

BZA APPLICATION FORM

GENERAL INFORMATION

BZA-225273

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

Special Permit: ☒ Variance: _____ Appeal: _____

PETITIONER: New Cingular Wireless PCs, LLC d/b/a AT&T Mobility c/o Carolyn Seeley

PETITIONER'S ADDRESS: 85 Rangeway Rd Building 3 Suite 102, North Billerica, MA 01862

LOCATION OF PROPERTY: 10 Canal Park

TYPE OF OCCUPANCY: INV-OFFICE ZONING DISTRICT: PUD-4

REASON FOR PETITION:

<input type="checkbox"/> Additions	<input type="checkbox"/> New Structure
<input type="checkbox"/> Change in Use/Occupancy	<input type="checkbox"/> Parking
<input type="checkbox"/> Conversion to Addi'l Dwelling Unit's	<input type="checkbox"/> Sign
<input type="checkbox"/> Dormer	<input type="checkbox"/> Subdivision
<input checked="" type="checkbox"/> Other: Wireless Communications Facility upgrade	

DESCRIPTION OF PETITIONER'S PROPOSAL:

AT&T proposes to make minor modifications to its existing cell site as part of nationwide upgrades. The proposed scope of work is to remove (3) existing antennas, and (9) existing remote radio units. Swap (9) existing antennas and (6) existing remote radio units with new.

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 and Job Creation Act

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)

Carolyn Seeley / Smartlink / AT&T

(Print Name)

Address: 85 Rangeway Rd, Bldg 3 Suite 102

North Billerica, MA 01862

Tel. No.: 978-760-5577

E-Mail Address: Carolyn.Seeley@smartlinkgroup.com

5/24/2023

Date: _____

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: 10 CANAL PARK CAMBRIDGE, MA 02141

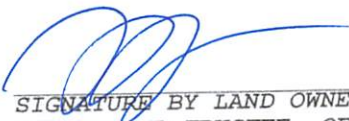
State that I/We own the property located at 10 CANAL PARK CAMBRIDGE, MA
02141

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 5/10/2016, 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 THOMAS R. TARANTO, JR.
AUTHORIZED TRUSTEE, OFFICER OR AGENT* VP, duly authorized

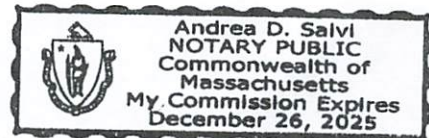
*Written evidence of Agent's standing to represent petitioner may be requested.

Commonwealth of Massachusetts, County of Suffolk

The above-name Thomas R. Taranto, Jr. personally appeared before me,
this 16th of May, 2023, and made oath that the above statement is true.

 Notary

My commission expires 12/26/25 (Notary Seal).



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

(60)

[illegible]

100-443887-100

May 24, 2023

Donna P. Lopez, City Clerk City of Cambridge City Hall 795 Massachusetts Avenue Cambridge, MA 02139	Constantine Alexander, Chair Board of Zoning Appeal City Hall 795 Massachusetts Avenue Cambridge, MA 02139
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Applicant: New Cingular Wireless PCS, LLC ("AT&T")
Property Address: 10 Canal Park
Assessor's Map 9, Lot 41 (the "Property")
Re: Application for:
(i) Eligible Facilities Request pursuant to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012, 47 U.S.C. § 1455; or, in the alternative,
(ii) Special Permit under Cambridge Zoning Ordinance Section 4.32(g)(1) and M.G.L. c. 40A, Section 9; and
(iii) Any other zoning relief required.
(All relief if and to the extent necessary, all rights reserved)

Dear Ms. Lopez, Mr. Alexander and Members of the Board of Zoning Appeal:

Pursuant to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012 (a/k/a the "Spectrum Act" or "Section 6409"), 47 U.S.C. § 1455, as further implemented by the Federal Communications Commission's 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) (the "FCC Order"), New Cingular Wireless PCS, LLC ("AT&T") hereby submits this Eligible Facilities Request ("Request"); and, in the alternative, applies for a special permit from the City of Cambridge Board of Zoning Appeal (the "Board") under Section 432(g)(1) of the Cambridge Zoning Ordinance (the "Ordinance") to modify its existing "Telephone Exchange including Transmission Facilities to serve a Mobile Communication System" (the "Facility") on and within the existing building located at 10 Canal Park (the "Special Permit Application").²

Under Section 6409, AT&T's proposed modification of its existing transmission equipment on and within the existing building, previously approved by the Board for use as a wireless communication

² AT&T submits this Request, Special Permit application and supporting materials subject to a full and complete reservation of AT&T's rights under the Spectrum Act and the FCC Order including without limitation its rights with respect to (i) any submittal requirements or approval criteria that are inconsistent with the prohibitions established by the FCC Order, (ii) any delay beyond the deadlines established in the FCC Order, (iii) the imposition of conditions on any approval that are inconsistent with the FCC Order, and (iv) referral or requirement to a discretionary review process such as a special permit.

base station, does “not substantially change the physical dimensions” of the existing building. Therefore, AT&T’s Request must be approved administratively, including the issuance of a building permit, to enable AT&T to make the proposed modifications to its transmission equipment.

In the alternative, as demonstrated in this application letter, the AT&T’s proposed modifications to its existing Facility on the Property located in the PUD-2 & Residence C-3A zoning district satisfy the requirements for the grant of a special permit pursuant to Section 10.43 of the Ordinance.

I. APPLICATION PACKAGE

Enclosed with this application is a check payable to the City of Cambridge in the amount of \$500.00. In addition to the signed original of this letter are copies of the letter and the following materials:

1. The following completed and signed application forms:
 - a. BZA Application Form – General Information;
 - b. BZA Application Form – Ownership Information;
 - c. BZA Application Form – Dimensional Requirements;
 - d. BZA Application Form – Supporting Statement for a Special Permit; and
 - e. BZA Application Form – Check List;
2. AT&T’s relevant FCC License information.
3. Drawings by Hudson Design Group LLC consisting of 10 pages dated 04/13/2022.

SHEET	TITLE	REV DATE
T1	Title Sheet	04/13/2022
GN-1	General Notes	04/13/2022
A1	Roof & Equipment Plans	04/13/2022
A2	Existing Antenna Layout	04/13/2022
A3	Proposed Antenna Layout	04/13/2022
A-4	ELEVATION	04/13/2022
A5	Construction Details	04/13/2022
A6	Grounding Details	04/13/2022
G1	Grounding Details	04/13/2022
RF-1	RF Plumbing Diagram	04/13/2022

4. Manufacturer’s specification sheets for AT&T’s proposed antennas and other featured equipment;

5. Photographs of the existing building and photo simulations of the proposed modifications Facility by Hudson Design Group dated 04/25/2022.
6. Radio Frequency Coverage Report, demonstrating the public need for the proposed modifications to the Facility, radio frequency coverage maps showing (a) existing or predicted coverage from neighboring facilities; and (b) coverage with the proposed Facility.
7. Structural Analysis by Hudson Design Group dated 02/24/2022.
8. Maximum Permissible Exposure Study, Theoretical Report, by MobileComm, dated 03/10/2023.
9. Letter of Authorization from Owner of Subject Property.
10. Attorney General's letters to the Towns of Mount Washington, Lynnfield, and Montague.

II. PROPOSED FACILITY DESIGN

AT&T seeks to modify the existing Facility on and within the building located at the Property. The existing Facility consists of twelve (12) panel antennas (Alpha Sector: 4 antennas, Beta Sector: 4 antennas, and Gamma Sector: 4 antennas) that are mounted in three (3) locations. The proposed modifications include the replacement of nine (9) antenna, (3) per sector, which will be mounted to the building façade, and will have no visible change to the current Facility's design. Nine (9) remote radio-head units (RRU) will be added in close proximity to the antenna. Consistent with the concealment elements of the existing Facility's design, the new antenna and RRU will be located along with the existing equipment.

The Facility's design is shown in detail in the Zoning Drawings attached as Exhibit 3 to this application letter and featured equipment is described in the manufacturers' specification sheets attached as Exhibit 4. The photographs and photo simulations (Exhibit 5) show the existing Facility from various locations in the neighborhood around the Property and as simulated with proposed modifications. A structural analysis for the Facility demonstrates that the building is capable of supporting AT&T's proposed equipment at or near the locations shown on the Zoning Drawings (*see* Exhibit 7).

The Facility will continue to bring advanced wireless voice, text, and data communications services to the surrounding areas. It will allow residents, professionals, government, businesses, and students to communicate locally, nationally, and internationally from virtually any location within the coverage area. In the event of an emergency, the improved Facility will allow immediate contact with fire, rescue, and other emergency personnel. The improved Facility will thus enhance public health, safety, and welfare both in ordinary daily living and in the event of fire, accident, medical emergency, natural disaster or other dangers.

III. BACKGROUND

AT&T is licensed by the Federal Communications Commission to construct and operate a wireless telecommunications network in various markets throughout the country, including the Commonwealth of Massachusetts and the City of Cambridge. A copy of the AT&T's FCC license that covers the area of the proposed Facility is included with this application (*see* Exhibit 2). AT&T is in the process of designing and constructing additional wireless facilities to its existing telecommunications system to serve Massachusetts. One of the key design objectives of its systems is to provide adequate and reliable coverage. Such a system requires a grid of radio transmitting and receiving links located approximately .5 to 2 miles apart, depending on the location of existing and proposed installations in the surrounding area, the extent of use of AT&T's wireless services within the network, and the existing topography and obstructions. The radio transmitting and receiving facilities operate on a line-of-sight basis, requiring a clear path from the facility to the user on the ground. In urban settings, this dynamic requires the antennas to be located on buildings at heights and in locations where the signal is not obstructed or degraded by other buildings or by topographical features such as hills.

IV. RF COVERAGE DETERMINATION

AT&T has performed a study of radio frequency coverage for the City of Cambridge and from the Property, the results of which are described in the Radio Frequency Report submitted with this application (*see* Exhibit 6). Without the proposed modifications to its existing Facility, AT&T has a substantial coverage gap in this area of Cambridge. AT&T has determined that the proposed modifications to the existing Facility located on the building at the Property will provide needed coverage to the targeted sections of the City and the immediately surrounding area if AT&T's antennas are located on the building's roof at the height and in the configuration requested. The importance of a facility at this location is underscored by AT&T's interest in enhancing its ability to provide its most up-to-date wireless technology, known as long-term evolution technology ("LTE"), in this area to satisfy its customers' ever-increasing needs for high-speed data services. Radio frequency coverage maps included in the report are provided to pictorially and vividly show the differences in existing and proposed wireless coverage at the various bands authorized for AT&T's service. The maps show dramatic improvements to wireless coverage at all three (3) bands with the inclusion of the proposed Facility, namely, at 700, 1900, and 2100 MHz.

V. THE FEDERAL SPECTRUM ACT AND THE FCC ORDER

As set forth below, the proposed modifications constitute an Eligible Facilities Request pursuant to the federal Spectrum Act,³ as further implemented by the FCC Order.⁴

Under the Spectrum Act, as further clarified by the FCC Order, the streamlined process for this Eligible Facilities Request is limited to non-discretionary review. Specifically, the FCC Order “adopt[s] an objective standard for determining when a proposed modification will ‘substantially change the physical dimensions’ of an existing tower or base station.” *FCC Order*, ¶ 87. As stated in the FCC Order, Section 6409 “states without equivocation that the reviewing authority ‘may not deny, and shall approve’ any qualifying application. This directive leaves no room for a lengthy and discretionary approach to reviewing an application that meets the statutory criteria.” *FCC Order*, ¶ 116.

In issuing the FCC Order and eliminating discretionary review for eligible facilities requests, the FCC’s goal was to “adopt a test that is defined by specific, objective factors rather than the contextual and entirely subjective standard advocated by the IAC and municipalities.” The FCC intentionally sought to reduce “flexibility” and “open ended context-specific approach” engendered by the discretionary review process:

While we acknowledge that the IAC approach would provide municipalities with maximum flexibility to consider potential effects, we are concerned that it would invite lengthy review processes that conflict with Congress’s intent. Indeed, some municipal commenters anticipate their review of covered requests under a subjective, case-by-case approach could take even longer than their review of collocations absent Section 6409(a). We also anticipate that disputes arising from a subjective approach would tend to require longer and more costly litigation to resolve given the more fact-intensive nature of the IAC’s open-ended and context-specific approach. We find that an objective definition, by contrast, will provide an appropriate balance between municipal flexibility and the rapid deployment of covered facilities. We find further support for this approach in State statutes that have implemented Section 6409(a), all of which establish objective standards.

FCC Order, ¶ 88.

³ Pursuant to Section 6409(a)(2) an “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.

47 U.S.C. § 1455(a)(2).

⁴ The Order was effective on February 9, 2015, except for § 1.40001, which became effective on April 8, 2015, except for §§ 1.40001(c)(3)(i), 1.40001(c)(3)(iii), 1.140001(c)(4), and 17.4(c)(1)(vii), which became effective on May 18, 2015, after approval by the Office of Management and Budget. The FCC Order makes clear that under the Spectrum Act discretionary review is not required or permitted for an Eligible Facilities Request.

As a result, the FCC Order implementing Section 6409 establishes clear and objective criteria for determining eligibility, limits the types of information that a municipality may require when processing an application for an eligible facilities request, and imposes a “deemed granted” remedy for failure to timely process and eligible facilities request.⁵ The FCC Order also establishes significant limits on the information that can be required to be provided with an eligible facilities request and limits it to only that information “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”. 47 CFR 1.40001(c)(1).

Both before and after the FCC Order was issued, the Massachusetts Attorney General’s Office provided clear guidance that an eligible request cannot be subjected to a discretionary special permit process. *See* Attorney General’s letters to (i) Town of Mount Washington, dated June 12, 2014, p. 3 (ii) Town of Lynnfield, dated February 10, 2015, p. 3 (the “AG Lynnfield Letter”) and (iii) Town of Montague, dated February 23, 2015, p. 2 (all attached hereto). As set forth in each letter [t]he 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.***”(Emphasis added). In providing these opinions, the Attorney General’s Office specifically opined that provisions in zoning ordinances that specifically required a special permit for modifications to existing facilities could not be applied to eligible facilities requests. While approving the Town of Lynnfield’s Zoning Bylaw, the Attorney General stated that “Section 8.7.5.1 requires that PWSF may only be erected upon the grant of a special permit. The Town cannot apply this requirement to eligible facilities requests for modification to existing facilities that qualify for required approval under Section 6409 of the Act.” *AG Lynnfield Letter*, p. 3.

Therefore, as set forth in the FCC Order and Attorney General’s opinion letters, the City cannot impose a requirement that AT&T obtain a special permit, or an amendment to an existing special permit utilizing the same discretionary review process, in connection with its eligible facilities request. To the extent that the City of Cambridge’s Zoning Ordinance and any prior decisions by the Board include provisions seeking to further regulate the modification of wireless communication facilities, federal law overrules those requirements. *See Sprint Spectrum L.P. v. Town of Swansea*, 574 F.Supp.2d 227, 236 (2008) (Board is obligated to consider whether its actions would violate federal law even if a different outcome would be permitted under state law). The standard of review for an application to modify an existing wireless communication facility on an existing tower or base station is governed by the Spectrum Act and the FCC Order which require eligible facilities requests to be permitted “by right.”

In addition, the FCC Order establishes a 60-day period for approval from the time of AT&T’s submission. 47 CFR §1.40001(c)(2). Within the context of the Spectrum Act and FCC Order, approval means all necessary approvals to permit the proposed modifications, including the issuance of a building permit, if required. The FCC found that this 60-day period is appropriate due to “the more restricted scope of review applicable to applications under section 6409(a).”

⁵ *See* 47 CFR §§1.40001(c)(1) - (c)(4).

FCC Order, ¶ 108. If the Request is not acted upon within the 60-day period, it is deemed granted. 47 CFR §1.40001(c)(4).

As set forth below, the proposed modifications constitute an eligible facilities request. Therefore, AT&T respectfully requests the Board to find that Section 4.32(g)(1) of the Ordinance does not apply to its Request.

VI. THE PROPOSED MODIFICATIONS ARE AN ELIGIBLE FACILITIES REQUEST

Under Section 6409 and the FCC Order, a “base station” means “[a] structure or equipment at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network.” 47 C.F.R §1.40001(b)(1). A Base Station includes “any structure other than a tower” that supports or houses “authorized wireless communications between user equipment and a communications network.” 47 C.F.R §1.40001(b)(1). Therefore, the existing building that is currently used for FCC-licensed transmissions for personal wireless services is a “base station” for purposes of Section 6409.

AT&T proposes to modify its existing Facility as described above and depicted on the Plans submitted herewith.

The proposed modifications will not require the installation of any part of the facility on the ground outside of the building.

As a result, AT&T’s proposed modifications involving the removal and replacement of the existing transmission equipment constitute an “eligible facilities request” under Section 6409. The proposed eligible facilities request is not a “substantial modification” under Section 6409 and the FCC Order because it does not:

- (i) Result in an increase in “the height of the structure by more than 10% or more than ten feet, whichever is greater” because the proposed replacement antennas will either be mounted and located below the screen wall or utilize the existing equipment mounting frame that and therefore will not exceed 10 feet above the existing building;
- (ii) Protrude from the edge of the edge of the building by more than six feet because AT&T’s proposed antennas will not protrude more than six feet from building façade;
- (iii) Involve the installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets no new radio communications equipment cabinets will be installed;
- (iv) Require any excavation or deployment outside the current site of the tower or base station because all antennas, equipment cabinets and related equipment will be installed entirely on and within the existing building; or
- (v) Otherwise defeat the existing concealment elements of the tower or base station because the proposed replacement antennas will be located behind the existing

screen wall or utilize the existing mounting frame and will continue to integrate the Facility into the existing architecture of the building. . Therefore, AT&T's proposed Facility will remain aesthetically consistent with the exterior finish of the building as well as maintain the concealment elements of the original design.

See FCC Order, §1.40001(b)(7)(i)-(v).

VII. COMPLIANCE WITH THE CAMBRIDGE ZONING ORDINANCE

In the alternative, AT&T respectfully requests the Board to grant a special permit for the proposed modifications to the existing Facility.⁶

A. AT&T complies with the Wireless Communications provisions set forth in Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance.

AT&T's proposed modifications comply with Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance as follows:⁷

Section 4.32(g)(1): Section 4.32(g)(1) of the Ordinance allows for the use of a “[t]elephone exchange (including switching, relay, and transmission facilities serving mobile communications systems) and any towers or antennas accessory thereto.” Under the Table of Use Regulations beginning at Section 4.30, AT&T's proposed use of the Facility as a transmission facility serving a mobile communications system is permitted by special permit in the PUD-2 & Residence C-3A zoning district (see the table at Section 4.32(g)(1)).

Section 4.40, Footnote 49: Section 4.32(g)(1) includes a reference to Section 4.40, Footnote 49 which sets out the standards for granting the special permit. AT&T's proposed Facility complies with Footnote 49's standards as noted below:

1. **The Board of Zoning Appeal shall consider “[t]he scope of or limitations imposed by any license secured from any state or federal agency having jurisdiction over such matters.”**

AT&T's Response: AT&T's FCC license is included with this application and the license information included shows that AT&T is authorized to provide wireless service in the area served by the Facility (see Exhibit 2).

⁶ AT&T's request is made, if and to the extent necessary, all rights reserved. As discussed above, the FCC Order establishes a 60-day period for receipt of all necessary approvals from the time of AT&T's submission, including a building permit, if required. 47 CFR §1.40001(c)(2). If the Request is not acted upon within the 60-day period, it is deemed granted. 47 CFR §1.40001(c)(4). Therefore, AT&T expressly reserves its rights under 47 CFR §1.40001(c)(2) and (4).

⁷ To the extent that Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance purport to require the submission of information that is beyond the scope permitted by the FCC Order or Spectrum Act, AT&T expressly reserves, and does not waive, its right to assert that such information is not required under the Spectrum Act and the submission of such information shall not constitute a waiver of AT&T's rights pursuant thereto.

2. **The Board of Zoning Appeal shall consider “[t]he extent to which the visual impact of the various elements of the proposed facility is minimized: (1) through the use of existing mechanical elements on the building’s roof or other features of the building as support and background, (2) through the use in materials that in texture and color blend with the materials to which the facilities are attached, or (3) other effective means to reduce the visual impact of the facility on the site.”**

AT&T’s Response: The design of the overall Facility, including the choice and placement of replacement antennas and associated equipment, behind the existing screen wall or utilizing the existing mounting frame, minimizes the visual impact of the proposed Facility. This is because the any visible antennas and equipment will be minimally visible and consistent with the elements of the existing Facility. The minimal visual impact of the Facility is shown in the photographs of the existing Facility and the photosimulations that superimpose the proposed modifications to the existing Facility (*see*, Exhibit 5).

3. **The Board of Zoning Appeal shall consider “[w]here 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 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 finding that nonresidential uses predominate in the vicinity of the proposed facility’s location and that the telecommunications facility is not inconsistent with the character that does prevail in the surrounding neighborhood.**

In granting a special permit the Board of Zoning Appeal shall set forth in its decision under which circumstances or procedures, if any, the permittee shall be allowed to replace and upgrade its equipment without the necessity of seeking a new special permit.”

AT&T’s Response: As demonstrated by the Radio Frequency Report and the associated coverage maps, AT&T has demonstrated an immediate and compelling need for the proposed modifications to its existing Facility located at the Property in order to provide substantially improved indoor coverage to residents, businesses, students and faculty, and the general public in that area.⁸ AT&T also seeks to substantially improve its ability to satisfy the ever-increasing need of its customers for data accessibility, navigation and use. This is especially critical in and around the area of Brookline Ave. which also serves as home for numerous businesses. AT&T proposes to satisfy its RF coverage needs in the area by adding to the existing Facility the antennas and equipment necessary to provide the latest LTE wireless communications service technology. Further, by modifying its existing Facility, and obviating the need to construct an entirely new facility within this area of Cambridge in order to meet its wireless network coverage needs, of the residents, businesses, and general public.

⁸ AT&T must generate a signal strength of at least -74 dBm to provide serviceable voice and data coverage on its mobile wireless devices in indoor environments. AT&T also seeks to substantially improve its data navigation service coverage in the area by including antennas and equipment that will provide LTE service.

As provided in Footnote 49, AT&T requests that once permission is received from the City to site the Facility at the Property, the Board permit AT&T to replace and upgrade the equipment at this Facility in the future without further zoning proceedings or a new special permit, provided that such equipment shall meet the eligible facilities request criteria set forth in 47 CFR § 1.40001.

B. AT&T complies with the Special Permit Criteria set forth in Section 10.43 of the Ordinance.

Section 10.43 of the Ordinance specifies the following criteria for issuance of a special permit: “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) The requirements of this Ordinance cannot or will not be met, or

AT&T’s Response: As provided above, AT&T’s proposed modifications comply with the requirements set forth in Section 4.32(g), Footnote 49 of the Ordinance, the Spectrum Act and the eligible facilities request criteria set forth in 47 CFR § 1.40001. Granting the special permit would not be a detriment to the public interest and is consistent with the Board’s obligations pursuant to the Spectrum Act and FCC Order.

(b) Traffic generated or patterns of access or egress would cause congestion, hazard, or substantial change in established neighborhood character for the following reasons, or

AT&T’s Response: The proposed modifications to AT&T’s existing Facility will not result in any change to the existing traffic on or near the Property. The Facility will continue to be unmanned and only require infrequent visits by a technician (typically two times per month for routine diagnostics and/or maintenance, except in cases of emergency), there will be no material increase in traffic or disruption to patterns of access or egress that will cause congestion, hazards or a substantial change in the established neighborhood character. AT&T’s maintenance personnel will make use of the existing access roads and parking at the building. Granting the special permit would not be a detriment to the public interest and is consistent with the Board’s obligations pursuant to the Spectrum Act and FCC Order.

(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

AT&T’s Response: As described above and illustrated on the attached photographs and photosimulations (*see* Exhibit 5) the proposed modifications to the existing Facility will result in a *de minimis* change in the appearance of the building. As a result, the Facility as a whole either will be hidden from view or will visually blend with existing characteristics of the building and the surrounding neighborhood. Because the proposed installation will not generate any traffic, smoke,

dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater, it will not adversely affect residential uses on neighboring streets. Conversely, the surrounding properties and general public will benefit from the potential to enjoy improved wireless communications services. Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

(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 Response: Because the proposed modifications to the existing Facility will not cause the Facility to generate any traffic, smoke, dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater, no nuisance or hazard will be created to the detriment of the health, safety, or welfare of the occupants of the building or the residents of the City of Cambridge. To the contrary, the proposed Facility will benefit the City and promote the safety and welfare of its residents, businesses and drivers by providing reliable state-of-the-art digital wireless voice and data services that will improve the reliability of emergency communications with the police and fire departments by eliminating dropped or blocked calls due to inadequate signal strength or insufficient network capacity to handle call volume, particularly important during emergency situations. The Facility, as modified, will continue to comply with all federal, state and local safety requirements including the standards established by the FCC and Federal Aviation Administration (FAA). (See Exhibit 8 Maximum Permissible Exposure Study, Theoretical Report). Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

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

AT&T's Response: The purpose of the Ordinance is multifaceted, the relevant aspects of which relating to wireless telecommunications facilities include the lessening of congestion in the streets, conserving health, securing safety from fire, flood, panic and other danger, conserving the value of land and buildings and natural resources, preventing blight and pollution, encouraging the most rational use of land throughout the city, including encouraging appropriate economic development, and protecting residential neighborhoods from incompatible activities.

As noted above, the proposed modifications to the existing Facility directly accord with the purposes of the Ordinance because the modifications will not result in any traffic, smoke, dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater. As the Facility will improve the ability of residents, businesses, travelers and drivers in the area to access state-of-the-art wireless technology, the City's ability to provide emergency services will be improved, as will the economic development of the City as more people will be able to conduct commerce by virtue of a mobile platform. Because the proposed modifications to the existing Facility will be installed on an existing building that includes the Facility, and the proposed modifications are consistent with the existing concealment elements, the proposed modifications to the existing Facility are in

consistent with the building's character and will not affect the value of the building or the natural resources of the City. Because the proposed modifications to the existing Facility are designed to be consistent with the existing concealment elements of the Facility and characteristics of the Property, the visual impact on the underlying and adjacent zoning districts will be *de minimis*. As a result, the proposed modifications to the existing Facility are consistent with the Ordinance's purpose to allow for less intrusive wireless telecommunications facilities in all districts (other than Open Space) including the applicable overlay districts, and the underlying PUD-2 & Residence C-3A district. Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

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

AT&T's Response: As stated in the Section 19.30, the Citywide Urban Design Objectives ("Objectives") "are intended to provide guidance to property owners and the general public as to the city's policies with regard to the form and character desirable for new development in the city. It is understood that application of these principles can vary with the context of specific building proposals in ways that, nevertheless, fully respect the policies' intent. It is intended that proponents of projects, and city staff, the Planning Board and the general public, where public review or approval is required, should be open to creative variations from the detailed provisions presented in this Section as long as the core values expressed are being served. *A project need not meet all the objectives of this Section 19.30 where this Section serves as the basis for issuance of a special permit. Rather the permit granting authority shall find that on balance the objectives of the city are being served.* Nor shall a project subject to special permit review be required to conform to the Required Building and Site Plan Requirements set forth in Section 11.50." [emphasis added]. For the reasons stated in AT&T's response to this Section 10.43(f) of the Zoning Ordinance and in its application generally, "on balance, the objectives of the city are being served" by the installation of the Facility at the Property so that granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

The following are the Objectives' headings as appearing in the Ordinance:

19.31: New projects should be responsive to the existing or anticipated pattern of development.

AT&T's Response: The existing Facility is located on and within the existing building, some of the equipment of which is hidden from view behind the screen wall and within the building, or otherwise obstructed from view, and the remaining equipment utilizes the existing antenna mounting frame and blends with the structures and colors of the building to the extent feasible. The proposed modifications to the existing Facility are consistent with the previously approved design and concealment elements of the existing Facility. Therefore, the proposed modifications are responsive to the existing pattern of development in the Property's applicable zoning and overlay districts.

19.32: Development should be pedestrian and bicycle-friendly, with a positive relationship to its surroundings.

AT&T's Response: The existing Facility is located on and within the existing building. The Facility is only accessed by authorized AT&T personnel for routine maintenance one to two times per month and is not accessed by the general public. The proposed modifications to the existing Facility will not result in any increase in routine visits nor otherwise result in a change in traffic patterns in the vicinity of the Property that would affect pedestrian flow or cyclists' access to the building or surrounding areas within the Property's applicable zoning districts.

19.33 The building and site design should mitigate adverse environmental impacts of a development upon its neighbors. Indicators include⁹

(1) Mechanical equipment that is carefully designed, well organized or visually screened from its surroundings and is acoustically buffered from neighbors. Consideration is given to the size, complexity and appearance of the equipment, its proximity to residential areas, and its impact on the existing streetscape and skyline. The extent to which screening can bring order, lessen negative visual impacts, and enhance the overall appearance of the equipment should be taken into account. More specifically:

(a) Reasonable attempts have been made to avoid exposing rooftop mechanical equipment to public view from city streets. Among the techniques that might be considered are the inclusion of screens or a parapet around the roof of the building to shield low ducts and other equipment on the roof from view.

(b) Treatment of the mechanical equipment (including design and massing of screening devices as well as exposed mechanical elements) that relates well to the overall design, massing, scale and character of the building.

(c) Placement of mechanical equipment at locations on the site other than on the rooftop (such as in the basement), which reduces the bulk of elements located on the roof; however, at-grade locations external to the building should not be viewed as desirable alternatives.

(d) Tall elements, such as chimneys and air exhaust stacks, which are typically carried above screening devices for functioning reasons, are carefully designed as features of the building, thus creating interest on the skyline.

(e) All aspects of the mechanical equipment have been designed with attention to their visual impact on adjacent areas, particularly with regard to residential neighborhoods and views and vistas.

AT&T's Response: As shown in the photosimulations (*see* Exhibit 5), the existing Facility, as proposed to be modified herein, will continue to be visually consistent with the color and

⁹ Inasmuch as Section 19.33 is most relevant to the Facility, it is stated here in full.

texture of the building, the concealment elements of the design of the Facility, and with other existing wireless communications facilities from competing carriers located on the building. As a result, AT&T's Facility is in keeping with the building's existing features without adversely affecting the building's overall design, massing, scale or character.

(2) Trash that is handled to avoid impacts (noise, odor, and visual quality) on neighbors, e.g. the use of trash compactors or containment of all trash storage and handling within a building is encouraged.

AT&T's Response: The Facility does not generate trash, therefore this design objective is inapplicable.

(3) Loading docks that are located and designed to minimize impacts (visual and operational) on neighbors.

AT&T's Response: The Facility does not utilize any loading dock, therefore this design objective is inapplicable.

(4) Stormwater Best Management Practices and other measures to minimize runoff and improve water quality are implemented.

AT&T's Response: The existing Facility, and the proposed modifications, are located entirely on and within the existing Building on the Property and have no effect on stormwater runoff, therefore this design objective is inapplicable.

(5) Landscaped areas and required Green Area Open Space, in addition to serving as visual amenities, are employed to reduce the rate and volume of stormwater runoff compared to pre-development conditions.

AT&T's Response: The existing Facility and proposed modifications have no effect any landscaped or Green Area Open Space, therefore this design objective is inapplicable.

(6) The structure is designed and sited to minimize shadow impacts on neighboring lots, especially shadows that would have a significant impact on the use and enjoyment of adjacent open space and shadows that might impact the operation of a Registered Solar Energy System as defined in Section 22.60 of this Zoning Ordinance.

AT&T's Response: The existing Facility and proposed modifications are designed so as not to cause shadows on neighboring lots.

(7) Changes in grade across the lot are designed in ways that minimize the need for structural retaining walls close to property lines.

AT&T's Response: The existing Facility and proposed modifications are located entirely on and within the existing building and have no impact on the grade of the Property, therefore this design objective is inapplicable.

