



# CITY OF CAMBRIDGE

BOARD OF ZONING APPEAL

831 Massachusetts Avenue, Cambridge MA 02139

617-349-6100

2023 DEC 27 AM 10:47  
OFFICE OF THE CITY CLERK  
CAMBRIDGE, MASSACHUSETTS

## BZA Application Form

BZA Number: 251572

### General Information

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

Special Permit:   X                        Variance:                             Appeal:       

PETITIONER: President and Fellows of Harvard College

PETITIONER'S ADDRESS: 750 W. Center St. Ste 301, W. Bridgewater, MA 02379

LOCATION OF PROPERTY: 1350 Massachusetts Ave., Cambridge, MA

TYPE OF OCCUPANCY: Telecommunications                      ZONING DISTRICT: Residence C

REASON FOR PETITION:

### DESCRIPTION OF PETITIONER'S PROPOSAL:

AT&T modifications include replacing (12) antennas with (12) new antennas in nearly the same location, replacing (6) remote radio heads with (6) remote radio heads in nearly the same location, replacing certain cabling with new cables, add rectifiers, remove existing diplexers and TMA, and remove and replace certain equipment in AT&T's existing rooftop equipment shelter.

### SECTIONS OF ZONING ORDINANCE CITED:

Article: 4.000                      Section: 4.32.g.1 & Sec. 4.40 (Footnote 49) (Telecommunications Facility).  
Article: 10.000                      Section: 10.40 (Special Permit).  
Article: 6409                      Section: (Federal Middle Class Tax Relief Act -"Spectrum Act").

Original  
Signature(s):

Allison Conwell

(Petitioner (s) / Owner)

Allison Conwell

(Print Name)

Address: 750 W. Center St. Ste 301 W. Bridgewater,  
Tel. No. 215-588-7035  
E-Mail Address: aconwell@clinellc.com

MA 02379

Date: \_\_\_\_\_

**BZA APPLICATION FORM - OWNERSHIP INFORMATION**

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

I/We PRESIDENT AND FELLOWS OF HARVARD COLLEGE  
(OWNER)

Address: 1350 MASSACHUSETTS AVE, CAMBRIDGE MA 02138

State that I/We own the property located at 1350 MASS AVE, CAMBRIDGE which is the subject of this zoning application.

The record title of this property is in the name of PRESIDENT AND FELLOWS OF HARVARD COLLEGE

\*Pursuant to a deed of duly recorded in the date 12/22/04, Middlesex South County Registry of Deeds at Book 44353, Page 481; or Middlesex Registry District of Land Court, Certificate No. \_\_\_\_\_ Book \_\_\_\_\_ Page \_\_\_\_\_.

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

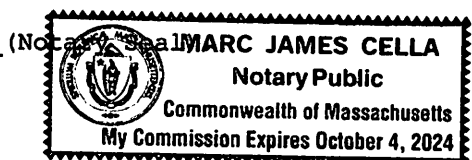
\*Written evidence of Agent's standing to represent petitioner may be requested.

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Commonwealth of Massachusetts, County of Middlesex

The above-name Kristen Hurston personally appeared before me, this 4 of December, 2023, and made oath that the above statement is true.

Marc J. Cella Notary

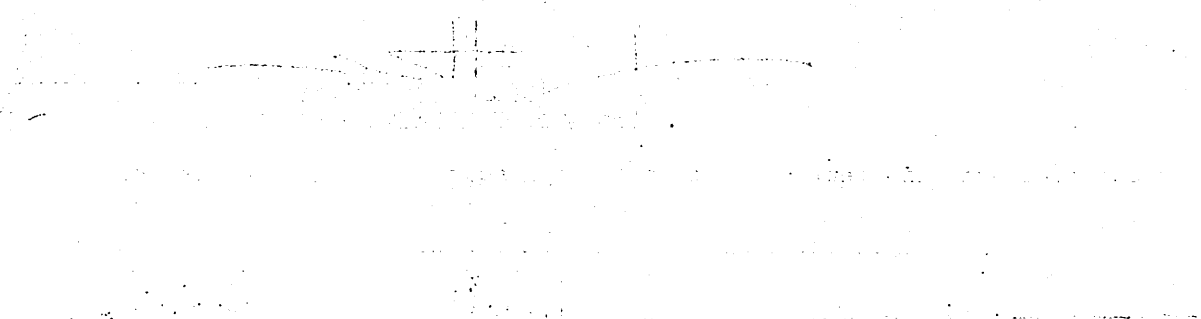
My commission expires Oct. 4, 2024



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

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## BZA Application Form

### SUPPORTING STATEMENT FOR A SPECIAL PERMIT

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

**Granting the Special Permit requested for 1350 Massachusetts Ave., Cambridge, MA (location) would not be a detriment to the public interest because:**

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

AT&T's facility will comply with all applicable sections of the Ordinance as the modified Facility will not increase the height of the Building, and the new antennas will be the same sky grey color as the existing antennas (which best matches the color of the Building).

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

AT&T's Facility will not result in any substantial change in the character of the neighborhood as there will be no significant increase in the amount of traffic to and from the Site, or any changes to existing patterns of access or egress to the Site. Trips to and from the Facility will average one or two per month by maintenance personnel who will park their SUV in the existing parking area on Site and not on the street.

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

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

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

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

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

The proposed Facility will be in harmony with the purposes of the Ordinance because by collocating a wireless facility on an existing Building in a manner which does not increase the height of the Building or expand its footprint, potential visual impacts are minimized. Also, the proposed Facility will not produce any smoke, odors, waste, glare or significant amounts of traffic. The Facility will have no negative impact on natural or undeveloped areas, wildlife, flora or endangered species. Consistent with the ordinance, the Facility will function as a wireless communications services



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

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

**BZA Application Form****DIMENSIONAL INFORMATION**

**Applicant:** President and Fellows of Harvard College  
**Location:** 1350 Massachusetts Ave., Cambridge, MA  
**Phone:** 215-588-7035

**Present Use/Occupancy:** Telecommunications  
**Zone:** Residence C  
**Requested Use/Occupancy:** Telecommunications

		<u>Existing Conditions</u>	<u>Requested Conditions</u>	<u>Ordinance Requirements</u>	
<u>TOTAL GROSS FLOOR AREA:</u>		74,913	0	0	(max.)
<u>LOT AREA:</u>		74,913	0	0	(min.)
<u>RATIO OF GROSS FLOOR AREA TO LOT AREA: <sup>2</sup></u>		74,913	0	0	
<u>LOT AREA OF EACH DWELLING UNIT</u>		0	0	0	
<u>SIZE OF LOT:</u>	<u>WIDTH</u>	0	0	0	
	<u>DEPTH</u>	0	0	0	
<u>SETBACKS IN FEET:</u>	<u>FRONT</u>	0	0	0	
	<u>REAR</u>	0	0	0	
	<u>LEFT SIDE</u>	0	0	0	
	<u>RIGHT SIDE</u>	0	0	0	
<u>SIZE OF BUILDING:</u>	<u>HEIGHT</u>	121	0	0	
	<u>WIDTH</u>	0	0	0	
	<u>LENGTH</u>	0	0	0	
<u>RATIO OF USABLE OPEN SPACE TO LOT AREA:</u>		0	0	0	
<u>NO. OF DWELLING UNITS:</u>		0	0	0	
<u>NO. OF PARKING SPACES:</u>		0	0	0	
<u>NO. OF LOADING AREAS:</u>		0	0	0	
<u>DISTANCE TO NEAREST BLDG. ON SAME LOT</u>		0	0		

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

N/A this project is for an AT&T equipment upgrade on the roof.

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

**PROJECT INFORMATION**

SCOPE OF WORK: ITEMS TO BE MOUNTED ON THE EXISTING ROOF TOP:

- NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3) (STACKED) (TOP).
- NEW AT&T ANTENNAS: AIR6449 B77D (TYP. OF 1 PER SECTOR, TOTAL OF 3) (STACKED) (BOTTOM).
- NEW AT&T ANTENNAS: QD4616-7 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: OPA65R-BU4D (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4415 B25 (1900) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T (3) Y-CABLES FOR DUAL BAND RADIOS (4449).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- ADD 6651 + XCEDE CABLE.
- FINAL: 1x5216/1xXMMU/1x6630+IDLe/1x6651+XCEDE.
- ADD (4) -48V RECTIFIERS FOR A TOTAL OF (10) RECTIFIERS INSIDE EXISTING POWER PLANT.
- ADD (6) -48V UP-CONVERTERS FOR THE 4449 B5/B12, AIR6449, & AIR6419 IN BETA SECTOR.

ITEMS TO BE REMOVED:

- DECOMMISSION EXISTING AT&T ANTENNA: SBNHH-1D65A (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING AT&T ANTENNA: 800-10964 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING AT&T ANTENNA: OPA-65R-LCUU-H4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING AT&T ANTENNA: 742-264 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING AT&T DIPLEXERS: 78210250 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- DECOMMISSION EXISTING AT&T TMA: LGP21401 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- DECOMMISSION EXISTING AT&T RRUS: RRUS-12 B2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING AT&T (12) 1-5/8" COAX CABLES.
- DECOMMISSION EXISTING UMS CABINET (RETIRE IN PLACE)

ITEMS TO REMAIN:

- (15) RRU'S, (6) SURGE ARRESTOR, (12) 1-5/8" COAX, (12) DC POWER & (6) FIBER.

SITE ADDRESS: 1350 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138

LATITUDE: 42.3727989° N, 42° 22' 22.07" N  
LONGITUDE: -71.1185969° W, 71° 7' 6.94" W

TYPE OF SITE: ROOF TOP / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 121'-6"±  
RAD CENTER: 126'-0"±  
CURRENT USE: TELECOMMUNICATIONS FACILITY  
PROPOSED USE: TELECOMMUNICATIONS FACILITY

**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.



**SITE NUMBER: MAL02215**

**SITE NAME: CAMBRIDGE MASS. AVE**

**FA CODE: 10071767**

**PACE ID: MRCTB057991, MRCTB052221, MRCTB051167, MRCTB050815, MRCTB050786**

**PROJECT: 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, RF MODS, BBU RECONFIG, 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 TOLL ROAD, MERGE WITH I-90 E TOLL ROAD, TAKE EXIT 131 ON THE LEFT TOWARD CAMBRIDGE TOLL ROAD, MERGE WITH CAMBRIDGE ST, TURN LEFT ONTO MEMORIAL DR, TURN RIGHT ONTO PLYMPTON ST, TURN LEFT ONTO MASSACHUSETTS AVE, TURN LEFT ONTO DUNSTER ST, TURN LEFT DESTINATION WILL BE ON THE RIGHT.



**GENERAL NOTES**

- 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.
- 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.
- 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.
- CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

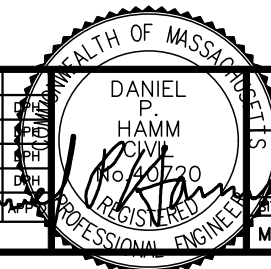
**DRAWING INDEX**

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

**UNDERGROUND SERVICE ALERT**



**WWW.DIGSAFE.COM**  
**72 HOURS PRIOR**



**SITE NUMBER: MAL02215**  
**SITE NAME: CAMBRIDGE MASS. AVE**

1350 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138  
MIDDLESEX COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP
2	11/29/23	ISSUED FOR CONSTRUCTION	JS	AT	DPH
1	11/07/23	ISSUED FOR CONSTRUCTION	SP	AT	DPH
0	10/20/23	ISSUED FOR REVIEW	JS	AT	DPH
A	06/10/22	ISSUED FOR REVIEW	GS	AT	DPH

SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: GD

AT&T		TITLE SHEET	
DANIEL P. HAMM REGISTERED PROFESSIONAL ENGINEER NO. 40770 STATE OF MASSACHUSETTS		5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, RF MODS, BBU RECONFIG, 2023 UPGRADE	
SITE NUMBER	DRAWING NUMBER	REV	
MAL02215	T-1	2	



**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 – CENTERLINE  
 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	RADIATION CENTER LINE	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		



**SITE NUMBER: MAL02215  
 SITE NAME: CAMBRIDGE MASS. AVE**

1350 MASSACHUSETTS AVENUE  
 CAMBRIDGE, MA 02138  
 MIDDLESEX COUNTY

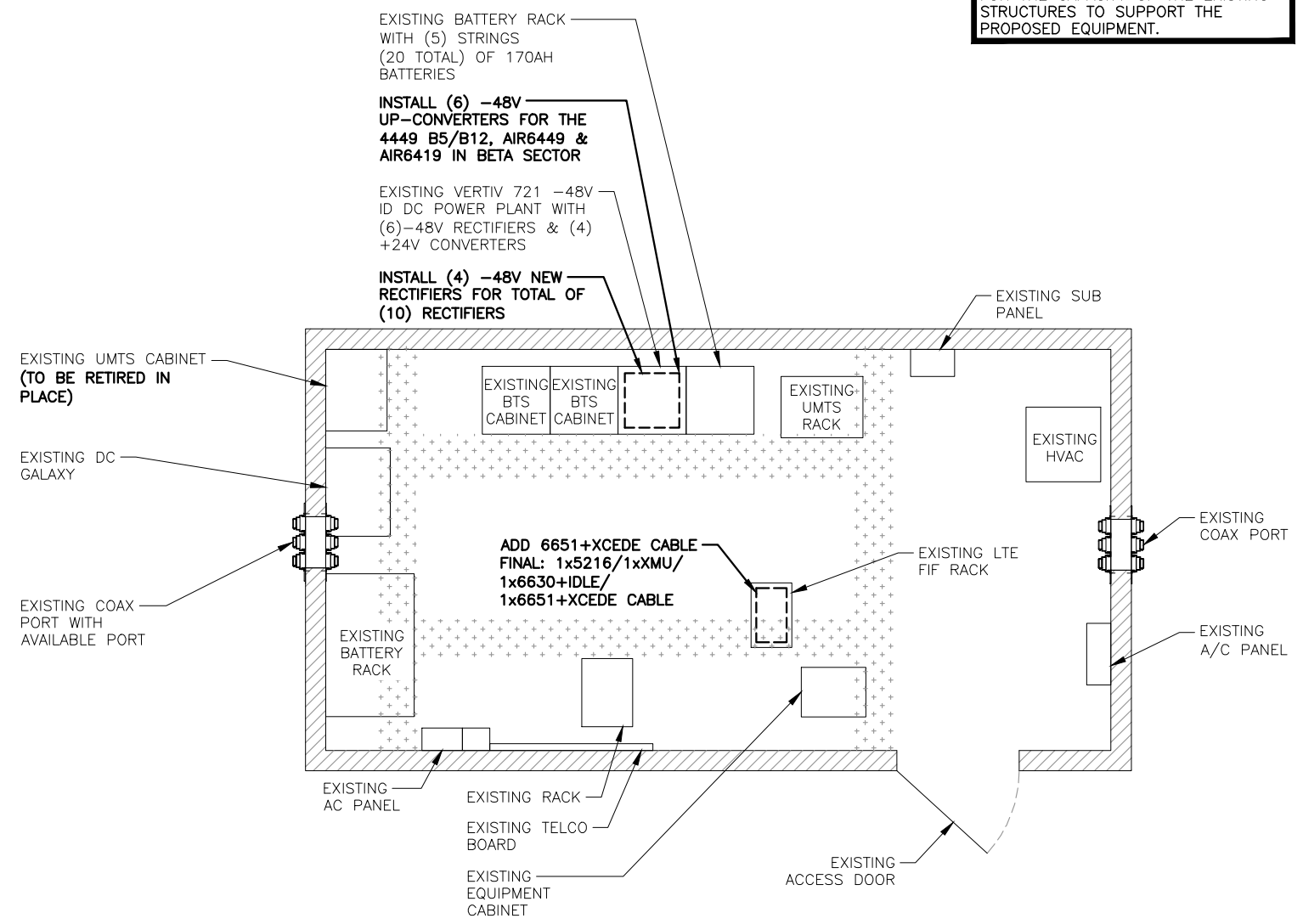
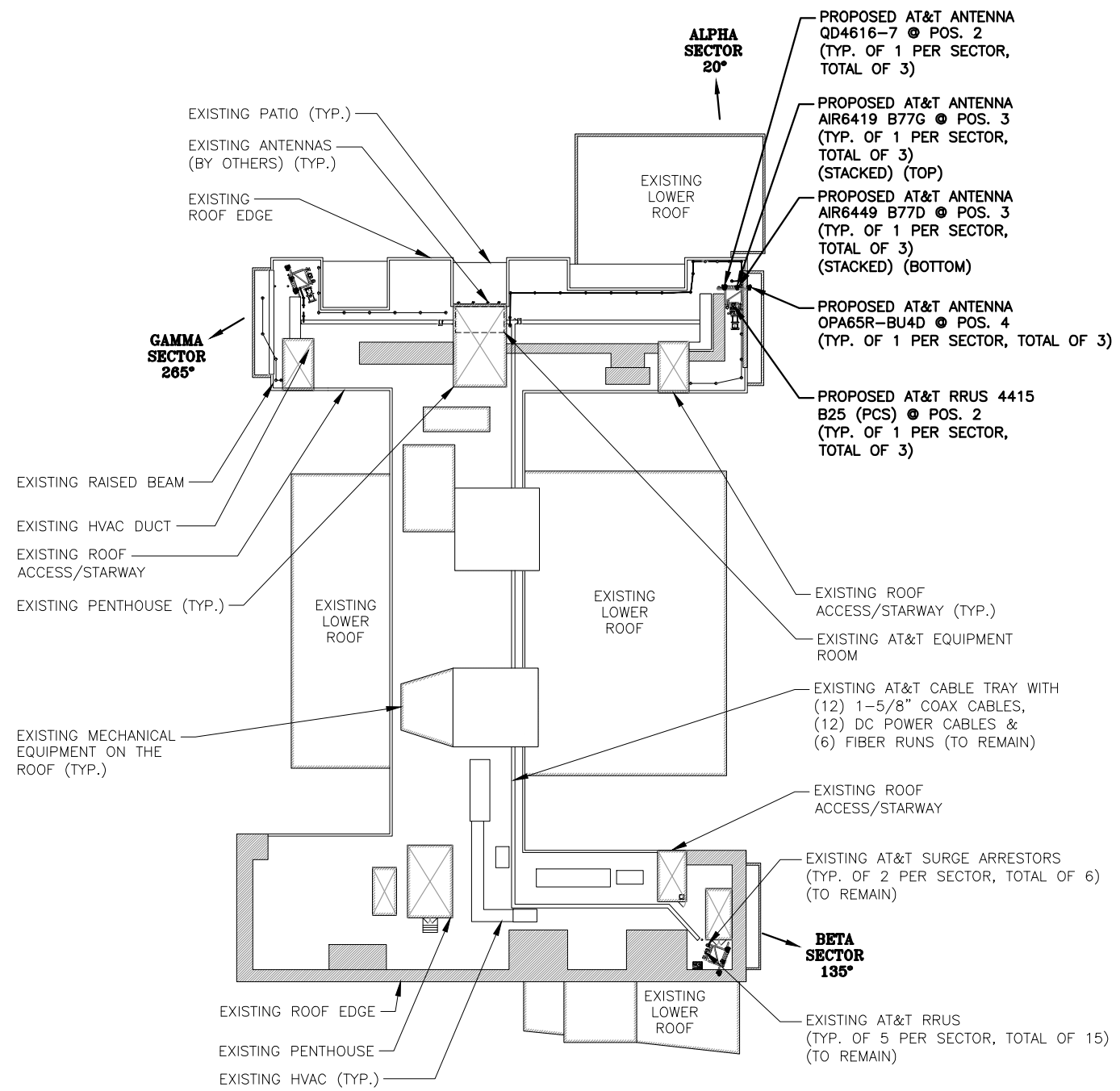


550 COCHITUATE ROAD  
 FRAMINGHAM, MA 01701

2	11/29/23	ISSUED FOR CONSTRUCTION	JS	AT	CHK	APP	DATE	BY	CHK	APP	DATE	BY	CHK	APP	DATE	BY	CHK	APP
1	11/07/23	ISSUED FOR CONSTRUCTION	JS	AT	CHK	APP												
0	10/20/23	ISSUED FOR REVIEW	JS	AT	CHK	APP												
A	06/10/22	ISSUED FOR REVIEW	JS	AT	CHK	APP												
NO.	DATE	REVISIONS	BY	CHK	APP	DATE	BY	CHK	APP	DATE	BY	CHK	APP	DATE	BY	CHK	APP	DATE
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: GD		SITE NUMBER: MAL02215		DRAWING NUMBER: GN-1		REV: 2		GENERAL NOTES: 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO, 4G NR 15R CRAND, RF MODS, BBU RECONFIG, 2023 UPGRADE		AT&T		DANIEL P. HAMM CIVIL ENGINEER No. 00770 REGISTERED PROFESSIONAL ENGINEER		HEALTH OF MASSACHUSETTS	

**NOTE:**  
REFER TO THE FINAL RF DATA SHEET V3 DATED 10/25/23 FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
REFER TO STRUCTURAL ANALYSIS BY: TEP NE. (TEP OPCO, LLC.) DATED: NOVEMBER 1, 2023 (REV.1), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



**COMPOUND PLAN**  
22x34 SCALE: 1/32"=1'-0"  
11x17 SCALE: 1/64"=1'-0"  
1  
A-1  
0 16'-0" 32'-0" 64'-0" 96'-0"

**EQUIPMENT PLAN**  
22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"  
2  
A-1  
0 1'-0" 2'-0" 4'-0" 6'-0"

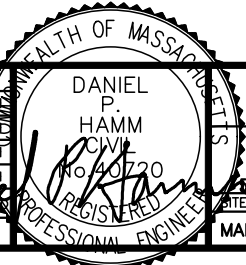


**SITE NUMBER: MAL02215**  
**SITE NAME: CAMBRIDGE MASS. AVE**  
**1350 MASSACHUSETTS AVENUE**  
**CAMBRIDGE, MA 02138**  
**MIDDLESEX COUNTY**



NO.	DATE	REVISIONS	BY	CHK	APP
2	11/29/23	ISSUED FOR CONSTRUCTION	JS	AT	DPH
1	11/07/23	ISSUED FOR CONSTRUCTION	SP	AT	DPH
0	10/20/23	ISSUED FOR REVIEW	S	AT	DPH
A	06/10/22	ISSUED FOR REVIEW	GS	AT	DPH

SCALE: AS SHOWN  
DESIGNED BY: AT  
DRAWN BY: GD



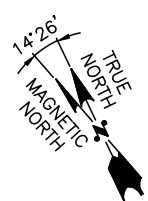
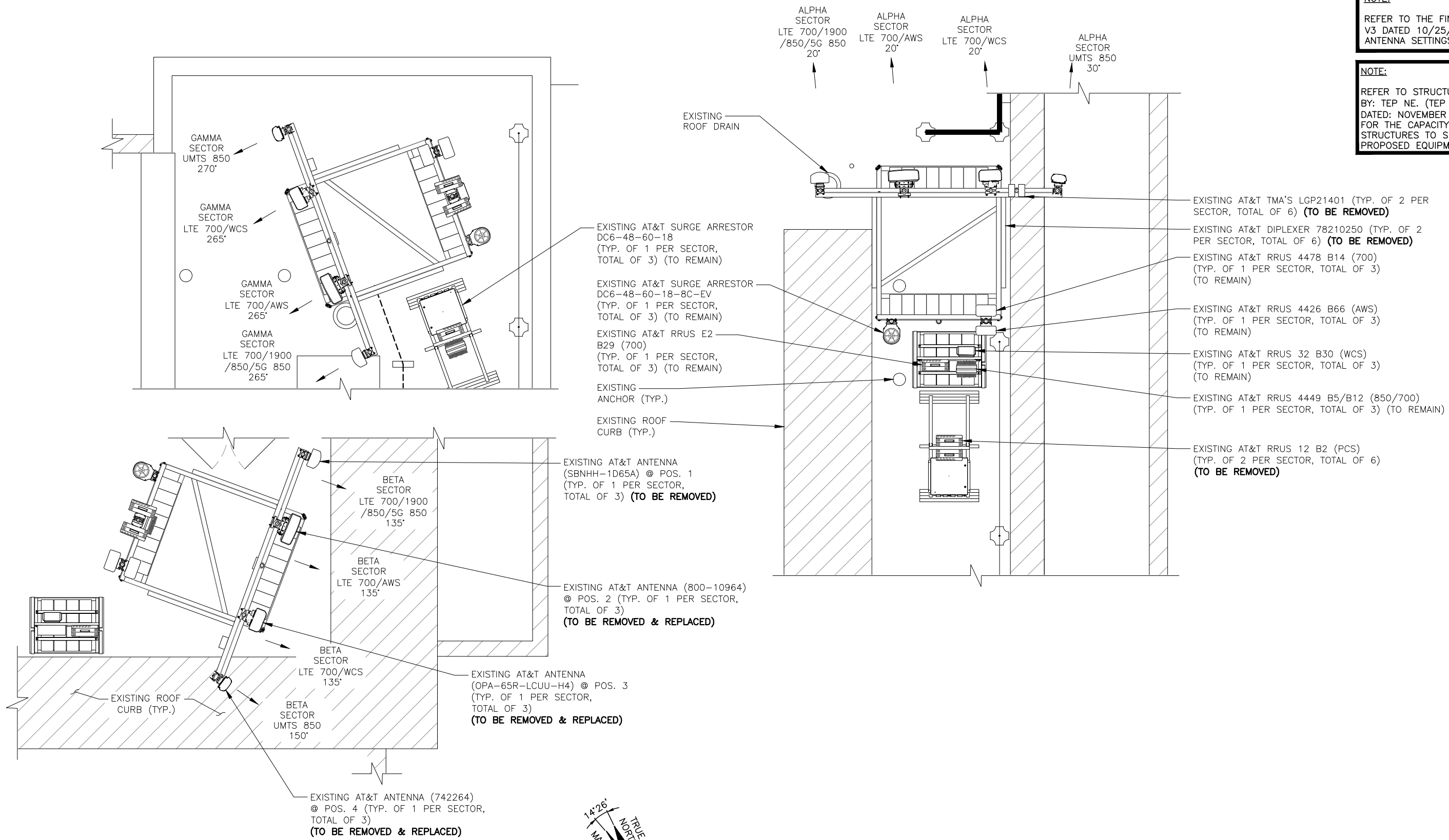
**AT&T**

**ROOFTOP & EQUIPMENT PLANS**  
5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO,  
5G NR 15R CRAND. RF MODS. BBU RECONFIG. 2023 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
MAL02215	A-1	2

