BZA APPLICATION FORM

GENERAL INFORMATION

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 Kristina Cottone, Smartlink

PETITIONER'S ADDRESS: 10 Church Circle, Annapolis, MD 21401

LOCATION OF PROPERTY: 40 Land Blvd, Cambridge, MA 02142

TYPE OF OCCUPANCY: Hotel ZONING DISTRICT: PUD-2

REASON FOR PETITION:

_____ Additions _____ New Structure

_____ Change in Use/Occupancy _____ Parking

_____ Conversion to Addi'l Dwelling Unit's _____ Sign

_____ Dormer _____ Subdivision

✓ Other: Wireless Communications Facility Upgrade

DESCRIPTION OF PETITIONER'S PROPOSAL:

This application is an Eligable Facilities Request pursuant to section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012, 47 USC 1455; or in the alternative, for a special permit under the zoning ordiance as cited above, if and to the extent necessary, all rights reserved. New Cingular Wireless PCS, LLC ("AT&T") proposed to replace (2) Panel Antennas with (2) new Panel Antennas, install (2) new Remote Radio Units, and (1) Raycap with (2) DC Cables, as part of nationwide upgrades

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).

6409 Middle Class Tax Relief 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)

Kristina Robinson Smartlink
(Print Name)

Address: 10 Church Circle

Annapolis, MD 21401

Tel. No.: 978--551-8627

E-Mail Address: Kristina.Robinson@smartlinkgroup.com

Date: 01/30/2024

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 HPT Cambridge LLC, a Massachusetts limited liability company
(OWNER)

Address: Two Newton Place, 255 Washington Street, Suite 300, Newton, MA 02458

State that I/We own the property located at 40 Edwin H. Land Blvd (a/k/a 5 Cambridge Pkwy) which is the subject of this zoning application.

The record title of this property is in the name of HPT Cambridge LLC, successor-by-conversion to Charterhouse of Cambridge Trust u/d/t dated December 27, 1963
See attached certificate.

*Pursuant to a deed of duly recorded in the date 4/15/1969, Middlesex South County Registry of Deeds at Book 11665, Page 330; or Middlesex Registry District of Land Court, Certificate No. _____ Book _____ Page _____.

HPT Cambridge LLC

By: _____

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

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

Commonwealth of Massachusetts, County of Middlesex

The above-name Todd W. Hargreaves personally appeared before me, this 9th of January, 2024, and made oath that the above statement is true.

Amanda Mahan Notary

My commission expires August 16, 2030 (Notary Seal).

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

(ATTACHMENT B - PAGE 3)

AMANDA LOREN MAHAN
Notary Public
Commonwealth of Massachusetts
My Commission Expires August 16, 2030

December 7. 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

Applicant: New Cingular Wireless PCS, LLC ("AT&T")
Property Address: 40 Land Boulevard
Assessor's Map 9, Lot 31 (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 40 Land Boulevard. (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 TEP consisting of (12) pages dated 01/12/2021;

SHEET	TITLE	REV DATE
T1	Title Sheet	01/21/2021
SP1	Notes and Specifications	01/21/2021
SP2	Notes and Specifications	01/21/2021
A1	Roof Plan	01/21/2021
A2	Equipment Plan	01/21/2021
A3	Elevations	01/21/2021
A4	Antenna Plans	01/21/2021
A5	Equipment Details	01/21/2021
A6	Antenna and Cable Configuration	01/21/2021
A7	Cable Notes and Coloring Code	01/21/2021
A8	Grounding Details	01/21/2021
A9	Plumbing Diagram	01/21/2021

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

5. Photographs of the existing building and photosimulations of the proposed modifications Facility by TEP dated 08/06/2020:

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 Opinion letter by TEP dated January 15, 2021 ;

8. Maximum Permissible Exposure Study, Theoretical Report, by MobileComm, Inc., dated July 1, 2020;

9. Deed to subject property; and

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 ten (10) panel antennas (Alpha Sector: 4 antennas, Beta Sector: 3 antennas, and Gamma Sector: 4 antennas) that are mounted in three (3) locations. The proposed modifications include the replacement of two (2) antennas at one sector. The replacement antennas will be mounted to the existing antenna mounts or new mounts located behind the existing screen wall and consistent with the current Facility's design. Four (4) 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 behind the existing screen wall and out of the public view.

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 photosimulations (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. 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 and 850 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.

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[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

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

appropriate due to "the more restricted scope of review applicable to applications under section 6409(a)." *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."**

[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.

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).

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 Sherman Street 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

[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.

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, AT&T's proposed modifications to its existing Facility are consistent with the existing use and character of the neighborhood.

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 include[9]

(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.

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

(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 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 AT&T Mobility C/O Kristina Robinson, Smartlink **PRESENT USE/OCCUPANCY:** Hotel / Wireless

LOCATION: 40 Land Boulevard, Cambridge, MA 02142 **ZONE:** PUD-2

PHONE: 978-551-8627 **REQUESTED USE/OCCUPANCY:** Hotel / Wireless

		EXISTING CONDITIONS	*REQUESTED CONDITIONS*	*ORDINANCE REQUIREMENTS*[1]	
TOTAL GROSS FLOOR AREA:		0	0	0	(max.)
LOT AREA:		0		0	(min.)
RATIO OF GROSS FLOOR AREA TO LOT AREA:[2]		0	0	0	(max.)
LOT AREA FOR EACH DWELLING UNIT:		0	0	0	(min.)
SIZE OF LOT:	WIDTH	0		0	(min.)
	DEPTH				
Setbacks in Feet:	FRONT	0	0	0	(min.)
	REAR	0	0	0	(min.)
	LEFT SIDE	0	0	0	(min.)
	RIGHT SIDE	0	0	0	(min.)
SIZE OF BLDG.:	HEIGHT	0	0	0	(max.)
	LENGTH	0	0	0	
	WIDTH	0	0 0	0 0	
RATIO OF USABLE OPEN SPACE TO LOT AREA:[3]		0	0	0	(min.)
NO. OF DWELLING UNITS:		0	0	0	(max.)
NO. OF PARKING SPACES:		0	0	0	(min./max)
NO. OF LOADING AREAS:		0	0	0	(min.)
DISTANCE TO NEAREST BLDG. ON SAME LOT:		0	0	0	(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'.*

BK 14857 PG 350

12-83 AM 11:35 155[illegible] ***27.50

QUITCLAIM DEED

THE CITY OF CAMBRIDGE (the CITY), a body politic and corporate and a political subdivision of the Commonwealth of Massachusetts, for good and valuable consideration and in full consideration of $1,582,860, grants to Brian T. Owen, Roger P. Sonnabend and John J. Duane, Trustees of Charterhouse of Cambridge Trust, under deed of trust dated December 27, 1963, recorded with Middlesex South District Registry of Deeds in Book 11160, Page 340, as amended (TRUSTEES), a Massachusetts business trust having a mailing address c/o SONESTA INTERNATIONAL HOTELS CORPORATION, 200 Clarendon Street, Boston, Massachusetts, with quitclaim covenants, the land situated in Cambridge, County of Middlesex and Commonwealth of Massachusetts, more particularly described as follows (the Premises):

> The land between the easterly side of Commercial Avenue and the western side of the Northern Traffic Artery (Cambridge Parkway) and shown on a plan by the City of Cambridge titled "Land Acquisition Plan-Cambridge, Massachusetts", dated November 1980, and described as follows:
>
> Beginning at a point at the most northeasterly corner of the parcel to be described; said point being S 35° 28' 39" W and 193.76 feet from a stone bound on the westerly side line of Cambridge Parkway;
>
> THENCE, N 54° 31' 21" W along land now or formerly of Brian T. Owen & Roger Sonnabend, said line being in the middle of a Right-Of-Way, to a distance of 175.00 feet to a point;

Property Address: 31-37 Cambridge Parkway, Cambridge, Massachusetts 02142

THENCE, S 35° 28' 39" W, along the easterly sideline of Commercial Avenue, a distance of 260.50 feet to a point;

THENCE, S 54° 31' 21" E, through land now or formerly of Real Estate Investment Trust of America, a distance of 175.00 feet to a point;

THENCE, N 35° 28' 39" E, along the westerly sideline of Cambridge Parkway, a distance of 260.50 feet to the point of beginning.

The above described parcel contains 46,987.5 square feet, more or less.

Meaning and intending to convey and hereby conveying the same premises shown as "Area = 46,987 S.F. ±" on the plan entitled "LAND ACQUISITION PLAN FOR CITY OF CAMBRIDGE," dated November 19, 1980 by Cullinan Engineering Co., Inc., recorded with said Deeds in Book 14159, Page 51.

This deed shall be deemed to correct the following scrivener's errors which occurred in the Order of Taking: (i) the reference to "...the westerly side line of Cambridge Parkway..." was inadvertently described a "easterly"; (ii) the proper name "Brian T. Owen" was inadvertently spelled "Ownen"; and (iii) the reference to "...the easterly sideline of Commercial Avenue..." was inadvertently described as "westerly."

The Premises are conveyed subject to the provisions of an Attorney's Certificate of Affidavit of even date and record herewith relating to the provisions of a Development Agreement referred to therein affecting the Premises.

The CITY warrants to TRUSTEES that it has not dedicated the Premises for use as a public park in such manner as to require a special legislative act for approval of the deed pursuant to Article 97 of the Amendments to the Massachusetts Constitution.

The CITY further warrants that no new right-of-way over the Premises is expressly granted or implied as a result of this deed or the plan described herein.

Furthermore, to ensure that the officer executing this deed has power to deliver the same it is hereby declared that there has been full compliance with the provisions of Section 61A of Chapter 44 of the Massachusetts General Laws.

For the title of the CITY see the Orders of Taking recorded with the Middlesex South District Registry of Deeds in Book 14159, Pages 51-52.

WITNESS the execution hereof under seal by the City of Cambridge, this 10th day of January, 1993.

CITY OF CAMBRIDGE

By _____
Robert W. Healy
City Manager

APPROVED AS TO FORM

_____
CITY SOLICITOR

COMMONWEALTH OF MASSACHUSETTS

Middlesex, ss. January 10, 1983

Then personally appeared the above-named Robert W. Healy, City Manager of the City of Cambridge and acknowledged the foregoing instrument to be the free act and deed of said City of Cambridge, before me.

Russell B. Hughey
Notary Public
My commission Expires 12/23/88

COMMONWEALTH OF MASSACHUSETTS
DEEDS EXCISE
$08.92

COMMONWEALTH OF MASSACHUSETTS
DEEDS EXCISE
$00.00

COMMONWEALTH OF MASSACHUSETTS
DEEDS EXCISE
$00.00

COMMONWEALTH OF MASSACHUSETTS
DEEDS EXCISE
$00.00

MARTHA COAKLEY
ATTORNEY GENERAL

THE COMMONWEALTH OF MASSACHUSETTS
OFFICE OF THE ATTORNEY GENERAL
CENTRAL MASSACHUSETTS DIVISION
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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
10 Mechanic Street, Suite 301
Worcester, MA 01608
(508) 792-7600

cc: Town Counsel Joel Bard (via electronic mail)

MAURA HEALEY
ATTORNEY GENERAL

THE COMMONWEALTH OF MASSACHUSETTS
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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
Nicole B. Caprioli

By: Nicole B. Caprioli
Assistant Attorney General
Municipal Law Unit
10 Mechanic Street, Suite 301
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cc: Town Counsel Gregg J. Corbo

MAURA HEALEY
ATTORNEY GENERAL

THE COMMONWEALTH OF MASSACHUSETTS
OFFICE OF THE ATTORNEY GENERAL
CENTRAL MASSACHUSETTS DIVISION
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(508) 792-7600
(508) 795-1991 fax
www.mass.gov/ago

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 acsthetic 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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Worcester, MA 01608
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nicole.caprioli@state.ma.us

cc: Town Counsel Thomas Mullen

CITY OF CAMBRIDGE, MASSACHUSETTS

PLANNING BOARD

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 this proposal is 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.

Prepared For:
SMARTLINK-AT&T
Site Number:
MA2038
Site Name:
SONESTA

5 CAMBRIDGE PARKWAY
CAMBRIDGE, MA 02142

SITE NO: MA2038
SITE NAME: SONESTA
ADDRESS: 5 CAMBRIDGE PARKWAY
CAMBRIDGE, MA 02142

at&t
500 COCHITUATE ROAD,
FRAMINGHAM, MA 01701

smartlink
1997 ANNAPOLIS EXCHANGE PKWY
SUITE 200
ANNAPOLIS, MD 21401

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SITE TYPE: ROOFTOP
DATE: 09/22/2023 | 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.

LOCUS MAP

TAKEN FROM GOOGLE.COM ON 09/20/2023

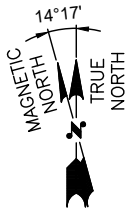

PHOTO LOCATION

SITE NO: MA2038 SITE NAME: SONESTA ADDRESS: 5 CAMBRIDGE PARKWAY CAMBRIDGE, MA 02142	at&t 500 COCHITUATE ROAD, FRAMINGHAM, MA 01701	smartlink 1997 ANNAPOLIS EXCHANGE PKWY SUITE 200 ANNAPOLIS, MD 21401	TEP NORTHEAST TEP OPCO, LLC. 45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845 TEL: (978) 557-5553	SITE TYPE: ROOFTOP DATE: 09/22/2023 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.

EXISTING/PROPOSED CONDITIONS LOCATION # 1 DATE OF PHOTO: 09/02/2022

VIEW SOUTHWEST FROM EDWIN H LAND BLVD (PROPOSED EQUIPMENT NOT VISIBLE)

SITE NO: MA2038
SITE NAME: SONESTA
ADDRESS: 5 CAMBRIDGE PARKWAY
CAMBRIDGE, MA 02142

at&t
500 COCHITUATE ROAD,
FRAMINGHAM, MA 01701

smartlink
1997 ANNAPOLIS EXCHANGE PKWY
SUITE 200
ANNAPOLIS, MD 21401

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SITE TYPE: ROOFTOP
DATE: 09/22/2023 | REV: 0
DRAWN BY: AM
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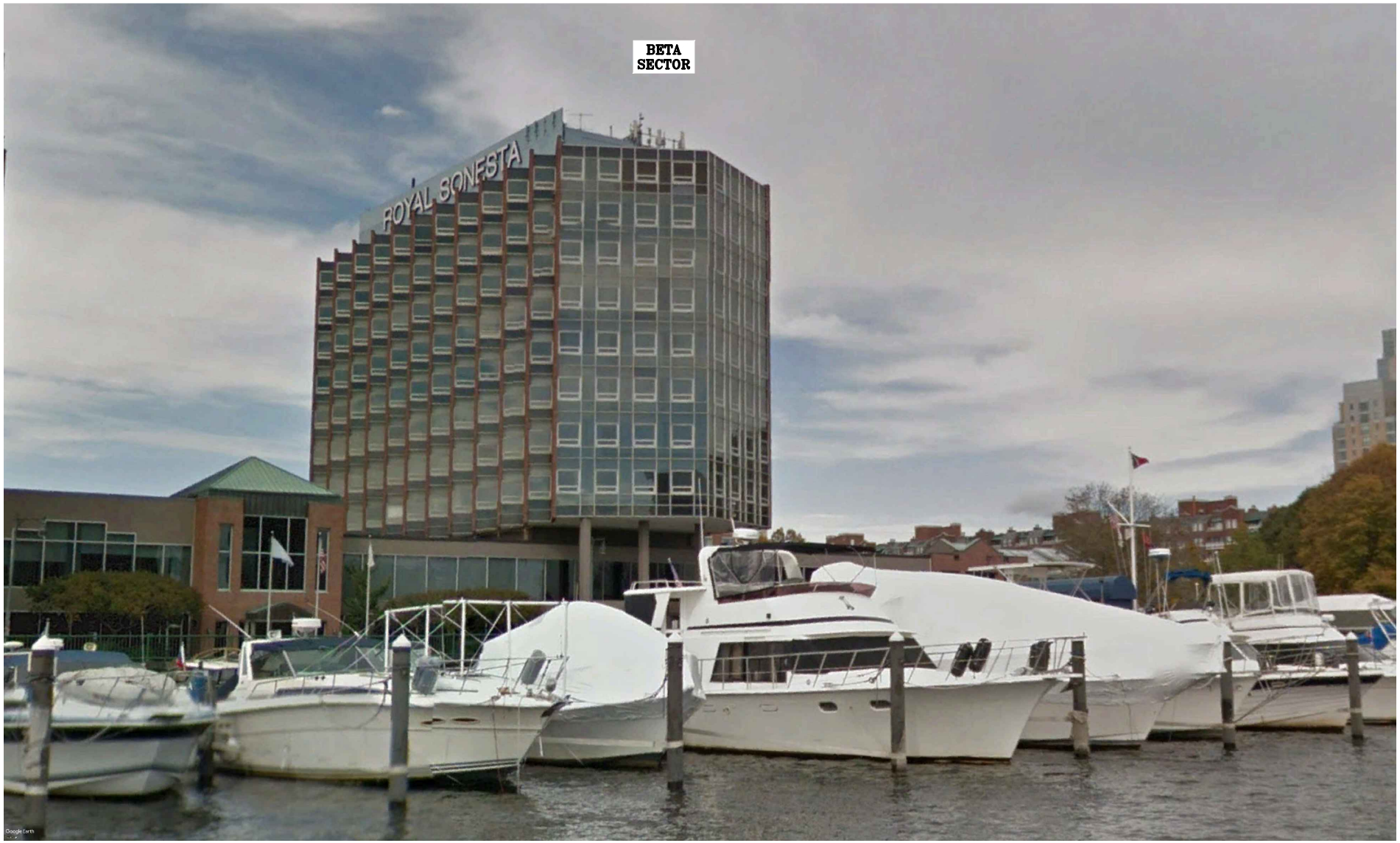
EXISTING CONDITIONS

LOCATION # 2

DATE OF PHOTO: 09/02/2022



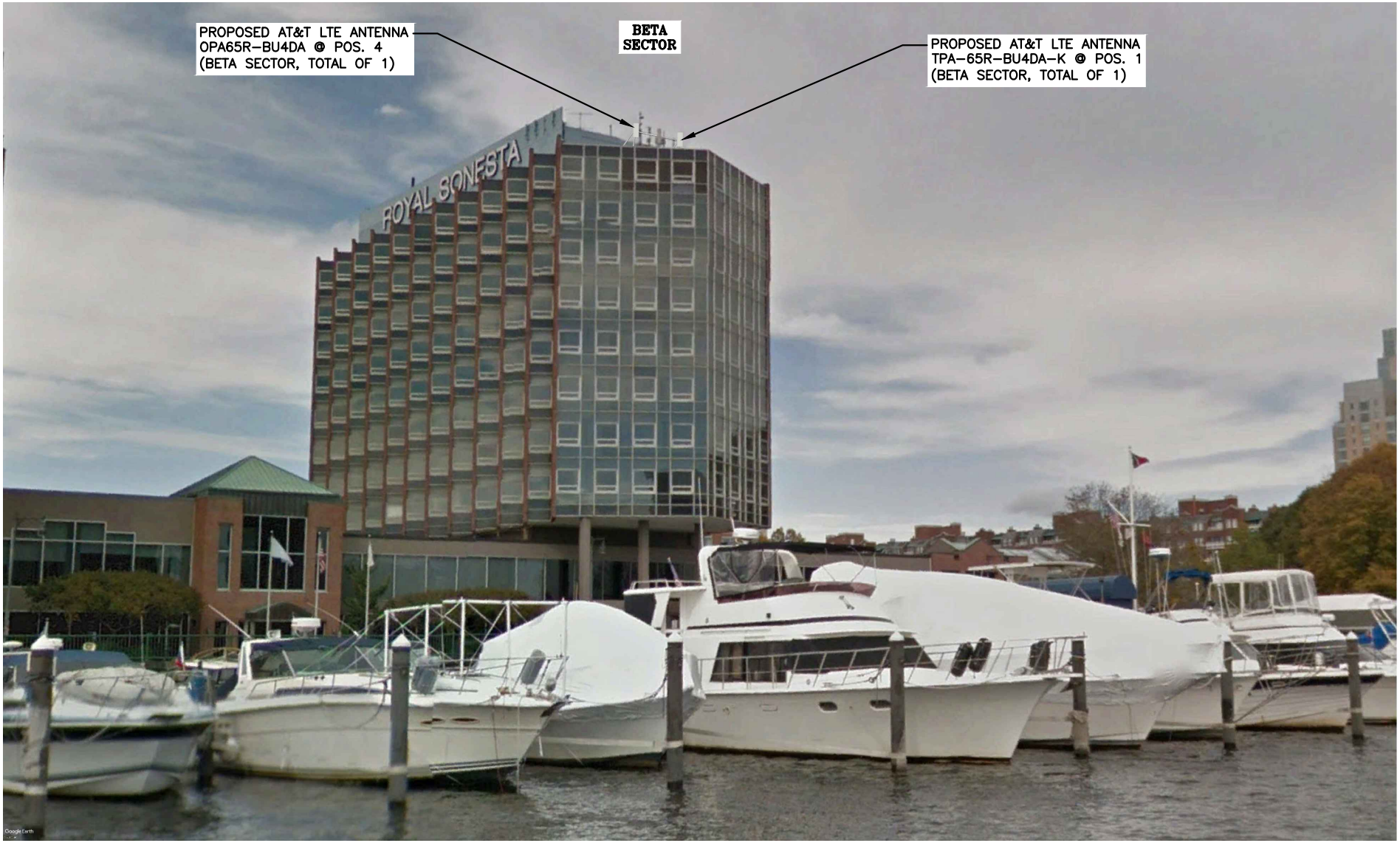
VIEW NORTHWEST FROM CHARLES RIVER

SITE NO: MA2038 SITE NAME: SONESTA ADDRESS: 5 CAMBRIDGE PARKWAY CAMBRIDGE, MA 02142	at&t 500 COCHITUATE ROAD, FRAMINGHAM, MA 01701	smartlink 1997 ANNAPOLIS EXCHANGE PKWY SUITE 200 ANNAPOLIS, MD 21401	TEP NORTHEAST TEP OPCO, LLC. 45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845 TEL: (978) 557-5553	SITE TYPE: ROOFTOP DATE: 09/22/2023 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.

PROPOSED CONDITIONS

LOCATION # 2

DATE OF PHOTO: 09/02/2022



VIEW NORTHWEST FROM CHARLES RIVER

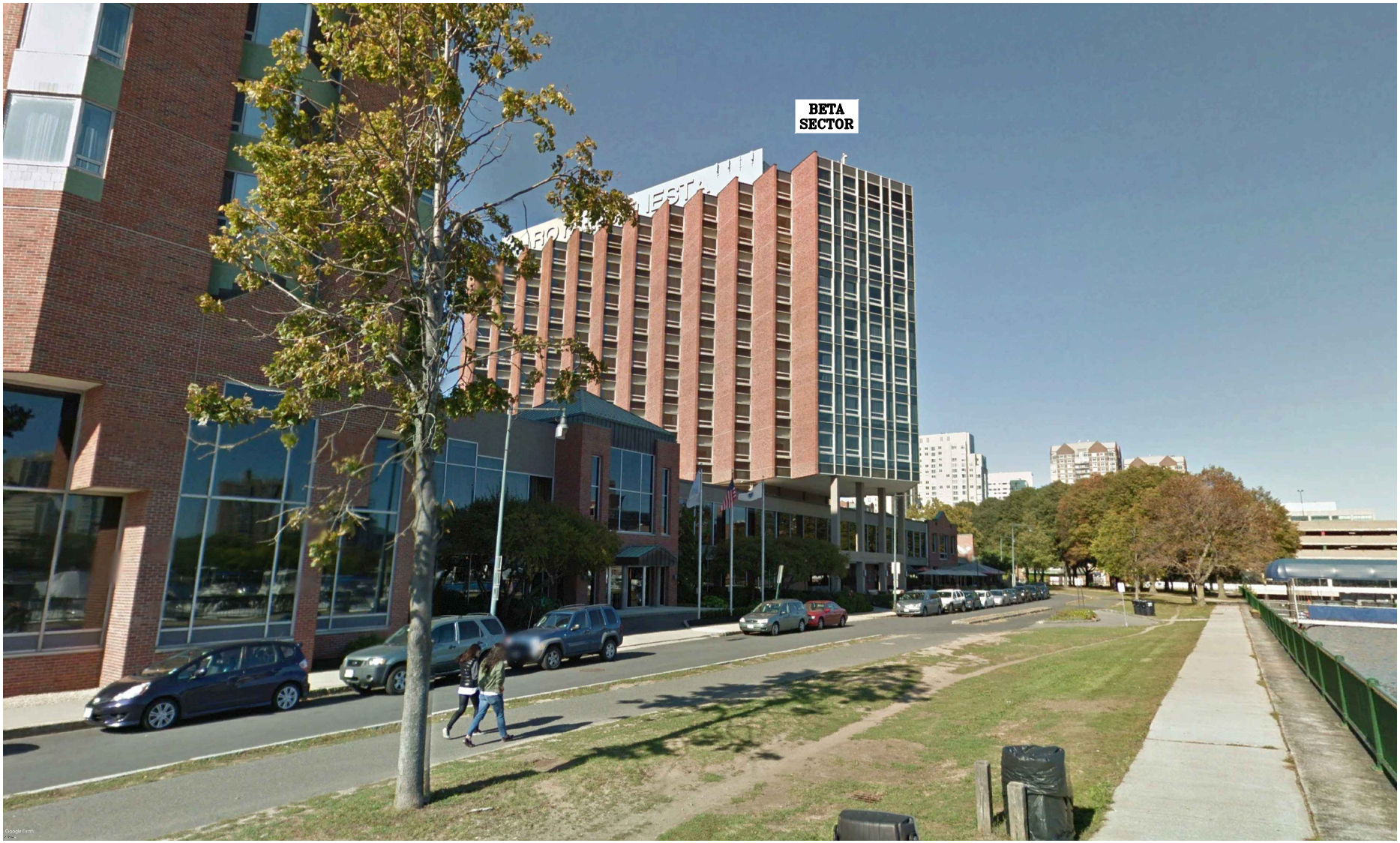
SITE NO: MA2038 SITE NAME: SONESTA ADDRESS: 5 CAMBRIDGE PARKWAY CAMBRIDGE, MA 02142	at&t 500 COCHITUATE ROAD, FRAMINGHAM, MA 01701	smartlink 1997 ANNAPOLIS EXCHANGE PKWY SUITE 200 ANNAPOLIS, MD 21401	TEP NORTHEAST TEP OPCO, LLC. 45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845 TEL: (978) 557-5553	SITE TYPE: ROOFTOP DATE: 09/22/2023 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.

EXISTING/PROPOSED CONDITIONS LOCATION # 3 DATE OF PHOTO: 09/02/2022

VIEW NORTHEAST FROM EDWIN H LAND BLVD (PROPOSED EQUIPMENT NOT VISIBLE)

SITE NO: MA2038 SITE NAME: SONESTA ADDRESS: 5 CAMBRIDGE PARKWAY CAMBRIDGE, MA 02142	at&t 500 COCHITUATE ROAD, FRAMINGHAM, MA 01701	smartlink 1997 ANNAPOLIS EXCHANGE PKWY SUITE 200 ANNAPOLIS, MD 21401	TEP NORTHEAST TEP OPCO, LLC. 45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845 TEL: (978) 557-5553	SITE TYPE: ROOFTOP DATE: 09/22/2023 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.

EXISTING/PROPOSED CONDITIONS LOCATION # 4 DATE OF PHOTO: 09/02/2022



VIEW NORTH FROM CAMBRIDGE PARKWAY (EQUIPMENT NOT VISIBLE)

SITE NO: MA2038 SITE NAME: SONESTA ADDRESS: 5 CAMBRIDGE PARKWAY CAMBRIDGE, MA 02142	at&t 500 COCHITUATE ROAD, FRAMINGHAM, MA 01701	smartlink 1997 ANNAPOLIS EXCHANGE PKWY SUITE 200 ANNAPOLIS, MD 21401	TEP NORTHEAST TEP OPCO, LLC. 45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845 TEL: (978) 557-5553	SITE TYPE: ROOFTOP DATE: 09/22/2023 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.

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

Site Name:	SONESTA
FA#	10007272
USID:	54479
Site ID:	ML02038
Address:	5 CAMBRIDGE PARKWAY CAMBRIDGE, MA 02142
County:	MIDDLESEX
Latitude:	42.3669389
Longitude:	- 71.0747161
Structure Type:	ROOFTOP
Property Owner:	NA
Pace Job:	MRCTB061022
RFDS Technology	Sector Add - 3rd Sector
Desktop Modeler	IXUS Version 4.7(0)

Report Information

Report Writer: Sunita Sati

Report Generated Date: 08-05-2023

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)	27603.30% at Gamma Antennas Centerline Level
Max Predictive Spatial Average MPE% & Location on Site Walking Surface (General Public)	49.87% at Main Roof Level
Max Predictive Spatial Average MPE% on Ground (General Public)	0.06%
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)

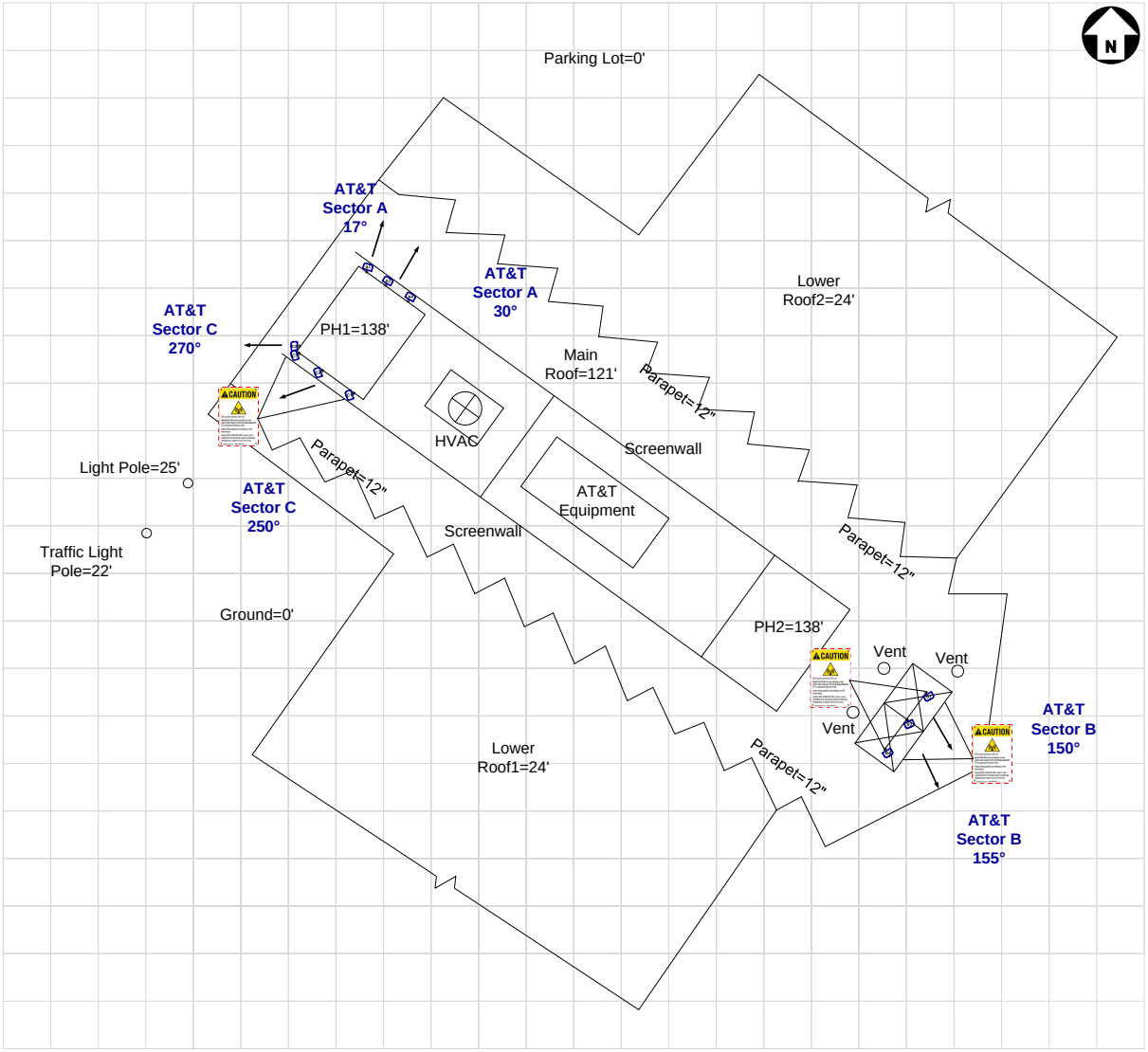
AT&T Signage Locations	Sign Type										
	Safety Instructions	Notice 2D Adjacent	Caution Sign 2	Caution Sign 2A	Caution Sign 2B	Caution Sign 2C	Caution 7"x7"	Warning Sign 1B	RF Exposure Map	Lock	Barriers
Access											
Alpha											
Beta			**4**								
Gamma			**2**								

TABLE 2: Signage Summary (Proposed)

1.3 List of Documents used to prepare this Report

- *10007272_AE201_230724_MAL02038_Rev4_4th Sector and Beyond*
- *NEW-ENGLAND_BOSTON_MAL02038_2022-CELL-SITE-RF-MODIFICATIONS_Sector-Add---3rd-Sector_mm093q_2101A13P6T_10007272_54479_02-17-2022_*
- *RFDS ID:* 5022903

2. Site Scale Map



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

3. Antenna Inventory

Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	Az (°)	EDT (°)	EDT Range for analysis (°)	MDT (°)	HBW (°)	Antenna Gain (dBd)	Antenna Aperture (ft)	Transmitter Power (Watts)	Total Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)
B1	AT&T	CCI	TPA65R-BU4D	Panel	700	LTE(FN)	150	0	2-3	0	74	11.15	4	120.00	0.5	1393.74	2286.55
B1	AT&T	CCI	TPA65R-BU4D	Panel	1900	LTE/5G	150	0	2-3	0	66	14.95	4	120.00	0.5	3343.35	5485.06
B1	AT&T	CCI	TPA65R-BU4D	Panel	2100	LTE/5G	150	0	2-3	0	66	15.05	4	120.00	0.5	3421.22	5612.82
B4	AT&T	CCI	OPA65R-BU4DA	Panel	700	LTE(B12)	150	0	2-3	0	65	11.05	4	120.00	0.5	1362.01	2234.50
B4	AT&T	CCI	OPA65R-BU4DA	Panel	850	5G	150	0	2-3	0	65	11.85	4	120.00	0.5	1637.50	2686.47
B4	AT&T	CCI	OPA65R-BU4DA	Panel	2300	LTE	150	0	2-3	0	65	14.85	4	75.00	0.5	2042.03	3350.13
C1	AT&T	CCI	DMP65R-BU4D	Panel	700	LTE(B12)	250	9	8-10	0	75	10.55	4	120.00	0.5	1213.90	1991.50
C1	AT&T	CCI	DMP65R-BU4D	Panel	850	5G	250	9	8-10	0	67	10.85	4	120.00	0.5	1300.71	2133.94
C1	AT&T	CCI	DMP65R-BU4D	Panel	1900	LTE	250	6	5-7	0	69	14.25	4	120.00	0.5	2845.65	4668.54
C2	AT&T	CCI	OPA65R-BU4DA	Panel	700	LTE(FN)	250	9	8-10	0	65	11.05	4	120.00	0.5	1362.01	2234.50
C2	AT&T	CCI	OPA65R-BU4DA	Panel	2100	LTE	250	8	7-9	0	65	14.55	4	180.00	0.5	4573.75	7503.65
C3	AT&T	Commscope	SBNHH-1D65A	Panel	700	LTE(B29)	250	9	8-10	0	66	11.25	4.6	60.00	0.5	713.10	1169.91
C3	AT&T	Commscope	SBNHH-1D65A	Panel	2300	LTE	250	8	7-9	0	61	15.35	4.6	75.00	0.5	2291.19	3758.90

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 (^{0})" 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 factor[1] are used to calculate Transmitter Power & ERP/EiRP

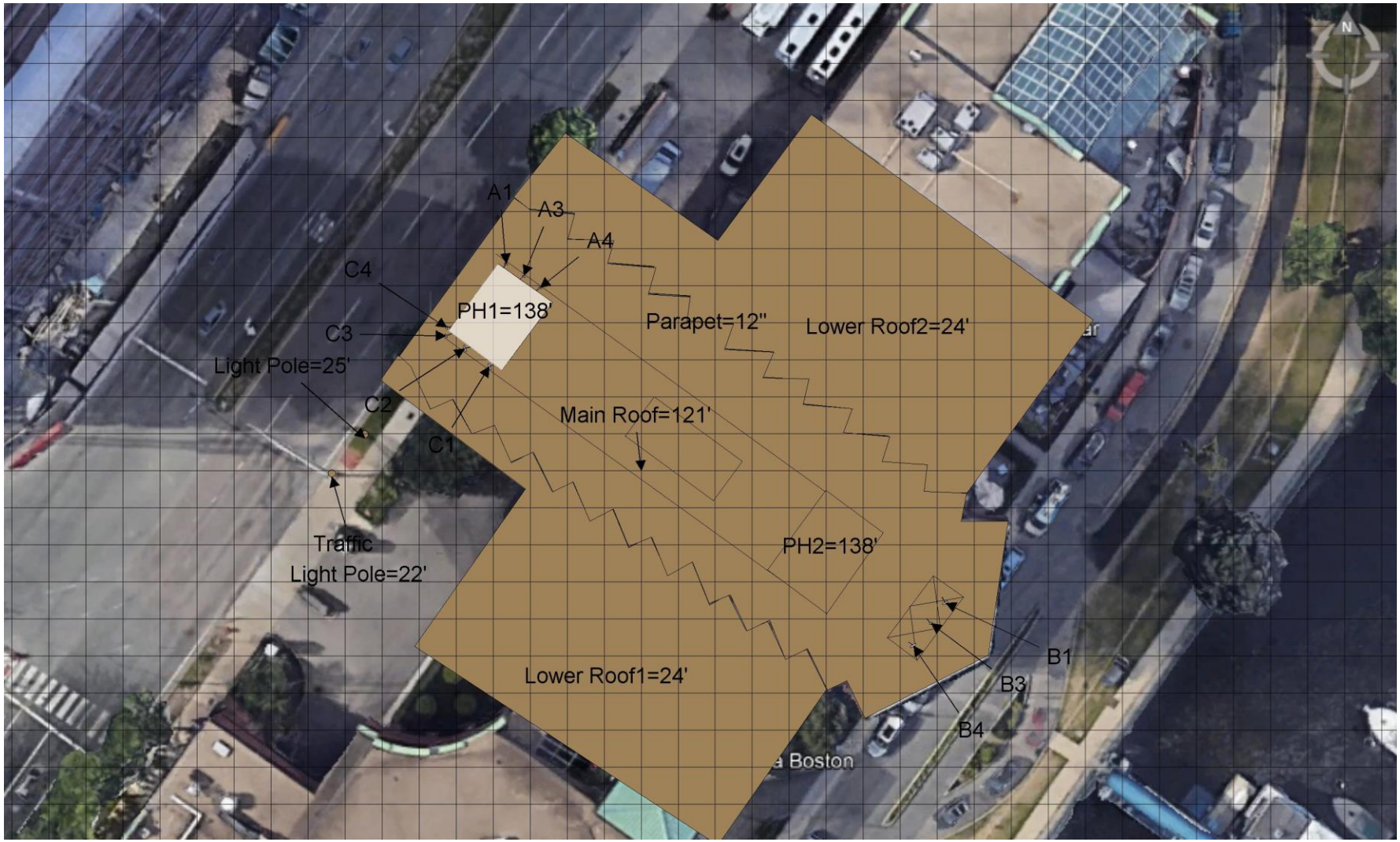
Antenna Heights (Z)

