4 CANAL PK., #PH11
CAMBRIDGE, MA 02141

8-61
MACHANIC, WILLIAM C. &
MARY ANN MACHANIC
4 CANAL PK., UNIT PH12
CAMBRIDGE, MA 02141

8-61
JOSEPH, JACK & PAULINE JOSEPH
6 CANAL PK UNIT #106
CAMBRIDGE, MA 02141

8-61
MURRAY, F. TAFT & ANNA M. MURRAY,
TRS THE F. TAFT MURRAY LIV TRUST
6 CANAL PK., #201/2
CAMBRIDGE, MA 02141

8-61
CHRIS KWEI-JUEN CHOU
6 CANAL PK., #205/2
CAMBRIDGE, MA 02141

10-44 & 8-90 /11-47
CITY OF CAMBRIDGE
C/O LOUIS DEPASQUALE
CITY MANAGER

10-44 & 8-90 / 11-47
CAMBRIDGE CITY OF COMM. DEVELOP.
51 INMAN ST
CAMBRIDGE, MA 02139

10-44 & 8-90 / 11-47
CITY OF CAMBRIDGE
C/O NANCY GLOWA
CITY SOLICITOR

8-61
WANANDY, YVES A. & MELANIE MUKOAGOW
2991 ESKRIDGE RD
FAIRFAX, VA 22031

8-61
KLACKO, CHRISTIAN &
SANDRA J. LE PRIOL-VREJAN
4 CANAL PK., UNIT #301
CAMBRIDGE, MA 02141

8-61
CHUANG, EMIL
2458 WESTVIEW TRL
PARK CITY , UT 84098

8-61
MORGAN, SUSAN
4 CANAL PARK #306
CAMBRIDGE, MA 02141

8-61
JDH REALTY TRUST
4 CANAL PARK. UNIT#302
CAMBRIDGE, MA 02141

8-61
GARRETT, BEVERLY M.
6 CANAL PARK, UNIT #206/2
CAMBRIDGE, MA 02141

8-61
LAM, YU-ANN & WEN-I CHEN
4-6 CANAL PARK.,UNIT #207/2
CAMBRIDGE, MA 02141

8-61
RECZEK, JAKUB T & JAN M. &
DANUTA M. RECZEK A LIFE ESTATE & ET AL TR.
54 LEXINGTON STREET
WESTON, MA 02493

8-61
MARKUS, M. LYNNE,
TRUSTEE THE M. LYNNE MARKUS REV TRUST
6 CANAL PK., #309/2
CAMBRIDGE, MA 02141

8-61
RESIDENT
549 RIVERSIDE DRIVE, APT. #6B
NEW YORK, NY 10027

8-61
PELON PUTUKIAN REALTY LIMITED
LIABILITY PARTNERSHIP
145 TRAPELO RD
LINCOLN, MA 01773

8-61
STASSEN, FRANS L. & CATHARINA J. STASSEN
6 CANAL PARK, SUITE #410
CAMBRIDGE, MA 02141

8-61
UNIT 502, 6 CANAL PARK LLC
C/O CABOT & COMPANY
213 NEWBURY ST
BOSTON, MA 02132

8-61
HENDERSON, ERIC U. & DONRUTAI
INTARAKANCHIT HENDERSON
6 CANAL PARK.,UNIT 505
CAMBRIDGE, MA 02141

8-61
REN, XIANFEI
6 CANAL PK., UNIT 506/2
CAMBRIDGE, MA 02141

8-61
BERMAN, EVE
6 CANAL PARK, UNIT 507/2
CAMBRIDGE, MA 02141

8-61
EBERT, SUSAN
6 CANAL PK., #604/2
CAMBRIDGE, MA 02141

8-61
STONE, RICHARD D. & BETTY W. STONE
6 CANAL PK., #605/2
CAMBRIDGE, MA 02141

8-61
FANTINI, GEORGE J. JR.& CAROLYN K.
TRUSTEE OF FANTINI REALTY TR.
30 CUTLER RD.
ANDOVER, MA 01810

8-61
BROWN, ROBERT C. & SUSAN M. LANG
TRUSTEE THE LANG BROWN TRUST
4 CANAL PARK. UNIT#206
CAMBRIDGE, MA 02141

8-61
SAFAI, ATAOLLAH & TAHEREH SAFAI
396 ALICIA WAY
LOS ALTOS, CA 94022

8-61
KANKOWSKI, STANLEY J. LAURA A. MYLOTT
82 SUMMER STREET
MILFORD, NH 03055

8-61
VIGLIONE, GINA LIFE ESTATE
4 CANAL PARK., UNIT #305
CAMBRIDGE, MA 02141

8-61
JAKOMIN, BERNADETTE V.
4 CANAL PK., #311
CAMBRIDGE, MA 02141

8-61
TEJERO, EDEN N. & JOSE A. TEJERO
P.O. BOX 29
ASTOR DRIVE
RHINEBECK, NY 12572

8-61
KELLEY, MATTHEW K
4 CANAL PK #404
CAMBRIDGE, MA 02141

8-61
CHANG, JENNY & ALVIN LIN
4 CANAL PARK., #405
CAMBRIDGE, MA 02141

8-61
PALACIOS, IGOR F. TR.MMS 1999 REALTY
TRS C/O RICHARD A. MARONE
MURTHA CULLINA LLP.
185 ASYLUM ST
HARTFORD, CT 06103-3459

8-61
CHO, YOUNG SHIN & HYUK SOO SEO
143-171 HYDE PARK AVE #153A
BOSTON, MA 02130

8-61
VAN DORN, JOAN S.,
TRUSTEE THE JOAN S. VAN DORN REV LIV TR
4 CANAL PK., #502
CAMBRIDGE, MA 02141

8-61
SCHLISSEL, SCOTT J. & CAROL A. VINCENT
27 KINNAIRD ST. #2
CAMBRIDGE, MA 02139

8-61
HILL, MARIHELEN,
TR. THE MARIHELEN HILL REALTY TRUST
4 CANAL PK., #601
CAMBRIDGE, MA 02141

8-61
DOLAN, ROBERT J.
4 CANAL PK., #609
CAMBRIDGE, MA 02141

8-61
HOM, LINDA WING
262 WOODCLIFF RD.
NEWTON, MA 02461

8-61
CASE, TODD & WANG, LEI
4 CANAL PK., #704
CAMBRIDGE, MA 02141

8-61
RAFTERY, JOHN JAMES &
MARYCILENE RAFTERY RAMIREZ
4 CANAL PK., #PH2
CAMBRIDGE, MA 02141

8-61
BAILEY, BARBARA B. A LIFE ESTATE
4 CANAL PK UNIT #PH4
CAMBRIDGE, MA 02141

8-61
BENDANIEL, CLAIRE B.
4 CANAL PK., #PH6
CAMBRIDGE, MA 02141

8-61
SASTRAWIDJAJA, DJUNAEDI & FELIANA MULIAN C/O
HENDRIK SASTRAWIDJAJA
16 MOUNT BANK RISE
BELLA VISTA NSW 2153
-,- -

8-61
REILLY, JUDITH L.
4 CANAL PK., UNIT PH8
CAMBRIDGE, MA 02141

8-61
SAVIANO, FRANK B. JR.
4 CANAL PARK, UNIT PH9
CAMBRIDGE, MA 02141

8-61
HAMERSLEY, CHRISTINE W. &
C/O CHASE HOME FINANCE
P.O. BOX 560763
DALLAS, TX 75356

8-61
HARRELL, PRISCILLA GRACE
6 CANAL PARK., #101/2
CAMBRIDGE, MA 02141

8-61
KIM, RAYMOND
4 CANAL PK., #504
CAMBRIDGE, MA 02141

8-61
BYUN, YOONG KOO & BYUNG HEE BYUN
4 CANAL PK 507
CAMBRIDGE, MA 02141

8-61
ANZALONE, LUIGI & CYNTHIA ANZALONE
TRUSTEE OF THE ANZALONE FAMILY REVOC TRT
4 CANAL PK UNIT #605
CAMBRIDGE, MA 02141