**NOTE:**  
REFER TO THE FINAL RF DATA SHEET V3 DATED 10/25/23 FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
REFER TO STRUCTURAL ANALYSIS BY: TEP NE. (TEP OPCO, LLC.) DATED: NOVEMBER 1, 2023 (REV.1), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



**EXISTING ANTENNA LAYOUT** 1  
22x34 SCALE: 3/8"=1'-0"  
11x17 SCALE: 3/16"=1'-0"  
0 1'-4" 2'-8" 5'-4" 8'-0"

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

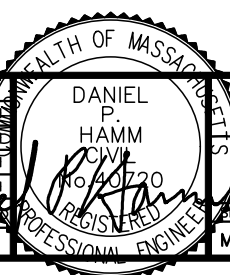
**CENTERLINE**  
750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379

**SITE NUMBER: MAL02215**  
**SITE NAME: CAMBRIDGE MASS. AVE**  
  
1350 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138  
MIDDLESEX COUNTY

**AT&T**  
550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP
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1	11/07/23	ISSUED FOR CONSTRUCTION	SP	AT	DPH
0	10/20/23	ISSUED FOR REVIEW	JS	AT	DPH
A	06/10/22	ISSUED FOR REVIEW	GC	AT	DPH

SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: GD

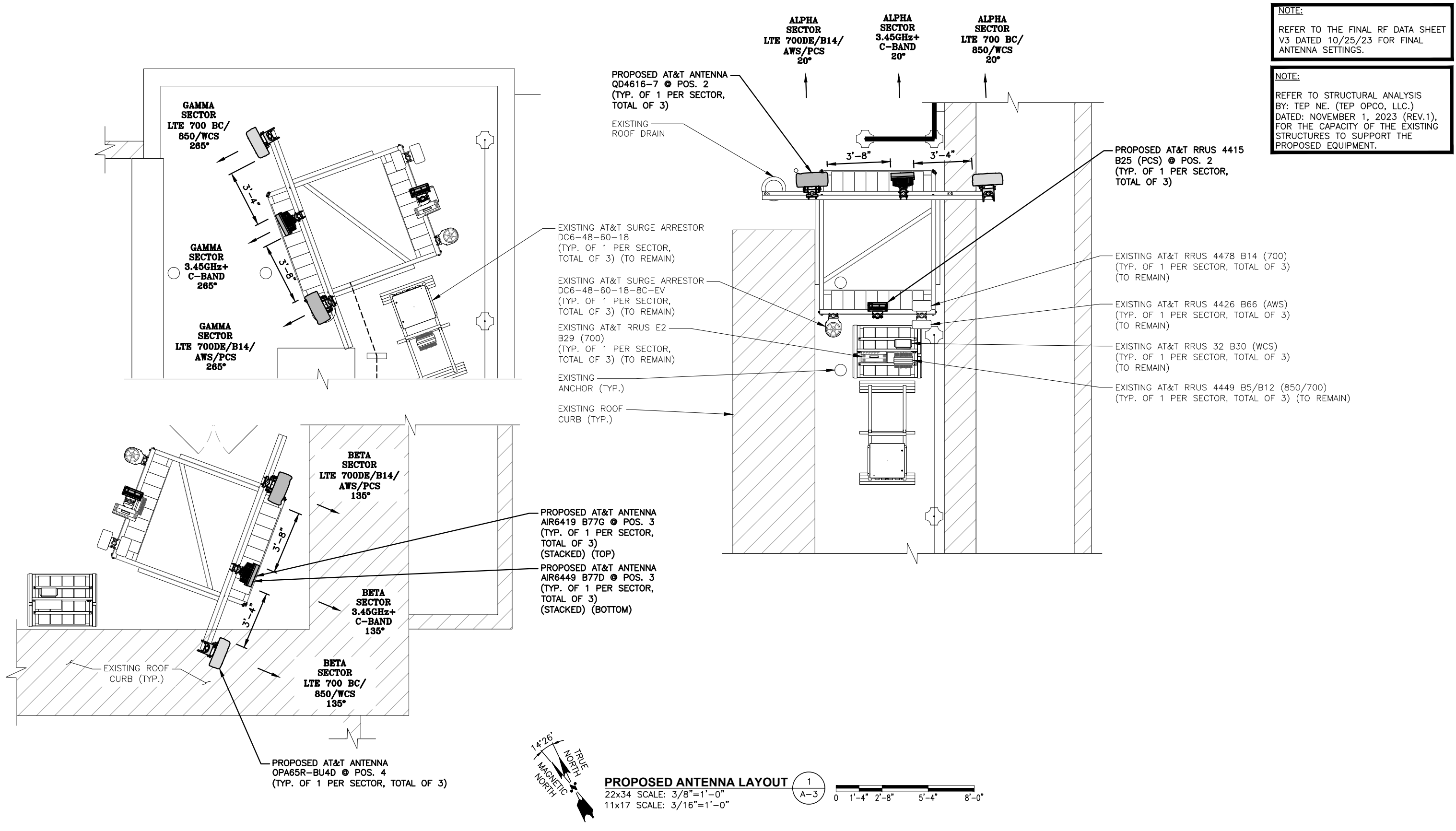


**AT&T**  
**ANTENNA LAYOUTS & ELEVATION**  
5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO,  
5G NR 150-GRAND RF MODS, BRU RECONFIG, 2023 UPGRADE  
SITE NUMBER: MAL02215    DRAWING NUMBER: A-2    REV: 2



**NOTE:**  
REFER TO THE FINAL RF DATA SHEET V3 DATED 10/25/23 FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
REFER TO STRUCTURAL ANALYSIS BY: TEP NE. (TEP OPCO, LLC.) DATED: NOVEMBER 1, 2023 (REV.1), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



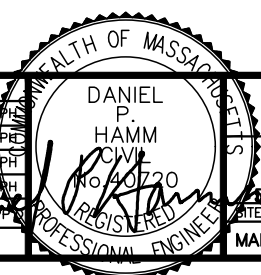
**SITE NUMBER: MAL02215**  
**SITE NAME: CAMBRIDGE MASS. AVE**

1350 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138  
MIDDLESEX COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP
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A	06/10/22	ISSUED FOR REVIEW	GC	AT	DPH

SCALE: AS SHOWN  
DESIGNED BY: AT  
DRAWN BY: GD



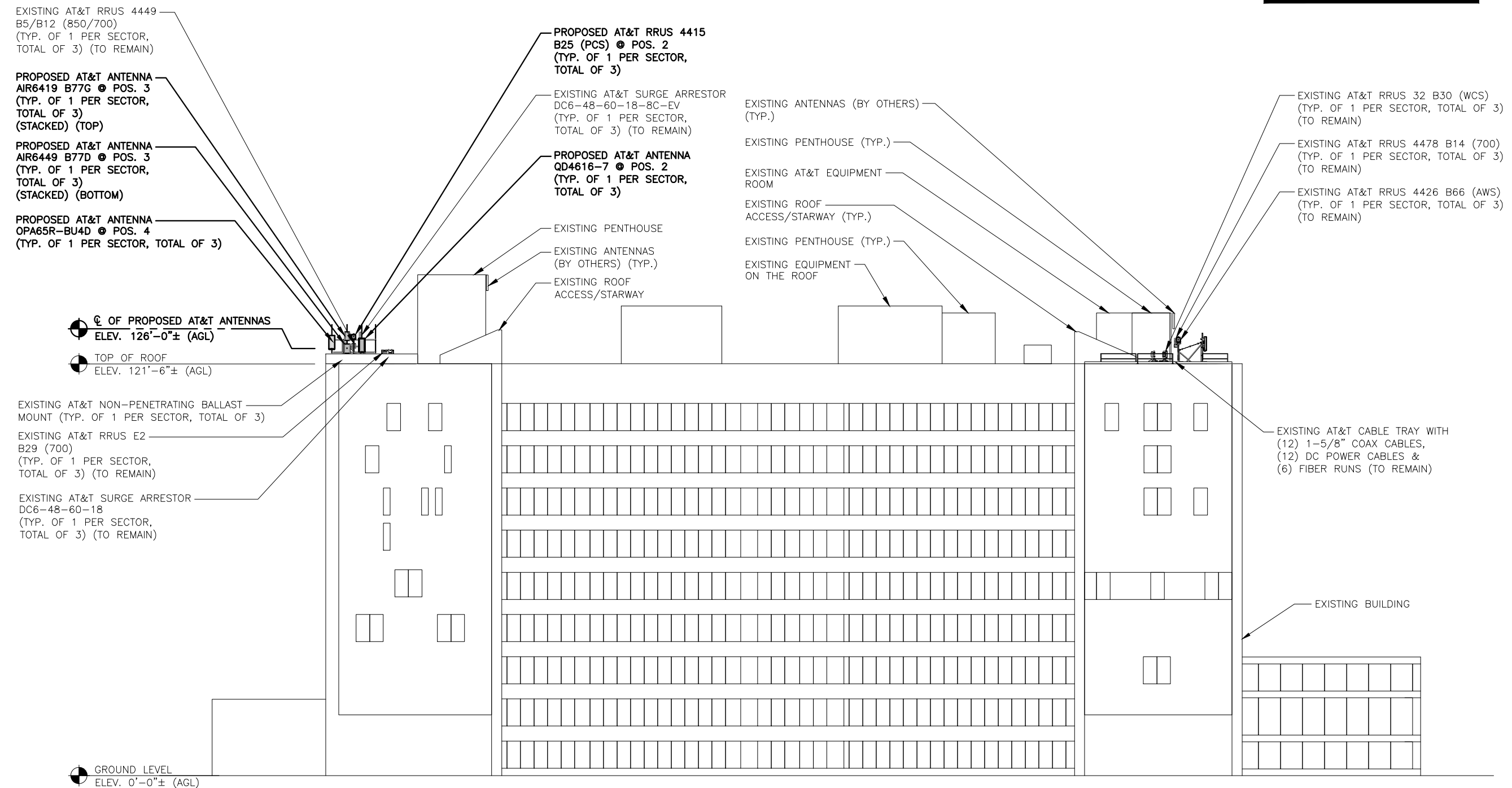
SITE NUMBER	DRAWING NUMBER	REV
MAL02215	A-3	2

AT&T  
PROPOSED ANTENNA PLAN  
5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO,  
5G NR 150-CRAND, RF MODS, BBU RECONFIG, 2023 UPGRADE



**NOTE:**  
 REFER TO STRUCTURAL ANALYSIS  
 BY: TEP NE. (TEP OPCO, LLC.)  
 DATED: NOVEMBER 1, 2023 (REV.1),  
 FOR THE CAPACITY OF THE EXISTING  
 STRUCTURES TO SUPPORT THE  
 PROPOSED EQUIPMENT.

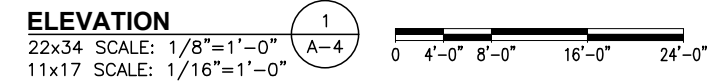
**NOTE:**  
 REFER TO THE FINAL RF DATA SHEET  
 V3 DATED 10/25/23 FOR FINAL  
 ANTENNA SETTINGS.



⊙ OF PROPOSED AT&T ANTENNAS  
 ELEV. 126'-0"± (AGL)

⊙ TOP OF ROOF  
 ELEV. 121'-6"± (AGL)

⊙ GROUND LEVEL  
 ELEV. 0'-0"± (AGL)



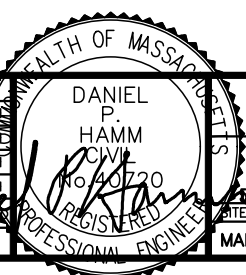
**SITE NUMBER: MAL02215**  
**SITE NAME: CAMBRIDGE MASS. AVE**

1350 MASSACHUSETTS AVENUE  
 CAMBRIDGE, MA 02138  
 MIDDLESEX COUNTY



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1	11/07/23	ISSUED FOR CONSTRUCTION	SG	AT	DPH
0	10/20/23	ISSUED FOR REVIEW	JS	AT	DPH
A	06/10/22	ISSUED FOR REVIEW	GD	AT	DPH

SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: GD



<b>AT&amp;T</b>	
ELEVATION 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO, 4G NR GRAND. RF MODS. BBU RECONFIG. 2023 UPGRADE	
SITE NUMBER <b>MAL02215</b>	DRAWING NUMBER <b>A-4</b>
REV <b>2</b>	

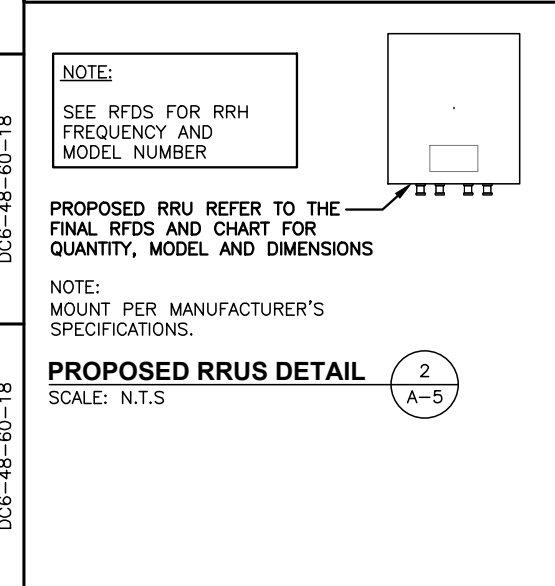
ANTENNA SCHEDULE												
SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA @ HEIGHT	ANTENNA TIP HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	-	-	-	-	-	-	-	-	-	-	(E)(4) 1-5/8" COAX	(E)(1) RAYCAP DC6-48-60-18-8C-EV
A2	PROPOSED	LTE 700DE/B14/ AWS/PCS	QD4616-7	51.5"X22.0"X9.6"	126'-0"±	-	20°	-	(E)(1) 4478 B14 (700) (E)(1) RRUS-E2 B29 (700) (E)(1) 4426 B66 (AWS) (P)(1) 4415 B25 (PCS)	16.5"X13.4"X5.9"	(E)(4) DC POWER & (2) FIBER	(E)(1) RAYCAP DC6-48-60-18-8C-EV
A3	PROPOSED	3.45GHz+ C-BAND	AIR6419 B77G AIR6449 B77D	31.1"X16.1"X7.3" 30.6"X15.9"X10.6"	126'-0"±	-	20°	-	-	-	-	(E)(1) RAYCAP DC6-48-60-18-8C-EV
A4	PROPOSED	LTE 700 BC/ 850/WCS	OPA65R-BU4D	48.0"X20.7"X7.7"	126'-0"±	-	20°	-	(E)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS)	-	(P)(1) Y-CABLE	(E)(1) RAYCAP DC6-48-60-18-8C-EV
B1	-	-	-	-	-	-	-	-	-	-	(E)(4) 1-5/8" COAX	(E)(1) RAYCAP DC6-48-60-18-8C-EV
B2	PROPOSED	LTE 700DE/B14/ AWS/PCS	QD4616-7	51.5X22.0X9.6	126'-0"±	-	135°	-	(E)(1) 4478 B14 (700) (E)(1) RRUS-E2 B29 (700) (E)(1) 4426 B66 (AWS) (P)(1) 4415 B25 (PCS)	16.5"X13.4"X5.9"	(E)(4) DC POWER & (2) FIBER	(E)(1) RAYCAP DC6-48-60-18-8C-EV
B3	PROPOSED	3.45GHz+ C-BAND	AIR6419 B77G AIR6449 B77D	31.1X16.1X7.3 30.6X15.9X10.6	126'-0"±	-	135°	-	-	-	-	(E)(1) RAYCAP DC6-48-60-18-8C-EV
B4	PROPOSED	LTE 700 BC/ 850/WCS	OPA65R-BU4D	48.0X20.7X7.7	126'-0"±	-	135°	-	(E)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS)	-	(P)(1) Y-CABLE	(E)(1) RAYCAP DC6-48-60-18-8C-EV
C1	-	-	-	-	-	-	-	-	-	-	(E)(4) 1-5/8" COAX	(E)(1) RAYCAP DC6-48-60-18-8C-EV
C2	PROPOSED	LTE 700DE/B14/ AWS/PCS	QD4616-7	51.5X22.0X9.6	126'-0"±	-	265°	-	(E)(1) 4478 B14 (700) (E)(1) RRUS-E2 B29 (700) (E)(1) 4426 B66 (AWS) (P)(1) 4415 B25 (PCS)	16.5"X13.4"X5.9"	(E)(4) DC POWER & (2) FIBER	(E)(1) RAYCAP DC6-48-60-18-8C-EV
C3	PROPOSED	3.45GHz+ C-BAND	AIR6419 B77G AIR6449 B77D	31.1X16.1X7.3 30.6X15.9X10.6	126'-0"±	-	265°	-	-	-	-	(E)(1) RAYCAP DC6-48-60-18-8C-EV
C4	PROPOSED	LTE 700 BC/ 850/WCS	OPA65R-BU4D	48.0X20.7X7.7	126'-0"±	-	265°	-	(E)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS)	-	(P)(1) Y-CABLE	(E)(1) RAYCAP DC6-48-60-18-8C-EV

RRU CHART		
QUANTITY	MODEL	SIZE (L x W x D)
P(3)	4415 B25 (1900)	16.5"x13.4"x5.9"
E(3)	4426 B66 (AWS)	14.9"x13.2"x5.8"
E(3)	4478 B14 (700)	18.1"x13.4"x8.3"
E(3)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"
E(3)	RRUS-E2 B29 (700)	20.4"x18.5"x7.5"
E(3)	4449 (850/700)	17.9"x13.2"x10.4"

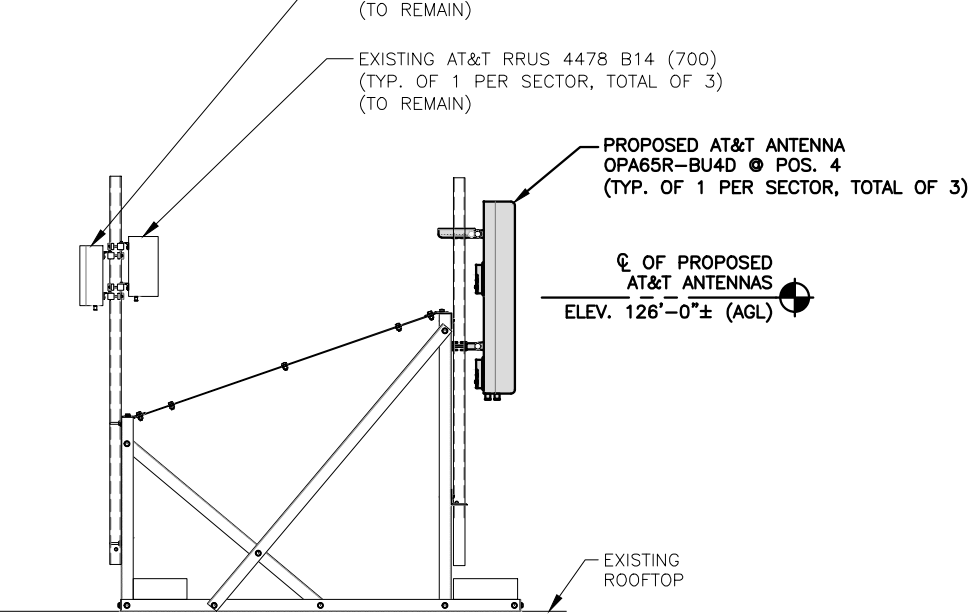
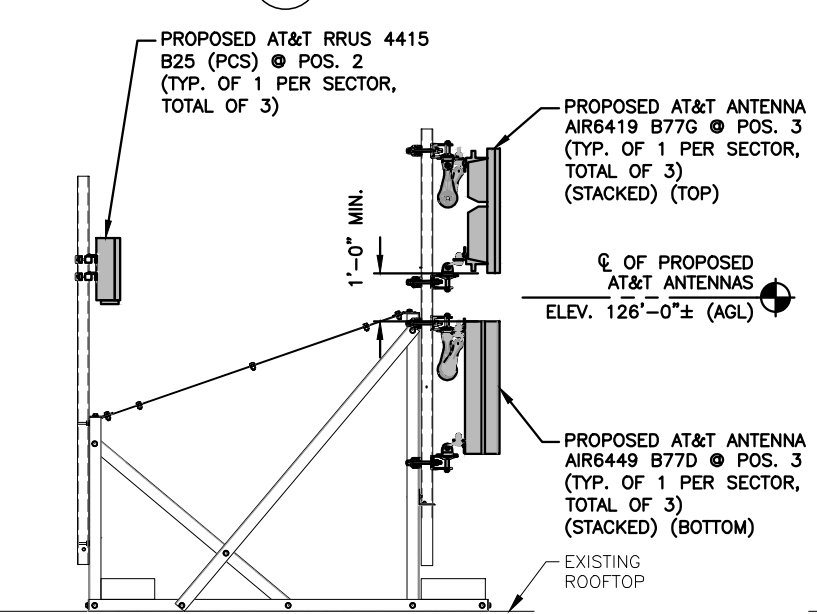
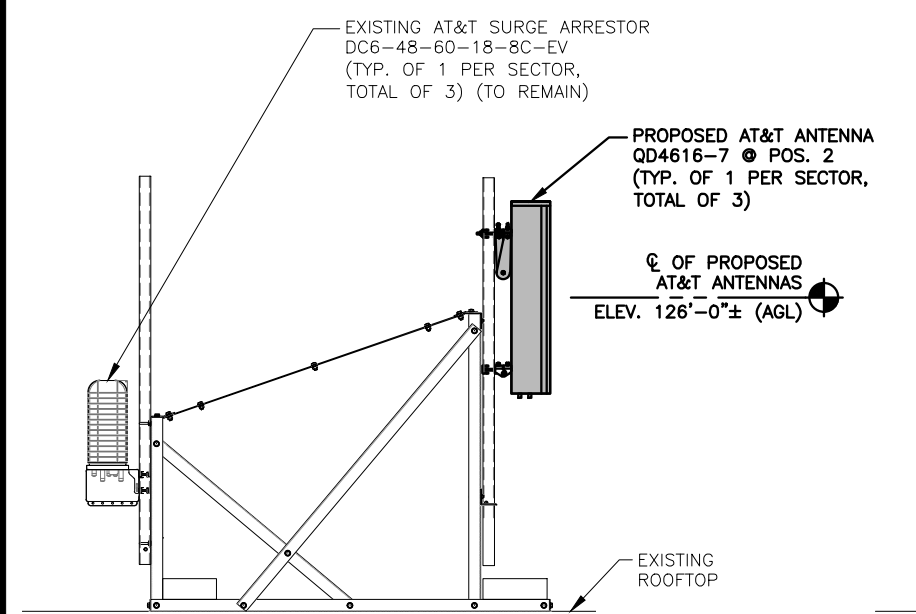
NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:  
REFER TO THE FINAL RF DATA SHEET V3 DATED 10/25/23 FOR FINAL ANTENNA SETTINGS.

NOTE:  
REFER TO STRUCTURAL ANALYSIS BY: TEP NE. (TEP OPCO, LLC.) DATED: NOVEMBER 1, 2023 (REV.1), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



**FINAL ANTENNA SCHEDULE** 1  
SCALE: N.T.S. A-5



**PROPOSED LTE ANTENNA @ POS. 2 MOUNTING DETAIL** 3  
22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"  
A-5

**PROPOSED LTE ANTENNA @ POS. 3 MOUNTING DETAIL** 4  
22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"  
A-5

**PROPOSED LTE ANTENNA @ POS. 4 MOUNTING DETAIL** 5  
22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"  
A-5



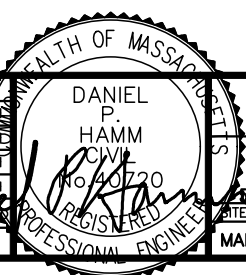
**SITE NUMBER: MAL02215**  
**SITE NAME: CAMBRIDGE MASS. AVE**

1350 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138  
MIDDLESEX COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP
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A	06/10/22	ISSUED FOR REVIEW	GS	AT	PH

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: GD



**AT&T**

DETAILS  
5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO,  
4G NR BAND, RF MODS, BBU RECONFIG, 2023 UPGRADE

SITE NUMBER: MAL02215  
DRAWING NUMBER: A-5  
REV: 2

**NOTE:**  
REFER TO THE FINAL RF DATA SHEET V3 DATED 10/25/23 FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
REFER TO STRUCTURAL ANALYSIS BY: TEP NE. (TEP OPCO, LLC.) DATED: NOVEMBER 1, 2023 (REV.1), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

MINIMUM BALLAST REQUIREMENTS ALPHA SECTOR ANTENNA MOUNT			
SIDE	EXISTING	PROPOSED	TOTAL
NUMBER OF BLOCKS (FRONT SLED)	38	0	38
NUMBER OF BLOCKS (BACK SLED)	46	0	46
SIZE OF BLOCKS	VARIES	N/A	VARIES
WEIGHT OF BLOCKS	VARIES	N/A	VARIES
TOTAL BALLAST WEIGHT	2782 LBS.	0 LBS.	2782 LBS.

MINIMUM BALLAST REQUIREMENTS BETA SECTOR ANTENNA MOUNT			
SIDE	EXISTING	PROPOSED	TOTAL
NUMBER OF BLOCKS (FRONT SLED)	37	0	37
NUMBER OF BLOCKS (BACK SLED)	51	0	51
SIZE OF BLOCKS	VARIES	N/A	VARIES
WEIGHT OF BLOCKS	VARIES	N/A	VARIES
TOTAL BALLAST WEIGHT	2849 LBS.	0 LBS.	2849 LBS.

MINIMUM BALLAST REQUIREMENTS GAMMA SECTOR ANTENNA MOUNT			
SIDE	EXISTING	PROPOSED	TOTAL
NUMBER OF BLOCKS (FRONT SLED)	42	0	42
NUMBER OF BLOCKS (BACK SLED)	44	0	44
SIZE OF BLOCKS	VARIES	N/A	VARIES
WEIGHT OF BLOCKS	VARIES	N/A	VARIES
TOTAL BALLAST WEIGHT	2858 LBS.	0 LBS.	2858 LBS.

MINIMUM BALLAST REQUIREMENTS RRU BALLAST SLED (BLOCK STYLE)			
SIDE	EXISTING	PROPOSED	TOTAL
NUMBER OF BLOCKS (FRONT SLED)	6	3	9
NUMBER OF BLOCKS (BACK SLED)	6	3	9
SIZE OF BLOCKS	4"x8"x16" HOLLOW	4"x8"x16" SOLID	VARIES
WEIGHT OF BLOCKS	24 LBS./EACH	33 LBS./EACH	VARIES
TOTAL BALLAST WEIGHT	288 LBS.	198 LBS.	486 LBS.