Ant ID	Operator	Antenna Radiation Centerline	Z-Height from Penthouse-1	Z-Height from Main Roof	Z-Height from Light Pole	Z-Height from Lower Roof-1	Z-Height from Traffic Light Pole	Z-Height from Ground
B1	AT&T	131.00	-9.00	8.00	104.00	105.00	107.00	129.00
B4	AT&T	131.00	-9.00	8.00	104.00	105.00	107.00	129.00
C1	AT&T	135.00	-5.00	12.00	108.00	109.00	111.00	133.00
C2	AT&T	135.00	-5.00	12.00	108.00	109.00	111.00	133.00
C3	AT&T	135.00	-5.30	11.70	107.70	108.70	110.70	132.70

Table 3.2: Antenna Height(s) Summary Table

4. Predicted Emission

4.1 Predictive Cumulative MPE Contribution from All Sources at PH1 Level (138 ft. AGL)



Max. Predictive Spatial Average MPE% = **3.28%**

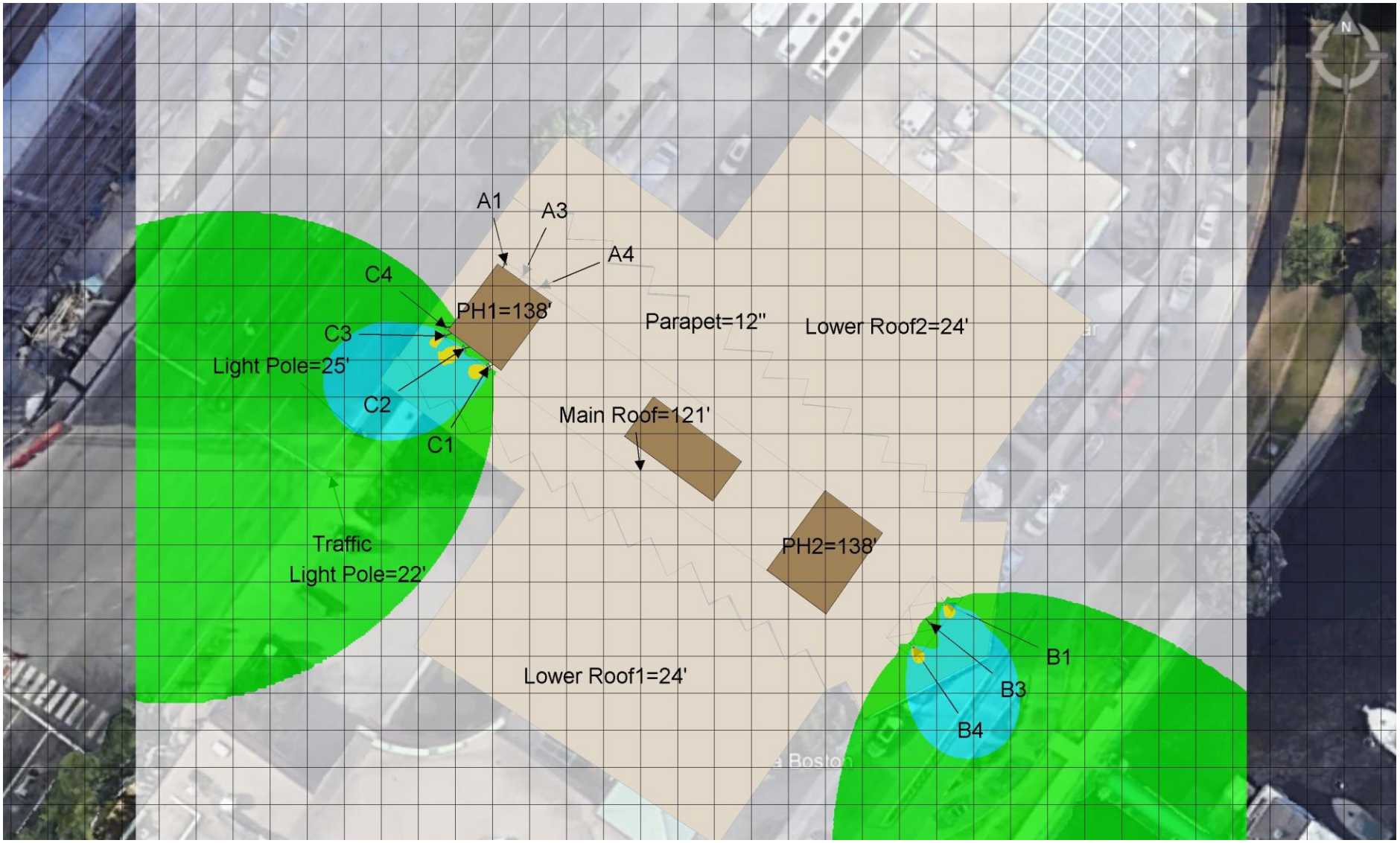
Proposed Barrier
Proposed Posts

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

Non-Simulated	0-5	5-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.2 Predictive Cumulative MPE Contribution from All Sources at Gamma Antennas Centerline Level (135 ft. AGL)



Max. Predictive Spatial Average MPE% = **27603.30%**

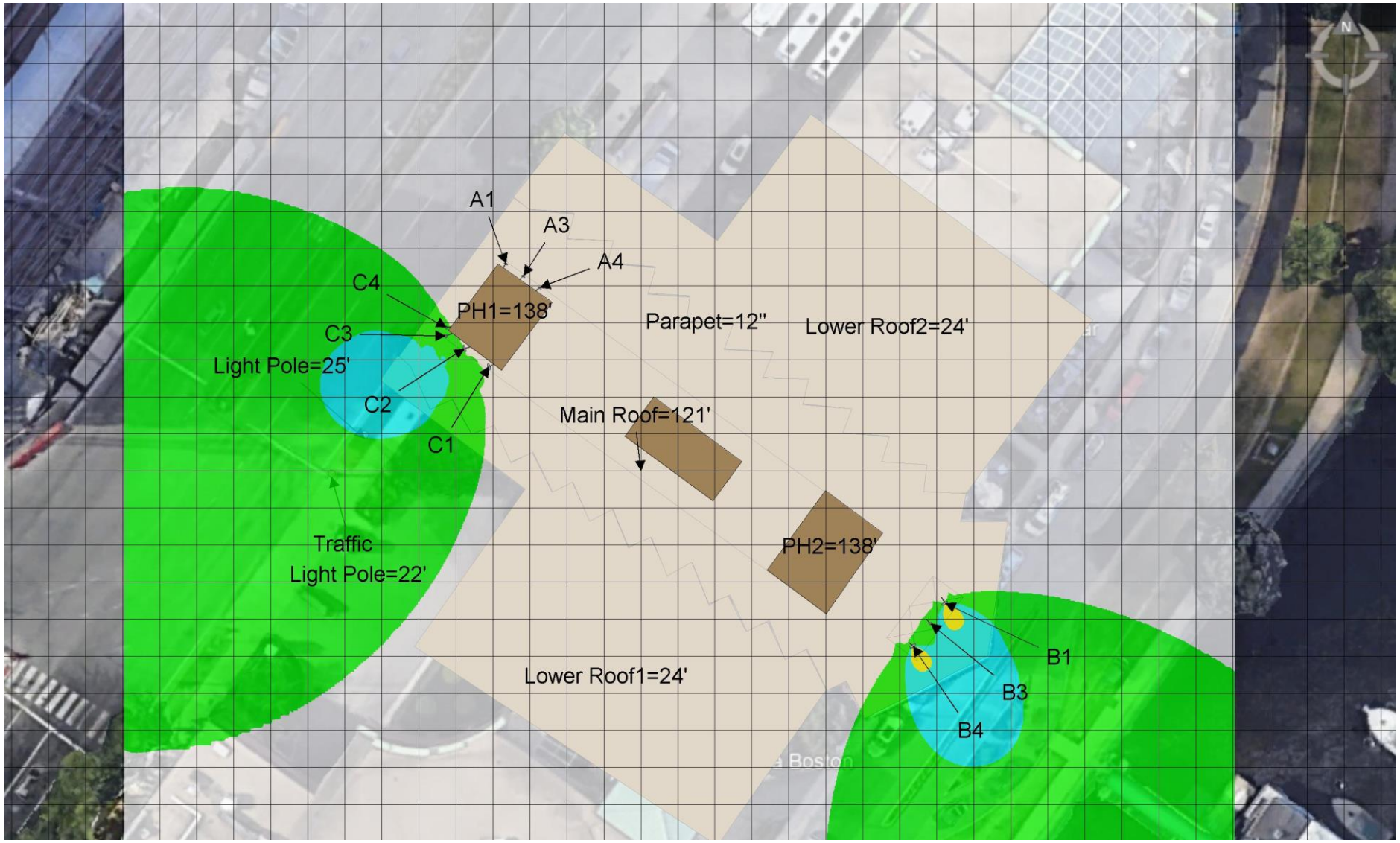
Proposed Barrier
Proposed Posts

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

Non-Simulated	0-5	5-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.3 Predictive Cumulative MPE Contribution from All Sources at Beta Antennas Centerline Level (131 ft. AGL)



Max. Predictive Spatial Average MPE% = **10689.60%**

Proposed Barrier
Proposed Posts

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

Non-Simulated	0-5	5-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.4 Predictive Cumulative MPE Contribution from All Sources at Main Roof Level (121 ft. AGL)

Max. Predictive Spatial Average MPE% = **49.87%**

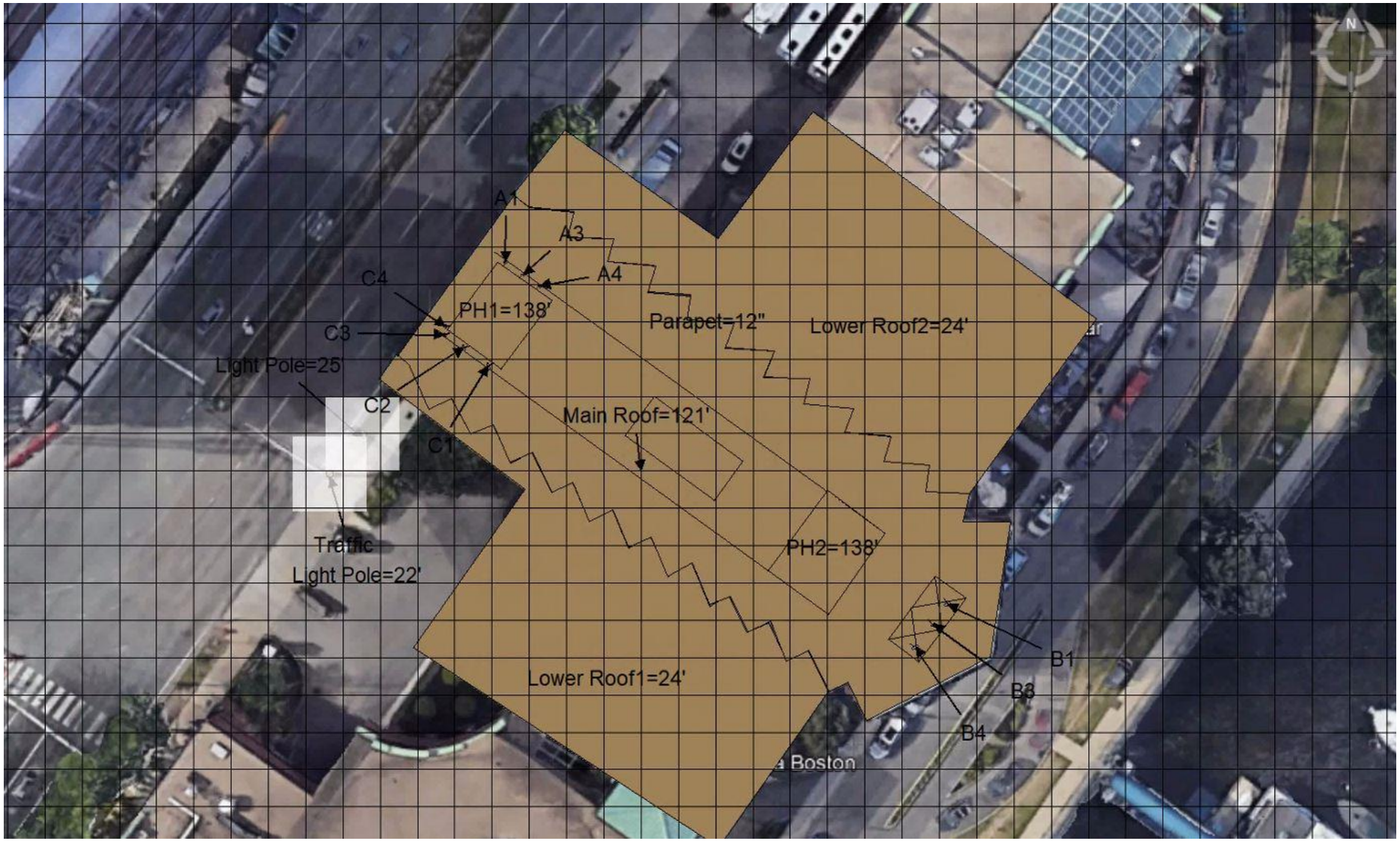
Proposed Barrier
Proposed Posts

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

Non-Simulated	0-5	5-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.5 Predictive Cumulative MPE Contribution from All Sources at Traffic Light Pole & Light Pole Level (25 & 22 ft. AGL)



Max. Predictive Spatial Average MPE% = **0.01%**

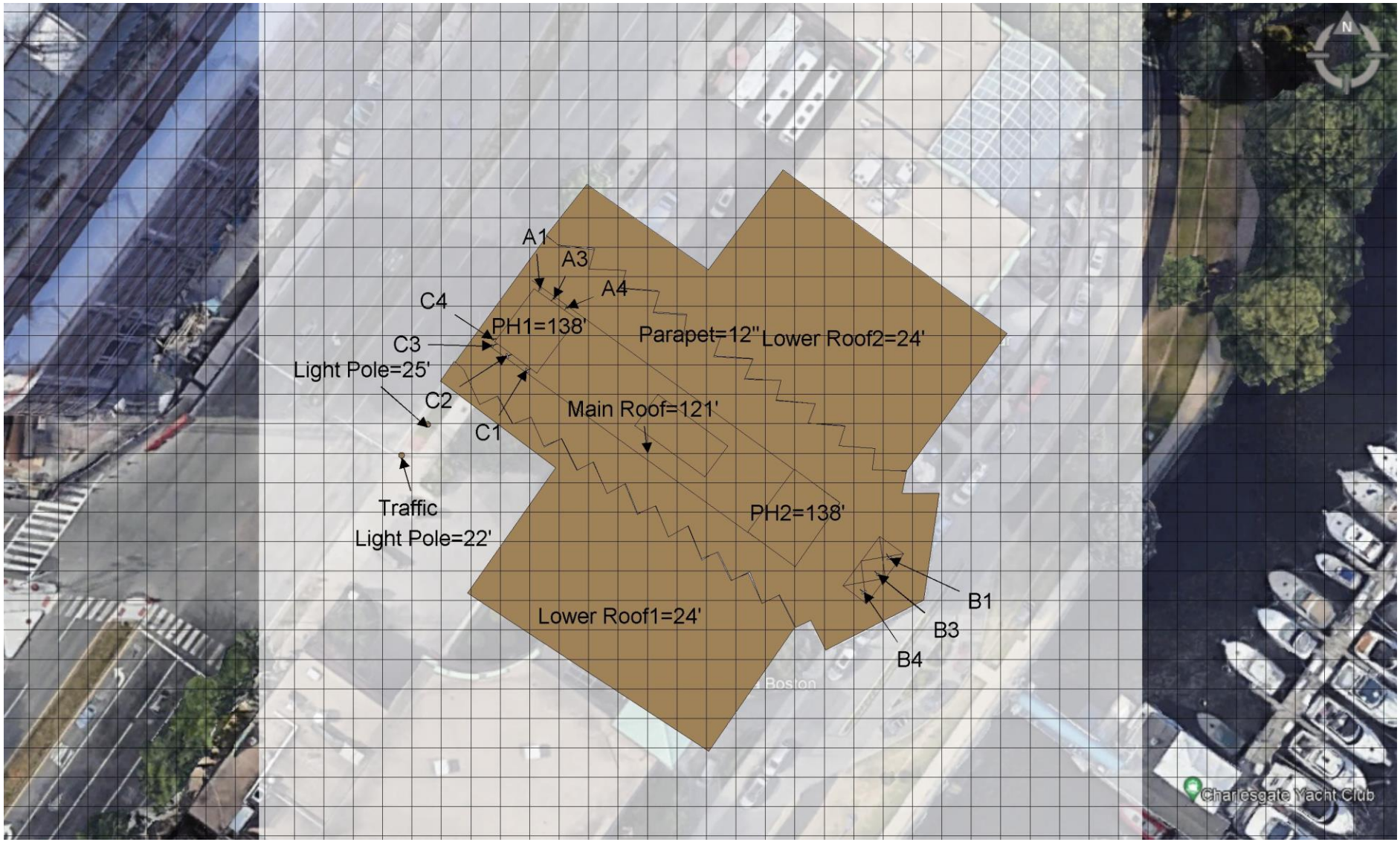
Proposed Barrier
Proposed Posts

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

Non-Simulated	0-5	5-100	100-500	500-5000	>5000

Map Scale = 10 ft

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



Max. Predictive Spatial Average MPE% = **0.06%**

Proposed Barrier
Proposed Posts

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

Non-Simulated	0-5	5-100	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

AT&T Alpha Sector:

- No action required.

AT&T Beta Sector:

- Two Caution 2 Signs to be posted 2 feet below the antenna bottom tip (Ant. #B1 & Ant. #B4) facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 14. (2 Total Signs)

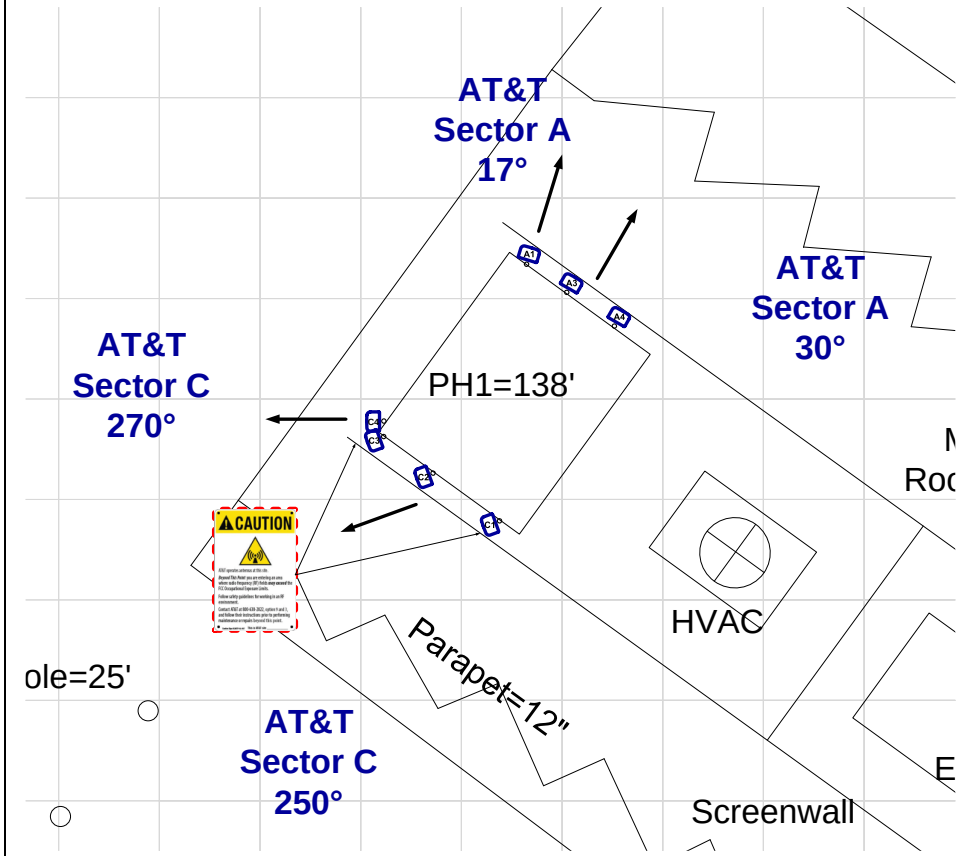
- Two Caution 2 Signs to be posted at the back (1ft below antenna connectors on the pipe only) of the antenna (Ant. #B1 & Ant. #B4) facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 14. (2 Total Signs)

AT&T Gamma Sector:

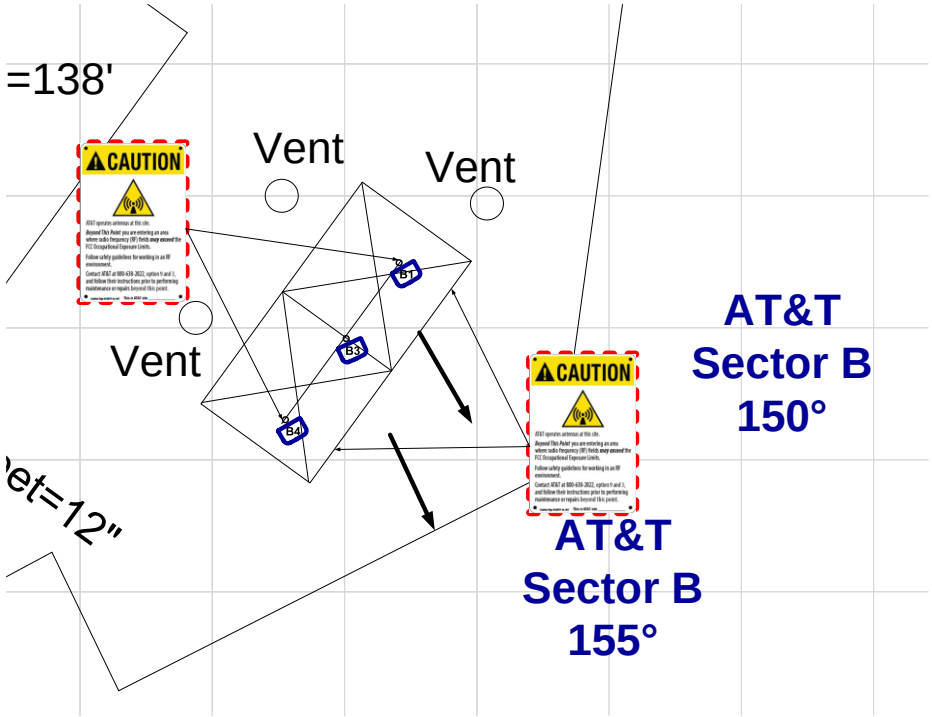
- Two Caution 2 Signs to be posted on FRP Screen, 3 feet above the Main Roof level at antenna (Ant. #C1 & Ant. #C3) facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 14. (2 Total Signs)

Recommendations Map – Detailed View

AT&T Alpha & Gamma Sectors



AT&T Beta Sector



AT&T Antenna	Proposed	Proposed Signage										
Panel	Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2A	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	Lock	*Map Scale = 10 ft*
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 TDD carriers & consider 100% duty cycle for all FDD carriers.

In this site compliance report, it is assumed that 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.

AT&T recommended to consider - For C-BAND and/or DoD AAS^ antenna(s) 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP.

AT&T recommended to use worst-case tilts for the simulations.

***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 Narasaraju 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 Narasaraju 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2).The number of µW/cm2 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 (µW/cm2). The general population exposure limit for the 700 and 800 MHz Bands is approximately 467 µW/cm2 and 567 µW/cm2 respectively, and the general population exposure limit for the 1900 MHz PCS and 2100 MHz AWS bands is 1000 µW/cm2. 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-I,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-I,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 100% 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.

(REVISED)
STRUCTURAL ANALYSIS REPORT

For

AT&T Site Number: MA2038 (C-BAND)

TEP Project Number: 186766.779419

AT&T Site Name: SONESTA

5 Cambridge Parkway
Cambridge, MA 02142

Antennas Mounted on Rooftop Ballast Mounts; Equipment Shelter on Steel Platform on Roof

Prepared for:

smartlink at&t

Dated: July 19, 2023 (Rev.4)
April 14, 2023 (Rev. 3)
February 27, 2023 (Rev.2)
October 24, 2022 (Rev.1)
October 7, 2022

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

Prepared by:

TEP NORTHEAST

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SCOPE OF WORK:

TEP Northeast (TEP NE) 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 TEP NE 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 January 27, 2023. Attendees included Kevin Bano-Maza (TEP NE – Engineering Associate II), Kyle Madden (TEP NE – Engineering Associate I), and Patrick Barrett (TEP NE – Field Technician).

The following documents were used for our reference:

- Previous Structural Analysis Report prepared by Hudson Design Group LLC dated December 30, 2016.
- Rooftop Mapping Report prepared by TEP NE dated September 27, 2022.
- Equipment Platform Mapping Report prepared by TEP NE dated January 31, 2023.

CONCLUSION SUMMARY:

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

- **TEP NE was not able to verify the existing roof structure make-up at the time of our site visit. TEP NE is under the assumption that the existing roof structure has been designed to meet the minimum required live load of 20 psf per the reference building code within this report.**

	Allowable Roof Live Load	Ballast Mount Area Load	Pass/Fail
Roof Capacity	20.00 psf	19.41 psf	**PASS**

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

- **Install proposed L3x3x3/8 steel kicker angles secured to the existing pipe masts (total of 4 per Beta sector).**

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
Beta Sector Antenna Mount	38	LC1	64%	**PASS**

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

- **Reinforce existing horizontal steel beams with proposed C9x13.4 steel channels (typ. of 2 per beam, total of 10).**

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
Equipment Platform	75	LC10	73%	**PASS**

*Reference documents attached.

CONCLUSION SUMMARY: (CONT.)

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

- **Replace existing equipment platform connections with new 1/2" Ø A325 thru bolts (typ. of 4 per connection, total of 40).**

	Member	Stress Ratio	Pass/Fail
Existing Connection	1/2" Thru Bolt	69%	**PASS**

Reference the table below for the minimum ballast requirements:

MINIMUM BALLAST REQUIREMENTS – BETA SECTOR			
	Existing	**Proposed**	**Total**
Number of Blocks	64	-	64
Size of Blocks	8"x8"x16" Hollow	-	8"x8"x16" Hollow
Weight of Blocks	38 lbs. /each	-	38 lbs. /each
Total Ballast Weight	2432 lbs.	-	2432 lbs.

No additional ballast is required. The number of blocks required for the proposed equipment does not exceed the current number of blocks.

*Reference documents attached.

APPURTENANCE CONFIGURATION (BASED ON RFDS v2.00 DATED 06/27/2023):

Appurtenances	Dimensions	Weight	**Elevation	Mount
(2) AM-X-CD-14-65-00T-RET Antennas	48.0"x11.8"x5.9"	37 lbs	Varies	Pipe Mast
(3) 742-264 Antennas	51.8"x10.3"x5.5"	37 lbs	135'-0"	Pipe Mast
(1) DMP65R-BU4DA Antennas	48.0"x20.7"x7.7"	68 lbs	135'-0"	Pipe Mast
(1) OPA65R-BU4DA Antenna	48.0"x20.7"x7.7"	46 lbs	135'-0"	Pipe Mast
(1) SBNHH-1D65A Antennas	55.6"x11.9"x7.1"	34 lbs	135'-0"	Pipe Mast
(1) RRUS-11 B12 RRH	19.7"x17.0"x7.2"	51 lbs	-	Unistrut
(4) RRUS-11 B2 RRH's	19.7"x17.0"x7.2"	51 lbs	-	Unistrut
(1) 4449 B5/B12 RRH	17.9"x13.2"x9.4"	73 lbs	-	Unistrut
(1) 4478 B14 RRH	18.1"x13.4"x8.3"	60 lbs	-	Unistrut
(1) 4426 B66 RRH	14.9"x13.2"x5.8"	49 lbs	-	Unistrut
(1) RRUS-E2 B29 RRH	20.4"x18.5"x7.5"	53 lbs	-	Shelter
(1) RRUS-32 B30 RRH	27.2"x12.1"x7.0"	60 lbs	-	Shelter
(4) LGP21401 TMA's	14.4"x9.0"x2.7"	19 lbs	-	Unistrut
(2) 782 10250 Diplexers	11.0"x4.9"x2.5"	7 lbs	-	Unistrut
(2) DC6-48-60-18-8F Surge Arrestors	31.4"x10.2" Ø	29 lbs	-	Pipe Mast
(1) DC6-48-60-0-8C Surge Arrestor	20.1"x18.2"x6.4"	44 lbs	-	Unistrut
(1) TPA-65R-BU4DA-K Antenna	48.0"x20.7"x7.7"	53 lbs	131'-0"	Pipe Mast
(1) OPA65R-BU4DA Antenna	48.2"x21.0"x7.8"	53 lbs	131'-0"	Pipe Mast
(1) AIR6449 Antenna* **	30.6"x15.9"x10.6"	84 lbs	131'-0"	Pipe Mast
(1) 4478 B14 RRH	18.1"x13.4"x8.3"	60 lbs	-	Pipe Mast
(1) 8843 B2/B66A RRH	14.9"x13.2"x10.9"	72 lbs	-	Pipe Mast
(1) 4449 B5/B12 RRH	17.9"x13.2"x9.4"	73 lbs	-	Pipe Mast
(1) 4415 B30 RRH	16.5"x13.4"x5.9"	46 lbs	-	Pipe Mast
(1) DC9-48-60-24-PC16-EV Surge Arrestor	18.9"x15.9"x9.6"	35 lbs	-	Pipe Mast
(1) 6'-8"x6'-8" Walk-In Cabinet Shelter	113.0"x80.0"x80.0"	7500 lbs	-	Steel Frame

** Proposed equipment shown in bold.*
*** Elevation to antenna centerline.*
**** Reserve antenna is for future loading.*

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}):	1.15 in	(TIA-222-H Sec. 2.6.10)

EXISTING ROOF CONSTRUCTION:

TEP NE was not able to verify the existing roof structure make-up at the time of our site visit. TEP NE is under the assumption that the existing roof structure has been designed to meet the minimum required live load of 20 psf per the reference building code within this report.

ANTENNA/RRH SUPPORT RECOMMENDATIONS:

The proposed antennas and RRH's are to be mounted on existing pipe masts installed on existing non-penetrating ballast mounts located on the rooftop. Reference the table on page 3 for the minimum ballast requirements.

TEP NE is under the assumption that the existing ballast mount has been installed over structurally adequate roof supports, such as beams, columns, and/or bearing walls. TEP NE recommends that the contractor verify this prior to installation.

EQUIPMENT RECOMMENDATIONS:

The proposed walk-in cabinet shelter is to be installed on proposed steel beams supported by an existing steel platform on the rooftop, spanning to columns and/or bearing walls within the existing building structure.

Limitations and Assumptions:

1. Reference the latest TEP NE 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. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE 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.

FIELD PHOTOS:

Photo 1: Sample photo illustrating the existing location of the Alpha sector (beyond).

Photo 2: Sample photo illustrating the existing Beta sector.

FIELD PHOTOS (CONT.):

Photo 3: Sample photo illustrating the existing location of the Gamma sector (beyond).

Photo 4: Sample photo illustrating the existing roof construction.

Wind and Ice
Calculations

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Designed By: CL **Checked By:** MSC

TEP NORTHEAST

2.6.5.2 Velocity Pressure Coeff:

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

z=	131	(ft)
z_g=	900	(ft)
α=	9.5	

K_z= 1.340

Kzmin ≤ Kz ≤ 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

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

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

K_{zt}= 1

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

Category= **1**

K_h=	1	
K_c=	1.0	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	131	
z_s=	2	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	1.00	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i =	1.00	in
Importance Factor = I=	1.00	(from Table 2-3)
K_{iz} =	1.15	(from Sec. 2.6.10)

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

t_{iz} = 1.15 in

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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=	122	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	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

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

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

		K_z=	1.340	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**53.38**	K_e=	1.00	(from 2.6.8)
$q_{z\,(ice)}$=	**8.14**	K_d=	0.95	(from Table 2-2)
$q_{z\,(30)}$=	**2.93**	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, Kd
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

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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) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 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 = 1.15 in | **Angle =** 0 (deg) | **Equivalent Angle =** 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)
AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	4.07	1.27	**267**	**51**
TPA-65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.32	1.20	**442**	**78**
OPA65R-BU4DA Antenna	48.2	21.0	7.8	7.03	2.30	1.20	**450**	**80**
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	**216**	**41**
4478 B14 RRH	18.1	8.3	13.4	1.04	2.18	1.20	**67**	**15**
4478 B14 RRH (Shielded)	18.1	4.2	13.4	0.52	4.36	1.28	**36**	**10**
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.20	**72**	**15**
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	2.73	1.21	**36**	**9**
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.90	1.20	**75**	**16**
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	3.81	1.26	**39**	**10**
4415 B30 RRH	16.5	5.9	13.4	0.68	2.80	1.21	**44**	**11**
4415 B30 RRH (Shielded)	16.5	3.0	13.4	0.34	5.59	1.34	**24**	**7**
DC9-48-60-24-PC16-EV Surge Arrestor	18.9	15.9	9.6	2.09	1.19	1.20	**134**	**26**
2" Pipe	2.4	12.0		0.20	0.20	1.20	**13**	
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	**15**	
3" Pipe	3.5	12.0		0.29	0.29	1.20	**19**	
L 2x2 Angles	2.0	12.0		0.17	0.17	2.00	**18**	
L 3x3 Angles	3.0	12.0		0.25	0.25	2.00	**27**	

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WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.15	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	267	151	151
TPA-65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	442	187	187
OPA65R-BU4DA Antenna	48.2	21.0	7.8	7.03	2.61	2.30	6.18	1.20	1.36	450	190	190
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	216	146	146
4478 B14 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	67	108	108
4478 B14 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	36	108	108
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	72	87	87
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	36	87	87
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	75	105	105
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	39	105	105
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	44	98	98
4415 B30 RRH (Shielded)	16.5	3.0	13.4	0.34	1.54	5.59	1.23	1.34	1.20	24	98	98
DC9-48-60-24-PC16-EV Surge Arrestc	18.9	15.9	9.6	2.09	1.26	1.19	1.97	1.20	1.20	134	81	81

WIND LOADS WITH ICE:

AM-X-CD-14-65-00T-RET Antenna	50.3	14.1	8.2	4.92	2.86	3.57	6.14	1.25	1.36	50	32	32
TPA-65R-BU4DA-K Antenna	50.3	23.0	10.0	8.03	3.49	2.19	5.03	1.20	1.31	78	37	37
OPA65R-BU4DA Antenna	50.5	23.3	10.1	8.17	3.54	2.17	5.00	1.20	1.31	80	38	38
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	41	29	29
4478 B14 RRH	20.4	10.6	15.7	1.50	2.22	1.92	1.30	1.20	1.20	15	22	22
4478 B14 RRH (Shielded)	20.4	6.4	15.7	0.91	2.22	3.16	1.30	1.23	1.20	9	22	22
8843 B2/B66A RRH	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	15	18	18
8843 B2/B66A RRH (Shielded)	17.2	7.7	15.5	0.92	1.85	2.22	1.11	1.20	1.20	9	18	18
4449 B5/B12 RRH	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	16	21	21
4449 B5/B12 RRH (Shielded)	20.2	7.0	15.5	0.98	2.17	2.89	1.30	1.22	1.20	10	21	21
4415 B30 RRH	18.8	8.2	15.7	1.07	2.05	2.29	1.20	1.20	1.20	10	20	20
4415 B30 RRH (Shielded)	18.8	5.2	15.7	0.68	2.05	3.58	1.20	1.25	1.20	7	20	20
DC9-48-60-24-PC16-EV Surge Arrestc	21.2	18.2	11.9	2.68	1.75	1.16	1.78	1.20	1.20	26	17	17

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ICE WEIGHT CALCULATIONS

Thickness of ice: 1.15 in.
Density of ice: 56 pcf

AM-X-CD-14-65-00T-RET Antenna

Weight of ice based on total radial SF area:

Height (in):	48.0	
Width (in):	11.8	
Depth (in):	5.9	
Total weight of ice on object:		81 lbs
Weight of object:	37.0 lbs	
Combined weight of ice and object:		118 lbs

TPA-65R-BU4DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	48.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		131 lbs
Weight of object:	53.0 lbs	
Combined weight of ice and object:		184 lbs

OPA65R-BU4DA Antenna

Weight of ice based on total radial SF area:

Height (in):	48.2	
Width (in):	21.0	
Depth (in):	7.8	
Total weight of ice on object:		133 lbs
Weight of object:	53.0 lbs	
Combined weight of ice and object:		186 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:

Height (in):	30.6	
Width (in):	15.9	
Depth (in):	10.6	
Total weight of ice on object:		73 lbs
Weight of object:	84.0 lbs	
Combined weight of ice and object:		157 lbs

4478 B14 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:		36 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		96 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		32 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		104 lbs

4449 B5/B12 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:		36 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		109 lbs

4415 B30 RRH

Weight of ice based on total radial SF area:

Height (in):	16.5	
Width (in):	13.4	
Depth (in):	5.9	
Total weight of ice on object:		31 lbs
Weight of object:	46.0 lbs	
Combined weight of ice and object:		77 lbs

DC9-48-60-24-PC16-EV Surge Arrestor

Weight of ice based on total radial SF area:

Height (in):	18.9	
Width (in):	15.9	
Depth (in):	9.6	
Total weight of ice on object:		44 lbs
Weight of object:	35.0 lbs	
Combined weight of ice and object:		79 lbs

2" Pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		5 plf

2-1/2" Pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		6 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		7 plf

L 2x2 Angles

Weight of ice based on total radial SF area:

Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		6 plf

L 3x3 Angles

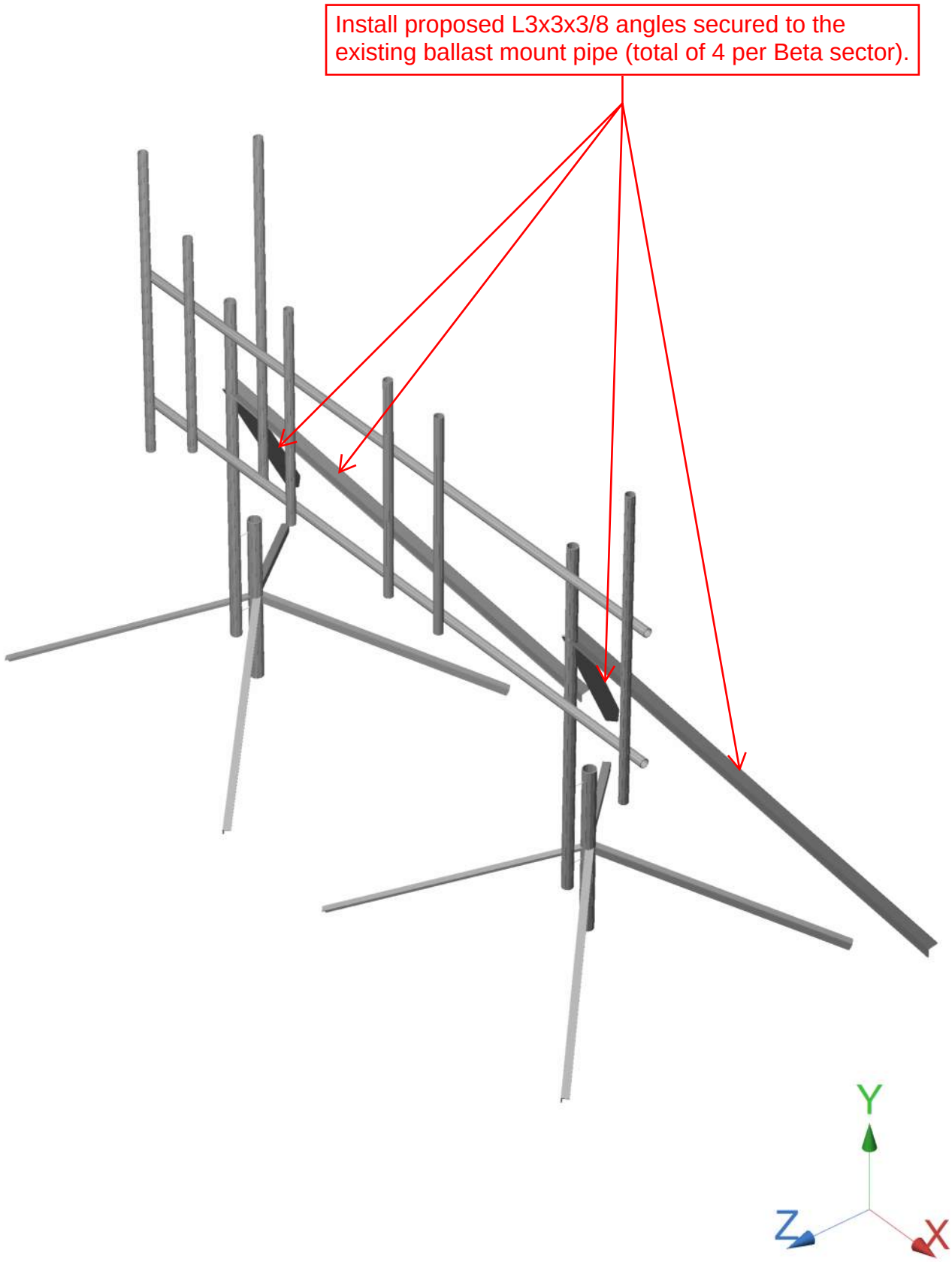
Weight of ice based on total radial SF area:

Height (in):	3	
Width (in):	3	
Per foot weight of ice on object:		8 plf

Non-Penetrating Ballast Mount
Calculations

TEP Northeast

Current Date: 2/24/2023 10:47 AM
Units system: English



TEP Northeast

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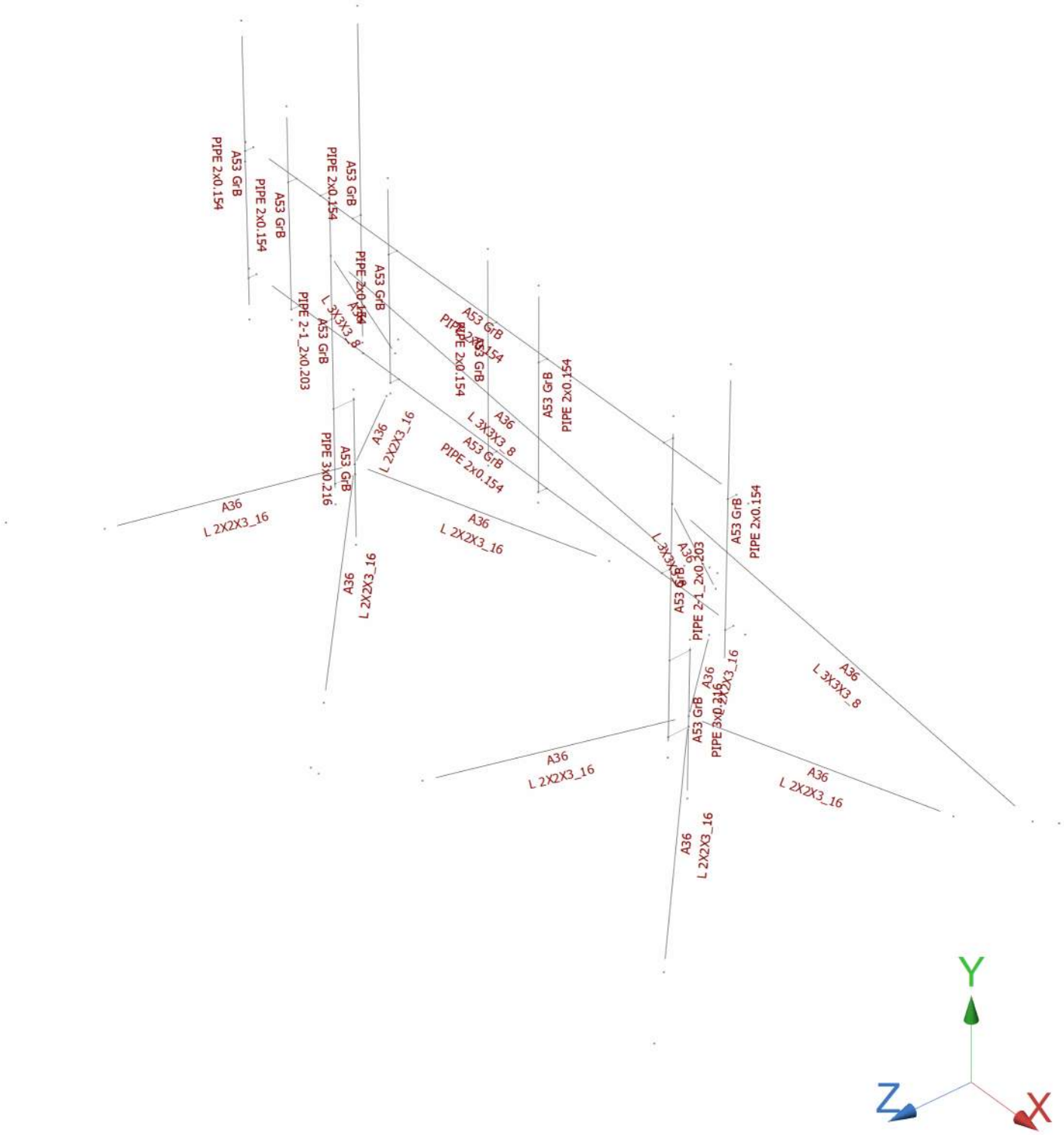
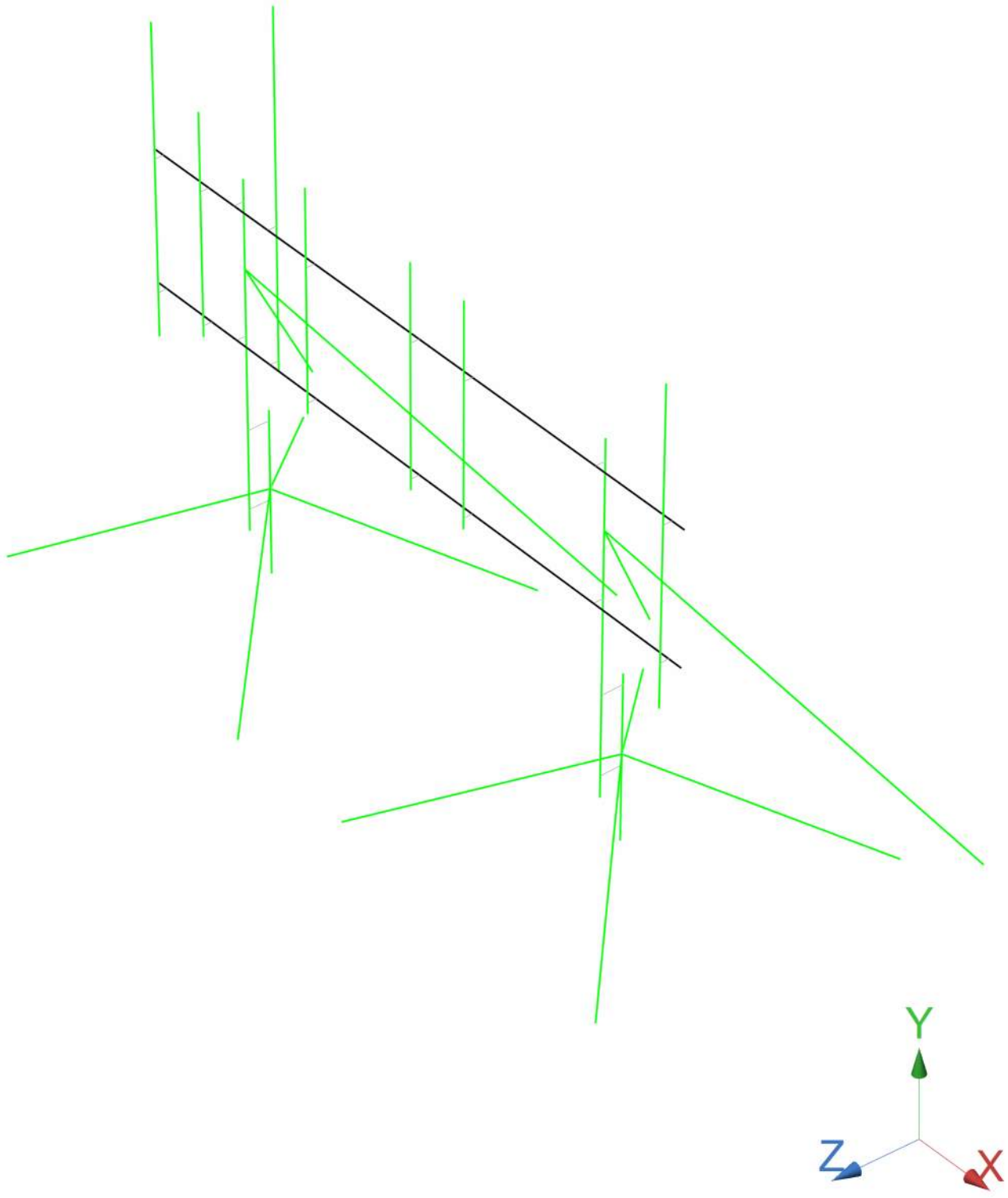
Units system: English



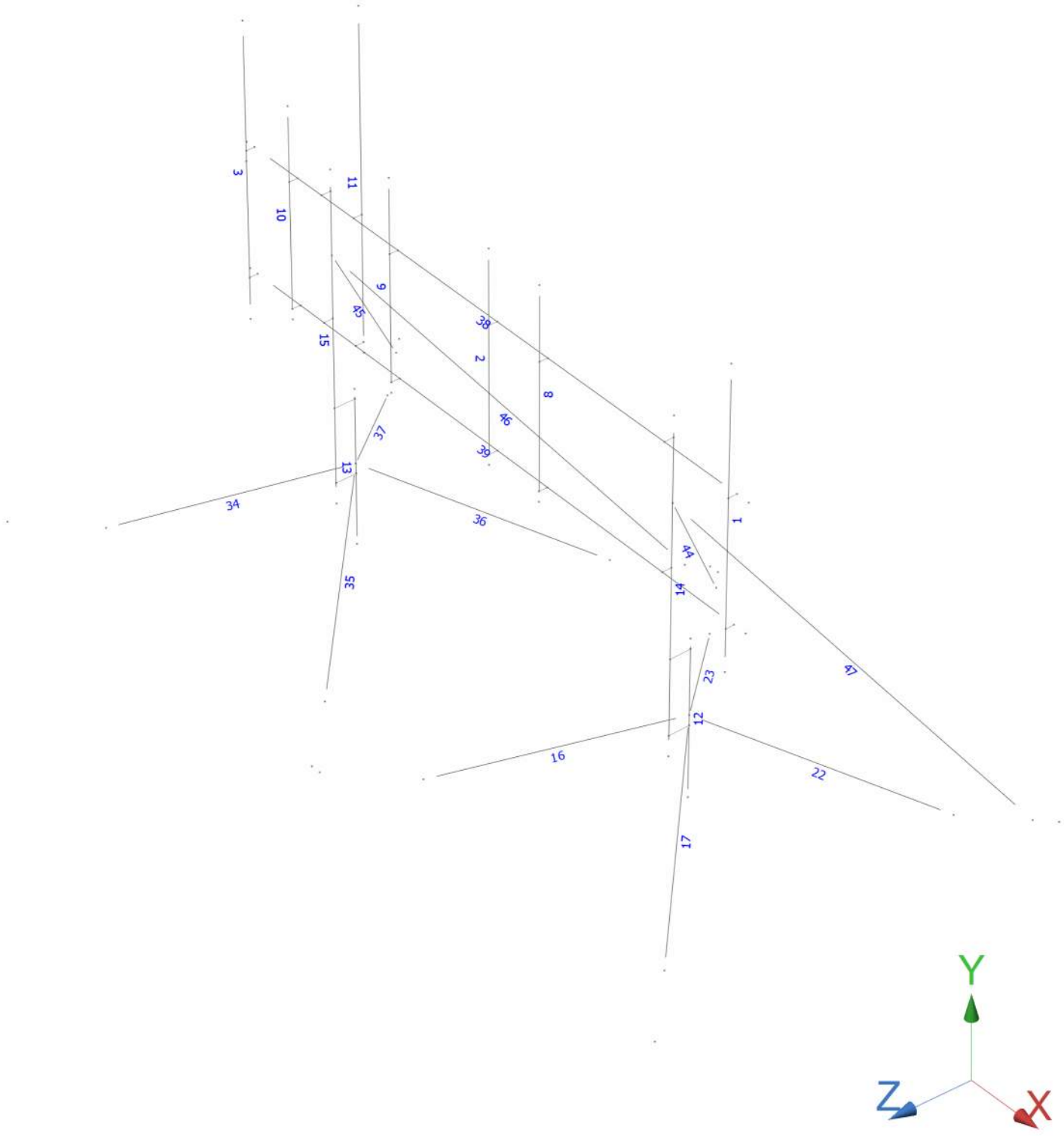
TEP Northeast

Current Date: 2/24/2023 10:47 AM
Units system: English



TEP Northeast

Current Date: 2/24/2023 10:47 AM
Units system: English



RAM® Elements CONNECT Edition

TEP Northeast

Current Date: 2/24/2023 10:48 AM
Units system: English

Load data

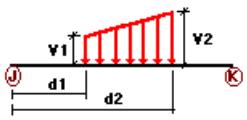
GLOSSARY

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
Di	Ice Load	No	LL
Wfice	Wind ICE (FRONT)	No	WIND
Wsice	Wind ICE (SIDE)	No	WIND

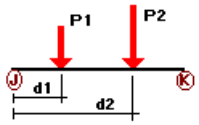
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wf	44	z	-0.027	-0.027	0.00	No	100.00	Yes
	45	z	-0.027	-0.027	0.00	No	100.00	Yes
	46	z	-0.027	-0.027	0.00	No	100.00	Yes
	47	z	-0.027	-0.027	0.00	No	100.00	Yes
	8	z	-0.013	-0.013	0.00	No	100.00	Yes
	10	z	-0.013	-0.013	0.00	No	100.00	Yes
	11	z	-0.013	-0.013	0.00	No	100.00	Yes
	38	z	-0.013	-0.013	0.00	No	100.00	Yes
	39	z	-0.013	-0.013	0.00	No	100.00	Yes
	14	z	-0.015	-0.015	0.00	No	100.00	Yes
	15	z	-0.015	-0.015	0.00	No	100.00	Yes
	12	z	-0.019	-0.019	0.00	No	100.00	Yes
	13	z	-0.019	-0.019	0.00	No	100.00	Yes
	16	z	-0.018	-0.018	0.00	No	100.00	Yes
	17	z	-0.018	-0.018	0.00	No	100.00	Yes
	22	z	-0.018	-0.018	0.00	No	100.00	Yes
	23	z	-0.018	-0.018	0.00	No	100.00	Yes
	34	z	-0.018	-0.018	0.00	No	100.00	Yes
	35	z	-0.018	-0.018	0.00	No	100.00	Yes
	36	z	-0.018	-0.018	0.00	No	100.00	Yes
	37	z	-0.018	-0.018	0.00	No	100.00	Yes
Ws	44	x	-0.027	-0.027	0.00	No	100.00	Yes
	45	x	-0.027	-0.027	0.00	No	100.00	Yes
	46	x	-0.027	-0.027	0.00	No	100.00	Yes
	47	x	-0.027	-0.027	0.00	No	100.00	Yes
	1	x	-0.013	-0.013	0.00	No	100.00	Yes
	2	x	-0.013	-0.013	0.00	No	100.00	Yes
	3	x	-0.013	-0.013	0.00	No	100.00	Yes
	8	x	-0.013	-0.013	0.00	No	100.00	Yes
	9	x	-0.013	-0.013	0.00	No	100.00	Yes

	10	x	-0.013	-0.013	0.00	No	100.00	Yes
	11	x	-0.013	-0.013	0.00	No	100.00	Yes
	14	x	-0.015	-0.015	0.00	No	100.00	Yes
	15	x	-0.015	-0.015	0.00	No	100.00	Yes
	12	x	-0.019	-0.019	0.00	No	100.00	Yes
	13	x	-0.019	-0.019	0.00	No	100.00	Yes
	16	x	-0.018	-0.018	0.00	No	100.00	Yes
	17	x	-0.018	-0.018	0.00	No	100.00	Yes
	22	x	-0.018	-0.018	0.00	No	100.00	Yes
	23	x	-0.018	-0.018	0.00	No	100.00	Yes
	34	x	-0.018	-0.018	0.00	No	100.00	Yes
	35	x	-0.018	-0.018	0.00	No	100.00	Yes
	36	x	-0.018	-0.018	0.00	No	100.00	Yes
	37	x	-0.018	-0.018	0.00	No	100.00	Yes
Di	44	y	-0.008	-0.008	0.00	No	100.00	Yes
	45	y	-0.008	-0.008	0.00	No	100.00	Yes
	46	y	-0.008	-0.008	0.00	No	100.00	Yes
	47	y	-0.008	-0.008	0.00	No	100.00	Yes
	1	y	-0.005	-0.005	0.00	No	100.00	Yes
	2	y	-0.005	-0.005	0.00	No	100.00	Yes
	3	y	-0.005	-0.005	0.00	No	100.00	Yes
	8	y	-0.005	-0.005	0.00	No	100.00	Yes
	9	y	-0.005	-0.005	0.00	No	100.00	Yes
	10	y	-0.005	-0.005	0.00	No	100.00	Yes
	11	y	-0.005	-0.005	0.00	No	100.00	Yes
	38	y	-0.005	-0.005	0.00	No	100.00	Yes
	39	y	-0.005	-0.005	0.00	No	100.00	Yes
	14	y	-0.006	-0.006	0.00	No	100.00	Yes
	15	y	-0.006	-0.006	0.00	No	100.00	Yes
	12	y	-0.007	-0.007	0.00	No	100.00	Yes
	13	y	-0.007	-0.007	0.00	No	100.00	Yes
	16	y	-0.006	-0.006	0.00	No	100.00	Yes
	17	y	-0.006	-0.006	0.00	No	100.00	Yes
	22	y	-0.006	-0.006	0.00	No	100.00	Yes
	23	y	-0.006	-0.006	0.00	No	100.00	Yes
	34	y	-0.006	-0.006	0.00	No	100.00	Yes
	35	y	-0.006	-0.006	0.00	No	100.00	Yes
	36	y	-0.006	-0.006	0.00	No	100.00	Yes
	37	y	-0.006	-0.006	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	1	y	-0.027	1.50	No
		y	-0.027	4.50	No
		y	-0.06	4.00	No
		y	-0.072	4.00	No
	2	y	-0.019	0.25	No
		y	-0.019	3.25	No
	3	y	-0.027	1.50	No
		y	-0.027	4.50	No
		y	-0.073	4.00	No
		y	-0.046	4.00	No
	9	y	-0.041	1.00	No
		y	-0.041	3.50	No
		y	-0.044	3.00	No

Wf	1	z	-0.221	1.50	No
		z	-0.221	4.50	No
		z	-0.036	4.00	No
		z	-0.036	4.00	No
	2	z	-0.134	0.25	No
		z	-0.134	3.25	No
	3	z	-0.226	1.50	No
		z	-0.226	4.50	No
		z	-0.039	4.00	No
		z	-0.024	4.00	No
	9	z	-0.109	1.00	No
		z	-0.109	3.50	No
		z	-0.025	3.00	No
Ws	1	x	-0.094	1.50	No
		x	-0.094	4.50	No
		x	-0.108	4.00	No
	2	x	-0.076	0.25	No
		x	-0.076	3.25	No
	3	x	-0.096	1.50	No
		x	-0.096	4.50	No
		x	-0.105	4.00	No
	9	x	-0.074	1.00	No
		x	-0.074	3.50	No
		x	-0.059	3.00	No
Di	1	y	-0.066	1.50	No
		y	-0.066	4.50	No
		y	-0.036	4.00	No
		y	-0.032	4.00	No
	2	y	-0.041	0.25	No
		y	-0.041	3.25	No
	3	y	-0.067	1.50	No
		y	-0.067	4.50	No
		y	-0.036	4.00	No
		y	-0.031	4.00	No
	9	y	-0.037	1.00	No
		y	-0.037	3.50	No
		y	-0.048	3.00	No
Wfice	1	z	-0.04	1.50	No
		z	-0.04	4.50	No
		z	-0.01	4.00	No
		z	-0.009	4.00	No
	2	z	-0.026	0.25	No
		z	-0.026	3.25	No
	3	z	-0.04	1.50	No
		z	-0.04	4.50	No
		z	-0.01	4.00	No
		z	-0.007	4.00	No
	9	z	-0.021	1.00	No
		z	-0.021	3.50	No
		z	-0.004	3.00	No
Wsice	1	x	-0.019	1.50	No
		x	-0.019	4.50	No
		x	-0.022	4.00	No
	2	x	-0.016	0.25	No
		x	-0.016	3.25	No
	3	x	-0.019	1.50	No
		x	-0.019	4.50	No
		x	-0.021	4.00	No
	9	x	-0.015	1.00	No
		x	-0.015	3.50	No
		x	-0.013	3.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wf	Wind Load (FRONT)	No	0.00	0.00	0.00
Ws	Wind Load (SIDE)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wfice	Wind ICE (FRONT)	No	0.00	0.00	0.00
Wsice	Wind ICE (SIDE)	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
Di	0.00	0.00	0.00
Wfice	0.00	0.00	0.00
Wsice	0.00	0.00	0.00

RAM Elements CONNECT Edition

TEP Northeast

Current Date: 2/24/2023 10:48 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=0.9DL+Wf
LC4=0.9DL+Ws
LC5=1.2DL+Di+Wfice
LC6=1.2DL+Di+Wsice
LC7=1.4DL
LC8=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	L 2X2X3_16	**16**	LC3 at 0.00%	0.08	OK	Sec. F1
		17	LC1 at 0.00%	0.08	OK	Eq. H2-1
		22	LC2 at 0.00%	0.10	OK	Eq. H2-1
		23	LC2 at 0.00%	0.10	OK	Eq. H2-1
		34	LC2 at 56.25%	0.06	OK	Eq. H2-1
		35	LC1 at 0.00%	**0.10**	**OK**	Eq. H2-1
		36	LC2 at 0.00%	0.10	OK	Eq. H2-1
		37	LC2 at 0.00%	0.09	OK	Eq. H2-1
	L 3X3X3_8	**44**	LC1 at 50.00%	0.20	OK	Eq. H2-1
		45	LC4 at 50.00%	0.18	OK	Eq. H2-1
		46	LC1 at 50.00%	**0.22**	**OK**	Eq. H2-1
		47	LC1 at 50.00%	0.15	OK	Eq. H2-1
	PIPE 2-1_2x0.203	**14**	LC3 at 25.00%	0.36	OK	Eq. H1-1b
		15	LC3 at 25.00%	**0.39**	**OK**	Eq. H1-1b
	PIPE 2x0.154	**1**	LC1 at 43.75%	0.19	OK	Eq. H1-1b
		2	LC1 at 33.33%	0.10	OK	Eq. H1-1b
		3	LC1 at 42.19%	0.18	OK	Eq. H1-1b
		8	LC1 at 35.42%	0.06	OK	Eq. H1-1b
		9	LC2 at 93.75%	0.10	OK	Eq. H1-1b
		10	LC1 at 35.42%	0.08	OK	Eq. H1-1b
		11	LC1 at 60.42%	0.14	OK	Eq. H1-1b
		38	LC1 at 15.63%	**0.64**	**OK**	Eq. H1-1b
		39	LC3 at 15.63%	0.28	With warnings	Eq. H1-1b
	PIPE 3x0.216	**12**	LC1 at 48.44%	0.05	OK	Eq. H1-1b
		13	LC3 at 48.44%	**0.06**	**OK**	Eq. H1-1b

Date: 7/19/2023
Project Name: SONESTA
Project No.: MA2038
Designed By: CL **Checked By:** MSC

Check Antenna Frame @ Beta Sector:

Item	Wt. (Lbs/ft.)	Linear ft.	Qty.	Total (Lbs.)	
Panel Antenna	37	--	1	37.0	
Panel Antenna	53	--	1	53.0	
Panel Antenna	53	--	1	53.0	
Panel Antenna	82	--	1	82.0	
RRH	60	--	1	60.0	
RRH	72	--	1	72.0	
RRH	73	--	1	73.0	
RRH	46	--	1	46.0	
Surge Arrestor	35	--	1	35.0	
Camera	30	--	1	30.0	
Ballast Blocks	38	--	64	2432.0	*(16 blocks per side)*
Pipe Mast	3.66	15	2	109.8	
Pipe Mast	3.66	5	4	73.2	
Pipe Mast	3.66	7	2	51.2	
Pipe Mast	3.66	8	1	29.3	
Pipe Mast	5.80	8	2	92.8	
Pipe Mast	7.58	3.83	2	58.1	
Angle Brace	2.44	5.45	8	106.4	
Angle Brace	7.20	10	4	288.0	
Miscellaneous	100	--	1	100.0	
		Total, T_{weight}	**=**	**3881.8**	**lbs**

Area / Load: 3881.8 lbs.
20' x 10' 200 ft^2

= **19.41 PSF**

Wind Loads:

Item	Wind Force (lbs)	Quantity	Total (lbs)	
Antenna	1375	1	1375	
RRH's	135	1	135	
Surge Arrestor	134	1	134	
	Total, T_{wind}	**=**	**1644.0**	**lbs**

Check Overturning Moment:

Distance to Center of Antenna, $D_{ANTENNA}$ = 8.00 ft
Distance to Center of RRH, D_{RRH} = 7.00 ft
Distance to Center of Surge Arrestor, D_{SURGE} = 6.00 ft

Overturning Safety Factor, SF = 1.5

Overturning Moment = Total Wind x D x SF **19123.5 lb-ft**

Date: 7/19/2023
Project Name: SONESTA
Project No.: MA2038
Designed By: CL Checked By: MSC

Check Frame Weight Requirements for Overturning:

Centroid Distance, D_c (ft.) = 5.00

F_w = Mo/Dc

= **3824.7 lbs. < 3881.77 lbs. O.K!**

Check Sliding:

Friction Factor= 1.16 (Rubber on Rubber - Adhere rubber mats on the underside of the steel frame)

Sliding = T_w / Friction Factor =

= **1417.24 lbs. < 3881.77 lbs. O.K!**

Safety Factor= Total Wt./ Sliding

= **2.7 O.K!**

Steel Platform
Calculations

Date: 2/17/2023
Project Name: SONESTA
Project No.: MA2038
Designed By: RL Checked By: MSC

Check Antenna Frame:

Item	Wt. (Lbs/ft.)	Linear ft.	Qty.	Total (Lbs.)
55'x12' Screen Wall	3412		1	3411.6
L 4x3-1/2x1/4 Angles	6.20	18.50	5	573.5
L 5x5x3/8 Angles	12.30	14.43	5	887.4
L 2x2x1/8 Angles	1.65	6.00	28	277.2
L 3-1/2x2-1/2x1/4 Angles	4.90	15.00	8	588.0
L 3-1/2x2-1/2x1/4 Angles	4.90	6.00	12	352.8
L 3-1/2x2-1/2x1/4 Angles	4.90	12.83	8	502.9
Miscellaneous	100		1	100.0
		Total, T_{weight}		6693.5 lbs

Number of Supports = 5

Dead Load per Support = 1339 lbs.

Date: 2/24/2023
Project Name: SONESTA
Project No.: MA2038
Designed By: RL **Checked By:** MSC

Wind Analysis → Existing Screen Wall

Reference Codes:

-Massachusetts State Building Code 9th Edition.

-International Building Code 2015 (IBC 2015).

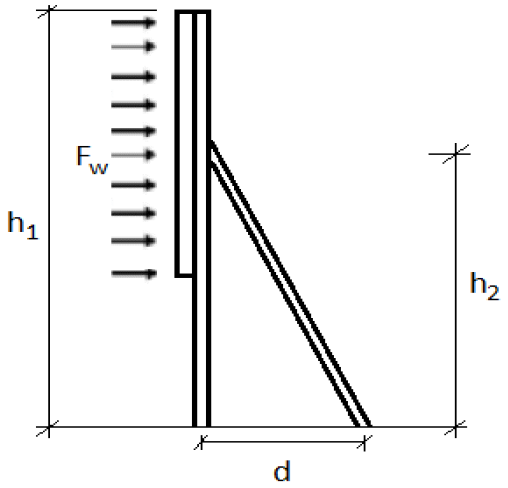
-Minimum Design Loads for Buildings and Other Structures (ASCE 7-10).

Structure Classification		II		(ASCE 7-10 Table 1.5-1)
Basic Wind Speed, V		128	mph	(MA Building Code Table 1604.11)
Exposure Category		C		(ASCE 7-10 Section 26.7)
Height Above Ground Level, z		142	ft	(Top of Existing Screen Wall)
Exposure Coefficient, K_z		1.36		(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	$= 0.00256K_zK_{zt}K_dV^2$			(ASCE 7-10 Equation 29.3-1)
	= **51.45 psf**			
Gust Factor, G		0.85		(ASCE 7-10 Section 26.9)
Enclosure Shape:		Square		
Net Force Coeficient, C_f		1.30		(ASCE 7-10 Figure 29.5-1)
Projected Area Normal to Wind, A_f		128	ft^2	(12.0 ft x 10.7 ft W)
Wind Force, F	= $q_zGC_fA_f$			(ASCE 7-10 Equation 29.5-2)
	= **56.95 psf**			

Date: 2/24/2023
Project Name: SONESTA
Project No.: MA2038
Designed By: RL **Checked By:** MSC

Calculate axial Load on Brace

Dimensions (ft)	Wide, w	Height, h
	10.67	12



h_1 =	18.5	ft.
h_2 =	13.1	ft.
d=	6.1	ft.
Wind Force F_w =	7289	lbs.

Reaction Force

R_{x1} =	334	lbs.
R_{x2} =	6955	lbs.
R_y =	14936	lbs.

Date: 2/8/2023
Project Name: SONESTA
Project No.: MA2038
Designed By: RL Checked By: MSC

Wind Analysis → Proposed Equipment

Reference Codes:

-Massachusetts State Building Code 9th Edition.

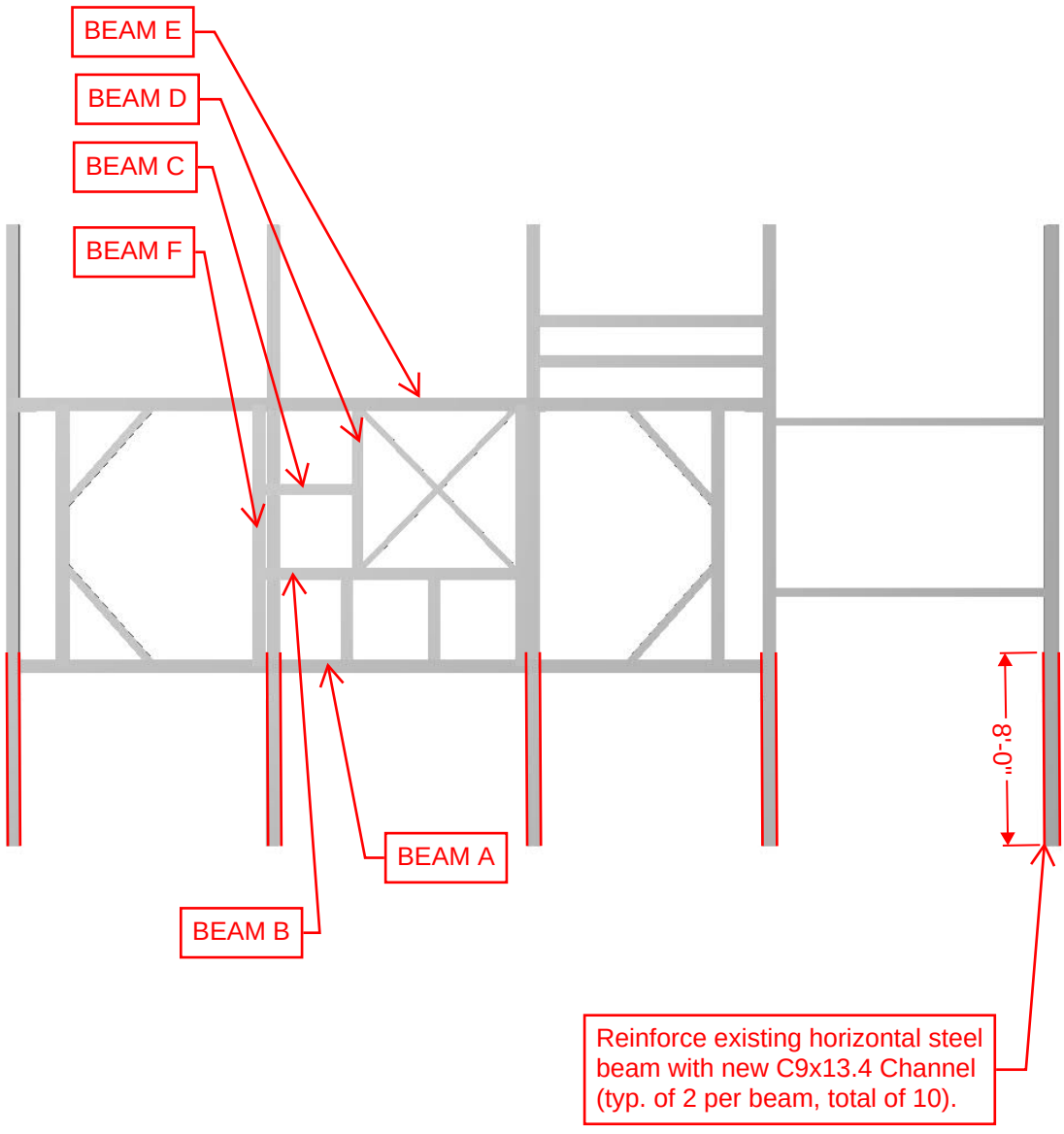
-International Building Code 2015 (IBC 2015).

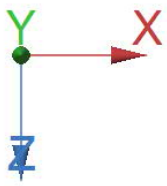
-Minimum Design Loads for Buildings and Other Structures (ASCE 7-10).