8-61
ALMANA, ABDULLAH A. &
ABDULAZIZ I. AL MANA
4 CANAL PARK, UNIT#608
CAMBRIDGE, MA 02141

10 Canal Pk. 347

8-61
MINOT, RICHARD J.
TRUSTEE THE RICHARD J. MINOT TRUST
79 CHANDLER ST., #6
BOSTON, MA 02116

8-61
FANTINI, ALFRED
4 CANAL PK, #203
CAMBRIDGE, MA 02141

8-61
CHEUNG, BETTY HOM
131 DANIEL WEBSTER #563
NASHUA , NH 03060

8-61
WILLNER, KENNETH P., &
JACQUELINE JACQUELINE BEST-WILLNER, ET. AL.
PO BOX 37
NORTH ANDOVER, MA 01845

8-61
KINKEAD, DEVON A. & ANITA D. KINKEAD
4 CANAL PK., #407
CAMBRIDGE, MA 02141

8-61
CAVANAUGH, PAUL J.
158 PINE RIDGE RD.
MEDFORD, MA 02155

8-61
DEL RIO, JUAN M. & VARINDERPAL KAUR
4 CANAL PARK. UNIT#501
CAMBRIDGE, MA 02141

8-61
MINTZ, RUBY F.,
TRUSTEE ALLEN M. MINTZ REV TRUST 2012
4 CANAL PK., #506
CAMBRIDGE, MA 02141

8-61
SHAH, SATYAN P. & KRISTINE M. THOMPSON
4 CANAL PARK, UNIT 508
CAMBRIDGE, MA 02141

8-61
DOERR, WILLIAM W.
4 CANAL PK., #512
CAMBRIDGE, MA 02141

8-61
LUNDBERG, MARLENE,
TRUSTEE THE MARLENE H. LUNDBERG TR
4 CANAL PARK. UNIT 602
CAMBRIDGE, MA 02141

8-61
MUGHAL, M. TARIQ IMDADALI & ALPA PARMAR
4 CANAL PK UNIT#603
CAMBRIDGE, MA 02141

8-61
NICOLORA, CAROL A.
4 CANAL PK. #604
CAMBRIDGE, MA 02141

8-61
WANG, NING & WAWA ZHU
4 CANAL PK, #607-1
CAMBRIDGE, MA 02141

8-61
KNOWLTON, LEAH N. & JOAN MCGOWAN
4 CANAL PK., #612
CAMBRIDGE, MA 02141

8-61
KARAGEZIAN, JOSEPH
TRS THE KARAGEZIAN REVOC TRUST
4 CANAL PK UNIT #703
CAMBRIDGE, MA 02141

8-61
KARAGEZIAN, JOSEPH
7 DEBSTON LANE
LYNNFIELD, MA 01940

8-61
GOLACH-KELLEY, IWONA A.
4 CANAL PARK., UNIT #706/1
CAMBRIDGE, MA 02141

8-61
HARRELL, PRISCILLA
6 CANAL PARK
CAMBRIDGE, MA 02141

8-61
HUANG, LIN-YA
4 CANAL PK., #708
CAMBRIDGE, MA 02141

8-61
CASE, TODD J. & LEI WANG
4 CANAL PK, UNIT #109
CAMBRIDGE, MA 02141

8-61
GARGANO, PAUL A. & SHEILA K. GARGANO
C/O ROCKLAND TRUST COMPANY
22 WIANNO AVE
OSTERVILLE, MA 02655

8-61
HULTSCH, THOMAS & VERENA HULTSCH
4 CANAL PK., #111
CAMBRIDGE, MA 02141

8-61
ALKHALIFA, MAYSA MOHAMED
C/O AL BATI FURNISHING,
81 OLD PLACE. AVE
PO BOX 613RD#339BLK318
MANAMA, _ _

8-61
THAIRATANA, PATAMA
4 CANAL PARK #402
CAMBRIDGE, MA 02141

8-61
BLAKE, ROSE L.
4 CANAL PK., UNIT #209
CAMBRIDGE, MA 02141

8-61
KRISDATHANONT, SIRAAKGORN
C/O ATTORNEY GILBERT W. COX, JR.
60 DEDHAM AVE
NEEDHAM, MA 02492

8-61
KIM, DAVID MINJOON & HYUN JOO LEE
4 CANAL PARK, UNIT #302
CAMBRIDGE, MA 02141

8-61
BERNSTEIN, AMY
83 CAMBRIDGE PKWY., #1001W
CAMBRIDGE, MA 02142

8-61
GOYAL, ROHIT & RENUS GOYAL
4 CANAL PARK, UNIT 307
CAMBRIDGE, MA 02141

10 Canal Pk. 497

8-61
CASTANO, MARIANNE F.
4 CANAL PK., #309
CAMBRIDGE, MA 02141

8-61
SUN, PETER & CHIA CHI SUN
4 CANAL PK., #310
CAMBRIDGE, MA 02141

8-61
FURCOLO, CONSTANCE G. TRUSTEE THE
CONSTANCE G. FURCOLO TRUST
4 CANAL PARK SUITE 401
CAMBRIDGE, MA 02141-2209

8-61
LE PRIOL-VREJAN, SANDRA ,CHRISTIAN KLACO &
MARCELLE VREJAN
4 CANAL PARK. UNIT#301
CAMBRIDGE, MA 02141

8-61
FATTAHI, AMIRALI
4 CANAL PK., #406
CAMBRIDGE, MA 02142

8-61
ALHASSANI, KANAN M.
TRUSTEE OF THE CHARLES RIVER TRUST
65 EAST INDIA ROW #21F
BOSTON, MA 02110

8-61
HONG, WON
4 CANAL PARK. UNIT#505
CAMBRIDGE, MA 02141

8-61
BATES, SUSAN M.
11807 73RD AVE. NW
EDMONTOWN AB, _ T6GOE3

8-75
TWO CANAL PARK, LLC
C/O TA ASSOC. REALTY TRUST
2 CANAL PARK
CAMBRIDGE, MA 02141

8-61
ALSHAMRI, EID FALEH &
SITAH SALEH ALFADHALIAH
6 CANAL PK., #210/2
CAMBRIDGE, MA 02141

8-61
CHEN, PAUL TAK-HAO & LINDA MING-KO CHEN
6 CANAL PK., UNIT #304/2
CAMBRIDGE, MA 02141

8-61
BATAL, HUSSAM S. &ARGHAVAN SHAHIDI BATAL
6 CANAL PK, #305/2
CAMBRIDGE, MA 02141

8-61
LYNCH, DAVID M., JR.
6 CANAL PARK, UNIT #406/2
CAMBRIDGE, MA 02141

8-61
EBBEL, ERIKA N., ERIC EBBEL & KATHRYN EBBEL
105 WEST SANTA INEZ AVE
HILLSBOROUGH, CA 94010

8-61
WAHID, ZABIA B.,
TRUSTEE THE 6 CANAL PARK REALTY TRS
15 PENACOOK LANE
NATICK, MA 01760

8-61
LIN, SHUWAN
6 CANAL PK., #409/2
CAMBRIDGE, MA 02141

8-61
LEE, KUHN H THE TRUSTEE OF KH & BW LEE
REVOC INVERVIVOS TRT
6 CANAL PK UNIT #501/2
CAMBRIDGE, MA 02141

8-61
XU, AMANDA YI-PEI TRUSTEE,
AMANDA YI-PEI XU IRREV TRUST
170 TREMONT ST. #1504
BOSTON, MA 02111

8-61
ADOLFSSON, RALF AKE &
TINA CECILIA AD OLFSSON
6 CANAL PK UNIT #509/2
CAMBRIDGE, MA 02141

8-61
WEIGELE, MANFRED
6 CANAL PARK #601
CAMBRIDGE, MA 02141

8-61
FINN, RITA M.
6 CANAL PARK. UNIT#602/2
CAMBRIDGE, MA 02141

8-61
MONEA, MICHAEL & EVELYN MONEA
6 CANAL PK UNIT #606/2
CAMBRIDGE, MA 02141

8-61
KOCHHAR, ROHIT & DEEYA KOCHHAR
48B PARKERVILLE RD
CHELMSFORD, MA 01824

8-61
KELLY, ANN M.
6 CANAL PARK, UNIT PH4
CAMBRIDGE, MA 02141

8-61
HANCOCK, JOHN JR & NANCI P.HANCOCK
6 CANAL PK., UNIT #PH7/2
CAMBRIDGE, MA 02141

9-31
SONESTA, ROYAL SONESTA HOTEL BOSTON
C/O RYAN, LLC
1 INTERNATIONAL PL
100 OLIVER STREET, 18TH FL.
BOSTON, MA 02110

9-40
MASSACHUSETTS COMMONWEALTH OF
20 SOMERSET ST
BOSTON, MA 02108

8-88
CAMBRIDGE, CITY OF
C/O NEW ENGLAND DEVELOPMENT
75 PARK PLAZA
ATTN: ACCOUNTING DEPT
BOSTON, MA 02116

8-61
TAURO, DAVID,
TRUSTEE THE E&T FAMILY TRUST
69 EAST ST.
MELROSE, MA 02176

8-61
HU, DAISY CHIA YOUNG & JULIE HU
4 CANAL PK., #606
CAMBRIDGE, MA 02141

10 Canal Pk. 5 of 7

8-61
LAFARGE, MEDELINE R., SUSAN LAFARGE &
NANCY LAFARGE TRS OF LAFARGE FAMILY TR
4 CANAL PARK, UNIT 611
CAMBRIDGE, MA 02141

8-61
EBBEL, KATHRYN & ERIC EBBEL
105 W. SANTA INEZ AVE
HILLSBOROUGH, CA 94010

8-61
RICKEL, KEVIN
4 CANAL PARK., UNIT #710
CAMBRIDGE, MA 02141

8-61
SAWYER, ROBERT M.,
TRUSTEE PENTA FAMILY TRUST
PO BOX 1408
VINEYARD HAVEN, MA 02568

8-61
JOSEPH, JACK & PAULINE JOSEPH
6 CANAL PARK., #106
CAMBRIDGE, MA 02141

8-61
BROWN, ROBERT, ALLEN MINTZ, NICHOLAS
GALLINARO, LOWELL A. WARREN, SUSAN
C/O THE NILES COMPANY
3000 DAVENPORT AVE, SUITE 201
CANTON, MA 02021

8-61
FOUNTAIN, CHARLES F. &
CATHERINE A. FOUNTAIN
6 CANAL PK., #204/2
CAMBRIDGE, MA 02141

8-61
BROOKS, ERICA L.
6 CANAL PK., #208/2
CAMBRIDGE, MA 02141

8-61
NIGWEKAR SAGAR & ROSY SANDHU
6 CANAL PK, UNIT #209-II
CAMBRIDGE, MA 02141

8-61
LIUWANG, LLC
23 ROBINSON DR.
BEDFORD, MA 01730

8-61
ASGARI, SAEED & MARYAM RAYANI
6 CANAL PARK, #303/2
CAMBRIDGE, MA 02141

8-61
BATAL, HUSSAM & ARGHAVAN BATAL
6 CANAL PARK., UNIT #306/2
CAMBRIDGE, MA 02141

8-61
LU, JUH-HORNG & WENJUN XIE,
TRS THE LU XIE FAMILY TRUST
73 NORMANDY AVE
CAMBRIDGE, MA 02138

8-61
O'MALLEY, ANN
6 CANAL PARK., UNIT 702
CAMBRIDGE , MA 02141

8-61
BOUT CANAL PARK LLC
33 ALDEN RD.
CONCORD, MA 01742

8-61
CHUNG, JUNG JA LEE
1 CENTRAL PARK WEST
NEW YORK, NY 10023

8-61
MORRISSEY, MAUREEN S.
6 CANAL PARK. UNIT#709/2
CAMBRIDGE, MA 02141

8-61
MA, STEVE S. & KENT MA
C/O PREMIER PROPERTY SOLUTIONS, LLC
311 SUMMER STREET, SUITE 200
BOSTON, MA 02210

8-70-76
ONE CANAL PARK MASSACHUSETTS, LLC,
C/O US REALTY ESTATE INVESTMENT
1270 SOLDIERS FIELD RD.
BOSTON, MA 02135

8-75
TWO CANAL PARK MASSACHUSETTS, LLC,
C/O US REAL ESTATE INVESTMENT FUND LLC,
1270 SOLDIERS FIELD RD
BOSTON, MA 02135

8-61
EMAMI, ALI
6 CANAL PK., #102
CAMBRIDGE, MA 02141

8-61
CHEN, HONGHUA & XICHUN SUN
6 CANAL PARK #203
CAMBRIDGE, MA 02141

8-61
OLIVIER, RICHARD A. & MARIA T. OLIVIER
6 CANAL PARK. UNIT#401
CAMBRIDGE, MA 02141

8-61
WARD, ANN B.
TRUSTEE OF ANN B. WARD TR
6 CANAL PARK. UNIT#404
CAMBRIDGE, MA 02141

8-61
ALHASSANI, KANAN M.
65 E. INDIA ROW
BOSTON, MA 02110

8-61
NOTARGIACOMO,JUSTYNA RECZEK JAN &
DANUTA M. RECZEK A LIFE ESTATE &
JAN M. & DANUTA RECZEK TRS..
9 LORING LANE
WAYLAND, MA 01778

8-61
MAKTABI, MAZEN & ZEINAB MAKTABI
6 CANAL PK., #504/2
CAMBRIDGE, MA 02141

8-61
DE LUIS, JAVIER & JEAN KWO
6 CANAL PK., #510/2
CAMBRIDGE, MA 02141

8-61
CORRADO, JOSEPH M. & DEBRA M. CORRADO
122 HUNTINGTON RD.
BRIGHTON, MA 02135

8-61
MENKE, MATTHEW E.
6 CANAL PK., #609/2
CAMBRIDGE, MA 02139

10 Canal Pk. 6 & 7

8-61
ELLIS, DAVID W. &
MARION S. ELLIS TRUST OF 2001
6 CANAL PARK, #710/2
CAMBRIDGE, MA 02141

8-61
KEELEY, WALTER J. & ADELE L. KEELEY
6 CANAL PK PH102
CAMBRIDGE, MA 02141

8-61
LU, YI
6 CANAL PK PH3/2
CAMBRIDGE, MA 02141

8-61
HEROLD, JAMES B.,
TRUSTEE THE JAMES B. HEROLD REV TRUST
6 CANAL PK., #PH6/2
CAMBRIDGE, MA 02141

8-61
ENTEKHABI, DARA
6 CANAL PARK., UNIT# PH9/2
CAMBRIDGE, MA 02141

8-61
SEN, SAUGET ISHITA SEN
6 CANAL PARK UNIT #310/2
CAMBRIDGE, MA 02141

9-41
TEN CANAL PK MASSACHUSETTS, LLC,
C/O US REAL ESTATE INVEST FUND, LLC
1270 SOLDIERS FIELD RD
CAMBRIDGE, MA 02135

9-61
CAMBRIDGE, LLC
C/O JUNSON CAPITAL, UNITS 5211-12, 52/F
THE CENTER,
99 QUEENS ROAD CENTRAL
-,- -

8-86
NW CAMBRIDGE PROPERTY OWNER LLC,
C/O NORTHWOOD INVESTORS LLC,
1819 WAZEE ST. 2ND FL.OOR
DENVER, CO 80202

8-89
KARP, STEPHEN R., STEPHEN C. PLUMERI &
WILLIAM H. MCCABE, JR.
C/O NEW ENGLAND DEVELOPMENT
75 PARK PLAZA
BOSTON, MA 02116