MINIMUM BALLAST REQUIREMENTS RRU BALLAST SLED (SLEEPER STYLE)			
SIDE	EXISTING	PROPOSED	TOTAL
NUMBER OF BLOCKS (FRONT SLED)	9	0	9
SIZE OF BLOCKS	4"x4"x32" SOLID	N/A	4"x4"x32" SOLID
WEIGHT OF BLOCKS	44 LBS./EACH	N/A	VARIES
TOTAL BALLAST WEIGHT	396 LBS.	0 LBS.	396 LBS.

**MINIMUM BALLAST REQUIREMENTS**  
SCALE: N.T.S

1  
A-6



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



**CENTERLINE**  
750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379

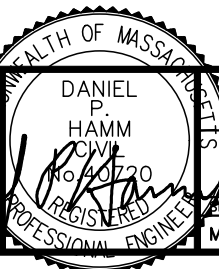
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1350 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138  
MIDDLESEX COUNTY



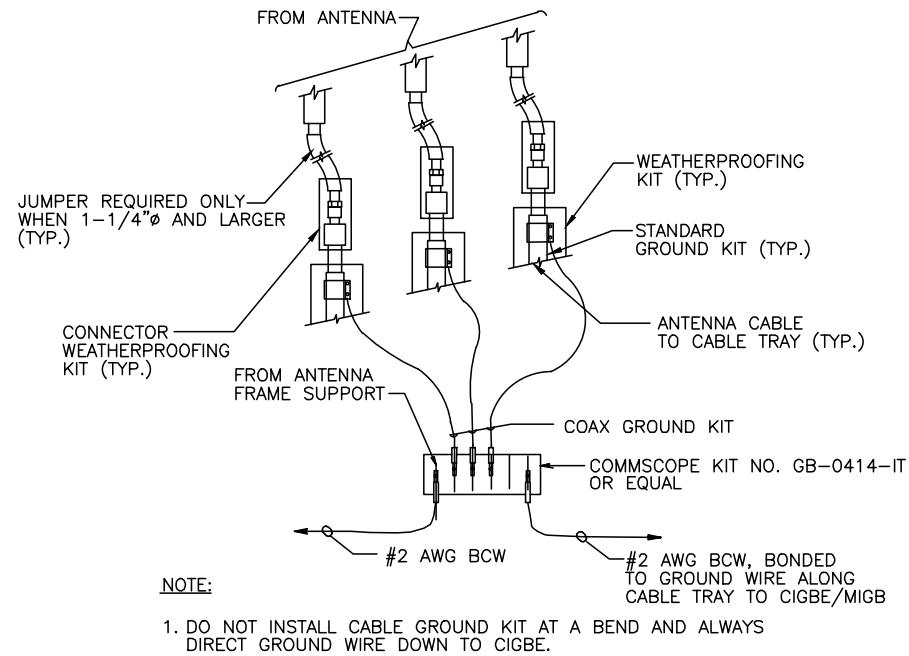
**AT&T**  
550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701

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SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: GD



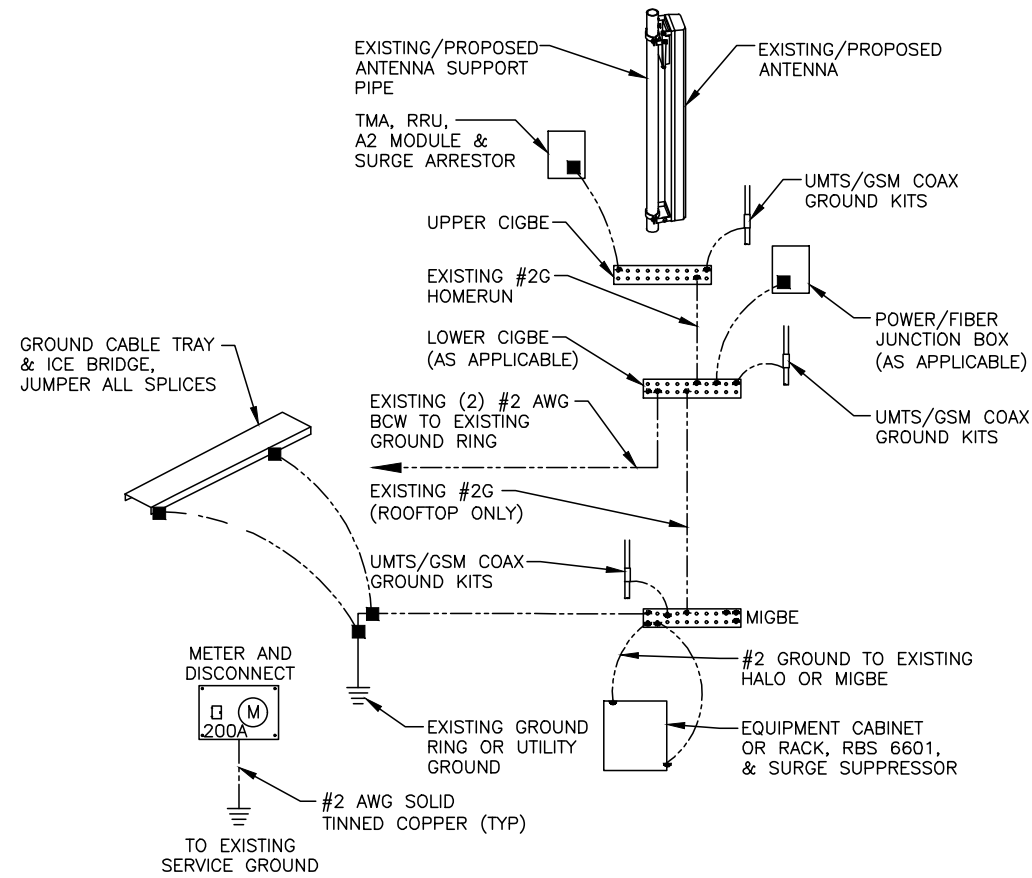
**AT&T**  
**DETAILS**  
5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO,  
5G NR 150 CRAND. RF MODS, BBU RECONFIG, 2023 UPGRADE  
SITE NUMBER: MAL02215    DRAWING NUMBER: A-6    REV: 2



**GROUND WIRE TO GROUND BAR CONNECTION DETAIL**

SCALE: N.T.S

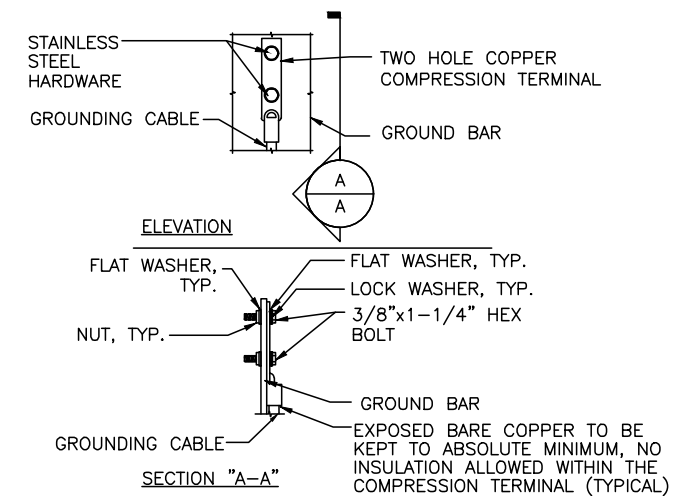
1  
G-1



**GROUNDING RISER DIAGRAM**

SCALE: N.T.S

2  
G-1



NOTES:

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

**TYPICAL GROUND BAR CONNECTION DETAIL**

SCALE: N.T.S

3  
G-1

**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

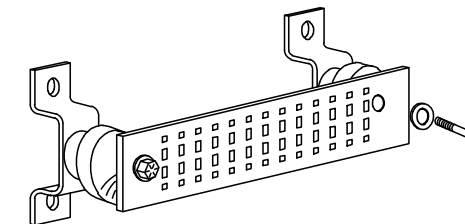
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**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)



**GROUND BAR - DETAIL (AS REQUIRED)**

SCALE: N.T.S

4



**SITE NUMBER: MAL02215**  
**SITE NAME: CAMBRIDGE MASS. AVE**  
  
1350 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138  
MIDDLESEX COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP
2	11/29/23	ISSUED FOR CONSTRUCTION	JS	AT	DPH
1	11/07/23	ISSUED FOR CONSTRUCTION	SP	AT	DPH
0	10/20/23	ISSUED FOR REVIEW	S	AT	DPH
A	06/10/22	ISSUED FOR REVIEW	GS	AT	DPH

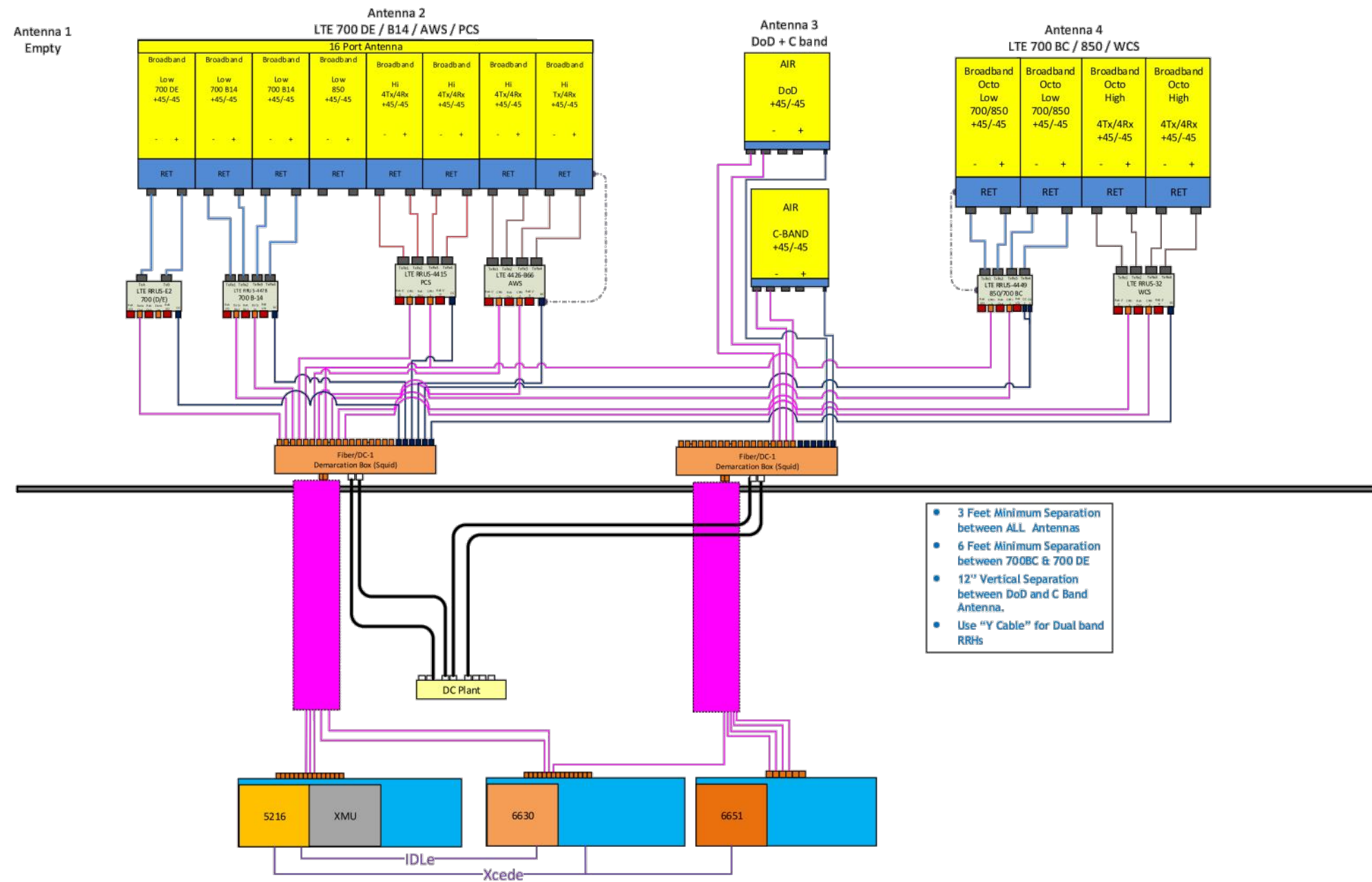
SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: GD

AT&T  
GROUNDING DETAILS  
5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO,  
5G NR 150-GRAND. RF MODS. RRU RECONFIG. 2023 UPGRADE

DANIEL P. HAMM  
REGISTERED PROFESSIONAL ENGINEER  
NO. 007700  
STATE OF MASSACHUSETTS

SITE NUMBER: MAL02215    DRAWING NUMBER: G-1    REV: 2





- 3 Feet Minimum Separation between ALL Antennas
- 6 Feet Minimum Separation between 700BC & 700 DE
- 12" Vertical Separation between DoD and C Band Antenna.
- Use "Y Cable" for Dual band RRHs

**NOTE:**  
 1. CONTRACTOR TO CONFIRM ALL PARTS.  
 2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.  
 3. RFDS USED FOR REFERENCE.

**NOTE:**  
 REFER TO THE FINAL RF DATA SHEET V3 DATED 10/25/23 FOR FINAL ANTENNA SETTINGS.

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

2	11/29/23	ISSUED FOR CONSTRUCTION	JS	AT	DPH
1	11/07/23	ISSUED FOR CONSTRUCTION	SG	AT	DPH
0	10/20/23	ISSUED FOR REVIEW	JS	AT	DPH
A	06/10/22	ISSUED FOR REVIEW	GD	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: GD		

<b>AT&amp;T</b>		
RF PLUMBING DIAGRAM 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, RF MODS, BBU RECONFIG, 2023 UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
MAL02215	RF-1	2



Prepared For:  
**CENTERLINE-AT&T**  
 Site Number:  
**MA2215**  
 Site Name:  
**CAMBRIDGE MASS. AVE**  
 1350 MASSACHUSETTS AVENUE  
 CAMBRIDGE, MA 02138

**SITE NO:** MA2215  
**SITE NAME:** CAMBRIDGE MASS. AVE  
**ADDRESS:** 1350 MASSACHUSETTS AVENUE  
 CAMBRIDGE, MA 02138



500 ENTERPRISE DRIVE, SUITE 3A  
 ROCKY HILL, CT 06067



750 WEST CENTER STREET., #301  
 WEST BRIDGEWATER, MA 02379

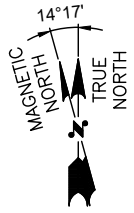
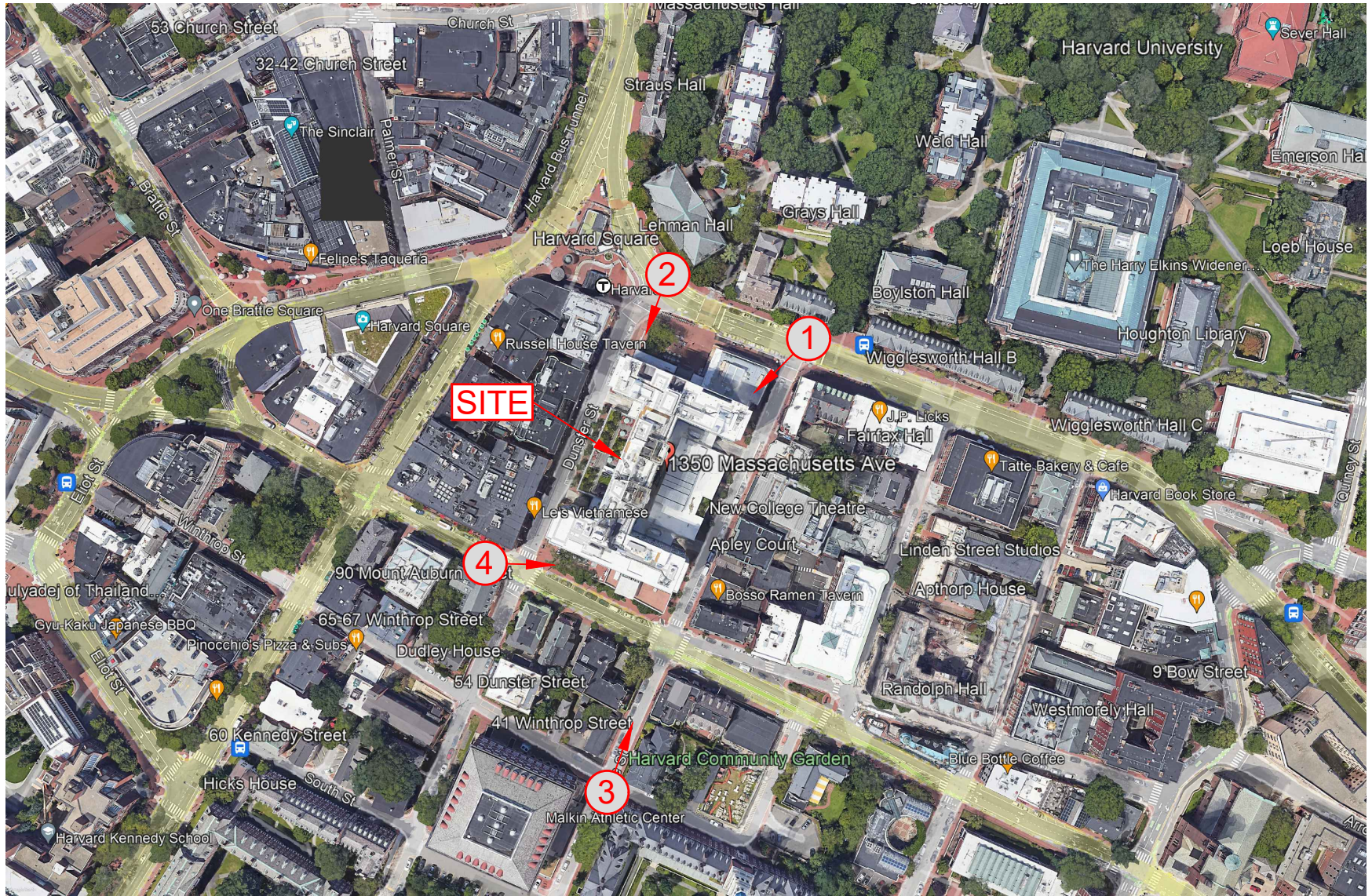


TEP OP&CO, LLC.  
 45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845  
 TEL: (978) 557-5553

**SITE TYPE:** ROOFTOP  
**DATE:** 05/18/2023 **REV:** 0  
**DRAWN BY:** AM  
**SCALE:** N.T.S.

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# PHOTO LOCATION

**SITE NO:** MA2215  
**SITE NAME:** CAMBRIDGE MASS. AVE  
**ADDRESS:** 1350 MASSACHUSETTS AVENUE  
 CAMBRIDGE, MA 02138



500 ENTERPRISE DRIVE, SUITE 3A  
 ROCKY HILL, CT 06067



750 WEST CENTER STREET., #301  
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VIEW SOUTHWEST FROM MASSACHUSETTS AVENUE

**SITE NO:** MA2215  
**SITE NAME:** CAMBRIDGE MASS. AVE

**ADDRESS:** 1350 MASSACHUSETTS AVENUE  
 CAMBRIDGE, MA 02138



500 ENTERPRISE DRIVE, SUITE 3A  
 ROCKY HILL, CT 06067



750 WEST CENTER STREET., #301  
 WEST BRIDGEWATER, MA 02379



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

**SITE TYPE:** ROOFTOP

**DATE:** 05/18/2023 **REV:** 0

**DRAWN BY:** AM

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**PROPOSED CONDITIONS**

**LOCATION # 1**

**DATE OF PHOTO: 09/02/2022**

PROPOSED AT&T ANTENNA OPA65R-BU4D  
◎POS 4 (TYP. 1 PER SECTOR, TOTAL OF 3)

**ALPHA  
SECTOR**

PROPOSED AT&T ANTENNA AIR6419 B77G  
◎POS 3 (TYP. 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T ANTENNA AIR6449 B77D  
◎POS 3 (TYP. 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T LTE ANTENNAS QD4616-7  
◎POS 2 (TYP. 1 PER SECTOR, TOTAL OF 3)

**GAMMA  
SECTOR**



**VIEW SOUTHWEST FROM MASSACHUSETTS AVENUE**

**SITE NO:** MA2215  
**SITE NAME:** CAMBRIDGE MASS. AVE

**ADDRESS:** 1350 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138



500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067



750 WEST CENTER STREET., #301  
WEST BRIDGEWATER, MA 02379



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

**SITE TYPE:** ROOFTOP

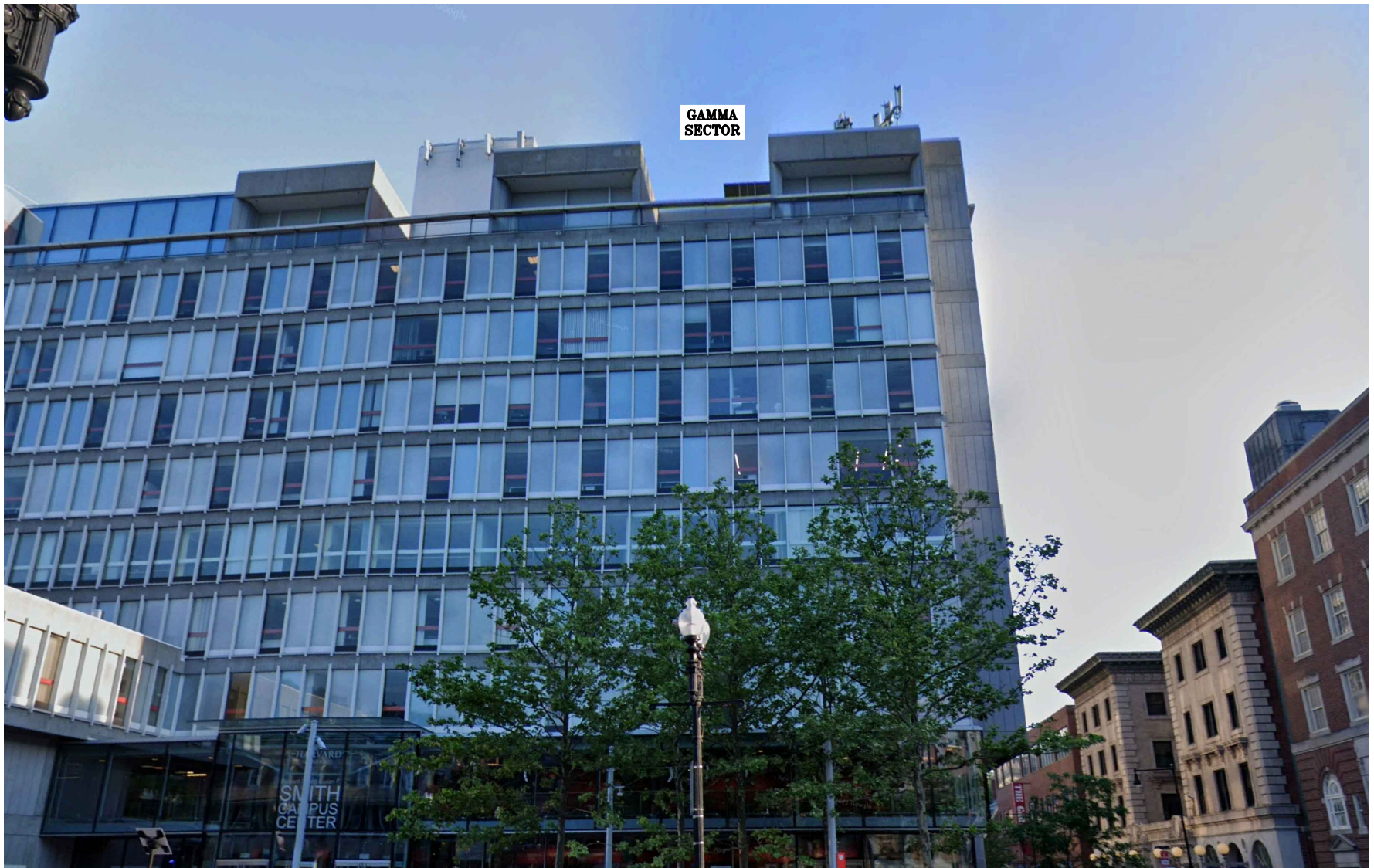
**DATE:** 05/18/2023 **REV:** 0

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**VIEW SOUTH FROM MASSACHUSETTS AVENUE**

**SITE NO:** MA2215  
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**ADDRESS:** 1350 MASSACHUSETTS AVENUE  
 CAMBRIDGE, MA 02138