Structure Classification		II		(ASCE 7-10 Table 1.5-1)
Basic Wind Speed, V		128	mph	(MA Building Code Table 1604.11)
Exposure Category		C		(ASCE 7-10 Section 26.7)
Height Above Ground Level, z		134	ft	(Top of Equipment)
Exposure Coefficient, K_z		1.34		(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	$= 0.00256K_zK_{zt}K_dV^2$			(ASCE 7-10 Equation 29.3-1)
	$=$ 50.72 psf			
Gust Factor, G		0.85		(ASCE 7-10 Section 26.9)
Enclosure Shape:		Square		
Net Force Coefficient, C_f		1.31		(ASCE 7-10 Figure 29.5-1)
Area Wind Force, F	$=$ q_zGC_f			(ASCE 7-10 Equation 29.5-2)
	$=$ 56.34 psf			

TEP Northeast

Current Date: 4/11/2023 3:29 PM
Units system: English





Date: 2/21/2023
Project Name: SONESTA
Project No.: MA2038
Designed By: RL **Checked By:** MSC

Load Breakdown:

Live Loads:

Service	25	psf
Handrail	50	plf

Dead Loads:

Grating	15	psf
Handrail	10	plf

Beam A

Live Load

→ Service	25	psf	x	1.88	ft.	(Tributary Width)
=	**46.9**	**plf**				
→ Handrail	50	plf				

Dead Load

→ Grating	15	psf	x	1.88	ft.	(Tributary Width)
	28.1	**plf**				
→ Handrail	10	plf				

Beam B

Live Load

→ Service	25	psf	x	3.63	ft.	(Tributary Width)
=	**90.6**	**plf**				

Dead Load

→ Grating	15	psf	x	3.63	ft.	(Tributary Width)
	54.4	**plf**				

Beam C

Live Load

→ Service	25	psf	x	3.46	ft.	(Tributary Width)
=	**86.5**	**plf**				

Dead Load

→ Grating	15	psf	x	3.46	ft.	(Tributary Width)
	51.9	**plf**				

Date: 2/21/2023
Project Name: SONESTA
Project No.: MA2038
Designed By: RL **Checked By:** MSC

Load Breakdown (Cont.):

Beam D

Live Load

→ Service	25	psf	x	1.75	ft.	(Tributary Width)
=	**43.8**	**plf**				

Dead Load

→ Grating	15	psf	x	1.75	ft.	(Tributary Width)
	26.3	**plf**				

Beam E

Live Load

→ Service	25	psf	x	3.33	ft.	(Tributary Width)
=	**83.3**	**plf**				
→ Handrail	50	plf				

Dead Load

→ Grating	15	psf	x	3.33	ft.	(Tributary Width)
	50.0	**plf**				
→ Handrail	10	plf				

Beam F

Live Load

→ Handrail	50	plf

Dead Load

→ Handrail	10	plf

TEP Northeast
45 Beechwood Drive
North Andover, MA 01845

Project Title: Equipment Shelter located on the Roof
Engineer: RL
Project ID: MA2038
Project Descr: (C-Band)

General Section Property Calculator

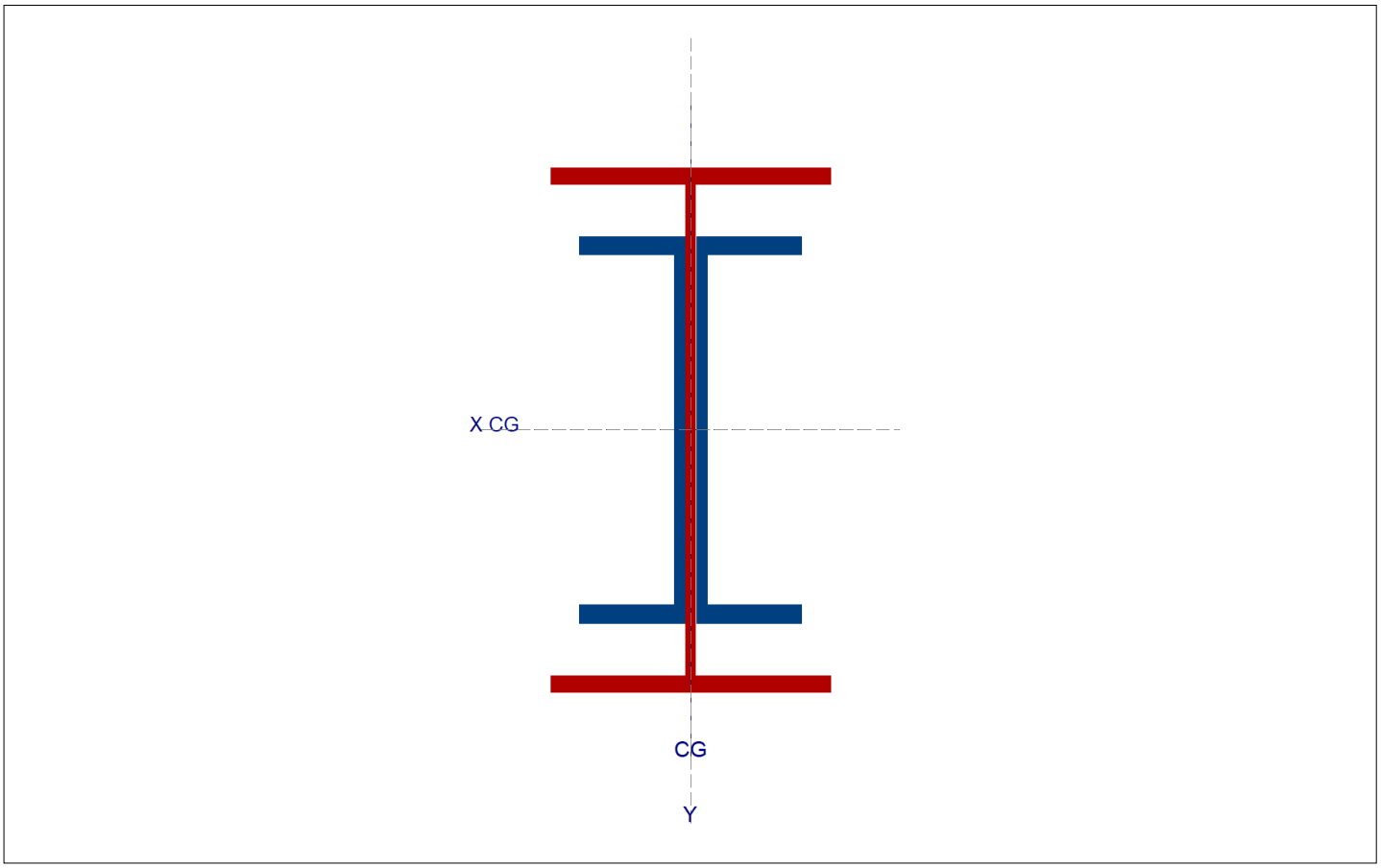
Project File: MA2038.ec6

DESCRIPTION: Reinforcement Existing W12x26

Final Section Properties

Total Area	:	15.387 in^2	Ixx	:	296.299 in^4	Sxx : - Y	: 48.574 in^3
			Iyy	:	27.053 in^4	Sxx : +Y	: 48.574 in^3
Calculated final C.G. distance from Datum :						Syy : - X	: 8.337 in^3
X cg Dist.	:	0.0 in	Zxx	:	61.695 in^3	Syy : +X	: 8.337 in^3
Y cg Dist.	:	0.0 in	Zyy	:	14.641 in^3		
Edge Distances from CG. :						r xx	: 4.388 in
+X	:	3.245 in	+Y	:	6.10 in	r yy	: 1.326 in
-X	:	-3.245 in	-Y	:	-6.10 in		

Rotation of All Components @ 0.00 deg CCW



Steel Shapes

W12x26 : 1	Area =	7.564 in^2	Rotation =	0 deg CCW	
			Xcg =	0.000 in	
			Ycg =	0.000 in	
C9x13.4 : 2	Area =	3.912 in^2	Rotation =	0 deg CCW	
			Xcg =	0.750 in	
			Ycg =	0.000 in	

TEP Northeast
45 Beechwood Drive
North Andover, MA 01845

Project Title: Equipment Shelter located on the Roof
Engineer: RL
Project ID: MA2038
Project Descr: (C-Band)

General Section Property Calculator

Project File: MA2038.ec6

DESCRIPTION: Reinforcement Existing W12x26

C9x13.4 : 3

Area = 3.912 in^2

Rotation = 180 deg CCW
Xcg = -0.750 in
Ycg = 0.000 in

Date: 4/13/2023
Project Name: SONESTA
Project No.: MA2038
Designed By: RL Checked By: MSC

Determine Equivalent Steel Beam Size

Existing Steel Beam = W 12x26

Depth(in)=	12.2	Area(in^2)=	7.7	Ix(in^4)=	204.0	Sx(in^3)=	33.4	Zx(in^3)=	37.2
y(in)=	6.1	Fy(ksi)=	36.0	Iy(in^4)=	17.3	Sy(in^3)=	5.3	Zy(in^3)=	8.2

Proposed Reinforced Beam Properties (See Enercalc Section Properties)

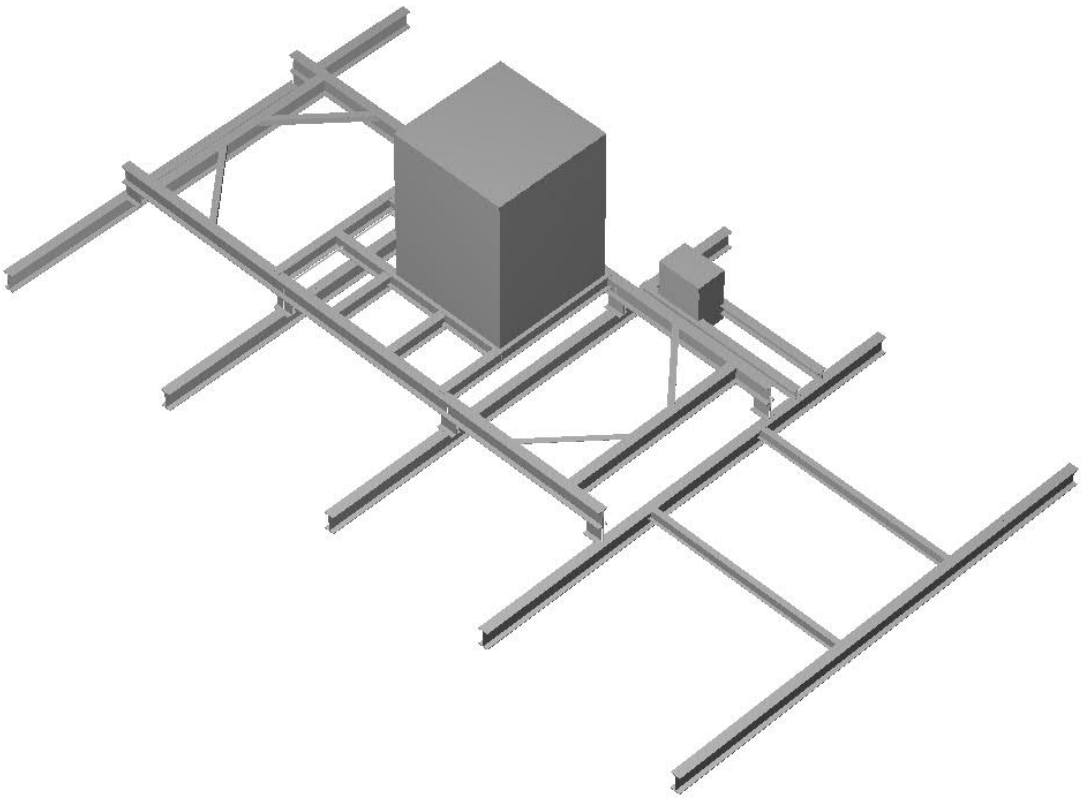
Depth(in)=	12.2	Area(in^2)=	15.4	Ix(in^4)=	296.3	Sx(in^3)=	48.6	Zx(in^3)=	61.7
y(in)=	6.1	Fy(ksi)=	36.0	Iy(in^4)=	27.1	Sy(in^3)=	8.3	Zy(in^3)=	14.6

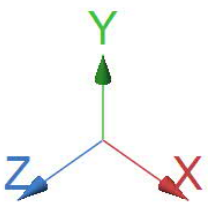
Equivalent Steel Beam = W 12x35

Depth(in)=	12.5	Area(in^2)=	10.3	Ix(in^4)=	285.0	Sx(in^3)=	45.6	Zx(in^3)=	51.2
y(in)=	6.3	Fy(ksi)=	36.0	Iy(in^4)=	24.5	Sy(in^3)=	7.5	Zy(in^3)=	11.5

TEP Northeast

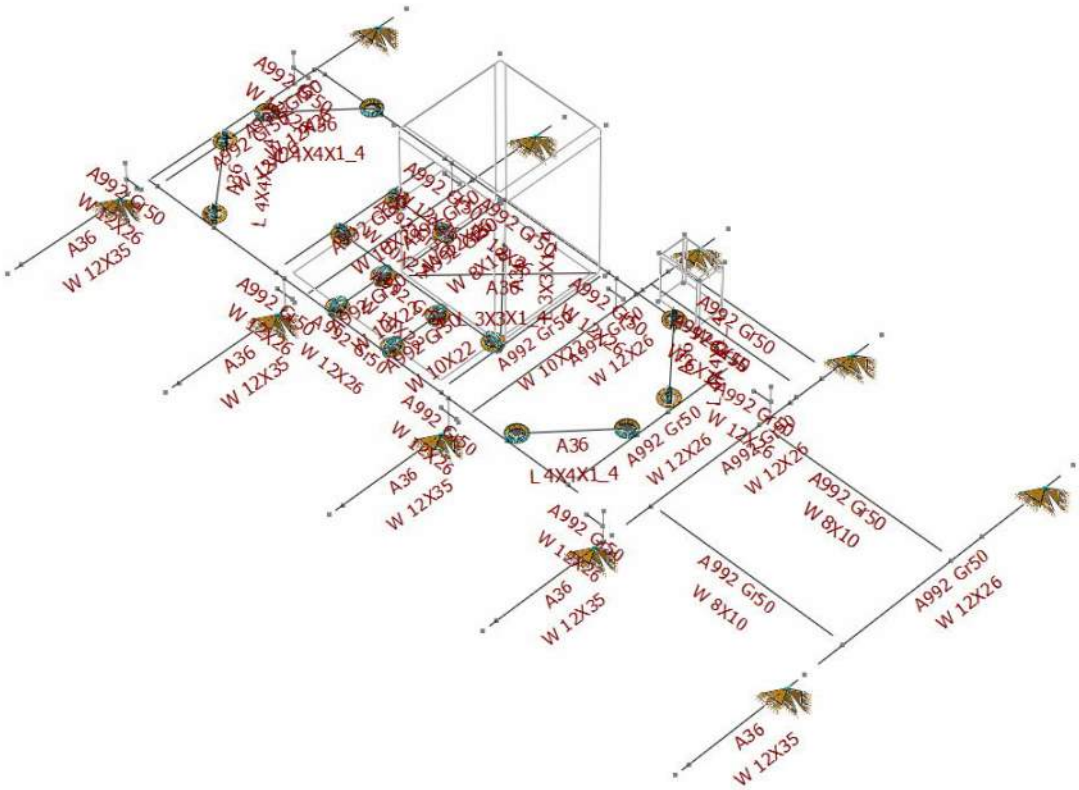
Current Date: 4/14/2023 2:03 PM
Units system: English

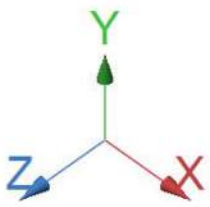




TEP Northeast

Current Date: 4/14/2023 2:07 PM
Units system: English

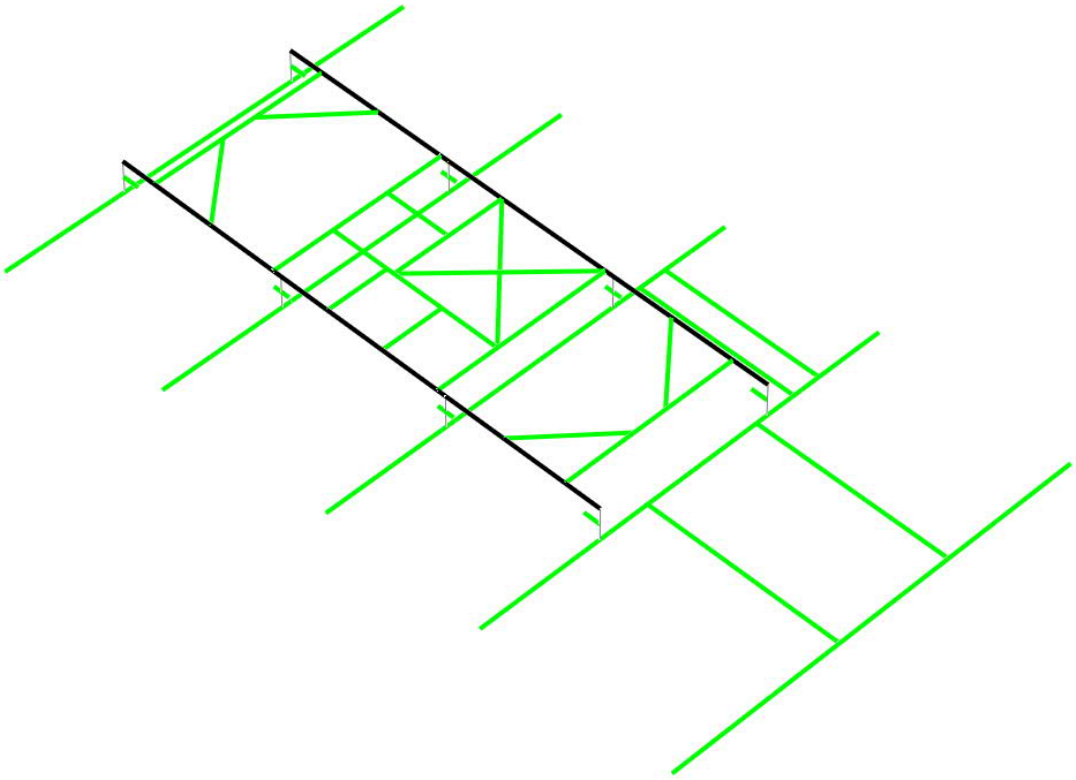


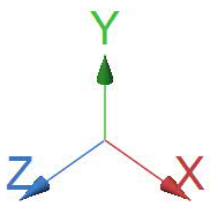


TEP Northeast

Current Date: 4/14/2023 2:07 PM
Units system: English

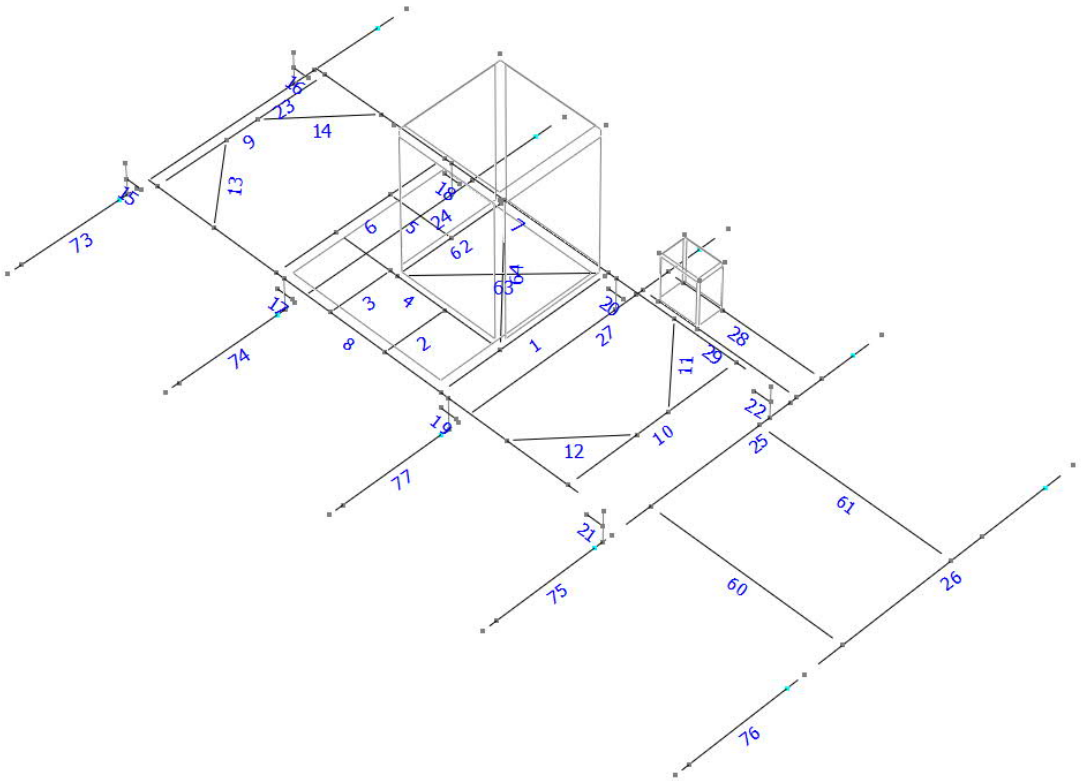
Design status
- Not designed
- Error on design
- Design O.K.
- With warnings





TEP Northeast

Current Date: 4/14/2023 2:10 PM
Units system: English



RAM® Elements
CONNECT Edition

TEP Northeast

Current Date: 4/13/2023 9:50 AM
Units system: English

Load data

GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

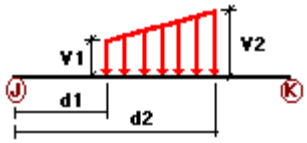
Condition	Description	Comb.	Category
DL	Dead Load	No	DL
LL	Live Load	No	LL
WL1	Wind Load Side 1	No	WIND
WL2	Wind Load Side 2	No	WIND
WL3	Wind Load Side 3	No	WIND
WL4	Wind Load Side 4	No	WIND

Load on nodes

Condition	Node	FX [Kip]	FY [Kip]	FZ [Kip]	MX [Kip*ft]	MY [Kip*ft]	MZ [Kip*ft]
DL	11	0.00	-1.875	0.00	0.00	0.00	0.00
	12	0.00	-1.875	0.00	0.00	0.00	0.00
	13	0.00	-1.875	0.00	0.00	0.00	0.00
	96	0.00	-1.339	0.00	0.00	0.00	0.00
	100	0.00	-1.339	0.00	0.00	0.00	0.00
	103	0.00	-1.339	0.00	0.00	0.00	0.00
	107	0.00	-1.339	0.00	0.00	0.00	0.00
	112	0.00	-1.339	0.00	0.00	0.00	0.00
	67	0.00	-1.339	0.00	0.00	0.00	0.00
	68	0.00	-1.339	0.00	0.00	0.00	0.00
	70	0.00	-1.339	0.00	0.00	0.00	0.00
	72	0.00	-1.339	0.00	0.00	0.00	0.00
	75	0.00	-1.339	0.00	0.00	0.00	0.00
	124	0.00	-0.113	0.00	0.00	0.00	0.00
	127	0.00	-0.113	0.00	0.00	0.00	0.00
	129	0.00	-0.113	0.00	0.00	0.00	0.00
	131	0.00	-0.113	0.00	0.00	0.00	0.00
	133	0.00	-1.875	0.00	0.00	0.00	0.00
WL1	82	0.00	14.936	-6.955	0.00	0.00	0.00
	85	0.00	14.936	-6.955	0.00	0.00	0.00
	87	0.00	14.936	-6.955	0.00	0.00	0.00
	90	0.00	14.936	-6.955	0.00	0.00	0.00
	94	0.00	14.936	-6.955	0.00	0.00	0.00
	96	0.00	14.936	-0.334	0.00	0.00	0.00
	100	0.00	14.936	-0.334	0.00	0.00	0.00
	103	0.00	14.936	-0.334	0.00	0.00	0.00
	107	0.00	14.936	-0.334	0.00	0.00	0.00
	112	0.00	14.936	-0.334	0.00	0.00	0.00
	67	0.00	-14.936	-0.334	0.00	0.00	0.00
	68	0.00	-14.936	-0.334	0.00	0.00	0.00

	70	0.00	-14.936	-0.334	0.00	0.00	0.00
	72	0.00	-14.936	-0.334	0.00	0.00	0.00
	75	0.00	-14.936	-0.334	0.00	0.00	0.00
	6	0.00	-14.936	-6.955	0.00	0.00	0.00
	7	0.00	-14.936	-6.955	0.00	0.00	0.00
	8	0.00	-14.936	-6.955	0.00	0.00	0.00
	9	0.00	-14.936	-6.955	0.00	0.00	0.00
	10	0.00	-14.936	-6.955	0.00	0.00	0.00
WL3	82	0.00	-14.936	6.955	0.00	0.00	0.00
	85	0.00	-14.936	6.955	0.00	0.00	0.00
	87	0.00	-14.936	6.955	0.00	0.00	0.00
	90	0.00	-14.936	6.955	0.00	0.00	0.00
	94	0.00	-14.936	6.955	0.00	0.00	0.00
	96	0.00	-14.936	0.334	0.00	0.00	0.00
	100	0.00	-14.936	0.334	0.00	0.00	0.00
	103	0.00	-14.936	0.334	0.00	0.00	0.00
	107	0.00	-14.936	0.334	0.00	0.00	0.00
	112	0.00	-14.936	0.334	0.00	0.00	0.00
	67	0.00	14.936	0.334	0.00	0.00	0.00
	68	0.00	14.936	0.334	0.00	0.00	0.00
	70	0.00	14.936	0.334	0.00	0.00	0.00
	72	0.00	14.936	0.334	0.00	0.00	0.00
	75	0.00	14.936	0.334	0.00	0.00	0.00
	6	0.00	14.936	6.955	0.00	0.00	0.00
	7	0.00	14.936	6.955	0.00	0.00	0.00
	8	0.00	14.936	6.955	0.00	0.00	0.00
	9	0.00	14.936	6.955	0.00	0.00	0.00
	10	0.00	14.936	6.955	0.00	0.00	0.00

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	1	y	-0.05	-0.05	0.00	Yes	65.00	Yes
		y	-0.01	-0.01	0.00	No	100.00	Yes
	6	y	-0.01	-0.01	0.00	No	100.00	Yes
	7	y	-0.026	-0.026	33.00	Yes	67.00	Yes
		y	-0.01	-0.01	33.00	Yes	67.00	Yes
	8	y	-0.028	-0.028	33.00	Yes	67.00	Yes
		y	-0.01	-0.01	33.00	Yes	67.00	Yes
	4	y	-0.054	-0.054	0.00	No	100.00	Yes
	62	y	-0.05	-0.05	0.00	No	100.00	Yes
	5	y	-0.052	-0.052	0.00	No	100.00	Yes
LL	1	y	-0.084	-0.084	0.00	Yes	65.00	Yes
		y	-0.05	-0.05	0.00	No	100.00	Yes
	6	y	-0.05	-0.05	0.00	No	100.00	Yes
	7	y	-0.044	-0.044	33.00	Yes	67.00	Yes
		y	-0.05	-0.05	33.00	Yes	67.00	Yes
	8	y	-0.047	-0.047	33.00	Yes	67.00	Yes
		y	-0.05	-0.05	33.00	Yes	67.00	Yes

4	y	-0.091	-0.091	0.00	No	100.00	Yes
62	y	-0.084	-0.084	0.00	No	100.00	Yes
5	y	-0.087	-0.087	0.00	No	100.00	Yes

Load on shells

Condition	Shell	Pressure [Kip/ft2]	Temp. [F]
WL1	1	0.056	0.00
	6	0.056	0.00
WL2	2	0.056	0.00
	7	0.056	0.00
WL3	3	0.056	0.00
	8	0.056	0.00
WL4	4	0.056	0.00
	9	0.056	0.00

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
LL	Live Load	No	0.00	0.00	0.00
WL1	Wind Load Side 1	No	0.00	0.00	0.00
WL2	Wind Load Side 2	No	0.00	0.00	0.00
WL3	Wind Load Side 3	No	0.00	0.00	0.00
WL4	Wind Load Side 4	No	0.00	0.00	0.00

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TEP Northeast

Current Date: 4/14/2023 2:10 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.4DL
LC2=1.2DL+1.6LL
LC3=1.2DL+LL
LC4=1.2DL+0.5WL1
LC5=1.2DL+0.5WL2
LC6=1.2DL+0.5WL3
LC7=1.2DL+0.5WL4
LC8=1.2DL+LL+WL1
LC9=1.2DL+LL+WL2
LC10=1.2DL+LL+WL3
LC11=1.2DL+LL+WL4
LC12=0.9DL+WL1
LC13=0.9DL+WL2
LC14=0.9DL+WL3
LC15=0.9DL+WL4
LC16=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	L 3X3X1_4	**63**	LC10 at 1.04%	**0.45**	**OK**	Eq. H3-8
		64	LC2 at 3.13%	0.39	OK	Eq. H3-8
	L 4X4X1_4	**11**	LC10 at 50.00%	0.02	OK	Eq. H2-1
		12	LC8 at 50.00%	**0.02**	**OK**	Eq. H2-1
		13	LC8 at 50.00%	0.02	OK	Eq. H2-1
		14	LC8 at 0.00%	0.01	OK	Eq. H3-8
	W 10X22	**1**	LC10 at 65.63%	**0.19**	**OK**	Eq. H1-1b
		6	LC9 at 64.58%	0.10	OK	Eq. H1-1b
		4	LC9 at 62.50%	0.13	OK	Eq. H1-1b
		2	LC10 at 46.88%	0.00	OK	Eq. H1-1b
		3	LC11 at 46.88%	0.00	OK	Eq. H1-1b
		5	LC2 at 50.00%	0.01	OK	Eq. H1-1b
	W 12X26	**7**	LC8 at 45.67%	0.25	With warnings	Eq. H1-1b
		8	LC2 at 55.83%	0.07	With warnings	Eq. H1-2
		9	LC8 at 0.00%	0.03	OK	Eq. H1-1b
		10	LC8 at 0.00%	0.04	OK	Eq. H1-1b
		15	LC1 at 0.00%	0.00	OK	Sec. G2.1(a)
		16	LC1 at 0.00%	0.00	OK	Sec. G2.1(a)
		17	LC1 at 50.00%	0.00	OK	Sec. G2.1(a)
		18	LC1 at 50.00%	0.00	OK	Sec. G2.1(a)
		19	LC1 at 50.00%	0.00	OK	Sec. G2.1(a)
		20	LC1 at 50.00%	0.00	OK	Sec. G2.1(a)
		21	LC1 at 100.00%	0.00	OK	Sec. G2.1(a)
		22	LC1 at 100.00%	0.00	OK	Sec. G2.1(a)
		23	LC10 at 100.00%	0.64	OK	Eq. H1-1b
		24	LC10 at 100.00%	**0.64**	**OK**	Eq. H1-1b
		25	LC10 at 100.00%	0.64	OK	Eq. H1-1b
		26	LC10 at 100.00%	0.64	OK	Eq. H1-1b
		27	LC10 at 100.00%	0.64	OK	Eq. H1-1b

W 12X35	**73**	LC10 at 12.50%	0.73	OK	Eq. H1-1b
	74	LC10 at 14.06%	0.73	OK	Eq. H1-1b
	75	LC10 at 12.50%	**0.73**	**OK**	Eq. H1-1b
	76	LC10 at 12.50%	0.73	OK	Eq. H1-1b
	77	LC10 at 14.06%	0.73	OK	Eq. H1-1b
W 6X15	**28**	LC9 at 100.00%	**0.08**	**OK**	Eq. H1-1b
	29	LC9 at 10.42%	0.06	OK	Eq. H1-1b
W 8X10	**60**	LC11 at 0.00%	**0.04**	**OK**	Eq. H1-1b
	61	LC11 at 6.25%	0.04	OK	Eq. H1-1b
W 8X18	**62**	LC9 at 97.92%	**0.09**	**OK**	Sec. G2.1(a)

TEP Northeast

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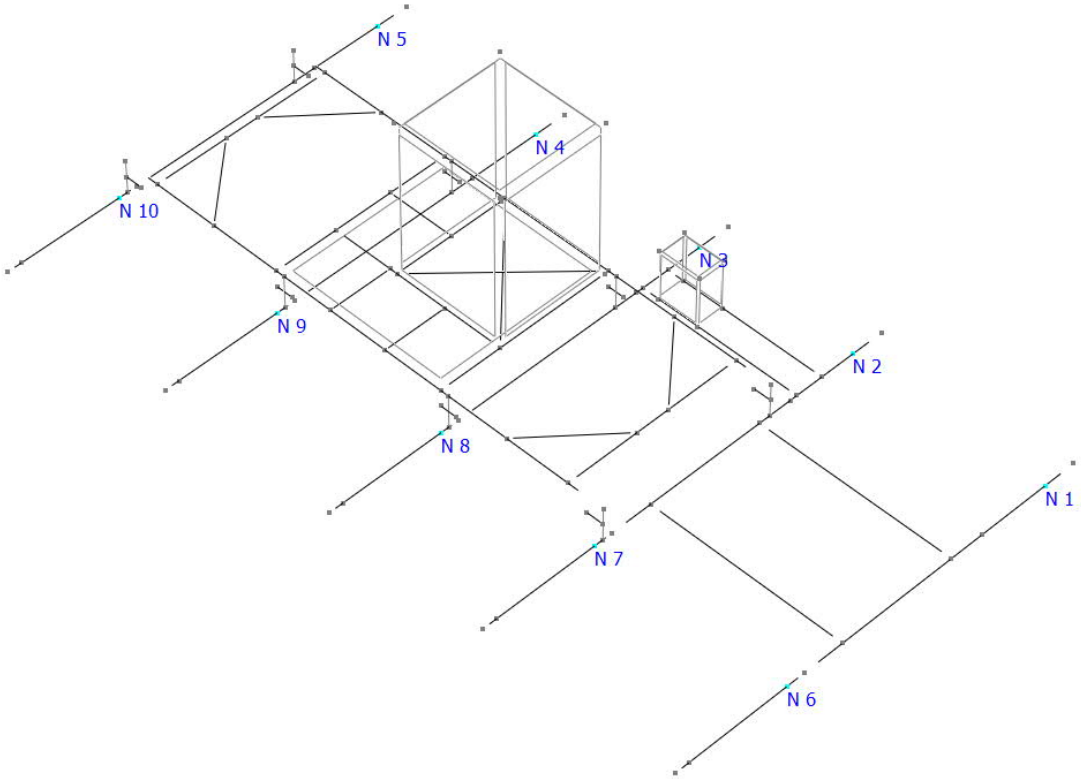
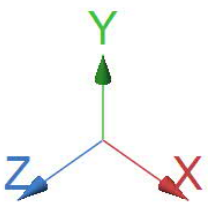
Units system: English





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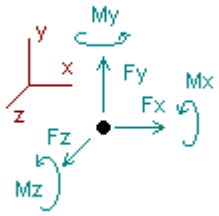
Units system: English

Analysis result

Reactions



Direction of positive forces and moments

	Forces [Kip]			Moments [Kip*ft]		
Node	**FX**	**FY**	**FZ**	**MX**	**MY**	**MZ**
Condition **LC1=1.4DL**						
1	-0.03124	1.77883	0.00010	0.00000	0.00000	0.00000
2	0.03381	2.56810	-0.03587	0.00000	0.00000	0.00000
3	-0.01974	5.96974	0.05783	0.00000	0.00000	0.00000
4	0.01690	5.11415	0.01551	0.00000	0.00000	0.00000
5	0.02285	1.98575	-0.01463	0.00000	0.00000	0.00000
6	-0.01949	3.15896	-0.00362	0.00000	0.00000	0.00000
7	-0.03029	3.78916	0.03718	0.00000	0.00000	0.00000
8	-0.00736	8.99649	-0.05905	0.00000	0.00000	0.00000
9	0.00966	7.57008	-0.03806	0.00000	0.00000	0.00000
10	0.02489	3.56751	0.04061	0.00000	0.00000	0.00000
SUM	0.00000	44.49876	0.00000	0.00000	0.00000	0.00000
Condition **LC2=1.2DL+1.6LL**						
1	-0.03856	1.52456	0.00016	0.00000	0.00000	0.00000
2	0.07401	2.24979	-0.03838	0.00000	0.00000	0.00000
3	-0.05615	6.62296	0.08948	0.00000	0.00000	0.00000
4	0.02095	5.97932	0.03898	0.00000	0.00000	0.00000
5	0.02847	1.77677	-0.00773	0.00000	0.00000	0.00000
6	-0.02363	2.70760	-0.00450	0.00000	0.00000	0.00000
7	-0.03330	3.18914	0.03932	0.00000	0.00000	0.00000
8	-0.01297	10.50849	-0.08784	0.00000	0.00000	0.00000
9	0.01452	9.42414	-0.07257	0.00000	0.00000	0.00000
10	0.02666	3.05802	0.04306	0.00000	0.00000	0.00000
SUM	0.00000	47.04079	0.00000	0.00000	0.00000	0.00000
Condition **LC3=1.2DL+LL**						
1	-0.03413	1.52462	0.00013	0.00000	0.00000	0.00000
2	0.05716	2.23157	-0.03556	0.00000	0.00000	0.00000
3	-0.04142	6.05808	0.07460	0.00000	0.00000	0.00000
4	0.01850	5.38080	0.02942	0.00000	0.00000	0.00000
5	0.02513	1.74875	-0.00955	0.00000	0.00000	0.00000
6	-0.02103	2.70763	-0.00398	0.00000	0.00000	0.00000
7	-0.03055	3.21117	0.03647	0.00000	0.00000	0.00000
8	-0.01047	9.45961	-0.07387	0.00000	0.00000	0.00000
9	0.01216	8.32347	-0.05758	0.00000	0.00000	0.00000
10	0.02466	3.05797	0.03992	0.00000	0.00000	0.00000

SUM	0.00000	43.70367	0.00000	0.00000	0.00000	0.00000
Condition	**LC4=1.2DL+0.5WL1**					
1	-0.02534	6.97754	2.76034	0.00000	0.00000	0.00000
2	0.04238	7.72298	2.89834	0.00000	0.00000	0.00000
3	0.00155	10.98613	3.21487	0.00000	0.00000	0.00000
4	0.02181	10.07634	3.03274	0.00000	0.00000	0.00000
5	0.02746	7.16366	2.85193	0.00000	0.00000	0.00000
6	-0.01622	-2.74560	4.52567	0.00000	0.00000	0.00000
7	-0.03829	-2.21439	4.73134	0.00000	0.00000	0.00000
8	-0.02275	1.70772	4.92260	0.00000	0.00000	0.00000
9	-0.00121	0.89305	4.83682	0.00000	0.00000	0.00000
10	0.01062	-2.42564	4.64396	0.00000	0.00000	0.00000
SUM	0.00000	38.14180	38.41861	0.00000	0.00000	0.00000
Condition	**LC5=1.2DL+0.5WL2**					
1	0.04071	1.51366	-0.00050	0.00000	0.00000	0.00000
2	0.36849	2.03769	-0.18143	0.00000	0.00000	0.00000
3	0.23195	5.03122	0.24482	0.00000	0.00000	0.00000
4	0.11831	4.58152	-0.00235	0.00000	0.00000	0.00000
5	0.13513	1.76419	-0.03426	0.00000	0.00000	0.00000
6	0.03593	2.69722	0.00522	0.00000	0.00000	0.00000
7	0.24767	3.11585	0.03113	0.00000	0.00000	0.00000
8	0.20909	7.46462	0.02233	0.00000	0.00000	0.00000
9	0.24048	6.75869	-0.07593	0.00000	0.00000	0.00000
10	0.27391	3.17712	-0.00904	0.00000	0.00000	0.00000
SUM	1.90167	38.14180	0.00000	0.00000	0.00000	0.00000
Condition	**LC6=1.2DL+0.5WL3**					
1	-0.02796	-3.92598	-2.76017	0.00000	0.00000	0.00000
2	0.01568	-3.30543	-2.95938	0.00000	0.00000	0.00000
3	-0.03590	-0.77034	-3.12051	0.00000	0.00000	0.00000
4	0.00669	-1.30821	-3.00798	0.00000	0.00000	0.00000
5	0.01167	-3.74932	-2.87685	0.00000	0.00000	0.00000
6	-0.01705	8.15882	-4.53185	0.00000	0.00000	0.00000
7	-0.01323	8.71374	-4.66779	0.00000	0.00000	0.00000
8	0.01008	13.70937	-5.01878	0.00000	0.00000	0.00000
9	0.01766	12.07535	-4.90104	0.00000	0.00000	0.00000
10	0.03234	8.54380	-4.57425	0.00000	0.00000	0.00000
SUM	0.00000	38.14180	-38.41861	0.00000	0.00000	0.00000
Condition	**LC7=1.2DL+0.5WL4**					
1	-0.09399	1.53577	0.00065	0.00000	0.00000	0.00000
2	-0.30855	2.36108	0.11854	0.00000	0.00000	0.00000
3	-0.26450	5.20692	-0.14418	0.00000	0.00000	0.00000
4	-0.09098	4.18665	0.02876	0.00000	0.00000	0.00000
5	-0.09652	1.63776	0.00922	0.00000	0.00000	0.00000
6	-0.06912	2.71815	-0.01140	0.00000	0.00000	0.00000
7	-0.29873	3.37841	0.03194	0.00000	0.00000	0.00000
8	-0.21949	7.95980	-0.12301	0.00000	0.00000	0.00000
9	-0.22708	6.21998	0.01070	0.00000	0.00000	0.00000
10	-0.23271	2.93729	0.07877	0.00000	0.00000	0.00000
SUM	-1.90167	38.14180	0.00000	0.00000	0.00000	0.00000

Condition **LC8=1.2DL+LL+WL1**

1	-0.03124	12.43241	5.52064	0.00000	0.00000	0.00000
2	0.08347	13.27871	5.82570	0.00000	0.00000	0.00000
3	-0.00463	17.79944	6.39679	0.00000	0.00000	0.00000
4	0.03271	16.76912	6.06313	0.00000	0.00000	0.00000
5	0.04087	12.67523	5.72188	0.00000	0.00000	0.00000
6	-0.02016	-8.20109	9.05356	0.00000	0.00000	0.00000
7	-0.05530	-7.71661	9.44221	0.00000	0.00000	0.00000
8	-0.04310	-2.55083	9.87189	0.00000	0.00000	0.00000
9	-0.00593	-2.87063	9.67796	0.00000	0.00000	0.00000
10	0.00330	-7.91208	9.26348	0.00000	0.00000	0.00000
SUM	0.00000	43.70367	76.83722	0.00000	0.00000	0.00000

Condition **LC9=1.2DL+LL+WL2**

1	0.10190	1.50213	-0.00107	0.00000	0.00000	0.00000
2	0.73883	1.90235	-0.33925	0.00000	0.00000	0.00000
3	0.46082	5.88802	0.46672	0.00000	0.00000	0.00000
4	0.21943	5.77706	-0.00108	0.00000	0.00000	0.00000
5	0.25903	1.87414	-0.05276	0.00000	0.00000	0.00000
6	0.08588	2.68633	0.01281	0.00000	0.00000	0.00000
7	0.52772	2.94451	0.03418	0.00000	0.00000	0.00000
8	0.41202	8.96881	0.07046	0.00000	0.00000	0.00000
9	0.45995	8.86136	-0.14250	0.00000	0.00000	0.00000
10	0.53776	3.29894	-0.04751	0.00000	0.00000	0.00000
SUM	3.80333	43.70367	0.00000	0.00000	0.00000	0.00000

Condition **LC10=1.2DL+LL+WL3**

1	-0.03660	-9.37462	-5.52037	0.00000	0.00000	0.00000
2	0.03086	-8.78109	-5.89630	0.00000	0.00000	0.00000
3	-0.07931	-5.71470	-6.26608	0.00000	0.00000	0.00000
4	0.00319	-6.00088	-6.01201	0.00000	0.00000	0.00000
5	0.00930	-9.15292	-5.74044	0.00000	0.00000	0.00000
6	-0.02159	13.60776	-9.06146	0.00000	0.00000	0.00000
7	-0.00451	14.14177	-9.36970	0.00000	0.00000	0.00000
8	0.02122	21.45465	-9.99897	0.00000	0.00000	0.00000
9	0.03024	19.49515	-9.78888	0.00000	0.00000	0.00000
10	0.04718	14.02855	-9.18303	0.00000	0.00000	0.00000
SUM	0.00000	43.70367	-76.83722	0.00000	0.00000	0.00000