8-61
WELCH, JOHN D., &
WISIMA SAMANTHA NIPATNANTAPORN, TRS
4 CANAL PK #402
CAMBRIDGE, MA 02141

8-61
LYNCH, MARTHA M.,
TR. THE LYNCH NOMINEE TRUST
6 CANAL PK., UNIT #608
CAMBRIDGE, MA 02141

8-61
AL-MUDHAF, KHALED,
TRUSTEE OF C/O LARRY SEALY
6 CANAL PARK, UNIT #610
CAMBRIDGE, MA 02141

8-61
BRITTINGHAM, BARBARA
6 CANAL PK., #701/2
CAMBRIDGE, MA 02141

8-61
MEHRING, JOYCE S.,
TR. THE JOYCE S. MEHRING 2014 REV TRUST
6 CANAL PARK., #703/2
CAMBRIDGE, MA 02141

8-61
EAMON SAUNDERS & JENNIFER SAUNDERS
6 CANAL PARK. UNIT#704
CAMBRIDGE, MA 02141

8-61
WENTEN, PARMINDER K. & MADE R. WENTEN
2 EARHART ST., #117
CAMBRIDGE, MA 02141

8-61
RAMMOHAN, REVATHI NAGARAJAN RAM
MOHAN BABA
4 CANAL PARK UNIT #712
CAMBRIDGE, MA 02141

8-87
CAMBRIDGESIDE PARTNERS LLC
C/O NEW ENGLAND DEVELOPMENT
75 PARK PLAZA
ATTN: ACCOUNTING DEPT
BOSTON, MA 02116

10-65
CHARLES PARK ONE, LLC,
C/O JONES LANG LASALLE
1 ROGERS STREET
CAMBRIDGE, MA 02142

8-61
LU, HSIAOMING , RUI QI & DIANA Y. LU AS TRUSTEES
OF THE CANAL PARK NOMINEE TRUST
4 CANAL PARK UNIT #503
CAMBRIDGE, MA 02141

8-61
ZHANG, HANWEI & ERLING ZHAO
30 CALDWELL ST., #424
CHARLESTOWN, MA 02129

8-61
LUCCIO, PAULA
85 E. INDIA ROW 14CD
BOSTON, MA 02110

8-61
FAN, XING CHEN
6 CANAL PK #202/2
CAMBRIDGE, MA 02141

8-61
TALLURI, RAMESH C. KAVERI TALLURI, TRS
6 CANAL PK #307/2
CAMBRIDGE, MA 02141

8-61
MATAVA, MARIE A., WILLIAM L. BROUILLARD
4 CANAL PARK, UNIT #709
CAMBRIDGE, MA 02141

11-144
CHARLES PARK TWO, LLC,
C/O JONES LANG LASALLE
1 ROGERS STREET
CAMBRIDGE, MA 02142

8-61
ARANGO, FERNANDO CASTRO
CITY OF CAMBRIDGE TAX TITLE
4 CANAL PK #510
CAMBRIDGE, MA 02141

8-61
6 CANAL LLC
9 SHERBURNE RD
LEXINGTON , MA 02421

8-61
GRIAN LLC CITY OF CAMBRIDGE TAX TITLE
93 HOBBS LLC
WALTHAM , MA 02452

10 Canal Pk.

787

8-61
SHINETOWN, LLC
CITY OF CAMBRIDGE TAX TITLE
6 CANAL PK #308/2
CAMBRIDGE, MA 02141

8-61
YANG KAIQI YUAN ZHAO
6 CANAL PARK UNIT #PH8-II
CAMBRIDGE, MA 02141

8-61
PRASAD, ROHIT & NEELAM PRASSAD
26 LACONIA ST
LEXINGTON, MA 02420

8-61
ABDELAHAD, MARIANNE
6 CANAL PK #103/2
CAMBRIDGE, MA 02141

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January 13, 2020

VIA FEDERAL EXPRESS

City of Cambridge
Board of Zoning Appeal
831 Massachusetts Avenue
Cambridge, MA 02139

RE: Request of New Cingular Wireless PCS, LLC ("AT&T") for Administrative Review of an Eligible Facilities Request to Modify Transmission Equipment on the existing 71' 6" above ground level ("AGL") building (the "Building") located at 10 Canal Park, Cambridge MA 02141 (Assessor's Parcel Identification Map 9, Lot 41), pursuant to Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012 (the "Spectrum Act") and Special Permit pursuant to: Article 4, Section 4.32.g.1; Article 4, Section 4.40 (Footnote 49); and Article 10, Section 10.40 of the City of Cambridge Zoning Ordinance; Massachusetts General Laws, Ch 40A, Section 9; the Telecommunications Act of 1996 (the "TCA"), and the Spectrum Act, all rights reserved.

Dear Honorable Members of the Cambridge Board of Zoning Appeal:

On behalf of AT&T, while reserving all rights, we are pleased to submit this Eligible Facilities Request and Special Permit Application to the City of Cambridge Board of Zoning Appeals (the "Board") in support of AT&T's request to add, remove, modify and replace Transmission Equipment on the existing Building located at 10 Canal Park, Cambridge, MA 02141 (Assessor's Parcel Identification Map 9, Lot 41) (the "Site"). Capitalized terms not defined herein shall have the same meaning as provided in the Spectrum Act and Regulations (defined below).

As noted on the attached plans (the "Plans"), the Building is owned by Ten Canal Park Massachusetts, LLC and AT&T currently has Transmission Equipment mounted on the Building at the 81' 6" AGL antenna centerline mark, with electronic equipment within an equipment shelter on the roof of the Building (the "Facility"). AT&T's Facility currently includes twelve (12) existing panel antennas mounted on the facades of AT&T's equipment shelter and existing penthouse on the roof of the building. As depicted on the Plans, AT&T is seeking to: remove three (3) existing panel antennas (one (1) per sector) and replace them with an equal number of new panel antennas on new mounting brackets (for no net gain of antennas), remove six (6) remote radio units and replace them with twelve (12) remote radio units and collocate other Transmission Equipment to the Facility.

AT&T's Facility has and continues to comply with all applicable terms and conditions of the Cambridge Zoning Ordinance (the "Ordinance"). As the replacement antennas of the Facility will be mounted at the same antenna centerline heights as, and will be painted to match, AT&T's existing antennas, there will be no undue adverse impacts upon historic resources, scenic views, residential property values or man-made resources and the aesthetic qualities of the City of are preserved. The Facility is passive in nature and does not generate unreasonable noise, odors, smoke, waste, or significant amounts of traffic. This is an unmanned facility and does not have negative effects upon adjoining lots. The Facility has and will continue to comply with all applicable federal, state and local laws, regulations and guidelines, including applicable radio frequency emissions standards.

AT&T, while reserving all rights, respectfully requests, to the extent necessary, that a special permit be granted so that the antennas may be installed to reflect the proposed modification as reflected on the Plans submitted herewith.

ELIGIBLE FACILITIES REQUEST

On behalf of AT&T, while reserving all rights, we seek approval of the site modifications as depicted on the Plans as an Eligible Facilities Request. As you may know, Section 6409(a) of the "Spectrum Act" (copy attached) mandates that state and local governments *"may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station."* [emphasis added]. Under Section 6409(a)(2)(A)-(C), an Eligible Facilities Request is any request to modify a Tower or Base Station that involves "collocations of new Transmission Equipment," "removal," or "replacement" of Transmission Equipment.

Federal law now preempts many of the permit application requirements that the City of Cambridge may previously have required from an applicant and provides for a limited, administrative review of AT&T's Eligible Facilities Request application. This Eligible Facilities Request involves an effort to collocate, remove, modify, or replace Transmission Equipment on and adjacent to an existing Building used by an FCC licensed wireless carrier. The existing Building is a Structure that is 71' 6" AGL supporting wireless Transmission Equipment. AT&T seeks administrative approval for the proposed modifications which is clearly an Eligible Facilities Request which does not substantially change the physical dimensions of the Building pursuant to Section 6409 of the Spectrum Act. AT&T proposes to: remove three (3) existing panel antennas (one (1) per sector) and replace them with an equal number of new panel antennas on new mounting brackets (for no net gain of antennas) at the same 81' 6" AGL centerline mounting heights as its existing panel antennas; collocate remote radio units and surge arrestors; and collocate cables, fiber and other Transmission Equipment as illustrated on Plans submitted herewith.

The equipment identified on the Plans submitted as part of this Eligible Facilities Request application that will be collocated or replaced is Transmission Equipment pursuant to the FCC

definition. The FCC has defined Transmission Equipment as "any equipment that facilitates transmission for any Commission-licensed or authorized wireless communication service, including, but not limited to, radio transceivers, antennas and other relevant equipment associated with and necessary to their operation, including coaxial or fiber-optic cable, and regular and back-up power supply. This definition includes equipment used in any technological configuration associated with any Commission-authorized wireless transmission, licensed or unlicensed, terrestrial or satellite, including commercial mobile, private mobile, broadcast and public safety services, as well as fixed wireless services such as microwave backhaul or fixed broadband."

As you may also know, the FCC adopted a Report and Order, In re: Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies, FCC Docket No.13-238, Report and Order No. 14-153 (October 17, 2014) Final Rule codified at 47 CFR Parts 1 and 17 promulgating regulations (the "Regulations") interpreting and implementing the provisions of the Spectrum Act, which Regulations became effective on April 8, 2015 (with certain provisions effective on May 18, 2015). The Regulations determined that any modification to a Base Station, that meets the following six criteria does not substantially change the physical dimensions of the existing Building and, therefore, is an Eligible Facilities Request which must be granted:

1. The modifications do not increase the height of the Building by more than ten feet (10') from an existing antenna array or ten percent (10%), whichever is greater.

2. The modifications do not protrude from the edge of the Tower by more than six feet (6').

3. The modifications do not involve the installation of more than the standard number of equipment cabinets for the technology involved, not to exceed four.

4. The modifications do not entail any excavation or deployment outside of the Site.

5. The modifications do not defeat any existing concealment elements of the Tower.

6. The modifications comply with prior conditions of approval of the Base Station, unless the non-compliance is due to an increase in height, increase in width, addition of equipment cabinets, or new excavation that does not exceed the corresponding "substantial change" thresholds in numbers 1-4 above.

As evidenced on the Plans, this Eligible Facilities Request satisfies each of the six review criteria enumerated by the FCC in the Regulations. In accordance with the Spectrum Act and the Regulations, AT&T's proposed modifications will not increase the height of the Building nor protrude from the edge of the Building by more than six feet (6'). In fact, the antennas will not protrude from the facades of the Building at all, and will protrude from the facades of the

existing AT&T equipment shelter and facades of the existing penthouse on the roof of the Building by less than two feet (2'). AT&T does not propose excavating outside of the Site and is not adding any additional equipment cabinets. Lastly, AT&T's modifications do not defeat any concealment elements because the antenna modifications will be located on the Building at the same centerline mounting heights and in substantially the same manner as AT&T's existing antennas. AT&T's modifications to the Transmission Equipment at the Building contained in this Eligible Facilities Request fully conform to Section 6409(a) of the Spectrum Act.

While the Ordinance may provide that a special permit or other zoning relief is required for modifications and colocations, such a discretionary process is contrary to the guidance issued by the FCC in its Public Notice (the "Public Notice") dated January 25, 2013 and the Massachusetts Office of the Attorney General (the "Attorney General") in response letters to municipalities granting approvals of bylaw amendments.

In its Public Notice, the FCC determined that the relevant government entity may require the filing of an application for "administrative approval" only. Additionally, pursuant to Section 1.40001(c)(1) of the Regulations, "when an applicant asserts in writing that a request for a modification is covered by this section, a State or local government may require the applicant to provide documentation or information only to the extent reasonably related to determining whether the request meets the requirements of this section." The Regulations provide that applicants are not required to justify a need for the facility. Further, the Regulations also require that local governmental approvals must be granted for eligible facilities requests within 60 days of the date that the application is submitted. Clearly, this review may not be subject to a discretionary special permit process with the associated public hearing and appeal period provisions. Likewise, the Attorney General has issued a number of letters to municipalities reflecting that same opinion and warning municipalities that such qualifying requests under Section 6409 cannot be subject to a discretionary special permit process. We are confident that you will agree that AT&T's proposed modifications do not substantially change the physical dimensions of the Eligible Support Structure or Base Station at the Site, as enumerated in the Regulations.