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

**SITE TYPE:** ROOFTOP

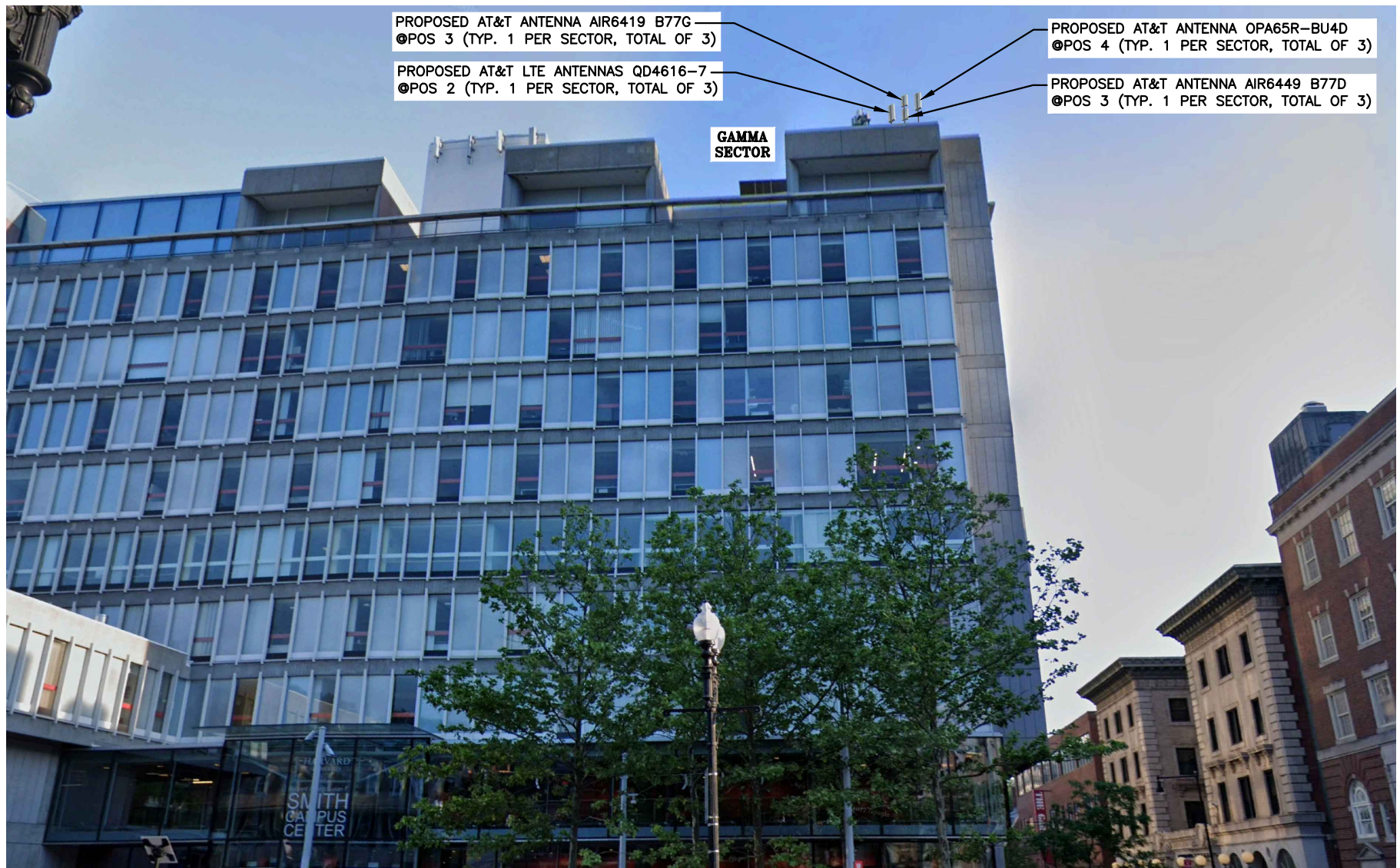
**DATE:** 05/18/2023 **REV:** 0

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VIEW SOUTH FROM MASSACHUSETTS AVENUE

SITE NO: MA2215  
 SITE NAME: CAMBRIDGE MASS. AVE  
 ADDRESS: 1350 MASSACHUSETTS AVENUE  
 CAMBRIDGE, MA 02138



500 ENTERPRISE DRIVE, SUITE 3A  
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TEPI OP&CO, LLC.  
 45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845  
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PAGE 6 OF 9





VIEW NORTHEAST FROM HOLYOKE ST

**SITE NO:** MA2215  
**SITE NAME:** CAMBRIDGE MASS. AVE  
**ADDRESS:** 1350 MASSACHUSETTS AVENUE  
 CAMBRIDGE, MA 02138



500 ENTERPRISE DRIVE, SUITE 3A  
 ROCKY HILL, CT 06067



750 WEST CENTER STREET., #301  
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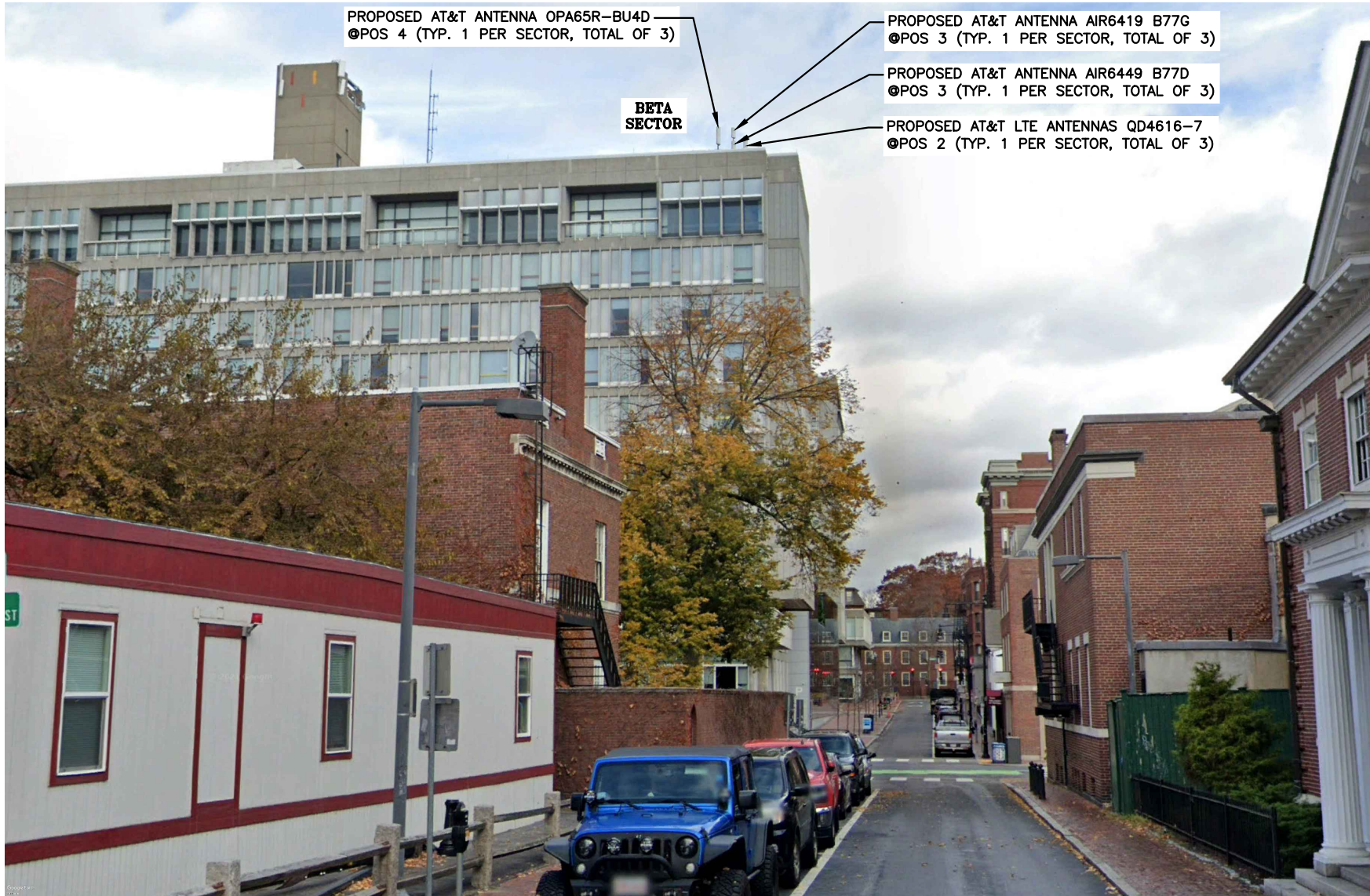
TEP OP/CO, LLC.  
 45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845  
 TEL: (978) 557-5553

**SITE TYPE:** ROOFTOP  
**DATE:** 05/18/2023 **REV:** 0  
**DRAWN BY:** AM  
**SCALE:** N.T.S.

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PAGE 7 OF 9





PROPOSED AT&T ANTENNA OPA65R-BU4D  
 @POS 4 (TYP. 1 PER SECTOR, TOTAL OF 3)

BETA  
 SECTOR

PROPOSED AT&T ANTENNA AIR6419 B77G  
 @POS 3 (TYP. 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T ANTENNA AIR6449 B77D  
 @POS 3 (TYP. 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T LTE ANTENNAS QD4616-7  
 @POS 2 (TYP. 1 PER SECTOR, TOTAL OF 3)

VIEW NORTHEAST FROM HOLYOKE ST

SITE NO: MA2215  
 SITE NAME: CAMBRIDGE MASS. AVE

ADDRESS: 1350 MASSACHUSETTS AVENUE  
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45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845  
 TEL: (978) 557-5553

SITE TYPE: ROOFTOP

DATE: 05/18/2023 REV: 0

DRAWN BY: AM

SCALE: N.T.S.

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BETA SECTOR

VIEW NORTHEAST FROM MT AUBURN ST

**SITE NO:** MA2215  
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**ADDRESS:** 1350 MASSACHUSETTS AVENUE  
 CAMBRIDGE, MA 02138



500 ENTERPRISE DRIVE, SUITE 3A  
 ROCKY HILL, CT 06067



750 WEST CENTER STREET., #301  
 WEST BRIDGEWATER, MA 02379



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

**SITE TYPE:** ROOFTOP

**DATE:** 05/18/2023 **REV:** 0

**DRAWN BY:** AM

**SCALE:** N.T.S.

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# STRUCTURAL ANALYSIS REPORT

For

**AT&T Site Number: MA2215 (C-BAND)**

TEP Project Number: 31 6608.747682

AT&T Site Name: CAMBRIDGE MASS. AVE

1350 Massachusetts Avenue  
Cambridge, MA 02138

## Antennas and RRH's Mounted on Non-Penetrating Ballast Sleds on the Rooftop



Prepared for:



Dated: September 22, 2023

Prepared by:



(TEP OPCO, LLC)  
45 Beechwood Drive  
North Andover, MA 01845  
(P) 978.557.5553  
[www.tepgroup.net](http://www.tepgroup.net)





**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 June 2, 2022.

The following documents were used for our reference:

- Original Building Plans prepared by Sert, Jackson, and Gourley Architects dated March 23, 1964.
- Supplemental Building Plans prepared by Bruner/Cott & Associates dated May 15, 2015.
- Previous Structural Analysis prepared by Hudson Design Group LLC dated November 5, 2019.
- Existing Conditions Mount Mapping Report prepared by ProVertic LLC dated July 25, 2022.

**CONCLUSION SUMMARY:**

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

- **The proposed installation results in a net reduction in projected wind area and weight compared to the existing installation.**

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

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
<b>Existing Antenna Ballast Mount</b>	19	LC4	94%	<b>PASS</b>

	Controlling Load Case	Stress Ratio	Pass/Fail
<b>Alpha Sector Ballast Mount</b>	Overturning	89%	<b>PASS</b>
<b>Beta Sector Ballast Mount</b>	Overturning	90%	<b>PASS</b>
<b>Gamma Sector Ballast Mount</b>	Overturning	83%	<b>PASS</b>

	Controlling Load Case	Stress Ratio	Pass/Fail
<b>RRH Mount* (Block Ballast)</b>	Overturning	92%	<b>PASS</b>
<b>RRH Mount (Sleeper Ballast)</b>	Overturning	41%	<b>PASS</b>

\* Additional ballast required. Reference the tables on page 3 for the minimum ballast requirements.

\*Reference documents attached.



## CONCLUSION SUMMARY: (CONT.)

Reference the tables below for the minimum ballast requirements:

<b>MINIMUM BALLAST REQUIREMENTS – ALPHA SECTOR ANTENNA MOUNT</b>			
	<b>Existing</b>	<b>Proposed</b>	<b>Total</b>
<b>Number of Blocks on Front Sled</b>	38	0	38
<b>Number Blocks on Back Sled</b>	46	0	46
<b>Size of Blocks</b>	Varies	N/A	Varies
<b>Weight of Blocks</b>	Varies	N/A	Varies
<b>Total Ballast Weight</b>	2,782 lbs.	0 lbs.	2,782 lbs.

<b>MINIMUM BALLAST REQUIREMENTS – BETA SECTOR ANTENNA MOUNT</b>			
	<b>Existing</b>	<b>Proposed</b>	<b>Total</b>
<b>Number of Blocks on Front Sled</b>	37	0	37
<b>Number Blocks on Back Sled</b>	51	0	51
<b>Size of Blocks</b>	Varies	N/A	Varies
<b>Weight of Blocks</b>	Varies	N/A	Varies
<b>Total Ballast Weight</b>	2,849 lbs.	0 lbs.	2,849 lbs.

<b>MINIMUM BALLAST REQUIREMENTS – GAMMA SECTOR ANTENNA MOUNT</b>			
	<b>Existing</b>	<b>Proposed</b>	<b>Total</b>
<b>Number of Blocks on Front Sled</b>	42	0	42
<b>Number Blocks on Back Sled</b>	44	0	44
<b>Size of Blocks</b>	Varies	N/A	Varies
<b>Weight of Blocks</b>	Varies	N/A	Varies
<b>Total Ballast Weight</b>	2,858 lbs.	0 lbs.	2,858 lbs.

<b>MINIMUM BALLAST REQUIREMENTS – RRH BALLAST SLED (BLOCK-STYLE)</b>			
	<b>Existing</b>	<b>Proposed</b>	<b>Total</b>
<b>Number of Blocks on Front Sled</b>	6	3	9
<b>Number Blocks on Back Sled</b>	6	3	9
<b>Size of Blocks</b>	4"x8"x16" Hollow	4"x8"x16" Solid	Varies
<b>Weight of Blocks</b>	24 lbs. /each	33 lbs. /each	Varies
<b>Total Ballast Weight</b>	288 lbs.	198 lbs.	486 lbs.

<b>MINIMUM BALLAST REQUIREMENTS – RRH BALLAST SLED (SLEEPER-STYLE)</b>			
	<b>Existing</b>	<b>Proposed</b>	<b>Total</b>
<b>Number of Sleepers</b>	9	0	9
<b>Size of Blocks</b>	4"x4"x32" Solid	N/A	4"x4"x32" Solid
<b>Weight of Blocks</b>	44 lbs. /each	N/A	44 lbs. /each
<b>Total Ballast Weight</b>	396 lbs.	0 lbs.	396 lbs.

No additional ballast is required at the antenna mount ballast sleds, nor at the sleeper-style RRH ballast sled. The number of blocks required for the proposed equipment does not exceed the current number of blocks.

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

\*Reference documents attached.



**APPURTENANCE CONFIGURATION:**

<b>Appurtenances</b>	<b>Dimensions</b>	<b>Weight</b>	<b>**Elevation</b>	<b>Mount</b>
(3) 4478 B14 RRH's	18.1"x13.4"x8.3"	60 lbs	--	Ballast Sled
(3) RRUS-E2 B29 RRH's	20.4"x18.5"x7.5"	53 lbs	--	Ballast Sled
(3) 4449 B5/B12 RRH's	17.9"x13.2"x9.4"	73 lbs	--	Ballast Sled
(3) RRUS-32 B30 RRH's	27.2"x12.1"x7.0"	60 lbs	--	Ballast Sled
(3) DC6-48-60-18-8C-EV Surge Arrestors	31.4"x10.2" Ø	29 lbs	--	Ballast Sled
(3) DC6-48-60-18-8F Surge Arrestors	20.1"x18.2"x6.4"	44 lbs	--	Ballast Sled
<b>(3) QD4616-7 Antennas</b>	51.5"x22.0"x9.6"	109 lbs	126'-0"	Ballast Sled
<b>(3) AIR6419 Antennas</b>	31.2"x16.1"x9.1"	66 lbs	126'-0"	Ballast Sled
<b>(3) AIR6449 Antennas</b>	30.6"x15.9"x10.6"	84 lbs	126'-0"	Ballast Sled
<b>(3) OPA65R-BU4D Antennas</b>	48.0"x20.7"x7.7"	53 lbs	126'-0"	Ballast Sled
<b>(3) 4415 B25 RRH's</b>	16.5"x13.5"x6.3"	50 lbs	--	Ballast Sled
<b>(3) RRUS-32 B66A RRH's</b>	27.2"x12.1"x7.0"	60 lbs	--	Ballast Sled

\* Proposed equipment shown in bold.

\*\* Elevation to antenna centerline.



**DESIGN CRITERIA:**

<b>International Building Code (IBC) 2015 with Massachusetts State Building Code 9<sup>th</sup> Edition, and ASCE 7-10 (Minimum Design Loads for Buildings and Other Structures).</b>		
<b>Wind</b>		
Reference Wind Speed:	139 mph	(780 CMR Table 1604.11)
Exposure Category:	B	(ASCE 7-10 Chapter 26)
Risk Category:	III	(ASCE 7-10 Table 1.5-1)
<b>Snow</b>		
Ground Snow, P <sub>g</sub> :	40 psf	(780 CMR Table 1604.11)
Importance Factor (I <sub>s</sub> ):	1.10	(ASCE 7-10 Table 1.5-2)
Exposure Factor (C <sub>e</sub> ):	0.9	(Fully Exposed, Table 7-2)
Thermal Factor (C <sub>t</sub> ):	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	
<b>EIA/TIA-222-H Structural Standards for Steel Antenna Towers and Antenna Supporting Structures</b>		
<b>Wind</b>		
City/Town:	Cambridge	
County:	Middlesex	
Wind Load:	139 mph	(TIA-222-H Figure B-2)
<b>Ice</b>		
Design Ice Thickness (t <sub>i</sub> ):	1.0 in	(TIA-222-H Figure B-9)
Structure Class:	III	(TIA-222-H Table 2-1)
Importance Factor (I <sub>i</sub> ):	1.15	(TIA-222-H Table 2-3)
Factored Thickness of Radial Ice (t <sub>iz</sub> ):	1.31 in	(TIA-222-H Sec. 2.6.10)



### **EXISTING ROOF CONSTRUCTION:**

The existing roof construction consists of a roofing membrane over rigid insulation over a reinforced concrete slab supported by reinforced concrete beams and columns.

### **ANTENNA/RRH SUPPORT RECOMMENDATIONS:**

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

#### 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 Alpha sector.



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



**FIELD PHOTOS (CONT.):**



**Photo 3:** Sample photo illustrating the existing Gamma sector.



**Photo 4:** Sample photo illustrating an existing ballast tray at an existing antenna mount.

**FIELD PHOTOS (CONT.):**



**Photo 5:** Sample photo illustrating an existing block-style RRH ballast sled.



**Photo 6:** Sample photo illustrating an existing sleeper-style RRH ballast sled.

**Wind & Ice  
Calculations**

Date: 9/21/2023  
 Project Name: CAMBRIDGE MASS. AVE  
 Project No.: MA2215  
 Designed By: CL Checked By: MSC



**2.6.5.2 Velocity Pressure Coeff:**

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

$z = 126$  (ft)  
 $z_g = 1200$  (ft)  
 $\alpha = 7.0$

**$K_z = 1.056$**

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

**Table 2-4**

Exposure	$Z_g$	$\alpha$	$K_{zmin}$	$K_c$
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

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

**$K_{zt} = 1$**

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

**Category = 1**

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

$K_h = 1$   
 $K_c = 1.0$  (from Table 2-4)  
 $K_t = 0$  (from Table 2-5)  
 $f = 0$  (from Table 2-5)  
 $z = 126$   
 $z_s = 8$  (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 =  
 Importance Factor =

$t_i = 1.00$  in  
 $I = 1.15$  (from Table 2-3)  
 $K_{iz} = 1.14$  (from Sec. 2.6.10)

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

**$t_{iz} = 1.31$  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

$h =$  121.5

$G_h =$  0.85

2.6.9.2 Guyed Masts

$G_h =$  0.85

2.6.9.3 Pole Structures

$G_h =$  1.1

2.6.9 Appurtenances

$G_h =$  1.0

2.6.9.4 Structures Supported on Other Structures

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

$G_h =$  1.35

$G_h =$  1.00

**2.6.11.2 Design Wind Force on Appurtenances**

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

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

$q_z =$	<b>49.59</b>
$q_z (ice) =$	<b>6.42</b>
$q_z (30) =$	<b>2.31</b>

$K_z =$	1.056 (from 2.6.5.2)
$K_{zt} =$	1.0 (from 2.6.6.2.1)
$K_s =$	1.0 (from 2.6.7)
$K_e =$	1.00 (from 2.6.8)
$K_d =$	<b>0.95</b> (from Table 2-2)
$V_{max} =$	139 mph (Ultimate Wind Speed)
$V_{max (ice)} =$	50 mph
$V_{30} =$	30 mph

**Table 2-2**

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

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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 <sup>0.485</sup> )	3.66/(C <sup>0.415</sup> )	46.8/(C <sup>1.0</sup> )
	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 = **1.31 in**      Angle = **0 (deg)**      Equivalent Angle = **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)
QD4616-7 Antenna	51.5	22.0	9.6	7.87	2.34	1.20	468	71
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.94	1.20	208	34
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	201	33
OPA65R-BU4D Antenna	48.0	20.7	7.7	6.90	2.32	1.20	411	63
4478 B14 RRH	18.1	13.4	8.3	1.68	1.35	1.20	100	18
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.10	1.20	156	26
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	98	17
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	2.25	1.20	136	23
4415 B25 RRH	16.5	13.5	6.3	1.55	1.22	1.20	92	16
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	2.25	1.20	136	23
DC6-48-60-18-8F Surge Arrestor	20.1	18.2	6.4	2.54	1.10	1.20	151	25
DC6-48-60-18-8C-EV Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	77	14
2" Pipe	2.4	12.0		0.20	0.20	1.20	12	
L 3x3 Angles	3.0	12.0		0.25	0.25	2.00	25	



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WIND LOADS

Angle = 90 (deg)

Ice Thickness = 1.31 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	468	226	226
AIR6419 Antenna	31.2	16.1	9.1	3.49	1.97	1.94	3.43	1.20	1.24	208	121	121
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	201	136	136
OPA65R-BU4D Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	411	174	174
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	100	62	62
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	156	64	64
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	98	70	70
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	136	83	83
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	92	43	43
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	136	83	83
DC6-48-60-18-8F Surge Arrestor	20.1	18.2	6.4	2.54	0.89	1.10	3.14	1.20	1.23	151	54	54

WIND LOADS WITH ICE:

QD4616-7 Antenna	54.1	24.6	12.2	9.26	4.60	2.20	4.43	1.20	1.29	71	38	38
AIR6419 Antenna	33.8	18.7	11.7	4.40	2.76	1.81	2.88	1.20	1.22	34	22	22
AIR6449 Antenna	33.2	18.5	13.2	4.28	3.05	1.79	2.51	1.20	1.20	33	24	24
OPA65R-BU4D Antenna	50.6	23.3	10.3	8.20	3.63	2.17	4.90	1.20	1.31	63	30	30
4478 B14 RRH	20.7	16.0	10.9	2.31	1.57	1.29	1.90	1.20	1.20	18	12	12
RRUS-E2 B29 RRH	23.0	21.1	10.1	3.38	1.62	1.09	2.27	1.20	1.20	26	12	12
4449 B5/B12 RRH	20.5	15.8	12.0	2.26	1.72	1.30	1.71	1.20	1.20	17	13	13
RRUS-32 B30 RRH	29.8	14.7	9.6	3.05	1.99	2.03	3.10	1.20	1.23	23	16	16
4415 B25 RRH	19.1	16.1	8.9	2.14	1.19	1.19	2.14	1.20	1.20	16	9	9
RRUS-32 B66A RRH	29.8	14.7	9.6	3.05	1.99	2.03	3.10	1.20	1.23	23	16	16
DC6-48-60-18-8F Surge Arrestor	22.7	20.8	9.0	3.29	1.43	1.09	2.52	1.20	1.20	25	11	11

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ICE WEIGHT CALCULATIONS

Thickness of ice: 1.31 in.
Density of ice: 56 pcf

QD4616-7 Antenna

Weight of ice based on total radial SF area:
Height (in): 51.5
Width (in): 22.0
Depth (in): 9.6
Total weight of ice on object: 174 lbs
Weight of object: 109.0 lbs
Combined weight of ice and object: 283 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:
Height (in): 31.2
Width (in): 16.1
Depth (in): 9.1
Total weight of ice on object: 82 lbs
Weight of object: 66.0 lbs
Combined weight of ice and object: 148 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: 83 lbs
Weight of object: 84.0 lbs
Combined weight of ice and object: 167 lbs

OPA65R-BU4D 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: 150 lbs
Weight of object: 53.0 lbs
Combined weight of ice and object: 203 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: 41 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 101 lbs

RRUS-E2 B29 RRH

Weight of ice based on total radial SF area:
Height (in): 20.4
Width (in): 18.5
Depth (in): 7.5
Total weight of ice on object: 58 lbs
Weight of object: 53.0 lbs
Combined weight of ice and object: 111 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: 42 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 115 lbs

RRUS-32 B30 RRH

Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 55 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 115 lbs

4415 B25 RRH

Weight of ice based on total radial SF area:
Height (in): 16.5
Width (in): 13.5
Depth (in): 6.3
Total weight of ice on object: 36 lbs
Weight of object: 46.0 lbs
Combined weight of ice and object: 82 lbs

RRUS-32 B66A RRH

Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 55 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 115 lbs

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

Weight of ice based on total radial SF area:
Height (in): 20.1
Width (in): 18.2
Depth (in): 6.4
Total weight of ice on object: 55 lbs
Weight of object: 44.0 lbs
Combined weight of ice and object: 99 lbs

DC6-48-60-18-8C-EV Surge Arrestor

Weight of ice based on total radial SF area:
Depth (in): 31.4
Diameter(in): 10.2
Total weight of ice on object: 48 lbs
Weight of object: 29 lbs
Combined weight of ice and object: 77 lbs