Condition **LC11=1.2DL+LL+WL4**

1	-0.16894	1.54716	0.00132	0.00000	0.00000	0.00000
2	-0.61673	2.55312	0.26362	0.00000	0.00000	0.00000
3	-0.53930	6.23734	-0.31288	0.00000	0.00000	0.00000
4	-0.18925	4.98681	0.05956	0.00000	0.00000	0.00000
5	-0.21104	1.61900	0.03380	0.00000	0.00000	0.00000
6	-0.12699	2.72897	-0.02063	0.00000	0.00000	0.00000
7	-0.58483	3.47504	0.03693	0.00000	0.00000	0.00000
8	-0.42364	9.95388	-0.21682	0.00000	0.00000	0.00000
9	-0.44826	7.78815	0.02741	0.00000	0.00000	0.00000
10	-0.49436	2.81421	0.12770	0.00000	0.00000	0.00000
SUM	-3.80333	43.70367	0.00000	0.00000	0.00000	0.00000

Condition **LC12=0.9DL+WL1**

1	-0.01736	12.05107	5.52057	0.00000	0.00000	0.00000
2	0.04857	12.69528	5.83282	0.00000	0.00000	0.00000
3	0.02430	15.57769	6.36760	0.00000	0.00000	0.00000
4	0.02555	14.67468	6.04951	0.00000	0.00000	0.00000
5	0.03032	12.20097	5.71824	0.00000	0.00000	0.00000
6	-0.01148	-8.87767	9.05523	0.00000	0.00000	0.00000
7	-0.04365	-8.48979	9.41836	0.00000	0.00000	0.00000
8	-0.03831	-6.22484	9.91726	0.00000	0.00000	0.00000
9	-0.01290	-6.32610	9.71569	0.00000	0.00000	0.00000
10	-0.00504	-8.67493	9.24194	0.00000	0.00000	0.00000
SUM	0.00000	28.60635	76.83722	0.00000	0.00000	0.00000

Condition **LC13=0.9DL+WL2**

1	0.11490	1.12175	-0.00107	0.00000	0.00000	0.00000
2	0.70313	1.32495	-0.32501	0.00000	0.00000	0.00000
3	0.48404	3.66560	0.42838	0.00000	0.00000	0.00000
4	0.22023	3.68343	-0.02172	0.00000	0.00000	0.00000
5	0.24298	1.40013	-0.05272	0.00000	0.00000	0.00000
6	0.09219	2.01013	0.01432	0.00000	0.00000	0.00000
7	0.52347	2.17387	0.02198	0.00000	0.00000	0.00000
8	0.43530	5.28862	0.10880	0.00000	0.00000	0.00000
9	0.47238	5.40787	-0.11166	0.00000	0.00000	0.00000
10	0.51470	2.53001	-0.06131	0.00000	0.00000	0.00000
SUM	3.80333	28.60635	0.00000	0.00000	0.00000	0.00000

Condition **LC14=0.9DL+WL3**

1	-0.02235	-9.75545	-5.52044	0.00000	0.00000	0.00000
2	-0.00496	-9.35895	-5.87851	0.00000	0.00000	0.00000
3	-0.05068	-7.93418	-6.31107	0.00000	0.00000	0.00000
4	-0.00502	-8.09300	-6.03699	0.00000	0.00000	0.00000
5	-0.00108	-9.62302	-5.73653	0.00000	0.00000	0.00000
6	-0.01326	12.93062	-9.05982	0.00000	0.00000	0.00000
7	0.00596	13.36439	-9.37104	0.00000	0.00000	0.00000
8	0.02798	17.77666	-9.97313	0.00000	0.00000	0.00000
9	0.02526	16.03701	-9.76053	0.00000	0.00000	0.00000
10	0.03814	13.26226	-9.18915	0.00000	0.00000	0.00000
SUM	0.00000	28.60635	-76.83722	0.00000	0.00000	0.00000

Condition **LC15=0.9DL+WL4**

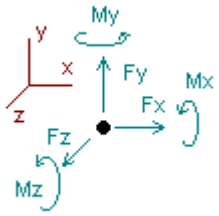
1	-0.15388	1.16537	0.00117	0.00000	0.00000	0.00000
2	-0.65210	1.96926	0.27442	0.00000	0.00000	0.00000
3	-0.50518	4.01849	-0.34933	0.00000	0.00000	0.00000
4	-0.20494	2.89391	0.04140	0.00000	0.00000	0.00000
5	-0.21583	1.14865	0.03406	0.00000	0.00000	0.00000
6	-0.11635	2.05144	-0.01884	0.00000	0.00000	0.00000
7	-0.55870	2.69514	0.02392	0.00000	0.00000	0.00000
8	-0.43572	6.28207	-0.18345	0.00000	0.00000	0.00000
9	-0.47224	4.32799	0.06278	0.00000	0.00000	0.00000
10	-0.48838	2.05402	0.11388	0.00000	0.00000	0.00000
SUM	-3.80333	28.60635	0.00000	0.00000	0.00000	0.00000

Condition **LC16=0.9DL**

1	-0.02007	1.14353	0.00006	0.00000	0.00000	0.00000
2	0.02180	1.65092	-0.02312	0.00000	0.00000	0.00000
3	-0.01264	3.83746	0.03731	0.00000	0.00000	0.00000
4	0.01081	3.28753	0.01001	0.00000	0.00000	0.00000
5	0.01467	1.27657	-0.00941	0.00000	0.00000	0.00000
6	-0.01252	2.03076	-0.00233	0.00000	0.00000	0.00000
7	-0.01947	2.43589	0.02385	0.00000	0.00000	0.00000
8	-0.00472	5.78361	-0.03799	0.00000	0.00000	0.00000
9	0.00616	4.86666	-0.02449	0.00000	0.00000	0.00000
10	0.01599	2.29341	0.02610	0.00000	0.00000	0.00000
SUM	0.00000	28.60635	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=1.4DL
LC2=1.2DL+1.6LL
LC3=1.2DL+LL
LC4=1.2DL+0.5WL1
LC5=1.2DL+0.5WL2
LC6=1.2DL+0.5WL3
LC7=1.2DL+0.5WL4
LC8=1.2DL+LL+WL1
LC9=1.2DL+LL+WL2
LC10=1.2DL+LL+WL3
LC11=1.2DL+LL+WL4
LC12=0.9DL+WL1
LC13=0.9DL+WL2
LC14=0.9DL+WL3
LC15=0.9DL+WL4
LC16=0.9DL

		Forces						Moments					
Node		**Fx** [Kip]	**lc**	**Fy** [Kip]	**lc**	**Fz** [Kip]	**lc**	**Mx** [Kip*ft]	**lc**	**My** [Kip*ft]	**lc**	**Mz** [Kip*ft]	**lc**
1	Max	0.115	LC13	12.432	LC8	5.521	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.169	LC11	-9.755	LC14	-5.520	LC14	0.00000	LC1	0.00000	LC1	0.00000	LC1
2	Max	0.739	LC9	13.279	LC8	5.833	LC12	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.652	LC15	-9.359	LC14	-5.896	LC10	0.00000	LC1	0.00000	LC1	0.00000	LC1
3	Max	0.484	LC13	17.799	LC8	6.397	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.539	LC11	-7.934	LC14	-6.311	LC14	0.00000	LC1	0.00000	LC1	0.00000	LC1

4	Max	0.220	LC13	16.769	LC8	6.063	LC8	0.00000	LC1	0.00000	LC1	0.00000 LC1
	Min	-0.205	LC15	-8.093	LC14	-6.037	LC14	0.00000	LC1	0.00000	LC1	0.00000 LC1
5	Max	0.259	LC9	12.675	LC8	5.722	LC8	0.00000	LC1	0.00000	LC1	0.00000 LC1
	Min	-0.216	LC15	-9.623	LC14	-5.740	LC10	0.00000	LC1	0.00000	LC1	0.00000 LC1
6	Max	0.092	LC13	13.608	LC10	9.055	LC12	0.00000	LC1	0.00000	LC1	0.00000 LC1
	Min	-0.127	LC11	-8.878	LC12	-9.061	LC10	0.00000	LC1	0.00000	LC1	0.00000 LC1
7	Max	0.528	LC9	14.142	LC10	9.442	LC8	0.00000	LC1	0.00000	LC1	0.00000 LC1
	Min	-0.585	LC11	-8.490	LC12	-9.371	LC14	0.00000	LC1	0.00000	LC1	0.00000 LC1
8	Max	0.435	LC13	21.455	LC10	9.917	LC12	0.00000	LC1	0.00000	LC1	0.00000 LC1
	Min	-0.436	LC15	-6.225	LC12	-9.999	LC10	0.00000	LC1	0.00000	LC1	0.00000 LC1
9	Max	0.472	LC13	19.495	LC10	9.716	LC12	0.00000	LC1	0.00000	LC1	0.00000 LC1
	Min	-0.472	LC15	-6.326	LC12	-9.789	LC10	0.00000	LC1	0.00000	LC1	0.00000 LC1
10	Max	0.538	LC9	14.029	LC10	9.263	LC8	0.00000	LC1	0.00000	LC1	0.00000 LC1
	Min	-0.494	LC11	-8.675	LC12	-9.189	LC14	0.00000	LC1	0.00000	LC1	0.00000 LC1

Date: 4/14/2023
Project Name: SONESTA
Project No.: MA2038
Designed By: RL Checked By: MSC

CHECK CONNECTION CAPACITY (Worst Case)

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

Bolt Type = A325 1/2" Thru Bolt

Allowable Tensile Load =

F_{Tall} = 8836 lbs.

Allowable Shear Load =

F_{Vall} = 5301 lbs.

TENSILE FORCES

Reaction F = 8490 lbs. (Gravity Load Supported by Column)

SHEAR FORCES

Reactions in X direction: 585 lbs. (See Bentley Output)
Reactions in Z direction: 9442 lbs. (See Bentley Output)

Resultant: 9460 lbs.

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

Tension Design Load /Bolts =

f_t = 2122.50 lbs. < 8836 lbs. Therefore, OK !

Shear Design Load / Bolts=

f_v = 2365.03 lbs. < 5301 lbs. Therefore, OK !

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.240	+	0.446	=	0.686	<	1.0	Therefore, OK !

Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY SPECTRUM, LLC

ATTN: FCC GROUP
AT&T MOBILITY SPECTRUM, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
KNKA226	
Radio Service CL - Cellular	
Market Numer CMA006	**Channel Block** A
Sub-Market Designator 0	

FCC Registration Number (FRN): 0014980726

Market Name
Boston-Lowell-Brockton-Lawrenc

Grant Date	Effective Date	Expiration Date	Five Yr Build-Out Date	Print Date
09-09-2014	01-18-2023	10-01-2024		

Site Information:

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
15	42-37-42.3 N	070-39-16.8 W	45.7	58.8	

Address: 40 DORY ROAD
City: GLOUCESTER **County:** ESSEX **State:** MA **Construction Deadline:**

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	93.100	97.500	101.800	101.800	100.800	88.700	85.700	101.800
Transmitting ERP (watts)	158.853	205.617	68.628	9.427	0.642	0.431	2.268	29.488

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	93.100	97.500	101.800	101.800	100.800	88.700	85.700	101.800
Transmitting ERP (watts)	0.459	5.462	56.429	198.529	168.403	38.276	3.953	0.786

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	93.100	97.500	101.800	101.800	100.800	88.700	85.700	101.800
Transmitting ERP (watts)	12.078	0.668	0.599	1.024	10.050	68.014	123.413	62.132

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

FCC 601-C
March 2018

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
20	43-03-11.8 N	071-16-02.1 W	179.2	59.4	

Address: 80 Diamond Hill Road

City: Candia **County:** ROCKINGHAM **State:** NH **Construction Deadline:**

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	73.200	111.000	159.400	159.000	98.400	148.300	88.600	75.600
Transmitting ERP (watts)	52.325	70.778	16.988	1.425	0.187	0.144	0.491	7.084

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	73.200	111.000	159.400	159.000	98.400	148.300	88.600	75.600
Transmitting ERP (watts)	0.343	3.851	33.085	100.313	84.855	19.494	2.061	0.299

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	73.200	111.000	159.400	159.000	98.400	148.300	88.600	75.600
Transmitting ERP (watts)	6.845	0.890	0.107	1.038	6.652	7.633	3.304	6.905

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
24	42-54-55.1 N	071-21-37.4 W	100.9	46.3	1011624

Address: 15 INDEPENDENCE DRIVE

City: LONDONDERRY **County:** ROCKINGHAM **State:** NH **Construction Deadline:**

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	35.900	30.000	44.800	52.100	54.500	72.000	68.000	66.500
Transmitting ERP (watts)	161.221	224.756	47.602	3.692	0.510	0.437	1.233	19.454

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	35.900	30.000	44.800	52.100	54.500	72.000	68.000	66.500
Transmitting ERP (watts)	0.510	3.172	43.604	213.248	156.639	22.374	1.350	0.496

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	35.900	30.000	44.800	52.100	54.500	72.000	68.000	66.500
Transmitting ERP (watts)	11.168	0.691	0.533	0.586	7.854	87.092	266.329	94.294

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
25	42-00-32.6 N	071-19-15.2 W	90.5	51.8	

Address: 75 WASHINGTON SST
City: PLAINVILLE **County:** NORFOLK **State:** MA **Construction Deadline:** 03-29-2013

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.500	61.200	95.600	96.100	94.300	64.100	46.000	48.800
Transmitting ERP (watts)	84.752	97.052	31.772	5.158	0.550	0.224	2.803	20.645

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.500	61.200	95.600	96.100	94.300	64.100	46.000	48.800
Transmitting ERP (watts)	0.380	5.181	37.013	100.829	79.042	20.699	2.118	0.824

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.500	61.200	95.600	96.100	94.300	64.100	46.000	48.800
Transmitting ERP (watts)	24.577	1.736	0.715	2.292	18.444	139.378	281.180	142.336

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
26	41-46-57.1 N	070-44-06.5 W	12.5	58.8	

Address: KENDRICK ROAD
City: WAREHAM **County:** PLYMOUTH **State:** MA **Construction Deadline:** 03-29-2013

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	46.500	56.700	59.800	50.600	39.100	32.800
Transmitting ERP (watts)	186.898	242.551	75.777	10.617	0.738	0.508	2.730	35.860

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	46.500	56.700	59.800	50.600	39.100	32.800
Transmitting ERP (watts)	0.361	5.818	47.861	150.309	121.062	28.493	2.933	0.991

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	46.500	56.700	59.800	50.600	39.100	32.800
Transmitting ERP (watts)	18.390	1.111	0.538	1.628	13.482	98.897	203.625	103.938

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
27	41-53-35.2 N	070-56-35.0 W	17.7	106.1	1210211

Address: 326 W GROVE ST

City: Middleboro **County:** PLYMOUTH **State:** MA C**onstruction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	47.500	46.300	30.000	37.000	40.900	39.500	51.600	42.300
Transmitting ERP (watts)	125.283	153.432	54.208	6.550	0.674	0.363	2.675	27.340

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	47.500	46.300	30.000	37.000	40.900	39.500	51.600	42.300
Transmitting ERP (watts)	0.351	5.901	52.455	151.828	120.612	27.887	2.679	0.991

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	47.500	46.300	30.000	37.000	40.900	39.500	51.600	42.300
Transmitting ERP (watts)	14.428	1.006	0.875	1.215	13.317	87.541	159.641	85.795

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
28	42-14-21.9 N	070-51-09.3 W	54.9	55.8	

Address: 168 Turkey Hill Lane

City: Cohasset **County:** NORFOLK **State:** MA C**onstruction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	99.800	98.300	97.600	71.700	64.800	62.900	86.700	99.100
Transmitting ERP (watts)	185.522	243.217	80.727	11.598	0.756	0.499	2.589	34.953

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	99.800	98.300	97.600	71.700	64.800	62.900	86.700	99.100
Transmitting ERP (watts)	0.521	6.371	65.693	238.024	196.107	43.191	4.256	0.906

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	99.800	98.300	97.600	71.700	64.800	62.900	86.700	99.100
Transmitting ERP (watts)	9.488	0.543	0.538	1.234	8.977	53.553	85.290	45.661

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
29	41-56-02.0 N	070-35-08.0 W	82.9	128.0	1007828

Address: 265 STATE ROAD

City: PLYMOUTH **County:** PLYMOUTH **State:** MA **Construction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	128.000	128.000	128.000	123.500	92.200	86.600	84.900	120.500
Transmitting ERP (watts)	23.222	24.154	10.475	1.931	0.466	0.109	1.398	6.965

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	128.000	128.000	128.000	123.500	92.200	86.600	84.900	120.500
Transmitting ERP (watts)	0.346	4.427	33.055	88.168	72.485	17.790	1.831	0.701

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	128.000	128.000	128.000	123.500	92.200	86.600	84.900	120.500
Transmitting ERP (watts)	9.680	0.561	0.550	1.216	9.292	54.685	90.439	45.409

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
30	42-12-47.6 N	071-32-33.4 W	128.0	58.5	

Address: 26 LUMBER STREET

City: HOPKINTON **County:** MIDDLESEX **State:** MA **Construction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	68.900	93.200	99.800	91.500	55.300	59.600	35.700	76.400
Transmitting ERP (watts)	158.662	188.312	64.228	8.830	0.704	0.395	4.080	30.535

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	68.900	93.200	99.800	91.500	55.300	59.600	35.700	76.400
Transmitting ERP (watts)	0.432	6.612	61.028	195.296	166.263	35.500	3.748	0.703

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	68.900	93.200	99.800	91.500	55.300	59.600	35.700	76.400
Transmitting ERP (watts)	18.831	1.074	0.590	1.783	15.144	103.799	219.501	97.060

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
31	42-38-27.0 N	070-36-24.8 W	36.6	38.7	

Address: 38 Thatcher Rd

City: ROCKLAND **County:** ESSEX **State:** MA **Construction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.500	69.500	69.500	69.500	69.500	66.700	58.400	60.100
Transmitting ERP (watts)	170.519	227.554	76.127	10.393	0.706	0.470	2.520	32.796

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.500	69.500	69.500	69.500	69.500	66.700	58.400	60.100
Transmitting ERP (watts)	0.462	5.689	58.840	206.264	174.760	39.385	4.197	0.837

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.500	69.500	69.500	69.500	69.500	66.700	58.400	60.100
Transmitting ERP (watts)	20.761	1.510	0.812	1.238	15.269	110.467	237.338	124.965

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
32	42-36-37.9 N	071-33-28.9 W	148.4	46.3	

Address: 142 LOWELL RD

City: GROTON **County:** MIDDLESEX **State:** MA **Construction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	129.600	133.000	121.700	118.300	83.000	99.300	81.700	86.000
Transmitting ERP (watts)	209.658	291.175	91.511	11.206	1.156	0.596	4.998	40.617

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	129.600	133.000	121.700	118.300	83.000	99.300	81.700	86.000
Transmitting ERP (watts)	0.597	10.042	80.421	284.569	246.599	46.898	5.186	0.906

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	129.600	133.000	121.700	118.300	83.000	99.300	81.700	86.000
Transmitting ERP (watts)	18.748	1.375	0.781	1.196	15.487	106.791	230.014	118.184

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
33	42-08-01.1 N	070-43-57.5 W	68.3	80.5	1017973

Address: 178 EAMES WAY

City: Marshfield **County:** PLYMOUTH **State:** MA **Construction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	125.300	128.600	128.200	125.800	107.800	113.100	97.600	105.400
Transmitting ERP (watts)	156.993	202.510	73.503	10.210	0.666	0.415	2.429	32.615

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	125.300	128.600	128.200	125.800	107.800	113.100	97.600	105.400
Transmitting ERP (watts)	0.482	5.988	62.083	217.536	187.313	40.576	4.382	0.869

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	125.300	128.600	128.200	125.800	107.800	113.100	97.600	105.400
Transmitting ERP (watts)	21.007	1.466	0.829	1.219	15.907	109.305	228.002	122.541

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
34	41-42-11.1 N	070-46-47.1 W	14.3	59.4	

Address: 55 BENSONBROOK ROAD

City: MARION **County:** PLYMOUTH **State:** MA **Construction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	51.300	62.700	66.200	68.700	66.600	60.600	47.100	51.900
Transmitting ERP (watts)	161.079	196.082	67.519	9.213	0.702	0.419	4.077	32.479

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	51.300	62.700	66.200	68.700	66.600	60.600	47.100	51.900
Transmitting ERP (watts)	0.446	6.712	62.074	197.767	163.770	38.273	3.886	0.801

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	51.300	62.700	66.200	68.700	66.600	60.600	47.100	51.900
Transmitting ERP (watts)	3.819	0.784	0.433	6.729	64.256	202.261	164.916	37.606

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
35	42-21-20.1 N	071-33-16.6 W	156.1	26.5	

Address: 157 UNION STREET

City: MARLBOROUGH **County:** MIDDLESEX **State:** MA C**onstruction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	97.800	119.900	113.500	108.400	76.200	73.000	51.900	77.300
Transmitting ERP (watts)	280.304	377.489	119.970	14.810	1.525	0.802	6.660	52.209

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	97.800	119.900	113.500	108.400	76.200	73.000	51.900	77.300
Transmitting ERP (watts)	0.801	13.105	105.660	375.949	325.389	63.339	6.978	1.142

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	97.800	119.900	113.500	108.400	76.200	73.000	51.900	77.300
Transmitting ERP (watts)	30.606	2.831	1.046	2.632	27.909	187.774	419.392	197.441

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
36	42-39-54.6 N	070-38-19.9 W	59.4	44.5	

Address: 68 JOHNSON ROAD

City: ROCKPORT **County:** ESSEX **State:** MA C**onstruction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	103.000	103.000	103.000	100.400	95.400	85.100	98.100	103.000
Transmitting ERP (watts)	126.741	159.124	54.189	7.443	0.564	0.334	3.098	25.685

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	103.000	103.000	103.000	100.400	95.400	85.100	98.100	103.000
Transmitting ERP (watts)	0.353	5.360	49.103	157.255	130.117	30.639	2.895	0.641

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	**0**	**45**	**90**	**135**	**180**	**225**	**270**	**315**
Antenna Height AAT (meters)	103.000	103.000	103.000	100.400	95.400	85.100	98.100	103.000
Transmitting ERP (watts)	15.787	0.974	0.495	1.442	11.730	84.942	168.331	87.120

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
37	42-41-29.8 N	071-47-30.8 W	233.8	47.9	

Address: 1140 Greenville Rd

City: ASHBY **County:** MIDDLESEX **State:** MA C**onstruction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	138.200	163.500	145.000	68.800	30.000	30.000	30.000
Transmitting ERP (watts)	301.383	343.844	123.915	17.212	1.267	0.862	4.339	57.968

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	138.200	163.500	145.000	68.800	30.000	30.000	30.000
Transmitting ERP (watts)	0.559	6.546	72.077	254.800	226.824	50.359	4.678	0.979

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	138.200	163.500	145.000	68.800	30.000	30.000	30.000
Transmitting ERP (watts)	35.557	2.084	1.375	2.194	29.159	209.483	410.600	215.057

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
38	42-38-54.9 N	071-47-40.6 W	240.8	47.2	

Address: 601-603 FITCHBURG STATE ROAD

City: ASHBY **County:** MIDDLESEX **State:** MA C**onstruction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	31.100	159.800	170.800	147.700	56.300	30.000	30.000	30.000
Transmitting ERP (watts)	204.865	233.420	85.530	11.768	0.897	0.575	2.961	39.554

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	31.100	159.800	170.800	147.700	56.300	30.000	30.000	30.000
Transmitting ERP (watts)	0.570	6.676	74.271	261.076	238.587	50.169	4.787	1.001

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	31.100	159.800	170.800	147.700	56.300	30.000	30.000	30.000
Transmitting ERP (watts)	24.123	1.410	0.948	1.499	20.272	140.599	280.157	146.756

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
40	43-05-58.2 N	070-47-28.6 W	7.6	67.4	

Address: 165 GOSLING RD
City: NEWINGTON **County:** ROCKINGHAM **State:** NH **Construction Deadline:** 03-29-2013

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	34.000	45.500	68.500	72.400	58.800	51.900	57.200	52.000
Transmitting ERP (watts)	205.727	278.300	62.928	5.059	0.711	0.597	1.577	25.136

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	34.000	45.500	68.500	72.400	58.800	51.900	57.200	52.000
Transmitting ERP (watts)	0.559	3.335	47.419	236.351	181.187	26.867	1.510	0.563

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	34.000	45.500	68.500	72.400	58.800	51.900	57.200	52.000
Transmitting ERP (watts)	10.525	0.618	0.497	0.555	7.391	82.592	243.998	90.540

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
41	43-04-39.1 N	071-07-30.3 W	107.0	60.7	1231475

Address: 150 Raymond Road
City: Nottingham **County:** ROCKINGHAM **State:** NH **Construction Deadline:** 03-29-2013

Antenna: 1
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	54.900	95.800	122.100	119.300	102.200	66.300	44.100	30.000
Transmitting ERP (watts)	160.334	230.049	54.265	4.271	0.586	0.522	1.415	21.993

Antenna: 2
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	54.900	95.800	122.100	119.300	102.200	66.300	44.100	30.000
Transmitting ERP (watts)	0.493	3.289	48.427	238.724	177.920	27.618	1.619	0.581

Antenna: 3
Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	54.900	95.800	122.100	119.300	102.200	66.300	44.100	30.000
Transmitting ERP (watts)	10.353	0.693	0.601	0.662	8.753	100.864	305.315	110.743

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
42	43-13-24.3 N	071-14-23.2 W	189.0	38.7	

Address: 50 OLD CANTERBURY RD

City: NORTHWOOD **County:** ROCKINGHAM **State:** NH C**onstruction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	43.800	80.800	68.900	30.000	53.500	30.000
Transmitting ERP (watts)	114.248	162.456	37.049	2.808	0.392	0.366	0.961	16.015

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	43.800	80.800	68.900	30.000	53.500	30.000
Transmitting ERP (watts)	0.544	3.573	49.915	233.638	184.420	30.453	1.413	0.618

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	43.800	80.800	68.900	30.000	53.500	30.000
Transmitting ERP (watts)	8.132	0.494	0.387	0.467	6.390	72.302	182.164	77.916

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
43	42-59-40.7 N	070-46-58.5 W	12.5	59.4	

Address: 96 GROVE RD

City: RYE **County:** ROCKINGHAM **State:** NH C**onstruction Deadline:** 03-29-2013

Antenna: 1

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	49.700	62.100	64.000	64.300	63.700	45.100	38.900	54.200
Transmitting ERP (watts)	146.515	206.846	49.164	3.766	0.505	0.452	1.193	17.877

Antenna: 2

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	49.700	62.100	64.000	64.300	63.700	45.100	38.900	54.200
Transmitting ERP (watts)	0.464	2.913	42.460	206.462	152.606	24.148	1.373	0.460

Antenna: 3

Maximum Transmitting ERP in Watts: 140.820

Azimuth(from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	49.700	62.100	64.000	64.300	63.700	45.100	38.900	54.200
Transmitting ERP (watts)	10.168	0.644	0.536	0.576	7.457	86.483	257.603	87.494

Control Points:

Control Pt. No. 2

Address: 100 LOWDER BROOK DR

City: WESTWOOD **County:** NORFOLK **State:** MA **Telephone Number:** (617)462-7094

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNKA226 **File Number:** **Print Date:**

Waivers/Conditions:

Special Condition for AU/name change (6/4/2016): Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

Commission approval of this application and the licenses contained therein are subject to the conditions set forth in the Memorandum Opinion and Order, adopted on December 29, 2006 and released on March 26, 2007, and revised in the Order on Reconsideration, adopted and released on March 26, 2007. See AT&T Inc. and BellSouth Corporation Application for Transfer of Control, WC Docket No. 06-74, Memorandum Opinion and Order, FCC 06-189 (rel. Mar. 26, 2007); AT&T Inc. and BellSouth Corporation, WC Docket No. 06-74, Order on Reconsideration, FCC 07-44 (rel. Mar. 26, 2007).

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS SERVICES, INC.

ATTN: FCC GROUP
NEW CINGULAR WIRELESS SERVICES, INC.
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
WPQL634	
Radio Service	
WS - Wireless Communications Service	

FCC Registration Number (FRN): 0004122032

Grant Date	Effective Date	Expiration Date	Print Date
02-04-2020	02-18-2023	07-21-2027	

Market Number	Channel Block	Sub-Market Designator
REA001	C	7

Market Name
Northeast

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
	09-13-2021		

Waivers/Conditions:

Special Condition for AU/name change (6/4/2016): Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/Mexico), future coordination of any base station transmitters shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

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This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.

This license is conditioned upon compliance with the provisions of Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent to Transfer Control of Licenses and Authorizations, Memorandum Opinion and Order, FCC 04-255 (rel. Oct. 26, 2004).

Commission approval of this application and the licenses contained therein are subject to the conditions set forth in the Memorandum Opinion and Order, adopted on December 29, 2006 and released on March 26, 2007, and revised in the Order on Reconsideration, adopted and released on March 26, 2007. See AT&T Inc. and BellSouth Corporation Application for Transfer of Control, WC Docket No. 06-74, Memorandum Opinion and Order, FCC 06-189 (rel. Mar. 26, 2007); AT&T Inc. and BellSouth Corporation, WC Docket No. 06-74, Order on Reconsideration, FCC 07-44 (rel. Mar. 26, 2007).

License renewal is granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Pursuant to WCS Order on Reconsideration, FCC 12-130, in order to obtain a renewal expectancy at the 7/21/17 renewal deadline, a licensee must, for each license area, certify that it has maintained, or exceeded, the level of coverage demonstrated for thatlicense area at the 3/13/2017 construction deadline.

Licensee Name: NEW CINGULAR WIRELESS SERVICES, INC.

Call Sign: WPQL634 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS PCS, LLC

ATTN: FCC GROUP
NEW CINGULAR WIRELESS PCS, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
KNLB297	
Radio Service WS - Wireless Communications Service	

FCC Registration Number (FRN): 0003291192

Grant Date	Effective Date	Expiration Date	Print Date
02-28-2020	01-14-2023	07-21-2027	

Market Number	Channel Block	Sub-Market Designator
REA001	D	0

Market Name
Northeast

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
	09-13-2021		

Waivers/Conditions:

License renewal is granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Pursuant to WCS Order on Reconsideration, FCC 12-130, in order to obtain a renewal expectancy at the 7/21/17 renewal deadline, a licensee must, for each license area, certify that it has maintained, or exceeded, the level of coverage demonstrated for thatlicense area at the 3/13/2017 construction deadline.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select “License Search”. Follow the instructions on how to search for license information.

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Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNLB297 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS PCS, LLC

ATTN: FCC GROUP
NEW CINGULAR WIRELESS PCS, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
KNLB200	
Radio Service WS - Wireless Communications Service	

FCC Registration Number (FRN): 0003291192

Grant Date	Effective Date	Expiration Date	Print Date
02-07-2020	01-14-2023	07-21-2027	

Market Number	Channel Block	Sub-Market Designator
MEA001	B	0

Market Name
Boston

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
03-13-2017	09-13-2019		

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/Mexico), future coordination of any base station transmitters shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

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Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNLB200 **File Number:** **Print Date:**

Spectrum Lease associated with this license. See Spectrum Leasing Arrangement Letter dated 04/01/2005 and File No. 0001999501.

License renewal is granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Pursuant to WCS Order on Reconsideration, FCC 12-130, in order to obtain a renewal expectancy at the 7/21/17 renewal deadline, a licensee must, for each license area, certify that it has maintained, or exceeded, the level of coverage demonstrated for thatlicense area at the 3/13/2017 construction deadline.

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNLB200 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS PCS, LLC

ATTN: FCC GROUP
NEW CINGULAR WIRELESS PCS, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
KNLB210	
Radio Service WS - Wireless Communications Service	

FCC Registration Number (FRN): 0003291192

Grant Date	Effective Date	Expiration Date	Print Date
02-07-2020	01-14-2023	07-21-2027	

Market Number	Channel Block	Sub-Market Designator
MEA001	A	0

Market Name
Boston

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
03-13-2017	09-13-2019		

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/Mexico), future coordination of any base station transmitters shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

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Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNLB210 **File Number:** **Print Date:**

License renewal is granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Pursuant to WCS Order on Reconsideration, FCC 12-130, in order to obtain a renewal expectancy at the 7/21/17 renewal deadline, a licensee must, for each license area, certify that it has maintained, or exceeded, the level of coverage demonstrated for thatlicense area at the 3/13/2017 construction deadline.

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNLB210 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T WIRELESS SERVICES 3 LLC

ATTN: FCC GROUP
AT&T WIRELESS SERVICES 3 LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
WQVN675	
Radio Service AT - AWS-3 (1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz)	

FCC Registration Number (FRN): 0023910920

Grant Date	Effective Date	Expiration Date	Print Date
04-08-2015	01-12-2023	04-08-2027	

Market Number	Channel Block	Sub-Market Designator
BEA003	J	0

Market Name
Boston-Worcester-Lawrence-Lowe

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
04-08-2021	04-08-2027		

Waivers/Conditions:

NONE

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

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August 2021

Licensee Name: AT&T WIRELESS SERVICES 3 LLC

Call Sign: WQVN675 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY SPECTRUM, LLC

ATTN: FCC GROUP
AT&T MOBILITY SPECTRUM, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
WQJU427	
Radio Service	
WY - 700 MHz Lower Band (Blocks A, B & E)	

FCC Registration Number (FRN): 0014980726

Grant Date	Effective Date	Expiration Date	Print Date
07-24-2019	01-18-2023	06-13-2029	

Market Number	Channel Block	Sub-Market Designator
CMA006	B	0

Market Name
Boston-Lowell-Brockton-Lawrenc

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
12-13-2016	06-13-2019		

Waivers/Conditions:

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

Special Condition for AU/name change (6/4/2016): Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: WQJU427 **File Number:** **Print Date:**

This license is subject to compliance with the conditions set forth in the Commission's Order of Modification, WT Docket No. 12-69, DA 14-43, released January 16, 2014.

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: WQJU427 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS PCS, LLC

ATTN: CECIL J MATHEW
NEW CINGULAR WIRELESS PCS, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
WQIZ616	
Radio Service WY - 700 MHz Lower Band (Blocks A, B & E)	

FCC Registration Number (FRN): 0003291192

Grant Date	Effective Date	Expiration Date	Print Date
02-09-2021	01-14-2023	03-07-2031	

Market Number	Channel Block	Sub-Market Designator
BEA003	E	0

Market Name
Boston-Worcester-Lawrence-Lowe

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
03-07-2017	03-07-2021		

Waivers/Conditions:

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: WQIZ616 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS PCS, LLC

ATTN: FCC GROUP
NEW CINGULAR WIRELESS PCS, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
WPZA235	
Radio Service	
WZ - 700 MHz Lower Band (Blocks C, D)	

FCC Registration Number (FRN): 0003291192

Grant Date	Effective Date	Expiration Date	Print Date
11-05-2019	01-14-2023	06-13-2029	

Market Number	Channel Block	Sub-Market Designator
EAG701	D	0

Market Name
Northeast

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-13-2019			

Waivers/Conditions:

Operation of the facilities authorized herein, are subject to the condition that harmful interference may not be caused to, but must be accepted from UHF TV transmitters in Canada and Mexico as identified in existing and any future agreements with those countries.

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: WPZA235 **File Number:** **Print Date:**

This application is granted pursuant to the Commission's Order In the Matter of Qualcomm Incorporated Petition for Declaratory Ruling, WT Docket No. 05-7, FCC 06-155, released October 13, 2006.

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: WPZA235 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY SPECTRUM, LLC

ATTN: FCC GROUP
AT&T MOBILITY SPECTRUM, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
WPWU950	
Radio Service	
WZ - 700 MHz Lower Band (Blocks C, D)	

FCC Registration Number (FRN): 0014980726

Grant Date	Effective Date	Expiration Date	Print Date
07-23-2019	01-18-2023	06-13-2029	

Market Number	Channel Block	Sub-Market Designator
CMA006	C	0

Market Name
Boston-Lowell-Brockton-Lawrenc

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-13-2019			

Waivers/Conditions:

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

Operation of the facilities authorized herein, are subject to the condition that harmful interference may not be caused to, but must be accepted from UHF TV transmitters in Canada and Mexico as identified in existing and any future agreements with those countries.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

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FCC 601-MB
August 2021

Special Condition for AU/name change (6/4/2016): Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

This license is subject to compliance with the conditions set forth in the Commission's Order of Modification, WT Docket No. 12-69, DA 14-43, released January 16, 2014.

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: WPWU950 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY SPECTRUM, LLC

ATTN: FCC GROUP
AT&T MOBILITY SPECTRUM, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
KNLF954	
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0014980726

Grant Date	Effective Date	Expiration Date	Print Date
06-29-2017	01-18-2023	06-27-2027	

Market Number	Channel Block	Sub-Market Designator
BTA051	D	0

Market Name
Boston, MA

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-27-2002			

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

Special Condition for AU/name change (6/4/2016): Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

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FCC 601-MB
August 2021

This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: KNLF954 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY SPECTRUM, LLC

ATTN: FCC GROUP
AT&T MOBILITY SPECTRUM, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
WPOI214	
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0014980726

Grant Date	Effective Date	Expiration Date	Print Date
06-10-2015	01-18-2023	06-23-2025	

Market Number	Channel Block	Sub-Market Designator
MTA008	A	7

Market Name
Boston-Providence

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-23-2000	06-23-2005		

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

Special Condition for AU/name change (6/4/2016): Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.

This license is conditioned upon compliance with the provisions of Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent to Transfer Control of Licenses and Authorizations, Memorandum Opinion and Order, FCC 04-255 (rel. Oct. 26, 2004).

Commission approval of this application and the licenses contained therein are subject to the conditions set forth in the Memorandum Opinion and Order, adopted on December 29, 2006 and released on March 26, 2007, and revised in the Order on Reconsideration, adopted and released on March 26, 2007. See AT&T Inc. and BellSouth Corporation Application for Transfer of Control, WC Docket No. 06-74, Memorandum Opinion and Order, FCC 06-189 (rel. Mar. 26, 2007); AT&T Inc. and BellSouth Corporation, WC Docket No. 06-74, Order on Reconsideration, FCC 07-44 (rel. Mar. 26, 2007).

Licensee Name: AT&T MOBILITY SPECTRUM, LLC

Call Sign: WPOI214 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS PCS, LLC

ATTN: FCC GROUP
NEW CINGULAR WIRELESS PCS, LLC
208 S. AKARD ST. 20F
DALLAS, TX 75202

Call Sign	File Number
KNLF216	
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0003291192

Grant Date	Effective Date	Expiration Date	Print Date
06-02-2015	01-14-2023	06-23-2025	

Market Number	Channel Block	Sub-Market Designator
MTA008	A	27

Market Name
Boston-Providence

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-23-2000	06-23-2005		

Waivers/Conditions:

This license is conditioned upon compliance with the provisions of Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent to Transfer Control of Licenses and Authorizations, Memorandum Opinion and Order, FCC 04-255 (rel. Oct. 26, 2004).

Commission approval of this application and the licenses contained therein are subject to the conditions set forth in the Memorandum Opinion and Order, adopted on December 29, 2006 and released on March 26, 2007, and revised in the Order on Reconsideration, adopted and released on March 26, 2007. See AT&T Inc. and BellSouth Corporation Application for Transfer of Control, WC Docket No. 06-74, Memorandum Opinion and Order, FCC 06-189 (rel. Mar. 26, 2007); AT&T Inc. and BellSouth Corporation, WC Docket No. 06-74, Order on Reconsideration, FCC 07-44 (rel. Mar. 26, 2007).