(8) Building scale and wall treatment, including the provision of windows, are sensitive to existing residential uses on adjacent lots.

AT&T's Response: The proposed modifications to the existing Facility will not change the building's scale because antennas and equipment will be mounted behind the existing screen wall or on an existing antenna mounting frame already located on the building (*see Exhibit 3*). The existing Facility and proposed modifications are consistent with characteristics of the existing building design, maintain the existing concealment elements of the Facility and therefore minimize any visual impact from the Facility.

(9) Outdoor lighting is designed to provide minimum lighting and necessary to ensure adequate safety, night vision, and comfort, while minimizing light pollution.

AT&T's Response: The existing Facility does not use any outdoor lighting. The proposed modifications to the Facility do not include any additional lighting of the Facility or building. As a result, this design objective is inapplicable.

(10) The creation of a Tree Protection Plan that identifies important trees on the site, encourages their protection, or provides for adequate replacement of trees lost to development on the site.

AT&T's Response: The existing Facility and proposed modifications are located entirely on and within the existing building and have no effect on any trees on the Property, therefore this design objective is inapplicable.

19.34: Projects should not overburden the City infrastructure services, including neighborhood roads, city water supply system, and sewer system.

AT&T's Response: The existing Facility, including the proposed modifications, is a passive use and will not generate trash, odor, excess noise, or utilize water or wastewater services. As such, it will not burden the City's infrastructure services.

19.35: New construction should reinforce and enhance the complex urban aspects of Cambridge as it has developed historically.

AT&T's Response: The proposed modification of the existing Facility located on and within the existing building, will obviate the need for AT&T to construct an additional Facility to address its wireless network coverage need in this area of Cambridge. The existing Facility and the proposed modifications blend the equipment with the building texture and color, and are consistent with the concealment elements of the Facility's design. As a result, the Facility will reinforce the existing Cambridge landscape as it currently is manifested at the Property.

19.36: Expansion of the inventory of housing in the city is encouraged.

AT&T's Response: The Facility and proposed modifications provide wireless services and will not adversely impact the City's housing inventory.

19.37. Enhancement and expansion of open space amenities in the city should be incorporated into new development in the city.

AT&T's Response: The Facility and proposed modifications are located on and within the existing building. The Facility and proposed modifications will not adversely impact or otherwise reduce open space amenities within the City.

VIII. SUMMARY

For the foregoing reasons AT&T respectfully requests that the Board to determine that pursuant to the Spectrum Act and the FCC Order, the Request constitutes and eligible facilities request and therefore AT&T's Request must be approved administratively, including the issuance of a building permit, without the need for further relief from the Board. In the alternative, without waiving its rights, AT&T requests the Board grant the foregoing zoning relief in the form of a Special Permit and such other relief as the Board deems necessary to allow the modification and operation of AT&T's proposed Facility.

Best Regards,

Carolyn Seeley
Authorized Agent to New Cingular Wireless PCS, LLC ("AT&T")

cc: Jonathan T. Elder, Esq.

BZA APPLICATION FORM

DIMENSIONAL INFORMATION

APPLICANT: New Cingular Wireless PCS, LLC d/b/a **PRESENT USE/OCCUPANCY:** INV-OFFICE
AT&T Mobility c/o Carolyn Seeley, Smartlink
LOCATION: 10 Canal Park **ZONE:** PUD-4
PHONE: 978-760-5577 **REQUESTED USE/OCCUPANCY:** N/A





	<u>EXISTING CONDITIONS</u>	<u>REQUESTED CONDITIONS</u>	<u>ORDINANCE REQUIREMENTS¹</u>
<u>TOTAL GROSS FLOOR AREA:</u>	<u>0</u>	<u>0</u>	<u>0</u> (max.)
<u>LOT AREA:</u>	<u>0</u>		<u>0</u> (min.)
<u>RATIO OF GROSS FLOOR AREA TO LOT AREA:²</u>	<u>0</u>	<u>0</u>	<u>0</u> (max.)
<u>LOT AREA FOR EACH DWELLING UNIT:</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>SIZE OF LOT:</u> <u>WIDTH</u>	<u>0</u>		<u>0</u> (min.)
<u>Setbacks in</u> <u>DEPTH</u>			
<u>Feet:</u> <u>FRONT</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
	<u>0</u>		
		<u>0</u>	<u>0</u> (min.)
	<u>0</u>		
		<u>0</u>	<u>0</u> (min.)
	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>SIZE OF BLDG.:</u> <u>HEIGHT</u>	<u>0</u>	<u>0</u>	<u>0</u> (max.)
<u>RATIO OF USABLE OPEN SPACE TO LOT AREA:³</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
	<u>0</u>	<u>0</u>	<u>0</u> (max.)
<u>NO. OF DWELLING UNITS:</u>	<u>0</u>	<u>0</u>	<u>0</u> (min./max)
<u>NO. OF PARKING SPACES:</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>NO. OF LOADING AREAS:</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>DISTANCE TO NEAREST BLDG. ON SAME LOT:</u>	<u>0</u>	<u>0</u>	<u>0</u> (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.

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'.

PROJECT INFORMATION		
SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING ROOFTOP:	
	•INSTALL RRUS-4415 B25 (1900) (TYP. OF 1 PER SECTOR, TOTAL OF 3)	
	•INSTALL RRUS-4449 B5/B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (ADD "Y" CABLE)	
	•INSTALL ANTENNA (QD8616-7) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3)	
	•INSTALL ANTENNA (AIR6419 B77G) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TOP)	
	•INSTALL ANTENNA (AIR6449 N77D) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3) (BOTTOM)	
	•INSTALL ANTENNA (DMP65R-BU8DA) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3)	
	•RELOCATED EXISTING RRUS-32 B66A (AWS) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).	
	•RELOCATED EXISTING RRUS-4478 B14 (700) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).	
	•RELOCATED EXISTING RRUS-32 B30 (WCS) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).	
	•RELOCATE EXISTING MOUNTS @ POS. 2,3,4 @ BETA SECTOR, & POS. 3 @ ALPHA SECTOR.	
	•INSTALL PIPE-TO-PIPE CLAMP SET, SITEPRO-1 PART # SCP10K (TOTAL OF 2 FOR GAMMA SECTOR)	
	•INSTALL 2-1/2" STD. 2.88" O.D.) 8' LONG PIPE MAST @ POS. 2 & 3 (TOTAL OF 2 FOR GAMMA SECTOR).	
	ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:	
	•ADD (1) 6648 + XCEDE CABLE.	
	•FINAL CONFIG.= 1X5216+2XXMU+1X6630+IDLE+1X6648+XCEDE CABLE.	
	•ADD (4) RECTIFIERS IN EXISTING DC POWER PLANT.	
	•ADD BATTERY RACK WITH 2 STRINGS OF BATTERIES.	
	ITEMS TO BE REMOVED:	
	•EXISTING RRUS-11 B5 (TYP. OF 1 PER SECTOR, TOTAL OF 3).	
	•EXISTING RRUS-4478 B5 (TYP. OF 1 PER SECTOR, TOTAL OF 3).	
	•EXISTING RRUS-11 B12 (TYP. OF 1 PER SECTOR, TOTAL OF 3).	
	•EXISTING RRUS-12 B2 (TYP. OF 2 PER SECTOR, TOTAL OF 6).	
	•EXISTING UMTS AT&T ANTENNA (800-10766) @ POS. 1 (TYP. OF 1 PER ALPHA & BETA SECTORS, TOTAL OF 2).	
	•EXISTING LTE AT&T ANTENNA (HPA-65R-BUU-H8) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).	
	•EXISTING LTE AT&T ANTENNA (800-10966) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).	
	•EXISTING UMTS AT&T ANTENNA (SBNHH-1D65A) @ POS. 1 (TYP. OF 1 PER GAMMA SECTOR, TOTAL OF 1).	
	•EXISTING LTE AT&T ANTENNA (800-10966) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).	
	•EXISTING LTE AT&T DIPLEXER (DBC0061F1V51-2) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).	
	ITEMS TO REMAIN:	
	(12) RRHs, (6) SURGE ARRESTORS, (12) DC POWER & (3) FIBER.	
RFDS:	FINAL APPROVED V4 RFDS 02/09/22	
SITE ADDRESS:	10 CANAL PARK CAMBRIDGE, MA 02141	
LATITUDE:	42.3685220° N, 42° 22' 6.67" N	
LONGITUDE:	71.075361 W, 71° 04' 31.29" W	
TYPE OF SITE:	ROOFTOP / INDOOR EQUIPMENT	
ROOF HEIGHT:	71'-6"±	
RAD CENTER:	81'-0"±	
CURRENT USE:	TELECOMMUNICATIONS FACILITY	
PROPOSED USE:	TELECOMMUNICATIONS FACILITY	

DRAWING INDEX		
SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	ROOF & EQUIPMENT PLAN	2
A-2	EXISTING ANTENNA LAYOUT	2
A-3	PROPOSED ANTENNA LAYOUT	2
A-4	ELEVATION	2
A-5	DETAILS	2
A-6	DETAILS	2
G-1	GROUNDING DETAILS	2
RF-1	RF PLUMBING DIAGRAM	2

 				SITE NUMBER: MAL02884 SITE NAME: CAMBRIDGE CANAL PARK 10 CANAL PARK CAMBRIDGE, MA 02141 MIDDLESEX COUNTY		 550 COCHITUATE ROAD FRAMINGHAM, MA 01701		<table><tr><td>2</td><td>04/13/22</td><td>ISSUED FOR CONSTRUCTION</td><td>MB</td><td>AT</td><td>DATE</td></tr><tr><td>1</td><td>03/08/22</td><td>ISSUED FOR CONSTRUCTION</td><td>SG</td><td>AT</td><td>DATE</td></tr><tr><td>0</td><td>02/25/22</td><td>ISSUED FOR REVIEW</td><td>ASK</td><td>AT</td><td>DATE</td></tr><tr><td>NO.</td><td>DATE</td><td>REVISIONS</td><td>BY</td><td>CHK</td><td>APP'D</td></tr><tr><td colspan="2">SCALE: AS SHOWN</td><td>DESIGNED BY: AT</td><td colspan="2">DRAWN BY: [Signature]</td><td>[Professional Engineer Seal]</td></tr></table>		2	04/13/22	ISSUED FOR CONSTRUCTION	MB	AT	DATE	1	03/08/22	ISSUED FOR CONSTRUCTION	SG	AT	DATE	0	02/25/22	ISSUED FOR REVIEW	ASK	AT	DATE	NO.	DATE	REVISIONS	BY	CHK	APP'D	SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: [Signature]		[Professional Engineer Seal]	AT&T TITLE SHEET 5G NR SOFTWARE RADIO, 5G NR 1SR CBAND, BBU RECONFIG., 4TXRX, RF MODS, 5G NR 1SR CBAND SITE NUMBER: MAL02884 DRAWING NUMBER: T-1 REV: 2	
2	04/13/22	ISSUED FOR CONSTRUCTION	MB	AT	DATE																																				
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SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: [Signature]		[Professional Engineer Seal]																																				

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) LIGHTNING 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 STANDARDS) 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 CIRCUIT 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 AND #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 AWG 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

1. FOR THE PURPOSE OF THE SUBCONTRACTOR DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR — SMARTLINK
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.

- BUILDING CODE: IBC 2015 & MA STATE BUILDING CODE 780 CMR 9TH EDITION
ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE (NFPA 70, 2020)

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-H,
STRUCTURAL STANDARDS FOR STEEL

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.

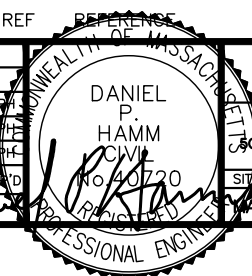
ABBREVIATIONS					
AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	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		



10 CANAL PARK
CAMBRIDGE, MA 02141
MIDDLESEX COUNTY

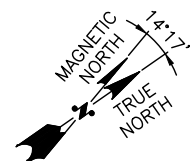
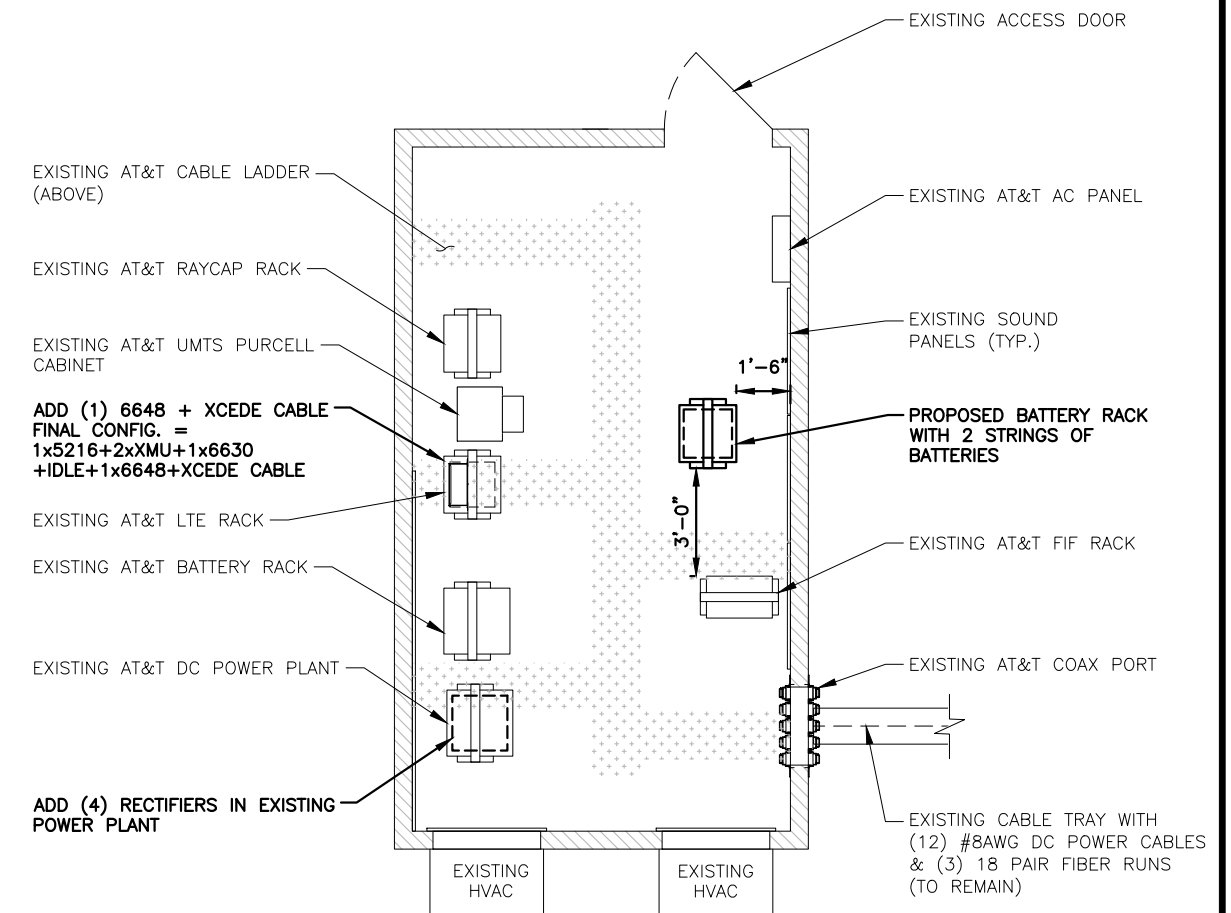


										AT&T	
2	04/13/22	ISSUED FOR CONSTRUCTION	MB	AT	DR	<div><div><div>COMMONWEALTH OF MASSACHUSETTS</div><div>DANIEL P. HAMM</div><div>CIVIL</div></div><div>50 NR SOFTWARE RADIO, 5G NR 15R CBAND, BBU RECONFIG., 4TXRX, RF MODS, 5G NR 15R CBAND</div></div>					
1	03/08/22	ISSUED FOR CONSTRUCTION	SG	AT	DR						
0	02/25/22	ISSUED FOR REVIEW	ASK	AT	DR						
NO.	DATE	REVISIONS	BY	CHK	APP'D	No 40720		SITE NUMBER		DRAWING NUMBER	
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: AS		VAL02884		GN-1		2		

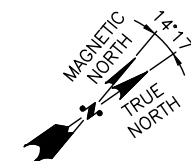


REFER TO FINAL APPROVED V4 RFDS
02/09/22

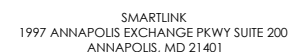
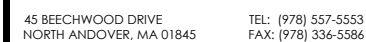
REFER TO STRUCTURAL ANALYSIS
BY: HUDSON DESIGN ENGINEERING,
PLLC, DATED: FEBRUARY 24, 2022,
FOR THE CAPACITY OF THE EXISTING
STRUCTURES TO SUPPORT THE
PROPOSED EQUIPMENT.



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

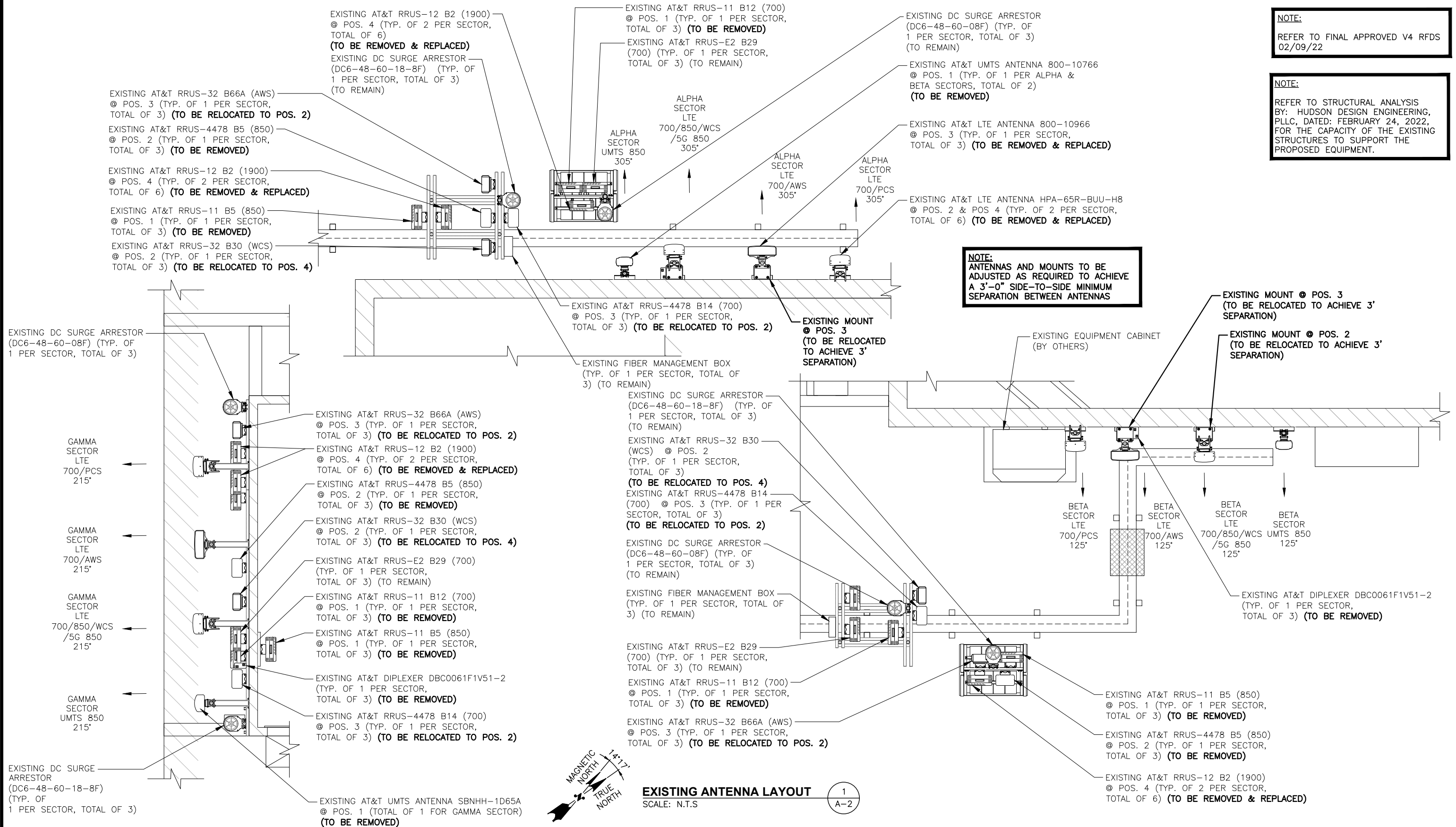


22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"



10 CANAL PARK
CAMBRIDGE, MA 02141
MIDDLESEX COUNTY

[illegible]



EXISTING DC SURGE ARRESTOR
(DC6-48-60-08F) (TYP. OF
1 PER SECTOR, TOTAL OF 3)

NEW LOCATION OF EXISTING AT&T RRUS-32
B30 (WCS) @ POS. 4 (TYP. OF 1 PER
SECTOR, TOTAL OF 3) (RELOCATED)

EXISTING DC SURGE ARRESTOR
(DC6-48-60-18-8F) (TYP. OF
1 PER SECTOR, TOTAL OF 3)

EXISTING AT&T EQUIPMENT SHELTER

☉ OF PROPOSED AT&T ANTENNAS
ELEV. 81'-0"± (AGL)

EXISTING FIBER MANAGEMENT BOX
(TYP. OF 1 PER SECTOR,
TOTAL OF 3)

EXISTING AT&T RRUS-E2 B29 (700)
(TYP. OF 1 PER SECTOR,
TOTAL OF 3)

NEW LOCATION OF EXISTING AT&T RRUS-4478
B14 (700) @ POS. 2 (TYP. OF 1 PER
SECTOR, TOTAL OF 3) (RELOCATED)

NEW LOCATION OF EXISTING AT&T RRUS-32
B66A (AWS) @ POS. 2 (TYP. OF 1 PER
SECTOR, TOTAL OF 3) (RELOCATED)

EXISTING BUILDING

PROPOSED AT&T RRUS-4449 B5/B12
(700/850) (TYP. OF 1 PER SECTOR,
TOTAL OF 3) (ADD "Y" CABLE)

PROPOSED AT&T RRUS-4415 B25 (1900)
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

☉ GROUND LEVEL
ELEV. 0'-0"± (AGL)

PROPOSED AT&T LTE ANTENNA @ POS. 4
(DMP65R-BU8DA) (TYP. OF 1 PER SECTOR,
TOTAL OF 3)

PROPOSED AT&T ANTENNAS (AIR6419 N77G)
@ POS. 3 (TYP. OF 1 PER SECTOR,
TOTAL OF 3) (STACKED) (TOP)

PROPOSED AT&T ANTENNAS (AIR6449 N77D)
@ POS. 3 (TYP. OF 1 PER SECTOR,
TOTAL OF 3) (STACKED) (BOTTOM)

PROPOSED AT&T LTE ANTENNA @ POS. 2
(QD8616-7) (TYP. OF 1 PER SECTOR,
TOTAL OF 3)

EXISTING ANTENNA BY OTHERS (TYP.)

EXISTING SCREEN WALL

EXISTING PARAPET WALL

NOTE:

REFER TO FINAL APPROVED V4 RFDS
02/09/22

NOTE:

REFER TO STRUCTURAL ANALYSIS
BY: HUDSON DESIGN ENGINEERING,
PLLC, DATED: FEBRUARY 24, 2022,
FOR THE CAPACITY OF THE EXISTING
STRUCTURES TO SUPPORT THE
PROPOSED EQUIPMENT.

NOTE:

ALL PROPOSED EQUIPMENT NEEDS TO
BE PAINTED TO MATCH EXISTING
EQUIPMENT.

ELEVATION

22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

1
A-4

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

HDG HUDSON
Design Group LLC

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

smartlink

SMARTLINK
1997 ANNAPOLIS EXCHANGE PKWY SUITE 200
ANNAPOLIS, MD 21401

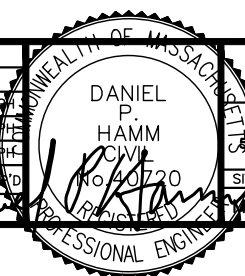
SITE NUMBER: MAL02884
SITE NAME: CAMBRIDGE CANAL PARK

10 CANAL PARK
CAMBRIDGE, MA 02141
MIDDLESEX COUNTY

at&t

550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

								AT&T			
								ELEVATION			
								5G NR SOFTWARE RADIO, 5G NR 1SR CBAND, BBU RECONFIG., 4TXRX, RF MODS, 5G NR 1SR CBAND			
NO.	DATE	REVISIONS	BY	CHK	APP'D	DATE	NO.	SITE NUMBER	DRAWING NUMBER	REV	
2	04/13/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH						
1	03/08/22	ISSUED FOR CONSTRUCTION	SG	AT	DPH						
0	02/25/22	ISSUED FOR REVIEW	ASK	AT	DPH						
SCALE: AS SHOWN				DESIGNED BY: AT				DRAWN BY: [Signature]			
								MAL02884			
								A-4			
								2			



FINAL APPROVED V4 RFDS 02/09/22

RRU CHART		
QUANTITY	MODEL	SIZE (L x W x D)
P(3)	4415 B25 (1900)	16.5"x13.4"x5.9"
P(3)	4449 B5/B12 (850/700)	17.9"x13.2"x10.4"
E(3)	4478 B14 (700)	18.1"x13.4"x8.26"
E(3)	RRUS-32 B66A (AWS)	27.2"x12.1"x7.0"
E(3)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"
E(3)	RRUS-E2 B29 (700)	20.4"x18.5"x7.5"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

REFER TO FINAL APPROVED V4 RFDS
02/09/22

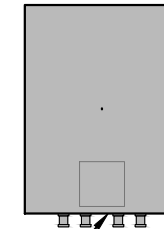
REFER TO STRUCTURAL ANALYSIS
BY: HUDSON DESIGN ENGINEERING,
PLLC, DATED: FEBRUARY 24, 2022,
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NOTE:
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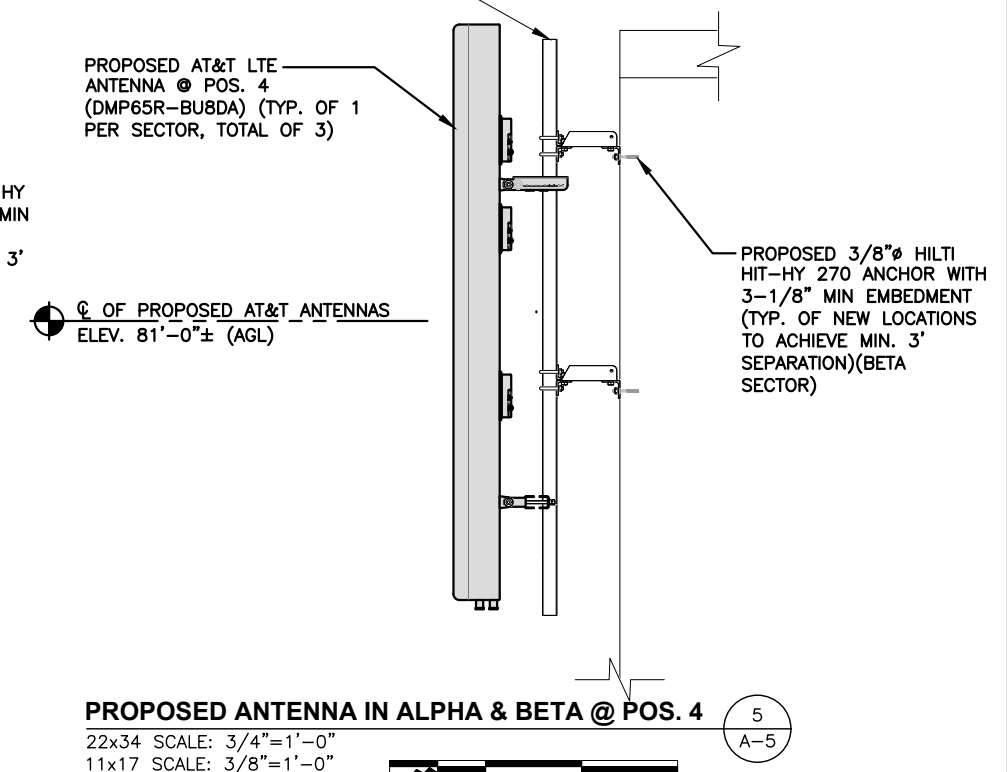
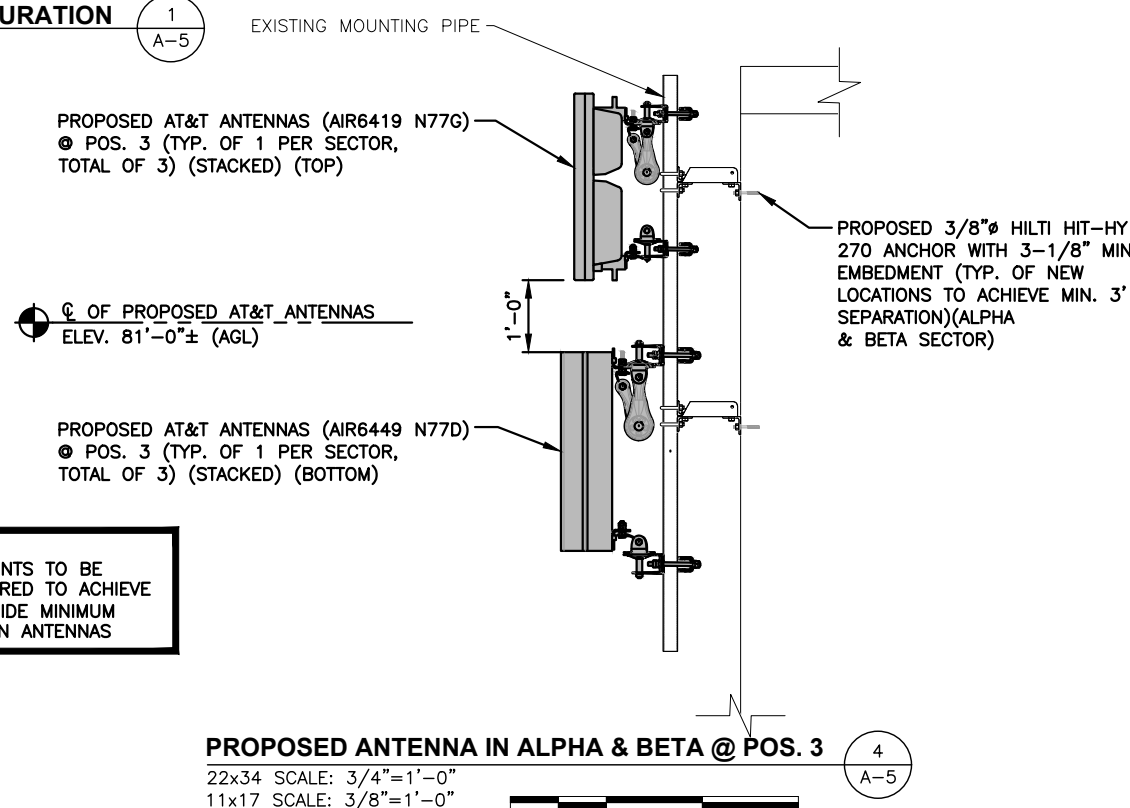
SEE RFDS FOR RRH
FREQUENCY AND
MODEL NUMBER

NOTE:
MOUNT PER MANUFACTURER'S
SPECIFICATIONS.