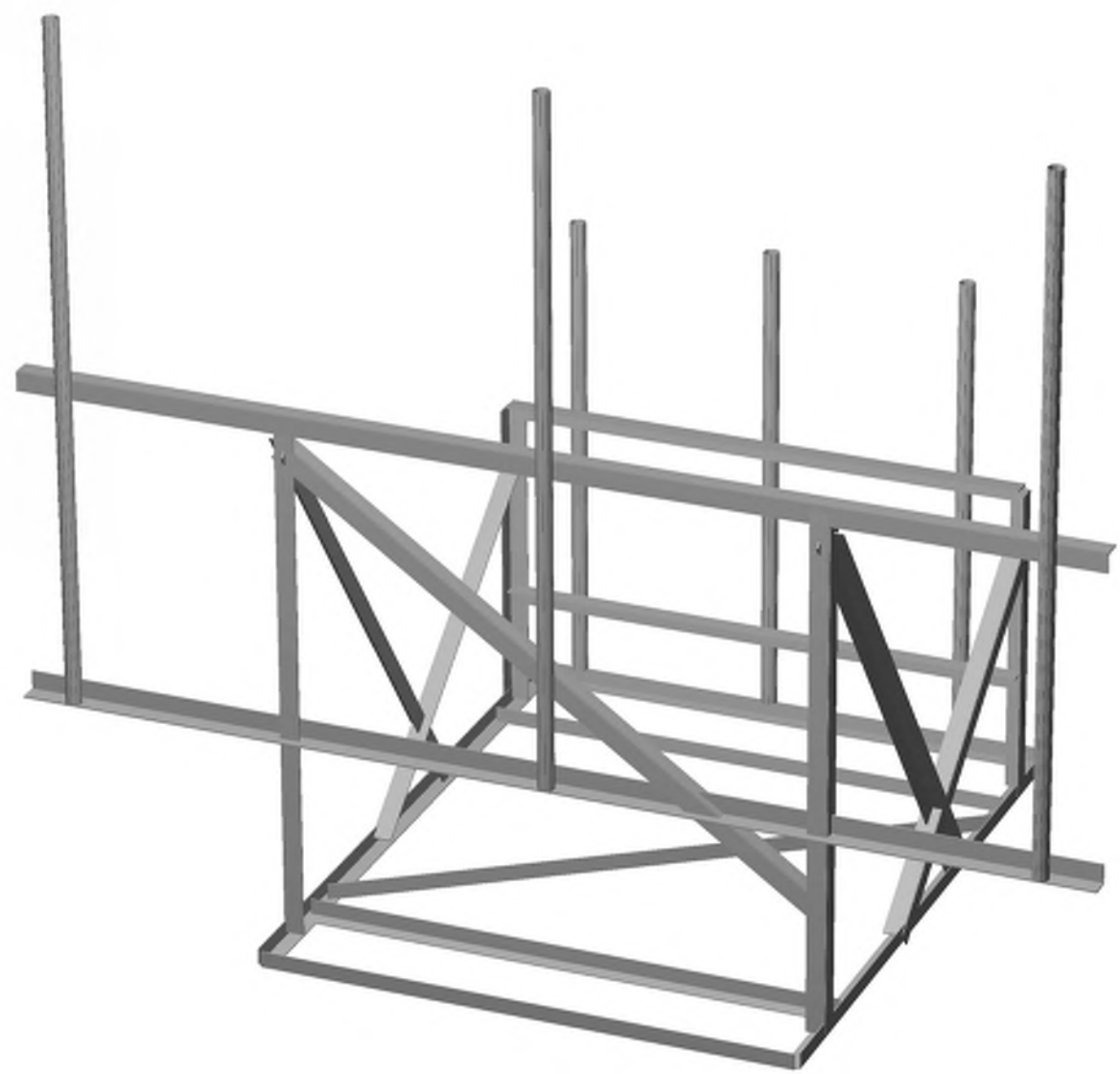
2" Pipe

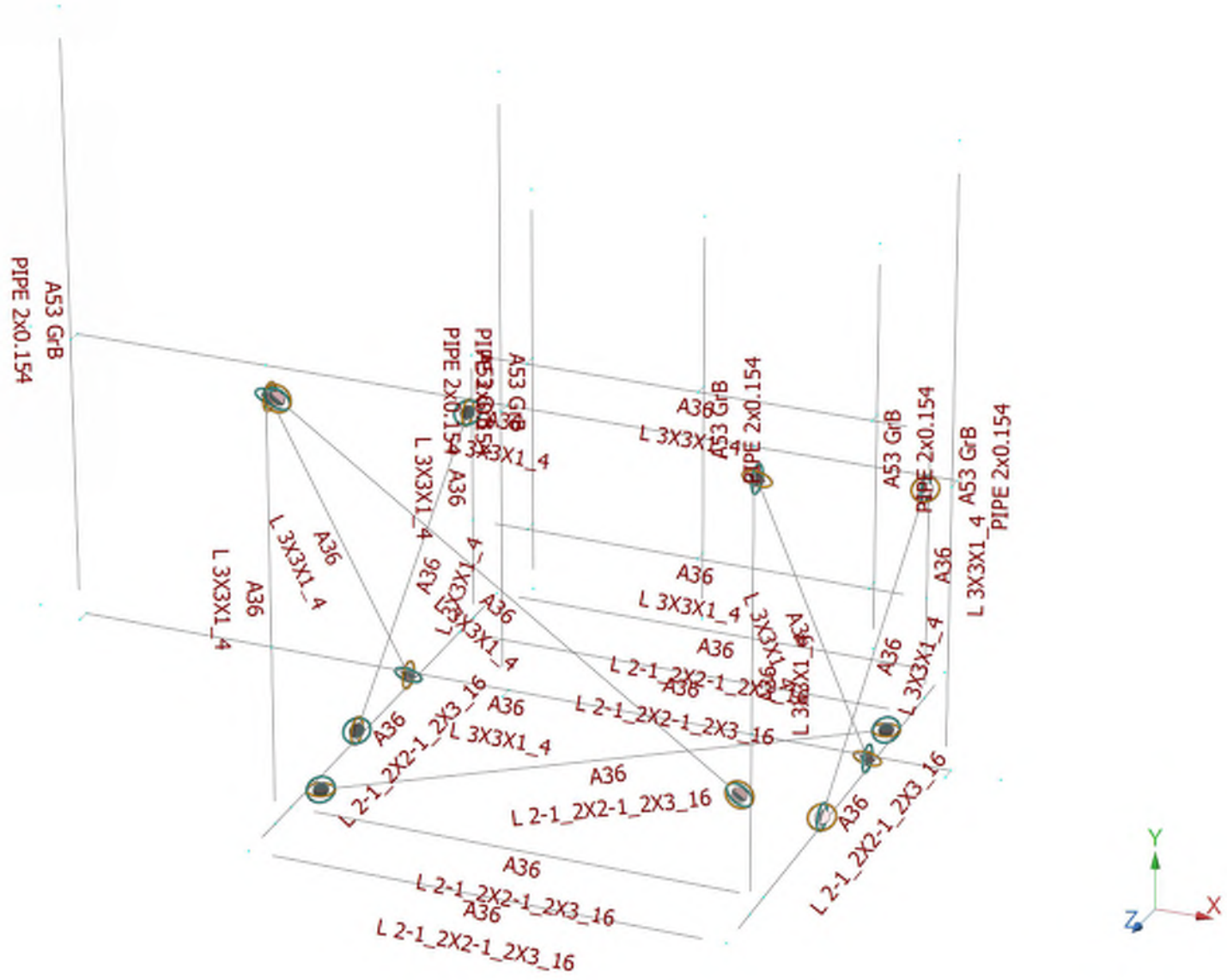
Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 6 plf

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: 9 plf

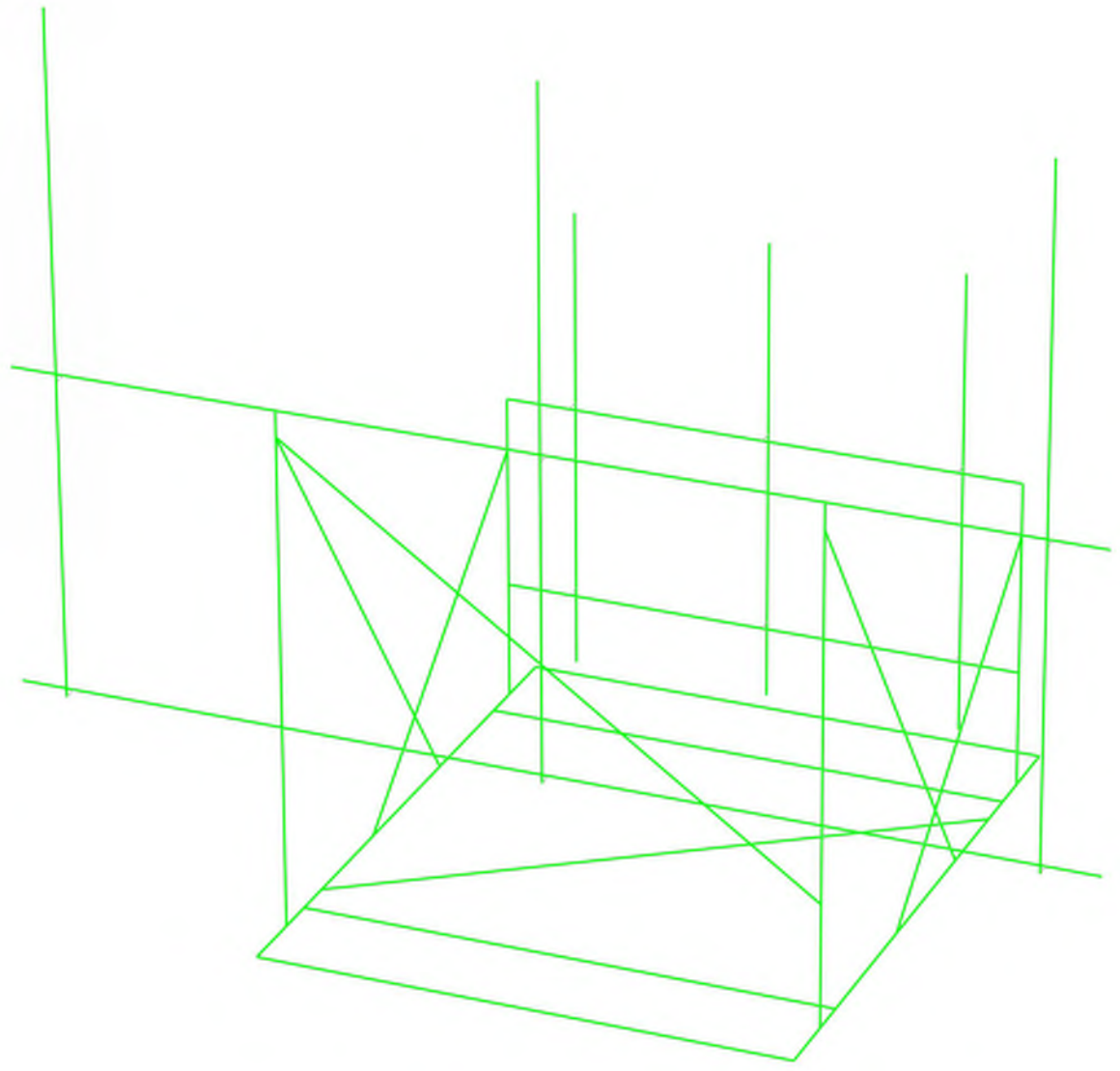
**Antenna Mount  
Calculations**



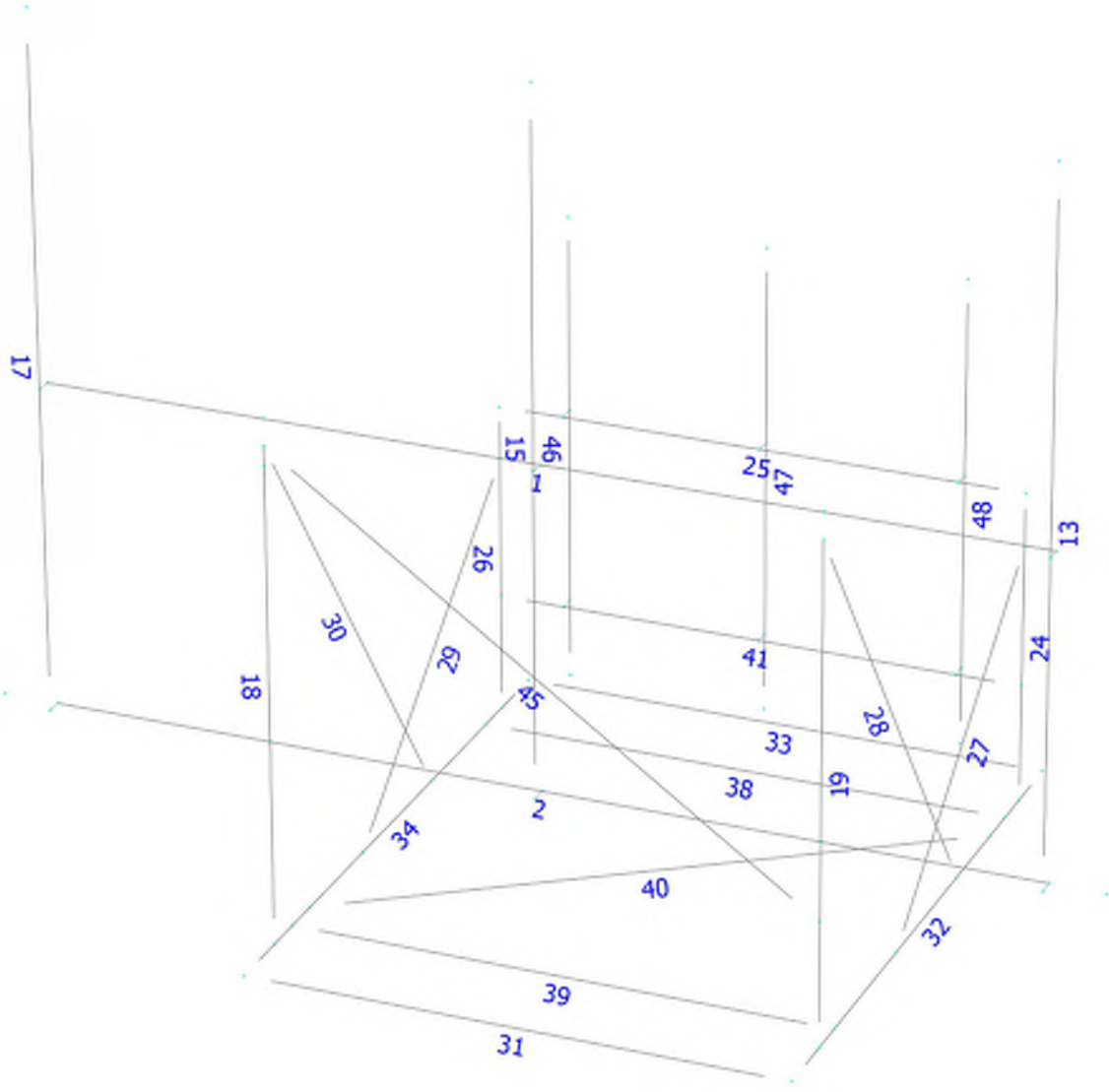


**Design status**

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







## Load data

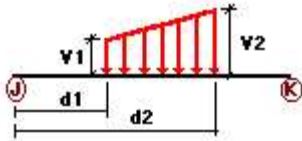
### GLOSSARY

Comb : Indicates if load condition is a load combination

### Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wf	Wind Load (FRONT)	No	WIND
Ws	Wind Load (SIDE)	No	WIND
Wfice	Wind ICE (FRONT)	No	WIND
Wsice	Wind ICE (SIDE)	No	WIND
Di	Ice Load	No	LL

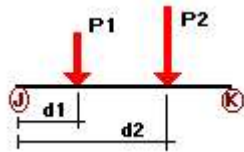
### Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wf	1	z	-0.025	-0.025	0.00	No	100.00	Yes
	2	z	-0.025	-0.025	0.00	No	100.00	Yes
	18	z	-0.025	-0.025	0.00	No	100.00	Yes
	19	z	-0.025	-0.025	0.00	No	100.00	Yes
	24	z	-0.025	-0.025	0.00	No	100.00	Yes
	25	z	-0.025	-0.025	0.00	No	100.00	Yes
	26	z	-0.025	-0.025	0.00	No	100.00	Yes
	27	z	-0.025	-0.025	0.00	No	100.00	Yes
	28	z	-0.025	-0.025	0.00	No	100.00	Yes
	29	z	-0.025	-0.025	0.00	No	100.00	Yes
	30	z	-0.025	-0.025	0.00	No	100.00	Yes
	41	z	-0.025	-0.025	0.00	No	100.00	Yes
	45	z	-0.025	-0.025	0.00	No	100.00	Yes
	46	z	-0.012	-0.012	50.00	Yes	100.00	Yes
47	z	-0.012	-0.012	50.00	Yes	100.00	Yes	
Ws	48	z	-0.012	-0.012	50.00	Yes	100.00	Yes
	13	x	-0.012	-0.012	0.00	No	100.00	Yes
	15	x	-0.012	-0.012	0.00	No	100.00	Yes
	17	x	-0.012	-0.012	0.00	No	100.00	Yes
	18	x	-0.025	-0.025	0.00	No	100.00	Yes
	19	x	-0.025	-0.025	0.00	No	100.00	Yes
	24	x	-0.025	-0.025	0.00	No	100.00	Yes
	26	x	-0.025	-0.025	0.00	No	100.00	Yes
27	x	-0.025	-0.025	0.00	No	100.00	Yes	

	28	x	-0.025	-0.025	0.00	No	100.00	Yes
	29	x	-0.025	-0.025	0.00	No	100.00	Yes
	30	x	-0.025	-0.025	0.00	No	100.00	Yes
	45	x	-0.025	-0.025	0.00	No	100.00	Yes
	46	x	-0.012	-0.012	0.00	No	100.00	Yes
	47	x	-0.012	-0.012	0.00	No	100.00	Yes
	48	x	-0.012	-0.012	0.00	No	100.00	Yes
Di	1	y	-0.009	-0.009	0.00	No	100.00	Yes
	2	y	-0.009	-0.009	0.00	No	100.00	Yes
	13	y	-0.006	-0.006	0.00	No	100.00	Yes
	15	y	-0.006	-0.006	0.00	No	100.00	Yes
	17	y	-0.006	-0.006	0.00	No	100.00	Yes
	18	y	-0.009	-0.009	0.00	No	100.00	Yes
	19	y	-0.009	-0.009	0.00	No	100.00	Yes
	24	y	-0.009	-0.009	0.00	No	100.00	Yes
	25	y	-0.009	-0.009	0.00	No	100.00	Yes
	26	y	-0.009	-0.009	0.00	No	100.00	Yes
	27	y	-0.009	-0.009	0.00	No	100.00	Yes
	28	y	-0.009	-0.009	0.00	No	100.00	Yes
	29	y	-0.009	-0.009	0.00	No	100.00	Yes
	30	y	-0.009	-0.009	0.00	No	100.00	Yes
	40	y	-0.009	-0.009	0.00	No	100.00	Yes
	41	y	-0.009	-0.009	0.00	No	100.00	Yes
	45	y	-0.009	-0.009	0.00	No	100.00	Yes
	46	y	-0.006	-0.006	0.00	No	100.00	Yes
	47	y	-0.006	-0.006	0.00	No	100.00	Yes
	48	y	-0.006	-0.006	0.00	No	100.00	Yes

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	13	y	-0.055	3.67	No
		y	-0.055	7.67	No
	15	y	-0.033	2.42	No
		y	-0.033	4.92	No
		y	-0.042	5.92	No
		y	-0.042	8.42	No
		y	-0.037	3.67	No
	17	y	-0.037	7.67	No
		y	-0.046	1.00	No
	46	y	-0.06	2.00	No
		y	-0.073	1.50	No
	47	y	-0.029	1.50	No
		y	-0.029	1.50	No
	Wf	13	z	-0.234	3.67
z			-0.234	7.67	No
15		z	-0.104	2.42	No
		z	-0.104	4.92	No
		z	-0.101	5.92	No
		z	-0.101	8.42	No

	17	z	-0.206	3.67	No
		z	-0.206	7.67	No
	46	z	-0.092	1.00	No
		z	-0.10	2.00	No
	47	z	-0.098	1.50	No
	48	z	-0.077	1.50	No
Ws	13	x	-0.113	3.67	No
		x	-0.113	7.67	No
	15	x	-0.061	2.42	No
		x	-0.061	4.92	No
		x	-0.068	5.92	No
		x	-0.068	8.42	No
	17	x	-0.087	3.67	No
		x	-0.087	7.67	No
	46	x	-0.043	1.00	No
		x	-0.062	2.00	No
	47	x	-0.07	1.50	No
Wfice	48	x	-0.077	1.50	No
	13	z	-0.036	3.67	No
		z	-0.036	7.67	No
	15	z	-0.017	2.42	No
		z	-0.017	4.92	No
		z	-0.017	5.92	No
		z	-0.017	8.42	No
	17	z	-0.032	3.67	No
		z	-0.032	7.67	No
	46	z	-0.016	1.00	No
		z	-0.018	2.00	No
	47	z	-0.017	1.50	No
Wsice	48	z	-0.014	1.50	No
	13	x	-0.019	3.67	No
		x	-0.019	7.67	No
	15	x	-0.011	2.42	No
		x	-0.011	4.92	No
		x	-0.012	5.92	No
		x	-0.012	8.42	No
	17	x	-0.015	3.67	No
		x	-0.015	7.67	No
	46	x	-0.009	1.00	No
		x	-0.012	2.00	No
	47	x	-0.013	1.50	No
Di	48	x	-0.014	1.50	No
	13	y	-0.087	3.67	No
		y	-0.087	7.67	No
	15	y	-0.041	2.42	No
		y	-0.041	4.92	No
		y	-0.042	5.92	No
		y	-0.042	8.42	No
	17	y	-0.075	3.67	No
		y	-0.075	7.67	No
	46	y	-0.036	1.00	No
		y	-0.041	2.00	No
	47	y	-0.042	1.50	No
	48	y	-0.048	1.50	No

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**Self weight multipliers for load conditions**

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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
Wfice	Wind ICE (FRONT)	No	0.00	0.00	0.00
Wsice	Wind ICE (SIDE)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00



## 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+Wfice+Di
- LC6=1.2DL+Wsice+Di
- LC7=1.4DL
- LC8=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
<i>L 2-1_2X2-1_2X3_16</i>		31	LC2 at 0.00%	0.09	OK	
		32	LC1 at 64.06%	<b>0.82</b>	<b>OK</b>	
		33	LC2 at 100.00%	0.04	OK	
		34	LC1 at 35.94%	0.79	OK	
		38	LC7 at 50.00%	0.03	OK	
		39	LC2 at 0.00%	0.05	OK	
		40	LC5 at 50.00%	0.13	OK	
<i>L 3X3X1_4</i>		1	LC3 at 25.00%	0.60	OK	
		2	LC4 at 34.82%	0.58	OK	
		18	LC2 at 39.06%	0.58	OK	
		19	LC4 at 23.44%	<b>0.94</b>	<b>OK</b>	
		24	LC4 at 35.42%	0.28	OK	
		25	LC1 at 48.44%	0.26	OK	
		26	LC2 at 62.50%	0.33	OK	
		27	LC3 at 31.25%	0.32	OK	
		28	LC3 at 18.75%	0.25	OK	
		29	LC3 at 31.25%	0.31	OK	
		30	LC1 at 15.63%	0.17	OK	
		41	LC2 at 100.00%	0.36	OK	
		45	LC4 at 18.75%	0.16	OK	
		<i>PIPE 2x0.154</i>		13	LC2 at 53.13%	0.17
15	LC2 at 53.13%			0.20	OK	
17	LC2 at 56.25%			0.19	OK	
46	LC1 at 41.67%			0.16	OK	
47	LC4 at 81.25%			<b>0.23</b>	<b>OK</b>	
48	LC4 at 81.25%			0.11	OK	

Date: 9/21/2023  
 Project Name: CAMBRIDGE MASS. AVE  
 Project No.: MA2215  
 Designed By: CL Checked By: MSC



**Calculate Total Ballast Required for Alpha Sector Ballast Mount**

**Wind Forces**

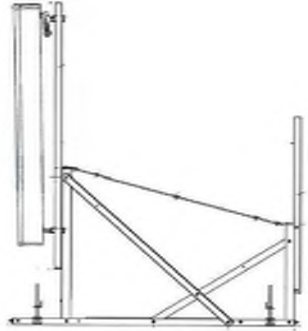
Antennas,  $F_1 =$  1288 lbs

Other Equipment,  $F_2 =$  367 lbs

**Appurtenance Heights**

Antenna Height,  $D_1 =$  5.5 ft

Other Equipment,  $D_2 =$  5 ft



Sled Length,  $L_{sled} =$  8.33 ft

Sled Width,  $W_{sled} =$  6.67 ft

Factor of Safety = 1.5

**Overturning Moment,  $M =$**   $(F_1 D_1 + F_2 D_2) * FS$   
 13379 lbs-ft

**Hold Down Force,  $H =$**   $M / L_{sled}$   
 1606.07 lbs (per side)

**Calculate Required Ballast at Front Sled**

Frame 248 lbs  
 Appurtenances 312 lbs  
 Existing Ballast 1254 lbs  
**Total =** 1814 lbs

(38) 4"x8"x16" Solid Block @ 33 lbs. /each

**Total Add. Ballast Req'd,  $W_f =$**  0.00 lbs

**Req'd Add. Blocks at Front =** 0 (4"x8"x16" Solid Block @ 34 lbs. /each)

**Calculate Required Ballast at Rear Sled**

Frame 496 lbs  
 Appurtenances 208 lbs  
 Existing Ballast 1188 lbs  
 Existing Ballast 340 lbs  
**Total =** 2232 lbs

(36) 4"x8"x16" Solid Block @ 33 lbs. /each  
 (10) 8"x8"x16" Hollow Block @ 34 lbs. /each

**Total Add. Ballast Req'd,  $W_r =$**  0.00 lbs

**Req'd Add. Blocks at Rear =** 0 (4"x8"x16" Solid Block @ 34 lbs. /each)

**Calculate Imposed Loading from Ballast Mount**

**Bearing Area of Ballast Mount,  $A_{SLED} =$**  55.56  $ft^2$

**Net Weight of Loaded Frame,  $W_{NET} =$**  2480 lbs

**Resultant Area Load =** 44.64 psf

Date: 9/21/2023  
 Project Name: CAMBRIDGE MASS. AVE  
 Project No.: MA2215  
 Designed By: CL Checked By: MSC



**Calculate Total Ballast Required for Beta Sector Ballast Mount**

**Wind Forces**

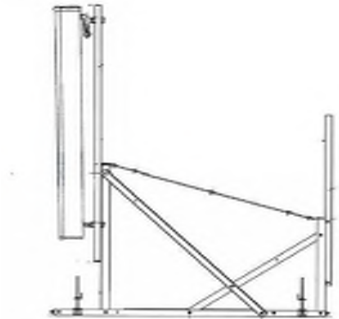
Antennas,  $F_1 = 1288$  lbs

Other Equipment,  $F_2 = 367$  lbs

**Appurtenance Heights**

Antenna Height,  $D_1 = 5.5$  ft

Other Equipment,  $D_2 = 5$  ft



Sled Length,  $L_{sled} = 8.33$  ft

Sled Width,  $W_{sled} = 6.67$  ft

Factor of Safety = 1.5

**Overturning Moment,  $M = (F_1 D_1 + F_2 D_2) * FS$**   
 $13379$  lbs-ft

**Hold Down Force,  $H = M / L_{sled}$**   
 $1606.07$  lbs (per side)

**Calculate Required Ballast at Front Sled**

Frame 248 lbs  
 Appurtenances 312 lbs  
 Existing Ballast 340 lbs  
 Existing Ballast 891 lbs  
**Total = 1791 lbs**