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

FCC 601-MB
August 2021

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNLF216 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

myCambridge

Cambridge GIS Home Page

City of Cambridge Search By Address Tool

40 Land Blvd

ADDRESS INFORMATION

From Address Database

40 Land Blvd

CityViewer Address Map

From Assessing Records

Map-Lot: 9-31

23 Cambridge Pkwy

See more data

Found At This Address

Royal Sonesta Hotel

RESIDENT INFORMATION

Neighborhood

East Cambridge

Historic Info

This is not a designated historic building.

Buildings over 50 years old may be subject to demolition review

Contact the CHC for more information

Trash & Recycling Pick Up Day

Thursday

Street Sweeping District

None

See schedule for details

Elected Officials and Voting Info

Ward 2, Precinct 3

Voting Location: M.I.T. (Kresge Auditorium, behind Stratton Center)

State Rep: Jay Livingstone

State Senator: Joseph A. Boncore

US Rep: Ayanna Pressley

U.S. Census Info

Census Tract: 352102

Demographic and Housing Estimates
Social Characteristics
Economic Characteristics
Housing Characteristics

Zip Code

02142

LOCATION INFORMATION

Lat/Lon

-71.07488, 42.36684

State Plane NAD 83 Ft

771051, 2958993

State Plane NAD 83 Meters

235017, 901903

UTM Zone 19N
329150, 4692593

For more information about Cambridge GIS maps and interactive viewers, please visit: www.cambridgema.gov/GIS

Can't find your address? Contact us at Cambridge GIS

December 7, 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

Applicant: New Cingular Wireless PCS, LLC ("AT&T")
Property Address: 40 Land Boulevard
Assessor's Map 9, Lot 31 (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 40 Land Boulevard. (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 TEP consisting of (12) pages dated 01/12/2021;

SHEET	TITLE	REV DATE
T1	Title Sheet	01/21/2021
SP1	Notes and Specifications	01/21/2021
SP2	Notes and Specifications	01/21/2021
A1	Roof Plan	01/21/2021
A2	Equipment Plan	01/21/2021
A3	Elevations	01/21/2021
A4	Antenna Plans	01/21/2021
A5	Equipment Details	01/21/2021
A6	Antenna and Cable Configuration	01/21/2021
A7	Cable Notes and Coloring Code	01/21/2021
A8	Grounding Details	01/21/2021
A9	Plumbing Diagram	01/21/2021

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

5. Photographs of the existing building and photosimulations of the proposed modifications Facility by TEP dated 08/06/2020;

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 Opinion letter by TEP dated January 15, 2021 ;

8. Maximum Permissible Exposure Study, Theoretical Report, by MobileComm, Inc., dated July 1, 2020;

9. Deed to subject property; and

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 ten (10) panel antennas (Alpha Sector: 4 antennas, Beta Sector: 3 antennas, and Gamma Sector: 4 antennas) that are mounted in three (3) locations. The proposed modifications include the replacement of two (2) antennas at one sector. The replacement antennas will be mounted to the existing antenna mounts or new mounts located behind the existing screen wall and consistent with the current Facility's design. Four (4) 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 behind the existing screen wall and out of the public view.

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 photosimulations (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. 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 and 850 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.

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[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

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

appropriate due to "the more restricted scope of review applicable to applications under section 6409(a)." *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."**

[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.

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).

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 Sherman Street 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

[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.

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, AT&T's proposed modifications to its existing Facility are consistent with the existing use and character of the neighborhood.

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. <u>AT&T complies with the Special Permit Criteria set forth in Section 10.43 of the Ordinance</u>.

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

<u>AT&T's Response</u>: 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

<u>AT&T's Response</u>: 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 include[9]

(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.

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

(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 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.

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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.

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING ROOFTOP: • XX EXISTING AT&T EQUIPMENT SHELTER ON STEEL FRAME (ROOF TO BE REPAIRED AND INTERIOR WATER DAMAGE TO BE REMEDIATED)(BY OTHERS). • INSTALL AT&T ANTENNA (TPA-65R-BU4DA-K) @ POS. 1 (BETA SECTOR, TOTAL OF 1). • INSTALL AT&T ANTENNA (OPA65R-BU4DA) @ POS. 4 (BETA SECTOR, TOTAL OF 1). • INSTALL AT&T RRUS 4478 B14 (700) @ POS. 1 (BETA SECTOR, TOTAL OF 1). • INSTALL AT&T RRUS 8843 B2/B66A (1900/AWS) @ POS. 1 (BETA SECTOR, TOTAL OF 1) • INSTALL AT&T RRUS 4449 B5/B12 (700/850) @ POS. 4 (BETA SECTOR, TOTAL OF 1) • INSTALL AT&T RRUS 4415 B30 (WCS) @ POS. 4 (BETA SECTOR, TOTAL OF 1). • INSTALL AT&T DC SURGE ARRESTOR (DC9-48-60-24-PC16-EV) WITH (1) 24 PAIR FIBER TRUNK (TOTAL OF 1). • INSTALL AT&T (2) "Y" CABLES. ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • ADD XMU & IDLE CABLE. • FINAL: 1X6601/1X6630/1XXMU03||XXXXX/1X6630 MIXED-MODE/XXXXX+IDLE. • ADD PROPOSED AT&T VERTIV 7100 -48V/58V DC POWER PLANT (ADD (9) RECTIFIERS & (11) DC CONVERTERS FOR 58 VOLTS). • ADD (4) STRINGS OF -48V 170AH BATTERIES (16 TOTAL) TO REPLACE EXISTING BATTERIES) ITEMS TO BE REMOVED: • DECOMMISSION EXISTING AT&T ANTENNA (742-264) (BETA SECTOR, TOTAL OF 2). • DECOMMISSION EXISTING AT&T RRUS-11 B12 (700) (BETA SECTOR, TOTAL OF 1). • DECOMMISSION EXISTING AT&T RRUS-11 B2 (1900) (BETA SECTOR, TOTAL OF 1). • DECOMMISSION EXISTING AT&T_EXISTING AT&T VERTIV 7100 -48V DC POWER PLANT WITH (7) -48V RECTIFIERS & (4) +24V CONVERTERS (TO BE REMOVED & REPLACED DUE TO WATER DAMAGE) • DECOMMISSION_AT&T BATTERY RACK WITH (4) STRINGS OF 190AH BATTERIES (TO BE REMOVED & REPLACED) ITEMS TO REMAIN: • (8) ANTENNAS, (9) RRHs, (3) SURGE ARRESTORS, (12) 1-5/8" COAX CABLES, (5) DC POWER & (2) FIBER.
RFDS:	FINAL APPROVED V2 RFDS 12/8/23
SITE ADDRESS:	5 CAMBRIDGE PARKWAY CAMBRIDGE, MA 02142
LATITUDE:	42.3669389° N, 42° 22' 0.98" N
LONGITUDE:	71.0747161° W, 71° 4' 28.97" W
TYPE OF SITE:	ROOFTOP / INDOOR EQUIPMENT
ROOF HEIGHT:	122'-0"±
RAD CENTER:	131'-0"± & 135'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

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NOTE TO GENERAL CONTRACTOR: (PRIOR/DURING CONSTRUCTION)

CONTRACTOR TO CONTACT E.O.R. (TEP NORTHEAST, TEP OPCO,LLC) PRIOR TO ROOF/WALL OPENINGS TO COORDINATE/SCHEDULE THE FOLLOWING:

- INSPECTION OF EXISTING CONDITIONS AND LOCATIONS WHERE CONNECTIONS ARE BEING PROPOSED, INCLUDING INSPECTIONS OF STUB-UP ANCHORS AND/OR WALL ANCHORS PRIOR TO CONCEALING.

at&t

SITE NUMBER: MAL02038

SITE NAME: SONESTA

FA CODE: 10007272

PACE ID: MRCTB061022

PROJECT: BETA SECTOR ADD - 2023 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:
HEAD SOUTHWEST, TURN RIGHT TOWARD LEGGATT MCCALL CONN, TURN LEFT ONTO LEGGATT MCCALL CONN, CONTINUE ONTO BURR ST, TURN LEFT ONTO COCHITUATE RD, USE THE RIGHT LANE TO TAKE THE I-90 E/MASS PIKE RAMP TO BOSTON, MERGE WITH I-90 E, TAKE EXIT 131 ON THE LEFT TOWARD CAMBRIDGE, MERGE WITH CAMBRIDGE ST, TURN RIGHT ONTO MEMORIAL DR, PARTS OF THIS ROAD MAY BE CLOSED AT CERTAIN TIMES OR DAYS, PASS BY STARBUCKS (ON THE LEFT IN 0.2 MI), KEEP LEFT TO STAY ON MEMORIAL DR, CONTINUE ONTO COMMERCIAL AVE/EDWIN H LAND BLVD, TURN RIGHT, DESTINATION WILL BE ON THE RIGHT, 5 CAMBRIDGE PARKWAY, MA 02142.

GENERAL NOTES

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

UNDERGROUND SERVICE ALERT

811 DigSafe MA·ME·NH·RI·VT

WWW.DIGSAFE.COM
72 HOURS PRIOR

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

smartlink
SMARTLINK
1997 ANNAPOLIS EXCHANGE PKWY SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: MAL02038
SITE NAME: SONESTA

5 CAMBRIDGE PARKWAY
CAMBRIDGE, MA 02142,
MIDDLESEX COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
8	01/04/24	ISSUED FOR CONSTRUCTION	VD	AT	DMH
7	11/16/23	ISSUED FOR CONSTRUCTION	SG	AT	DMH
6	10/04/23	ISSUED FOR CONSTRUCTION	VS	AT	DMH
5	09/26/23	ISSUED FOR CONSTRUCTION	SG	AT	DMH
4	07/19/23	ISSUED FOR CONSTRUCTION	SG	AT	DMH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VS

COMMONWEALTH OF MASSACHUSETTS
DANIEL P. HAMM
CIVIL
No. 49720
REGISTERED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(2023 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
MAL02038	T-1	8

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 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 CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 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

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION 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.
14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

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

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

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

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-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	RADIAL CENTER LINE ANTENNA	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

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6	10/04/23	ISSUED FOR CONSTRUCTION	VS	AT	DMH
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4	07/19/23	ISSUED FOR CONSTRUCTION	SC	AT	DMH

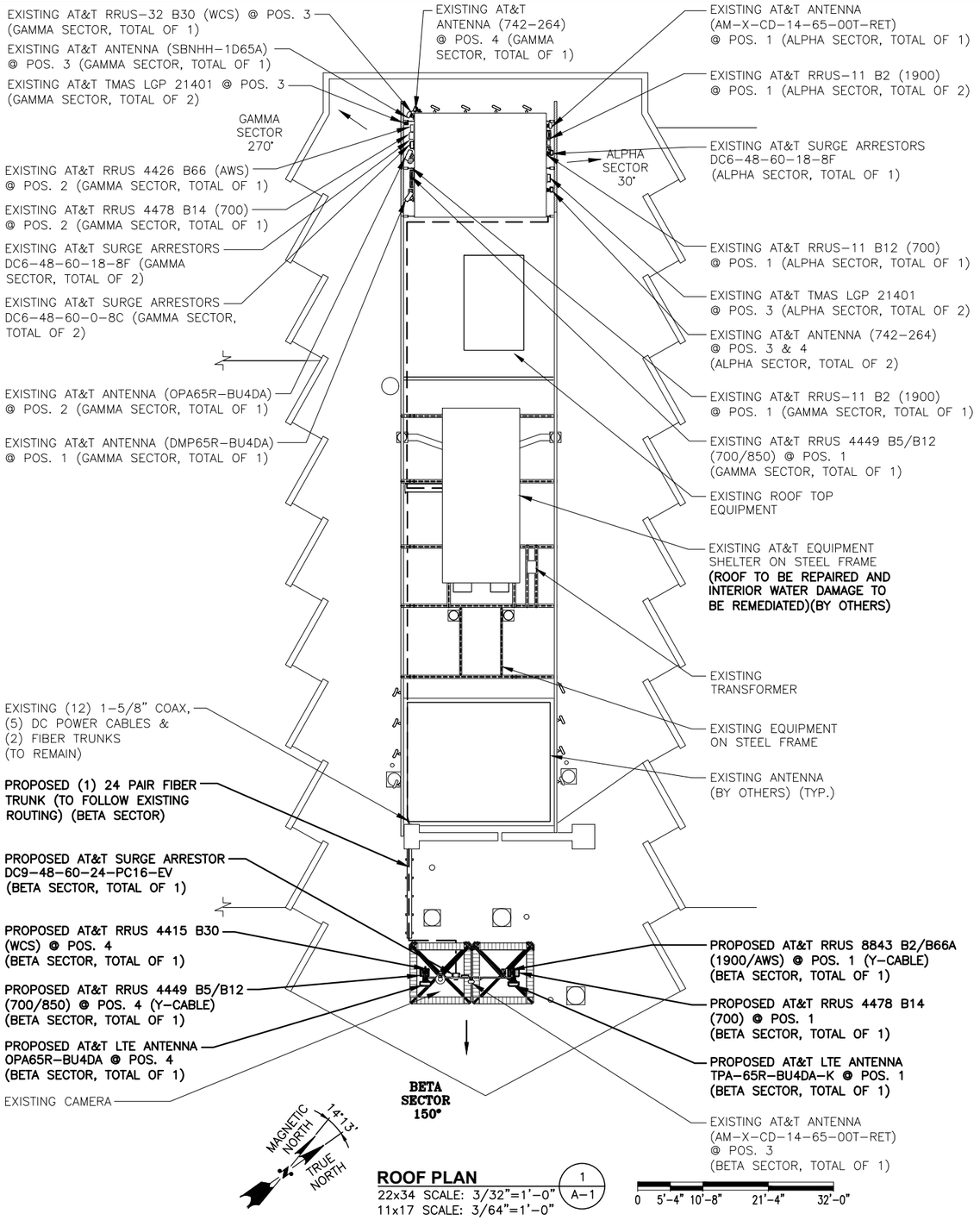
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VS

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

AT&T

GENERAL NOTES
(2023 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
MAL02038	GN-1	8



ROOF PLAN

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

1 / A-1

NOTE:

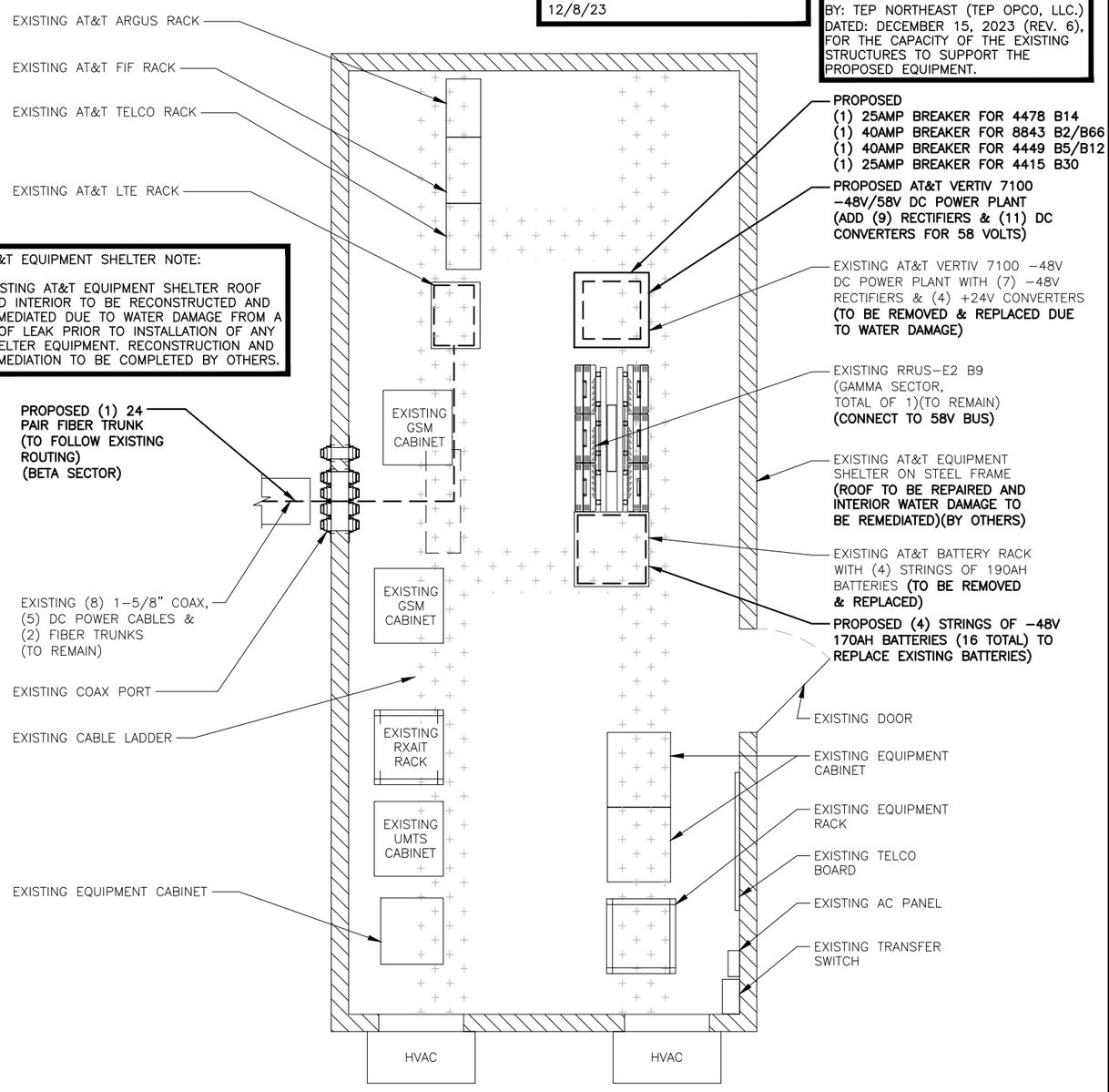
REFER TO FINAL APPROVED V2 RFDS 12/8/23

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: TEP NORTHEAST (TEP OPCO, LLC.) DATED: DECEMBER 15, 2023 (REV. 6), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

AT&T EQUIPMENT SHELTER NOTE:

EXISTING AT&T EQUIPMENT SHELTER ROOF AND INTERIOR TO BE RECONSTRUCTED AND REMEDIATED DUE TO WATER DAMAGE FROM A ROOF LEAK PRIOR TO INSTALLATION OF ANY SHELTER EQUIPMENT. RECONSTRUCTION AND REMEDIATION TO BE COMPLETED BY OTHERS.



EQUIPMENT PLAN

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

2 / A-1

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4	07/19/23	ISSUED FOR CONSTRUCTION	SG	AT	DH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VS

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

AT&T

ROOF & EQUIPMENT PLANS
(2023 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
MAL02038	A-1	8

EXISTING AT&T ANTENNA (742–264) @ POS. 4
(GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN)

EXISTING AT&T RRUS–32 B30 (WCS) @ POS. 3
(GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECT TO 58V BUS)**

EXISTING AT&T ANTENNA (SBNHH–1D65A)
@ POS. 3 (GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN)

EXISTING AT&T RRUS 4478 B14 (700)
@ POS. 2 (GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECT TO 58V BUS)**

EXISTING AT&T SURGE ARRESTORS
DC6–48–60–18–8F (GAMMA
SECTOR, TOTAL OF 1)

EXISTING AT&T SURGE ARRESTORS
DC6–48–60–0–8C (GAMMA SECTOR,
TOTAL OF 1)

EXISTING AT&T ANTENNA (OPA65R–BU4DA)
@ POS. 2 (GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN)

EXISTING AT&T RRUS–12 B2 (1900) @ POS. 1
(GAMMA SECTOR, TOTAL OF 2)
(TO REMAIN)
(CONNECT TO 58V BUS)

EXISTING AT&T RRUS 4449 B5/B12
(700/850) @ POS. 1
(GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECT TO 58V BUS)**

EXISTING AT&T ANTENNA (DMP65R–BU4DA)
@ POS. 1 (GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN)

GAMMA SECTOR
UMTS 850
270°

GAMMA SECTOR
LTE 700/WCS
250°

GAMMA SECTOR
LTE 700/AWS
250°

GAMMA SECTOR
LTE 700/850/
1900/5G 850
250°

EXISTING AT&T TMAS LGP 21401 @ POS. 3
(GAMMA SECTOR, TOTAL OF 2)
(TO REMAIN)

EXISTING AT&T RRUS 4426 B66 (AWS)
@ POS. 2 (GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECT TO 58V BUS)**

EXISTING AT&T ANTENNA
(AM–X–CD–14–65–00T–RET) @ POS. 1
(ALPHA SECTOR, TOTAL OF 1)
(TO REMAIN)

ALPHA
SECTOR
LTE 700/1900
17°

EXISTING AT&T RRUS–11 B2 (1900) @ POS. 1
(ALPHA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECT TO 58V BUS)**

EXISTING AT&T SURGE ARRESTORS
DC6–48–60–18–8F (ALPHA SECTOR,
TOTAL OF 1) (TO REMAIN)

ALPHA
SECTOR
UMTS 850
30°

EXISTING AT&T RRUS–11 B12 (700) @ POS. 1
(ALPHA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECT TO 58V BUS)**

EXISTING AT&T TMAS LGP 21401 @ POS. 3
(ALPHA SECTOR, TOTAL OF 2)
(TO REMAIN)

ALPHA
SECTOR
GSM 850
30°

EXISTING AT&T ANTENNA (742–264)
@ POS. 3 & 4
(ALPHA SECTOR, TOTAL OF 2)
(TO REMAIN)

EXISTING AT&T SURGE ARRESTOR
FC12–PC6–10E
(BETA SECTOR, TOTAL OF 1)
(TO BE REMOVED & REPLACED)

EXISTING AT&T DC2
SURGE ARRESTORS
(BETA SECTOR, TOTAL OF 1)
(TO BE REMOVED & REPLACED)

EXISTING AT&T RRUS–11 B2
(1900) @ POS. 3
(BETA SECTOR, TOTAL OF 1)
(TO BE REMOVED)

EXISTING AT&T RRUS–11 B12
(700) @ POS. 3
(BETA SECTOR, TOTAL OF 1)
(TO BE REMOVED)

EXISTING CAMERA
(TO REMAIN)

EXISTING AT&T DIPLEXERS
(782–10250) @ POS. 1
(BETA SECTOR,
TOTAL OF 4)
(TO BE REMOVED)

EXISTING UMTS GPS
ANTENNA **(TO BE
REMOVED)**

EXISTING AT&T TMAS
(LGP 21401) @ POS. 1
(BETA SECTOR, TOTAL OF 2)
(TO BE REMOVED)

EXISTING AT&T ANTENNA
(742–264) @ POS. 1 & 4
(BETA SECTOR, TOTAL OF 2)
(TO BE REMOVED & REPLACED)

EXISTING AT&T ANTENNA
(AM–X–CD–14–65–00T–RET)
@ POS. 3 (BETA SECTOR,
TOTAL OF 1) (TO REMAIN)

BETA
SECTOR
GSM 850
150°

BETA
SECTOR
LTE 700/1900
150°

BETA
SECTOR
UMTS 850
150°

MAGNETIC
NORTH

14°13'

TRUE
NORTH

EXISTING ANTENNA LAYOUT

22x34 SCALE: 1/2"=1'–0"
11x17 SCALE: 1/4"=1'–0"
0 1'–0" 2'–0" 4'–0" 6'–0"

1
A–2

EXISTING AT&T ANTENNA (742–264) @ POS. 4
(GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN)

EXISTING AT&T RRUS–32 B30 (WCS) @ POS. 3
(GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECTED TO 58V BUS)**

EXISTING AT&T ANTENNA (SBNHH–1D65A)
@ POS. 3 (GAMMA SECTOR, TOTAL OF 1)
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@ POS. 2 (GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECTED TO 58V BUS)**

EXISTING AT&T SURGE ARRESTORS
DC6–48–60–18–8F (GAMMA
SECTOR, TOTAL OF 1)

EXISTING AT&T SURGE ARRESTORS
DC6–48–60–0–8C (GAMMA SECTOR,
TOTAL OF 1)

EXISTING AT&T ANTENNA (OPA65R–BU4DA)
@ POS. 2 (GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN)

EXISTING AT&T RRUS–12 B2 (1900) @ POS. 1
(GAMMA SECTOR, TOTAL OF 2)
(TO REMAIN)
(CONNECT TO 58V BUS)

EXISTING AT&T RRUS 4449 B5/B12
(700/850) @ POS. 1
(GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECTED TO 58V BUS)**

EXISTING AT&T ANTENNA (DMP65R–BU4DA)
@ POS. 1 (GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN)

GAMMA
SECTOR
UMTS 850
270°

GAMMA SECTOR
LTE 700/WCS
250°

GAMMA SECTOR
LTE 700/AWS
250°

GAMMA SECTOR
LTE 700/850/
1900/5G 850
250°

4'–8"

3'–9"

EXISTING AT&T TMAS LGP 21401 @ POS. 3
(GAMMA SECTOR, TOTAL OF 2)
(TO REMAIN)

EXISTING AT&T RRUS 4426 B66 (AWS)
@ POS. 2 (GAMMA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECTED TO 58V BUS)**

EXISTING AT&T ANTENNA
(AM–X–CD–14–65–00T–RET) @ POS. 1
(ALPHA SECTOR, TOTAL OF 1)
(TO REMAIN)

ALPHA
SECTOR
LTE 700/1900
17°

3'–7"

EXISTING AT&T RRUS–11 B2 (1900)
@ POS. 1 (ALPHA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECTED TO 58V BUS)**

EXISTING AT&T SURGE ARRESTORS
DC6–48–60–18–8F (ALPHA SECTOR,
TOTAL OF 1) (TO REMAIN)

ALPHA
SECTOR
UMTS 850
30°

EXISTING AT&T RRUS–11 B12 (700)
@ POS. 1 (ALPHA SECTOR, TOTAL OF 1)
(TO REMAIN) **(CONNECTED TO 58V BUS)**

5'–2"

EXISTING AT&T TMAS LGP 21401 @ POS. 3
(ALPHA SECTOR, TOTAL OF 2)
(TO REMAIN)

ALPHA
SECTOR
GSM 850
30°

EXISTING AT&T ANTENNA (742–264)
@ POS. 3 & 4
(ALPHA SECTOR, TOTAL OF 2)
(TO REMAIN)

NOTE:
REFER TO FINAL APPROVED V2 RFDS
12/8/23

NOTE:
3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
6' MINIMUM SEPARATION BETWEEN 700BC & 700 DE.
12" VERTICAL SEPARATION BETWEEN DoD AND C–BAND ANTENNA.
USE Y–CABLE FOR DUAL BAND RRH's

PROPOSED (1) 24 PAIR FIBER TRUNK

PROPOSED AT&T SURGE ARRESTORS (DC9–48–60–24–PC16–EV) (BETA SECTOR, TOTAL OF 1)

PROPOSED AT&T RRUS 4415 B30 (WCS) @ POS. 4 (BETA SECTOR, TOTAL OF 1)

PROPOSED AT&T RRUS 4449 B5/B12 (700/850) @ POS. 4 (Y–CABLE) (BETA SECTOR, TOTAL OF 1)

PROPOSED AT&T LTE ANTENNA OPA65R–BU4DA @ POS. 4 (BETA SECTOR, TOTAL OF 1)

EXISTING AT&T ANTENNA
(AM–X–CD–14–65–00T–RET)
@ POS. 3
(BETA SECTOR, TOTAL OF 1)

PROPOSED AT&T RRUS 8843 B2/B66A (1900/AWS) @ POS. 1 (Y–CABLE) (BETA SECTOR, TOTAL OF 1)

PROPOSED AT&T RRUS 4478 B14 (700) @ POS. 1 (BETA SECTOR, TOTAL OF 1)

PROPOSED AT&T LTE ANTENNA TPA–65R–BU4DA–K @ POS. 1 (BETA SECTOR, TOTAL OF 1)

PROPOSED AT&T MOUNT MODIFICATIONS (SEE "S" SHEETS)

6'–1"

5'–7"

EXISTING CAMERA

BETA SECTOR LTE 700 BC/850/WCS 150°

BETA SECTOR SPARE 150°

BETA SECTOR LTE B14/PCS/AWS 150°

PROPOSED ANTENNA LAYOUT

22x34 SCALE: 1/2"=1'–0"
11x17 SCALE: 1/4"=1'–0"
0 1'–0" 2'–0" 4'–0" 6'–0"

2
A–2

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: TEP NORTHEAST (TEP OPCO, LLC.) DATED: DECEMBER 15, 2023 (REV. 6), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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ANNAPOLIS, MD 21401

SITE NUMBER: MAL02038
SITE NAME: SONESTA

5 CAMBRIDGE PARKWAY
CAMBRIDGE, MA 02142,
MIDDLESEX COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
8	01/04/24	ISSUED FOR CONSTRUCTION	VD	AT	DPH
7	11/16/23	ISSUED FOR CONSTRUCTION	SG	AT	DPH
6	10/04/23	ISSUED FOR CONSTRUCTION	AS	AT	DPH
5	09/26/23	ISSUED FOR CONSTRUCTION	SG	AT	DPH
4	07/19/23	ISSUED FOR CONSTRUCTION	SG	AT	DPH

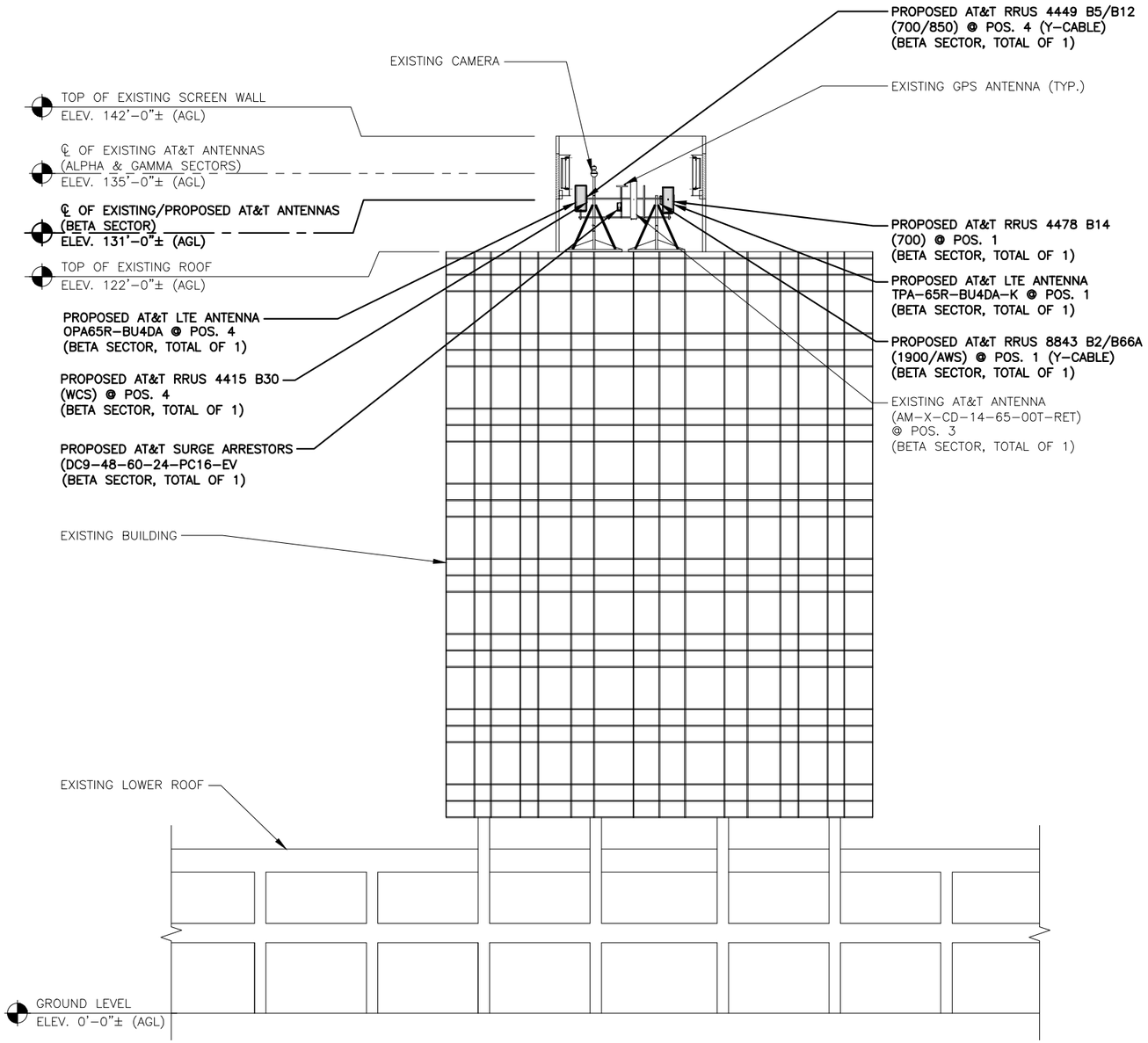
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VS

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

AT&T

ANTENNA LAYOUTS
(2023 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
MAL02038	A–2	8



ELEVATION (1 / A-3)
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

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

NOTE:

REFER TO FINAL APPROVED V2 RFDS 12/8/23

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: TEP NORTHEAST (TEP OPCO, LLC.) DATED: DECEMBER 15, 2023 (REV. 6), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
6' MINIMUM SEPARATION BETWEEN 700BC & 700 DE.
12" VERTICAL SEPARATION BETWEEN DoD AND C-BAND ANTENNA.
USE Y-CABLE FOR DUAL BAND RRH's

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4	07/19/23	ISSUED FOR CONSTRUCTION	SG	AT	DH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VS

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ELEVATION LAYOUT
(2023 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
MAL02038	A-3	8

ANTENNA SCHEDULE

FINAL APPROVED V2 RFDS 12/8/23

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	LTE 700 BC/ PCS	AM-X-CD-14-65-00T-RET	48"X11.8"X5.9"	135'-0"±	17°		(E)(1) RRUS-11 B12 (700) (E)(1) RRUS-11 B2 (1900)	–	(E)(4) 1-5/8" COAX CABLE	(E)(1) RAYCAP DC6-48-60-18-8F
A2	–	–	–	–	–	–	–	–	–	–	
A3	EXISTING	UMTS 850	742-264	51.8"X10.3"X5.5"	135'-0"±	30°	(E)(2) LGP21401	–	–	–	
A4	EXISTING	GSM 850	742-264	51.8"X10.3"X5.5"	135'-0"±	30°	(E)(4) 782 10250	–	–	(E)(2) DC POWER & (E)(1) FIBER	
B1	**PROPOSED**	**LTE B14/ PCS/AWS**	**TPA-65R-BU4DA-K**	**48"X20.7"X7.7"**	**131'-0"±**	**150°**	–	**(P)(1) 4478 B14 (700) (P)(1) 8843 B2/B66A (1900/AWS)**	**18.1"x13.4"x8.3" 14.9"x13.2"x10.9"**	**– (P)(1) Y-CABLE**	**(P)(1) RAYCAP DC9-48-60-24-PC16-EV**
B2	–	–	–	–	–	–	–	–	–	(E)(2) DC POWER	
B3	EXISTING	SPARE	AM-X-CD-14-65-00T-RET	48"X11.8"X5.9"	131'-0"±	155°	–	–	–	**(P) 24 PAIR FIBER TRUNK & (APPROX. LENGTH 140'±)**	
B4	**PROPOSED**	**LTE 700 BC /850/WCS**	**OPA65R-BU4DA**	**48.2"X21"X7.8"**	**131'-0"±**	**150°**	–	**(P)(1) 4449 B5/B12 (700/850) (P)(1) RRUS 4415 B30 (WCS)**	**17.9"x13.2"x10.4" 16.5"x13.4"x5.9"**	**(P)(1) Y-CABLE –**	
C1	EXISTING	LTE 700 BC/ PCS/5G NR	DMP65R-BU4DA	48.0X20.7X7.7	135'-0"±	250°	–	(E)(1) 4449 B5/B12 (700/850) (E)(2) RRUS-12 B2 (1900)	– –	(E)(4) 1-5/8" COAX CABLE	(E)(2) RAYCAP DC6-48-60-18-8F (E)(1) RAYCAP DC6-48-60-0-8C
C2	EXISTING	LTE AWS/ 700 B14	OPA65R-BU4DA	48.2X21X7.8	135'-0"±	250°	–	(E)(1) 4478 B14 (700) (E)(1) 4426 B66 (AWS)	– –	–	
C3	EXISTING	LTE WCS/ 700 DE	SBNHH-1D65A	55X11.9X7.1	135'-0"±	250°	–	(E)(1) RRUS-E2 B29 (700) (E)(1) RRUS-32 B30 (WCS)	– –	–	
C4	EXISTING	UMTS 850	742-264	51.8X10.3X5.5	135'-0"±	270°	(E)(2) LGP21401	–	– –	(E)(3) DC POWER & (E)(1) FIBER	

NOTE:

REFER TO FINAL APPROVED V2 RFDS 12/8/23

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: TEP NORTHEAST (TEP OPCO, LLC.) DATED: DECEMBER 15, 2023 (REV. 6), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

AT&T EQUIPMENT SHELTER NOTE:

EXISTING AT&T EQUIPMENT SHELTER ROOF AND INTERIOR TO BE RECONSTRUCTED AND REMEDIATED DUE TO WATER DAMAGE FROM A ROOF LEAK PRIOR TO INSTALLATION OF ANY SHELTER EQUIPMENT. RECONSTRUCTION AND REMEDIATION TO BE COMPLETED BY OTHERS.