PROPOSED RRUS DETAIL
SCALE: N.T.S

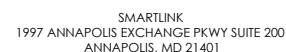


SCALE: N.T.S



NOTE:
ANTENNAS AND MOUNTS TO BE
ADJUSTED AS REQUIRED TO ACHIEVE
A 3'-0" SIDE-TO-SIDE MINIMUM
SEPARATION BETWEEN ANTENNAS

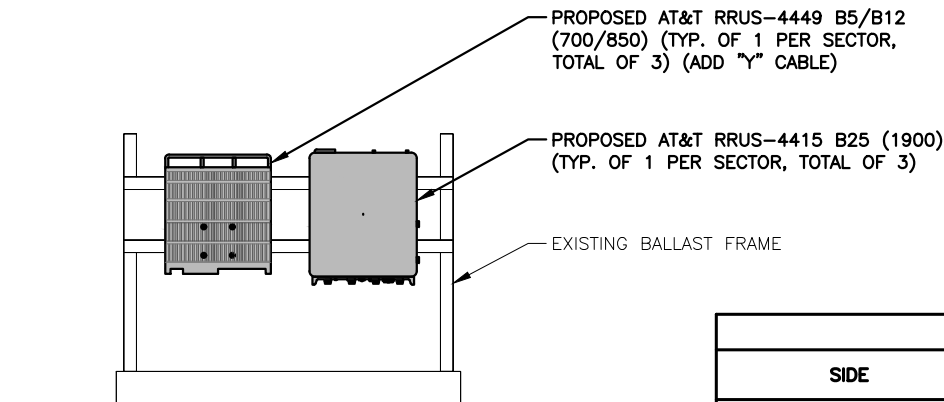
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845



10 CANAL PARK
CAMBRIDGE, MA 02141
MIDDLESEX COUNTY



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PROPOSED RRUS MOUNTING DETAIL

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"



MINIMUM BALLAST REQUIREMENTS			
SIDE	EXISTING (PER SIDE)	PROPOSED (PER SIDE)	TOTAL
NUMBER OF BLOCKS	4	1	10
SIZE OF BLOCKS	8"x8"x16" HOLLOW	8"x8"x16" HOLLOW	8"x8"x16" HOLLOW
WEIGHT OF BLOCKS	39 LBS./EACH	39 LBS./EACH	39 LBS./EACH
TOTAL OF BALLAST WEIGHT	156 lbs.	39 LBS.	390 LBS.

NOTE:

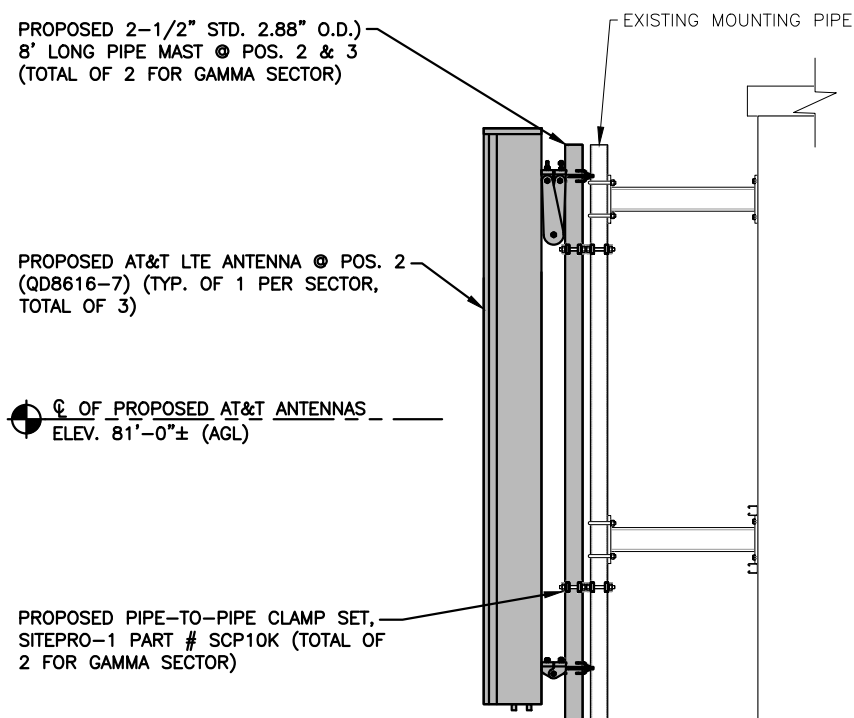
REFER TO FINAL APPROVED V4 RFDS
02/09/22

NOTE:

REFER TO STRUCTURAL ANALYSIS
BY: HUDSON DESIGN ENGINEERING,
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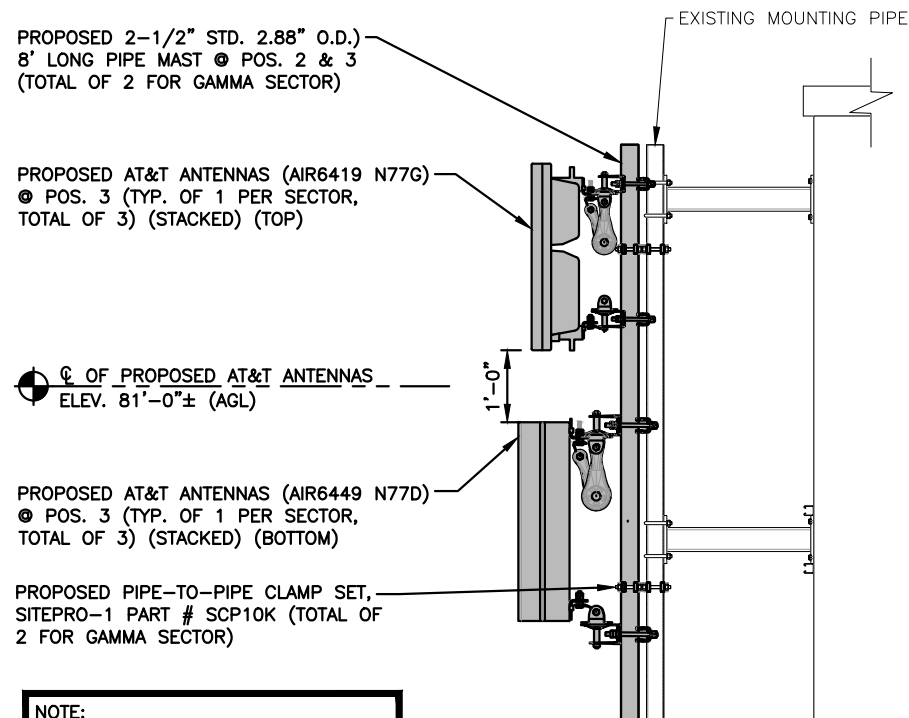
NOTE:

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EQUIPMENT.



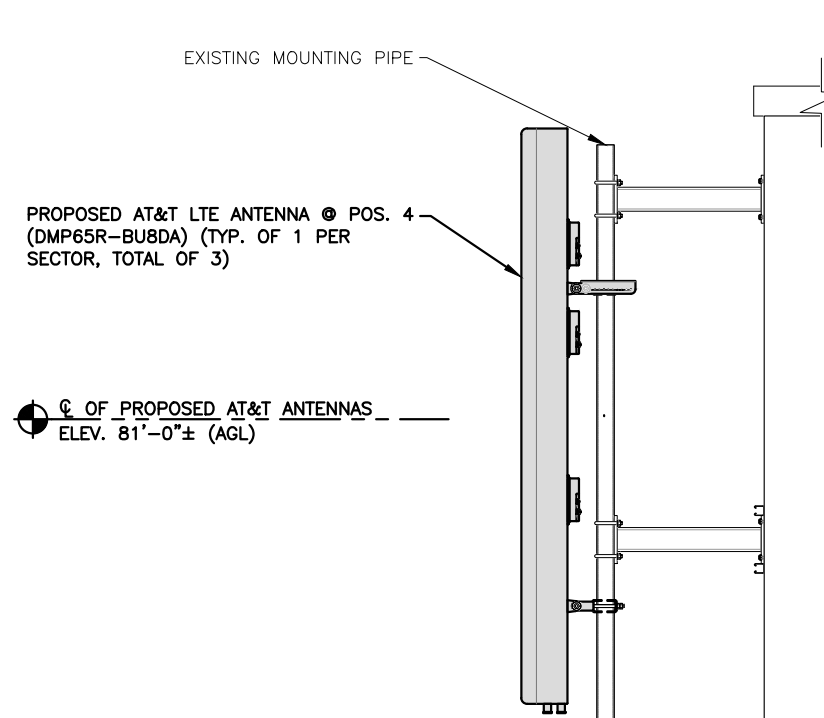
PROPOSED ANTENNA IN GAMMA @ POS. 2

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"



PROPOSED ANTENNA IN GAMMA @ POS. 3

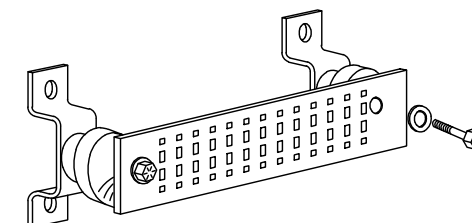
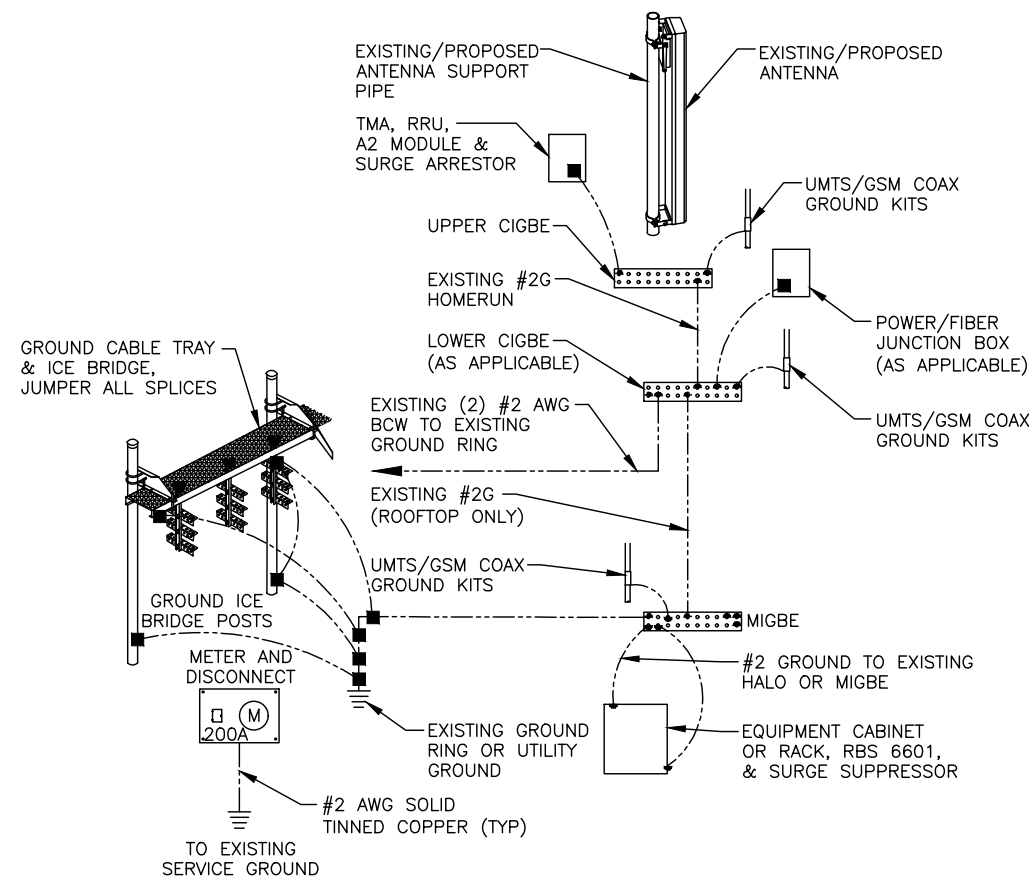
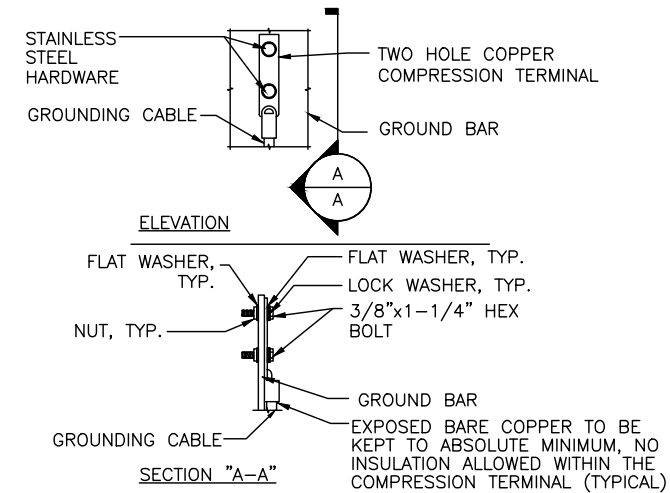
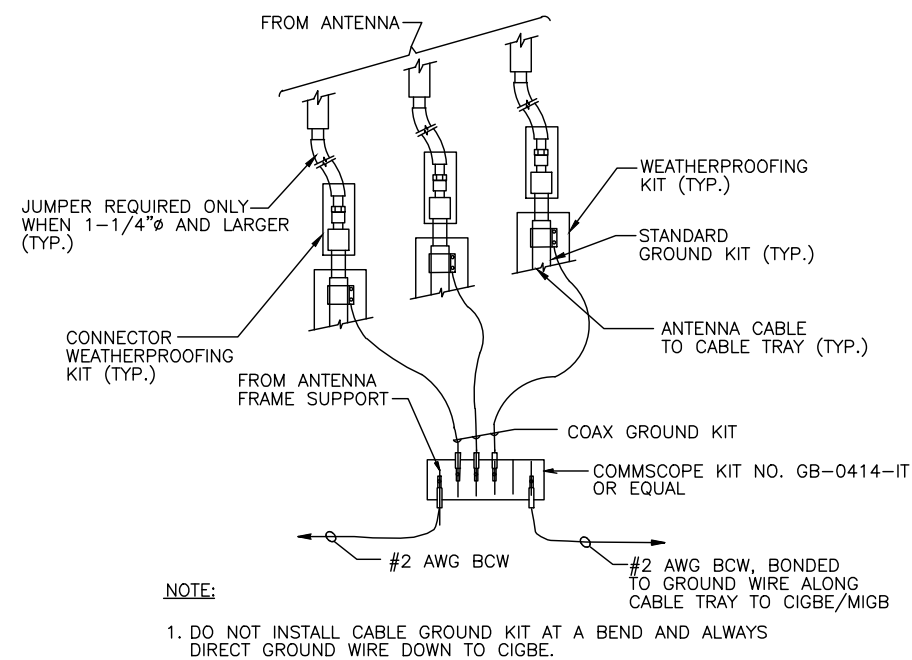
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"



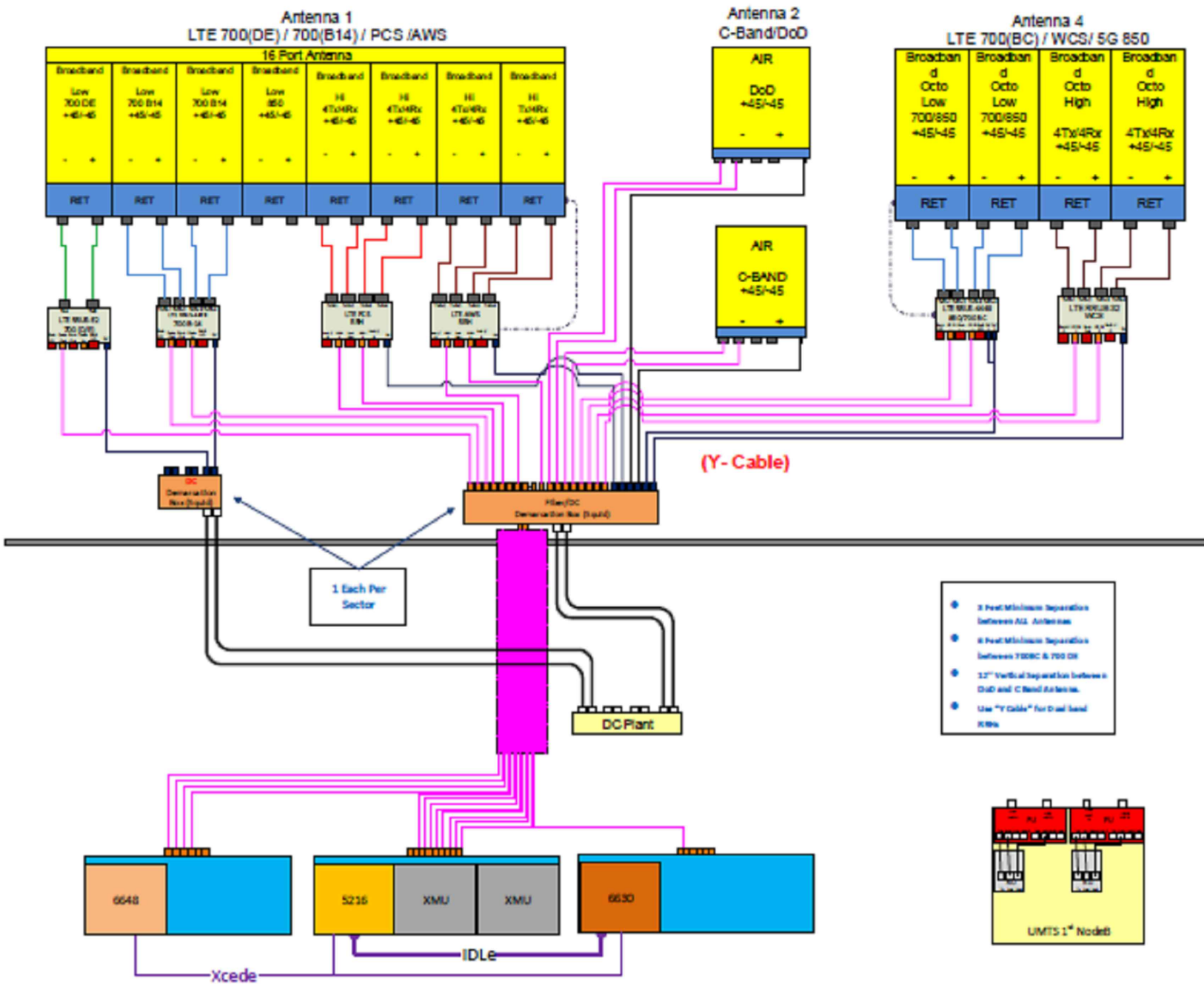
PROPOSED ANTENNA IN GAMMA @ POS. 4

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"





FINAL APPROVED V4 RFDS 02/09/22



RF PLUMBING DIAGRAM 1 RF-1
SCALE: N.T.S

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

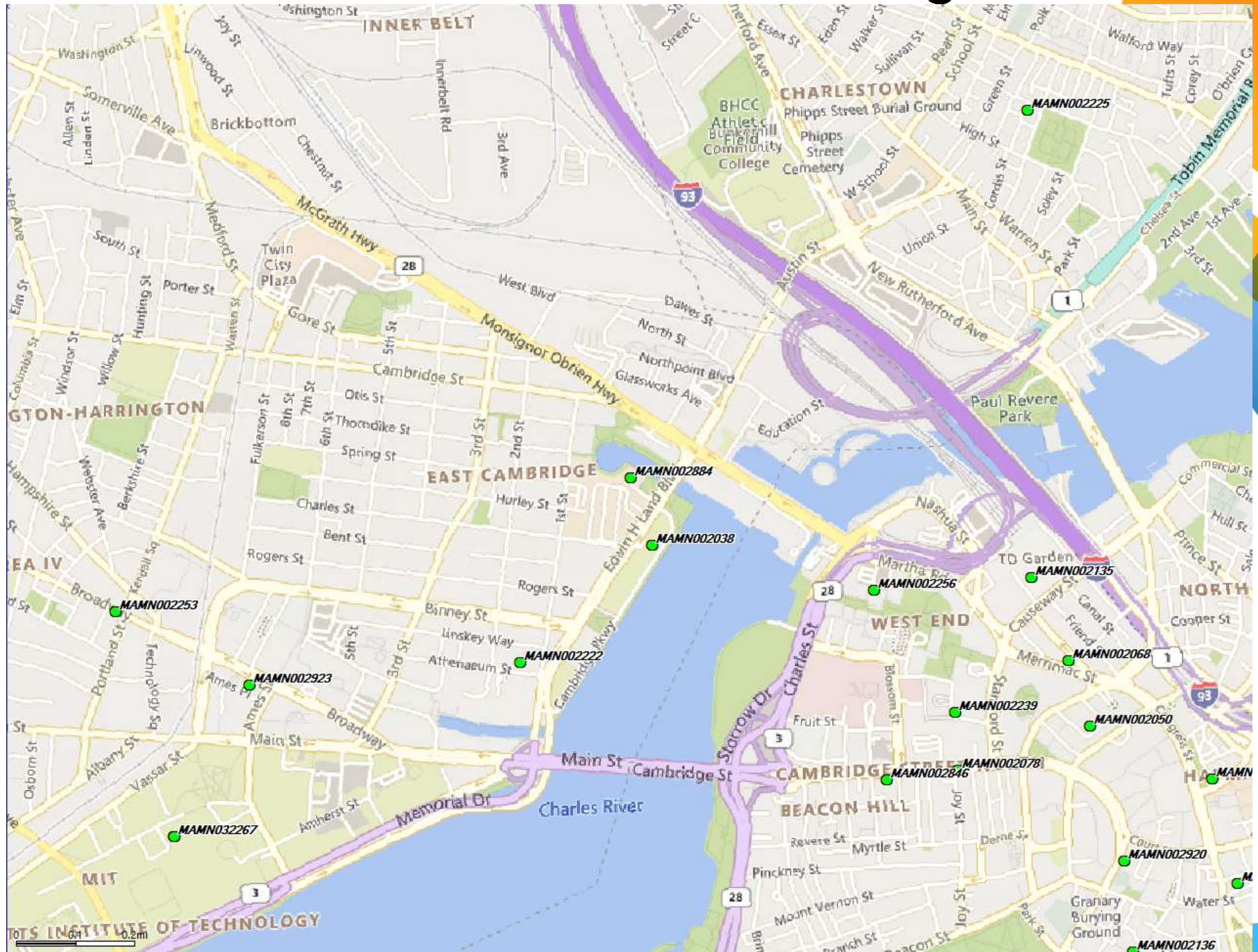
NOTE:
REFER TO FINAL APPROVED V4 RFDS 02/09/22

MAL02884 5G NR Coverage Plots

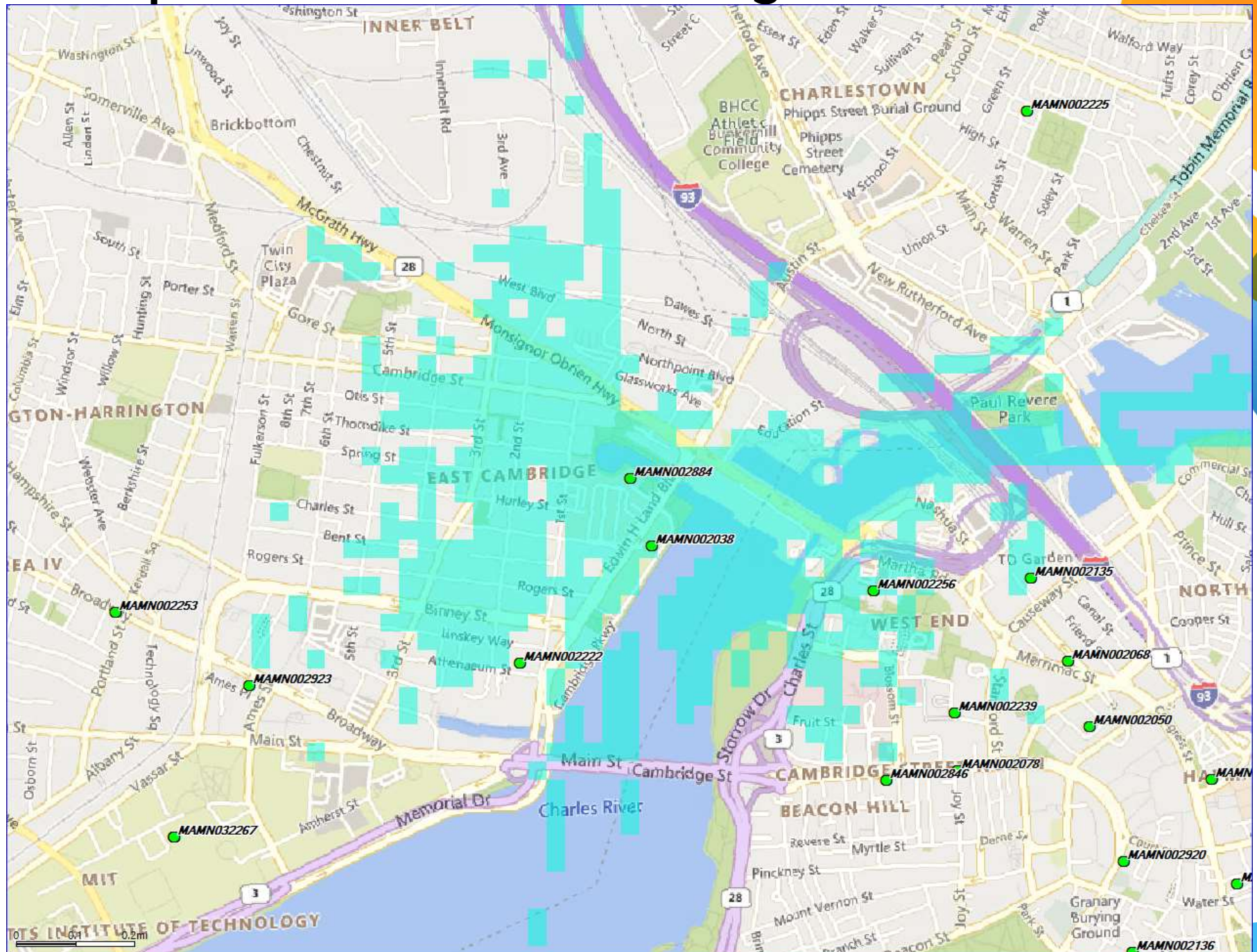
- Zoning Proposed 5G NR C Band Project Plots
- RF plots prepared by Deepak Rathore – AT&T RF Design

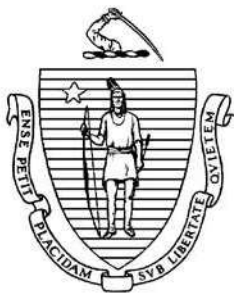


Current 5G C-Band Coverage



Proposed 5G C-Band Coverage - MAMN002884





MARTHA COAKLEY
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

June 12, 2013

Gail Garrett, Town Clerk
Town of Mount Washington
118 East Street
Mount Washington, MA 01258

**RE: Mount Washington Special Town Meeting of April 1, 2013 - Case # 6642
Warrant Articles # 1, 2, and 3 (Zoning)**

Dear Ms. Garrett:

Articles 1, 2, and 3 - We approve the amendments to the Town by-laws adopted under Articles 1, 2, and 3 on the warrant for the Mount Washington Special Town Meeting that convened on April 1, 2013, and the map pertaining to Article 3. Our comments on Articles 1 and 2 are provided below.

Article 1 - The amendments adopted under Article 1 add a new Section 215-27 to the zoning by-laws entitled "Wireless Telecommunication Facility Zoning Bylaw." We approve the new Section 215-27, but offer the following comments.

I. **Applicable Law**

The federal Telecommunications Act of 1996, 47 U.S.C. § 332 (7) preserves state and municipal zoning authority to regulate personal wireless service facilities, subject to the following limitations:

1. Zoning regulations "shall not unreasonably discriminate among providers of functionally equivalent services." 47 U.S.C. §332(7) (B) (i) (I)
2. Zoning regulations "shall not prohibit or have the effect of prohibiting the provisions of personal wireless services." 47 U.S.C. § 332 (7) (B) (i) (II).
3. The Zoning Authority "shall act on any request for authorization to place, construct, or modify personal wireless service facilities within a reasonable period of time." 47 U.S.C.

§ 332 (7) (B) (ii).

4. Any decision “to deny a request to place, construct, or modify personal wireless service facilities shall be in writing and supported by substantial evidence contained in a written record.” 47 U.S.C. § 332 (7) (B) (iii).
5. “No state or local government or instrumentality thereof may regulate the placement, construction and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the [Federal Communications] Commission’s regulations concerning emissions.” 47 U.S.C. § 332(7) (B) (iv).

Federal courts have construed the limitations listed under 47 U.S.C. § 332(7) as follows. First, even a facially neutral by-law may have the effect of prohibiting the provision of wireless coverage if its application suggests that no service provider is likely to obtain approval. “If the criteria or their administration effectively preclude towers no matter what the carrier does, they may amount to a ban ‘in effect’...” Town of Amherst, N.H. v. Omnipoint Communications Enters, Inc., 173 F.3d 9, 14 (1st Cir. 1999).

Second, local zoning decisions and by-laws that prevent the closing of significant gaps in wireless coverage have been found to effectively prohibit the provision of personal wireless services in violation of 47 U.S.C. § 332(7). See, e.g., Nat’l Tower, LLC v. Plainville Zoning Bd. of Appeals, 297 F.3d 14, 20 (1st Cir. 2002) (“local zoning decisions and ordinances that prevent the closing of significant gaps in the availability of wireless services violate the statute”); Omnipoint Communications MB Operations, LLC v. Town of Lincoln, 107 F. Supp. 2d 108, 117 (D. Mass. 2000) (by-law resulting in significant gaps in coverage within town had effect of prohibiting wireless services).

Third, whether the denial of a permit has the effect of prohibiting the provision of personal wireless services depends in part upon the availability of reasonable alternatives. See 360 Degrees Communications Co. v. Bd. of Supervisors, 211 F.3d 79, 85 (4th Cir. 2000). Zoning regulations must allow cellular towers to exist somewhere. Towns may not effectively ban towers throughout the municipality, even under the application of objective criteria. See Virginia Metronet, Inc. v. Bd. of Supervisors, 984 F. Supp. 966, 971 (E.D. Va. 1998).

State law also establishes certain limitations on a municipality’s authority to regulate wireless communications facilities and service providers. Under General Laws Chapter 40A, Section 3, wireless service providers may apply to the Department of Telecommunications and Cable for an exemption from local zoning requirements. If a telecommunication provider does not apply for or is not granted an exemption under c. 40A, § 3, it remains subject to local zoning requirements pertaining to cellular towers. See Building Comm’r of Franklin v. Dispatch Communications of New England, Inc., 48 Mass. App. Ct. 709, 722 (2000). Also, G.L. c. 40J, § 6B, charges the Massachusetts Broadband Institute with the task of promoting broadband access throughout the state. Municipal regulation of broadband service providers must not frustrate the achievement of this statewide policy.

In addition, 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.

We approve the new Section 215-27. However, the Town must apply the by-law in a manner consistent with the applicable law outlined above. In particular, Section IV of the new by-law requires that Wireless Telecommunication Facilities are only allowed by special permit in the Wireless Telecommunication Overlay District. This requirement cannot be applied to eligible facilities requests for modification to existing facilities which qualify for required approval under Section 6409 of the Act, as described above. We urge the Town to consult closely with Town Counsel regarding the appropriate response to applications for collocation in light of these recent amendments.

II. Analysis of Mount Washington’s Wireless Telecommunication Facility By-Law

A. Section VIII “Criteria For Approval and Conditions”.

This section provides as follows:

5. The applicant will remove the Facility, should the Facility be abandoned or cease to operate. The Planning Board may require the applicant to provide a bond, or other form of financial guarantee acceptable to the Planning Board to cover the cost of removal of the Facility, should the Facility be abandoned or cease to operate, and ensure other compliance hereunder.