SPECIAL PERMIT

10.43 Criteria.

Special permits will normally be granted where specific provisions of this Ordinance are met, except when particulars of the location or use, not generally true of the district or of the uses permitted in it, would cause granting of such permit to be to the detriment of the public interest because:

(a) It appears that requirements of this Ordinance cannot or will not be met, or

AT&T's modifications to its existing wireless communications facility will continue to comply with all applicable sections of the Ordinance as the

replacement antennas will be located in substantially the same manner as the antennas they replace, will not increase the height of the Building, and will be painted to match the color of the existing antennas.

(b) traffic generated or patterns of access or egress would cause congestion, hazard, or substantial change in established neighborhood character, or

AT&T's modifications to its existing wireless communications facility will not result in any substantial change in the character of the neighborhood as there will be no increase in the amount of traffic to and from the Site, or any changes to existing patterns of access or egress to the Site.

(c) the continued operation of or the development of adjacent uses as permitted in the Zoning Ordinance would be adversely affected by the nature of the proposed use, or

The continued operation of or the development of adjacent uses will not be adversely affected by AT&T's modifications because AT&T's facility will continue to be a passive use and will not produce any smoke, odors, waste, glare, dust, or unreasonable amounts of traffic.

(d) nuisance or hazard would be created to the detriment of the health, safety and/or welfare of the occupant of the proposed use or the citizens of the City, or

AT&T's modifications to its existing wireless communications facility will not result in any nuisance or hazard to the detriment of the health, safety, or welfare of the citizens of the City because AT&T's facility will continue to be a passive use and will not produce any smoke, odors, waste, glare, dust, or unreasonable amounts of traffic. As evidenced by the MPE Study submitted herewith, AT&T's facility will continue to comply with all applicable regulations and guidelines pertaining to radio frequency emissions.

(e) for other reasons, the proposed use would impair the integrity of the district or adjoining district, or otherwise derogate from the intent and purpose of this Ordinance, and

The proposed modifications to the existing wireless facility are in harmony with the purposes of the Ordinance because by modifying an existing wireless facility on an existing Building in a manner which does not increase the height of the Building or expand its footprint, potential visual impacts are minimized. Also, the proposed modifications will not produce any smoke, odors, waste, glare or traffic. The Facility will have no negative impact on natural or undeveloped

areas, wildlife, flora or endangered species. Consistent with the Ordinance, the Facility will continue to function as a wireless communications services facility within a local, regional, and national communications system. This system operates under licenses from the FCC, and AT&T is mandated and authorized to provide adequate service to the general public. The proposed modifications will comply with all applicable regulations, standards and guidelines with respect to radiofrequency emissions.

The facility will benefit those living and working in, and traveling through the area by providing enhanced wireless telecommunication services. The facility will not adversely impact adjacent properties and neighborhoods as the existing facility is located on an existing Building. The modification of the facility will not be a threat to public health, safety and welfare. In fact, Applicant submits that the facility aids in public safety by providing and improving wireless communications services to the residents, businesses, commuters, and emergency personnel utilizing wireless communications in the immediate vicinity and along the nearby roads. Consistent with the Ordinance, the facility will continue to function as a wireless communications services facility within a local, regional, and national communications system. This system operates under license from the FCC, and AT&T is mandated and authorized to provide adequate service to the general public. The facility will not generate any objectionable noise, odor, fumes, glare, smoke, or dust or require additional lighting or signage. The facility will have no negative impact on property values in the area. This is an unmanned facility and will have minimal negative effect on the adjoining lots.

(f) the new use or building construction is inconsistent with the Urban Design Objectives set forth in Section 19.30.

AT&T's facility will not be inconsistent with the Citywide Urban Design Objectives of Section 19.30 of the Ordinance because AT&T's modifications will not result in an increase in the height of the Building or any alteration of existing setbacks on the Site. AT&T's modifications will not result in any increase in traffic to or from the Site and will not adversely impact upon pedestrians or bicyclists and, as AT&T's facility will continue to be unmanned, it will have no impact on parking on Site or the surrounding area. AT&T's replacement antennas will be located on the Building in a substantially similar manner as the antennas they will replace and will be painted to match. AT&T's facility will not produce any waste and noise levels on Site will not increase as a result of AT&T's modifications, nor will there be any additional exterior lighting as a result of AT&T's modification.

AT&T's facility operates using standard electric and telephone services. As the facility is unmanned, it requires no water or sewer services, and City infrastructure will not be overburdened.

4.40 (49)(3)

Where it is proposed to erect such a facility in any residential zoning district, the extent to which there is a demonstrated public need for the facility at the proposed locations, the existence of alternative, functionally suitable sites in nonresidential locations, the existence of alternative, functionally suitable sites in nonresidential locations, the character of the prevailing uses in the area, and the prevalence of other, existing mechanical systems and equipment carried on or above the roof of nearby structures. The Board of Zoning Appeal shall grant a special permit to erect such a facility in a residential zoning district only upon a finding that nonresidential uses predominate in the vicinity of the proposed facility's location and that the telecommunication facility is not inconsistent with the character that does prevail in the surrounding neighborhood.

AT&T is not proposing to erect a new facility. AT&T proposes to modify its existing facility so that it will continue to fill a significant gap in coverage and provide adequate wireless communications services coverage to this part of the City of Cambridge. The proposed modifications will be installed in a substantially similar fashion as the existing wireless communications facilities present on the roof of the Building. The use is passive in nature, producing no unreasonable noise, smoke odor, waste, or glare. There will be no significant increase in the amount of traffic to and from the Site as maintenance visits will average one or two per month. Located on the roof of the Building, the antennas will appear as rooftop appurtenances on the roof, and will result in a *de Minimis* increase in the profile of the Building.

THE TELECOMMUNICATIONS ACT OF 1996 - THE TCA

The Federal TCA provides that: no laws or actions by any local government or planning or zoning board may prohibit, or have the effect of prohibiting, the placement, construction, or modification of communications towers, antennas, or other wireless facilities in any particular geographic area, see 47 U.S.C. §332(c)(7)(B)(i); local government or planning or zoning boards may not unreasonably discriminate among providers of functionally equivalent services, see 47 U.S.C. §332(c)(7)(B)(i); health concerns may not be considered so long as the emissions comply with the applicable standards of the FCC, see 47 U.S.C. §332(c)(7)(B)(iv); and, decisions must be rendered within a reasonable period of time, see 47 U.S.C. §332(c)(7)(B)(ii) and the FCC's Declaratory Ruling commonly referred to as the "Shot Clock".

CONCLUSION

AT&T is committed to working cooperatively with the City of Cambridge, and all jurisdictions around the country, to secure expeditious approval of requests to modify existing personal wireless service facilities. We respectfully request that the Board review AT&T's proposed modifications and determine that the modifications do not "substantially change the physical dimensions of the Base Station" pursuant to Section 6409 of the Spectrum Act, or in the alternative, to the extent necessary, grant a special permit pursuant to: Article 4, Section 4.32.g.1;

Article 4, Section 4.40 (Footnote 49); and Article 10, Section 10.40 of the City of Cambridge Zoning Ordinance; Massachusetts General Laws, Ch 40A, Section 9; the TCA, all rights reserved.

AT&T respectfully requests that the Board approve this Eligible Facilities Request, or in the alternative, all rights reserved, a Special Permit. Please do not hesitate to contact me should there be any questions.

Respectfully,

BROWN RUDNICK LLP

Michael R. Dolan, Esq.

63454494 v7-WorkSiteUS-024519/1355

ATTACHMENTS

1. Application Form
2. Letter of Authorization – Notarized Owner Information Form
3. FCC Licenses
4. Block Map
5. Photographs and Simulations
6. Plans
7. Structural Report
8. MPE Study
9. Prior BZA Decisions
10. FCC Regulations
11. FCC Public Notice
12. Representative Letter from the Attorney General

47 USC 1455

Middle Class Tax Relief and Job Creation Act of 2012

SEC. 6409. WIRELESS FACILITIES DEPLOYMENT

(a) FACILITY MODIFICATION.—

(1) IN GENERAL.—Notwithstanding section 704 of the Telecommunications Act of 1996 (Public Law 104–104) or any other provision of law, a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station.

(2) ELIGIBLE FACILITIES REQUEST.—For purposes this subsection, the term ''eligible facilities request'' means any request for modification of an existing wireless tower or base station that involves –
(A) collocation of new transmission equipment;
(B) removal of transmission equipment; or
(C) replacement of transmission equipment.

(3) APPLICABILITY OF ENVIRONMENTAL LAWS. Nothing in paragraph (1) shall be construed to relieve the Commission from the requirements of the National Historic Preservation Act or the National Environmental Policy Act of 1969.

BR

ADDENDUM "A"

The Regulations provide that "substantial change" means a modification that changes the physical dimensions of an eligible support structure that meets any of the following criteria. Included below are comments in bold to demonstrate that the modification is NOT a substantial change.

For towers, the modification increases the height of the structure by more than 10% or more than twenty (20) feet, whichever is greater;

As depicted on the Plans, AT&T's proposed modifications will not increase the height of the Tower at all.

For towers, the modification involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than twenty (20) feet;

As depicted on the Plans, AT&T's Transmission Equipment will not protrude from the edge of the tower more eight (8) feet.

For any eligible support structure, the modification involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets;

As depicted on the Plans, AT&T does not propose to add any additional equipment cabinets as a part of this project.

The modification entails any excavation or deployment outside the current site;

AT&T does not propose any excavation or deployment outside the current site.

The modification would defeat the concealment elements of the tower; or

As depicted on the Plans, AT&T's modification will be substantially similar to the existing transmission equipment on the tower.

The modification does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment, provided however that this limitation does not apply to any modification that is non-compliant only in a manner that would not exceed the thresholds identified in § 1.40001(b)(7)(i) through (iv).

AT&T is not aware of any noncompliance and respectfully asserts that the proposed modifications are consistent with all applicable terms of prior approvals for the wireless facility (see copies of special permits attached).

BOARD OF ZONING APPEAL (BZA)

PROCEDURES & APPLICATION

Table of Contents:

BEFORE YOU BUY, OR RENT PROPERTY IN THE CITY OF CAMBRIDGE, CHECK ALL APPLICABLE LAWS AND REGULATIONS, INCLUDING THE CAMBRIDGE ZONING ORDINANCE TO BE SURE THAT THE PROPERTY CAN BE USED OR ALTERED FOR THE PURPOSE INTENDED.

(Revised: August 2012)

PLEASE READ THESE INSTRUCTIONS BEFORE SUBMISSION

PROCEDURE FOR BOARD OF ZONING APPEAL PETITIONS

These procedures are general in nature and not intended to be complete. You should Consult with your advisor as to specific legal requirements that may apply in your case.

1. The process generally begins with denial of a Building Permit or Certificate of Occupancy application or with a determination of the need for a Variance or Special Permit, or upon the determination by an official of the Inspectional Services Department (ISD) that relief from the Zoning Ordinance or a special permit is required.

2. Next, petition forms, obtainable from the Inspectional Services Department*, must be fully and correctly completed and submitted to the Secretary of the Board of Zoning Appeal along with other required submissions and the filing fee. The petition is then filed with the Office of the City Clerk. The date of filing is the date time-stamped on the petition form by the Office of the City Clerk. ***State Law requires that a public hearing must be held within 65 days of the date of filing***.

3. A Copy of the Petition is provided to the Planning Board for review and comment. The planning Board reviews Board of Zoning Appeal cases at its regularly scheduled meetings. Dates of Planning Board meetings may be obtained by calling the Community Development Department at 349-4600. ***It's advisable to check prior to the Board of Zoning Appeal Hearing with the Community Development Department or Inspectional Services Department to determine if the Planning Board submitted any comments.***

4. *The Secretary to the Board of Zoning Appeal sends notices of the scheduled hearing to abutters & abutters to abutters within 300 feet of the subject property, and property owners across the street from the subject property, as described in MGL, Ch. 40A, Sec. 11, at least fourteen days in advance of the scheduled hearing date.*

5. A similar notice of the scheduled hearing is published for two consecutive weeks in a paper of local circulation. The first advertisement must appear at least two weeks prior to the date of the hearing.