PROPOSED AT&T VERTIV 7100 -48V/58V DC POWER PLANT (ADD (9) RECTIFIERS & (11) DC CONVERTERS FOR 58 VOLTS) (TO REPLACE EXISTING VERTIV 7100 -48V DC POWER PLANT DUE TO WATER DAMAGE)

RRU CHART

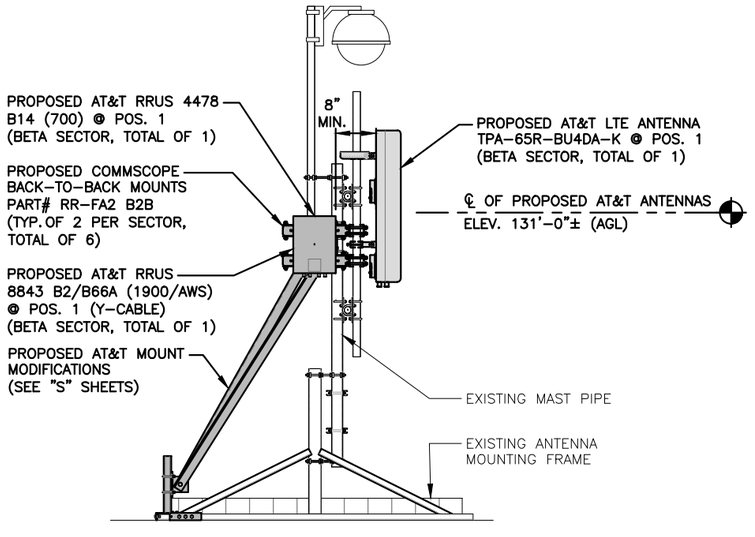
QUANTITY	MODEL	SIZE (L x W x D)
(1)(E)	RRUS-11 B12 (700)	19.7x17.0x7.2
(4)(E)	RRUS-11 B2 (700)	19.7x17.0x7.2
(1)(P)	**4478 B14 (700)**	**18.1"x13.4"x8.3"**
(1)(P)	**8843 B2/B66A (1900/AWS)**	**14.9"x13.2"x10.9"**
(1)(P)	**4449 B5/B12 (700/850)**	**17.9"x13.2"x10.4"**
(1)(P)	**4415 B30 (WCS)**	**16.5"x13.4"x5.9"**
(1)(E)	4449 B5/B12 (700/850)	17.9"x13.2"x10.4"
(1)(E)	4478 B14 (700)	18.1"x13.4"x8.3"
(1)(E)	4426 B66 (AWS)	15.0"x13.0"x6.0"
(1)(E)	RRUS-E2 B29 (ADDITIONAL)	20.4"x18.5"x7.5"
(1)(E)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

FINAL ANTENNA CONFIGURATION

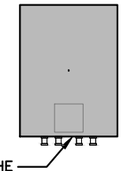
SCALE: N.T.S

1 A-4



NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



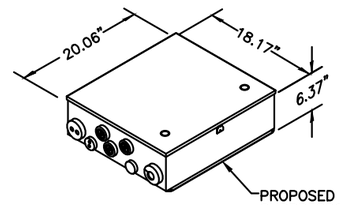
PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

VERTIV NETSURE 7100 -48v DC POWER PLANT

SCALE: N.T.S

5 A-4



PROPOSED SURGE SUPPRESSOR
MODEL NUMBER:
DC9-48-60-24-PC16-EV
DIMENSIONS:
H20.06"xW18.17"xD6.37"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL

SCALE: N.T.S

2 A-4

PROPOSED ANTENNA DETAIL

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

3 A-4

0 8" 1'-4" 2'-8" 4'-0"

DC SURGE SUPPRESSOR DETAIL

SCALE: N.T.S

4 A-4

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DETAILS
(2023 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
MAL02038	A-4	8

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
8	01/04/24	ISSUED FOR CONSTRUCTION	VD	AT	DH
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5	09/26/23	ISSUED FOR CONSTRUCTION	SG	AT	DH
4	07/19/23	ISSUED FOR CONSTRUCTION	SG	AT	DH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VS

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

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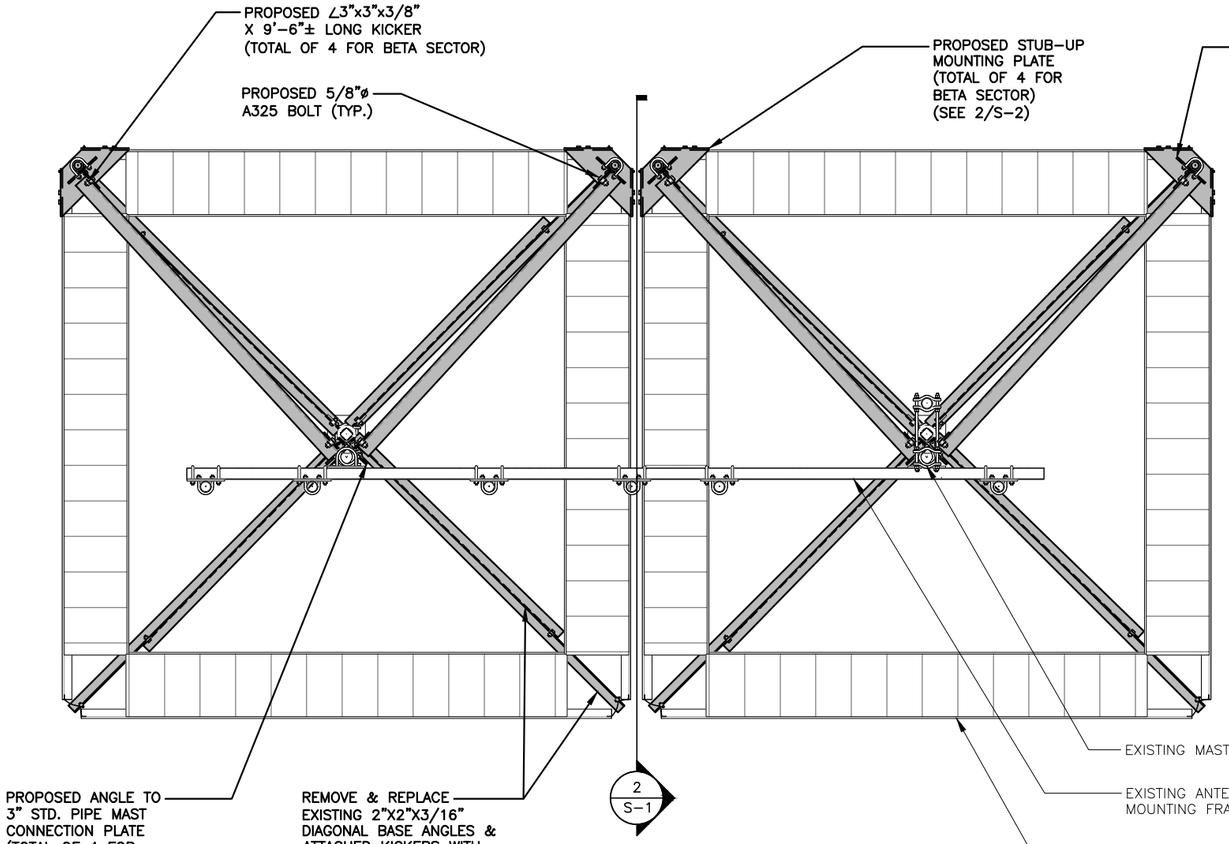
STRUCTURAL NOTES
(2023 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
MAL02038	SN-1	8

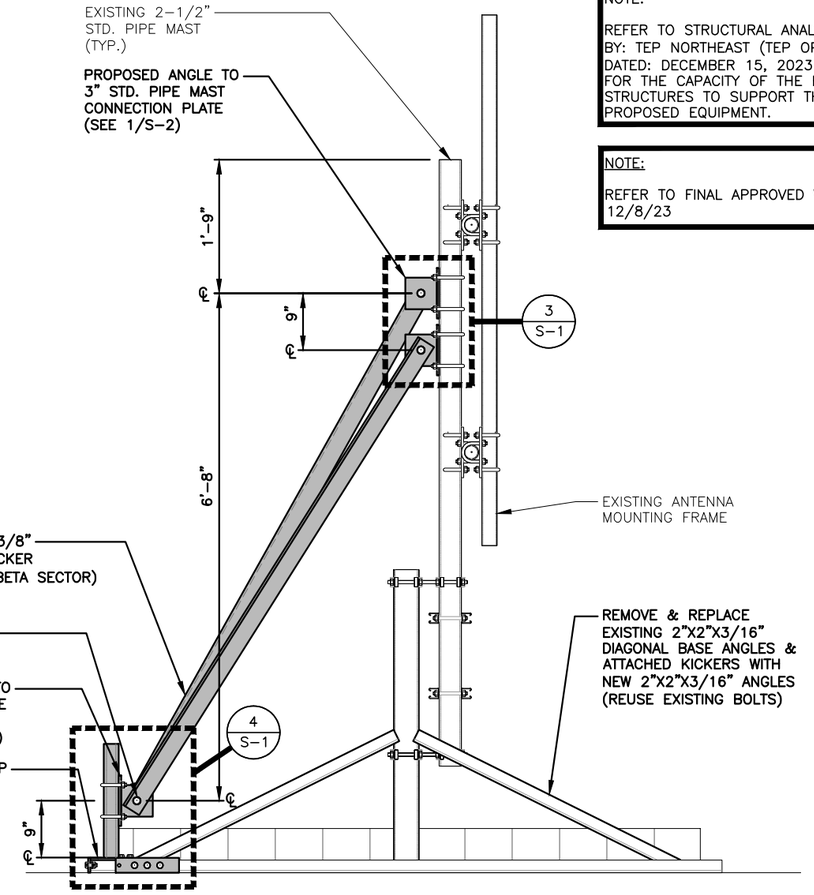


PROPOSED BETA SECTOR MOUNT MODIFICATION PLAN

1 S-1

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

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED BETA SECTOR MOUNT MODIFICATION ELEVATION

2 S-1

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

0 0'-6" 1'-0" 2'-0" 3'-0"

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: TEP NORTHEAST (TEP OPCO, LLC.) DATED: DECEMBER 15, 2023 (REV. 6), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

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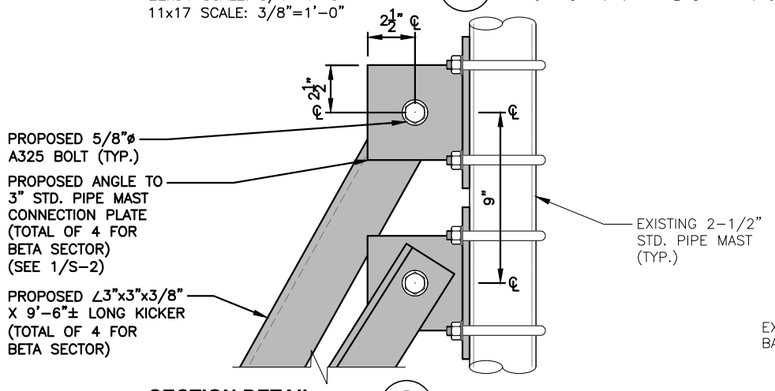
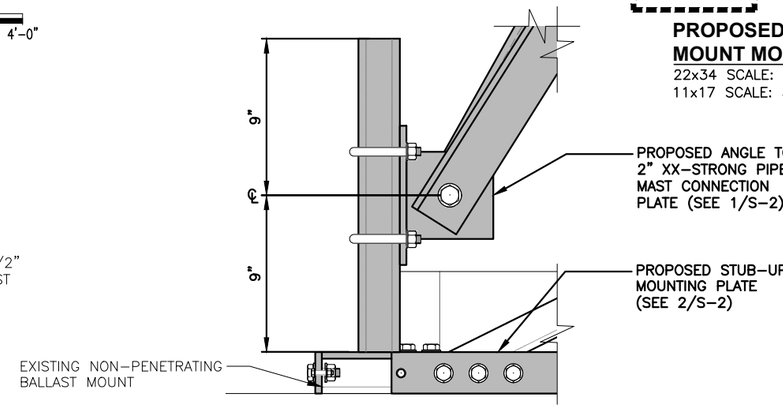


SECTION DETAIL

3 S-1

22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

0 0'-2" 0'-4" 0'-8" 1'-0"



SECTION DETAIL

4 S-1

22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

0 0'-2" 0'-4" 0'-8" 1'-0"

MINIMUM BETA SECTOR BALLAST REQUIREMENTS

	EXISTING	PROPOSED	TOTAL
NUMBER OF BLOCKS	64	–	64
SIZE OF BLOCKS	8"x8"x16" HOLLOW	–	8"x8"x16" HOLLOW
WEIGHT OF BLOCKS	38 lbs./each	–	38 LBS./each
TOTAL BALLAST WEIGHT	2432 lbs.	–	2432 lbs.

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SITE NAME: SONESTA

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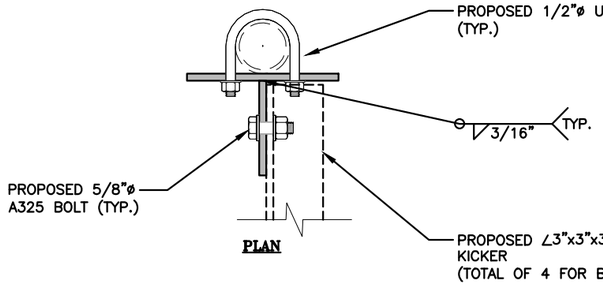
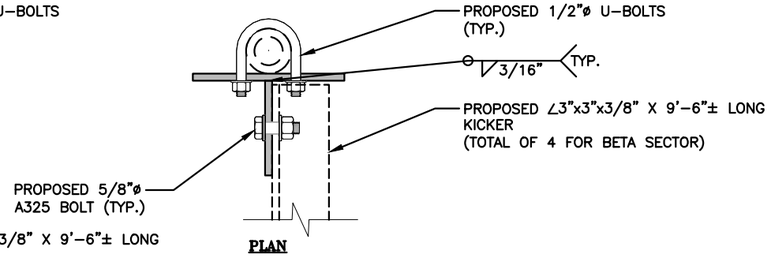
MAL02038	S-1	8

PLATE TO EXISTING 2-1/2" STD. PIPE MAST



PLAN

PLATE TO EXISTING 2" XX-STRONG PIPE MAST



PLAN

NOTE:

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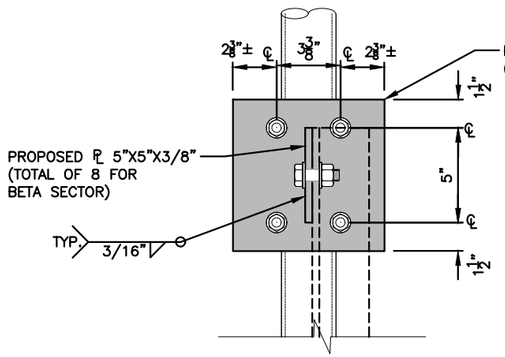
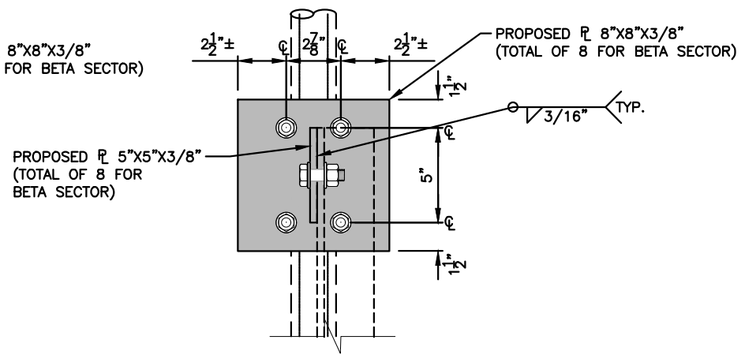
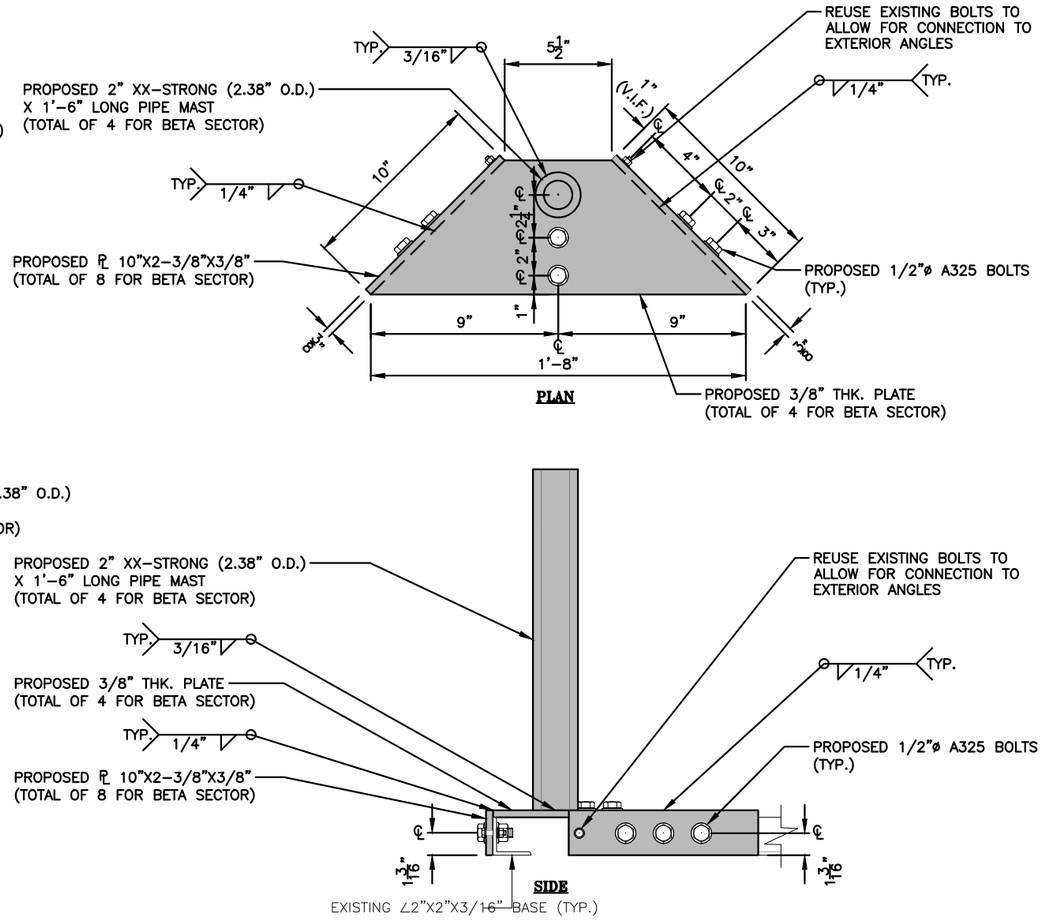


REAR ELEVATION

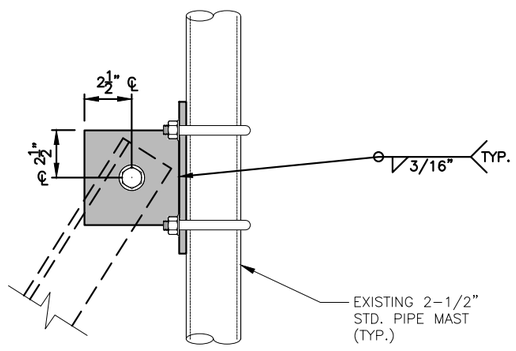


REAR ELEVATION

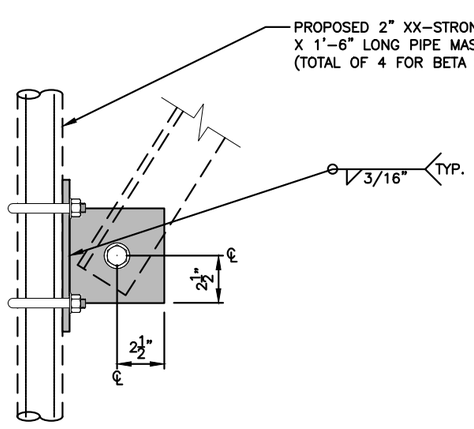


PLAN

SIDE



SIDE ELEVATION



SIDE ELEVATION

PROPOSED ANGLE TO PIPE MAST CONNECTION PLATES DETAIL

22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

1 / S-2

0 0'-4" 0'-8" 1'-4" 2'-0"

PROPOSED STUB-UP MOUNTING PLATE DETAIL

22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

2 / S-2

0 0'-4" 0'-8" 1'-0"

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SITE NAME: SONESTA

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(2023 UPGRADE)

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MAL02038	S-2	8

NOTE:

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

NOTE:

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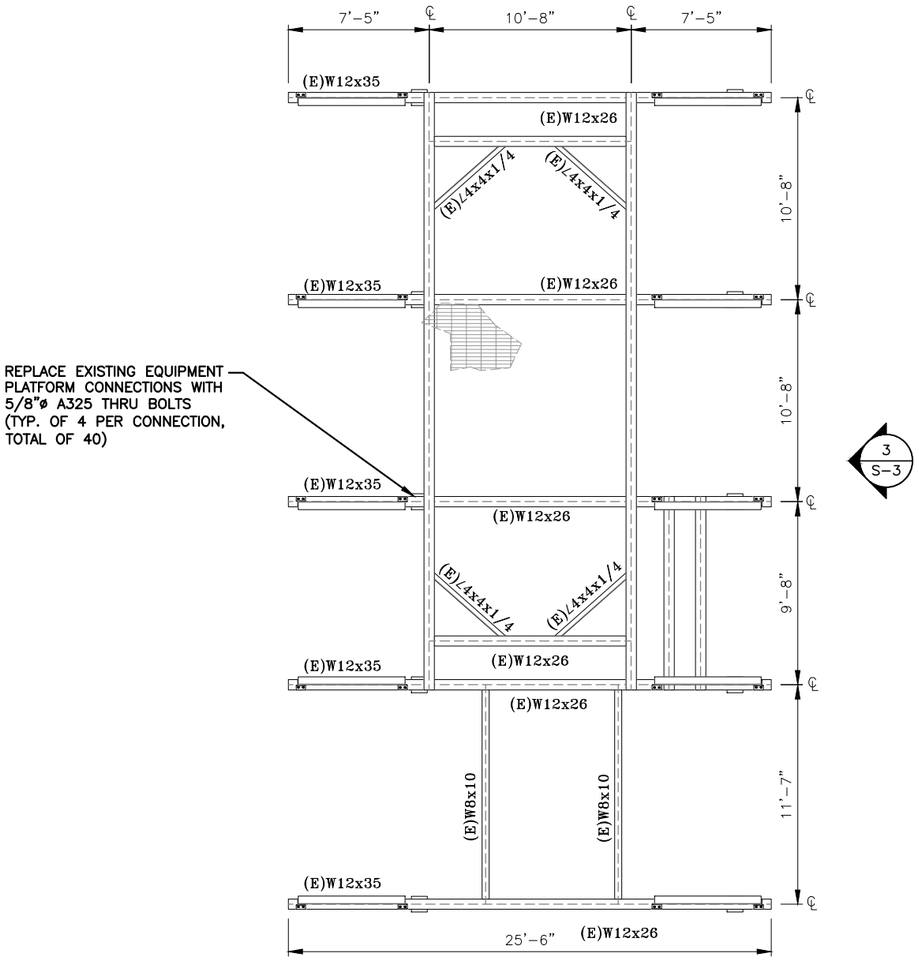
NOTE TO GENERAL CONTRACTOR: (PRIOR/DURING CONSTRUCTION)

CONTRACTOR TO CONTACT E.O.R. (TEP NORTHEAST, TEP OPCO,LLC) PRIOR TO ROOF/WALL OPENINGS TO COORDINATE/SCHEDULE THE FOLLOWING:

- INSPECTION OF EXISTING CONDITIONS AND LOCATIONS WHERE CONNECTIONS ARE BEING PROPOSED, INCLUDING INSPECTIONS OF STUB-UP ANCHORS AND/OR WALL ANCHORS PRIOR TO CONCEALING.

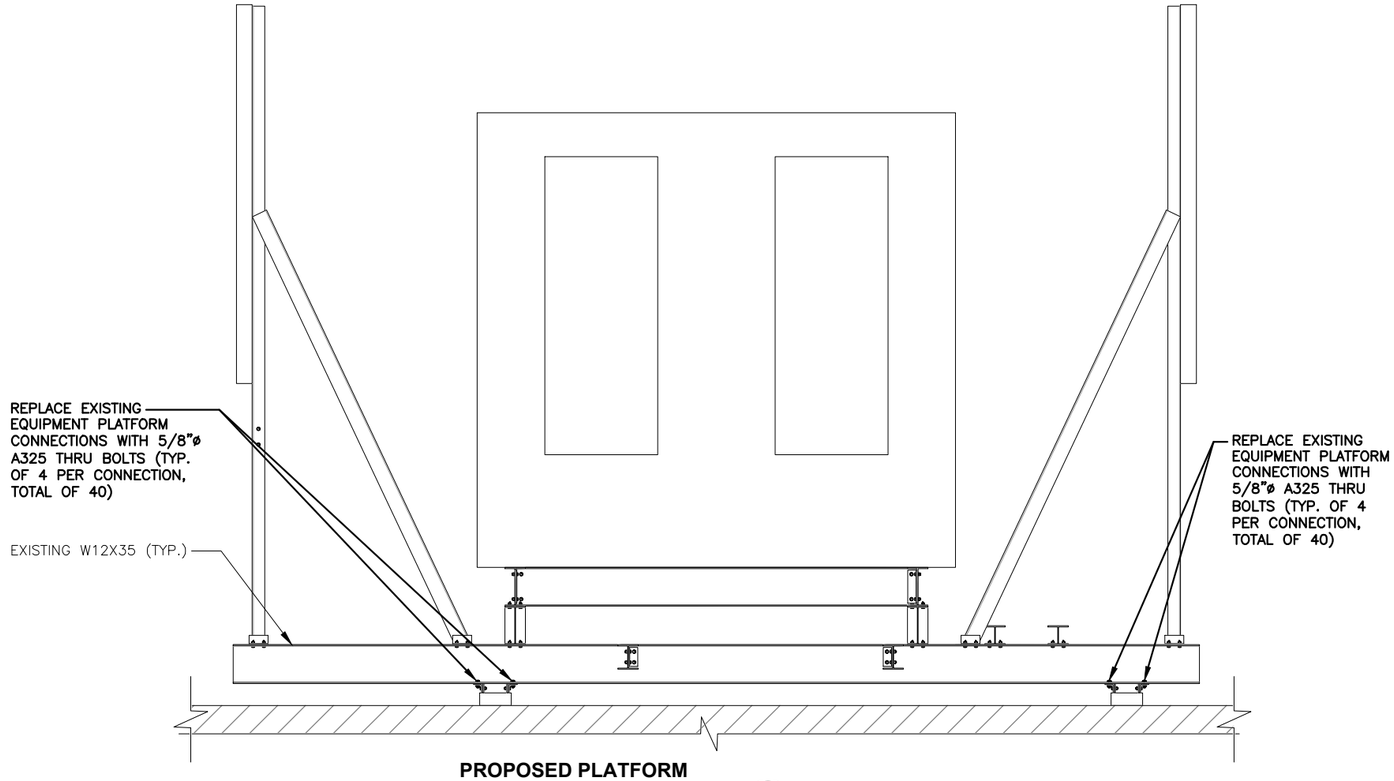


3
S-3

PROPOSED PLATFORM MODIFICATION (PLAN VIEW) 1 S-3

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

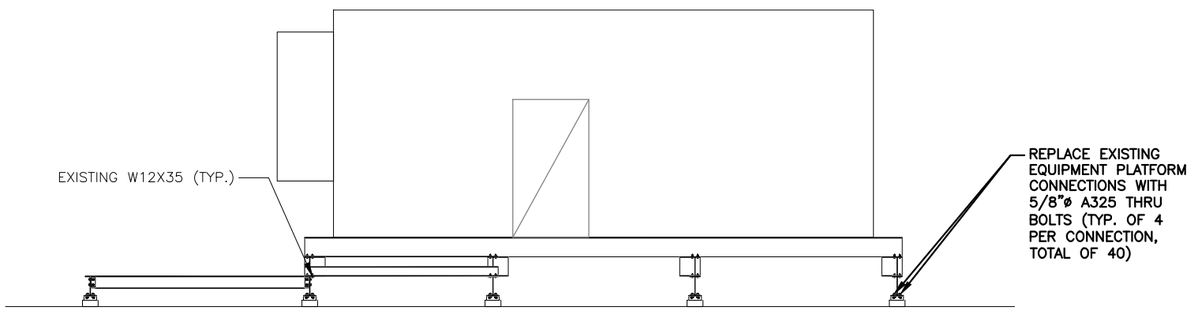
0 2'-0" 4'-0" 8'-0" 12'-0"



PROPOSED PLATFORM MODIFICATION (SIDE VIEW) 2 S-3

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

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



PROPOSED PLATFORM MODIFICATION (SIDE VIEW) 3 S-3

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

0 2'-0" 4'-0"

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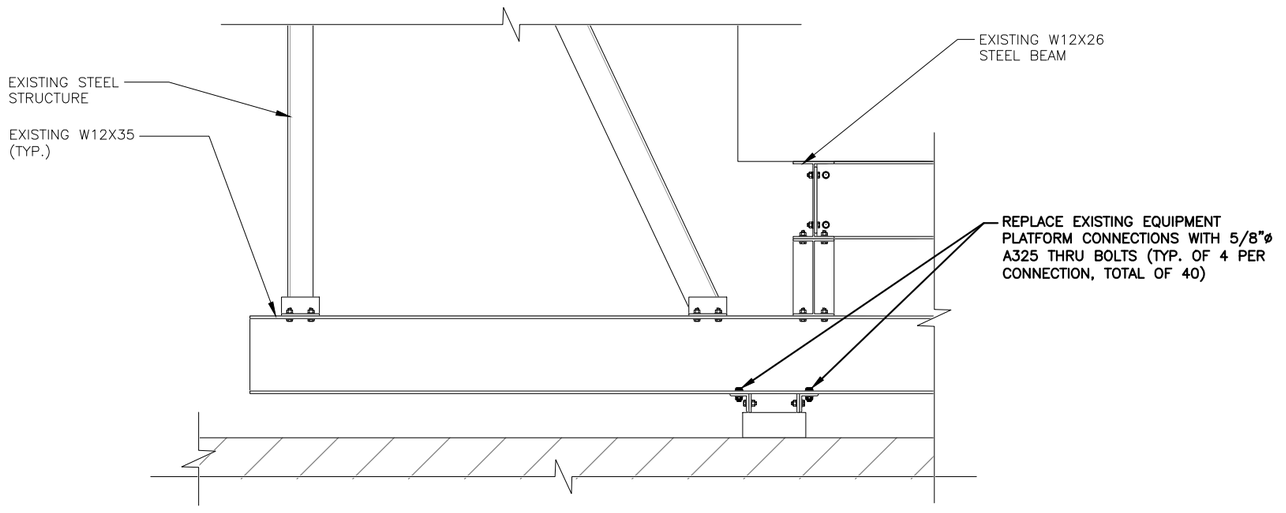

PROPOSED STRUCTURE REINFORCEMENT (SIDE VIEW) (1 / S-4)

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

0 2'-0" 4'-0" 8'-0" 12'-0"

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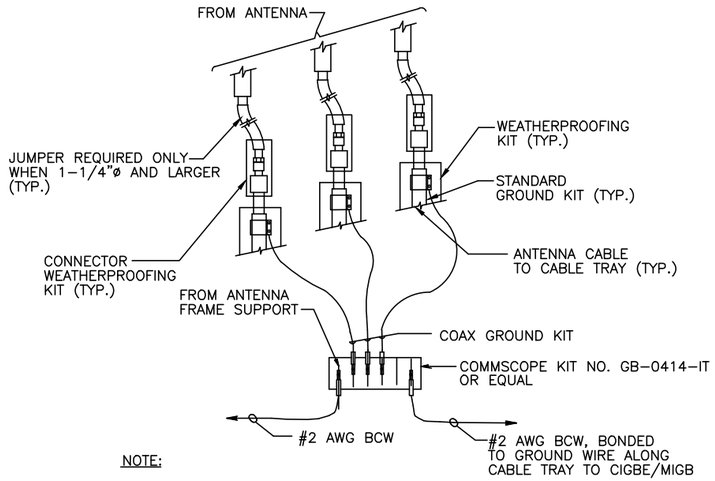
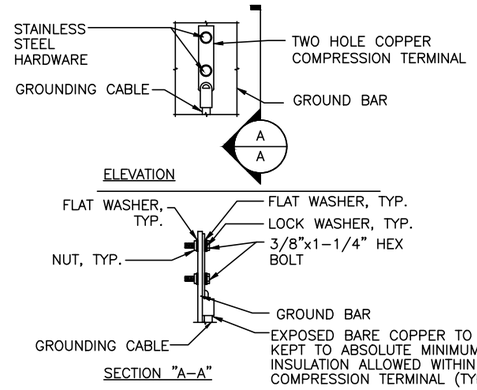


NOTE:

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

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

SCALE: N.T.S



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

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

SCALE: N.T.S

AT&T GROUNDING STANDARDS TO BE FOLLOWED:

ATT-TP-76416
ATT-TP-76300
ATT-CEM-18002
ATT-002-290-531
ATT-002-290-701
ATT-CEM-23001

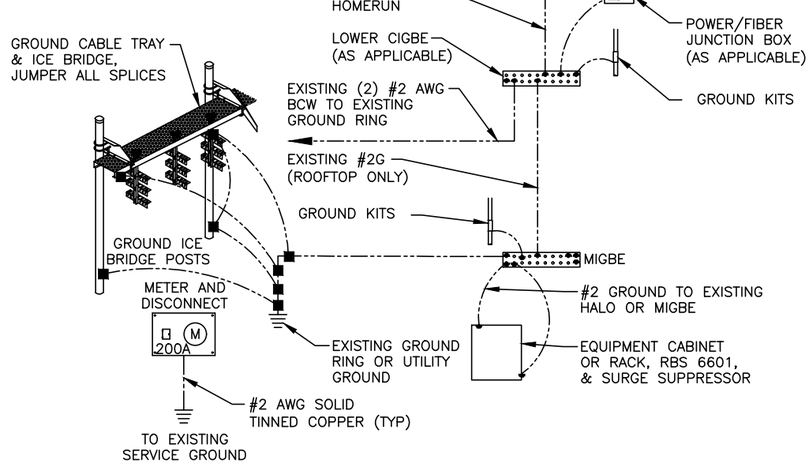
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

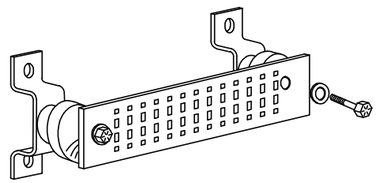
SECTION "A" – SURGE ABSORBERS

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



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

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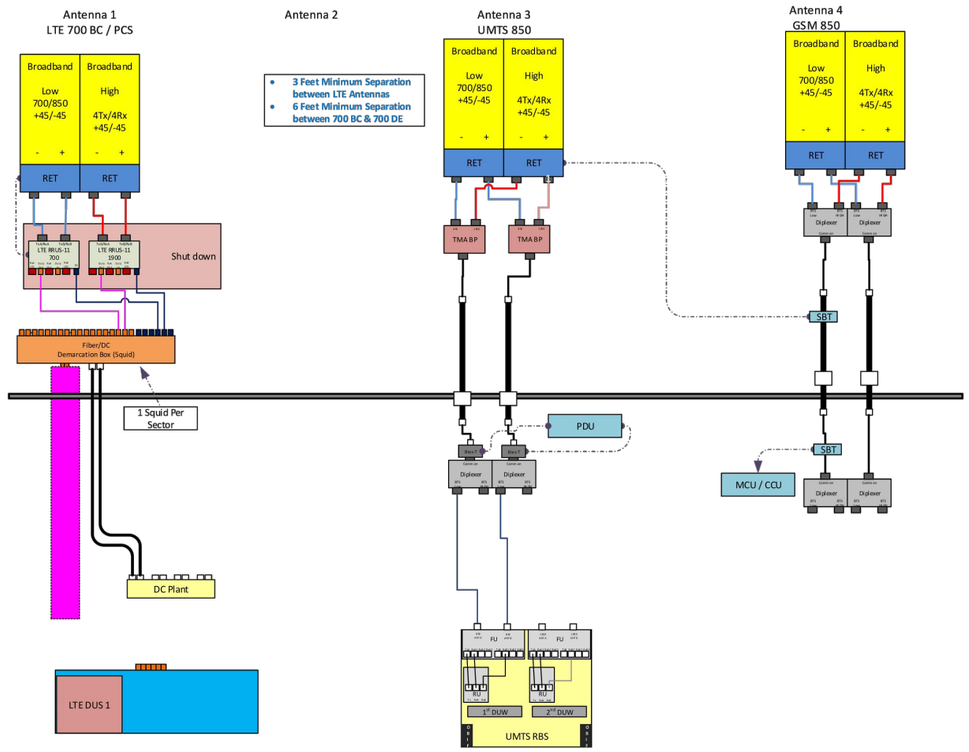

RF PLUMBING DIAGRAM (ALPHA SECTOR) 1 / RF–1

SCALE: N.T.S

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

NOTE:

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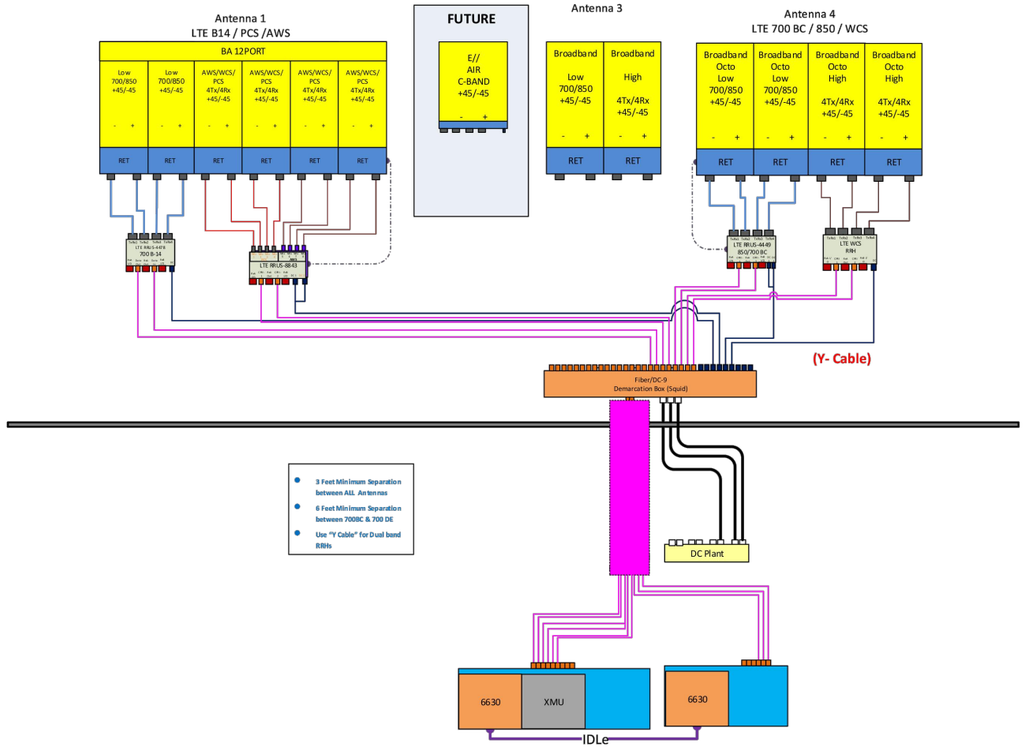

RF PLUMBING DIAGRAM (BETA SECTION) 1 RF–2

SCALE: N.T.S

NOTE:
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2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VS

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(2023 UPGRADE)

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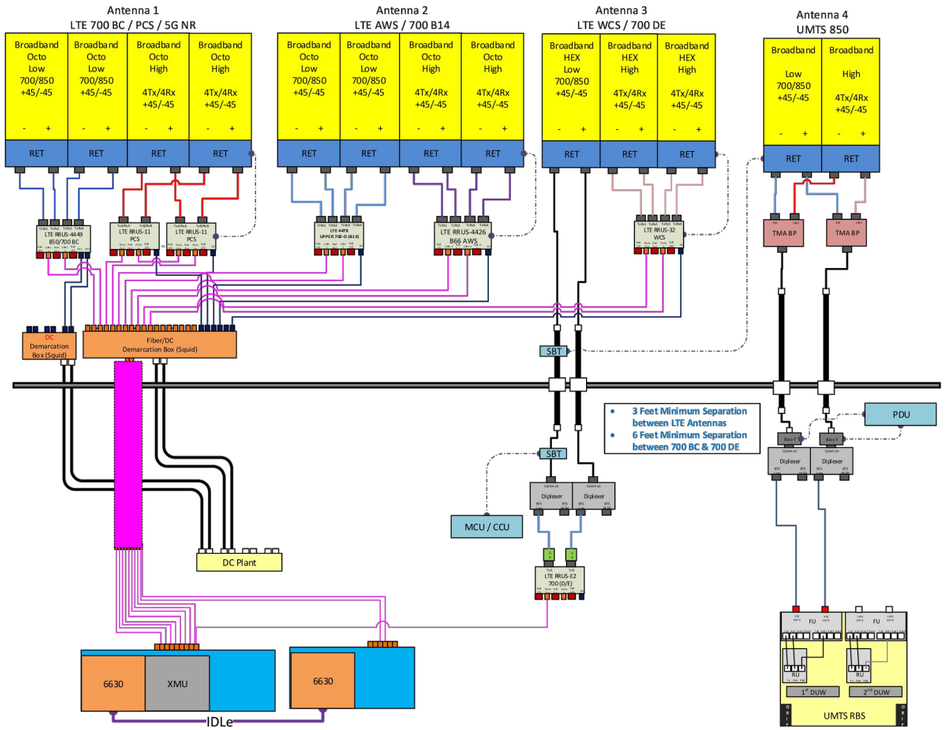