The Town must apply any bond or other financial guarantee proceeds in a manner consistent with state law. Bond proceeds do not become Town funds unless and until the applicant defaults on the obligation under the proposed by-law. Moreover, if the Town must use the bond to pay for removal of a wireless communication facility or the repair and/or restoration of the premises, an appropriation is required before expenditure is made to do the work. General Laws Chapter 44, Section 53, provides that “[a]ll moneys received by a city, town or district officer or department, except as otherwise provided by special acts and except fees provided for by statute, shall be paid by such officers or department upon their receipt into the city, town or district treasury.” Under Section 53 all moneys received by the Town become a part of the general fund, unless the Legislature has expressly made other provisions that are applicable to such receipt. In the absence of any general or special law to the contrary, performance security funds of the sort contemplated here must be deposited with the Town Treasurer and made part of the Town’s general fund, pursuant to G.L. c. 44, § 53. The Town must then appropriate the money for the specific purpose of completing the work required for removal and/or restoration.

B. Section X “Permit Revocation For Non-Performance”.

Section X authorizes the Planning Board to revoke a special permit for failure to comply with certain conditions. We approve Section X. However, before the Planning Board revokes a permit for failure to comply with certain conditions provided in Section X, the Planning Board should discuss with Town Counsel what due process, including notice and hearing requirements, are required. We suggest that the Town discuss this issue in more detail with Town Counsel.

Finally, the word “ordinance” is used in the by-law. Towns enact “by-laws” and cities enact “ordinances.” The Town may wish delete the word “ordinance” from the new Section 215-27 and insert the word “by-law” at a future Town Meeting.

Article 2 - The amendments adopted under Article 2 add a new Section 215-28, “Solar Photovoltaic Installation Moratorium Bylaw,” to the Town’s zoning by-laws. The temporary moratorium (through one year from the date of enactment of Section 215-28) on solar photovoltaic installation other than those mounted on an existing structure provides as follows:

Whereas, the Town of Mount Washington is undertaking a comprehensive study with respect to regulating the use of land for Solar Photovoltaic Installations, and

Whereas, there have been significant changes in law regarding Solar Photovoltaic Installations; and,

Whereas, the Town wishes to act carefully in a field with evolving law and technology, to investigate ways to preserve the character of the community while serving the needs of its people, and to devise an orderly process for granting permits by drafting an amendment to the Bylaw which is comprehensive, practical, equitable, and addresses the concerns of the Town on number, size, appearance, site standards, and location of Solar Photovoltaic Installations; and,

Whereas, it is desired to protect the Town from ill-advised and inappropriate development of Solar Photovoltaic Installations pending a thorough review and the formulation of such a zoning amendment; and,

Whereas, the Planning Board has determined that one year is necessary for such a comprehensive review and development of a Bylaw Subsection on Solar Photovoltaic Installations.

Now, therefore, no Solar Photovoltaic Installations other than those mounted on an existing structure, in the usual manner, shall be permitted for one year from the date of enactment of this Bylaw.

We approve the temporary moratorium adopted under Article 2 because the Town has the authority to “impose reasonable time limitations on development, at least where those restrictions are temporary and adopted to provide controlled development while the municipality engages in comprehensive planning studies.” Sturges v. Chilmark, 380 Mass. 246, 252-253 (1980). Such a temporary moratorium is within the Town’s zoning power where there is a stated need for “study, reflection and decision on a subject matter of [some] complexity...” W.R.

Grace v. Cambridge City Council, 56 Mass. App. Ct. 559, 569 (2002) (City's temporary moratorium on building permits in two districts was within city's authority to zone for public purposes.) The time limit Mount Washington has selected for its temporary moratorium (one year from the date of enactment of the by-law) appears to be reasonable in the circumstances. The moratorium is limited in time period and scope (to the use of land and structures for solar photovoltaic installations), and thus does not present the problem of a rate-of-development bylaw of unlimited duration which the Zuckerman court determined was unconstitutional. Zuckerman v. Hadley, 442 Mass. 511, 512 (2004) ("[A]bsent exceptional circumstances not present here, restrictions of unlimited duration on a municipality's rate of development are in derogation of the general welfare and thus are unconstitutional.")

While we approve the temporary one year moratorium on solar photovoltaic installations, we note that G.L. c. 40A, § 3, protects solar energy systems and the building of structures that facilitate the collection of solar energy from certain local zoning requirements. General Laws Chapter 40A, Section 3, provides in pertinent part as follows:

No zoning ordinance or by-law shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare.

General Laws Chapter 40A, Section 3, prohibits towns from adopting zoning by-laws that prohibit or *unreasonably regulate* the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare. A temporary moratorium longer than one year may be vulnerable to a challenge in court that it is an unreasonable regulation of solar energy systems under G.L. c. 40A, § 3. We suggest the Town consult closely with Town Counsel on this issue.

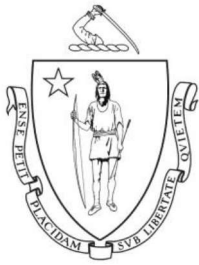
Note: Pursuant to G.L. c. 40, § 32, neither general nor zoning by-laws take effect unless the Town has first satisfied the posting/publishing requirements of that statute. Once this statutory duty is fulfilled, (1) general by-laws and amendments take effect on the date these posting and publishing requirements 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.

Very truly yours,
MARTHA COAKLEY
ATTORNEY GENERAL

Kelli E. Gunagan

By: Kelli E. Gunagan
Assistant Attorney General
Municipal Law Unit
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(508) 792-7600

cc: Town Counsel Joel Bard (via electronic mail)



MAURA HEALEY
ATTORNEY GENERAL

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February 23, 2015

Debra A. Bourbeau, Town Clerk
Town of Montague
1 Avenue A
Montague, MA 01376

**RE: Montague Special Town Meeting of October 29, 2014 - Case # 7451
Warrant Article # 17 (Zoning)**

Dear Ms. Bourbeau:

Article 17 - We approve Article 17 from the October 29, 2014 Montague Special Town Meeting. Article 17 amends several portions of the Town's zoning by-laws pertaining to site plan review.

1. **Section 5.2 (d), Permitted Uses and Special Permits - Procedures**

Section 5.2 (d) was deleted in its entirety and replaced with new text that provides as follows (with emphasis added):

All applications for Special Permits and Site Plan Review from the Board of Appeals or the Planning Board shall be subject to the procedural requirements established by the respective Board. The Board of Appeals or Planning Board may determine that the assistance of outside professional expertise is required due to the size, scale, or complexity of a given project or its potential impact on the health, safety, and welfare of the Town. When outside review is determined to be necessary, the Board may require the applicant pay all reasonable expenses for this purpose, in accordance with the Board's regulations and M.G.L. Chapter 44 Section 53G.

General Laws Chapter 44, Section 53G, authorizes zoning boards, planning boards, boards of health, and conservation commissions, acting under authority conferred by G.L. c. 40A, § 9 and 12, c. 41, § 81Q, c. 40B, § 21, c. 111; and c. 40, § 8C, to impose consultant review fees, to disburse the funds collected, and to return unused portions to the applicant. However, the Legislature did not include Boards acting under the authority conferred solely by a local law within the small class of local boards that enjoy the benefits of G.L. c. 44, § 53G. When the Board is reviewing a site plan application based solely on the authority granted under local law, it cannot avail itself of the provisions of G.L. c. 44, § 53G. We suggest that the Town discuss this issue in more detail with Town Counsel.

2. Section 7.5.2, Telecommunication Facilities - General Provisions

Section 7.5.2, was deleted in its entirety and replaced with new text that provides as follows:

Telecommunication Facilities may be allowed by Special Permit from the Board of Appeals pursuant to Sections 5.2 and Section 7.5. Conditions shall maximize the shared use of any new or existing structures to minimize the required number of such facilities; and shall minimize[e] adverse visual impacts through careful design, siting, and screening. No facility shall be located in a (RS) Residential District. (see: Section 2, Definitions).

Section 7.5.2 must be applied in a manner consistent with Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012, which 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 Section 7.5.2 in a manner consistent with the applicable law outlined above. We also urge the Town to consult closely with Town Counsel regarding the appropriate response to applications for collocation in light of these recent amendments.

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.

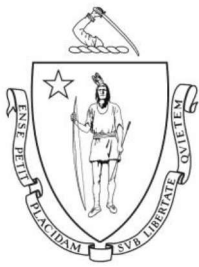
Very truly yours,

MAURA HEALEY
ATTORNEY GENERAL

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By: Nicole B. Caprioli
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February 10, 2015

Trudy L. Reid, Town Clerk
Town of Lynnfield
55 Summer Street
Lynnfield, MA 01940

**RE: Lynnfield Fall Annual Town Meeting of October 20, 2014 - Case # 7408
Warrant Articles # 12, 13 and 14 (Zoning)
Warrant Articles # 16 and 17 (General)**

Dear Ms. Reid:

Articles 12, 13, 14, 16 and 17 - We approve Articles 12, 13, 14, 16 and 17 from the October 20, 2014 Lynnfield Fall Annual Town Meeting. Our comments regarding Article 14 are provided below.

Article 14 - Article 14 makes a number of changes to the Town's zoning by-laws pertaining to Radio Telecommunication Facilities (RTF) and Personal Wireless Service Facilities (PWSF) including adding new definitions to Section 2, amending Section 7.4, "Site Plan" to add a new sub-section 7.4A "Additional Requirements for Personal Wireless Service Facilities"; and amending Section 8, "Special Permits" to add a new sub-section 8.7, "Siting of Radio Telecommunications Facilities."

I. Applicable Law

The federal Telecommunications Act of 1996, 47 U.S.C. § 332 (7) preserves state and municipal zoning authority to regulate personal wireless service facilities, subject to the following limitations:

1. Zoning regulations "shall not unreasonably discriminate among providers of functionally equivalent services." 47 U.S.C. §332(7) (B) (i) (I)
2. Zoning regulations "shall not prohibit or have the effect of prohibiting the provisions of personal wireless services." 47 U.S.C. § 332 (7) (B) (i) (II).
3. The Zoning Authority "shall act on any request for authorization to place, construct, or modify personal wireless service facilities within a reasonable period of time." 47 U.S.C. § 332 (7) (B) (ii).

4. Any decision “to deny a request to place, construct, or modify personal wireless service facilities shall be in writing and supported by substantial evidence contained in a written record.” 47 U.S.C. § 332 (7) (B) (iii).
5. “No state or local government or instrumentality thereof may regulate the placement, construction and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the [Federal Communications] Commission’s regulations concerning emissions.” 47 U.S.C. § 332(7) (B) (iv).

Federal courts have construed the limitations listed under 47 U.S.C. § 332(7) as follows. First, even a facially neutral by-law may have the effect of prohibiting the provision of wireless coverage if its application suggests that no service provider is likely to obtain approval. “If the criteria or their administration effectively preclude towers no matter what the carrier does, they may amount to a ban ‘in effect’....” Town of Amherst, N.H. v. Omnipoint Communications Enters, Inc., 173 F.3d 9, 14 (1st Cir. 1999).

Second, local zoning decisions and by-laws that prevent the closing of significant gaps in wireless coverage have been found to effectively prohibit the provision of personal wireless services in violation of 47 U.S.C. § 332(7). See, e.g., Nat’l Tower, LLC v. Plainville Zoning Bd. of Appeals, 297 F.3d 14, 20 (1st Cir. 2002) (“local zoning decisions and ordinances that prevent the closing of significant gaps in the availability of wireless services violate the statute”); Omnipoint Communications MB Operations, LLC v. Town of Lincoln, 107 F. Supp. 2d 108, 117 (D. Mass. 2000) (by-law resulting in significant gaps in coverage within town had effect of prohibiting wireless services).

Third, whether the denial of a permit has the effect of prohibiting the provision of personal wireless services depends in part upon the availability of reasonable alternatives. See 360 Degrees Communications Co. v. Bd. of Supervisors, 211 F.3d 79, 85 (4th Cir. 2000). Zoning regulations must allow cellular towers to exist somewhere. Towns may not effectively ban towers throughout the municipality, even under the application of objective criteria. See Virginia Metronet, Inc. v. Bd. of Supervisors, 984 F. Supp. 966, 971 (E.D. Va. 1998).

State law also establishes certain limitations on a municipality’s authority to regulate wireless communications facilities and service providers. Under General Laws Chapter 40A, Section 3, wireless service providers may apply to the Department of Telecommunications and Cable for an exemption from local zoning requirements. If a telecommunication provider does not apply for or is not granted an exemption under c. 40A, § 3, it remains subject to local zoning requirements pertaining to cellular towers. See Building Comm’r of Franklin v. Dispatch Communications of New England, Inc., 48 Mass. App. Ct. 709, 722 (2000). Also, G.L. c. 40J, § 6B, charges the Massachusetts Broadband Institute with the task of promoting broadband access throughout the state. Municipal regulation of broadband service providers must not frustrate the achievement of this statewide policy.

In addition, 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 Article 14 in a manner consistent with the applicable law outlined above. In particular, Section 8.7.5.1 requires that PWSF may only be erected upon the grant of a special permit. The Town cannot apply this requirement to eligible facilities requests for modification to existing facilities that qualify for required approval under Section 6409 of the Act. We also urge the Town to consult closely with Town Counsel regarding the appropriate response to applications for collocation in light of these recent amendments.

II. Section 8.7, Siting of Radio Telecommunications Facilities

A. Section 8.7.2, Purpose

Section 8.7.2 provides that the purpose of the by-law is to establish general guidelines for the siting of RTFs. Section 8.7.2 (4) establishes one of the by-law’s goals as “[t]o make all RTF locations available for municipal agencies use where feasible.”

It is unclear whether Section 8.7.2 (4) would require the Town’s use of the RTF, and whether such use would be compensated or uncompensated. When applying the by-law, the Town cannot require an applicant to transfer property to the public without fair compensation. “The Fifth Amendment to the United States Constitution, made applicable to the States through the Fourteenth Amendment, provides that private property shall not ‘be taken for public use, without just compensation.’” This protection is “designed to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole.” Giovanella v. Conservation Commission of Ashland, 447 Mass. 720, 724 (2006) (*quoting* Armstrong v. United States, 364 U.S. 40, 49 (1960)). More recently, the court in Collins v. Stow, 79 Mass. App. Ct. 447 (2011) ruled that a town cannot condition subdivision approval on the dedication of open space for public use and actual conveyance of the land to the Town in exchange for waivers. “Although a planning board’s authority under the subdivision control law certainly encompasses, in appropriate circumstances, requiring open space, it does not extend to requiring the transfer of that open space to the public for reasons unrelated to adequate access and safety of the subdivision without providing just compensation.” *Id.* at 453. We suggest that the Town consult with Town Counsel regarding the proper application of Section 8.7.2 (4).

B. Section 8.7.5.4, General

Section 8.7.5.4.1 provides in relevant part that:

An undertaking shall be required, secured by a BOND appropriate in form and amount for removal of the PWSF within 6 months of cessation of operation of said facility or such other activity which may be appropriate to prevent the structures from becoming a nuisance or aesthetic blights.

The Town must apply any bond proceeds in a manner consistent with state law. Bond proceeds do not become Town funds unless and until the applicant defaults on the obligation under the by-law. Moreover, if the Town must use the bond to pay for removal of a PWSF or for other activity to prevent nuisance or blight, an appropriation is required before expenditure is made to do the work. General Laws Chapter 44, Section 53, provides that “[a]ll moneys received by a city, town or district officer or department, except as otherwise provided by special acts and except fees provided for by statute, shall be paid by such officers or department upon their receipt into the city, town or district treasury.” Under Section 53 all moneys received by the Town become a part of the general fund, unless the Legislature has expressly made other provisions that are applicable to such receipt. In the absence of any general or special law to the contrary, performance security funds of the sort contemplated here must be deposited with the Town Treasurer and made part of the Town’s general fund, pursuant to G.L. c. 44, § 53. The Town must then appropriate the money for the specific purpose of completing the work required for removal and/or other activities. The Town should consult with Town Counsel regarding the proper application of Section 8.7.5.4.

C. Section 8.7.5.5, Application Procedures

Section 8.7.5.5 pertaining to the Special Permit application provides in relevant part, that:

The Application Phase of the process begins with the receipt by the SPGA of a complete application including all materials required by the Zoning Bylaw and any applicable regulations.

Within 30 days of receipt, the SPGA or its designee shall review the application for consistency and completeness with respect to the Application Requirements in the bylaw and any applicable regulations and shall notify the Applicant in writing of any deficiency in the completeness of the application.

The SPGA shall take regulatory notice of the Federal Communications Commission (FCC) presumption that the final action of the SPGA on a new Antenna Tower should take no more than 150 days from the date of receipt of the completed application, and that final action on a Collocation or Site Sharing application should take no more than 90 days from the date of receipt of the completed application except upon written

extension of these timelines by mutual agreement between the SPGA and the Applicant.

Section 8.7.5.5 must be applied in a manner consistent with the time limits established in G.L. c. 40A, § 9. General Laws Chapter 40A, Section 9, requires that the special permit granting authority “shall hold a public hearing for which notice has been given as provided in section eleven, on any application for a special permit within sixty-five days from the date of filing of such application. . . . The decision of the special permit granting authority shall be made within ninety days following the date of such public hearing. . . . Failure by the special permit granting authority to take final action within . . . ninety days . . . shall be deemed to be a grant of the special permit.” (emphasis added).

Pursuant to G.L. c. 40A, § 9, the filing of a special permit application “starts the clock” on the time period within which the special permitting authority must act. Section 8.7.5.5 cannot be applied in a manner that “starts the clock” only when a *completed* application is filed. The Town must apply Section 8.7.5.5 consistent with G.L. c. 40A, § 9. See Massachusetts Broken Stone Co. v. Town of Weston, 430 Mass. 637, 642 (2000). The Town should consult with Town Counsel regarding the proper application of Section 8.7.5.5.

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.

Very truly yours,

MAURA HEALEY
ATTORNEY GENERAL

Nicole B. Caprioli

By: Nicole B. Caprioli
Assistant Attorney General
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nicole.caprioli@state.ma.us

cc: Town Counsel Thomas Mullen

CITY OF CAMBRIDGE, MASSACHUSETTS
P L A N N I N G B O A R D
CITY HALL ANNEX, 344 BROADWAY, CAMBRIDGE

January 27, 2016

To: The Board of Zoning Appeal

From: The Planning Board

RE: BZA #9059- 2016, 1815 Massachusetts Avenue

The Planning Board reviewed the Special Permit application for the communication antenna at Lesley University and finds that the proposals are no worse than the current installations. The Planning Board does suggest that the antennas be located in such a way as to not break the roof line when viewed from the street, and that they be painted to match the facades. For example to match either the red brick or the gray stone band around the top of the tower.



City of Cambridge

MASSACHUSETTS

BOARD OF ZONING APPEAL

831 Mass Avenue, Cambridge, MA.
(617) 349-6100



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NOTICE OF DECISION

DECISION FILED WITH THE OFFICE OF THE CITY CLERK ON OCT 11 2013

Any person aggrieved by a decision of the Board of Zoning Appeal may appeal to the Superior Court or Land Court. Appeals, if any, shall be made pursuant to Section 17, Chapter 40A, Massachusetts General Laws and shall be filed within twenty calendar days from the above date, and a copy thereof shall be filed with the Cambridge City Clerk's office by that same date.

PREMISES: 330 (a/k/a 300) Mount Auburn Street ^{Owner:} Mount Auburn Hospital
Cambridge, MA

PETITIONER: New Cingular Wireless PCS, LLC ("AT&T")
C/o David Ford, Centerline Communications

PETITION: Special Permit: To install twelve (12) antennas which will be façade mounted to the existing hospital building painted to match the building color. Fifteen (15) remote radio-heads units (RRU's) will be mounted inside of the existing penthouse on the rooftop. An equipment shelter will be installed on the rooftop of house ancillary equipment associated with the antenna facility. Cabling and associated trays and conduits also will be placed on the rooftop, along with GPS antennas which will be mounted on the shelter.

DECISION:  **GRANTED**

48678.259

CASE NO: 10480

*For full details, please refer to the decision available at Inspectional Services Dept.



City of Cambridge

MASSACHUSETTS

BOARD OF ZONING APPEAL

831 Mass Avenue, Cambridge, MA.
(617) 349-6100

OCT 11 2013

Centerline Communications, LLC
C/o David Ford
95 Ryan Drive, Suite 1
Raynham, MA 02767

Case No. 10480

Dear: Mr. Ford,

We enclose the decision of the Board of Zoning Appeal as it pertains to the premises located at 330 (a/k/a 300) Mt. Auburn Street, Cambridge, Mass.

A copy of this decision has been filed with office of the City Clerk, this date. When twenty days have passed you **MUST**:

1. HAVE THIS DECISION COMPLETED AND SIGNED BY THE CITY CLERK, CITY HALL – 795 Mass Avenue, Cambridge, Ma. (In the space provided on the decision)
 2. FILE THE DECISION WITH THE REGISTRY OF DEEDS
Middlesex County Courthouse, 208 Cambridge Street, Cambridge, MA. (There is usually a fee, payable to the Registry of Deeds and the book and page number is required by the Registry).
 3. SUPPLY THE BOARD OF ZONING APPEAL WITH DOCUMENTATION OF SUCH FILING – (with the Registry of Deeds).
- THE DIVISION OF INSPECTIONAL SERVICES WILL NOT ISSUE BUILDING PERMITS
 - UNLESS THE ABOVE ITEMS HAVE BEEN COMPLETED.

Any person aggrieved by a decision of the Board of Zoning Appeal may appeal to the Superior Court or Land Court. Appeals, if any, shall be made pursuant to Section 17, Chapter 40A, Massachusetts General Laws and shall be filed within twenty days of the above date, and a copy thereof shall be filed with the Cambridge City Clerk's office by that same date.

If you have any questions, please phone me at 349-6100.

Sincerely yours,


Maria L. Pacheco
Secretary

Section 10.35 of the Zoning Ordinances:

If the rights authorized by a variance are not exercised within one year of the date of granting of such variance (two years for a special permit), they shall lapse and may be reestablished only after notice and new hearing pursuant to this Section 10.30.



City of Cambridge

MASSACHUSETTS

BOARD OF ZONING APPEAL

831 Mass Avenue, Cambridge, MA.

(617) 349-6100

2013 OCT 11 AM 10 50

OFFICE OF THE CITY CLERK
CAMBRIDGE, MASSACHUSETTS

CASE NO: 10480

LOCATION: 330 (a/k/a 300) Mt. Auburn St. Residence C-1/C-3 Zone
Cambridge, MA

PETITIONER: NEW CINGULAR WIRELESS PCS, LLC ("AT&T")
C/o DAVID FORD, CENTERLINE COMMUNICATIONS

PETITION: Special Permit: To install twelve (12) antennas which will be façade mounted to the existing hospital building painted to match the building color. Fifteen (15) remote radio-head unit (RRU's) will be mounted inside of the existing penthouse on the rooftop. An equipment shelter will be installed on the rooftop of house ancillary equipment associated with the antenna facility. Cabling and associated trays and conduits also will be placed on the rooftop, along GPS antennas which will be mounted on the shelter.

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: August 1 & 8, 2013

DATE OF PUBLIC HEARING: August 15, 2013

MEMBERS OF THE BOARD:

CONSTANTINE ALEXANDER – CHAIR
TIMOTHY HUGHES – VICE-CHAIR
BRENDAN SULLIVAN
THOMAS SCOTT
JANET O. GREEN

✓
✓
✓
✓
✓

ASSOCIATE MEMBERS:

DOUGLAS MYERS
SLATER W. ANDERSON
LINDSEY T. THORNE-BINGHAM
ANDREA A. HICKEY

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. 10480
Location: 330 (300) Mt. Auburn Street
Petitioner: New Singular Wireless PCS (AT&T) c/o David Ford

On September 12, 2013, Petitioner David Ford appeared before the Board of Zoning Appeal with his attorney Susan Roberts requesting a special permit in order to install twelve antennas façade mounted to the existing hospital building and painted to match, to install fifteen remote radio-head units mounted inside the existing penthouse, to install an equipment shelter on the roof, to install cabling, associated trays and conduits on the rooftop, and to install GPS antennas on the shelter. 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.

Ms. Roberts stated that the design had been modified in order to reduce visual impacts. She stated that the equipment shelter had been moved out of view and that the antennas had been mounted parallel to each other on low profile mounts and painted to match the building. She stated that the property was in a residential zone, but that residential uses did not predominate in the area, which was largely hospital grounds and the highway. She stated that the Petitioner was FCC licensed and that the installation was needed to fill gaps in coverage.

The Chair asked if anyone wished to be heard on the matter, no one indicated such.

After discussion, the Chair moved that the Board grant the special permit for relief in order to install twelve antennas façade mounted to the existing hospital building and painted to match, to install fifteen remote radio-head units mounted inside the existing penthouse, to install an equipment shelter on the roof, to install cabling, associated trays and conduits on the rooftop, and to install GPS antennas on the shelter based on the finding that the Petitioner was a duly licensed federal telecommunications carrier in good standing. The Chair moved that the Board find that the Petitioner had taken steps to minimize the visual impact of the various elements of the proposed facility. The Chair moved that the Board find that the plans had been revised and went a long way toward minimizing visual impacts. The Chair moved that the Board find that there was a public need for the facility at the proposed location due to lapses in coverage, which would be corrected with the proposed antennas. The Chair moved that the Board find that there were no alternative functionally suitable sites in nonresidential locations. The Chair moved that the Board find that the property was not in an area where there were many large buildings that could support the installation of the equipment. The Chair moved that the Board find that nonresidential uses predominated in the vicinity of the proposed location and that the telecommunication facility was not inconsistent with the character that did prevail in the surrounding neighborhood. The Chair moved that the Board find that the proposed use would not cause congestion, hazard, or substantial change in established neighborhood

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 10/11/13 by Maria Padua, 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: Nov. 1, 2013 Donna P. Lopez City Clerk.

Prepared For:

SMARTLINK

Site Name:

CAMBRIDGE
CANAL PARK

10 CANAL PARK
CAMBRIDGE, MA 02141



SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141



1997 ANNAPOLIS EXCHANGE
PKWY SUITE 200
ANNAPOLIS, MD 21401

PREPARED FOR:



550 COCHITUATE ROAD
FRAMINGHAM, MA 01701



45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5584

SITE TYPE: ROOFTOP

DATE: 04/25/2022 **REV:** 0

DRAWN BY: AM

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.

PAGE 1 OF 6



PHOTO LOCATION

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

smartlink
1997 ANNAPOLIS EXCHANGE
PKWY SUITE 200
ANNAPOLIS, MD 21401

PREPARED FOR:
at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

HG
HUDSON
Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5584

SITE TYPE: ROOFTOP
DATE: 04/25/2022 **REV:** 0
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VIEW WEST FROM CANAL PARK (EQUIPMENT NOT VISIBLE)

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 021411997 ANNAPOLIS EXCHANGE
PKWY SUITE 200
ANNAPOLIS, MD 21401

PREPARED FOR:

550 COCHITUATE ROAD
FRAMINGHAM, MA 0170145 BEECHWOOD DRIVE
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TEL: (978) 557-5553
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SITE TYPE: ROOFTOP

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LOCATIONS AVAILABLE TO DATE.



VIEW SOUTHWEST FROM CANAL PARK (EQUIPMENT NOT VISIBLE)

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 021411997 ANNAPOLIS EXCHANGE
PKWY SUITE 200
ANNAPOLIS, MD 21401

PREPARED FOR:

550 COCHITUATE ROAD
FRAMINGHAM, MA 0170145 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5584

SITE TYPE: ROOFTOP

DATE: 04/25/2022 REV: 0

DRAWN BY: AM

SCALE: N.T.S.

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LOCATIONS AVAILABLE TO DATE.



VIEW SOUTHEAST FROM CANAL PARK

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141



1997 ANNAPOLIS EXCHANGE
PKWY SUITE 200
ANNAPOLIS, MD 21401

PREPARED FOR:



550 COCHITUATE ROAD
FRAMINGHAM, MA 01701



45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5584

SITE TYPE: ROOFTOP

DATE: 04/25/2022 **REV:** 0

DRAWN BY: AM

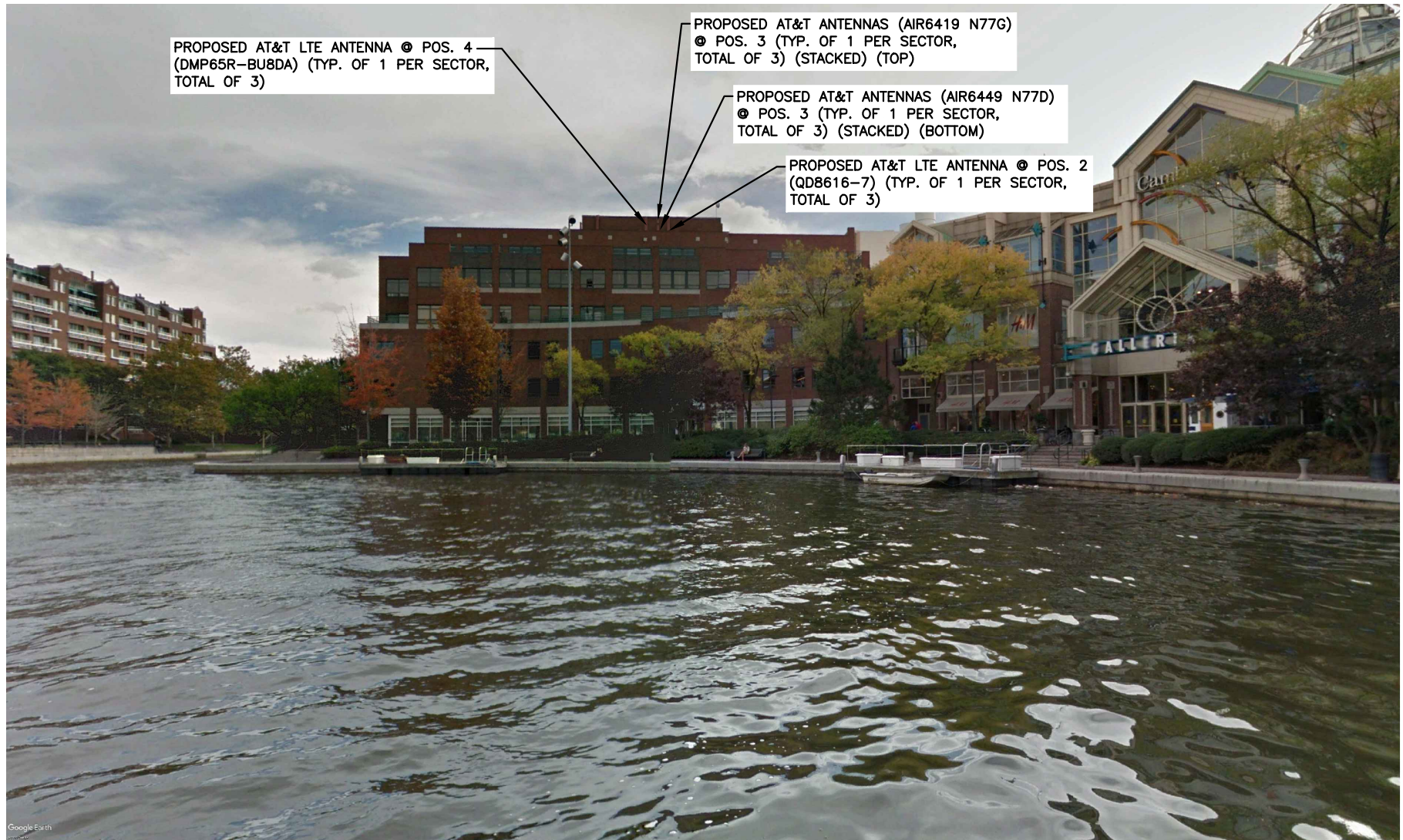
SCALE: N.T.S.