6. The petitioner is also required to post a notice at the property prior to the hearing in accordance with the procedures set fourth in Attachment D. Please, read carefully for timely & proper display.

7. A notice of the scheduled hearing is posted at the City Clerk's Office two weeks prior to the hearing date.

8. At the hearing, the Board reviews the case material, the petitioner presents pertinent information, and the Board takes testimony in favor and testimony in opposition. Usually, cases are decided at the public hearing. ***Decisions on Variances and Appeals must be filed by the Board with the City Clerk's office within 100 days of the filing date of the application. Decisions on Special Permits must be filed by the Board with the City Clerks office within 90 days of the hearing date. These deadlines can be extended upon written waiver of the applicant.***

9. A deliberation meeting is held on a subsequent date if a decision is not reached at the original hearing. Generally, no additional testimony is taken at the deliberation hearings. If revised plans are to be submitted, they must be filed by the Monday prior to the hearing.

10. *The Board's decision, after reasonable time for transcription and typing, (approximately 30 days) is filed in the Office of the City Clerk and a copy is mailed to the petitioner. If no appeal to Superior Court or Land Court is undertaken within twenty (20) days of the date of filing with the City Clerk, the Petitioner brings his or her copy of the decision to the City Clerk, who signs the decision indicating that no appeal has been undertaken. For variances and special permits the petitioner must file this signed copy with the deed for the subject property at the Registry of Deeds. A copy of the decision stamped as filed by the Registry of Deeds must be filed with the Division of Inspectional Services before buidling permits or certificates of occupancy can be issued.*

***Note: Special Permits for certain use categories, as defined in the Zoning Ordinance, are issued by the Planning Board. Applications for Planning Board Special Permits are made at the Community Planning Division at the Community Development Department (349-4657)**

BZA APPLICATION FORM

CHECK LIST

PROPERTY LOCATION: 10 Canal Park **DATE:** January 14, 2020

PETITIONER OR REPRESENTATIVE: New Cingular Wireless PCS LLC ("AT&T")
C/o Michael R. Dolan, Esq., Brown Rudnick LLP

ADDRESS & PHONE: 10 Memorial Boulevard, Providence, RI 02903

BLOCK: 9 **LOT:** 41

PLEASE CHECK THAT YOU HAVE INCLUDED THE FOLLOWING WITH YOUR APPLICATION. APPLICATIONS WILL NOT BE ACCEPTED FOR PROCESSING & SCHEDULING UNLESS ALL REQUIRED DOCUMENTS ARE PROVIDED.

PLEASE INCLUDE THIS CHECKLIST WITH YOUR APPLICATION.
ALL DOCUMENTS ARE TO BE TYPED OR WRITTEN LEGIBLY.

DOCUMENTS	REQUIRED	ENCLOSED
Application Form **3 Forms with Original Signatures**	X	X
Supporting Statements - Scanned & 1 set to Zoning	X	X
Application Fee (You will receive invoice online)	X	
Assessor's GIS "Block Map" (Available on line or At Engineering Dept. - 147 Hampshire Street)	X	X
Dimensional Form - Refer to Cambridge Zoning Ordinance - Scanned & 1 set to Zoning (Subject to further review by Zoning Specialist)		
Ownership Certificate, Notarized - Scanned & 1 set to Zoning	X	X
Floor Plans - Scanned & 1 set to Zoning	X	X
Elevations - Scanned & 1 set to Zoning	X	X
Certified Plot Plan - Scanned & 1 set to Zoning (By Registered Land Surveyor)		
Photographs of Property - Scanned & 1 set to Zoning	X	X
Parking Plan (if relevant to your application) Scanned & 1 set to Zoning		
FOR SUBDIVISION ALSO INCLUDE: Scanned & 1 set to Zoning		
Proposed Deeds		
Evidence of Separate Utilities **		
Proposed Subdivision Plan		

Petitioners are advised to refer to Attachment A (Procedures for applying to the Board of Zoning Appeal) & consult zoning staff for review.
It is advisable for the Petitioner to discuss the petition with the abutters as listed in the Zoning BZA Case file.

* For Special Permits under Art. 4.32.G.1 (Communication Towers and Antennas), include a photo simulation. Enclosed.
** Can be submitted after subdivision has been approved.

BZA APPLICATION FORM

GENERAL INFORMATION

The undersigned hereby petitions the Board of Zoning Appeal for the following:

Special Permit: X **Variance:** _____ **Appeal:** _____

PETITIONER: New Cingular Wireless LLC (AT&T)

PETITIONER'S ADDRESS: C/o Michael R. Dolan, Esq., Brown Rudnick LLP
10 Memorial Boulevard, Providence, RI 02903

LOCATION OF PROPERTY: , Cambridge, MA 02138

TYPE OF OCCUPANCY: mixed use/wireless communications **ZONING DISTRICT:** PUD-4

REASON FOR PETITION:

X Additions	_____ New Structure
_____ Change in Use/Occupancy	_____ Parking
_____ Conversion to Addi'l Dwelling Unit's	_____ Sign
_____ Dormer	_____ Subdivision
X Other: Modifications to existing wireless facility	

DESCRIPTION OF PETITIONER'S PROPOSAL:

As noted on the submitted plans, AT&T currently has Transmission Equipment mounted on the Building at the 81' 6" AGL antenna centerline mark with electronic equipment on the roof of the Building (the "Facility"). AT&T's Facility currently includes twelve (12) existing panel antennas mounted on the facades of AT&T's equipment shelter and existing penthouse on the roof of the building. AT&T proposes to: remove three (3) existing panel antennas and replace them with an equal number of new panel antennas on new mounting brackets (no net gain of antennas); remove six (6) existing remote radio units and replace them with twelve (12) new remote radio units (for a gain of six (6) ~~remote radio units); and collocate other Transmission Equipment to the Facility; all as per the Plans submitted herewith.~~

SECTIONS OF ZONING ORDINANCE CITED:

Article 4.000 Section 4.32(g)(1) (Telecommunications Facility)

Article 4.000 Section 4.40 (Footnote 49) (Telecommunication Facility)

Article 10.000 Section 10.40 (Special Permit)

Applicants for a **Variance** must complete Pages 1-5
Applicants for a **Special Permit** must complete Pages 1-4 and 6
Applicants for an **Appeal** to the BZA of a Zoning determination by the Inspectional Services Department must attach a statement concerning the reasons for the appeal

Original Signature(s): _____
(Petitioner(s)/Owner)

Michael R. Dolan, Esq., for the Applicant
(Print Name)

Brown Rudnick LLP
Address: 10 Memorial Boulevard
Providence, RI 02903

Tel. No.: 401-276-2610

E-Mail Address: mdolan@brownrudnick.com

Date: January 14, 2020

BZA APPLICATION FORM - OWNERSHIP INFORMATION

To be completed by OWNER, signed before a notary and returned to The Secretary of the Board of Zoning Appeals.

I/We Submitted as separate attachment
(OWNER)

Address: _____

State that I/We own the property located at _____,

which is the subject of this zoning application.

The record title of this property is in the name of _____

_____

*Pursuant to a deed of duly recorded in the date _____, Middlesex South

County Registry of Deeds at Book _____, Page _____; or

Middlesex Registry District of Land Court, Certificate No. _____

Book _____ Page _____.

_____
SIGNATURE BY LAND OWNER OR AUTHORIZED TRUSTEE, OFFICER OR AGENT*

****Written evidence of Agent's standing to represent petitioner may be requested.***

Commonwealth of Massachusetts, County of _____

The above-name _____ personally appeared before me,

this _____of _____, 20____, and made oath that the above statement is true.

_____Notary

My commission expires _____(Notary Seal).

- If ownership is not shown in recorded deed, e.g. if by court order, recent deed, or inheritance, please include documentation.

BZA APPLICATION FORM

DIMENSIONAL INFORMATION

APPLICANT: New Cingular Wireless PCS LLC (AT&T) **PRESENT USE/OCCUPANCY:** mixed use/wireless communications

LOCATION: 10 Canal Park, Cambridge, MA 02141 **ZONE:** BA/PUD-4

PHONE: 401-276-2610 **REQUESTED USE/OCCUPANCY:** No change - modifications to existing wireless facility

		EXISTING CONDITIONS	*REQUESTED CONDITIONS*	*ORDINANCE REQUIREMENTS*[1]	
TOTAL GROSS FLOOR AREA:		N/A	Existing -No change	N/A	(max.)
LOT AREA:		N/A	Existing -No Change	N/A	(min.)
RATIO OF GROSS FLOOR AREA TO LOT AREA:[2]		N/A	Existing -No change	N/A	(max.)
LOT AREA FOR EACH DWELLING UNIT:		N/A	Existing-No Change	N/A	(min.)
SIZE OF LOT:	WIDTH	N/A	Existing-No change	N/A	(min.)
	DEPTH	N/A	Existing-No Change	N/A	
Setbacks in Feet:	FRONT	N/A	Existing-No change	N/A	(min.)
	REAR	N/A	Existing-no change	N/A	(min.)
	LEFT SIDE	N/A	Existing - no change	N/A	(min.)
	RIGHT SIDE	N/A	Existing - no change	N/A	(min.)
SIZE OF BLDG.:	HEIGHT	Building = 71' 6" Existing antennas = 81' 6" centerline	No change proposed		(max.)
	LENGTH				
	WIDTH				
RATIO OF USABLE OPEN SPACE TO LOT AREA:[3])			Existing - no change proposed		(min.)
NO. OF DWELLING UNITS:			Existing- no change proposed		(max.)
NO. OF PARKING SPACES:			Existing-no change proposed		(min./max)
NO. OF LOADING AREAS:			Existing - no change proposed		(min.)
DISTANCE TO NEAREST BLDG. ON SAME LOT:			Existing- no change proposed		(min.)

Describe where applicable, other occupancies on same lot, the size of adjacent buildings on same lot, and type of construction proposed, e.g.; wood frame, concrete, brick, steel, etc.

The proposed modifications will apply solely to AT&T's existing facility on the existing building. There are other uses within the building on the property, but they will not be impacted by the proposed modifications.

1. *SEE CAMBRIDGE ZONING ORDINANCE ARTICLE 5.000, SECTION 5.30 (DISTRICT OF DIMENSIONAL REGULATIONS).*
2. *TOTAL GROSS FLOOR AREA (INCLUDING BASEMENT 7'-0" IN HEIGHT AND ATTIC AREAS GREATER THAN 5') DIVIDED BY LOT AREA.*
3. *OPEN SPACE SHALL NOT INCLUDE PARKING AREAS, WALKWAYS OR DRIVEWAYS AND SHALL HAVE A MINIMUM DIMENSION OF 15'.*

BZA APPLICATION FORM

SUPPORTING STATEMENT FOR A VARIANCE --NA

***EACH OF THE FOLLOWING REQUIREMENTS FOR A VARIANCE MUST BE ESTABLISHED AND SET FORTH IN COMPLETE DETAIL* BY THE APPLICANT IN ACCORDANCE WITH MGL 40A, SECTION 10:**

A) A Literal enforcement of the provisions of this Ordinance would involve a substantial hardship, financial or otherwise, to the petitioner or appellant for the following reasons:

N/A

B) The hardship is owing to the following circumstances relating to the soil conditions, shape or topography of such land or structures and especially affecting such land or structures but not affecting generally the zoning district in which it is located for the following rearsons:

N/A

C) ***DESIRABLE RELIEF MAY BE GRANTED WITHOUT EITHER:***

1) Substantial detriment to the public good for the following reasons:

N/A

2) Relief may be granted without nullifying or substantially derogating from the intent or purpose of this Ordinance for the following reasons:

N/A

* **If You have any questions as to whether you can establish all of the applicable legal requirements, you should consult with your own attorney.**

BZA APPLICATION FORM

SUPPORTING STATEMENT FOR A SPECIAL PERMIT

Please describe in complete detail how you meet each of the following criteria referring to the property and proposed changes or uses which are requested in your application. Attach sheets with additional information for special permits which have additional criteria, e.g.; fast food permits, comprehensive permits, etc., which must be met.