(10) 8"x8"x16" Hollow Block @ 34 lbs. /each  
 (27) 4"x8"x16" Solid Block @ 33 lbs. /each

**Total Add. Ballast Req'd,  $W_F = 0.00$  lbs**  
 0

**Req'd Add. Blocks at Front = 0** (4"x8"x16" Solid Block @ 34 lbs. /each)

**Calculate Required Ballast at Rear Sled**

Frame 496 lbs  
 Appurtenances 208 lbs  
 Existing Ballast 1155 lbs  
 Existing Ballast 238 lbs  
 Existing Ballast 225 lbs  
**Total = 2322 lbs**

(35) 4"x8"x16" Solid Block @ 33 lbs. /each  
 (7) 8"x8"x16" Hollow Block @ 34 lbs. /each  
 (9) 6"x8"x16" Hollow Block @ 25 lbs. /each

**Total Add. Ballast Req'd,  $W_R = 0.00$  lbs**

**Req'd Add. Blocks at Rear = 0** (4"x8"x16" Solid Block @ 34 lbs. /each)

**Calculate Imposed Loading from Ballast Mount**

Bearing Area of Ballast Mount,  $A_{SLED} = 55.56$  ft<sup>2</sup>  
 Net Weight of Loaded Frame,  $W_{NET} = 2570$  lbs  
 Resultant Area Load = 46.26 psf

Date: 9/21/2023  
 Project Name: CAMBRIDGE MASS. AVE  
 Project No.: MA2215  
 Designed By: CL Checked By: MSC



**Calculate Total Ballast Required for Gamma Sector Ballast Mount**

**Wind Forces**

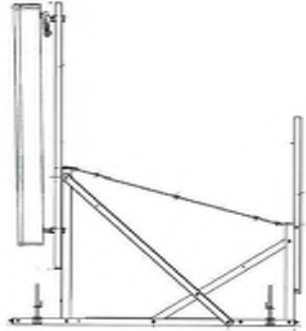
Antennas,  $F_1 =$  1288 lbs

Other Equipment,  $F_2 =$  367 lbs

**Appurtenance Heights**

Antenna Height,  $D_1 =$  5.5 ft

Other Equipment,  $D_2 =$  5 ft



Sled Length,  $L_{sled} =$  8.33 ft

Sled Width,  $W_{sled} =$  6.67 ft

Factor of Safety = 1.5

**Overturing Moment,  $M =$**   $(F_1 D_1 + F_2 D_2) * FS$   
 13379 lbs-ft

**Hold Down Force,  $H =$**   $M / L_{sled}$   
 1606.07 lbs (per side)

**Calculate Required Ballast at Front Sled**

Frame	248 lbs	
Appurtenances	312 lbs	
Existing Ballast	1386 lbs	(42) 4"x8"x16" Solid Block @ 33 lbs. /each
<b>Total =</b>	<b>1946 lbs</b>	

Total Add. Ballast Req'd,  $W_f =$  0.00 lbs

**Req'd Add. Blocks at Front =** 0 (4"x8"x16" Solid Block @ 34 lbs. /each)

**Calculate Required Ballast at Rear Sled**

Frame	496 lbs	
Appurtenances	208 lbs	
Existing Ballast	680 lbs	(20) 8"x8"x16" Hollow Block @ 34 lbs. /each
Existing Ballast	792 lbs	(24) 4"x8"x16" Solid Block @ 33 lbs. /each
<b>Total =</b>	<b>2176 lbs</b>	

Total Add. Ballast Req'd,  $W_r =$  0.00 lbs

**Req'd Add. Blocks at Rear =** 0 (4"x8"x16" Solid Block @ 34 lbs. /each)

**Calculate Imposed Loading from Ballast Mount**

Bearing Area of Ballast Mount,  $A_{SLED} =$  55.56  $ft^2$   
 Net Weight of Loaded Frame,  $W_{NET} =$  2424 lbs  
 Resultant Area Load = 43.63 psf



**RRH Mount  
Calculations**

Date: 9/21/2023  
 Project Name: CAMBRIDGE MASS. AVE  
 Project No.: MA2215  
 Designed By: CL      Checked By: MSC

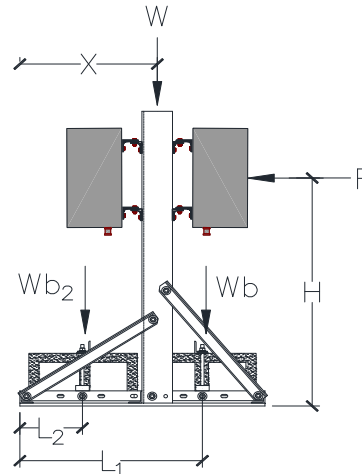


**Calculate Total Ballast Required for Ballast Mount**

*\*Assume (2) RRH's as projected area\**

Wind Force, F = 272 lbs  
 Height, H = 3 ft  
 Weight of Frame = 163 lbs  
 Weight of Appurtenances = 120 lbs  
 Weight of Frame + Equipment, W = 283 lbs  
 50% of Frame Width, X = 1.75 ft  
 Length, L<sub>1</sub> = 2.83 ft  
 Length, L<sub>2</sub> = 0.67 ft  
 Weight of Existing Ballast, W<sub>b2</sub> = 144 lbs

(6) 4"x8"x16" Hollow Blocks @ 24 lbs. /each



Sled Length, L<sub>sled</sub> = 3.50 ft  
 Sled Width, W<sub>sled</sub> = 3.50 ft  
 Factor of Safety (FS) = 1.5

**Overturning at Ballast**

$$\Sigma M = 0 \rightarrow W_b = [(F*H*FS) - (W*X) - (W_{b2}*L_2)] / L_1 = 223 \text{ lbs.}$$

**Calculate Required Ballast**

(Assume Proposed Blocks to be 4"x8"x16" Solid Concrete Block @ 33 lbs. /each)

Weight Req'd to Resist Overturning = 223 lbs  
 Weight of Existing Ballast = 144 lbs

(6) 4"x8"x16" Hollow Blocks @ 24 lbs. /each

Req'd Add. Weight per Tray = 79 lbs

Number of Proposed Blocks = 3 BLOCKS PER SIDE

**Calculate Imposed Loading from Ballast Mount**

Bearing Area of Ballast Mount, A<sub>SLED</sub> = 12.25 ft<sup>2</sup>  
 Net Weight of Loaded Frame, W<sub>NET</sub> = 769 lbs  
 Resultant Area Load = 62.77 psf

Date: 9/21/2023  
 Project Name: CAMBRIDGE MASS. AVE  
 Project No.: MA2215  
 Designed By: CL Checked By: MSC

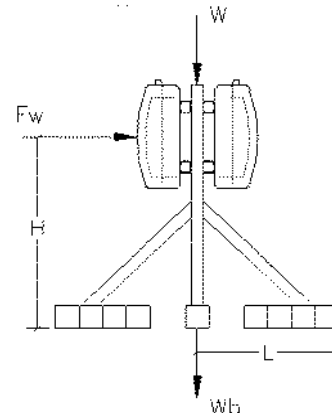


**Calculate Total Ballast Required for Ballast Mount (Typ.)**

*\*Assumed (1) RRH and (1) Surge Arrestor as Projected Wind Area\**

Wind Force,  $F_w$  = 307 lbs.  
 Height,  $H$  = 3.25 ft  
 Weight of Frame = 83 lbs  
 Weight of Appurtenances = 97 lbs  
 Weight of Frame + Equipment,  $W$  = 180 lbs  
 50% of Frame Width,  $L$  = 3.04 ft  
 Weight of Existing Ballast,  $W_b$  = 396 lbs

(9) 4"x4"x32" Sleepers @ 44 lbs./each



Length,  $L_{frame}$  = 6.08 ft  
 Width,  $W_{frame}$  = 2.67 ft  
 Factor of Safety (FS) = 1.5

**Overturning at Ballast**

$$\Sigma M = 0 \rightarrow W_{b, req} = [(F \cdot H \cdot FS) - ((W + W_b) \cdot L)] / L_{frame} = -42 \text{ lbs.}$$

**Verify Adequacy of Existing Ballast**

$$W_{b, req} < W_b \rightarrow \text{Therefore, OK!}$$

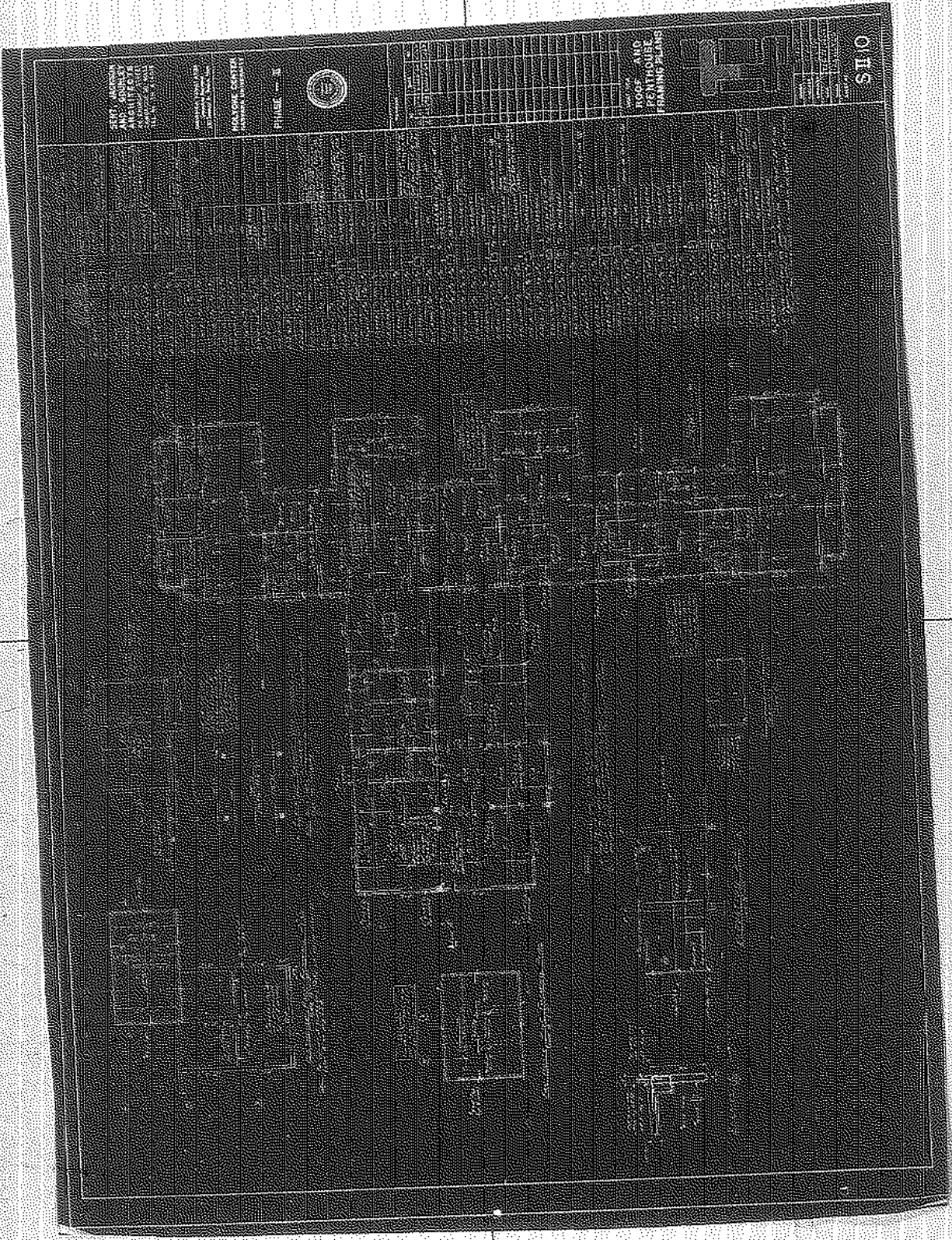
**Calculate Imposed Loading from Ballast Mount**

Bearing Area of Ballast Mount,  $A_{SLED}$  = 16.21  $\text{ft}^2$   
 Net Weight of Loaded Frame,  $W_{NET}$  = 576 lbs  
 Resultant Area Load = 35.54 psf



## Reference Documents





SEITZ ARCHITECTS  
ARCHITECTS  
1000 N. 10th St.  
Phoenix, Arizona 85004

PROPOSED MASTER  
BEDROOM TO BE REMOVED

PHASE 1 - 2



NO.	DESCRIPTION	DATE
1	1000 N. 10th St.	10/1/78
2	1000 N. 10th St.	10/1/78
3	1000 N. 10th St.	10/1/78
4	1000 N. 10th St.	10/1/78
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46	1000 N. 10th St.	10/1/78
47	1000 N. 10th St.	10/1/78
48	1000 N. 10th St.	10/1/78
49	1000 N. 10th St.	10/1/78
50	1000 N. 10th St.	10/1/78

FOR THE  
OWNER AND  
ARCHITECT  
REVISIONS



0110

SERT, JACKSON  
 ARCHITECTS  
 400 N. WASHINGTON  
 CAMBRIDGE 381, MASS.  
 TEL. NO. UN. 4-7594

PROJECT NO. 2800

HARVARD UNIVERSITY  
 OFFICE AND HEALTH  
 CENTER BUILDING

NO.	DATE	BY
1	10/1/68	J. SERT
2	10/15/68	J. SERT
3	10/22/68	J. SERT
4	11/1/68	J. SERT
5	11/15/68	J. SERT
6	12/1/68	J. SERT
7	12/15/68	J. SERT
8	1/1/69	J. SERT
9	1/15/69	J. SERT
10	2/1/69	J. SERT
11	2/15/69	J. SERT
12	3/1/69	J. SERT
13	3/15/69	J. SERT
14	4/1/69	J. SERT
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21	7/15/69	J. SERT
22	8/1/69	J. SERT
23	8/15/69	J. SERT
24	9/1/69	J. SERT
25	9/15/69	J. SERT
26	10/1/69	J. SERT
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28	11/1/69	J. SERT
29	11/15/69	J. SERT
30	12/1/69	J. SERT

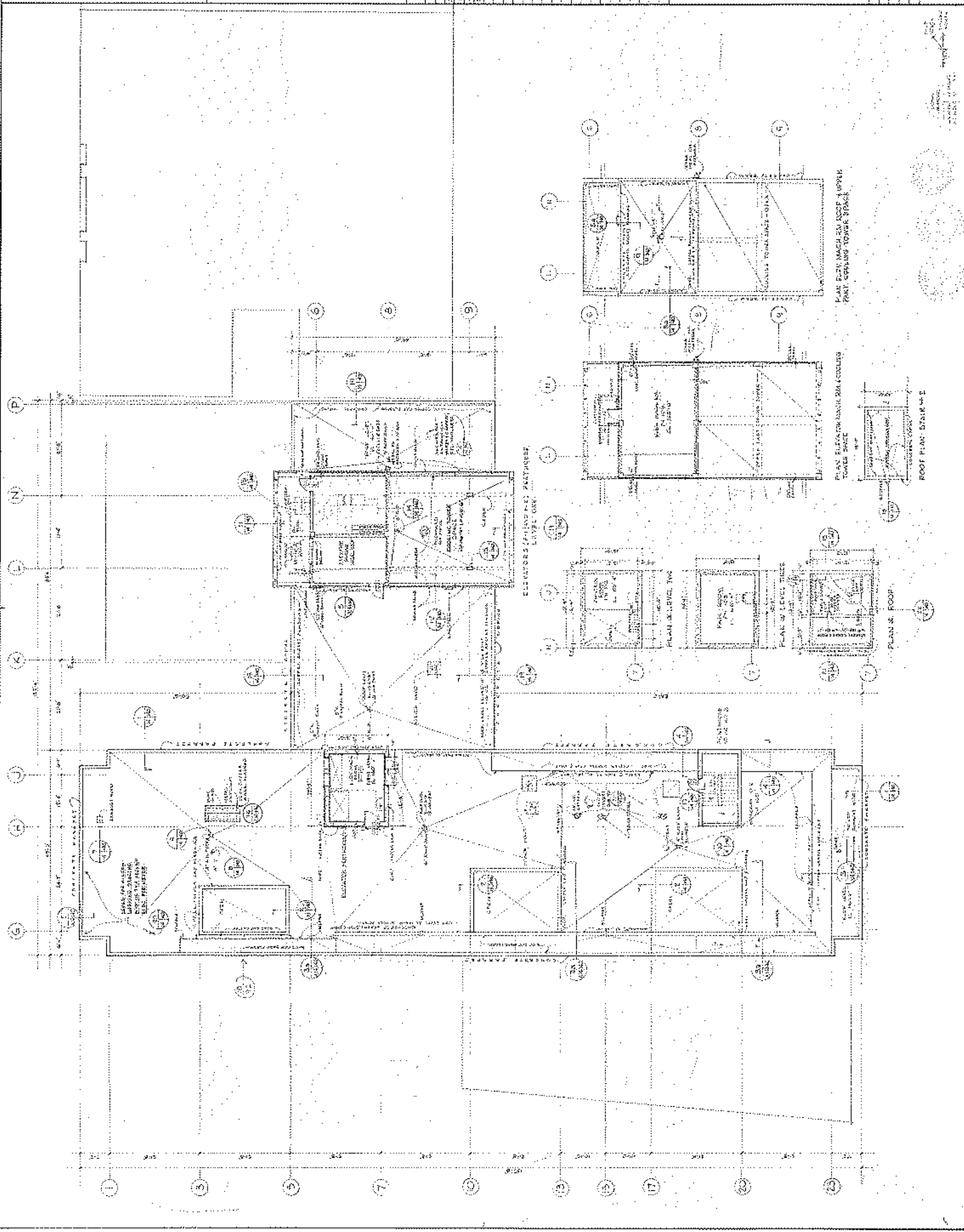
SHEET TITLE

KEY PLAN  
 PENT HOUSE  
 AND ROOF

DATE: 10/15/68  
 DRAWN BY: J. SERT  
 CHECKED BY: J. SERT

NO.	DATE	BY
1	10/15/68	J. SERT
2	10/22/68	J. SERT
3	11/1/68	J. SERT
4	11/15/68	J. SERT
5	12/1/68	J. SERT
6	12/15/68	J. SERT
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30	12/15/69	J. SERT

A-14



99-13



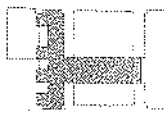
SERT, JACKSON  
AND GOURLEY  
ARCHITECTS  
26 CHURCH STREET  
CAMBRIDGE, MASS.  
TEL. NO. TR 6-9405

HOLYOKE CENTER  
HARVARD UNIVERSITY



NO.	DATE	DESCRIPTION
1	10/24/58	PRELIMINARY
2	11/10/58	REVISED
3	11/10/58	REVISED
4	11/10/58	REVISED
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49	11/10/58	REVISED
50	11/10/58	REVISED

ROOF &  
PENTHOUSE  
PLANS



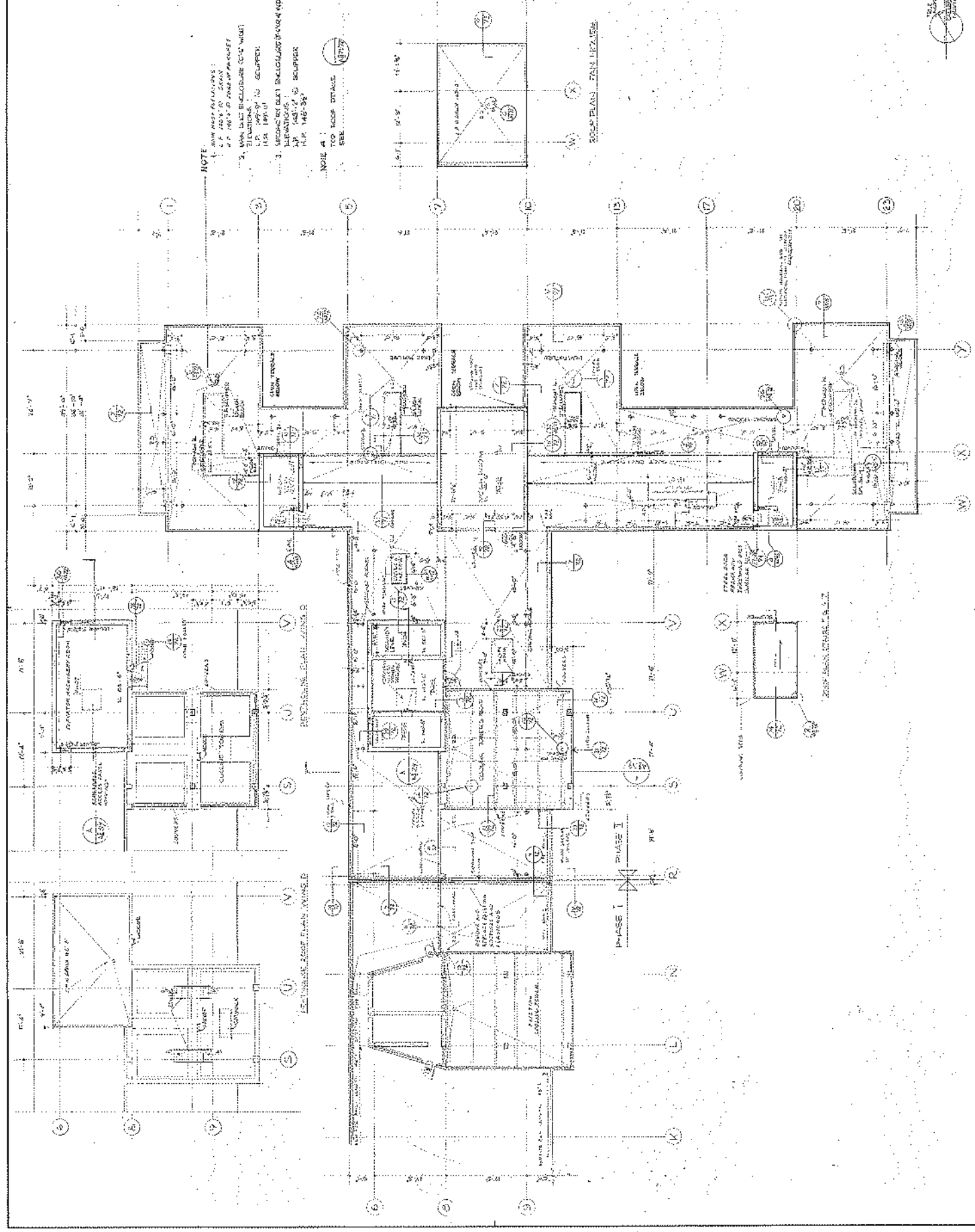
DATE	11/10/58
CHECKED	CLARK
DESIGNED	CLARK
SCALE	1/8" = 1'-0"
SHEET NO.	AI 26

AI 26

108-26

NOTE:  
1. SEE ROOF PLAN FOR  
2. MAIN UNIT ENCLOSURE CO-ORDINATES  
3. SEQUENCE PLAN INCLUDING EXTERIOR  
ELEVATIONS, TO SCULPTURE  
P.L.P. 145-38

NOTE 4:  
TOP ROOF DRAWS  
SEE





# PUBLIC NOTICE

Federal Communications Commission  
445 12<sup>th</sup> St., S.W.  
Washington, D.C. 20554

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

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

DA 12-2047  
January 25, 2013

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

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

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

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

---

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

<sup>2</sup> *Id.*, § 6409(a).

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

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

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

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

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

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

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

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

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

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

### **What is a “wireless tower or base station”?**

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

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

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

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

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<sup>8</sup> See *Nationwide Collocation Agreement*, § I.B.

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

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

<sup>11</sup> 47 U.S.C. § 332(c)(7)(A). “Personal wireless services” is in turn defined to mean “commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services.” *Id.* § 332(c)(7)(C)(1).



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

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

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

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

-FCC-

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<sup>12</sup> See *2009 Declaratory Ruling*, 24 FCC Rcd. at 14012-13, paras. 46-47.

## **APPENDIX**

### **SEC. 6409. WIRELESS FACILITIES DEPLOYMENT.**

#### **(a) FACILITY MODIFICATIONS.**

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

(2) **ELIGIBLE FACILITIES REQUEST.** For purposes of this subsection, the term “eligible facilities request” means any request for modification of an existing wireless tower or base station that involves —

- (A) collocation of new transmission equipment;
- (B) removal of transmission equipment; or
- (C) replacement of transmission equipment.

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

December 5, 2023

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

**RE: Request of New Cingular Wireless PCS, LLC ("AT&T") for Administrative Review of an Eligible Facilities Request to Install Transmission Equipment on the existing 121'6" above ground level ("AGL") building (the "Building") located at 1350 Massachusetts Avenue, Cambridge MA 02138 (Assessor's Parcel Identification Map 160, Lot 14), pursuant to Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012 (the "Spectrum Act") and Special Permit pursuant to: Article 4, Section 4.32.g.1; Article 4, Section 4.40 (Footnote 49); and Article 10, Section 10.40 of the City of Cambridge Zoning Ordinance; Massachusetts General Laws, Ch 40A, Section 9; the Telecommunications Act of 1996 (the "TCA"), and the Spectrum Act, all rights reserved.**

Dear Honorable Members of the Cambridge Board of Zoning Appeal:

On behalf of AT&T, while reserving all rights, we are pleased to submit this Eligible Facilities Request and Special Permit Application (the "Application") to the City of Cambridge Board of Zoning Appeals (the "Board") in support of AT&T's request to add and modify Transmission Equipment on the existing Building located at 1350 Massachusetts Avenue, Cambridge, MA 02139 (Assessor's Parcel Identification Map 160, Lot 14) (the "Site"). Capitalized terms not defined herein shall have the same meaning as provided in the Spectrum Act and Regulations (defined below).

As noted on the attached plans (the "Plans"), the Building is owned by Harvard University. AT&T currently has an existing wireless antenna facility on the roof of the Building. As shown in the plans, AT&T is proposing to add and replace certain equipment, antennas and cabling on the roof of the Building so as to improve the RF signal transmission for AT&T customers in this area of Cambridge (the antenna facility as improved pursuant to this application, collectively hereinafter referred to as the "Facility").

In particular, AT&T is proposing to add and relocate the following:

Replace 12 existing antennas with 12 new antennas in nearly the same locations, replace 6 remote radio heads with 6 new remote radio heads in nearly the same locations, replace certain cabling with new cables, add rectifiers, remove existing diplexers and TMA, and remove and replace certain equipment in AT&T's existing rooftop equipment shelter.



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

AT&T, while reserving all rights, respectfully requests, to the extent necessary, that a special permit be granted so that the antennas may be installed consistent with the Plans submitted herewith.