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PROPOSED CONDITIONS

LOCATION # 3

DATE OF PHOTO: 07/20/2021



VIEW SOUTHEAST FROM CANAL PARK

SITE NAME: CAMBRIDGE CANAL PARK

ADDRESS: 10 CANAL PARK
CAMBRIDGE, MA 02141



1997 ANNAPOLIS EXCHANGE
PKWY SUITE 200
ANNAPOLIS, MD 21401

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SITE TYPE: ROOFTOP

DATE: 04/25/2022 **REV:** 0

DRAWN BY: AM

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Radio Frequency Safety Survey Report Predictive (RFSSRP) Prepared For AT&T



Site Name:	CAMBRIDGE CANAL PARK
FA#	10546805
USID:	136227
Site ID:	MAL02884
Address:	10 CANAL PARK CAMBRIDGE, MA 02141
County:	MIDDLESEX
Latitude:	42.3685220
Longitude:	-71.0753610
Structure Type:	ROOFTOP
Property Owner:	NA
Pace Job:	MRCTB057727
RFDS Technology:	5G NR 1SR CBAND

Report Information

Report Writer: Sunita Sati

Report Generated Date: 03-10-2023(v2)

Compliance Statement

AT&T Mobility Compliance Statement: Based on the information collected, AT&T Mobility will be Compliant when the remediation recommended in section 5 or appropriate remediation determined by AT&T is implemented

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1. Executive Summary

1.1 Site Summary

Max Predictive Spatial Average MPE% & Location on Site (General Public)	154852.00% on Antennas Centerline & at AT&T Sec-A antenna no. #A3-2
Max Predictive Spatial Average MPE% at Ground Level (General Public)	4.00%
AT&T Mobility Site Compliance	AT&T Mobility will be Compliant by implementing remediation recommended as per section 5 in this report.
TABLE 1: Site Summary	

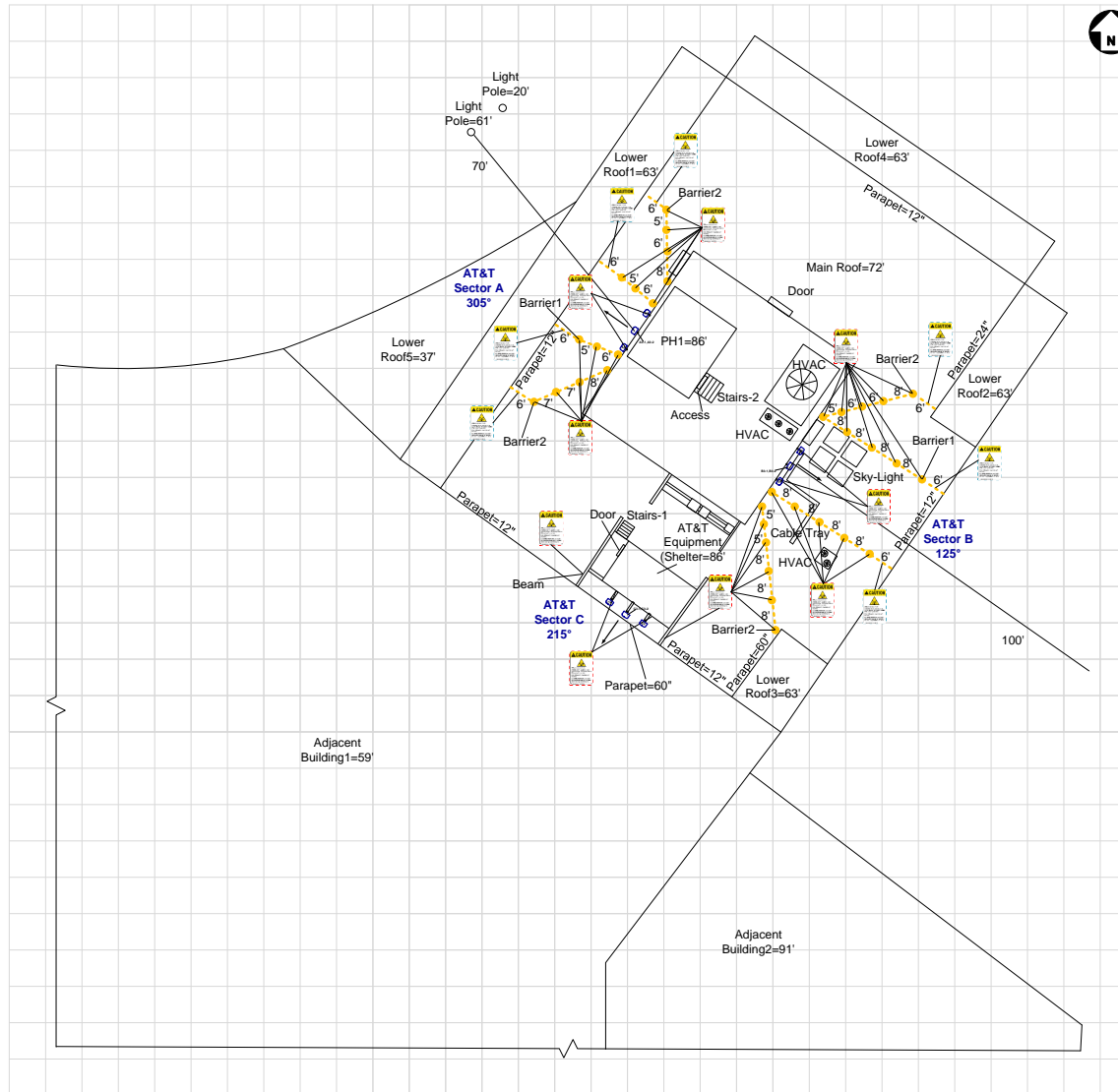
1.2 Signage Summary (Proposed)

AT&T Signage Locations	Sign Type									
	Safety Instructions	Caution Sign 2	Caution Sign 2A	Caution Sign 2B	Caution Sign 2C	Caution 7"x7"	Warning Sign 1B	RF Exposure Map	Lock	Barriers
Access Point(s)										
Alpha		16	4							X
Beta		23	3							X
Gamma		4								
TABLE 2: Signage Summary (Proposed)										

1.3 List of Documents used to prepare this Report

- 10546805_PM201_220209_MAL02884_CBAND
- 10546805_AE201_220413_MAL02884_Rev2_5G NR SOFTWARE RADIO_5G NR 1SR CBAND_BBU RECONFIG._4TXRX_RF MODS_5G NR 1SR CBAND

2. Site Scale Map



AT&T Antenna		Proposed Signage										Lock	Map Scale = 10 ft
	Panel	Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2A	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map		
	OMNI	Posts											

3. Antenna Inventory

Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	Az (°)	E D T (°)	EDT Range for analysis (°)	M D T (°)	H B W (°)	Antenna Gain (dBd)	Antenna Aperture (ft)	Transmitter Power (Watts)	Total Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)
A2	AT&T	Quintel	QD8616-7	Panel	700	LTE(B29)	305	2	2-3	0	72	12.75	8	60.00	0.5	1007.28	1652.54
A2	AT&T	Quintel	QD8616-7	Panel	700	LTE(FN)	305	10	9-11	0	72	12.75	8	120.00	0.5	2014.56	3305.07
A2	AT&T	Quintel	QD8616-7	Panel	1900	LTE/5G	305	2	1-3	0	62	15.05	8	120.00	0.5	3421.22	5612.82
A2	AT&T	Quintel	QD8616-7	Panel	2100	LTE/5G	305	3	2-4	0	62	15.35	8	120.00	0.5	3665.91	6014.25
A3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	305	6	6	0	11	23.5	2.55	54.22*	0	12138.53*	19914.34*
A3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	305	6	6	0	11	23.5	2.55	86.75*	0	19421.64*	31862.94*
A4	AT&T	CCI	DMP65R-BU8D	Panel	700	LTE(B12)	305	3	2-4	0	75	12.95	8	120.00	0.5	2109.51	3460.84
A4	AT&T	CCI	DMP65R-BU8D	Panel	850	5G	305	3	2-4	0	64	13.85	8	120.00	0.5	2595.26	4257.76
A4	AT&T	CCI	DMP65R-BU8D	Panel	2300	LTE	305	2	1-3	0	64	15.95	8	75.00	0.5	2630.64	4315.80
B2	AT&T	Quintel	QD8616-7	Panel	700	LTE(B29)	125	2	2-3	0	72	12.75	8	60.00	0.5	1007.28	1652.54
B2	AT&T	Quintel	QD8616-7	Panel	700	LTE(FN)	125	3	2-4	0	72	12.75	8	120.00	0.5	2014.56	3305.07
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B4	AT&T	CCI	DMP65R-BU8D	Panel	850	5G	125	3	2-4	0	64	13.85	8	120.00	0.5	2595.26	4257.76
B4	AT&T	CCI	DMP65R-BU8D	Panel	2300	LTE	125	2	1-3	0	64	15.95	8	75.00	0.5	2630.64	4315.80
C2	AT&T	Quintel	QD8616-7	Panel	700	LTE(B29)	215	2	2-3	0	72	12.75	8	60.00	0.5	1007.28	1652.54
C2	AT&T	Quintel	QD8616-7	Panel	700	LTE(FN)	215	3	2-4	0	72	12.75	8	120.00	0.5	2014.56	3305.07
C2	AT&T	Quintel	QD8616-7	Panel	1900	LTE/5G	215	2	1-3	0	62	15.05	8	120.00	0.5	3421.22	5612.82
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C4	AT&T	CCI	DMP65R-BU8D	Panel	850	5G	215	2	1-3	0	64	13.85	8	120.00	0.5	2595.26	4257.76
C4	AT&T	CCI	DMP65R-BU8D	Panel	2300	LTE	215	2	1-3	0	64	15.95	8	75.00	0.5	2630.64	4315.80

Table 3.1: Antenna Inventory Table

Note: ^ **Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.**

Any change in EDT value beyond "EDT Range for Analysis (°)" as mentioned in the table above will require a new EME (Predictive) study.

* 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor¹ are used to calculate Transmitter Power & ERP/EIRP

Antenna Heights (Z)

Ant ID	Operator	Antenna Radiation Centerline	Z-Height from Adj. Bldg. 2	Z-Height from PH	Z-Height from Main Roof	Z-Height from Lower Roof1,23&4	Z-Height from Light Pole1	Z-Height from Adj. Bldg. 1	Z-Height from Lower Roof5	Z-Height from Light Pole2	Z-Height from Ground
A2	AT&T	81.00	-14.00	-9.00	5.00	14.00	16.00	18.00	40.00	57.00	77.00
A3-1	AT&T	82.78	-9.50	-4.50	9.50	18.50	20.50	22.50	44.50	61.50	81.50
A3-2	AT&T	79.23	-13.05	-8.05	5.95	14.95	16.95	18.95	40.95	57.95	77.95
A4	AT&T	81.00	-14.00	-9.00	5.00	14.00	16.00	18.00	40.00	57.00	77.00
B2	AT&T	81.00	-14.00	-9.00	5.00	14.00	16.00	18.00	40.00	57.00	77.00
B3-1	AT&T	82.78	-9.50	-4.50	9.50	18.50	20.50	22.50	44.50	61.50	81.50
B3-2	AT&T	79.23	-13.05	-8.05	5.95	14.95	16.95	18.95	40.95	57.95	77.95
B4	AT&T	81.00	-14.00	-9.00	5.00	14.00	16.00	18.00	40.00	57.00	77.00
C2	AT&T	81.00	-14.00	-9.00	5.00	14.00	16.00	18.00	40.00	57.00	77.00
C3-1	AT&T	82.78	-9.50	-4.50	9.50	18.50	20.50	22.50	44.50	61.50	81.50
C3-2	AT&T	79.23	-13.05	-8.05	5.95	14.95	16.95	18.95	40.95	57.95	77.95
C4	AT&T	81.00	-14.00	-9.00	5.00	14.00	16.00	18.00	40.00	57.00	77.00

Table 3.3: Antenna Height(s) Summary Table

4. Predicted Emission

4.1 Predictive Cumulative MPE Contribution from All Sources at PH Level (86 ft.)



Max. Predictive Spatial Average MPE% = **14.27%**

Proposed Barrier

 Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.2 Predictive Cumulative MPE Contribution from All Sources at AT&T Antennas Centerline Level (81 ft.)



Max. Predictive Spatial Average MPE% = **154852.00%**

% of FCC General Public Exposure Limit (Predictive Spatial Average)

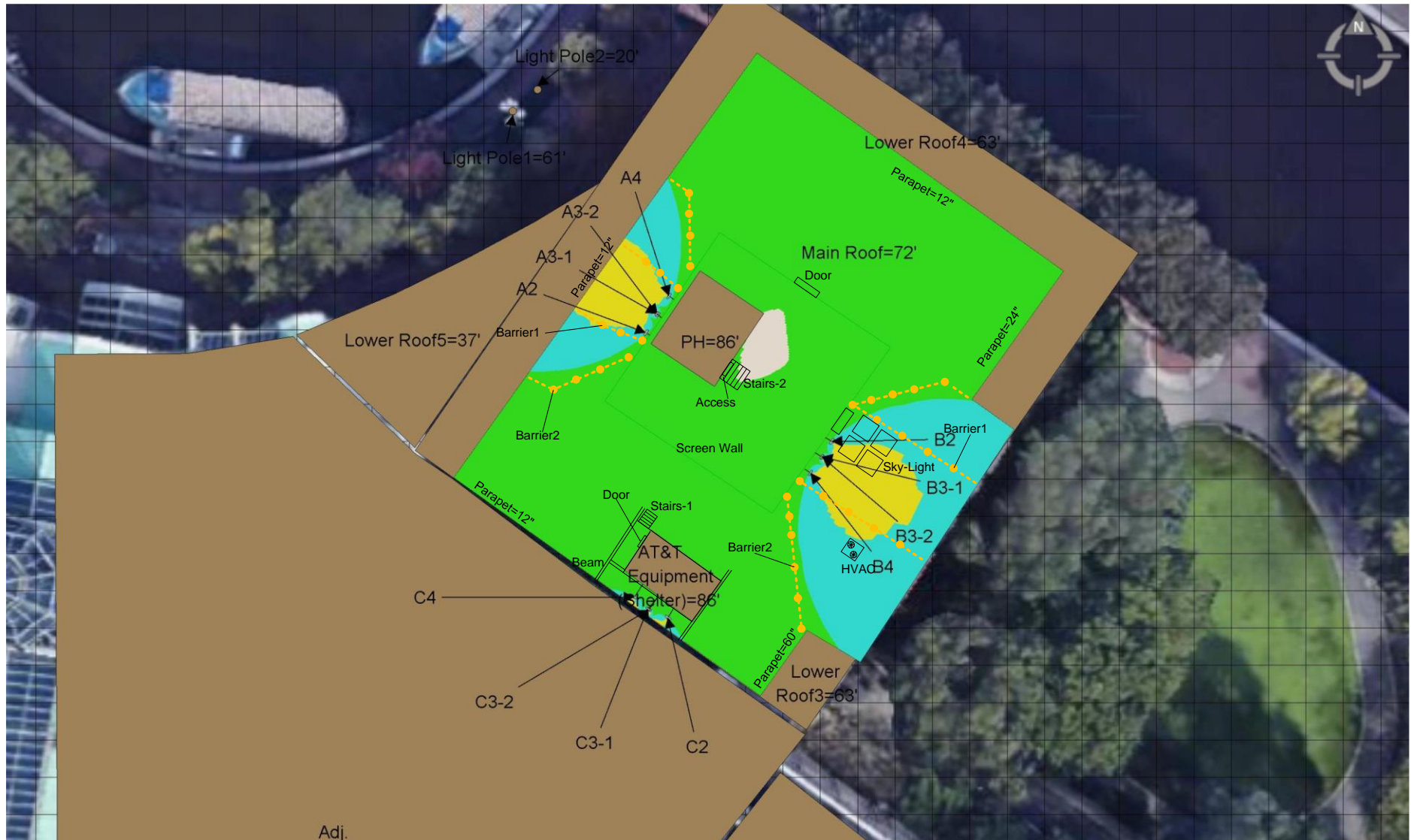
Proposed Barrier

 Proposed Posts

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.3 Predictive Cumulative MPE Contribution from All Sources at Main Roof Level (72 ft.)



Max. Predictive Spatial Average MPE% = **7468.97%**

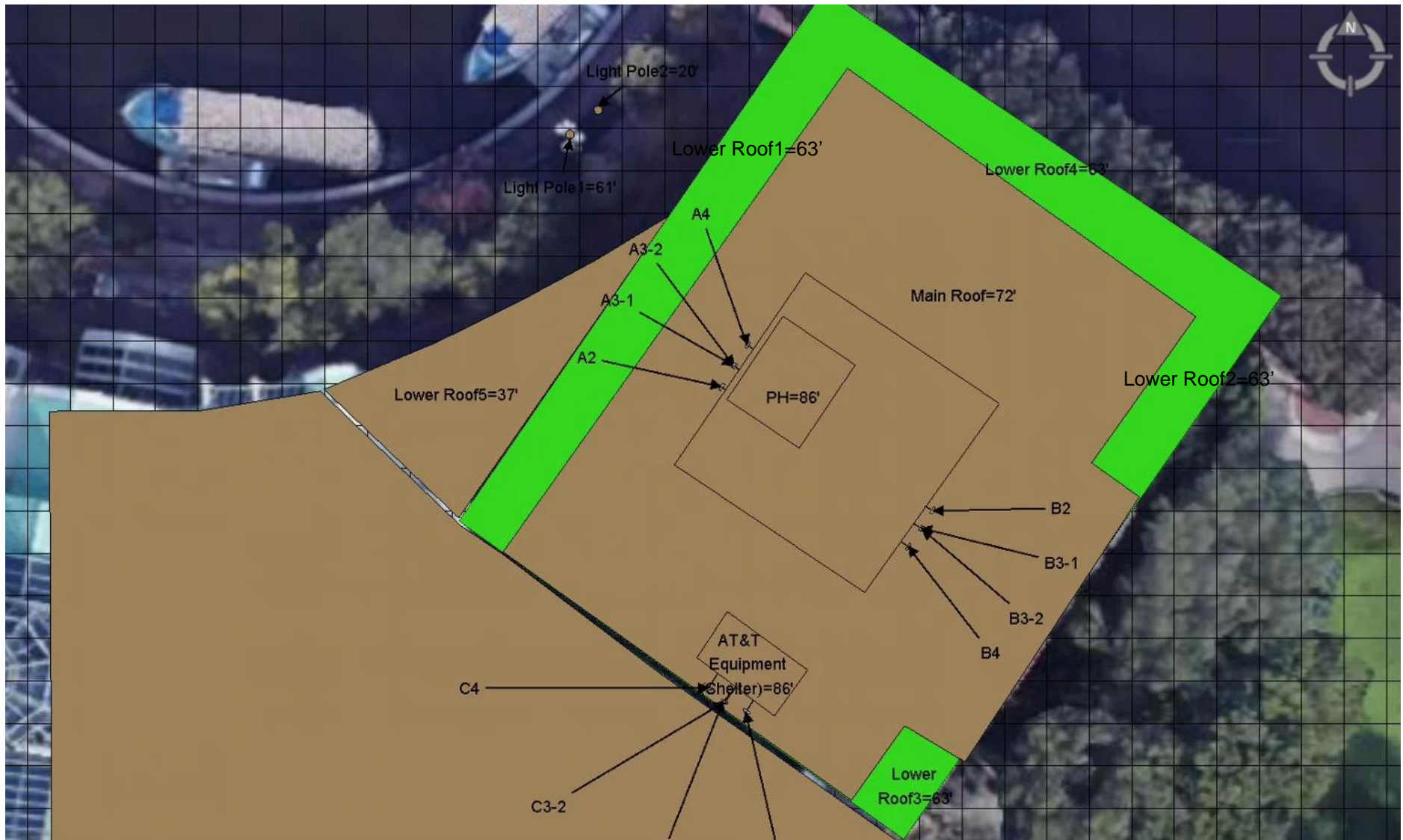
% of FCC General Public Exposure Limit (Predictive Spatial Average)

Proposed Barrier -----
 Proposed Posts ●

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.4 Predictive Cumulative MPE Contribution from All Sources at Lower Roof1,2,3&4 Level (63 ft.)



Max. Predictive Spatial Average MPE% = 113.36%

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Proposed Barrier - - - - -
Proposed Posts ●

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.5 Predictive Cumulative MPE Contribution from All Sources at Light Pole1&2 Level (61 & 20 ft.)



Max. Predictive Spatial Average MPE% = 9.21%

Proposed Barrier - - - - -
Proposed Posts ●

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.6 Predictive Cumulative MPE Contribution from All Sources at Adjacent Building1&2 Level (91 & 59 ft.)



Max. Predictive Spatial Average MPE% = **71.51%**

Proposed Barrier
 Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.7 Predictive Cumulative MPE Contribution from All Sources at Lower Roof5 Level (37 ft.)



Max. Predictive Spatial Average MPE% = **9.21%**

Proposed Barrier

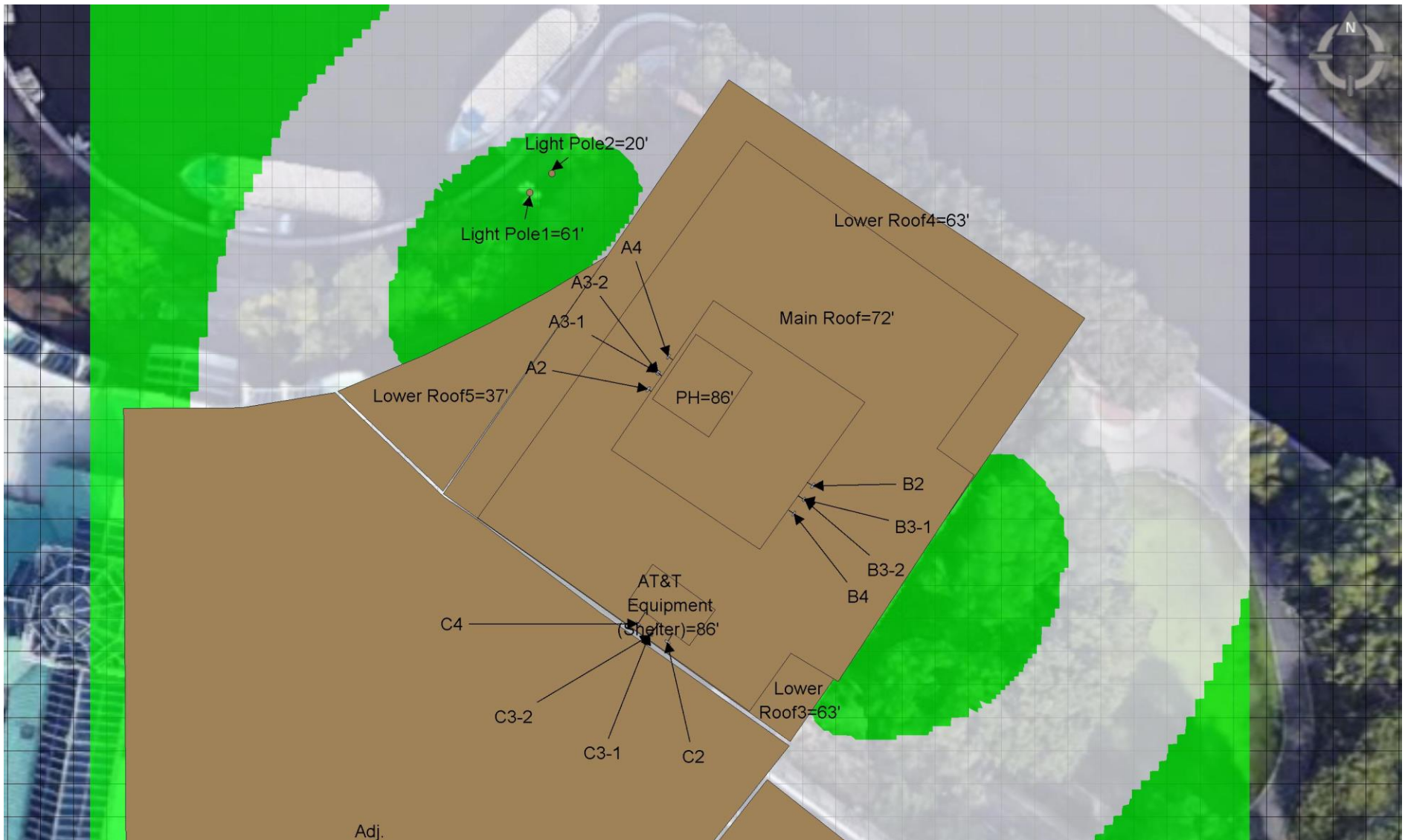
 Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.8 Predictive Cumulative MPE Contribution from All Sources at Ground Level (0 ft.)



Max. Predictive Spatial Average MPE% = **4.00%**

Proposed Barrier

 Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

5. Statement of Compliance

5.1 Statement of AT&T Mobility Compliance

At the time of our Analysis, AT&T Mobility is required to take action to fulfill their Obligations to comply with the FCC's mandate as defined in OET-65

Recommendations

Disclaimer:

Initial recommended power reduction values are for reference only and should not be implemented without ATT RF Design & Optimization team's approval to determine what technology(s)/spectrum(s) power reduction levels should be allowed to ensure RF Safety Compliance.

IF RF Design/Optimization teams do not approve the initial reference values recommended then they will need to provide power reduction range(s) or other RF design change(s) per sector/band to be incorporated into new MPE analysis.

AT&T Alpha Sector:

- One each of Caution 2 Sign to be posted 2 feet below the antenna bottom tip (Ant. #A2 & Ant. #A4) facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 17. (2 Total Signs)
- **To mitigate Excess MPE on Main Roof**, choose any of the option(s) listed below:
 - **Option1: Barrier2 19ft "5ft x 6ft x 8ft" & 22ft "8ft x 7ft x 7ft"** required with **Eight Posts** with Caution-2 Sign posted on the top of each Post facing outwards so approaching people can see. This barrier is not connected towards the parapet because existing parapet is less than 39" and as per "AT&T's Unprotected Roof Edge Policy", Standard barriers must stop 6' away from unprotected roof edge, hence a Custom Barrier Solution **6ft & 6ft** (i.e., Paint Stripe, 3M Caution Tape etc.) Must be deployed to connect the standard barrier cone to the edge of the parapet using appropriate Caution 2A Sign(s) as shown in "Recommendations Map - Detailed View" on page 17. (10 Total Signs)
 - **Option-2:** follow below listed action(s):
 - **Barrier1 11ft "5ft x 6ft" & 11ft "6ft x 5ft"** required with **Six Posts** with Caution-2 Sign posted on the top of each Post facing outwards so approaching people can see. This barrier is not connected towards the parapet because existing parapet is less than 39" and as per "AT&T's Unprotected Roof Edge Policy", Standard barriers must stop 6' away from unprotected roof edge, hence a Custom Barrier Solution **6ft & 6ft** (i.e., Paint Stripe, 3M Caution Tape etc.) Must be deployed to connect the standard barrier cone to the edge of the parapet using appropriate Caution 2A Sign(s) as shown in "Recommendations Map - Detailed View" on page 17. (8 Total Signs)
 - DoD (3450MHz) – "13dB" attenuation is required.
 - C-Band (3840MHz) – "15dB" attenuation is required.

AT&T Beta Sector:

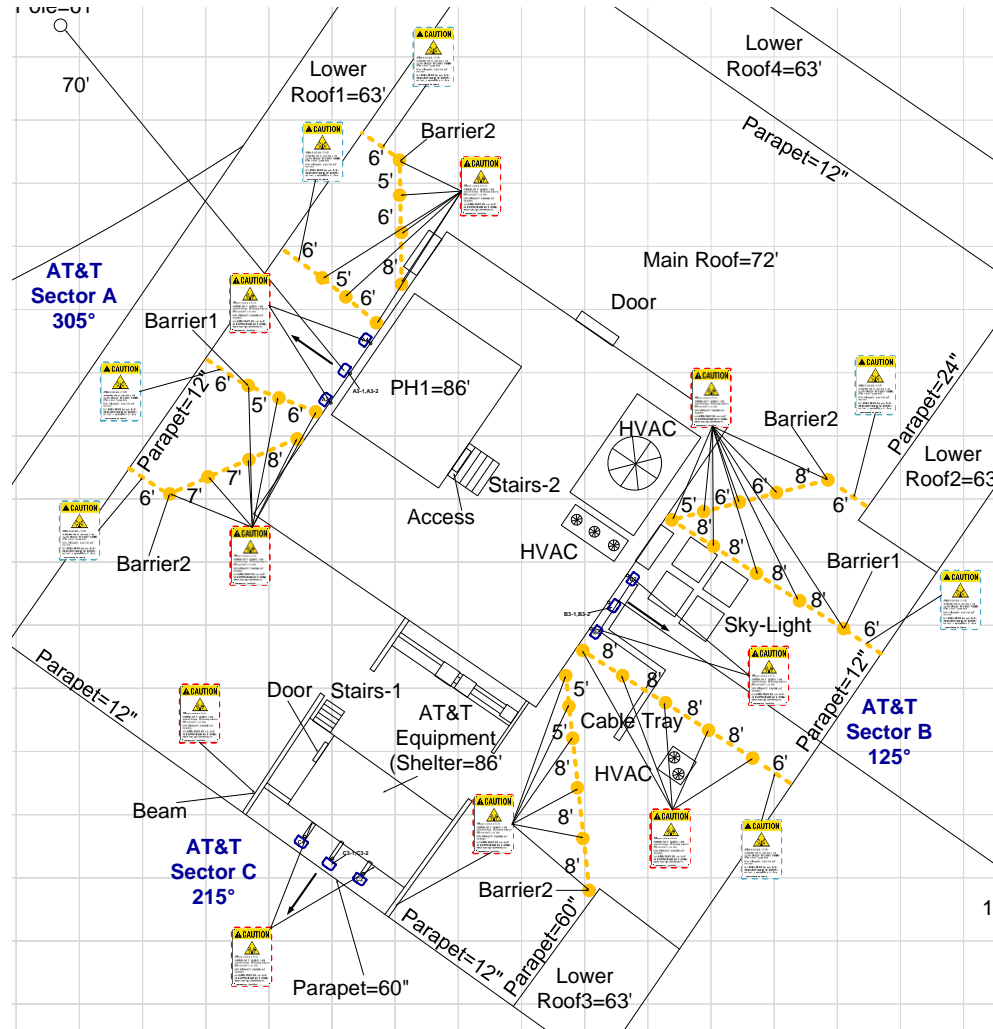
- One each of Caution 2 Sign to be posted 2 feet below the antenna bottom tip (Ant. #B2 & Ant. #B4) facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 17. (2 Total Signs)
- **To mitigate Excess MPE on Main Roof**, choose any of the option(s) listed below:
 - **Option1: Barrier2 25ft "5ft x 6ft x 6ft x 8ft" & 34ft "8ft x 8ft x 8ft x 5ft x 5ft"** required with **Eleven Posts** with Caution-2 Sign posted on the top of each Post facing outwards so approaching people can see. This barrier is not connected towards the parapet because existing parapet is less than 39" and as per "AT&T's Unprotected Roof Edge Policy", Standard barriers must stop 6' away from unprotected roof edge, hence a Custom Barrier Solution **6ft** (i.e., Paint Stripe, 3M Caution Tape etc.) Must be deployed to connect the standard barrier cone to the edge of the parapet using appropriate Caution 2A Sign(s) as shown in "Recommendations Map - Detailed View" on page 17. (12 Total Signs)
 - **Option-2:** follow below listed action(s):
 - **Barrier1 32ft "8ft x 8ft x 8ft x 8ft" & 32ft "8ft x 8ft x 8ft x 8ft"** required with **Ten Posts** with Caution-2 Sign posted on the top of each Post facing outwards so approaching people can see. This barrier is not connected towards the parapet because existing parapet is less than 39" and as per "AT&T's Unprotected Roof Edge Policy", Standard barriers must stop 6' away from unprotected roof edge, hence a Custom Barrier Solution **6ft & 6ft** (i.e., Paint Stripe, 3M Caution Tape etc.) Must be deployed to connect the standard barrier cone to the edge of the parapet using appropriate Caution 2A Sign(s) as shown in "Recommendations Map - Detailed View" on page 17. (12 Total Signs)
 - DoD (3450MHz) – "13dB" attenuation is required.
 - C-Band (3840MHz) – "15dB" attenuation is required.