Granting the Special Permit requested for 10 Canal Park **(*location*) would not be a detriment to the public interest because:**

A) Requirements of the Ordinance can or will be met for the following reasons:

The modifications will be located on the roof of the existing building and will be installed in similar manner to the existing facility. AT&T's facility will continue to be a passive use and will not produce smoke, odors, waste, unreasonable noise or significant amounts of traffic. By modifying an existing facility, the need to construct another facility in the immediate vicinity is eliminated.

B) Traffic generated or patterns of access or egress would not cause congestion hazard, or substantial change in established neighborhood character for the following reasons:

There will be no increase in the amount of traffic on the site as a result of AT&T's modifications. Maintenance visits to the site average one or two per month.

C) The continued operation of or the development of adjacent uses as permitted in the Zoning Ordinance would not be adversely affected by the nature of the proposed use for the following reasons:

The modifications will be located on the roof of the existing building and will be installed in similar manner to the existing facility.

D) Nuisance or hazard would not be created to the detriment of the health, safety and/or welfare of the occupant of the proposed use or the citizens of the City for the following reasons:

AT&T's facility will continue to be a passive use and will not produce smoke, odors, waste, unreasonable noise or significant amounts of traffic.

E) For other reasons, the proposed use would not impair the integrity of the district or adjoining district or otherwise derogate from the intent or purpose of this ordinance for the following reasons:

By modifying the existing facility, AT&T can continue providing adequate wireless communications services to this area of the City of Cambridge.

MAURA HEALEY
ATTORNEY GENERAL

THE COMMONWEALTH OF MASSACHUSETTS
OFFICE OF THE ATTORNEY GENERAL
CENTRAL MASSACHUSETTS DIVISION
10 MECHANIC STREET, SUITE 301
WORCESTER, MA 01608

(508) 792-7600
(508) 795-1991 fax
www.mass.gov/ago

February 17, 2015

Dorothy A. Powers, Town Clerk
Town of Westwood
580 High Street
Westwood, MA 02090

RE: Westwood Special Town Meeting of November 17, 2014 - Case # 7455
Warrant Articles # 11, 12, 13, 14, 15 and 16 (Zoning)
Warrant Article # 7, 17 and 18 (General)

Dear Ms. Powers:

Articles 7 and 18 – We take no action on Articles 7 and 18 because they are votes to accept the provisions of local option statutes. Such votes do not require review and approval by the Attorney General.

Article 14 – We retain Article 14 (Street Access Special Permit) for further review and will issue our decision by our deadline of March 9, 2015.

Articles 11, 12, 13, 15, 16, and 17 – We approve these Articles from the November 17, 2014 Westwood Special Town Meeting. Our comments on Article 13 are detailed below.

Article 13 – Article 13 amends Section 7.3 of the Town's Zoning Bylaw, "Environmental Impact and Design Review." In part the amendments make the EIDR by-law applicable to the "construction, installation or alteration of a Minor Wireless Communication Facility pursuant Section 9.4 of [the zoning] bylaw."

Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012 requires that "[A] state or local government *may not deny, and shall approve*, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station." (emphasis added). The Act defines "eligible facilities request" as any request for modification of an existing wireless tower or base station that involves: 1) collocation of new transmission equipment; 2) removal of transmission equipment; or 3) replacement of transmission equipment. The Act applies "[n]otwithstanding section 704 of the Telecommunications Act of 1996." The Act's requirement that a local government "may not deny, and shall approve, any eligible facilities request" means that a request for modification to an existing facility that does not substantially change the physical dimensions of the tower or base station must be approved. Such qualifying requests also cannot

be subject to a discretionary special permit. The Town must apply the EIDR by-law consistent with these requirements.

Article 13 also amends Section 7.3.3, "Exempt Uses" to clarify the application of the EIDR by-law to protected uses under G.L. c. 40A, Section 3, as follows (emphasis supplied):

> In cases where M.G.L. Chapter 40A, Section 3 provides certain exemptions from zoning restrictions for uses protected thereunder, review and approval pursuant to this Section shall be limited consistent with those statutory provisions and on other matters shall be advisory only. For all uses exempt under M.G.L. Chapter 40A, Section 3, the Planning Board shall make determinations of compliance with dimensional and parking requirements of this Bylaw, including requirements related to setbacks, building height, building coverage, **impervious surface,** parking and circulation, buffers, **screening, landscaping, lighting, and stormwater management.**

This text must be applied consistent with the protections given to agricultural, religious, educational, child care, and solar energy systems under G.L. c. 40A, § 3.

First, G.L. c. 40A, § 3 requires that, to the extent the use of land or structures constitutes commercial agriculture, the Town cannot require a special permit for, unreasonably regulate, or prohibit such activities: (1) on land zoned for agriculture; (2) on land that is greater than five acres in size; and (3) on land of 2 acres or more if the sale of products from the agricultural use generates $1,000 per acre or more of gross sales. We urge the Town to consult closely with Town Counsel when applying the new text in the EIDR by-law to agricultural uses to ensure that the Town complies with G.L. c. 40A, § 3.

Second, for religious, educational, and child care uses, G.L. c. 40A, § 3 allows the Town to impose only reasonable regulations in eight areas: the bulk and height of structures, yard size, lot area, setbacks, open space, parking and building coverage requirements. Nothing in G.L. c. 40A, § 3 allows the Town to impose requirements regarding impervious surface, screening, landscaping, lighting, and stormwater management on religious, educational, and child care uses. Because the text in underline and bold above conflicts with the G.L. c. 40A, § 3 protections for religious, educational, and child care uses, the Town cannot apply this text to such uses. We urge the Town to consult closely with Town Counsel when applying the new text in the EIDR by-law to religious, educational, and child care uses to ensure that the Town complies with G.L. c. 40A, § 3.[1]

[1] During the course of our review we received correspondence from a Town resident urging us to disapprove the amendment to Section 7.3.3 on the basis that the EIDR is in reality special permit review process, and thus violates G.L. c. 40A, § 3. We appreciate this correspondence and it has aided us in our review. However, we are unable to conclude that the EIDR is in reality a special permit requirement, and cannot disapprove the text under the Attorney General's standard of review of by-laws under G.L. c. 40, § 32.

Note: **Pursuant to G.L. c. 40, § 32, neither general nor zoning by-laws take effect unless the Town has first satisfied the posting/publishing requirements of that statute. Once this statutory duty is fulfilled, (1) general by-laws and amendments take effect on the date these posting and publishing requirements are satisfied unless a later effective date is prescribed in the by-law, and (2) zoning by-laws and amendments are deemed to have taken effect from the date they were approved by the Town Meeting, unless a later effective date is prescribed in the by-law.**

MAURA HEALEY
ATTORNEY GENERAL

Margaret J. Hurley

by: Margaret J. Hurley, Assistant Attorney General
Chief, Central Massachusetts Division
Director, Municipal Law Unit
Ten Mechanic Street, Suite 301
Worcester, MA 01608
(508) 792-7600 x 4402

cc: Town Counsel Thomas P. McCusker

PUBLIC NOTICE

Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

News Media Information 202 / 418-0500
Internet: http://www.fcc.gov
TTY: 1-888-835-5322

WIRELESS TELECOMMUNICATIONS BUREAU OFFERS GUIDANCE ON INTERPRETATION OF SECTION 6409(a) OF THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012

DA 12-2047
January 25, 2013

On February 22, 2012, the Middle Class Tax Relief and Job Creation Act of 2012 (Tax Act)[1] became law. Section 6409(a) of the Tax Act provides that a state or local government "may not deny, and shall approve" any request for collocation, removal, or replacement of transmission equipment on an existing wireless tower or base station, provided this action does not substantially change the physical dimensions of the tower or base station.[2] The full text of Section 6409(a) is reproduced in the Appendix to this Public Notice.

To date, the Commission has not received any formal petition to interpret or apply the provisions of Section 6409(a). We also are unaware of any judicial precedent interpreting or applying its terms. The Wireless Telecommunications Bureau has, however, received informal inquiries from service providers, facilities owners, and state and local governments seeking guidance as to how Section 6409(a) should be applied. In order to assist interested parties, this Public Notice summarizes the Bureau's understanding of Section 6409(a) in response to several of the most frequently asked questions.[3]

What does it mean to "substantially change the physical dimensions" of a tower or base station?

Section 6409(a) does not define what constitutes a "substantial[] change" in the dimensions of a tower or base station. In a similar context, under the *Nationwide Collocation Agreement* with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers, the Commission has applied a four-prong test to determine whether a collocation will effect a "substantial increase in the size of [a] tower."[4] A proposed collocation that does not involve a substantial increase in

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[1] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112-96, H.R. 3630, 126 Stat. 156 (enacted Feb. 22, 2012) (Tax Act).

[2] *Id.*, § 6409(a).

[3] Although we offer this interpretive guidance to assist parties in understanding their obligations under Section 6409(a), *see, e.g., Truckers United for Safety v. Federal Highway Administration*, 139 F.3d 934 (D.C.Cir. 1998), the Commission remains free to exercise its discretion to interpret Section 6409(a) either by exercising its rulemaking authority or through adjudication. With two exceptions not relevant here, the Tax Act expressly grants the Commission authority to "implement and enforce" this and other provisions of Title VI of that Act "as if this title is a part of the Communications Act of 1934 (47 U.S.C. 151 et seq.)." Tax Act § 6003.

[4] 47 C.F.R. Part 1, App. B, Nationwide Programmatic Agreement for the Collocation of Wireless Antennas, § I.C (*Nationwide Collocation Agreement*).

size is ordinarily excluded from the Commission's required historic preservation review under Section 106 of the National Historic Preservation Act (NHPA).[5] The Commission later adopted the same definition in the *2009 Declaratory Ruling* to determine whether an application will be treated as a collocation when applying Section 332(c)(7) of the Communications Act of 1934.[6] The Commission has also applied a similar definition to determine whether a modification of an existing registered tower requires public notice for purposes of environmental review.[7]

Under Section I.C of the *Nationwide Collocation Agreement*, a "substantial increase in the size of the tower" occurs if:

> 1) [t]he mounting of the proposed antenna on the tower would increase the existing height of the tower by more than 10%, or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to avoid interference with existing antennas; or
>
> 2) [t]he mounting of the proposed antenna would involve the installation of more than the standard number of new equipment cabinets for the technology involved, not to exceed four, or more than one new equipment shelter; or
>
> 3) [t]he mounting of the proposed antenna would involve adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable; or
>
> 4) [t]he mounting of the proposed antenna would involve excavation outside the current tower site, defined as the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site.

Although Congress did not adopt the Commission's terminology of "substantial increase in size" in Section 6409(a), we believe that the policy reasons for excluding from Section 6409(a) collocations that substantially change the physical dimensions of a structure are closely analogous to those that animated the Commission in the *Nationwide Collocation Agreement* and subsequent proceedings. In light of the Commission's prior findings, the Bureau believes it is appropriate to look to the existing definition of "substantial increase in size" to determine whether the collocation, removal, or replacement of equipment

---

[5] *See* 16 U.S.C. § 470f, *see also* 47 C.F.R. § 1.1307(a)(4) (requiring applicants to determine whether proposed facilities may affect properties that are listed, or are eligible for listing, in the National Register of Historic Places).