### **ELIGIBLE FACILITIES REQUEST**

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

Federal law now preempts many of the permit application requirements that the City of Cambridge may previously have required from an applicant and provides for a limited, administrative review of AT&T's Eligible Facilities Request application. This Eligible Facilities Request involves an effort to collocate, remove, modify, or replace Transmission Equipment (as referenced previously) on an existing Building used by an FCC licensed wireless carrier. The existing Building is a Structure that is 121'6" AGL supporting wireless Transmission Equipment. AT&T seeks administrative approval for the proposed equipment which is clearly an Eligible Facilities Request which does not substantially change the physical dimensions of the Building pursuant to Section 6409 of the Spectrum Act.

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





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

1. The modifications do not increase the height of the Building by more than ten feet (10') from an existing antenna array or ten percent (10%), whichever is greater.
2. The modifications do not protrude from the edge of the Building by more than six feet (6').
3. The modifications do not involve the installation of more than the standard number of equipment cabinets for the technology involved, not to exceed four.
4. The modifications do not entail any excavation or deployment outside of the Site.
5. The modifications do not defeat any existing concealment elements of the Base Station.
6. The modifications comply with prior conditions of approval of the Base Station, unless the non-compliance is due to an increase in height, increase in width, addition of equipment cabinets, or new excavation that does not exceed the corresponding "substantial change" thresholds in numbers 1-4 above.

As evidenced on the Plans, this Eligible Facilities Request satisfies each of the six review criteria enumerated by the FCC in the Regulations. In accordance with the Spectrum Act and the Regulations, AT&T's proposed equipment will not increase the height of the Building nor protrude from the edge of the Building by more than six feet (6'). AT&T does not propose excavating outside of the Site and is not adding more than the standard number of equipment cabinets. Lastly, AT&T's proposed equipment will not defeat any concealment elements because the antennas will be mounted in a similar fashion as the existing antennas and are mostly invisible from the ground. AT&T's proposed Transmission Equipment at the Building contained in this Eligible Facilities Request fully conforms to Section 6409(a) of the Spectrum Act.

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



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

## **SPECIAL PERMIT**

### **10.43 Criteria.**

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

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

AT&T’s Facility will comply with all applicable sections of the Ordinance as the modified Facility will not increase the height of the Building, and the new antennas will be the same sky grey color as the existing antennas (which best matches the color of the Building).

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

AT&T’s Facility will not result in any substantial change in the character of the neighborhood as there will be no significant increase in the amount of traffic to and from the Site, or any changes to existing patterns of access or egress to the Site. Trips to and from the Facility will average one or two per month by maintenance personnel who will park their SUV in the existing parking area on Site and not on the street.

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



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

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

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

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

The proposed Facility will be in harmony with the purposes of the Ordinance because by collocating a wireless facility on an existing Building in a manner which does not increase the height of the Building or expand its footprint, potential visual impacts are minimized. Also, the proposed Facility will not produce any smoke, odors, waste, glare or significant amounts of traffic. The Facility will have no negative impact on natural or undeveloped areas, wildlife, flora or endangered species. Consistent with the Ordinance, the Facility will function as a wireless communications services facility within a local, regional, and national communications system. This system operates under licenses from the FCC, and AT&T is mandated and authorized to provide adequate service to the general public. The proposed Facility will comply with all applicable regulations, standards and guidelines with respect to radiofrequency emissions.

The Facility will benefit those living and working in, and traveling through, the area by providing enhanced wireless telecommunication services. The Facility will not adversely impact adjacent properties and neighborhoods as the Facility will be located on an existing Building. The collocation of the facility will not be a threat to public health, safety and welfare. In fact, Applicant submits that the facility aids in public safety by providing and improving wireless communications services to the residents, businesses, commuters, and emergency personnel utilizing wireless communications in the immediate vicinity and along the nearby roads. Consistent with the Ordinance, the Facility will function as a wireless communications services facility within a local, regional, and national communications system. This system operates under license from the FCC, and AT&T is mandated and authorized to provide adequate service to the general public. The Facility will not generate any objectionable noise, odor, fumes, glare,



smoke, or dust or require additional lighting or signage. The Facility will have no negative impact on property values in the area. This is an unmanned Facility and will have minimal negative effect on the adjoining lots.

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

AT&T's Facility will not be inconsistent with the Citywide Urban Design Objectives of Section 19.30 of the Ordinance because AT&T's Facility will not result in an increase in the height of the Building or any alteration of existing setbacks on the Site. AT&T's equipment will not result in any significant increase in traffic to or from the Site and will not adversely impact upon pedestrians or bicyclists and, as AT&T's Facility will continue to be unmanned, it will have no impact on parking on Site or the surrounding area. AT&T's new antennas will be the same sky grey color as the existing antennas (which best matches the color of the Building). AT&T's Facility will not produce any waste and noise levels on Site will not increase as a result of AT&T's Facility, nor will there be any additional exterior lighting as a result of AT&T's Facility.

AT&T's Facility will operate using standard electric and telephone services. As the Facility will be unmanned, it will require no water or sewer services, and City infrastructure will not be overburdened.

**4.40 (49)(3)**

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

AT&T proposes improvements and modifications to its existing antenna facility at the Site and the property is in the Business B zoning district. AT&T proposes the Facility so that it will continue to fill a significant gap in coverage and provide adequate wireless communications services coverage to this part of the City of Cambridge. The use will be passive in nature, producing no unreasonable noise, smoke odor, waste, or glare. There will be no significant increase in the amount of traffic to and from the Site as maintenance visits will average one or two per month.

**THE TELECOMMUNICATIONS ACT OF 1996 - THE TCA**





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

### CONCLUSION

AT&T is committed to working cooperatively with the City of Cambridge, and all jurisdictions around the country, to secure expeditious approval of requests to install personal wireless service facilities. We respectfully request that the Board review AT&T's proposed Facility and determine that the installation does not "substantially change the physical dimensions of the Base Station" pursuant to Section 6409 of the Spectrum Act, or in the alternative, to the extent necessary, grant a special permit pursuant to: Article 4, Section 4.32.g.1; Article 4, Section 4.40 (Footnote 49); and Article 10, Section 10.40 of the City of Cambridge Zoning Ordinance; Massachusetts General Laws, Ch 40A, Section 9; the TCA, all rights reserved.

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

Respectfully,

**BROWN RUDNICK LLP**

A handwritten signature in cursive script that reads "Michael R. Dolan".

Michael R. Dolan, Esq.

## ATTACHMENTS

1. Application Form
2. Letter of Authorization – Notarized Owner Information Form
3. FCC Licenses
4. Photographs/Photosimulations
5. Plans
6. Structural Report
7. MPE Study
8. FCC Public Notice

**47 USC 1455**

**Middle Class Tax Relief and Job Creation Act of 2012**

**SEC. 6409. WIRELESS FACILITIES DEPLOYMENT**

**(a) FACILITY MODIFICATION.—**

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

(2) **ELIGIBLE FACILITIES REQUEST.**—For purposes this subsection, the term “eligible facilities request” means any request for modification of an existing wireless tower or base station that involves –

- (A) collocation of new transmission equipment;
- (B) removal of transmission equipment; or
- (C) replacement of transmission equipment.

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

## ADDENDUM "A"

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

For Base Stations, the modification increases the height of the structure by more than 10% or more than ten (10) feet, whichever is greater;

**As depicted on the Plans, AT&T’s proposed equipment will not increase the height of the Building.**

For Base Stations, the modification involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than six (6) feet;

**As depicted on the Plans, AT&T’s Transmission Equipment will not protrude from the edge of the Building more six (6) feet.**

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

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

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

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

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

**As depicted on the Plans, AT&T’s modification will be substantially similar to the existing transmission equipment on the Building and the new antennas will be the same sky grey color as the existing antennas (which best matches the color of the Building).**

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

**AT&T is not aware of any noncompliance and respectfully asserts that the proposed modifications are consistent with all applicable terms of prior approvals for the wireless facility.**





## Subpart CC—State and Local Review of Applications for Wireless Service Facility Modification

### §1.40001 Wireless Facility Modifications.

**(a) Purpose.** These rules implement section 6409 of the Spectrum Act (codified at 47 U.S.C. 1455), which requires a State or local government to approve any eligible facilities request for a modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station.

**(b) Definitions.** Terms used in this section have the following meanings.

**(1) Base station.** A structure or equipment at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower as defined in this subpart or any equipment associated with a tower.

(i) The term includes, but is not limited to, equipment associated with wireless communications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(ii) The term includes, but is not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration (including Distributed Antenna Systems and small-cell networks).

(iii) The term includes any structure other than a tower that, at the time the relevant application is filed with the State or local government under this section, supports or houses equipment described in paragraphs (b)(1)(i) through (ii) of this section that has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, even if the structure was not built for the sole or primary purpose of providing such support.

(iv) The term does not include any structure that, at the time the relevant application is filed with the State or local government under this section, does not support or house equipment described in paragraphs (b)(1)(i)-(ii) of this section.

**(2) Collocation.** The mounting or installation of transmission equipment on an eligible support structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes.

**(3) Eligible facilities request.** Any request for modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station, involving:

(i) Collocation of new transmission equipment;

(ii) Removal of transmission equipment; or

(iii) Replacement of transmission equipment.

**(4) Eligible support structure.** Any tower or base station as defined in this section, provided that it is existing at the time the relevant application is filed with the State or local government under this section.

**(5) Existing.** A constructed tower or base station is existing for purposes of this section if it has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, provided that a tower that has not been reviewed and approved because it was not in a zoned area when it was built, but was lawfully constructed, is existing for purposes of this definition.

**(6) Site.** For towers other than towers in the public rights-of-way, the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site, and, for other eligible support structures, further restricted to that area in proximity to the structure and to other transmission equipment already deployed on the ground.

**(7) Substantial change.** A modification substantially changes the physical dimensions of an eligible support structure if it meets any of the following criteria:

(i) For towers other than towers in the public rights-of-way, it increases the height of the tower by more than 10% or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater; for other eligible support structures, it increases the height of the structure by more than 10% or more than ten feet, whichever is greater;

(A) Changes in height should be measured from the original support structure in cases where deployments are or will be separated horizontally, such as on buildings' rooftops; in other circumstances, changes in height should be measured from the dimensions of the tower or base station, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act.

(ii) For towers other than towers in the public rights-of-way, it involves adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater; for other eligible support structures, it involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than six feet;

(iii) For any eligible support structure, it involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets; or, for towers in the public rights-of-way and base stations, it involves installation of any new equipment cabinets on the ground if there are no pre-existing ground cabinets associated with the structure, or else involves installation of ground cabinets that are more than 10% larger in height or overall volume than any other ground cabinets associated with the structure;

(iv) It entails any excavation or deployment outside the current site;

(v) It would defeat the concealment elements of the eligible support structure; or

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

**(8) Transmission equipment.** Equipment that facilitates transmission for any Commission-licensed or authorized wireless communication service, including, but not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, and regular and backup power supply. The term includes equipment associated with wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

**(9) Tower.** Any structure built for the sole or primary purpose of supporting any Commission-licensed or authorized antennas and their associated facilities, including structures that are constructed for wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul, and the associated site.

**(c) Review of applications.** A State or local government may not deny and shall approve any eligible facilities request for modification of an eligible support structure that does not substantially change the physical dimensions of such structure.

**(1) Documentation requirement for review.** When an applicant asserts in writing that a request for modification is covered by this section, a State or local government may require the applicant to provide documentation or information only to the extent reasonably related to determining whether the request meets the requirements of this section. A State or local government may not require an applicant to submit any other documentation, including but not limited to documentation intended to illustrate the need for such wireless facilities or to justify the business decision to modify such wireless facilities.

**(2) Timeframe for review.** Within 60 days of the date on which an applicant submits a request seeking approval under this section, the State or local government shall approve the application unless it determines that the application is not covered by this section.

**(3) Tolling of the timeframe for review.** The 60-day period begins to run when the application is filed, and may be tolled only by mutual agreement or in cases where the reviewing State or local government determines that the application is incomplete. The timeframe for review is not tolled by a moratorium on the review of applications.

(i) To toll the timeframe for incompleteness, the reviewing State or local government must provide written notice to the applicant within 30 days of receipt of the application, clearly and

specifically delineating all missing documents or information. Such delineated information is limited to documents or information meeting the standard under paragraph (c)(1) of this section.

(ii) The timeframe for review begins running again when the applicant makes a supplemental submission in response to the State or local government's notice of incompleteness.

(iii) Following a supplemental submission, the State or local government will have 10 days to notify the applicant that the supplemental submission did not provide the information identified in the original notice delineating missing information. The timeframe is tolled in the case of second or subsequent notices pursuant to the procedures identified in this paragraph (c)(3). Second or subsequent notices of incompleteness may not specify missing documents or information that were not delineated in the original notice of incompleteness.

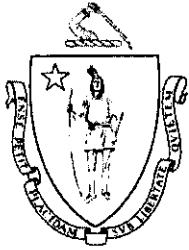
**(4) Failure to act.** In the event the reviewing State or local government fails to approve or deny a request seeking approval under this section within the timeframe for review (accounting for any tolling), the request shall be deemed granted. The deemed grant does not become effective until the applicant notifies the applicable reviewing authority in writing after the review period has expired (accounting for any tolling) that the application has been deemed granted.

**(5) Remedies.** Applicants and reviewing authorities may bring claims related to Section 6409(a) to any court of competent jurisdiction.

[80 FR 1269, Jan. 8, 2015]

62266034 v1-WorkSiteUS-024519/0782





THE COMMONWEALTH OF MASSACHUSETTS  
OFFICE OF THE ATTORNEY GENERAL

CENTRAL MASSACHUSETTS DIVISION  
10 MECHANIC STREET, SUITE 301  
WORCESTER, MA 01608

MAURA HEALEY  
ATTORNEY GENERAL

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

February 17, 2015

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

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

Dear Ms. Powers:

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

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

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

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

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

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

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

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

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

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

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

---

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

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

MAURA HEALEY  
ATTORNEY GENERAL

*Margaret J. Hurley*

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

cc: Town Counsel Thomas P. McCusker

ULS License

# Wireless Communications Service License - KNLB200 - New Cingular Wireless PCS, LLC

Call Sign	KNLB200	Radio Service	WS - Wireless Communications Service
Status	Active	Auth Type	Regular

## Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

## Reserved Spectrum

Reserved Spectrum

## Market

Market	MEA001 - Boston	Channel Block	B
Submarket	0	Associated Frequencies (MHz)	002310.00000000-002315.00000000-002355.00000000-002360.00000000

3.7 GHz License Type

3.7 GHz Linked License

## Dates

Grant	02/07/2020	Expiration	07/21/2027
Effective	01/14/2023	Cancellation	

## Buildout Deadlines

1st	03/13/2017	2nd	09/13/2019
-----	------------	-----	------------

## Discontinuance Dates

1st		2nd	
-----	--	-----	--

## Notification Dates

1st	03/03/2017	2nd	09/04/2019
-----	------------	-----	------------

## Licensee

FRN	0003291192	Type	Limited Liability Company
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## Licensee

New Cingular Wireless PCS, LLC 208 S. Akard St. 20F Dallas, TX 75202 ATTN FCC Group	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
--	---

## Contact

AT&T Services, Inc. Cecil J Mathew 208 S. Akard St. 20F Dallas, TX 75202 ATTN Michael P. Goggin	P:(855)699-7073 F:(202)457-3073 E:FCCMW@att.com
---	---

**Ownership and Qualifications**

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier	Interconnected	Yes

**Alien Ownership**

The Applicant answered "No" to each of the Alien Ownership questions.

**Basic Qualifications**

The Applicant answered "No" to each of the Basic Qualification questions.

**Tribal Land Bidding Credits**

This license did not have tribal land bidding credits.

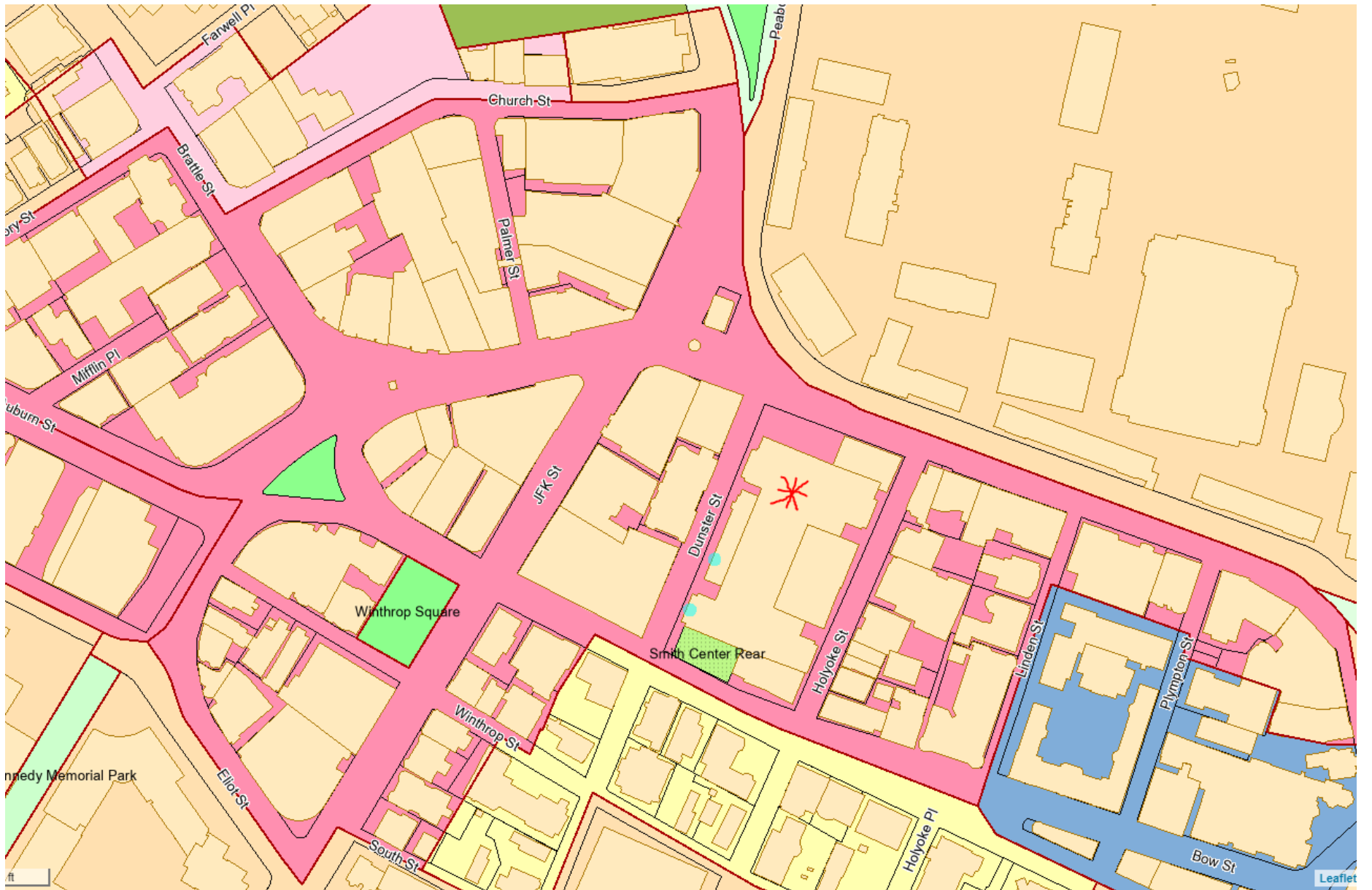
**Demographics**

Race

Ethnicity

Gender



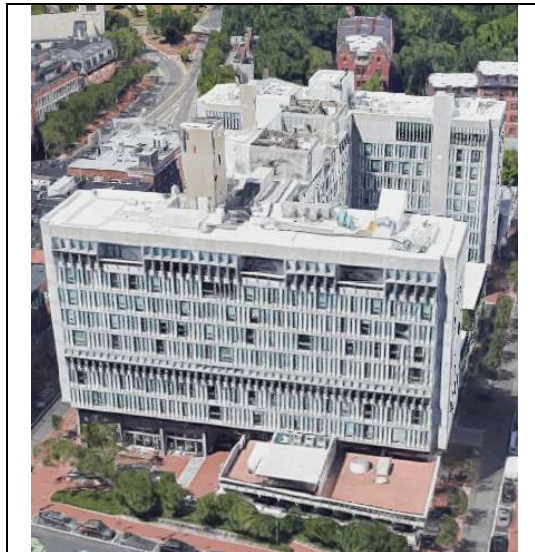




# CENTERLINE

## Radio Frequency Safety Survey Report Prediction (RFSSRP) AT&T Rooftop Facility

<b>Site Name</b>	CAMBRIDGE MASS. AVE	
<b>Site ID</b>	MA2215	
<b>Site Address</b>	1350 MASSACHUSETTS AVENUE, Cambridge, MA 02138	
<b>Latitude:</b> 42.372799 <b>Longitude:</b> -71.118597 <b>USID:</b> 3126 <b>FA:</b> 10071767 <b>Centerline PN:</b> Internal <b>Pace ID:</b> MRCTB057991, MRCTB052221, MRCTB051167, MRCTB050815, MRCTB050786	<b>Prepared for:</b> Centerline on behalf of AT&T	<b>Report Date:</b> November 27, 2023  <b>Report Writer:</b> Katrina Styx <b>Report Reviewer:</b> Yasir Alqadhili



### Statement of Compliance

AT&T will be compliant with FCC Regulations upon installation of recommended mitigation measures.

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## 1.0 GENERAL SUMMARY

Centerline has been contracted to provide a Radio Frequency (RF) analysis for the following AT&T rooftop facility to determine whether the facility is in compliance with federal standards and regulations regarding RF emissions. This analysis includes theoretical emissions calculations for all equipment for AT&T.

### 1.1 SITE SUMMARY

<b>Analysis Site Data</b>	
Site USID:	3126
Site FA#:	10071767
Site Name:	CAMBRIDGE MASS. AVE
Site Address:	1350 MASSACHUSETTS AVENUE, Cambridge, MA 02138
Site Latitude:	42.372799
Site Longitude:	-71.118597
Facility Type:	Rooftop
<b>Compliance Summary</b>	
Compliance Status:	Compliant Upon Mitigation
<b>Site Data Information</b>	
CD:	10071767.AE201.220820
RFDS:	NEW-ENGLAND_BOSTON_MAU2215_2021-5G-NR-Radio_5G-NR-1SR-CBAND_sp656b_PTN_10071767_3126_03-02-2021_Final-Approved_v2.00

### 1.2 SITE MITIGATION

Signage and barriers are the primary means of mitigating accessible areas of exposure. Below is a summary of existing and recommended signage at this AT&T facility.

Existing Signage and Barriers (AT&T Sectors)										
Location	Information	Notice	Notice 2	Caution	Caution 2	Caution 2B	Caution 2C	Warning	Warning 2	Barriers
Alpha	0	0	0	0	3	0	0	0	0	X
Beta	0	0	0	0	2	0	0	0	0	0
Gamma	0	0	0	0	4	0	0	0	0	X
Access 1	0	0	0	0	0	0	0	0	0	0

Recommended Signage and Barriers (AT&T Sectors) – Actions that MUST be Taken							
Location	Notice 2	Caution 2	Caution 2B	Caution 2C	Warning 2	Barriers	
Alpha	0	0	0	0	0	X	
Beta	0	3	0	0	0	X	
Gamma	0	3	0	0	0	X	
Access 1	0	0	0	0	0	0	

Final Compliant Configuration (AT&T Sectors) – All Mitigation Items that MUST be in Place										
Location	Information	Notice	Notice 2	Caution	Caution 2	Caution 2B	Caution 2C	Warning	Warning 2	Barriers
Alpha	0	0	0	0	3	0	0	0	0	X
Beta	0	0	0	0	5	0	0	0	0	X
Gamma	0	0	0	0	7	0	0	0	0	X
Access 1	0	0	0	0	0	0	0	0	0	0

**Alpha:**

- No action required.

**Beta:**

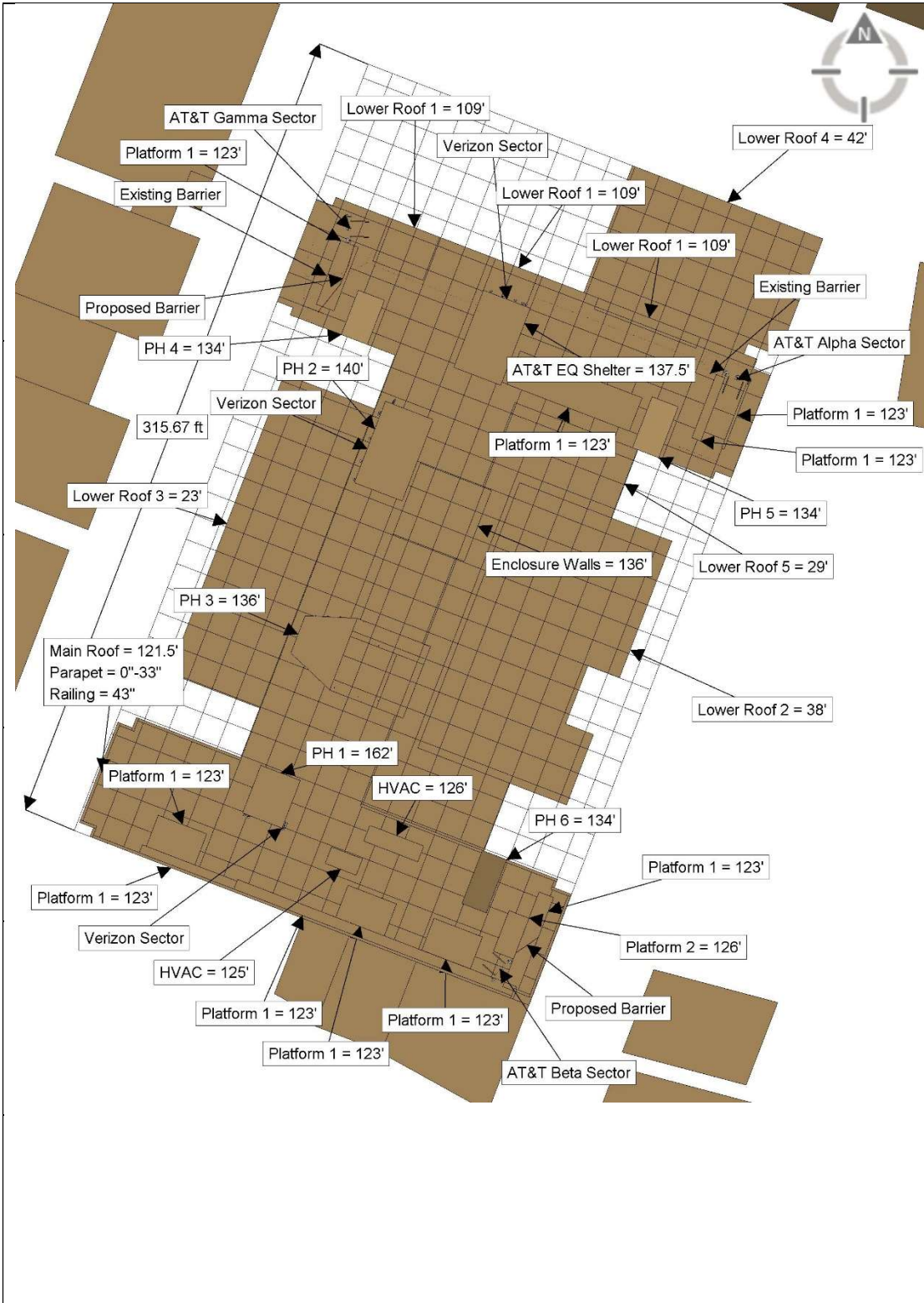
- Install a 10’ barrier on Platform 1 as depicted in the diagrams below. Install (3) Caution 2 signs on the proposed barrier.