AT&T Gamma Sector:

- One each of Caution 2 Sign to be posted side-by-side of the antennas (Ant. #C2 & Ant. #C4) facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 17. (2 Total Signs)
- One Caution 2 Sign to be posted on the Beam, facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 17. (2 Total Signs)

Recommendations Map – Detailed View

AT&T Alpha, Beta & Gamma Sectors



AT&T Antenna		Proposed Signage										Map Scale = 10 ft
	Panel	Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2A	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	
	OMNI	Posts										

Appendix A – Statement of Limiting Conditions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at full power at all times. AT&T has further recommended to assume a 75% duty cycle of maximum radiated power for all LTE & 5G carriers (& consider 100% duty cycle for all UMTS carriers).

In this site compliance report, it is assumed that Mechanical Tilt value of “0°” MUST be retained for C-BAND and/or DoD AAS¹ antenna(s) at all times to ensure that “EME (Predictive) Study” shall remain valid.

AT&T recommended to consider - For C-BAND and/or DoD AAS¹ antenna(s) 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor¹ are used to calculate Transmitter Power & ERP/EIRP.

AT&T recommended to use worst-case tilts (Small E-tilt Range) for the simulations.

¹ **Power Reduction Factor:** IEC Standard 62232: 2017 allows for a statistically conservative power density model to more realistically define the RF exposure area. AT&T recommends a “0.32” factor to calculate the “Actual Maximum” (time averaged) power value, which accounts for “Beam Scanning,” “Scheduling,” and “RBS Utilization” This recommended value is a conservative figure modelled and supported by other vendors and through measurements published in scientific articles and white papers by IEEE and others. Those publication are listed below:

1. IEEE Access, Time-Averaged Realistic Maximum Power Levels for the Assessment of RF Exposure for 5G Radio Base Stations Using Massive MIMO (Published Sept. 18, 2017 / BJÖRN THORS, ANDERS FURUSKÄR, DAVIDE COLOMBI, AND CHRISTER TÖRNEVIK)
2. IEEE Explore, A Statistical Approach for RF Exposure Compliance Boundary Assessment in Massive MIMO Systems (Published Jan. 25, 2018 / Paolo Baracca, Andreas Weber, Thorsten Wild, Christophe Grangeat)
3. IEEE Access, In-situ Measurement Methodology for the Assessment of 5G NR Massive MIMO Base Station Exposure at Sub-6 GHz Frequencies (Published Dec. 20, 2019 / SAM AERTS, LEEN VERLOOCK, MATTHIAS VAN DEN BOSSCHE, DAVIDE COLOMBI, LUC MARTENS, CHRISTER TÖRNEVIK AND WOUT JOSEPH)
4. Applied Sciences, Analysis of the Actual Power and EMF Exposure from Base Stations in a Commercial 5G Network (Published July 30, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraaju and Christer Törnevik)
5. Ofcom Technical Report, Electromagnetic Field (EMF) measurements near 5G mobile phone base stations (Published Feb. 21, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraaju and Christer Törnevik)

MobileComm believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor). Thus, at any time, if power density measurements were made, we believe the real time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modelling in this way, MobileComm has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of “Generic” as an antenna model, or “Other Carrier” for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, MobileComm will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer’s published data regarding the antenna’s physical characteristics makes more conservative assumptions.

Where the frequency is unknown, MobileComm uses the closest frequency in the antenna’s range that corresponds to the highest Maximum Exposure Limit (MPE), resulting in a conservative analysis.

Appendix B – FCC Guidelines and Emissions Threshold Limits

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 and 800 MHz Bands is approximately 467 $\mu\text{W}/\text{cm}^2$ and 567 $\mu\text{W}/\text{cm}^2$ respectively, and the general population exposure limit for the 1900 MHz PCS and 2100 MHz AWS bands is 1000 $\mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure, have been properly trained in RF safety and can exercise control over their exposure. Occupational/Controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time [E] ² , [H] ² , or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time [E] ² , [H] ² , or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

Appendix C – Rules & Regulations

Explanation of Applicable Rules and Regulations

FCC has set forth guidelines in OET Bulletin 65 for human exposure to radio frequency electromagnetic fields. Currently, there are two different levels of MPE - General Public MPE and Occupational MPE. An individual classified as Occupational can be defined as an individual who has received appropriate RF training and meets the conditions outlined below. General Public is defined as anyone who does not meet the conditions of being Occupational. FCC Rules and Regulations define compliance in terms of total exposure to total RF energy, regardless of location of or proximity to the sources of energy.

It is the responsibility of all licensees to ensure these guidelines are maintained at all times. It is the ongoing responsibility of all licensees composing the site to maintain ongoing compliance with FCC rules and regulations.

A building owner or site manager can use this report as part of an overall RF Health and Safety Policy. It is important for building owners/site managers to identify areas in excess of the General Population MPE and ensure that only persons qualified as Occupational are granted access to those areas.

Occupational Environment Explained

The FCC definition of Occupational exposure limits apply to persons who:

- *are exposed to RF energy as a consequence of their employment;*
- *have been made aware of the possibility of exposure; and*
- *can exercise control over their exposure.*

FCC guidelines go further to state that persons must complete RF Safety Awareness training and must be trained in the use of appropriate personal protective equipment.

In order to consider this site an Occupational Environment, the site must be controlled to prevent access by any individuals classified as the General Public. Compliance is also maintained when any non-occupational individuals (the General Public) are prevented from accessing areas indicated as Red or Yellow in the attached RF Emissions diagram. In addition, a person must be aware of the RF environment into which they are entering. This can be accomplished by an RF Safety Awareness class, and by appropriate written documentation such as this Site Compliance Report.

Appendix D – General Safety Recommendations

The following are general recommendations appropriate for any site with accessible areas in excess of 100% General Public MPE. These recommendations are not specific to this site. These are safety recommendations appropriate for typical site management, building management, and other tenant operations.

1. All individuals needing access to the main site should be instructed to read and obey all posted placards and signs.
2. The site should be routinely inspected and this or similar report updated with the addition of any antennas or upon any changes to the RF environment including:
 - adding new antennas that may have been located on the site
 - removing of any existing antennas
 - changes in the radiating power or number of RF emitters
3. Post the appropriate SAFETY INSTRUCTIONS, NOTICE, CAUTION & WARNING sign at the main site access point(s) and other locations as required. Note: Please refer to RF Exposure Diagrams in the report section above, to inform everyone who has access to this site that beyond posted signs there may be levels in excess of the limits prescribed by the FCC. The signs below are examples of signs meeting FCC guidelines.



4. Ensure that the site door remains locked (or appropriately controlled) to deny access to the general public if deemed as policy by the building/site owner.
5. For a General Public environment the five color levels identified in measured RF emission diagram can be interpreted in the following manner:
 - White represents areas predicted to be greater than or equal to 0% and less than 1% of the MPE general public limits
 - Green represents areas predicted to be greater than or equal to 1% and less than 100% of the MPE general public limits
 - Blue represents areas predicted to be greater than or equal to 100% and lesser than 500% of the MPE general public limits.
 - Yellow represents areas predicted to be greater than or equal to 500% and lesser than 5000% of the MPE general public limits.
 - Red areas indicates predicted levels greater than or equal to 5000% of the MPE general public limits.

Appendix E – References

1 - FCC Definition

FCC defines an Occupational or Controlled environment as one where persons are exposed to RF fields as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Typical criteria for an Occupational or Controlled environment is restricted access (i.e. locked doors, gates, etc.) to areas where antennas are located coupled with proper RF warning signage.

FCC defines a site as a General Public or Uncontrolled environment when human exposure to RF fields occurs to the general public or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over the exposure. Typical criteria for a General Public or Uncontrolled environment are unrestricted access (i.e. unlocked or no restrictions) to areas where antennas are located without proper RF warning signage being posted.

2 - Physical Testing measurement procedure and Tools

The Narda Broadband Field Meter NBM-550 can make rapid conformance measurements with evaluation in the time domain when used in conjunction EA5091 probe. This probe is a so-called Shaped Probe, i.e. it is frequency weighted so that it automatically takes account of the FCC Occupational limit values. To collect data, the probe is pointed towards the potential source(s) of EME radiation and moved slowly from ground level up to slightly above head height (approx. 6 ft).

Spatial Average Measurement A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.

3 - Site Safety Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna locations (e.g. Chain link with posted RF Sign)

RF Signage: *Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.*

Assume all antennas are active: *Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.*

Maintain a 3 foot clearance from all antennas: *There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.*

Rooftop RF Emissions Diagram: *Section 4 of this report contains an RF Emissions Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas on the rooftop. This analysis is all theoretical and assumes a duty cycle of 75% for each transmitting antenna at full power. This analysis is a worst case scenario. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.*

4 - Definitions

Compliance- *The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.*

Decibel (dB) – *A unit for measuring power or strength of a signal.*

Duty Cycle – *The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 75% corresponds to continuous operation.*

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – *The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna, this product is divided by the cable losses*

Effective Radiated Power (ERP) – *In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.*

Gain (of an antenna in dbd) – *The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from a reference dipole. Gain is a measure of the relative efficiency of a directional antennas as compared to a reference dipole.*

General Population/Uncontrolled Environment – *Defined by the FCC, as an area where RFR exposure may occur to persons who are unaware of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.*

Generic Antenna – *For the purposes of this report, the use of “Generic” as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, MobileComm will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.*

Isotropic Antenna – *An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.*

Maximum Measurement – *This measurement represents the single largest measurement recorded when performing a spatial average measurement.*

Maximum Exposure Limit (MPE) – *The RMS and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.*

Occupational/Controlled Environment – *Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are aware of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.*

Radio Frequency Radiation – *Electromagnetic waves that are propagated from antennas through space.*

Spatial Average Measurement – *A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.*

Transmitter Power Output (TPO) – *The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.*

Appendix F – Proprietary Statement

This report was prepared for the use of AT&T Mobility, LLC to meet requirements specified in AT&T's corporate RF safety guidelines. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by MobileComm are based solely on the information provided by AT&T Mobility and all observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to MobileComm so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

STRUCTURAL ANALYSIS REPORT

For

MA2884

CAMBRIDGE CANAL PARK

10 Canal Park
Cambridge, MA 02141

Antennas Mounted on Penthouse Wall and Equipment Shelter Façade



Prepared for:



Dated: February 24, 2022

Prepared by:



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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 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 antennas listed below.

This office conducted an on-site visual survey of the above site on November 23, 2021.

The following documents were used for our reference:

- Previous HDG Structural Analysis Report dated January 3, 2020.

CONCLUSION SUMMARY:

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

	Member	Stress Ratio	Pass/Fail
Wall Check	Penthouse Wall	39%	PASS

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

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
Alpha & Beta Sector Antenna Mount	2-1/2" Std. Pipe	Bending	31%	PASS
Gamma Sector Antenna Mount	1	LC2	28%	PASS

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

	Member	Stress Ratio	Pass/Fail
Alpha & Beta Sector Connection	3/8" Epoxy Anchor	72%	PASS
Gamma Sector Connection	1/2" Threaded Rod	9%	PASS

Reference the table below for the minimum RRH ballast requirements:

MINIMUM RRH BALLAST REQUIREMENTS			
	Existing (Per Side)	Proposed (Per Side)	Total
Number of Blocks per Side	4	1	10
Size of Blocks	8"x8"x16" Hollow	8"x8"x16" Hollow	8"x8"x16" Hollow
Weight of Blocks	39 lbs. /each	39 lbs. /each	39 lbs. /each
Total Ballast Weight	156 lbs.	39 lbs.	390 lbs.

HDG did not perform a condition assessment of the entire roof but did perform an inspection of the existing roof members and structural bearing walls below the area where the equipment is proposed to be located.



APPURTENANCE CONFIGURATION (BASED ON RFDS DATED 02/09/2022):

Appurtenances	Dimensions	Weight	**Elevation	Mount
(3) B14 4478 RRH's	18.1"x13.4"x8.3"	60 lbs	-	Wall Mount/ Ballast Sled
(3) RRUS-32 B66A RRH's	27.2"x12.1"x7.0"	60 lbs	-	Wall Mount/ Ballast Sled
(3) RRUS-E2 B29 RRH's	20.4"x18.5"x7.5"	53 lbs	-	Wall Mount/ Ballast Sled
(3) RRUS-32 B30 RRH's	27.2"x12.1"x7.0"	60 lbs	-	Wall Mount/ Ballast Sled
(3) DC6-48-60-08F Surge Arrestor	31.4"x10.2" Ø	29 lbs	-	Wall Mount/ Ballast Sled
(3) DC6-48-60-18-8F Surge Arrestor	31.4"x10.2" Ø	29 lbs	-	Wall Mount/ Ballast Sled
(3) QD8616-7 Antennas	96.0"x22.0"x9.6"	150 lbs	81'	Wall Mount
(3) AIR6449 Antennas	30.4"x15.9"x8.1"	82 lbs	81'	Wall Mount
(3) AIR6419 Antennas	28.0"x15.7"x6.7"	66 lbs	81'	Wall Mount
(3) DMP65R-BU8DA Antennas	96.0"x20.7"x7.7"	119 lbs	81'	Wall Mount
(3) 4415 B25 RRH's	16.5"x13.5"x6.3"	50 lbs	-	Wall Mount/ Ballast Sled
(3) B5/B12 4449 RRH's	17.9"x13.2"x9.4"	73 lbs	-	Wall Mount/ Ballast Sled

* Proposed equipment shown in bold.

** Elevation to antenna centerline.



DESIGN CRITERIA:

International Building Code (IBC) 2015 with Massachusetts State Building Code 9th Edition, and ASCE 7-10 (Minimum Design Loads for Buildings and Other Structures).		
Wind		
Reference Wind Speed:	128 mph	(780 CMR Table 1604.11)
Exposure Category:	C	(ASCE 7-10 Chapter 26)
Risk Category:	II	(ASCE 7-10 Table 1.5-1)
Snow		
Ground Snow, P_g :	40	(780 CMR Table 1604.11)
Importance Factor (I_s):	1.0	(ASCE 7-10 Table 1.5-2)
Exposure Factor (C_e):	1.0	(Partially Exposed, Table 7-2)
Thermal Factor (C_t):	1.0	(ASCE 7-10 Table 7-3)
Flat Roof Snow Load:	28 psf	(ASCE 7-10 Equation 7.3-1)
Min. Flat Roof Snow Load:	30 psf	(780 CMR Table 1604.11)
EIA/TIA-222-H Structural Standards for Steel Antenna Towers and Antenna Supporting Structures		
Wind		
City/Town:	Cambridge	
County:	Middlesex	
Wind Load:	128 mph	(TIA-222-H Figure B-2)
Ice		
Design Ice Thickness (t_i):	1.0 in	(TIA-222-H Figure B-9)
Structure Class:	II	(TIA-222-H Table 2-1)
Importance Factor (I_i):	1.0	(TIA-222-H Table 2-3)
Factored Thickness of Radial Ice (t_{iz}):	1.09 in	(TIA-222-H Sec. 2.6.10)



EXISTING WALL CONSTRUCTION:

The existing penthouse wall construction consists of masonry brick walls.

ANTENNA SUPPORT RECOMMENDATIONS:

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

RRH SUPPORT RECOMMENDATIONS:

- The proposed Alpha and Beta sector RRH's are to be installed on the existing RRH non-penetrating ballast mounts located on the roof. Reference the table on page 2 for the minimum ballast requirements.
- The proposed Gamma sector RRH's are to be installed on existing 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 and details.
2. All detail requirements will be designed and furnished in the construction drawings.
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. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
5. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.
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.



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FIELD PHOTOS:



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



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

FIELD PHOTOS (CONT.):



Photo 3: Sample photo illustrating the existing RRH ballast sleds.



Photo 4: Sample photo illustrating the existing equipment.



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Wind & Ice Calculations

Date: 2/22/2022

Project Name: CAMBRIDGE CANAL PARK

Project No.: MA2884

Designed By: KM Checked By: MSC



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2.6.5.2 Velocity Pressure Coeff:

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

$$z = 81 \text{ (ft)}$$

$$z_g = 900 \text{ (ft)}$$

$$\alpha = 9.5$$

$$K_z = 1.211$$

$$K_{zmin} \leq K_z \leq 2.01$$

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
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

2.6.6.2 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

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

$$K_h = e^{(fz/H)}$$

$$K_{zt} = 1$$

$$K_h = 1$$

$$K_c = 1 \text{ (from Table 2-4)}$$

$$K_t = 0 \text{ (from Table 2-5)}$$

$$f = 0 \text{ (from Table 2-5)}$$

$$z = 81$$

$$z_s = 5 \text{ (Mean elevation of base of structure above sea level)}$$

$$H = 0 \text{ (Ht. of the crest above surrounding terrain)}$$

$$K_{zt} = 1.00 \text{ (from 2.6.6.2.1)}$$

$$K_e = 1.00 \text{ (from 2.6.8)}$$

2.6.10 Design Ice Thickness

Max Ice Thickness =

$$t_i = 1.00 \text{ in}$$

Importance Factor =

$$I = 1.0 \text{ (from Table 2-3)}$$

$$K_{iz} = 1.09 \text{ (from Sec. 2.6.10)}$$

$$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$$

$$t_{iz} = 1.09 \text{ in}$$

Date: 2/22/2022
 Project Name: CAMBRIDGE CANAL PARK
 Project No.: MA2884
 Designed By: KM Checked By: MSC



2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$

$h =$ ht. of structure

$h =$ 71.5

$G_h =$ 0.85

2.6.9.2 Guyed Masts

$G_h =$ 0.85

2.6.9.3 Pole Structures

$G_h =$ 1.1

2.6.9 Appurtenances

$G_h =$ 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings ($ht. : width$ ratio > 5))

$G_h =$ 1.35

$G_h =$ 1.00

2.6.11.2 Design Wind Force on Appurtenances

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

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

$q_z =$ 48.23

$q_z (ice) =$ 7.36

$q_z (30) =$ 2.65

$K_z =$ 1.211 (from 2.6.5.2)

$K_{zt} =$ 1.0 (from 2.6.6.2.1)

$K_s =$ 1.0 (from 2.6.7)

$K_e =$ 1.00 (from 2.6.8)

$K_d =$ 0.95 (from Table 2-2)

$V_{max} =$ 128 mph (Ultimate Wind Speed)

$V_{max (ice)} =$ 50 mph

$V_{30} =$ 30 mph

Table 2-2

Structure Type	Wind Direction Probability Factor, K_d
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 2/22/2022
 Project Name: CAMBRIDGE CANAL PARK
 Project No.: MA2884
 Designed By: KM Checked By: MSC



Determine Ca:

Table 2-9

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
Square/Rectangular HSS		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 \leq C \leq 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (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.)

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

Ice Thickness = 1.09 in Angle = 0 (deg) Equivalent Angle = 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	4.36	1.28	907	156	50
QD8616-7 Antenna (Side)	96.0	9.6	22.0	6.40	10.00	1.50	463	89	25
AIR6449 Antenna	30.4	15.9	8.1	3.36	1.91	1.20	194	36	11
AIR6449 Antenna (Side)	30.4	8.1	15.9	1.71	3.75	1.26	104	22	6
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.93	1.20	201	37	11
AIR6419 Antenna (Side)	31.1	7.3	16.1	1.58	4.26	1.28	97	21	5
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	862	149	47
DMP65R-BU8DA Antenna (Side)	96.0	7.7	20.7	5.13	12.47	1.58	392	79	22
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	97	19	5
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	60	13	3
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	2.25	1.20	132	26	7
RRUS-32 B66A RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	80	17	4
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.10	1.20	152	29	8
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.72	1.21	62	14	3
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	2.25	1.20	132	26	7
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	80	17	4
4415 B25 RRH	16.5	13.5	6.3	1.55	1.22	1.20	90	18	5
4415 B25 RRH (Side)	16.5	6.3	13.5	0.72	2.62	1.21	42	10	2
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.36	1.20	95	19	5
B5/B12 4449 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	68	14	4
DC6-48-60-08F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	75	15	4
DC6-48-60-18-8F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	75	15	4
HSS 4x4	4.0	12.0	-	0.33	0.33	1.25	20		
2-1/2" Pipe	2.4	12.0	-	0.20	0.20	1.20	11		

Date: 2/24/2022

Project Name: CAMBRIDGE CANAL PARK

Project No.: MA2884

Designed By: KM Checked By: MSC



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ICE WEIGHT CALCULATIONS

Thickness of ice: 1.09 in.
Density of ice: 56 pcf

QD8616-7 Antenna

Weight of ice based on total radial SF area:

Height (in): 96.0
Width (in): 22.0
Depth (in): 9.6

Total weight of ice on object: 267 lbs

Weight of object: 150.0 lbs

Combined weight of ice and object: 417 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:

Height (in): 30.4
Width (in): 15.9
Depth (in): 8.1

Total weight of ice on object: 64 lbs

Weight of object: 82.0 lbs

Combined weight of ice and object: 146 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:

Height (in): 31.1
Width (in): 16.1
Depth (in): 7.3

Total weight of ice on object: 65 lbs

Weight of object: 66.0 lbs

Combined weight of ice and object: 131 lbs

DMP65R-BU8DA Antenna

Weight of ice based on total radial SF area:

Height (in): 96.0
Width (in): 20.7
Depth (in): 7.7

Total weight of ice on object: 247 lbs

Weight of object: 96.0 lbs

Combined weight of ice and object: 343 lbs

B14 4478 RRH

Weight of ice based on total radial SF area:

Height (in): 18.1
Width (in): 13.4
Depth (in): 8.3

Total weight of ice on object: 34 lbs

Weight of object: 60.0 lbs

Combined weight of ice and object: 94 lbs

RRUS-32 B66A 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: 45 lbs

Weight of object: 60.0 lbs

Combined weight of ice and object: 105 lbs

RRUS-E2 B29 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: 48 lbs

Weight of object: 53.0 lbs

Combined weight of ice and object: 101 lbs

RRUS-32 B30 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: 45 lbs

Weight of object: 60.0 lbs

Combined weight of ice and object: 105 lbs

4415 B25 RRH

Weight of ice based on total radial SF area:

Height (in): 16.5
Width (in): 13.5
Depth (in): 6.3

Total weight of ice on object: 29 lbs

Weight of object: 50.0 lbs

Combined weight of ice and object: 79 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:

Height (in): 17.9
Width (in): 13.2
Depth (in): 9.4

Total weight of ice on object: 34 lbs

Weight of object: 73.0 lbs

Combined weight of ice and object: 107 lbs

DC6-48-60-08F Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in): 31.4
Diameter(in): 10.2

Total weight of ice on object: 39 lbs

Weight of object: 29 lbs

Combined weight of ice and object: 68 lbs

DC6-48-60-18-8F Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in): 31.4
Diameter(in): 10.2

Total weight of ice on object: 39 lbs

Weight of object: 29 lbs

Combined weight of ice and object: 68 lbs

HSS 4x4

Weight of ice based on total radial SF area:

Height (in): 4
Width (in): 4

Per foot weight of ice on object: 9 plf

2-1/2" pipe

Per foot weight of ice:

diameter (in): 2.88

Per foot weight of ice on object: 5 plf



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Alpha/Beta Sector Calculations



Steel Beam

Lic. #: KW-06013026

File: MA2884.ec6
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
Hudson Design Group LLC

DESCRIPTION: Pipe Mast - Alpha & Beta Sector

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10

Load Combination Set : ASCE 7-10

Material Properties

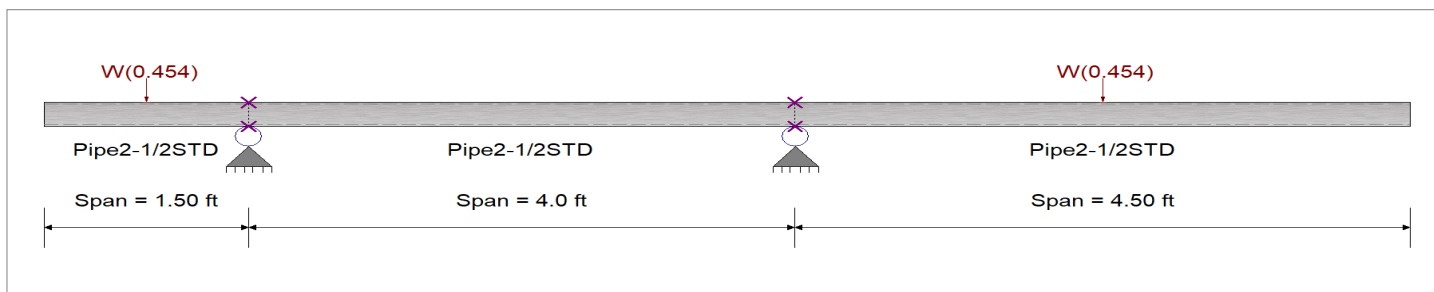
Analysis Method : Load Resistance Factor Design

Beam Bracing : Completely Unbraced

Bending Axis : Major Axis Bending

Fy : Steel Yield : 35.0 ksi

E : Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading

Load(s) for Span Number 1

Point Load : W = 0.4540 k @ 0.750 ft, (QD8616-7 Antenna)

Load(s) for Span Number 3

Point Load : W = 0.4540 k @ 2.250 ft, (QD8616-7 Antenna)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =		0.304 : 1	Maximum Shear Stress Ratio =		0.032 : 1
Section used for this span		Pipe2-1/2STD	Section used for this span		Pipe2-1/2STD
Mu : Applied		1.092 k-ft	Vu : Applied		0.4853 k
Mn * Phi : Allowable		3.596 k-ft	Vn * Phi : Allowable		15.215 k
Load Combination		+1.20D+0.50Lr+0.50L+W+1.60H	Load Combination		+1.20D+0.50Lr+0.50L+W+1.60H
Location of maximum on span		4.000 ft	Location of maximum on span		4.000 ft
Span # where maximum occurs		Span # 2	Span # where maximum occurs		Span # 2
Maximum Deflection					
Max Downward Transient Deflection		0.470 in	Ratio =	229	>=180.
Max Upward Transient Deflection		-0.057 in	Ratio =	842	>=180.
Max Downward Total Deflection		0.307 in	Ratio =	352	>=180.
Max Upward Total Deflection		-0.036 in	Ratio =	1328	>=180.

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		0.284	0.624	
Overall MINimum		0.004	0.030	
+D+H		0.007	0.051	
+D+L+H		0.007	0.051	
+D+Lr+H		0.007	0.051	
+D+S+H		0.007	0.051	
+D+0.750Lr+0.750L+H		0.007	0.051	
+D+0.750L+0.750S+H		0.007	0.051	
+D+0.60W+H		0.178	0.425	
+D+0.70E+H		0.007	0.051	
+D+0.750Lr+0.750L+0.450W+H		0.135	0.332	
+D+0.750L+0.750S+0.450W+H		0.135	0.332	
+D+0.750L+0.750S+0.5250E+H		0.007	0.051	
+0.60D+0.60W+0.60H		0.175	0.405	
+0.60D+0.70E+0.60H		0.004	0.030	
D Only		0.007	0.051	
W Only		0.284	0.624	
H Only				

Date: 2/24/2022
Project Name: CAMBRIDGE CANAL PARK
Project No.: MA2884
Designed By: KM **Checked By:** MSC



CHECK EPOXY ANCHOR CONNECTION CAPACITY → ALPHA & BETA SECTOR ANCHORS

Reference: Hilti North American Product Technical Guide, 19th Edition

Epoxy Type = HIT-HY 270
Anchor Diameter = 3/8 in. (HAS Threaded Rod)
Embedment Depth = 3-1/8 in.

	Allowable Loads (lbs)	Spacing Reduct. Factor	Edge Reduct. Factor	Reduced Loads (lbs)
Tensile Load	905	1	1	905
Shear Load	1045	1	1	1045

TENSILE FORCES

Reaction $F =$ 624 lbs. (See Enercalc Output)

SHEAR FORCES

Reactions in X direction: 624 lbs. (See Enercalc Output)
Reactions in Y direction: 457 lbs. (See Ice Loading Sheet)

Resultant: 773 lbs.