[6] *See* Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B) to Ensure Timely Siting Review and to Preempt Under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance, WT Docket No. 08-165, *Declaratory Ruling*, 24 FCC Rcd. 13994, 14012, para. 46 & n.146 (2009) (*2009 Declaratory Ruling*), *recon. denied*, 25 FCC Rcd. 11157 (2010), *pet. for review denied sub nom. City of Arlington, Texas v. FCC*, 668 F.3d 229 (5th Cir.), *cert. granted*, 113 S.Ct. 524 (2012); 47 U.S.C. § 332(c)(7).

[7] *See* 47 C.F.R. § 17.4(c)(1)(B); National Environmental Policy Act Compliance for Proposed Tower Registrations, WT Docket No. 08-61, *Order on Remand*, 26 FCC Rcd. 16700, 16720-21, para. 53 (2011).

on a wireless tower or base station substantially changes the physical dimensions of the underlying structure within the meaning of Section 6409(a).

What is a "wireless tower or base station"?

A "tower" is defined in the *Nationwide Collocation Agreement* as "any structure built for the sole or primary purpose of supporting FCC-licensed antennas and their associated facilities."[8] The Commission has described a "base station" as consisting of "radio transceivers, antennas, coaxial cable, a regular and backup power supply, and other associated electronics."[9] Section 6409(a) applies to the collocation, removal, or replacement of equipment on a wireless tower or base station. In this context, we believe it is reasonable to interpret a "base station" to include a structure that currently supports or houses an antenna, transceiver, or other associated equipment that constitutes part of a base station.[10] Moreover, given the absence of any limiting statutory language, we believe a "base station" encompasses such equipment in any technological configuration, including distributed antenna systems and small cells.

Section 6409(a) by its terms applies to any "wireless" tower or base station. By contrast, the scope of Section 332(c)(7) extends only to facilities used for "personal wireless services" as defined in that section.[11] Given Congress's decision not to use the pre-existing definition from another statutory provision relating to wireless siting, we believe the scope of a "wireless" tower or base station under Section 6409(a) is not intended to be limited to facilities that support "personal wireless services" under Section 332(c)(7).

May a state or local government require an application for an action covered under Section 6409(a)?

Section 6409(a) states that a state or local government "may not deny, and shall approve, any eligible facilities request...." It does not say that a state or local government may not require an application to be filed. The provision that a state or local government must approve and may not deny a request to take a covered action, in the Bureau's view, implies that the relevant government entity may require the filing of an application for administrative approval.

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[8] *See Nationwide Collocation Agreement*, § I.B.

[9] *See* Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, WT Docket No. 10-133, *Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, Fifteenth Report*, 26 FCC Rcd. 9664, 9481, para. 308 (2011).

[10] *See also* 47 C.F.R. Part 1, App. C, Nationwide Programmatic Agreement Regarding the Section 106 National Historic Preservation Act Review Process, § II.A.14 (defining "tower" to include "the on-site fencing, equipment, switches, wiring, cabling, power sources, shelters, or cabinets associated with that Tower but not installed as part of an Antenna as defined herein").

[11] 47 U.S.C. § 332(c)(7)(A). "Personal wireless services" is in turn defined to mean "commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services." *Id.* § 332(c)(7)(C)(1).

Is there a time limit within which an application must be approved?

Section 6409(a) does not specify any period of time for approving an application. However, the statute clearly contemplates an administrative process that invariably ends in approval of a covered application. We believe the time period for processing these applications should be commensurate with the nature of the review.

In the *2009 Declaratory Ruling*, the Commission found that 90 days is a presumptively reasonable period of time to process collocation applications.[12] In light of the requirement of Section 6409(a) that the reviewing authority "may not deny, and shall approve" a covered request, we believe that 90 days should be the maximum presumptively reasonable period of time for reviewing such applications, whether for "personal wireless services" or other wireless facilities.

Wireless Telecommunications Bureau contact: Maria Kirby at (202) 418-1476 or by email: Maria.Kirby@fcc.gov.

-FCC-

For more news and information about the Federal Communications Commission please visit: www.fcc.gov

[12] *See 2009 Declaratory Ruling*, 24 FCC Rcd. at 14012-13, paras. 46-47.

APPENDIX

SEC. 6409. WIRELESS FACILITIES DEPLOYMENT.

(a) FACILITY MODIFICATIONS.

(1) IN GENERAL. Notwithstanding section 704 of the Telecommunications Act of 1996 (Public Law 104–104) or any other provision of law, a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station.

(2) ELIGIBLE FACILITIES REQUEST. For purposes of this subsection, the term ''eligible facilities request'' means any request for modification of an existing wireless tower or base station that involves —
(A) collocation of new transmission equipment;
(B) removal of transmission equipment; or
(C) replacement of transmission equipment.

(3) APPLICABILITY OF ENVIRONMENTAL LAWS. Nothing in paragraph (1) shall be construed to relieve the Commission from the requirements of the National Historic Preservation Act or the National Environmental Policy Act of 1969.

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CITY OF CAMBRIDGE
MASSACHUSETTS
BOARD OF ZONING APPEAL
831 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139
617 349-6100

2017 FEB 17 AM 10:41

CASE NO: BZA-012071-2016 Business A Zone/PUD-4 Overlay

LOCATION: 10 Canal Pk
Cambridge, MA

PETITIONER: T-Mobile Northeast, LLC - C/O Ricardo M. Sousa, Esq.

owner; 10 Canal Pa LLC

PETITION: Special Permit: The Applicant proposes to modify its existing Wireless Telecommunications Facility by replacing three (3) existing antennas and collocating three (3) new antennas on the existing building, together with supporting equipment. All proposed antennas will be facade mounted to the existing building, adjacent to the existing antennas and painted to match the existing building. The Applicant's proposal complies with Section 6409 of the Spectrum Act as the collocation of antennas is not a substantial change to the existing base station. Moreover, the Applicants proposal complies with Section 4.32 and 10.4 of the Cambridge Zoning Ordinance.

VIOLATION :

Article 4.000 Section 4.32.G.1 (Telecommunications Facility). ✓

Article 4.000 Section 4.40 (Footnote 49) (Telecommunications Facility). ✓

Article 10.000 Section 10.40 (Special Permit).

Article 6409 Section Middle Class Tax Relief Act

18934 - 540

DATE OF PUBLIC NOTICE: December 29, 2016 and January 05, 2017

DATE OF PUBLIC HEARING: January 12, 2017;

MEMBERS OF THE BOARD:

CONSTANTINE ALEXANDER - CHAIR ✓	✓
BRENDAN SULLIVAN - VICE-CHAIR ✓	✓
JANET O. GREEN ✓	✓
PATRICK TEDESCO X	✓
ANDREA A. HICKEY ✓	✓

ASSOCIATE MEMBERS:

DOUGLAS MYERS	
SLATER W. ANDERSON ✓	
ALISON HAMMER ✓	
JIM MONTEVERDE ✓	
GEORGE BEST X	
LAURA WERNICK ✓	

Eric Kallio
62A West St.
Swanzey NH
03446

Members of the Board of Zoning Appeal heard testimony and viewed materials submitted regarding the above request for relief from the requirements of the Cambridge Zoning Ordinance. The Board is familiar with the location of the petitioner's property, the layout and other characteristics as well as the surrounding district.

Case No. BZA-012071-2016
Location: 10 Canal Park
Petitioner: T-Mobile Northeast LLC – c/o Ricardo Sousa, Esq.

On January 12, 2017, Petitioner's attorney Daniel Glissman appeared before the Board of Zoning Appeal requesting a special permit in order to modify its existing wireless telecommunications facility by replacing three existing antennas and collocating three new antennas on the building together with supporting equipment, where all antennas will be façade mounted to the building, adjacent to existing antennas and painted to match the building. The Petitioner requested relief under Article 4, Section 4.32.G.1 and Article 10, Section 10.40 of the Cambridge Zoning Ordinance ("Ordinance") and Section 6409 of the Middle Class Tax Relief & Job Creation Act. The Petitioner submitted materials in support of their application including information about the project, plans, and photographs.

Mr. Glissman stated that the proposal was to add three new antennas and replace three existing antennas at the site. He stated that they would be painted to match the building and other antennas. He stated that the proposed work did not constitute a substantial change under Section 6409, because the height and protrusions were not changing, there would be no new cabinets or excavation, and the existing concealment efforts would not be defeated.

The Chair asked if anyone wished to be heard on the mater, no one indicated such.

After discussion, the Chair moved that the Board make the following findings based upon the application materials submitted and all evidence before the Board and that based upon the findings the Board grant the requested relief as described in the Petitioner's submitted materials and the evidence before the Board: that the Board find that the modification of the existing telecommunication facility at the site proposed by the petitioner did not substantially change the physical dimensions of the existing wireless tower or base station at such facility within the meaning of Section 6409(a) of The Middle Class Tax Relief and Job Creation Act of 2012, also known as The Spectrum Act.

The Chair further moved that based upon all the information presented the Board grant the requested relief as described in the Petitioner's submitted materials and the evidence before the Board on the following conditions:

1. that the work proceed in accordance with plans submitted by the petitioner, as initialed by the Chair,
2. that upon completion of the work, the physical appearance and visual impact of the proposed work be consistent with the photo simulations submitted by the petitioner, as initialed by the Chair,

3. that the petitioner at all times maintain the proposed work so that its physical appearance and visual impact remain consistent with the photo simulations previously referred to,
4. that should the petitioner cease to utilize the equipment approved tonight for a continuous period of six months or more, it promptly thereafter remove such equipment and restore the building on which it was located to its prior condition and appearance to an extent reasonably practicable,
5. that the petitioner continue to comply with the conditions imposed by the Board with respect to previous Special Permits granted to the petitioner with regard to the site in question,
6. that inasmuch as the health effects of the transmission of electromagnetic energy waves is a matter of ongoing societal concern and scientific study, the Special Permit is also subject to the following conditions:
    A. that the petitioner shall file with the Inspectional Services Department each report it files with the federal authorities regarding electromagnetic energy wave emissions emanating from all of the petitioner's equipment on the site. Each such report shall be filed with the Inspectional Services Department no later than ten business days after the report has been filed with the federal authorities. Failure to timely file any such report with the Inspectional Services Department shall ipso facto terminate the Special Permit granted tonight.
    B. that in the event that at any time federal authorities notify the petitioner that its equipment on the site, including, but not limited to the special permit granted tonight, fails to comply with the requirements of law or governmental regulations, whether with regard to the emissions of electromagnetic energy waves or otherwise, the petitioner, within ten business days of receipt of such notification of such failure, shall file with the Inspectional Services Department a report disclosing in reasonable detail that such failure has occurred and the basis for such claimed failure. The special permit shall ipso facto terminate if any of the petitioner's federal licenses are suspended, revoked, or terminated.
    C. that to the extent a special permit has terminated pursuant to the foregoing paragraphs A and B, the petitioner may apply to this Board for a new special permit provided that the public notice containing such application discloses in reasonable detail that the application has been filed because of a termination of the special permit pursuant to paragraphs A or B above. Any such new application shall not be deemed a repetitive petition and therefore will not be subject to the two-year period during which repetitive petitions may not be filed.
    D. that within ten business days after receipt of a Building Permit for installation of equipment subject to this petition, the petitioner shall file with the Inspectional Services Department a sworn Affidavit of the person in charge of the installation of equipment by the petitioner of the

geographical area that includes Cambridge. Stating that A, he or she has such responsibility, and B that the equipment being installed pursuant to the special permit will comply with all federal safety rules and will be situated and maintained in locations with appropriate barricades and other protections, such that individuals, including nearby residents and occupants of nearby structures, will be sufficiently protected from excessive radio frequency radiation under federal law.

The five member Board voted unanimously in favor of granting the special permit with the above conditions (Alexander, Sullivan, Green, Hickey, and Tedesco). Therefore, the special permit is granted as conditioned.

The Board of Zoning Appeal is empowered to waive local zoning regulations only. This decision therefore does not relieve the petitioner in any way from the duty to comply with local ordinances and regulations of the other local agencies, including, but not limited to the Historical Commission, License Commission and/or compliance with requirements pursuant to the Building Code and other applicable codes.