RF PLUMBING DIAGRAM (GAMMA SECTOR) 1 RF-3

SCALE: N.T.S

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

NOTE:

REFER TO FINAL APPROVED V2 RFDS 12/8/23

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

smartlink
SMARTLINK
1997 ANNAPOLIS EXCHANGE PKWY SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: MAL02038
SITE NAME: SONESTA

5 CAMBRIDGE PARKWAY
CAMBRIDGE, MA 02142,
MIDDLESEX COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

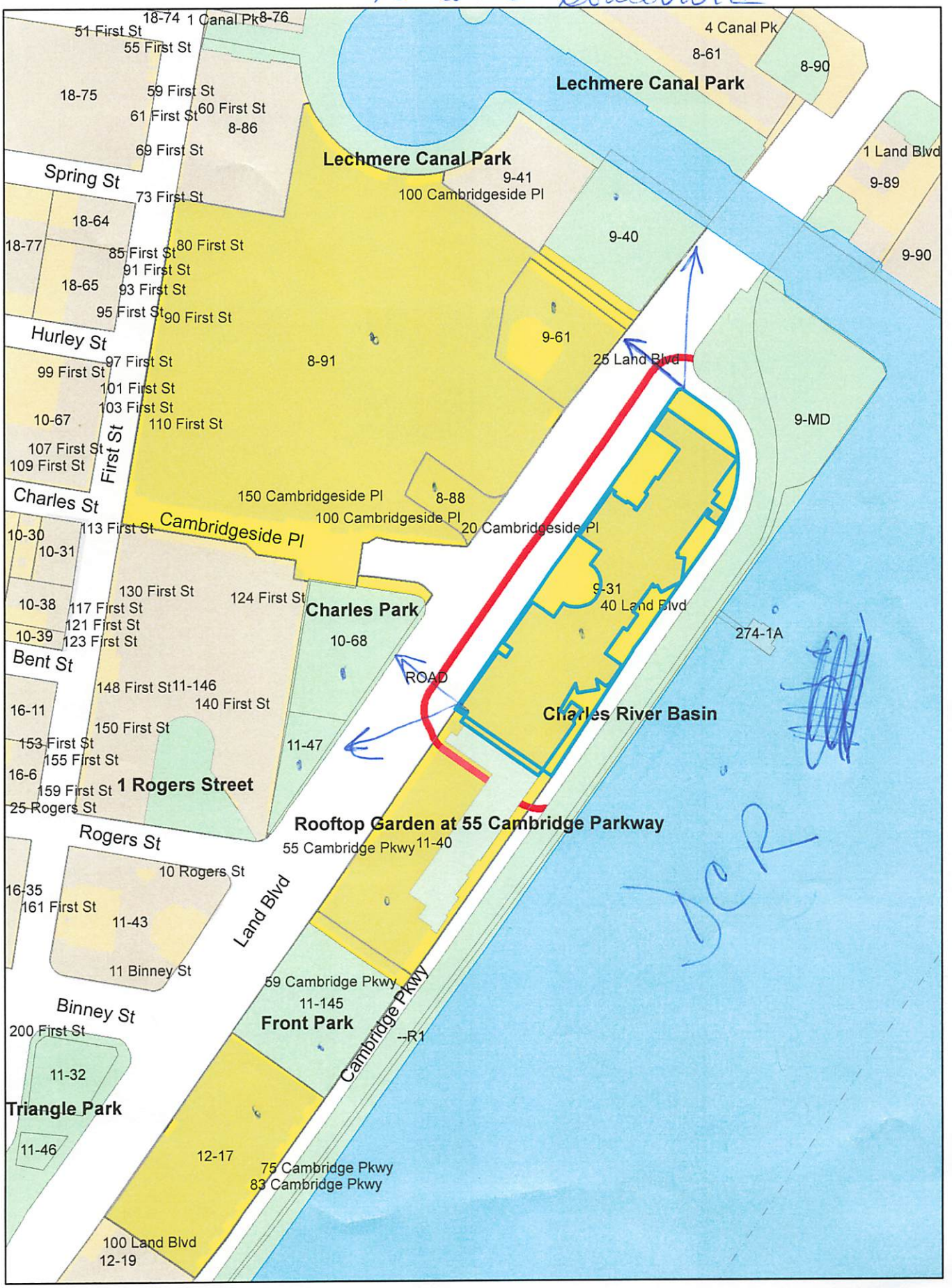
NO.	DATE	REVISIONS	BY	CHK	APP'D
8	01/04/24	ISSUED FOR CONSTRUCTION	VD	AT	DPH
7	11/16/23	ISSUED FOR CONSTRUCTION	SG	AT	DPH
6	10/04/23	ISSUED FOR CONSTRUCTION	JS	AT	DPH
5	09/26/23	ISSUED FOR CONSTRUCTION	SG	AT	DPH
4	07/19/23	ISSUED FOR CONSTRUCTION	SG	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VS

AT&T

DETAILS
(2023 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
MAL02038	RF-3	8


40 Land Boulevard
18-74
1 Canal Pk
8-76
51 First St
55 First St
4 Canal Pk
8-61
8-90
Lechmere Canal Park
18-75
59 First St
61 First St
60 First St
8-86
69 First St
Lechmere Canal Park
1 Land Blvd
9-89
Spring St
73 First St
9-41
100 Cambridgeside Pl
18-64
9-40
18-77
85 First St
80 First St
91 First St
9-90
18-65
93 First St
95 First St
90 First St
Hurley St
9-61
97 First St
8-91
25 Land Blvd
99 First St
101 First St
103 First St
9-MD
10-67
110 First St
107 First St
109 First St
First St
Charles St
150 Cambridgeside Pl
8-88
100 Cambridgeside Pl
20 Cambridgeside Pl
Cambridgeside Pl
10-30
113 First St
10-31
9-31
40 Land Blvd
130 First St
124 First St
Charles Park
10-38
117 First St
121 First St
274-1A
10-39
123 First St
10-68
Bent St
ROAD
148 First St
11-146
140 First St
Charles River Basin
16-11
150 First St
153 First St
11-47
155 First St
16-6
159 First St
1 Rogers Street
25 Rogers St
Rooftop Garden at 55 Cambridge Parkway
Rogers St
55 Cambridge Pkwy
11-40
10 Rogers St
16-35
161 First St
Land Blvd
11-43
11 Binney St
59 Cambridge Pkwy
Binney St
11-145
Front Park
200 First St
--R1
Cambridge Pkwy
11-32
Triangle Park
11-46
12-17
75 Cambridge Pkwy
83 Cambridge Pkwy
100 Land Blvd
12-19

40 Land Boulevard

Petitioner

197

11-47 / 145
CAMBRIDGE CITY OF COMM. DEV.
57 INMAN ST
CAMBRIDGE, MA 02139

11-145 /11-47
CITY OF CAMBRIDGE
C/O MEGAN BAYER
CITY SOLICITOR

SMARTLINK
C/O KRISTINA ROBINSON / CAROLYN SEELEY
85 RANGEWAY ROAD – BLDG 3- SUITE 102
NORTH BILLERICA, MA 01862

11-145 / 11-47
CITY OF CAMBRIDGE
C/O YI-AN HUANG
CITY MANAGER

12-17
GLASSMAN, MITCHELL J. AS TRUSTEE OF THE
GLASSMAN TRUST
75-83 CAMBRIDGE PKWY UNIT# E210
CAMBRIDGE, MA 02142

12-17
MAGEE, CHRISTOPHER L.,
TR. & JO ANNE HUNTLEY &
CHRISTOPHER L. MAGEE
751 EAST RD
RICHMOND, MA 01254

12-17
ELHALWAGY, MOSTAFA E. NAGLA R. &
SHERIF ELHALWAGY
75-83 CAMBRIDGE PKWY, E505
CAMBRIDGE, MA 02142

12-17
SIEGEL, SEA KWON
75-83 CAMBRIDGE PKWY UNIT E507
CAMBRIDGE, MA 02142

12-17
SANES, JOSHUA & SUSAN CORCORAN
75-83 CAMBRIDGE PKWY - UNIT E702
CAMBRIDGE, MA 02142

12-17
MCMAHON, NURHAJAH H.
3 FLATLEY AVE
MANCHESTER, MA 01944

12-17
VON HIPPEL, ERIC & JESSIE VON HIPPEL TRUSTEES
OF THE VON HIPPEL NOMINEE TRUST
75-83 CAMBRIDGE PKWY UNIT #E709
CAMBRIDGE, MA 02142

12-17
STIENING, RAE & NANCY STIENING
75-83 CAMBRIDGE PKWY - UNIT E903
CAMBRIDGE, MA 02142

12-17
MADHAVRAO, LAKSHMINARASIMHA &
LALITHA SURYANARAYANA
1083 MCGREGOR WAY
PALO ALTO, CA 93406

12-17
MAYER, DEBORA J. & SAMUEL S. DYER
TRS, THE DYER FAMILY INVESTMENT TRUST
68 CABOT ST
PORTSMOUTH, NH 03801

12-17
MERLION LLC
PO BOX 1507
WAKEFIELD, MA 01880

12-17
BUCKBEE, EDWARD J. & SUSAN L. LINDQUIST
75-83 CAMBRIDGE PKWY - UNIT PH11
CAMBRIDGE, MA 02142

12-17
REDMOND, PHILIP R. AND FONG CHU
75-83 CAMBRIDGE PKWY - UNIT W401
CAMBRIDGE, MA 02142

12-17
NATARAJAN, CHANDRASEKHAR
75-83 CAMBRIDGE PKWY, #W403
CAMBRIDGE, MA 02142

12-17
HORNER, MATINA S. & TIA A. HORNER TRUS
OF MATINA S. HORNER REVOCABLE TR
75-83 CAMBRIDGE PKWY. W405
CAMBRIDGE, MA 02142

12-17
SHIANG, ELAINE LI,
TRUSTEE THE ELAINE LI SHIANG TRUST
75 CAMBRIDGE PKWY UNIT 108
CAMBRIDGE, MA 02142

12-17
CEYER, SYLVIA T.
75-83 CAMBRIDGE PKWY. UNIT#107
CAMBRIDGE, MA 02142

12-17
STONE, PETER H. &
PAOLA MALANOTTE STONE
75-83 CAMBRIDGE PKWY - UNIT W502
CAMBRIDGE, MA 02142

12-17
LEE, YU-CHIN MICHELLE
75-83 CAMBRIDGE PKWY UNIT W507
CAMBRIDGE, MA 02142

12-17
YEYINMEN, CIGDEM
75-83 CAMBRIDGE PKWY UNIT 101
CAMBRIDGE, MA 02142

12-17
SARAGAS, SAVVAS JOHN
75-83 CAMBRIDGE PKWY UNIT 202
CAMBRIDGE, MA 02142

12-17
CHU, YANG HUA & WEI-NI CHEN
TRUSTEES OF THE CHU TRUST
1025 WINDSOR DR.
MENLO PARK, CA 94025

12-17
ASERKOFF, BERNARD & JANET ASERKOFF
75-83 CAMBRIDGE PKWY - UNIT 308
CAMBRIDGE, MA 02142

12-17
CROSBY, LEO E. & JANICE E. CROSBY
75-83 CAMBRIDGE PKWY UNIT 309
CAMBRIDGE, MA 02142

12-17
LIN, MEI
75-83 CAMBRIDGE PKWY UNIT 310
CAMBRIDGE, MA 02142

12-17
LOHNES, PAUL F.,
TRUSTEE OF MUDDY WATER REALTY TRUST.
C/O LAVERTY/ LOHNES PROPERT.
75 CAMBRIDGE PKWY SUITE 100
CAMBRIDGE, MA 02142-1229

12-17
CROWLEY, WILLIAM F., JR.
75-83 CAMBRIDGE PKWY - UNIT PH4
CAMBRIDGE, MA 02142

12-17
CHUN, CHU S. & KATY C. CHUN
75-83 CAMBRIDGE PKWY - UNIT PH5
CAMBRIDGE, MA 02142

12-17
GARGANO, PAUL A. & SHEILA K. GARGANO
22 WIANNO AVE
OSTERVILLE, MA 02655

12-17
BARRON, SUSAN B.,
TRS THE SUSAN BARRON 2009 TRT
83 CAMBRIDGE PARKWAY W203
CAMBRIDGE , MA 02142

12-17
SALDANHA, ROSEMARIE
75-83 CAMBRIDGE PKWY UNIT 204
CAMBRIDGE, MA 02142

12-17
BIBI (US) CORPORATION,
176 FEDERAL ST.
BOSTON, MA 02110

12-17
EPHRAIM, DAVID M.
TRUSTEE THE ALBA REALTY TRUST
75-83 CAMBRIDGE PKWY UNIT 207
CAMBRIDGE, MA 02142

12-17
CASSERES, JANE GOMES, TRUSTEE JANE
GOMES CASSERES REV TRUST
JAN HAAYENWEG 9
WILLEMSTAD, -- -----

12-17
CHIRATHIVAT, SUDITHAM &
SANHAJUTHA CHIRATHIVAT
9/9 SATORN SOI 1
BANKKOK , -- 10120

12-17
GRAYZEL, FRIEDA T.M
TRUSTEE THE FRIEDA T. GRAYZEL
75-83 CAMBRIDGE PKWY UNIT 201
CAMBRIDGE, MA 02141

12-17
EPHRAIM, DAVID M.
TRUSTEE THE ALBA REALTY TRUST
75-83 CAMBRIDGE PKWY UNIT 206
CAMBRIDGE, MA 02142

12-17
SPENCER-GREEN, GEORGE T.,
TRS THE GTSG KIA ORA TRUST
75-83 CAMBRIDGE PKWY UNIT #208
CAMBRIDGE, MA 02142

12-17
TWAALFHOVEN, SANDRA JEAN HANEY
75-83 CAMBRIDGE PKWY UNIT 305
CAMBRIDGE, MA 02142

12-17
MINEAR, RALPH E.,JR.
75 CAMBRIDGE PKWY - UNIT E403
CAMBRIDGE, MA 02142

12-17
WILSON, WILLIAM JULIUS
75-83 CAMBRIDGE PKWY UNIT E406
CAMBRIDGE, MA 02142

12-17
LI, XIAO-LI & XIAO-GANG WEN
75-83 CAMBRIDGE PKWY UNIT E503
CAMBRIDGE, MA 02142

12-17
SAWYER, JEFFREY A. & MATTHEW SAWYER
75-83 CAMBRIDGE PKWY. - UNIT E506
CAMBRIDGE, MA 02142

12-17
ULLIAN, THOMAS
75-83 CAMBRIDGE PKWY - UNIT E601
CAMBRIDGE, MA 02142

12-17
STONE, DAVID W. & HEATHER L. HOHENTHAL
75-83 CAMBRIDGE PKWY. E603
CAMBRIDGE, MA 02142

12-17
BOK, DEREK C. & SISSELA ANN BOK
75-83 CAMBRIDGE PKWY. - UNIT E608
CAMBRIDGE, MA 02142

12-17
CHENG, CLIFF
75-83 CAMBRIDGE PKWY - UNIT E701
CAMBRIDGE, MA 02142

12-17
PEPIN, PAULINE F.
75 CAMBRIDGE PARKWAY,UNIT E705
CAMBRIDGE, MA 02142

12-17
KUO, SHUNWA
75-83 CAMBRIDGE PKWY UNIT E707
CAMBRIDGE, MA 02141

12-17
KHOLI, HAMZA AL & TODD D. SHELTON, TRS.
C/O DALY CAVANAUGH LLP
27 MICA LANE
WELLESLEY, MA 02481

12-17
NANGIA, CHIRAG & ASHOK NANGIA
75-83 CAMBRIDGE PKWY #E805
CAMBRIDGE, MA 02142

12-17
CHEN, THEODORE C. & BERNICE K. CHEN
75-83 CAMBRIDGE PKWY - UNIT E908
CAMBRIDGE, MA 02142

12-17
MAHMUD, NABILA
75-83 CAMBRIDGE PKWY UNIT 311
CAMBRIDGE, MA 02142

12-17
HIROSE, TATSUO & TAKAKO HIROSE
75-83 CAMBRIDGE PKWY, PH1
CAMBRIDGE, MA 02142

12-17
CHUN, AILEEN S. & KATY C. CHUN
75-83 CAMBRIDGE PKWY #PH3
CAMBRIDGE, MA 02142

12-17
CAMBRIDGE PARKWAY, LLC,
75-83 CAMBRIDGE PKWY. PH6
CAMBRIDGE, MA 02142

12-17
REDEVCO C/O BANU ATKINSON
75 CAMBRIDGE PKWY SUITE #E502
CAMBRIDGE , MA 02142

12-17
HWACHII LIEN, TRUSTEE E708 ESPLANDADE REALTY TRUST
51 VIA LOS ALTOS
TIBURON , CA 94920

12-17
GOGAN, JANIS L. & ASHOK RAO
75-83 CAMBRIDGE PKWY. UNIT#105
CAMBRIDGE, MA 02139

12-17
SHISHAKLY, ANUD AL & FAHAD AL TAMIMI
75 CAMBRIDGE PKWY - UNIT PH10
CAMBRIDGE, MA 02142

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

12-17
DAY, ROSEMARY E. & JOSEPH W.
TRS DAY REALTY TR
75-83 CAMBRIDGE PKWY - UNIT E703
CAMBRIDGE, MA 02142

12-17
ROSE E. DON & NINA F. SIMONDS
75-83 CAMBRIDGE PKWY E409
CAMBRIDGE, MA 02142

12-17
LEE, NAE-KUN, & HONG JA LEE
45 E 65TH ST
NEW YORK, NY 10065

12-17
ROBERTS, MARTIN
75-83 CAMBRIDGE PKWY.UNIT#E706
CAMBRIDGE, MA 02142

12-17
BLALOCK, JANE B., TRUSTEE JANE B.
BLALOCK TRUST
75-83 CAMBRIDGE PKWY
CAMBRIDGE, MA 02142

12-17
LI, XIAO-LI,
TRUSTEE THE XIAO-LI LI TRUST-2015
75-83 CAMBRIDGE PKWY UNIT E504
CAMBRIDGE, MA 02142

12-17
DAVIS, FRED G. & JANE HILBURT-DAVIS
75-83 CAMBRIDGE PKWY - UNIT E808
CAMBRIDGE, MA 02142

12-17
COLQUHOUN, HELEN
55 ACADEMY ST
ARLINGTON, MA 02476

11-40
55 CAMBRIDGE PARKWAY, LLC
C/O MARVIN F. POER & CO
55 CAMBRIDGE PARKWAY
CAMBRIDGE, MA 02142

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

12-17
KAGAN, ROBERT A., TRUSTEE THE ROBERT A. KAGAN FAMILY TRUST
75-83 CAMBRIDGE PKWY., #E405
CAMBRIDGE, MA 02142

12-17
HAMPTON, JUDITH D., TRUSTEE THE JUDI HAMPTON 2014 REALTY TRUST
75-83 CAMBRIDGE PKWY UNIT E411
CAMBRIDGE, MA 02142

12-17
TAGHIZADEH, KOLI
75-83 CAMBRIDGE PKWY #E511
CAMBRIDGE, MA 02142

12-17
TOROUS, WALTER N. & JANE G. TOROUS, TRS
THE TOROUS REV TRUST
75-83 CAMBRIDGE PKWY UNIT E801
CAMBRIDGE, MA 02142

12-17
PARK, BYUNG WON
75-83 CAMBRIDGE PKWY #W1008
CAMBRIDGE, MA 02142

12-17
ALI YATEEM, TRUSTEE OF THE YATEEM REAL ESTATE TRUST
P.O. BOX 60, MANAMA
ARABIAN GULF, _ _

12-17
KISHI, TOKIKO & YOSHITO KISHI
75-83 CAMBRIDGE PKWY. UNIT# E902
CAMBRIDGE, MA 02141

12-17
FELTER, JOHN KENNETH
75-83 CAMBRIDGE PKWY - UNIT E909
CAMBRIDGE, MA 02142

9-31
SONESTA, ROYAL SONESTA HOTEL BOSTON
C/O RYAN, LLC
C/O RYAN LLC PTS DEPT 124
PO BOX 460389
HOUSTON, TX 77056

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

12-17
VARSHNEY, ASHUTOSH & VIBHA PINGLE
75-83 CAMBRIDGE PKWY. E407
CAMBRIDGE, MA 02139

12-17
GREENE, JANET F.
75-83 CAMBRIDGE PKWY. UNIT#E508
CAMBRIDGE, MA 02142

12-17
BOK, DEREK C. & SISSELA ANN BOK
75-83 CAMBRIDGE PKWY
UNIT E610
CAMBRIDGE, MA 02142

12-17
DAME, CORINNE & SAMUEL DAME, TRUSTEE OF 75-83 CAMB PKWY E807 REALTY TR.
75-83 CAMBRIDGE PKWY
UNIT E807
CAMBRIDGE, MA 02142

12-17
ANTUPIT, FRANCES V.
75-83 CAMBRIDGE PKWY, UNIT 604
CAMBRIDGE, MA 02142

12-17
WONG-HO IVY & LEE, WING-HO
75-83 CAMBRIDGE PKWY W605
CAMBRIDGE, MA 02139

12-17
GAJEWSKI, JERZY, TRUSTEE OF THE
75-83 CAMBRIDGE PARKWAY - UNIT 408
CAMBRIDGE, MA 02142

12-17
BASIN VIEW, INC.
P.O. BOX 11715
COLUMBIA, SC 29211-1715

12-17
HO, SING-JU
75-83 CAMBRIDGE PKWY. - UNIT W707
CAMBRIDGE, MA 02142

12-17
ALTHANI, J.H. JASSIM ABDUL AZZIZ TR E-AL &
CITY OF CAMBRIDGE TAX TITLE
C/O ESPLANADE PK MANAGEMENT
P.O. BOX 1461
CONCORD, MA 01742

12-17
NEGAHBAN, AZITA
75-83 CAMBRIDGE PKWY. UNIT#W1204
CAMBRIDGE, MA 02142

12-17
STARK, MARTHA C.
83 CAMBRIDGE PKWY - UNIT W909
CAMBRIDGE, MA 02142

12-17
LEE, SUN KYUNG
75-83 CAMBRIDGE PKWY UNIT W1005
CAMBRIDGE, MA 02141

12-17
SMITHSON, JAMES L. & LOIS G. SMITHSON
TRUSTEES OF 1106 ESPLANADE REALTY TRUST.
83 CAMBRIDGE PKWY W1106
CAMBRIDGE, MA 02142

12-17
MOKHTARI, SASAN & MARY E. BROWN
9991 DELL ROAD
EDEN PRARIE, MN 55347

12-17
TAGHIZADEH, ROUZBEH R.
75-83 CAMBRIDGE PKWY - UNIT W404
CAMBRIDGE, MA 02142

12-17
YUE, EVA W.
5 STILLMEADOW RD.
WESTON, MA 02493

12-17
TAGHIZADEH, ROUZBEH R.
75-83 CAMBRIDGE PKWY #W601
CAMBRIDGE, MA 02142

12-17
SARAB, INC. C/O EXIT REALTY ASSOCIATES
1114 COMMONWEALTH AVE #6
ALLSTON, MA 02134

12-17
HASAN, AL-AMOUDI
75-83 CAMBRIDGE PKWY, UNIT E1203
CAMBRIDGE, MA 02139

12-17
MYERS, JAMES R. & GWENDOLYN A. MYERS
75-83 CAMBRIDGE PKWY - UNIT W702
CAMBRIDGE, MA 02142

12-17
ASAD, YOUSEF AHMAD, TRS.OF THE ESPLANADE
CONDOMINIUM UNIT E1006 REALTY TR.
75-83 CAMBRIDGE PKWY., UNIT E1006
CAMBRIDGE, MA 02142

12-17
PARK, BYUNG WON
75-83 CAMBRIDGE PKWY - UNIT W1008
CAMBRIDGE, MA 02142

12-17
EVANS, LAWRENCE B. & BEVERLY A. EVANS
116 COOLIDGE HILL
CAMBRIDGE, MA 02138

12-17
YEE, JOHN F.,
TRUSTEE THE JOHN F. YEE 2004 REV TRUST
75-83 CAMBRIDGE PKWY UNIT W802
CAMBRIDGE, MA 02142

12-17
HORNER, MATINA S. & TIA A. HONER
TR. OF THE MATINA S. HORNER REV TR-2008
75-83 CAMBRIDGE PKWY. W406
CAMBRIDGE, MA 02142

12-17
AN, NING & SI PING YU
22 WAVERLEY AVE
NEWTON, MA 02458

12-17
BEAL, ENID, TR. THE UNIT W 610 NOMINEE TRUST
75-83 CAMBRIDGE PKWY. - UNIT W610
CAMBRIDGE, MA 02142

12-17
DAVIS, G. AHSLEY
75-83 CAMBRIDGE PKWY UNIT E1005
CAMBRIDGE, MA 02142

12-17
AL TAMIMI, FAHAD & ANUD AL SHISHAKLY,
TR OF TAMIMI FAMILY TRUST
75-83 CAMBRIDGE PKWY #W1002
CAMBRIDGE, MA 02142

12-17
YEE, RITA
75-83 CAMBRIDGE PKWY UNIT W804
CAMBRIDGE, MA 02142

12-17
WINSTON, KENNETH I. & MARY JO BANE
75-83 CAMBRIDGE PKWY, #E1101
CAMBRIDGE, MA 02142

12-17
ZAND, BEHROOZ DOWLATSHAHI &
AZAM ZAND
75-83 CAMBRIDGE PKWYS - UNIT E402
CAMBRIDGE, MA 02142

12-17
BERTELLI, MARY KATHRYN
75 CAMBRIDGE PKWY. UNIT#PH12
CAMBRIDGE, MA 02412

12-17
MENHALL, NASSER
83 CAMBRIDGE PKWY #W808
CAMBRIDGE, MA 02142

12-17
KATIS, NICHOLAS H.
75-83 CAMBRIDGE PKWY. - UNIT W905
CAMBRIDGE, MA 02142

12-17
SKOWRONSKI, STANLEY &
CHRISTINE H. SKOWRONSKI
75-83 CAMBRIDGE PKWY. UNIT#E1205
CAMBRIDGE, MA 02142

12-17
JOHNSTON, ANNE E.
75-83 CAMBRIDGE PKWY UNIT W1009
CAMBRIDGE, MA 02142

12-17
HYMAN, BRADLEY T. &
CYNTHIA L. GROSSKREUTZ
75-83 CAMBRIDGE PKWY UNIT W602
CAMBRIDGE, MA 02142

12-17
BUKER, WILLIAM L.
75-83 CAMBRIDGE PKWY #W701
CAMBRIDGE, MA 02142

12-17
WANG, DAVID DER-WEI
75-83 CAMBRIDGE PKWY. UNIT#W803
CAMBRIDGE, MA 02142

12-17
MENHALL, NASSER
83 CAMBRIDGE PKWY #W808
CAMBRIDGE, MA 02142

12-17
NAHUM, JEREMY P. & KATHERINE H. NAHUM
83 CAMBRIDGE PARKWAY #W908
CAMBRIDGE, MA 02142

12-17
GARFIELD, JOSEPH M. &
FRANCES B GARFIELD
75-83 CAMBRIDGE PKWY.UNIT #E1103
CAMBRIDGE, MA 02142

12-17
SPENCER, AARON D.
51 GREY STONE PATH
DEDHAM, MA 02026

12-17
KUBAR HOLDING INC.
176 FEDERAL ST
BOSTON, MA 02110

12-17
BERNSTEIN, AMY J.
75-83 CAMBRIDGE PKWY W1001
CAMBRIDGE, MA 02142

12-17
LIEBERMAN, LAWRENCE & GLORIA LIEBERMAN
TRUSTEE OF 1105-W REALTY TRUST
83 CAMBRIDGE PKWY. UNIT#W1105
CAMBRIDGE, MA 02142

12-17
SINHA, BIKASH K. & ASHA SINHA
75-83 CAMBRIDGE PKWY. #W603
CAMBRIDGE, MA 02142

12-17
PAI, SACHIN MANGALORE & KARIN ROESCH
75-83 CAMBRIDGE PKWY, #W703
CAMBRIDGE, MA 02142

12-17
TAGHIZADEH, NAZBEH
75-83 CAMBRIDGE PKWY UNIT W805
CAMBRIDGE, MA 02142

12-17
EYUBOGLU, CENK & MERT O. EYUBOGLU
75-83 CAMBRIDGE PKWY UNIT#W906
CAMBRIDGE, MA 02142

12-17
HO, ALEXANDER J. & PAULINE Y. HO,
TRUSTEES OF APLEX REALTY TRUST
69 GRANDNER COURT
BRIDGEWATER, NJ 08807

12-17
ALTHANI, JASSIM ABDUL AZIZ J.H.,TR ET-AL &
CITY OF CAMBRIDGE TAX TITLE
C/O ESPLANADE PK MANAGEMENT
P.O. BOX 381900
CAMBRIDGE, MA 02238

12-17
MOREAU, SYLVIANE &
JACQUES-PIERRE M. MOREAU
159 WESTBORO RD
UPTON, MA 01568

12-17
MERTON, ROBERT C.
75-83 CAMBRIDGE PKWY. UNIT E1108
CAMBRIDGE, MA 02142

12-17
ZHOU, JIANYING
TRUSTEE OF ZHOUSHI REALTY TRUST
11191 BRITTANY LN
DUBLIN, CA 94568

12-17
FILIOTIS, DIONYSIOS
C/O THE LAW OFFICE OF MICHAEL G. GATLIN
61 NICHOLAS RD. #B5
FRAMINGHAM, MA 01701

12-17
FRUSZTAJER, ELISABETH
75-83 CAMBRIDGE PKWY, # W606
CAMBRIDGE, MA 02142

12-17
BORRAS, M. CRISTINA & PEDRO ELOSEGUI
C/O CRISTINA BORRAS
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BAGGEROER, CAROL A.
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CAMBRIDGE, MA 02142

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MOHAMED, SHAIDA L.
ALYKHAN I. MOHAMED, TRS
83 CAMBRIDGE PKWY UNIT W407
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LIPSITT, DON R.,
TRS THE DON R. LIPSITT 1982 TRUST
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COVO, SUSAN P. & HERMINE ADAMIAN, TRS
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RHEE YOON-HEE TRS RHEE REALTY TR
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CAMBRIDGE, MA 02138

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YAP, LIANG
TRS THE LIANG YAP 2023 TR
75-83 CAMBRIDGE PKWY - UNIT E1004
CAMBRIDGE, MA 02142

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TOSI, LINDA T
RS THE ESPLANADE 503 REALTY TR
83 CAMBRIDGE PKWY - UNIT 303
CAMBRIDGE, MA 02142

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SKIFFINGTON, SERENA F
TRS THE SKIFFINGTON REALTY TR
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JOHN, AJU & MARY P JOHN
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SULLIVAN, EDMUND J III
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CAMBRIDGE, MA 02142

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AL-NOWAIS, MOHAMMED
75-83 CAMBRIDGE PKWY - UNIT E804
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KAREN KOMLOS TRS
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ZHANG, HONGYU
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CAMBRIDGE, MA 02142

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CHEN, WEI
75-83 CAMBRIDGE PKWY - UNITS 102 & 103
CAMBRIDGE, MA 02142

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MAXWELL, MARC A. TRS THE MARC A.
MAXWELL LIVING TR
75-83 CAMBRIDGE PKWY - UNIT E1009
CAMBRIDGE, MA 02142

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ESBAH-TABATABAIE, FARIBA
TRS THE FET FAMILY TR
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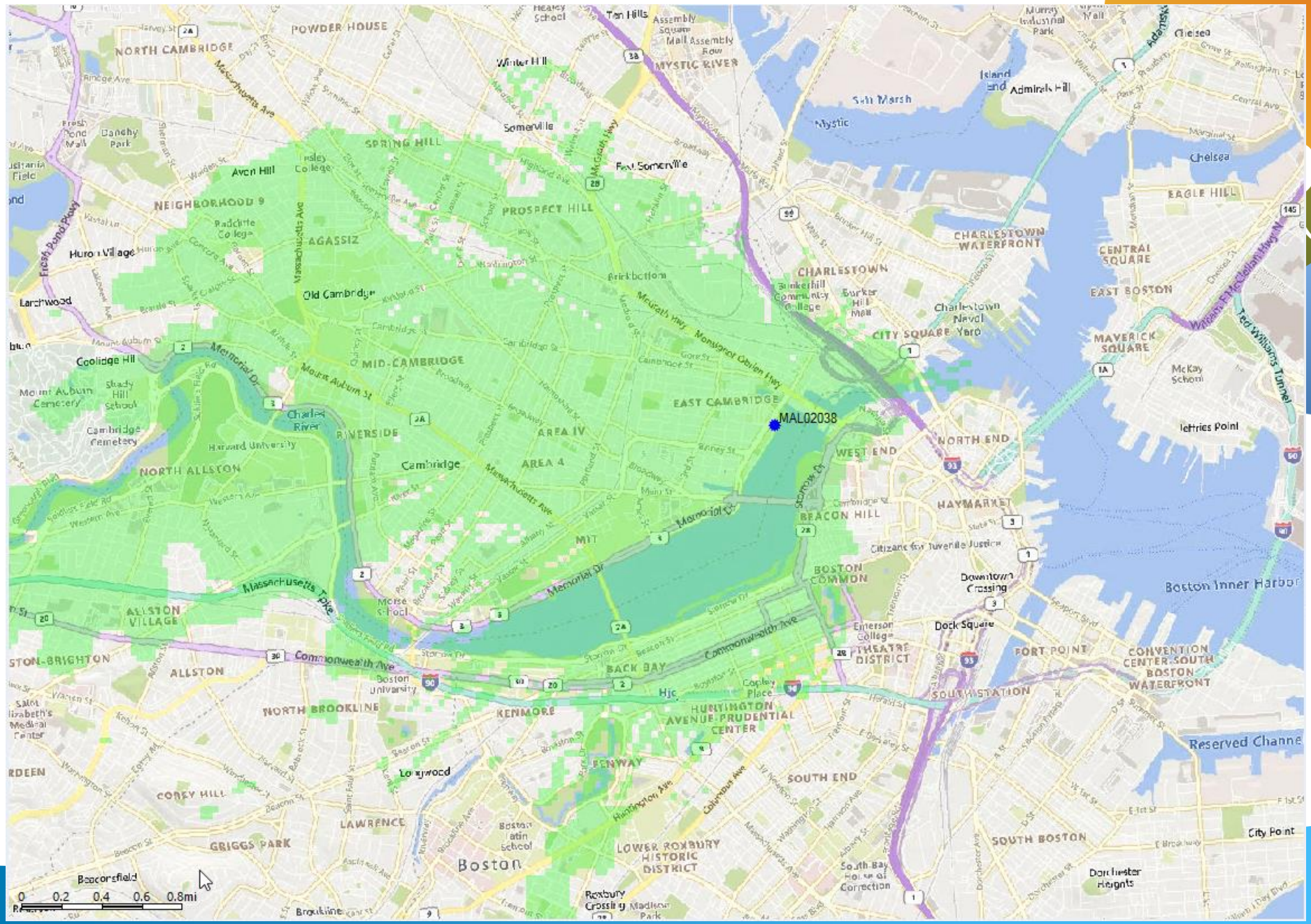
Rethink Possible

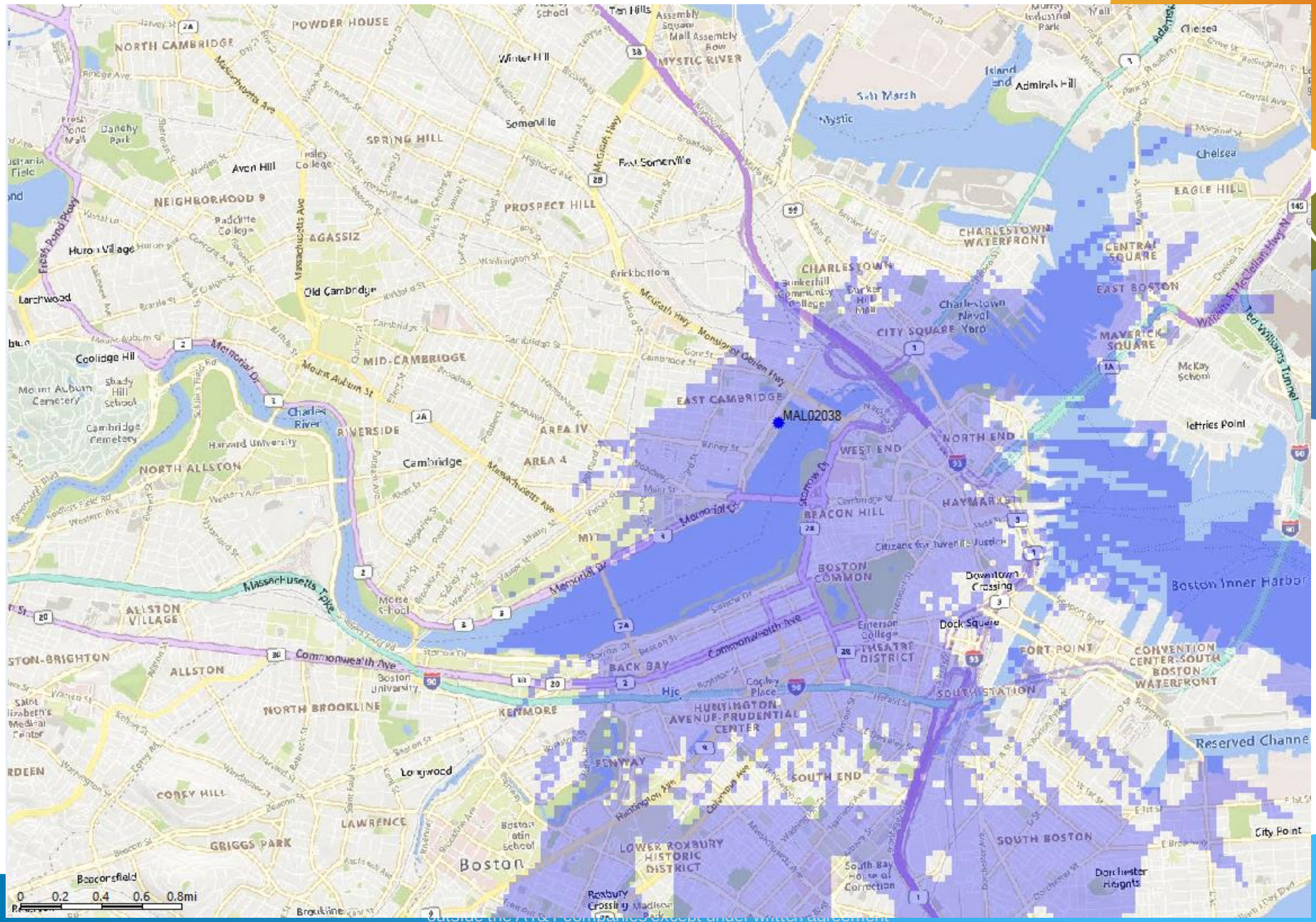
MAL02038 Coverage Plot

- Zoning Beta at 138’ Rad Center Sector Add Plot

Existing Gamma only sector Coverage For MAL02038



Proposed Beta sector Add Coverage For MAL02038



Combined Beta & Gamma sector Coverage For MAL02038