No. of Supports = 1
No. of Anchors / Support = 2

Tension Design Load / Anchor =

$f_t =$ 312.00 lbs. $<$ 905 lbs. **Therefore, OK !**

Shear Design Load / Anchor =

$f_v =$ 386.73 lbs. $<$ 1045 lbs. **Therefore, OK !**

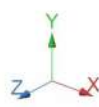
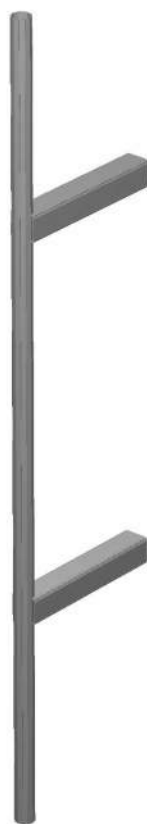
CHECK COMBINED TENSION AND SHEAR

f_t / F_T + f_v / F_v \leq 1.0
 0.345 + 0.370 = 0.715 $<$ 1.0 **Therefore, OK !**



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Gamma Sector Calculations





Design status

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





Load data

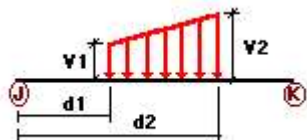
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

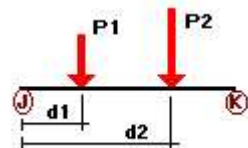
Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wf	Wind Load (FRONT)	No	WIND
Ws	Wind Load (SIDE)	No	WIND
Wif	Wind with Ice (FRONT)	No	WIND
Wis	Wind with Ice (SIDE)	No	WIND
Di	Ice Load	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Ws	1	x	-0.011	-0.011	0.00	No	100.00	Yes
	2	x	-0.02	-0.02	0.00	No	100.00	Yes
	3	x	-0.02	-0.02	0.00	No	100.00	Yes
Di	1	y	-0.005	-0.005	0.00	No	100.00	Yes
	2	y	-0.009	-0.009	0.00	No	100.00	Yes
	3	y	-0.009	-0.009	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	1	y	-0.075	1.25	No
		y	-0.075	8.25	No
Wf	1	z	-0.454	1.25	No
		z	-0.454	8.25	No
Ws	1	x	-0.232	1.25	No
		x	-0.232	8.25	No
Wif	1	z	-0.078	1.25	No
		z	-0.078	8.25	No
Wis	1	x	-0.045	1.25	No
		x	-0.045	8.25	No
Di	1	y	-0.134	1.25	No
		y	-0.134	8.25	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
Wf	Wind Load (FRONT)	No	0.00	0.00	0.00
Ws	Wind Load (SIDE)	No	0.00	0.00	0.00
Wif	Wind with Ice (FRONT)	No	0.00	0.00	0.00
Wis	Wind 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
Wf	0.00	0.00	0.00
Ws	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



Current Date: 2/22/2022 11:58 AM

Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

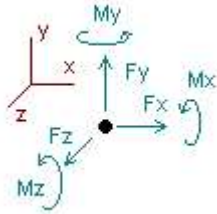
LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=1.2DL-Wf
LC4=1.2DL-Ws
LC5=0.9DL+Wf
LC6=0.9DL+Ws
LC7=0.9DL-Wf
LC8=0.9DL-Ws
LC9=1.2DL+Wif+Di
LC10=1.2DL+Wis+Di
LC11=1.2DL-Wif+Di
LC12=1.2DL-Wis+Di
LC13=1.4DL
LC14=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	2	LC1 at 0.00%	0.07	OK	Eq. H1-1b
		3	LC3 at 0.00%	0.07	OK	Eq. H1-1b
	PIPE 2-1_2x0.203	1	LC3 at 27.08%	0.28	OK	Eq. H1-1b



Analysis result

Reactions



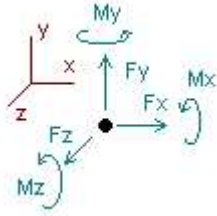
Direction of positive forces and moments

Node	Forces [Kip]			Moments [Kip*ft]		
	FX	FY	FZ	MX	MY	MZ
Condition LC1=1.2DL+Wf						
5	0.00000	0.39139	0.26741	0.00000	0.00000	0.00000
6	0.00000	-0.09217	0.64059	0.00000	0.00000	0.00000
SUM	0.00000	0.29922	0.90800	0.00000	0.00000	0.00000
Condition LC2=1.2DL+Ws						
5	0.28763	0.14966	-0.11446	0.00000	0.53943	0.00000
6	0.36637	0.14955	0.11446	0.00000	0.68859	0.00000
SUM	0.65400	0.29922	0.00000	0.00000	1.22801	0.00000
Condition LC3=1.2DL-Wf						
5	0.00000	-0.09202	-0.49670	0.00000	0.00000	0.00000
6	0.00000	0.39124	-0.41130	0.00000	0.00000	0.00000
SUM	0.00000	0.29922	-0.90800	0.00000	0.00000	0.00000
Condition LC4=1.2DL-Ws						
5	-0.28763	0.14966	-0.11446	0.00000	-0.53943	0.00000
6	-0.36637	0.14955	0.11446	0.00000	-0.68859	0.00000
SUM	-0.65400	0.29922	0.00000	0.00000	-1.22801	0.00000
Condition LC5=0.9DL+Wf						
5	0.00000	0.35395	0.29609	0.00000	0.00000	0.00000
6	0.00000	-0.12953	0.61191	0.00000	0.00000	0.00000
SUM	0.00000	0.22441	0.90800	0.00000	0.00000	0.00000
Condition LC6=0.9DL+Ws						
5	0.28759	0.11224	-0.08585	0.00000	0.53937	0.00000
6	0.36641	0.11218	0.08585	0.00000	0.68865	0.00000
SUM	0.65400	0.22441	0.00000	0.00000	1.22801	0.00000

Condition LC7=0.9DL-Wf						
5	0.00000	-0.12944	-0.46815	0.00000	0.00000	0.00000
6	0.00000	0.35386	-0.43985	0.00000	0.00000	0.00000
SUM	0.00000	0.22441	-0.90800	0.00000	0.00000	0.00000
Condition LC8=0.9DL-Ws						
5	-0.28759	0.11224	-0.08585	0.00000	-0.53937	0.00000
6	-0.36641	0.11218	0.08585	0.00000	-0.68865	0.00000
SUM	-0.65400	0.22441	0.00000	0.00000	-1.22801	0.00000
Condition LC9=1.2DL+Wif+Di						
5	0.00000	0.34336	-0.16925	0.00000	0.00000	0.00000
6	0.00000	0.25986	0.32525	0.00000	0.00000	0.00000
SUM	0.00000	0.60322	0.15600	0.00000	0.00000	0.00000
Condition LC10=1.2DL-Wis+Di						
5	0.03796	0.30183	-0.23484	0.00000	0.07665	0.00000
6	0.05204	0.30139	0.23484	0.00000	0.10335	0.00000
SUM	0.09000	0.60322	0.00000	0.00000	0.18001	0.00000
Condition LC11=1.2DL-Wif+Di						
5	0.00000	0.26030	-0.30044	0.00000	0.00000	0.00000
6	0.00000	0.34292	0.14444	0.00000	0.00000	0.00000
SUM	0.00000	0.60322	-0.15600	0.00000	0.00000	0.00000
Condition LC12=1.2DL-Wis+Di						
5	-0.03796	0.30183	-0.23484	0.00000	-0.07665	0.00000
6	-0.05204	0.30139	0.23484	0.00000	-0.10335	0.00000
SUM	-0.09000	0.60322	0.00000	0.00000	-0.18001	0.00000
Condition LC13=1.4DL						
5	0.00000	0.17462	-0.13353	0.00000	0.00000	0.00000
6	0.00000	0.17447	0.13353	0.00000	0.00000	0.00000
SUM	0.00000	0.34909	0.00000	0.00000	0.00000	0.00000
Condition LC14=0.9DL						
5	0.00000	0.11224	-0.08585	0.00000	0.00000	0.00000
6	0.00000	0.11218	0.08585	0.00000	0.00000	0.00000
SUM	0.00000	0.22441	0.00000	0.00000	0.00000	0.00000

Envelope for nodal reactions

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



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2DL+Wf
 LC2=1.2DL+Ws
 LC3=1.2DL-Wf
 LC4=1.2DL-Ws
 LC5=0.9DL+Wf
 LC6=0.9DL+Ws
 LC7=0.9DL-Wf
 LC8=0.9DL-Ws
 LC9=1.2DL+Wf+Di
 LC10=1.2DL+Ws+Di
 LC11=1.2DL-Wf+Di
 LC12=1.2DL-Ws+Di
 LC13=1.4DL
 LC14=0.9DL

Node		Forces						Moments					
		Fx	lc	Fy	lc	Fz	lc	Mx	lc	My	lc	Mz	lc
		[Kip]		[Kip]		[Kip]		[Kip*ft]		[Kip*ft]		[Kip*ft]	
5	Max	0.288	LC2	0.391	LC1	0.296	LC5	0.00000	LC1	0.53943	LC2	0.00000	LC1
	Min	-0.288	LC4	-0.129	LC7	-0.497	LC3	0.00000	LC1	-0.53943	LC4	0.00000	LC1
6	Max	0.366	LC6	0.391	LC3	0.641	LC1	0.00000	LC1	0.68865	LC6	0.00000	LC1
	Min	-0.366	LC8	-0.130	LC5	-0.440	LC7	0.00000	LC1	-0.68865	LC8	0.00000	LC1

Date: 2/24/2022

Project Name: CAMBRIDGE CANAL PARK

Project No.: MA2884

Designed By: KM Checked By: MSC



HUDSON
Design Group LLC

CHECK CONNECTION CAPACITY (Worst Case)

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 1/2" Threaded Rod

Allowable Tensile Load =

$$F_{Tall} = 4271 \text{ lbs.}$$

Allowable Shear Load =

$$F_{Vall} = 2562 \text{ lbs.}$$

TENSILE FORCES

Reaction $F = 641 \text{ lbs.}$ (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 366 lbs. (See Bentley Output)

Reactions in Y direction: 391 lbs. (See Bentley Output)

Resultant: 536 lbs.

No. of Supports = 1

No. of Bolts / Support = 4

Tension Design Load /Bolts =

$$f_t = 160.25 \text{ lbs.} < 4271 \text{ lbs.} \text{ Therefore, OK !}$$

Shear Design Load / Bolts=

$$f_v = 133.89 \text{ lbs.} < 2562 \text{ lbs.} \text{ Therefore, OK !}$$

CHECK COMBINED TENSION AND SHEAR

$$\begin{array}{rclclcl} f_t / F_T & + & f_v / F_v & \leq & 1.0 \\ 0.038 & + & 0.052 & = & 0.090 < 1.0 \text{ Therefore, OK !} \end{array}$$



HUDSON
Design Group LLC

Non-penetrating RRH Ballast Mount Calculations

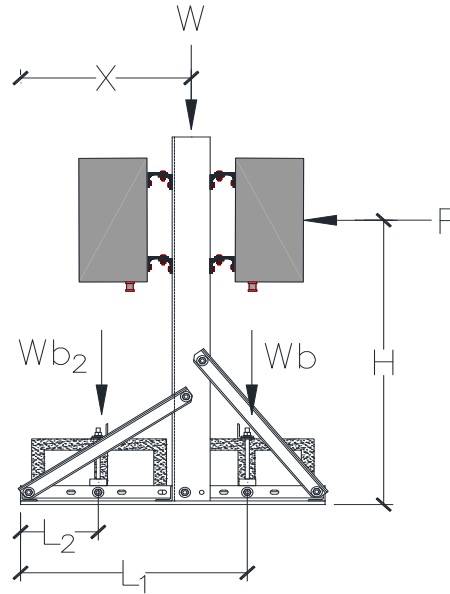
Date: 2/24/2022
 Project Name: CAMBRIDGE CANAL PARK
 Project No.: MA2884
 Designed By: KM Checked By: MSC



Calculate Total Ballast Required for Ballast Mount

Assume (2) RRH's as projected area

Force (F) = 242 lbs.
Height (H) = 3 ft
Weight of Appurtenances (W) = 205 lbs.
Frame Width/2 (X) = 1.3 ft
Length (L) = 2.2 ft
Length (L₂) = 0.83 ft
Ballast (Wb₂) = 5
Safety Factor (SF) = 1.5



Overturning at Ballast

$$\Sigma M = 0 = (F * H) - (W * X) - (Wb * L) \rightarrow Wb = [(F * H * SF - W * X - Wb_2 * L_2) / L] = 194 \text{ lbs.}$$

Determine Number of Blocks Required

(assume 8"x8"x16" hollow blocks @ 39 lbs. each)

Number of Blocks Required = 5 BLOCKS PER SIDE
 Number of Existing Blocks = 4 BLOCKS PER SIDE
 Number of Proposed Blocks = 1 BLOCKS PER SIDE

Load on Roof

Total Weight of Fully Loaded Frame = 775 lbs.
 Footprint Area Under Ballast Frame = 10.5 ft²
 Distributed Load Under Ballast Frame = 74 psf



HUDSON
Design Group LLC

Penthouse Wall Calculations

Date: 2/24/2022

Project Name: CAMBRIDGE CANAL PARK

Project No.: MA2884

Designed By: KM Checked By: MSC



Wind Analysis → Penthouse Wall

Reference Codes:

-Massachusetts State Building Code

-International Building Code 2015 (IBC 2015)

-Minimum Design Loads for Buildings and Other Structures (ASCE 7-10)

Structure Classification	II	(ASCE 7-10 Table 1.5-1)
Basic Wind Speed, V	128 mph	(MA Building Code Table 1604.11)
Importance Factor, I	1	(ASCE 7-10 Table 1.5-2)
Exposure Category	C	(ASCE 7-10 Section 26.7)
Height Above Ground Level, z	81 ft	(Center of Enclosure)
Exposure Coefficient, K _z	1.21	(ASCE 7-10 Table 29.3.1)
Wind Directionality Coef., K _d	0.90	(ASCE 7-10 Table 26.6-1)
Topographic Factor, K _{zt}	1.00	(ASCE 7-10 Section 26.8.2)
Velocity Pressure, q_z	$= 0.00256K_zK_{zt}K_dV^2$ $= \underline{\underline{45.79 \text{ psf}}}$	(ASCE 7-10 Equation 29.3-1)
Gust Factor, G	0.85	(ASCE 7-10 Section 26.9)
Enclosure Shape:	Square	
Net Force Coefficient, C _f	1.29	(ASCE 7-10 Figure 29.5-1)
Area Wind Force, F	$= q_zGC_f$ $= \underline{\underline{50.13 \text{ psf}}}$	(ASCE 7-10 Equation 29.5-2)



General Beam

File: MA2884.ec6

Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24

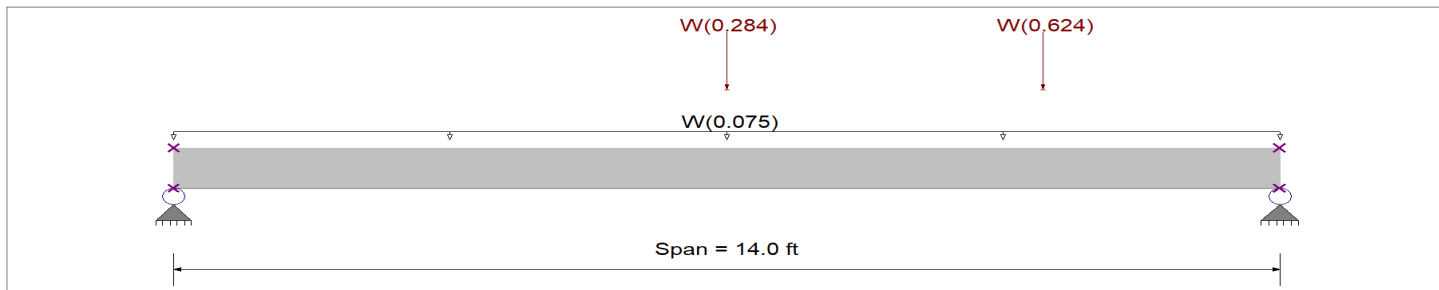
Hudson Design Group LLC

Lic. #: KW-06013026

DESCRIPTION: Penthouse Wall

General Beam Properties

Elastic Modulus = 29,000.0 ksi
Span #1 Span Length = 14.0 ft
Area = 10.0 in²
Moment of Inertia = 100.0 in⁴



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : $W = 0.050$ ksf, Tributary Width = 1.50 ft, (Wind Load)

Point Load : $W = 0.6240$ k @ 11.0 ft, ((Pipe Mast - Alpha & Beta Sector))

Point Load : $W = 0.2840$ k @ 7.0 ft, ((Pipe Mast - Alpha & Beta Sector))

DESIGN SUMMARY

Maximum Bending =	3.768 k-ft	Maximum Shear =	1.157 k
Load Combination	W Only	Load Combination	W Only
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	7.000 ft	Location of maximum on span	14.000 ft
Maximum Deflection			
Max Downward Transient Deflection	0.045 in	3712	
Max Upward Transient Deflection	0.000 in	0	
Max Downward Total Deflection	0.027 in	6186	
Max Upward Total Deflection	0.000 in	551777	

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.0453	7.280		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.801	1.157
Overall MINimum		
+0.60W	0.480	0.694
+0.450W	0.360	0.521
W Only	0.801	1.157

Date: 2/24/2022

Project Name: CAMBRIDGE CANAL PARK

Project No.: MA2884

Designed By: KM Checked By: MSC



HUDSON
Design Group LLC

Penthouse Wall Stress Check (18" Section - Brick Wall)

Wall Height, h_w : 14.0 ft
Wall Thickness, t_w : 12.00 in
Brick Section, b : 18.00 in
Wall Type: Brick

Net Area, A_n : 216.0 in²
Section Modulus, S_w : 5184.0 in³

Max Moment (Wind), $M_{\max \text{ (Wind)}}$: 3768.0 lb*ft (See EnerCalc Output)

Load from Antenna, P : 208.0 lbs/ft (See EnerCalc Output)
Eccentricity, e : 3.0 in

Max Moment, M_{\max} : 45528.0 lb*in $M_{\max} = M_{\max \text{ (Wind)}}$

Axial Stress, f_a : 1.0 psi $f_a = P/A$
Bending Stress, f_b : 8.8 $f_b = M/S$

Tensile Stress, $F_{t \text{ req'd}}$: 9.7 psi $F_{t \text{ req'd}} = f_b - f_a$

Allowable Tensile Stress, F_t : 25 psi (Ref. NCMA Tek)

f_t	<	F_t	=	OK!
9.75 psi	<	25.00 psi		Therefore, OK!

Special Permit Application

**10 Canal Park
Cambridge, MA 02141**

Map 9 Lot 41

Applicant:

New Cingular Wireless PCS, LLC (“AT&T”)

c/o Carolyn Seeley, Smartlink

Carolyn.Seeley@smartlinkgroup.com

978-760-5577

May 24, 2023

May 24, 2023

Donna P. Lopez, City Clerk City of Cambridge City Hall 795 Massachusetts Avenue Cambridge, MA 02139	Constantine Alexander, Chair Board of Zoning Appeal City Hall 795 Massachusetts Avenue Cambridge, MA 02139
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Applicant: New Cingular Wireless PCS, LLC (“AT&T”)
 Property Address: 10 Canal Park
 Assessor’s Map 9, Lot 41 (the “Property”)
 Re: Application for:
 (i) Eligible Facilities Request pursuant to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012, 47 U.S.C. § 1455; or, in the alternative,
 (ii) Special Permit under Cambridge Zoning Ordinance Section 4.32(g)(1) and M.G.L. c. 40A, Section 9; and
 (iii) Any other zoning relief required.
 (All relief if and to the extent necessary, all rights reserved)

Dear Ms. Lopez, Mr. Alexander and Members of the Board of Zoning Appeal:

Pursuant to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012 (a/k/a the “Spectrum Act” or “Section 6409”), 47 U.S.C. § 1455, as further implemented by the Federal Communications Commission’s 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) (the “FCC Order”), New Cingular Wireless PCS, LLC (“AT&T”) hereby submits this Eligible Facilities Request (“Request”); and, in the alternative, applies for a special permit from the City of Cambridge Board of Zoning Appeal (the “Board”) under Section 432(g)(1) of the Cambridge Zoning Ordinance (the “Ordinance”) to modify its existing “Telephone Exchange including Transmission Facilities to serve a Mobile Communication System” (the “Facility”) on and within the existing building located at 10 Canal Park (the “Special Permit Application”).²

Under Section 6409, AT&T’s proposed modification of its existing transmission equipment on and within the existing building, previously approved by the Board for use as a wireless communication

² AT&T submits this Request, Special Permit application and supporting materials subject to a full and complete reservation of AT&T’s rights under the Spectrum Act and the FCC Order including without limitation its rights with respect to (i) any submittal requirements or approval criteria that are inconsistent with the prohibitions established by the FCC Order, (ii) any delay beyond the deadlines established in the FCC Order, (iii) the imposition of conditions on any approval that are inconsistent with the FCC Order, and (iv) referral or requirement to a discretionary review process such as a special permit.

base station, does “not substantially change the physical dimensions” of the existing building. Therefore, AT&T’s Request must be approved administratively, including the issuance of a building permit, to enable AT&T to make the proposed modifications to its transmission equipment.

In the alternative, as demonstrated in this application letter, the AT&T’s proposed modifications to its existing Facility on the Property located in the PUD-2 & Residence C-3A zoning district satisfy the requirements for the grant of a special permit pursuant to Section 10.43 of the Ordinance.

I. APPLICATION PACKAGE

Enclosed with this application is a check payable to the City of Cambridge in the amount of \$500.00. In addition to the signed original of this letter are copies of the letter and the following materials:

1. The following completed and signed application forms:
 - a. BZA Application Form – General Information;
 - b. BZA Application Form – Ownership Information;
 - c. BZA Application Form – Dimensional Requirements;
 - d. BZA Application Form – Supporting Statement for a Special Permit; and
 - e. BZA Application Form – Check List;
2. AT&T’s relevant FCC License information.
3. Drawings by Hudson Design Group LLC consisting of 10 pages dated 04/13/2022.

SHEET	TITLE	REV DATE
T1	Title Sheet	04/13/2022
GN-1	General Notes	04/13/2022
A1	Roof & Equipment Plans	04/13/2022
A2	Existing Antenna Layout	04/13/2022
A3	Proposed Antenna Layout	04/13/2022
A-4	ELEVATION	04/13/2022
A5	Construction Details	04/13/2022
A6	Grounding Details	04/13/2022
G1	Grounding Details	04/13/2022
RF-1	RF Plumbing Diagram	04/13/2022

4. Manufacturer’s specification sheets for AT&T’s proposed antennas and other featured equipment;

5. Photographs of the existing building and photo simulations of the proposed modifications Facility by Hudson Design Group dated 04/25/2022.
6. Radio Frequency Coverage Report, demonstrating the public need for the proposed modifications to the Facility, radio frequency coverage maps showing (a) existing or predicted coverage from neighboring facilities; and (b) coverage with the proposed Facility.
7. Structural Analysis by Hudson Design Group dated 02/24/2022.
8. Maximum Permissible Exposure Study, Theoretical Report, by MobileComm, dated 03/10/2023.
9. Letter of Authorization from Owner of Subject Property.
10. Attorney General's letters to the Towns of Mount Washington, Lynnfield, and Montague.

II. PROPOSED FACILITY DESIGN

AT&T seeks to modify the existing Facility on and within the building located at the Property. The existing Facility consists of twelve (12) panel antennas (Alpha Sector: 4 antennas, Beta Sector: 4 antennas, and Gamma Sector: 4 antennas) that are mounted in three (3) locations. The proposed modifications include the replacement of nine (9) antenna, (3) per sector, which will be mounted to the building façade, and will have no visible change to the current Facility's design. Nine (9) remote radio-head units (RRU) will be added in close proximity to the antenna. Consistent with the concealment elements of the existing Facility's design, the new antenna and RRU will be located along with the existing equipment.

The Facility's design is shown in detail in the Zoning Drawings attached as Exhibit 3 to this application letter and featured equipment is described in the manufacturers' specification sheets attached as Exhibit 4. The photographs and photo simulations (Exhibit 5) show the existing Facility from various locations in the neighborhood around the Property and as simulated with proposed modifications. A structural analysis for the Facility demonstrates that the building is capable of supporting AT&T's proposed equipment at or near the locations shown on the Zoning Drawings (*see* Exhibit 7).

The Facility will continue to bring advanced wireless voice, text, and data communications services to the surrounding areas. It will allow residents, professionals, government, businesses, and students to communicate locally, nationally, and internationally from virtually any location within the coverage area. In the event of an emergency, the improved Facility will allow immediate contact with fire, rescue, and other emergency personnel. The improved Facility will thus enhance public health, safety, and welfare both in ordinary daily living and in the event of fire, accident, medical emergency, natural disaster or other dangers.

III. BACKGROUND

AT&T is licensed by the Federal Communications Commission to construct and operate a wireless telecommunications network in various markets throughout the country, including the Commonwealth of Massachusetts and the City of Cambridge. A copy of the AT&T's FCC license that covers the area of the proposed Facility is included with this application (*see* Exhibit 2). AT&T is in the process of designing and constructing additional wireless facilities to its existing telecommunications system to serve Massachusetts. One of the key design objectives of its systems is to provide adequate and reliable coverage. Such a system requires a grid of radio transmitting and receiving links located approximately .5 to 2 miles apart, depending on the location of existing and proposed installations in the surrounding area, the extent of use of AT&T's wireless services within the network, and the existing topography and obstructions. The radio transmitting and receiving facilities operate on a line-of-sight basis, requiring a clear path from the facility to the user on the ground. In urban settings, this dynamic requires the antennas to be located on buildings at heights and in locations where the signal is not obstructed or degraded by other buildings or by topographical features such as hills.

IV. RF COVERAGE DETERMINATION

AT&T has performed a study of radio frequency coverage for the City of Cambridge and from the Property, the results of which are described in the Radio Frequency Report submitted with this application (*see* Exhibit 6). Without the proposed modifications to its existing Facility, AT&T has a substantial coverage gap in this area of Cambridge. AT&T has determined that the proposed modifications to the existing Facility located on the building at the Property will provide needed coverage to the targeted sections of the City and the immediately surrounding area if AT&T's antennas are located on the building's roof at the height and in the configuration requested. The importance of a facility at this location is underscored by AT&T's interest in enhancing its ability to provide its most up-to-date wireless technology, known as long-term evolution technology ("LTE"), in this area to satisfy its customers' ever-increasing needs for high-speed data services. Radio frequency coverage maps included in the report are provided to pictorially and vividly show the differences in existing and proposed wireless coverage at the various bands authorized for AT&T's service. The maps show dramatic improvements to wireless coverage at all three (3) bands with the inclusion of the proposed Facility, namely, at 700, 1900, and 2100 MHz.

V. THE FEDERAL SPECTRUM ACT AND THE FCC ORDER

As set forth below, the proposed modifications constitute an Eligible Facilities Request pursuant to the federal Spectrum Act,³ as further implemented by the FCC Order.⁴

Under the Spectrum Act, as further clarified by the FCC Order, the streamlined process for this Eligible Facilities Request is limited to non-discretionary review. Specifically, the FCC Order “adopt[s] an objective standard for determining when a proposed modification will ‘substantially change the physical dimensions’ of an existing tower or base station.” *FCC Order*, ¶ 87. As stated in the FCC Order, Section 6409 “states without equivocation that the reviewing authority ‘may not deny, and shall approve’ any qualifying application. This directive leaves no room for a lengthy and discretionary approach to reviewing an application that meets the statutory criteria.” *FCC Order*, ¶ 116.

In issuing the FCC Order and eliminating discretionary review for eligible facilities requests, the FCC’s goal was to “adopt a test that is defined by specific, objective factors rather than the contextual and entirely subjective standard advocated by the IAC and municipalities.” The FCC intentionally sought to reduce “flexibility” and “open ended context-specific approach” engendered by the discretionary review process:

While we acknowledge that the IAC approach would provide municipalities with maximum flexibility to consider potential effects, we are concerned that it would invite lengthy review processes that conflict with Congress’s intent. Indeed, some municipal commenters anticipate their review of covered requests under a subjective, case-by-case approach could take even longer than their review of collocations absent Section 6409(a). We also anticipate that disputes arising from a subjective approach would tend to require longer and more costly litigation to resolve given the more fact-intensive nature of the IAC’s open-ended and context-specific approach. We find that an objective definition, by contrast, will provide an appropriate balance between municipal flexibility and the rapid deployment of covered facilities. We find further support for this approach in State statutes that have implemented Section 6409(a), all of which establish objective standards.

FCC Order, ¶ 88.

³ Pursuant to Section 6409(a)(2) an “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.

47 U.S.C. § 1455(a)(2).

⁴ The Order was effective on February 9, 2015, except for § 1.40001, which became effective on April 8, 2015, except for §§ 1.40001(c)(3)(i), 1.40001(c)(3)(iii), 1.140001(c)(4), and 17.4(c)(1)(vii), which became effective on May 18, 2015, after approval by the Office of Management and Budget. The FCC Order makes clear that under the Spectrum Act discretionary review is not required or permitted for an Eligible Facilities Request.

As a result, the FCC Order implementing Section 6409 establishes clear and objective criteria for determining eligibility, limits the types of information that a municipality may require when processing an application for an eligible facilities request, and imposes a “deemed granted” remedy for failure to timely process and eligible facilities request.⁵ The FCC Order also establishes significant limits on the information that can be required to be provided with an eligible facilities request and limits it to only that information “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”. 47 CFR 1.40001(c)(1).

Both before and after the FCC Order was issued, the Massachusetts Attorney General’s Office provided clear guidance that an eligible request cannot be subjected to a discretionary special permit process. *See* Attorney General’s letters to (i) Town of Mount Washington, dated June 12, 2014, p. 3 (ii) Town of Lynnfield, dated February 10, 2015, p. 3 (the “AG Lynnfield Letter”) and (iii) Town of Montague, dated February 23, 2015, p. 2 (all attached hereto). As set forth in each letter [t]he 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.***”) (Emphasis added). In providing these opinions, the Attorney General’s Office specifically opined that provisions in zoning ordinances that specifically required a special permit for modifications to existing facilities could not be applied to eligible facilities requests. While approving the Town of Lynnfield’s Zoning Bylaw, the Attorney General stated that “Section 8.7.5.1 requires that PWSF may only be erected upon the grant of a special permit. The Town cannot apply this requirement to eligible facilities requests for modification to existing facilities that qualify for required approval under Section 6409 of the Act.” *AG Lynnfield Letter*, p. 3.

Therefore, as set forth in the FCC Order and Attorney General’s opinion letters, the City cannot impose a requirement that AT&T obtain a special permit, or an amendment to an existing special permit utilizing the same discretionary review process, in connection with its eligible facilities request. To the extent that the City of Cambridge’s Zoning Ordinance and any prior decisions by the Board include provisions seeking to further regulate the modification of wireless communication facilities, federal law overrules those requirements. *See Sprint Spectrum L.P. v. Town of Swansea*, 574 F.Supp.2d 227, 236 (2008) (Board is obligated to consider whether its actions would violate federal law even if a different outcome would be permitted under state law). The standard of review for an application to modify an existing wireless communication facility on an existing tower or base station is governed by the Spectrum Act and the FCC Order which require eligible facilities requests to be permitted “by right.”

In addition, the FCC Order establishes a 60-day period for approval from the time of AT&T’s submission. 47 CFR §1.40001(c)(2). Within the context of the Spectrum Act and FCC Order, approval means all necessary approvals to permit the proposed modifications, including the issuance of a building permit, if required. The FCC found that this 60-day period is appropriate due to “the more restricted scope of review applicable to applications under section 6409(a).”

⁵ *See* 47 CFR §§1.40001(c)(1) - (c)(4).

FCC Order, ¶ 108. If the Request is not acted upon within the 60-day period, it is deemed granted. 47 CFR §1.40001(c)(4).

As set forth below, the proposed modifications constitute an eligible facilities request. Therefore, AT&T respectfully requests the Board to find that Section 4.32(g)(1) of the Ordinance does not apply to its Request.

VI. THE PROPOSED MODIFICATIONS ARE AN ELIGIBLE FACILITIES REQUEST

Under Section 6409 and the FCC Order, a “base station” means “[a] structure or equipment at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network.” 47 C.F.R §1.40001(b)(1). A Base Station includes “any structure other than a tower” that supports or houses “authorized wireless communications between user equipment and a communications network.” 47 C.F.R §1.40001(b)(1). Therefore, the existing building that is currently used for FCC-licensed transmissions for personal wireless services is a “base station” for purposes of Section 6409.

AT&T proposes to modify its existing Facility as described above and depicted on the Plans submitted herewith.

The proposed modifications will not require the installation of any part of the facility on the ground outside of the building.

As a result, AT&T’s proposed modifications involving the removal and replacement of the existing transmission equipment constitute an “eligible facilities request” under Section 6409. The proposed eligible facilities request is not a “substantial modification” under Section 6409 and the FCC Order because it does not:

- (i) Result in an increase in “the height of the structure by more than 10% or more than ten feet, whichever is greater” because the proposed replacement antennas will either be mounted and located below the screen wall or utilize the existing equipment mounting frame that and therefore will not exceed 10 feet above the existing building;
- (ii) Protrude from the edge of the edge of the building by more than six feet because AT&T’s proposed antennas will not protrude more than six feet from building façade;
- (iii) Involve the installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets no new radio communications equipment cabinets will be installed;
- (iv) Require any excavation or deployment outside the current site of the tower or base station because all antennas, equipment cabinets and related equipment will be installed entirely on and within the existing building; or
- (v) Otherwise defeat the existing concealment elements of the tower or base station because the proposed replacement antennas will be located behind the existing

screen wall or utilize the existing mounting frame and will continue to integrate the Facility into the existing architecture of the building. . Therefore, AT&T's proposed Facility will remain aesthetically consistent with the exterior finish of the building as well as maintain the concealment elements of the original design.

See FCC Order, §1.40001(b)(7)(i)-(v).

VII. COMPLIANCE WITH THE CAMBRIDGE ZONING ORDINANCE

In the alternative, AT&T respectfully requests the Board to grant a special permit for the proposed modifications to the existing Facility.⁶

A. AT&T complies with the Wireless Communications provisions set forth in Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance.

AT&T's proposed modifications comply with Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance as follows:⁷

Section 4.32(g)(1): Section 4.32(g)(1) of the Ordinance allows for the use of a “[t]elephone exchange (including switching, relay, and transmission facilities serving mobile communications systems) and any towers or antennas accessory thereto.” Under the Table of Use Regulations beginning at Section 4.30, AT&T's proposed use of the Facility as a transmission facility serving a mobile communications system is permitted by special permit in the PUD-2 & Residence C-3A zoning district (see the table at Section 4.32(g)(1)).

Section 4.40, Footnote 49: Section 4.32(g)(1) includes a reference to Section 4.40, Footnote 49 which sets out the standards for granting the special permit. AT&T's proposed Facility complies with Footnote 49's standards as noted below:

1. The Board of Zoning Appeal shall consider “[t]he scope of or limitations imposed by any license secured from any state or federal agency having jurisdiction over such matters.”

AT&T's Response: AT&T's FCC license is included with this application and the license information included shows that AT&T is authorized to provide wireless service in the area served by the Facility (see Exhibit 2).

⁶ AT&T's request is made, if and to the extent necessary, all rights reserved. As discussed above, the FCC Order establishes a 60-day period for receipt of all necessary approvals from the time of AT&T's submission, including a building permit, if required. 47 CFR §1.40001(c)(2). If the Request is not acted upon within the 60-day period, it is deemed granted. 47 CFR §1.40001(c)(4). Therefore, AT&T expressly reserves its rights under 47 CFR §1.40001(c)(2) and (4).

⁷ To the extent that Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance purport to require the submission of information that is beyond the scope permitted by the FCC Order or Spectrum Act, AT&T expressly reserves, and does not waive, its right to assert that such information is not required under the Spectrum Act and the submission of such information shall not constitute a waiver of AT&T's rights pursuant thereto.