Constantine Alexander, Chair

Attest: A true and correct copy of decision filed with the offices of the City Clerk and Planning Board on 2/17/16 by Maria Pacheco, Clerk.

Twenty days have elapsed since the filing of this decision.

No appeal has been filed ✓.

Appeal has been filed and dismissed or denied.

Date: MARCH 13, 2017 Donna P. Lopez City Clerk.

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City of Cambridge

MASSACHUSETTS

BOARD OF ZONING APPEAL

2012 SEP 26 AM 11 39

OFFICE OF THE CITY CLERK
CAMBRIDGE, MASSACHUSETTS

831 Mass Avenue, Cambridge, MA.
(617) 349-6100

CASE NO: 10294

LOCATION: 10 Canal Park PUD-4
Cambridge, MA

8 P-Ten Canal Pa LLC

18934-540

PETITIONER: Sprint Spectrum, L.P. – C/o Ricardo M. Sousa, Esq. RECORD OWNER

PETITION: Special Permit: To replace the existing three (3) panel antennas with three (3) updated panel antennas, to add six (6) remote radio heads on the same mounts and to replace (1) equipment cabinet to the Applicant's existing and previously approved wireless communications facility currently operating on the façade of the building.

VIOLATION: Art. 4.000, Sec. 4.32.G.1 (Footnote 49) (Telecommunication Facility).
Art. 10.000, Sec. 10.40 (Special Permit).

DATE OF PUBLIC NOTICE: July 5, 2012 & July 13, 2012

DATE OF PUBLIC HEARING: July 26, 2012

MEMBERS OF THE BOARD:

BRENDAN SULLIVAN - CHAIR	✓
CONSTANTINE ALEXANDER – VICE-CHAIR	✓
TIMOTHY HUGHES	✓
THOMAS SCOTT	✓

ASSOCIATE MEMBERS:

MAHMOOD R. FIROUZBAKHT	
DOUGLAS MYERS	
SLATER W. ANDERSON	
TAD HEUER	
JANET GREEN	
ANDREA A. HICKEY	
KEVIN C. McAVEY	✓

Members of the Board of Zoning Appeal heard testimony and viewed materials submitted regarding the above request for relief from the requirements of the Cambridge Zoning Ordinance. The Board is familiar with the location of the petitioner's property, the layout and other characteristics as well as the surrounding district.

Case No. 10294
Location: 10 Canal Park
Petitioner: Sprint Spectrum, L.P. c/o Ricardo Sousa, Esq.

On August 23, 2012, Petitioner's attorney Ricardo Sousa appeared before the Board of Zoning Appeal requesting a special permit in order to replace three existing panel antennas with three updated panel antennas, to add six remote radio heads on the same mounts, and to replace one equipment cabinet at an existing, operational, and special permitted wireless communications facility. The Petitioner requested relief from Article 4, Section 4.32.G.1 of the Cambridge Zoning Ordinance ("Ordinance"). The Petitioner submitted application materials including information about the project, plans, and photographs.

Mr. Sousa stated that the Petitioner wished to upgrade its existing specially permitted wireless facility as part of a system wide upgrade. He stated that new antennas would simply replace existing ones and that everything would be painted so as to reduce visual impacts. He also agreed to replace pole mounts with low profile mounts (as detailed below). He stated that nothing would extend beyond the roof line. He stated that the Petitioner was FCC licensed. He stated that for a short period there would be redundant equipment on the roof while the system was switched over so as to avoid service interruption, for about two to four weeks.

The Chair asked if anyone wished to be heard on the matter, no one indicated such. The Chair read a letter of support from the Planning Board.

After discussion, the Chair moved that the Board grant the special permit for relief in order to replace three existing panel antennas with three updated panel antennas, to add six remote radio heads on the same mounts, and to replace one equipment cabinet at an existing, operational, and special permitted wireless communications facility based on the finding that the requirements of the Ordinance were met. The Chair moved that the Board find that traffic generated or patterns of access or egress would not cause congestion or a substantial change in the established neighborhood character. The Chair moved that the Board find that the existing facility had been approved by the Board, had no deleterious effect on the citizens of the city or the occupants of the property, and still presented the same public benefits. The Chair moved that the Board find that the design was unobtrusive and benign. The Chair moved that the Board find that the continued operation of, or the development of, adjacent uses allowed under the Ordinance would not be adversely affected by the nature of the proposed use. The Chair moved that the Board find that there would be no nuisance or hazard created to the detriment of the health, safety or welfare of the occupant of the proposed use or to the citizens. The Chair moved that the Board grant the Special Permit on the following conditions:

1. that the work be in conformance with the application, plans, and photo simulations submitted, except that the mounting bracket on Sheet A-3 is to be a low profile mount,
2. that should the equipment become obsolete or no longer functional, it be removed and the building's original condition be restored, and
3. that all conditions of the above mentioned previous special permit, Case #9695, become conditions of this special permit.

The five member Board voted unanimously in favor of granting the special permit (Sullivan, Alexander, Hughes, Scott, and McAvey) with the above condition. Therefore, the special permit is granted.

The Board based its decision upon all the information presented, the above findings and upon the following:

1) The meeting of the requirements of the Ordinance;
2) Traffic generated or patterns of access or egress would not cause congestion, hazard, or substantial change in the established neighborhood character;
3) The continued operation of or the development of adjacent uses as permitted in the Ordinance would not be adversely affected by the nature of the proposed uses;
4) Nuisance or hazard would not be created to the detriment of the health, safety and /or welfare of the occupants of the proposed use;
5) The proposed use would not impair the integrity of the district or adjoining district or otherwise derogate from the Ordinance, and in fact would be a significant improvement to the structure and benefit the neighborhood, and;
6) The new use or building construction is not inconsistent with the Urban Design Objectives set forth in Section 19.30 of the Cambridge Zoning Ordinance.

The Board of Zoning Appeal is empowered to waive local zoning regulations only. This decision therefore does not relieve the petitioner in any way from the duty to comply with local ordinances and regulations of the other local agencies, including, but not limited to the Historical Commission, License Commission and/or compliance with requirements pursuant to the Building Code and other applicable codes.

Brendan Sullivan, Chair

Attest: A true and correct copy of decision filed with the offices of the City Clerk and Planning Board on 9-26-12 by Maria Vacco, Clerk.

Twenty days have elapsed since the filing of this decision.

No appeal has been filed ✓.

Appeal has been filed and dismissed or denied.

Date: OCT. 22, 2012 Donna P. Lopez INTERIM City Clerk.

Subpart CC—State and Local Review of Applications for Wireless Service Facility Modification

§1.40001 Wireless Facility Modifications.

(a) Purpose. These rules implement section 6409 of the Spectrum Act (codified at 47 U.S.C. 1455), which requires a State or local government to approve any eligible facilities request for a modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station.

(b) Definitions. Terms used in this section have the following meanings.

(1) Base station. A structure or equipment at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower as defined in this subpart or any equipment associated with a tower.

(i) The term includes, but is not limited to, equipment associated with wireless communications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(ii) The term includes, but is not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration (including Distributed Antenna Systems and small-cell networks).

(iii) The term includes any structure other than a tower that, at the time the relevant application is filed with the State or local government under this section, supports or houses equipment described in paragraphs (b)(1)(i) through (ii) of this section that has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, even if the structure was not built for the sole or primary purpose of providing such support.

(iv) The term does not include any structure that, at the time the relevant application is filed with the State or local government under this section, does not support or house equipment described in paragraphs (b)(1)(i)-(ii) of this section.

(2) Collocation. The mounting or installation of transmission equipment on an eligible support structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes.

(3) Eligible facilities request. Any request for modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station, involving:

(i) Collocation of new transmission equipment;

(ii) Removal of transmission equipment; or

(iii) Replacement of transmission equipment.

(4) Eligible support structure. Any tower or base station as defined in this section, provided that it is existing at the time the relevant application is filed with the State or local government under this section.

(5) Existing. A constructed tower or base station is existing for purposes of this section if it has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, provided that a tower that has not been reviewed and approved because it was not in a zoned area when it was built, but was lawfully constructed, is existing for purposes of this definition.

(6) Site. For towers other than towers in the public rights-of-way, the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site, and, for other eligible support structures, further restricted to that area in proximity to the structure and to other transmission equipment already deployed on the ground.

(7) Substantial change. A modification substantially changes the physical dimensions of an eligible support structure if it meets any of the following criteria:

(i) For towers other than towers in the public rights-of-way, it increases the height of the tower by more than 10% or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater; for other eligible support structures, it increases the height of the structure by more than 10% or more than ten feet, whichever is greater;

(A) Changes in height should be measured from the original support structure in cases where deployments are or will be separated horizontally, such as on buildings' rooftops; in other circumstances, changes in height should be measured from the dimensions of the tower or base station, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act.

(ii) For towers other than towers in the public rights-of-way, it involves adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater; for other eligible support structures, it involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than six feet;

(iii) For any eligible support structure, it involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets; or, for towers in the public rights-of-way and base stations, it involves installation of any new equipment cabinets on the ground if there are no pre-existing ground cabinets associated with the structure, or else involves installation of ground cabinets that are more than 10% larger in height or overall volume than any other ground cabinets associated with the structure;

(iv) It entails any excavation or deployment outside the current site;

(v) It would defeat the concealment elements of the eligible support structure; or

(vi) It does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment, provided however that this limitation does not apply to any modification that is non-compliant only in a manner that would not exceed the thresholds identified in §1.40001(b)(7)(i) through (iv).

(8) Transmission equipment. Equipment that facilitates transmission for any Commission-licensed or authorized wireless communication service, including, but not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, and regular and backup power supply. The term includes equipment associated with wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(9) Tower. Any structure built for the sole or primary purpose of supporting any Commission-licensed or authorized antennas and their associated facilities, including structures that are constructed for wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul, and the associated site.

(c) Review of applications. A State or local government may not deny and shall approve any eligible facilities request for modification of an eligible support structure that does not substantially change the physical dimensions of such structure.

(1) Documentation requirement for review. When an applicant asserts in writing that a request for modification is covered by this section, a State or local government may require the applicant to provide documentation or information only to the extent reasonably related to determining whether the request meets the requirements of this section. A State or local government may not require an applicant to submit any other documentation, including but not limited to documentation intended to illustrate the need for such wireless facilities or to justify the business decision to modify such wireless facilities.

(2) Timeframe for review. Within 60 days of the date on which an applicant submits a request seeking approval under this section, the State or local government shall approve the application unless it determines that the application is not covered by this section.

(3) Tolling of the timeframe for review. The 60-day period begins to run when the application is filed, and may be tolled only by mutual agreement or in cases where the reviewing State or local government determines that the application is incomplete. The timeframe for review is not tolled by a moratorium on the review of applications.

(i) To toll the timeframe for incompleteness, the reviewing State or local government must provide written notice to the applicant within 30 days of receipt of the application, clearly and

specifically delineating all missing documents or information. Such delineated information is limited to documents or information meeting the standard under paragraph (c)(1) of this section.

(ii) The timeframe for review begins running again when the applicant makes a supplemental submission in response to the State or local government's notice of incompleteness.

(iii) Following a supplemental submission, the State or local government will have 10 days to notify the applicant that the supplemental submission did not provide the information identified in the original notice delineating missing information. The timeframe is tolled in the case of second or subsequent notices pursuant to the procedures identified in this paragraph (c)(3). Second or subsequent notices of incompleteness may not specify missing documents or information that were not delineated in the original notice of incompleteness.

(4) Failure to act. In the event the reviewing State or local government fails to approve or deny a request seeking approval under this section within the timeframe for review (accounting for any tolling), the request shall be deemed granted. The deemed grant does not become effective until the applicant notifies the applicable reviewing authority in writing after the review period has expired (accounting for any tolling) that the application has been deemed granted.

(5) Remedies. Applicants and reviewing authorities may bring claims related to Section 6409(a) to any court of competent jurisdiction.

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