2. **The Board of Zoning Appeal shall consider “[t]he extent to which the visual impact of the various elements of the proposed facility is minimized: (1) through the use of existing mechanical elements on the building’s roof or other features of the building as support and background, (2) through the use in materials that in texture and color blend with the materials to which the facilities are attached, or (3) other effective means to reduce the visual impact of the facility on the site.”**

AT&T’s Response: The design of the overall Facility, including the choice and placement of replacement antennas and associated equipment, behind the existing screen wall or utilizing the existing mounting frame, minimizes the visual impact of the proposed Facility. This is because the any visible antennas and equipment will be minimally visible and consistent with the elements of the existing Facility. The minimal visual impact of the Facility is shown in the photographs of the existing Facility and the photosimulations that superimpose the proposed modifications to the existing Facility (*see*, Exhibit 5).

3. **The Board of Zoning Appeal shall consider “[w]here 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 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 finding that nonresidential uses predominate in the vicinity of the proposed facility’s location and that the telecommunications facility is not inconsistent with the character that does prevail in the surrounding neighborhood.**

In granting a special permit the Board of Zoning Appeal shall set forth in its decision under which circumstances or procedures, if any, the permittee shall be allowed to replace and upgrade its equipment without the necessity of seeking a new special permit.”

AT&T’s Response: As demonstrated by the Radio Frequency Report and the associated coverage maps, AT&T has demonstrated an immediate and compelling need for the proposed modifications to its existing Facility located at the Property in order to provide substantially improved indoor coverage to residents, businesses, students and faculty, and the general public in that area.⁸ AT&T also seeks to substantially improve its ability to satisfy the ever-increasing need of its customers for data accessibility, navigation and use. This is especially critical in and around the area of Brookline Ave. which also serves as home for numerous businesses. AT&T proposes to satisfy its RF coverage needs in the area by adding to the existing Facility the antennas and equipment necessary to provide the latest LTE wireless communications service technology. Further, by modifying its existing Facility, and obviating the need to construct an entirely new facility within this area of Cambridge in order to meet its wireless network coverage needs, of the residents, businesses, and general public.

⁸ AT&T must generate a signal strength of at least -74 dBm to provide serviceable voice and data coverage on its mobile wireless devices in indoor environments. AT&T also seeks to substantially improve its data navigation service coverage in the area by including antennas and equipment that will provide LTE service.

As provided in Footnote 49, AT&T requests that once permission is received from the City to site the Facility at the Property, the Board permit AT&T to replace and upgrade the equipment at this Facility in the future without further zoning proceedings or a new special permit, provided that such equipment shall meet the eligible facilities request criteria set forth in 47 CFR § 1.40001.

B. AT&T complies with the Special Permit Criteria set forth in Section 10.43 of the Ordinance.

Section 10.43 of the Ordinance specifies the following criteria for issuance of a special permit: “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) The requirements of this Ordinance cannot or will not be met, or

AT&T’s Response: As provided above, AT&T’s proposed modifications comply with the requirements set forth in Section 4.32(g), Footnote 49 of the Ordinance, the Spectrum Act and the eligible facilities request criteria set forth in 47 CFR § 1.40001. Granting the special permit would not be a detriment to the public interest and is consistent with the Board’s obligations pursuant to the Spectrum Act and FCC Order.

(b) Traffic generated or patterns of access or egress would cause congestion, hazard, or substantial change in established neighborhood character for the following reasons, or

AT&T’s Response: The proposed modifications to AT&T’s existing Facility will not result in any change to the existing traffic on or near the Property. The Facility will continue to be unmanned and only require infrequent visits by a technician (typically two times per month for routine diagnostics and/or maintenance, except in cases of emergency), there will be no material increase in traffic or disruption to patterns of access or egress that will cause congestion, hazards or a substantial change in the established neighborhood character. AT&T’s maintenance personnel will make use of the existing access roads and parking at the building. Granting the special permit would not be a detriment to the public interest and is consistent with the Board’s obligations pursuant to the Spectrum Act and FCC Order.

(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

AT&T’s Response: As described above and illustrated on the attached photographs and photosimulations (*see* Exhibit 5) the proposed modifications to the existing Facility will result in a *de minimis* change in the appearance of the building. As a result, the Facility as a whole either will be hidden from view or will visually blend with existing characteristics of the building and the surrounding neighborhood. Because the proposed installation will not generate any traffic, smoke,

dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater, it will not adversely affect residential uses on neighboring streets. Conversely, the surrounding properties and general public will benefit from the potential to enjoy improved wireless communications services. Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

(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 Response: Because the proposed modifications to the existing Facility will not cause the Facility to generate any traffic, smoke, dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater, no nuisance or hazard will be created to the detriment of the health, safety, or welfare of the occupants of the building or the residents of the City of Cambridge. To the contrary, the proposed Facility will benefit the City and promote the safety and welfare of its residents, businesses and drivers by providing reliable state-of-the-art digital wireless voice and data services that will improve the reliability of emergency communications with the police and fire departments by eliminating dropped or blocked calls due to inadequate signal strength or insufficient network capacity to handle call volume, particularly important during emergency situations. The Facility, as modified, will continue to comply with all federal, state and local safety requirements including the standards established by the FCC and Federal Aviation Administration (FAA). (See Exhibit 8 Maximum Permissible Exposure Study, Theoretical Report). Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

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

AT&T's Response: The purpose of the Ordinance is multifaceted, the relevant aspects of which relating to wireless telecommunications facilities include the lessening of congestion in the streets, conserving health, securing safety from fire, flood, panic and other danger, conserving the value of land and buildings and natural resources, preventing blight and pollution, encouraging the most rational use of land throughout the city, including encouraging appropriate economic development, and protecting residential neighborhoods from incompatible activities.

As noted above, the proposed modifications to the existing Facility directly accord with the purposes of the Ordinance because the modifications will not result in any traffic, smoke, dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater. As the Facility will improve the ability of residents, businesses, travelers and drivers in the area to access state-of-the-art wireless technology, the City's ability to provide emergency services will be improved, as will the economic development of the City as more people will be able to conduct commerce by virtue of a mobile platform. Because the proposed modifications to the existing Facility will be installed on an existing building that includes the Facility, and the proposed modifications are consistent with the existing concealment elements, the proposed modifications to the existing Facility are in

consistent with the building's character and will not affect the value of the building or the natural resources of the City. Because the proposed modifications to the existing Facility are designed to be consistent with the existing concealment elements of the Facility and characteristics of the Property, the visual impact on the underlying and adjacent zoning districts will be *de minimis*. As a result, the proposed modifications to the existing Facility are consistent with the Ordinance's purpose to allow for less intrusive wireless telecommunications facilities in all districts (other than Open Space) including the applicable overlay districts, and the underlying PUD-2 & Residence C-3A district. Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

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

AT&T's Response: As stated in the Section 19.30, the Citywide Urban Design Objectives ("Objectives") "are intended to provide guidance to property owners and the general public as to the city's policies with regard to the form and character desirable for new development in the city. It is understood that application of these principles can vary with the context of specific building proposals in ways that, nevertheless, fully respect the policies' intent. It is intended that proponents of projects, and city staff, the Planning Board and the general public, where public review or approval is required, should be open to creative variations from the detailed provisions presented in this Section as long as the core values expressed are being served. *A project need not meet all the objectives of this Section 19.30 where this Section serves as the basis for issuance of a special permit. Rather the permit granting authority shall find that on balance the objectives of the city are being served.* Nor shall a project subject to special permit review be required to conform to the Required Building and Site Plan Requirements set forth in Section 11.50." [emphasis added]. For the reasons stated in AT&T's response to this Section 10.43(f) of the Zoning Ordinance and in its application generally, "on balance, the objectives of the city are being served" by the installation of the Facility at the Property so that granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

The following are the Objectives' headings as appearing in the Ordinance:

19.31: New projects should be responsive to the existing or anticipated pattern of development.

AT&T's Response: The existing Facility is located on and within the existing building, some of the equipment of which is hidden from view behind the screen wall and within the building, or otherwise obstructed from view, and the remaining equipment utilizes the existing antenna mounting frame and blends with the structures and colors of the building to the extent feasible. The proposed modifications to the existing Facility are consistent with the previously approved design and concealment elements of the existing Facility. Therefore, the proposed modifications are responsive to the existing pattern of development in the Property's applicable zoning and overlay districts.

19.32: Development should be pedestrian and bicycle-friendly, with a positive relationship to its surroundings.

AT&T's Response: The existing Facility is located on and within the existing building. The Facility is only accessed by authorized AT&T personnel for routine maintenance one to two times per month and is not accessed by the general public. The proposed modifications to the existing Facility will not result in any increase in routine visits nor otherwise result in a change in traffic patterns in the vicinity of the Property that would affect pedestrian flow or cyclists' access to the building or surrounding areas within the Property's applicable zoning districts.

19.33 The building and site design should mitigate adverse environmental impacts of a development upon its neighbors. Indicators include⁹

(1) Mechanical equipment that is carefully designed, well organized or visually screened from its surroundings and is acoustically buffered from neighbors. Consideration is given to the size, complexity and appearance of the equipment, its proximity to residential areas, and its impact on the existing streetscape and skyline. The extent to which screening can bring order, lessen negative visual impacts, and enhance the overall appearance of the equipment should be taken into account. More specifically:

(a) Reasonable attempts have been made to avoid exposing rooftop mechanical equipment to public view from city streets. Among the techniques that might be considered are the inclusion of screens or a parapet around the roof of the building to shield low ducts and other equipment on the roof from view.

(b) Treatment of the mechanical equipment (including design and massing of screening devices as well as exposed mechanical elements) that relates well to the overall design, massing, scale and character of the building.

(c) Placement of mechanical equipment at locations on the site other than on the rooftop (such as in the basement), which reduces the bulk of elements located on the roof; however, at-grade locations external to the building should not be viewed as desirable alternatives.

(d) Tall elements, such as chimneys and air exhaust stacks, which are typically carried above screening devices for functioning reasons, are carefully designed as features of the building, thus creating interest on the skyline.

(e) All aspects of the mechanical equipment have been designed with attention to their visual impact on adjacent areas, particularly with regard to residential neighborhoods and views and vistas.

AT&T's Response: As shown in the photosimulations (*see* Exhibit 5), the existing Facility, as proposed to be modified herein, will continue to be visually consistent with the color and

⁹ Inasmuch as Section 19.33 is most relevant to the Facility, it is stated here in full.

texture of the building, the concealment elements of the design of the Facility, and with other existing wireless communications facilities from competing carriers located on the building. As a result, AT&T's Facility is in keeping with the building's existing features without adversely affecting the building's overall design, massing, scale or character.

(2) Trash that is handled to avoid impacts (noise, odor, and visual quality) on neighbors, e.g. the use of trash compactors or containment of all trash storage and handling within a building is encouraged.

AT&T's Response: The Facility does not generate trash, therefore this design objective is inapplicable.

(3) Loading docks that are located and designed to minimize impacts (visual and operational) on neighbors.

AT&T's Response: The Facility does not utilize any loading dock, therefore this design objective is inapplicable.

(4) Stormwater Best Management Practices and other measures to minimize runoff and improve water quality are implemented.

AT&T's Response: The existing Facility, and the proposed modifications, are located entirely on and within the existing Building on the Property and have no effect on stormwater runoff, therefore this design objective is inapplicable.

(5) Landscaped areas and required Green Area Open Space, in addition to serving as visual amenities, are employed to reduce the rate and volume of stormwater runoff compared to pre-development conditions.

AT&T's Response: The existing Facility and proposed modifications have no effect any landscaped or Green Area Open Space, therefore this design objective is inapplicable.

(6) The structure is designed and sited to minimize shadow impacts on neighboring lots, especially shadows that would have a significant impact on the use and enjoyment of adjacent open space and shadows that might impact the operation of a Registered Solar Energy System as defined in Section 22.60 of this Zoning Ordinance.

AT&T's Response: The existing Facility and proposed modifications are designed so as not to cause shadows on neighboring lots.

(7) Changes in grade across the lot are designed in ways that minimize the need for structural retaining walls close to property lines.

AT&T's Response: The existing Facility and proposed modifications are located entirely on and within the existing building and have no impact on the grade of the Property, therefore this design objective is inapplicable.

(8) Building scale and wall treatment, including the provision of windows, are sensitive to existing residential uses on adjacent lots.

AT&T's Response: The proposed modifications to the existing Facility will not change the building's scale because antennas and equipment will be mounted behind the existing screen wall or on an existing antenna mounting frame already located on the building (*see* Exhibit 3). The existing Facility and proposed modifications are consistent with characteristics of the existing building design, maintain the existing concealment elements of the Facility and therefore minimize any visual impact from the Facility.

(9) Outdoor lighting is designed to provide minimum lighting and necessary to ensure adequate safety, night vision, and comfort, while minimizing light pollution.

AT&T's Response: The existing Facility does not use any outdoor lighting. The proposed modifications to the Facility do not include any additional lighting of the Facility or building. As a result, this design objective is inapplicable.

(10) The creation of a Tree Protection Plan that identifies important trees on the site, encourages their protection, or provides for adequate replacement of trees lost to development on the site.

AT&T's Response: The existing Facility and proposed modifications are located entirely on and within the existing building and have no effect on any trees on the Property, therefore this design objective is inapplicable.

19.34: Projects should not overburden the City infrastructure services, including neighborhood roads, city water supply system, and sewer system.

AT&T's Response: The existing Facility, including the proposed modifications, is a passive use and will not generate trash, odor, excess noise, or utilize water or wastewater services. As such, it will not burden the City's infrastructure services.

19.35: New construction should reinforce and enhance the complex urban aspects of Cambridge as it has developed historically.

AT&T's Response: The proposed modification of the existing Facility located on and within the existing building, will obviate the need for AT&T to construct an additional Facility to address its wireless network coverage need in this area of Cambridge. The existing Facility and the proposed modifications blend the equipment with the building texture and color, and are consistent with the concealment elements of the Facility's design. As a result, the Facility will reinforce the existing Cambridge landscape as it currently is manifested at the Property.

19.36: Expansion of the inventory of housing in the city is encouraged.

AT&T's Response: The Facility and proposed modifications provide wireless services and will not adversely impact the City's housing inventory.

19.37. Enhancement and expansion of open space amenities in the city should be incorporated into new development in the city.

AT&T's Response: The Facility and proposed modifications are located on and within the existing building. The Facility and proposed modifications will not adversely impact or otherwise reduce open space amenities within the City.

VIII. SUMMARY

For the foregoing reasons AT&T respectfully requests that the Board to determine that pursuant to the Spectrum Act and the FCC Order, the Request constitutes and eligible facilities request and therefore AT&T's Request must be approved administratively, including the issuance of a building permit, without the need for further relief from the Board. In the alternative, without waiving its rights, AT&T requests the Board grant the foregoing zoning relief in the form of a Special Permit and such other relief as the Board deems necessary to allow the modification and operation of AT&T's proposed Facility.

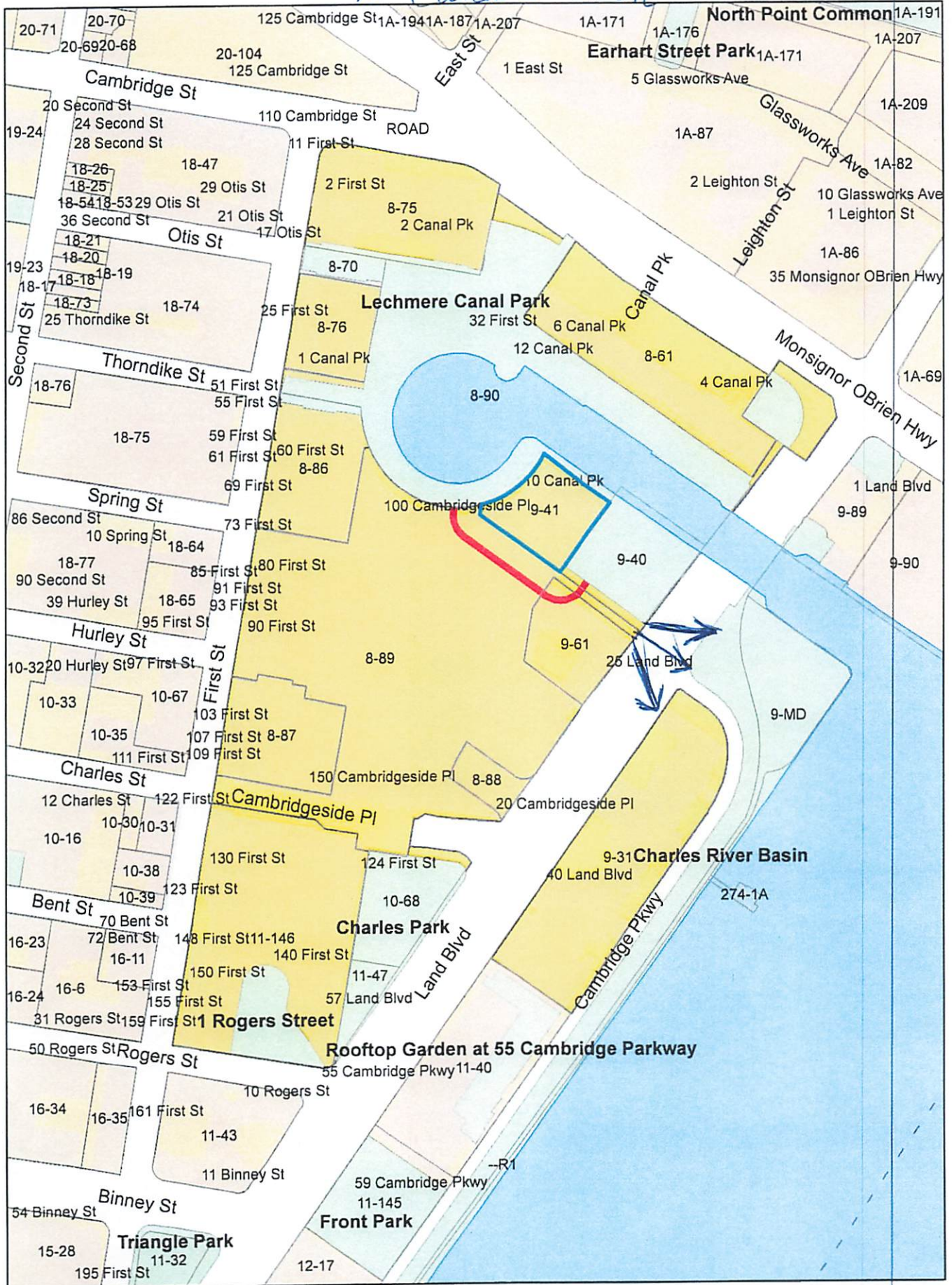
Best Regards,

Carolyn Seeley

Authorized Agent to New Cingular Wireless PCS, LLC ("AT&T")

cc: Jonathan T. Elder, Esq.

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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
KARAGEZIAN, JOSEPH
TR. THE KARAGEZIAN REVOC TRUST 2018
7 DEBSTON LANE
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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
EMAMI, ALI
6 CANAL PK., #102
CAMBRIDGE, MA 02141

8-61
HULTSCH, THOMAS & VERENA HULTSCH
4 CANAL PK., #111
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8-61
ALKHALIFA, MAYSA MOHAMED
C/O AL BATI FURNISHING,
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MANAMA, _ _

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

8-61
BLAKE, ROSE L.
4 CANAL PK., UNIT #209
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8-61
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8-61
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4 CANAL PARK, UNIT #302
CAMBRIDGE, MA 02141

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

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

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
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8-61
ALHASSANI, KANAN M.
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65 EAST INDIA ROW #21F
BOSTON, MA 02110

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

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

8-61
LAFARGE, MEDELINE R., SUSAN LAFARGE &
NANCY LAFARGE TRS OF LAFARGE FAMILY TR
4 CANAL PARK, UNIT 611
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8-61
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8-61
LU, JUH-HORNG & WENJUN XIE,
TRS THE LU XIE FAMILY TRUST
73 NORMANDY AVE
CAMBRIDGE, MA 02138

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

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

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

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

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

8-61
MINOT, RICHARD J.
TRUSTEE THE RICHARD J. MINOT TRUST
118 HUNTINGTON AVE #804
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8-61
CASE, TODD J. & LEI WANG
4 CANAL PK, UNIT #109
CAMBRIDGE, MA 02141

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

8-61
FANTINI, GEORGE J. JR.&
CAROLYN K. TRUSTEE OF FANTINI REALTY TR.
30 CUTLER RD.
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8-61
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8-61
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4 CANAL PK., #504
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8-61
ALMANA, ABDULLAH A. &
ABDULAZIZ I. AL MANA
4 CANAL PARK, UNIT#608
CAMBRIDGE, MA 02141

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

8-61
JOSEPH, JACK & PAULINE JOSEPH
6 CANAL PK UNIT #106
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
MENKE, MATTHEW E.
6 CANAL PK., #609/2
CAMBRIDGE, MA 02139

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

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

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

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

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

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

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

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

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

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

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

8-61
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8-61
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4 CANAL PARK., #405
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8-61
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4 CANAL PK UNIT #605
CAMBRIDGE, MA 02141

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

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

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

8-61
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JERSEY CITY, NJ 07302

8-61
HEROLD, JAMES B.,
TRUSTEE THE JAMES B. HEROLD REV TRUST
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CAMBRIDGE, MA 02141

9-61
CAMBRIDGE, LLC
C/O JUNSON CAPITAL, UNITS 5211-12, 52/F
3520 PIEDMONT RD NE SUITE 410
ATLANTA, GA 30305

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

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

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

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

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

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

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

8-61
KARAGEZIAN, JOSEPH TRUSTEE OF THE
KARAGEZIAN REVOC TRUST 2018
7 DEBSTON LN
LYNNFIELD, MA 01940

8-61
AQUILANTI ELISA ANNIE
6 CANAL PARK UNIT 608-II
CAMBRIDGE, MA 02141

8-61
MA, STEVE S. & KENT MA
C/O PREMIER PROPERTY SOLUTIONS, LLC
190 HIGH ST FLOOR 6
BOSTON, MA 02210

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

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

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

8-61
LI, GANG, TRS THE AMANDA YI-PEI IRREV TRUST
170 TREMONT ST
BOSTON, MA 02110

8-61
KATZ, DMITRY
4 CANAL PARK UNIT PH3
CAMBRIDGE, MA 02141

8-61
WOOD JONATHAN A DANIELLE R. WOOD
6 CANAL PARK UNIT PH-10
CAMBRIDGE, MA 02141

8-61
SAWYER KATHLEEN L &
ROBERT M SAWYER CO TRS
210 MAYFLOWER LN
VINEYARD HAVEN, MA 02568

8-61
JAKOMIN BERNADETTE VIDA TRS BERNADETTE
VIDA JAKOMIN TRUST
4 CANAL PARK - UNIT 311
CAMBRIDGE, MA 02141

8-61
GOLDARAZ MATEO NAVARRO
6 CANAL PARK - UNIT 707
CAMBRIDGE, MA 02141

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

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

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

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

8-61
REINGOLD, BARRY J. NORINE
SIELAWA REINGOLD
4 CANAL PARK PH6
CAMBRIDGE, MA 02141

8-61
ZHANG, HANWEI & ERLING ZHAO
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8-61
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6 CANAL PK #307/2
CAMBRIDGE, MA 02141

8-61
CHEN PATRICK T C YOON SUH YUN
6 CANAL PARK - UNIT 304
CAMBRIDGE, MA 02141

8-61
CAMBRIDGE CANAL LLC
10 MUSEUM WAY UNIT 2424
CAMBRIDGE, MA 02141

8-61
GOYAL, ROHIT
4 CANAL PK UNIT 307
CAMBRIDGE, MA 02141

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

8-61
MACK ROBERT W
4 CANAL PARK - PH 11-I
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8-61
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MARIANNE F CASTANO TR
3 ROBERTS WAY
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8-76
1 CANAL OWNER LLC
10945 VISTA SORRENTO PKWY - STE 150
SAN DIEGO, CA 92130

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

8-61
ARANGO, FERNANDO CASTRO
CITY OF CAMBRIDGE TAX TITLE
611 NE 56TH ST
MIAMI, FL 33137

8-61
NAGARAJAN SUNDAR & PADMA SUNDAR
6 CANAL PARK - UNIT 607-II
CAMBRIDGE, MA 02141

8-61
WOODRUM, MARK
4 CANAL PK 108
CAMBRIDGE, MA 02141

8-61
TANNER ANNE C R
6 CANAL PARK - UNIT 507-II
CAMBRIDGE, MA 02141

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

8-61
WEYMOUTH MICHAEL STEVEN
6 CANAL PARK - UNIT 206 II
CAMBRIDGE, MA 02141

8-61
SHINETOWN, LLC CITY OF CAMBRIDGE TAX TITLE
300 ALLSTON ST #105
BRIGHTON, MA 02135

8-61
PUNJABI RAHI DILIP
4 CANAL PARK - UNIT 612-1
CAMBRIDGE, MA 02141

8-61
EBERT RONALD S & SUSAN EBERT TRS CANAL PARK 6
UNIT 604 REALTY TRUST
6 CANAL PARK - UNIT 604-II
CAMBRIDGE, MA 02141

8-61
STASSEN NICOLE NETHERLAND REALTY TRUST
60 CHALET CIRCLE
ROCHESTER, NY 14618

8-61
SUN, LILY
6 CANAL PARK - UNIT 401
CAMBRIDGE, MA 02141

8-61
CHEN PAUL TAK HAO & PATRICK TA CHI CHEN
LEE ANITA TAYIN CHEN ET AL
4 CANAL PARK - UNIT 208
CAMBRIDGE, MA 02141

8-61
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6 CANAL PARK, 610
CAMBRIDGE, MA 02141

8-61
PRASAD HOMES CANAL PARK LLC
26 LACONIA ST
LEXINGTON, MA 02420

8-61
LIM, JONGWON BOOYONG S.LIM
254 EAST EMERSON RD
LEXINGTON, MA 02420

8-61
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8-61
ROSENZWEIG, JOSHUA M &
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6 CANAL PARK - UNIT 201-II
CAMBRIDGE, MA 02141

8-61
STONE, BETTY W
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356 MATTISON DR
CONCORD, MA 01742

8-61
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8-61
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ELIZABETH BRITTINGHAM REV TR
6 CANAL PARK - UNIT 701-II
CAMBRIDGE, MS 02141

8-61
GRIGOROVA, NATALIA
4 CANAL PARK - UNIT 408
CAMBRIDGE, MA 02141

8-89
CAMBRIDGESIDE PARTNERS LLC,
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HARTFORD, CT 06103

8-61
CABRE-BORES, NURIA TRS THE NURIA CABRE-
BORES LIVING TR
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CAMBRIDGE, MA 02141

11-146
ARE-MA REGION NO 94 LLC
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PASADENA, CA 91101

11-47 / 8-90
CITY OF CAMBRIDGE
C/O YI-AN HUANG

11-47 /8-90
CAMBRIDGE CITY OF COMM. DEV.
57 INMAN ST
CAMBRIDGE, MA 02139

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



City of Cambridge

MASSACHUSETTS

BOARD OF ZONING APPEAL

831 Mass Avenue, Cambridge, MA.
(617) 349-6100

2 Bds

BZA

POSTING NOTICE – PICK UP SHEET

The undersigned picked up the notice board for the Board of Zoning Appeals Hearing.

Name: Carlyn Seeley (Print) Date: 6/1/22

Address: 10 Canal Park

Case No. BZA-225273

Hearing Date: 6/22/23

Thank you,
Bza Members



CITY OF CAMBRIDGE, MASSACHUSETTS

PLANNING BOARD

CITY HALL ANNEX, 344 BROADWAY, CAMBRIDGE, MA 02139

June 15, 2023

To: The Board of Zoning Appeal

From: The Planning Board

RE: BZA-225273 10 Canal Park

The Planning Board reviewed this BZA application to modify the existing wireless communications facility during a meeting on June 13, 2023 and decided to forward the following comments to BZA.

The Board decided to forward to BZA the attached memo from the Community Development Department to consider the suggestions noted in the memo to reduce the visual impacts of the installation.



CITY OF CAMBRIDGE

Community Development Department

IRAM FAROOQ
Assistant City Manager for
Community Development

SANDRA CLARKE
Deputy Director
Chief of Administration

KHALIL MOGASSABI
Deputy Director
Chief of Planning

To: Planning Board

From: Community Development Department (CDD) Staff

Date: June 8, 2023

Re: **Wireless Antenna Installations: 10 Canal Park, 51 Brattle Street and 120 Vassar St**

BZA-220600 (T-Mobile) & BZA-225273 (AT&T), 10 Canal Park

These two proposals involve modification of an existing wireless antenna installation located on the rooftop penthouse of 10 Canal Park. The T-Mobile proposal involves replacing ten (10) existing panel antennas with eight (8) new panel antennas and associated equipment. The AT&T proposal involves replacing twelve (12) existing panel antennas with nine (9) new panel antennas and associated equipment.

Since the installation is located on the rooftop penthouse, which is setback, it is reasonably well-concealed from public view. Additionally, the number of antennas and RRUs is also being reduced, which helps reduce visual clutter. However, there remains considerable existing antenna equipment in place, and the new antennas have varying dimensions, and appear to interrupt the parapet line.

Staff also note that it is difficult to ascertain the extent of changes as existing and proposed elevations of all penthouse façades are not included in the application materials. In addition, the AT&T proposal utilizes an outdated view (location 3) of the existing northwest façade for the photosimulations.

The following design improvements should be considered:

1. If feasible, the antennas should be moved down the penthouse façade to avoid visually interrupting the coping stone (top of parapet).
2. Since the new antennas all have varying sizes, if feasible, consider utilizing antenna covers/sheaths so that the new antennas have either similar dimensions, or are more symmetrically laid out.
3. Utilize the smallest mounting brackets available so that the antennas can be mounted as close as possible to the chimney surface.
4. Remove unused pipe mounts.
5. All painted and wrapped materials, including existing equipment, cabling, and mounts, should have a consistent matte finish. A darker, reddish-brown finish would better blend with the existing brickwork than the existing color finishes and the proposed color depicted in the photosimulations.

BZA-221274, 51 Brattle Street

The proposal involves modification of an existing wireless antenna installation on top of Washington Court in Harvard Square. Nine (9) existing panel antennas will be replaced with 9 new panel antennas and associated equipment. All antennas will be façade mounted in the same locations as the existing antennas and will be painted to match the color of the penthouse façade.

Despite being visible on the penthouse, this installation is generally well-designed and unobtrusive. The existing rooftop incorporates many appurtenances, and the proposed antenna color finish appears to be a good match with the existing façade. Since the new antennas all have varying dimensions, some refinements are suggested to help improve the new layout.

1. If feasible, consider utilizing antenna covers/sheaths so that the new antennas have similar dimensions, or can be more symmetrically laid out.
2. Utilize the smallest mounting brackets available so that the antennas can be mounted as close as possible to the façade.
3. If feasible, all cabling, including existing exposed cables, should be concealed and not located on the exterior of the penthouse.

BZA-223702, 120 Vassar Street

The proposal involves expansion of an existing wireless antenna installation on the façade of MIT's Howard Johnson Athletics Center. Two (2) existing panel antennas will be replaced with nine (9) new panel antennas and eight (8) existing RRUs will be replaced with six (6) new RRUs. All visible replaced and added antennas will be painted to match the color of the existing building.

Since this proposal expands the existing installation there are some additional visual impacts. Furthermore, as in the cases above, the new antennas all have varying dimensions and appear to interrupt the parapet line. The following refinements are suggested to help improve the new layout.

1. If feasible, the antennas should be moved down the façade to avoid visually interrupting the coping stone (top of parapet).
2. If feasible, consider utilizing antenna covers/sheaths so that the new antennas have similar dimensions.
3. Utilize the smallest mounting brackets available so that the antennas can be mounted as close as possible to the façade.
4. Ensure all exposed cables, mounts and wires are tightly fixed to the façade.