**Gamma:**

- Install a 29’ barrier on Platform 1 as depicted in the diagrams below. Relocate (2) Caution 2 signs from the existing barrier onto the proposed barrier. Install (3) additional Caution 2 signs on the proposed barrier.



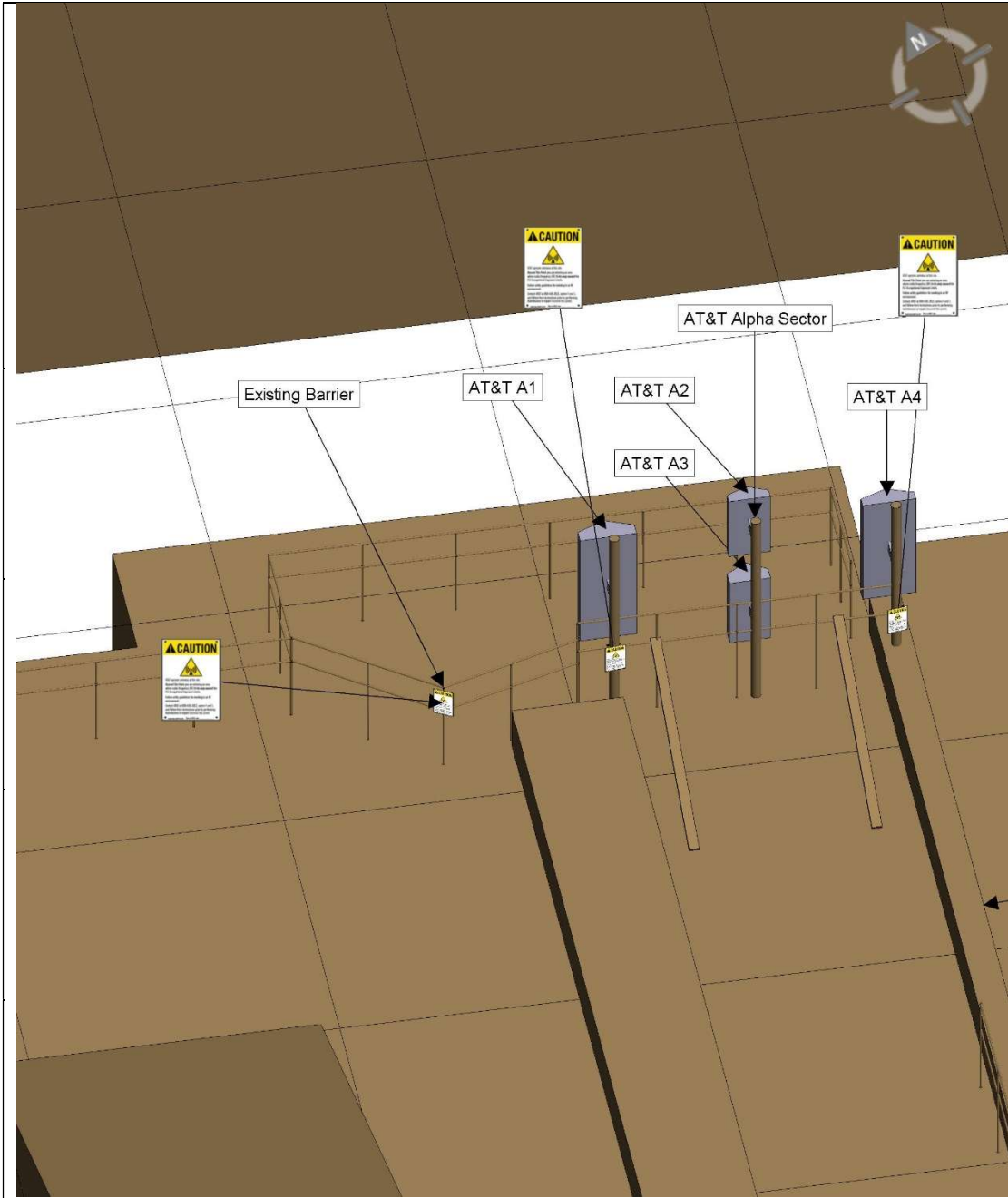
2.0 SITE SCALE MAP



<p>All Sectors Grid size: 10'</p>	
 INFO 1 Sign	 Caution 1 Sign
 INFO 2 Sign	 Caution 2B Sign
 Notice 1 Sign	 Caution 2 Sign
 Notice 2 Sign	 Warning 2 Sign
 Existing Barrier	 Proposed Barrier

	<p>Items to be removed</p>		<p>Existing Sign</p>		<p>Proposed Sign</p>
--	----------------------------	--	----------------------	--	----------------------

**Signage / Mitigation Plan**  
**CAMBRIDGE MASS.**  
**AVE / 10071767**

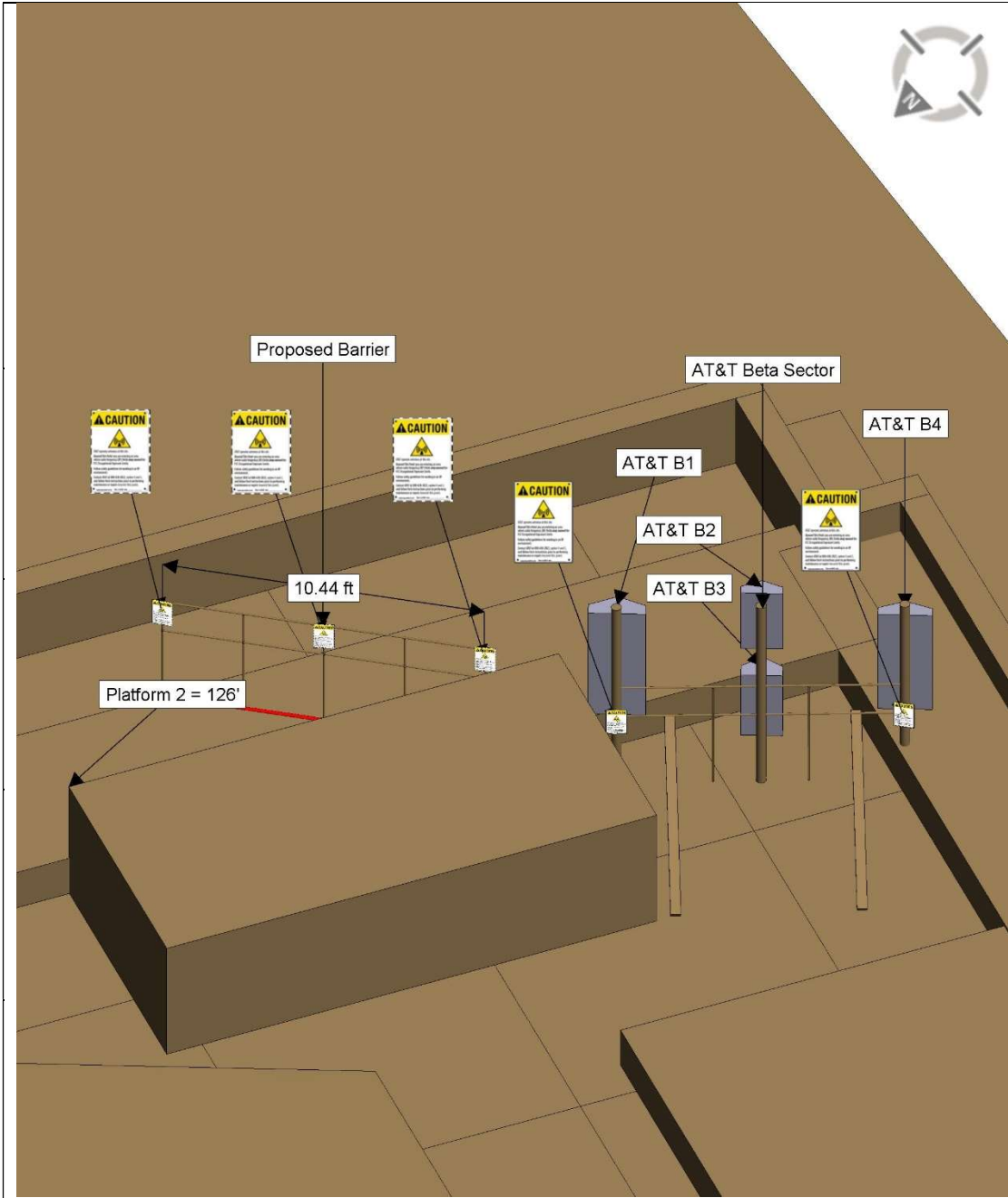


**Alpha Sector**  
Grid size: 10'

INFO 1 Sign	Caution 1 Sign
INFO 2 Sign	Caution 2B Sign
Notice 1 Sign	Caution 2 Sign
Notice 2 Sign	Warning 2 Sign
Existing Barrier	Proposed Barrier

	Items to be removed		Existing Sign		Proposed Sign
--	---------------------	--	---------------	--	---------------

**Signage / Mitigation Plan**  
CAMBRIDGE MASS.  
AVE / 10071767



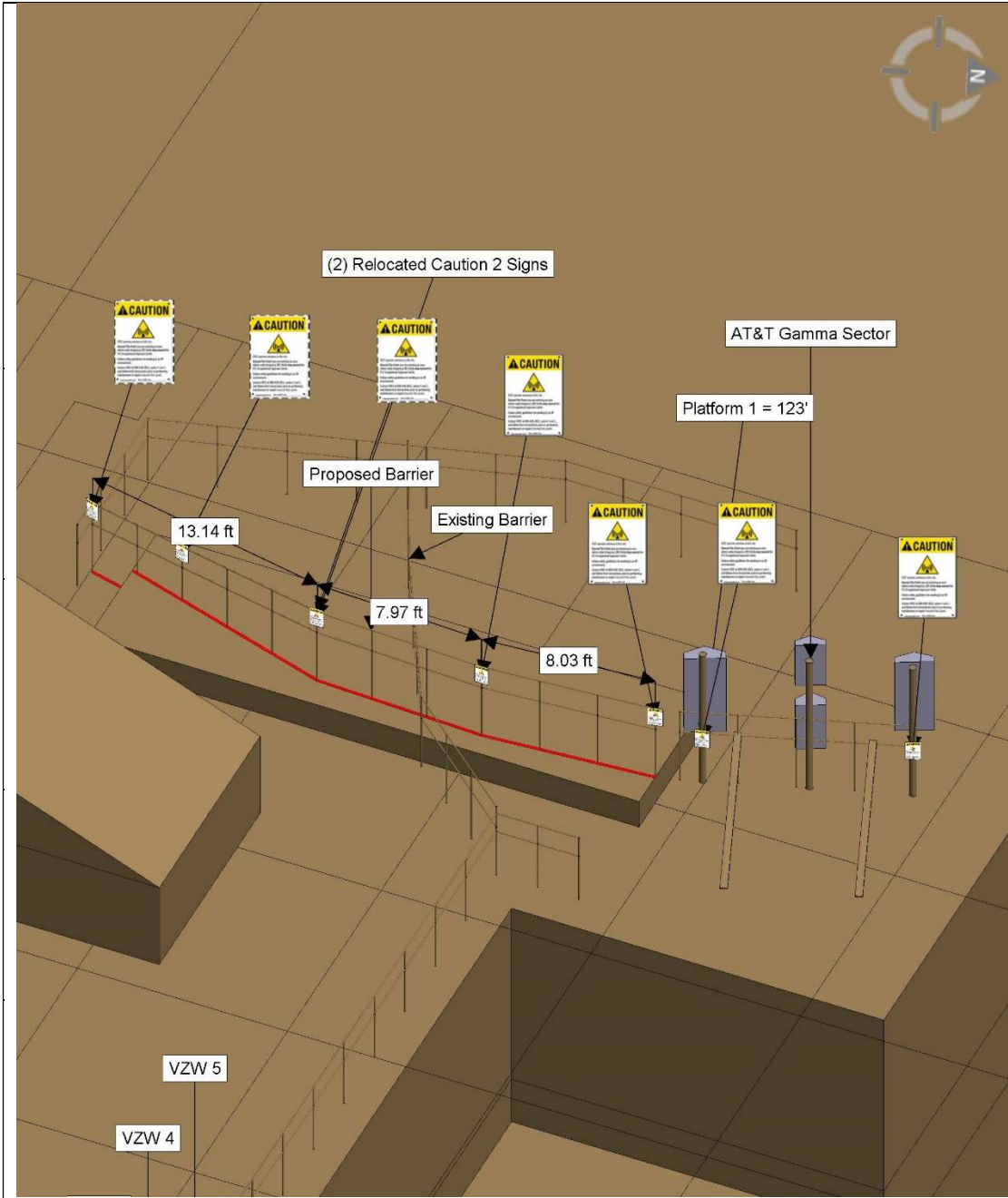
**Beta Sector**  
Grid size: 10'

INFO 1 Sign	Caution 1 Sign
INFO 2 Sign	Caution 2B Sign
Notice 1 Sign	Caution 2 Sign
Notice 2 Sign	Warning 2 Sign

Existing Barrier	Proposed Barrier

	Items to be removed		Existing Sign		Proposed Sign
--	---------------------	--	---------------	--	---------------



**Signage / Mitigation Plan**  
CAMBRIDGE MASS.  
AVE / 10071767




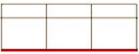
**Gamma Sector**  
Grid size: 10'




 INFO 1 Sign	 Caution 1 Sign
--	---

 INFO 2 Sign	 Caution 2B Sign
--	--

 Notice 1 Sign	 Caution 2 Sign
--	---

 Notice 2 Sign	 Warning 2 Sign
--	---

 Existing Barrier	 Proposed Barrier
---	---

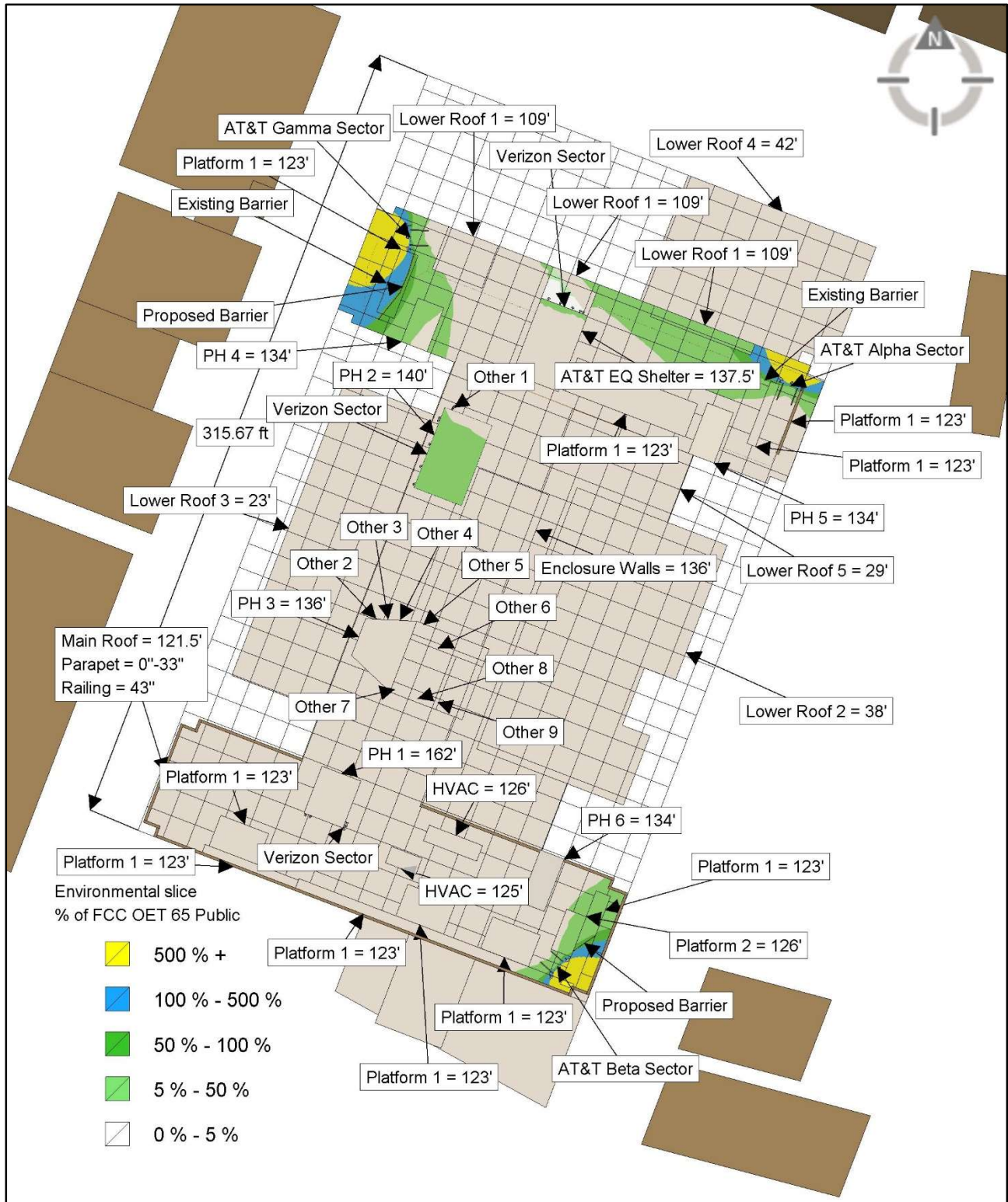
	Items to be removed		Existing Sign		Proposed Sign
--	---------------------	---	---------------	---	---------------

**Signage / Mitigation Plan**  
CAMBRIDGE MASS.  
AVE / 10071767



### 3.0 RF EXPOSURE DIAGRAMS

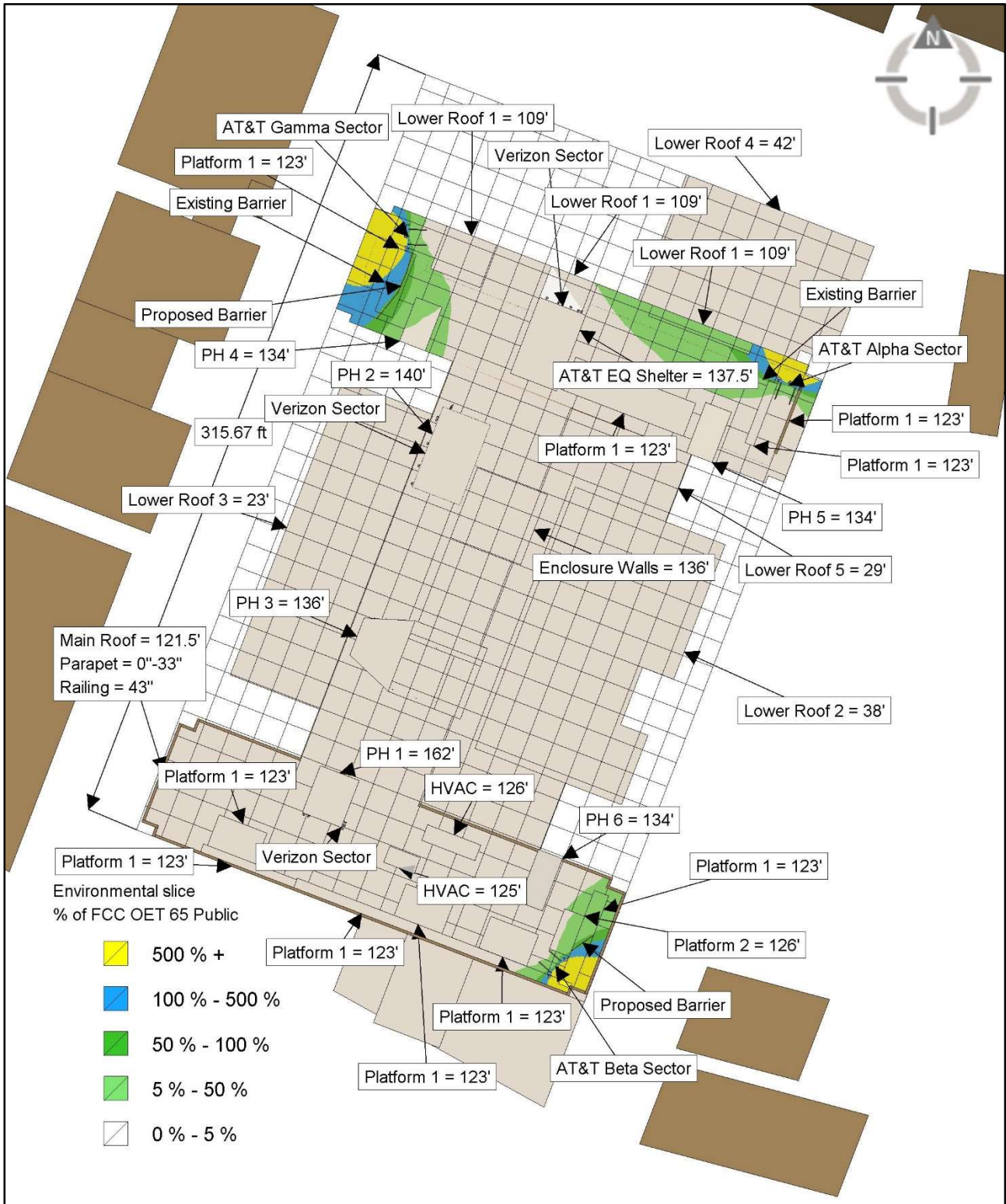
Composite



Grid Size: 10'

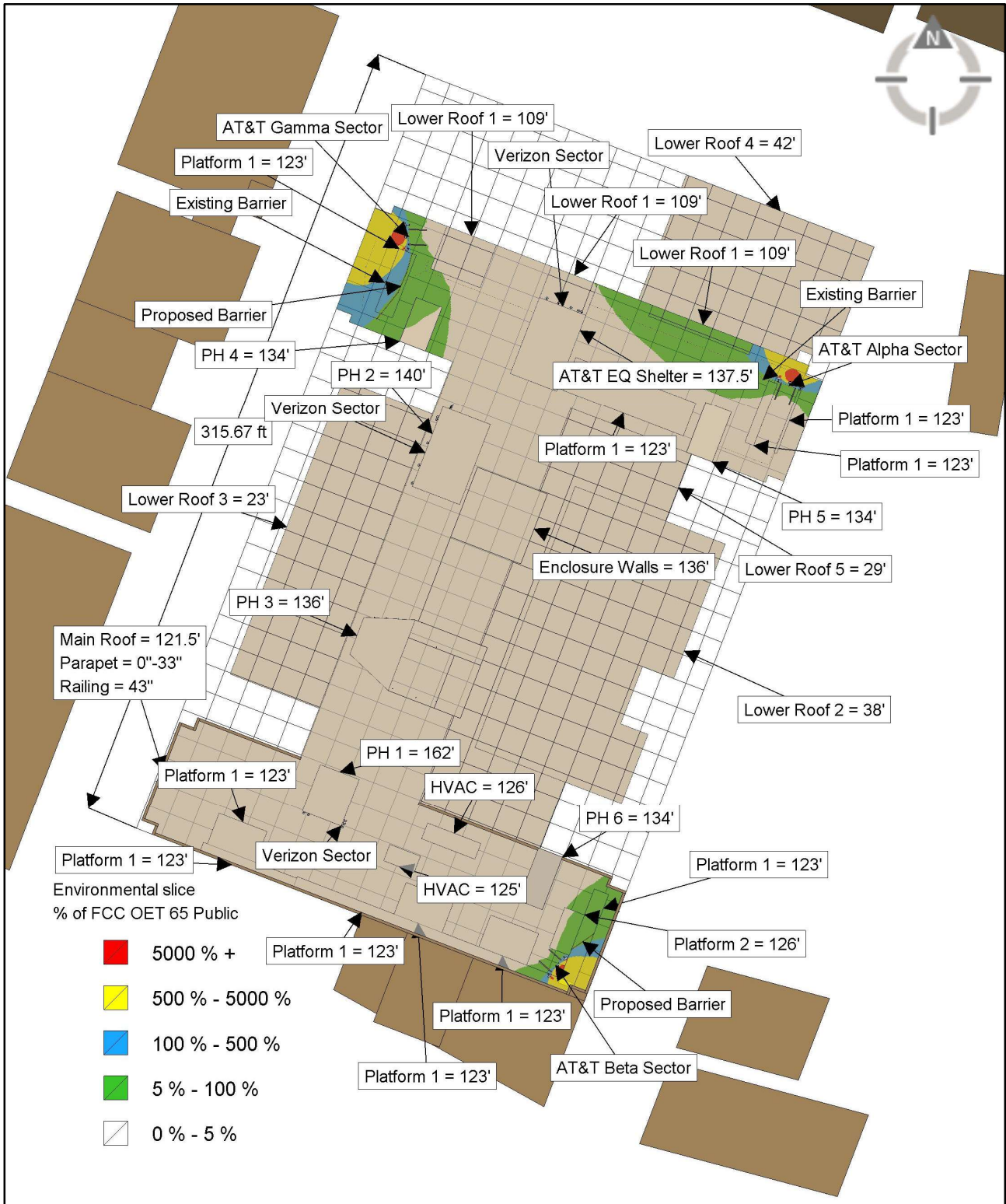


AT&T Only



Grid Size: 10'

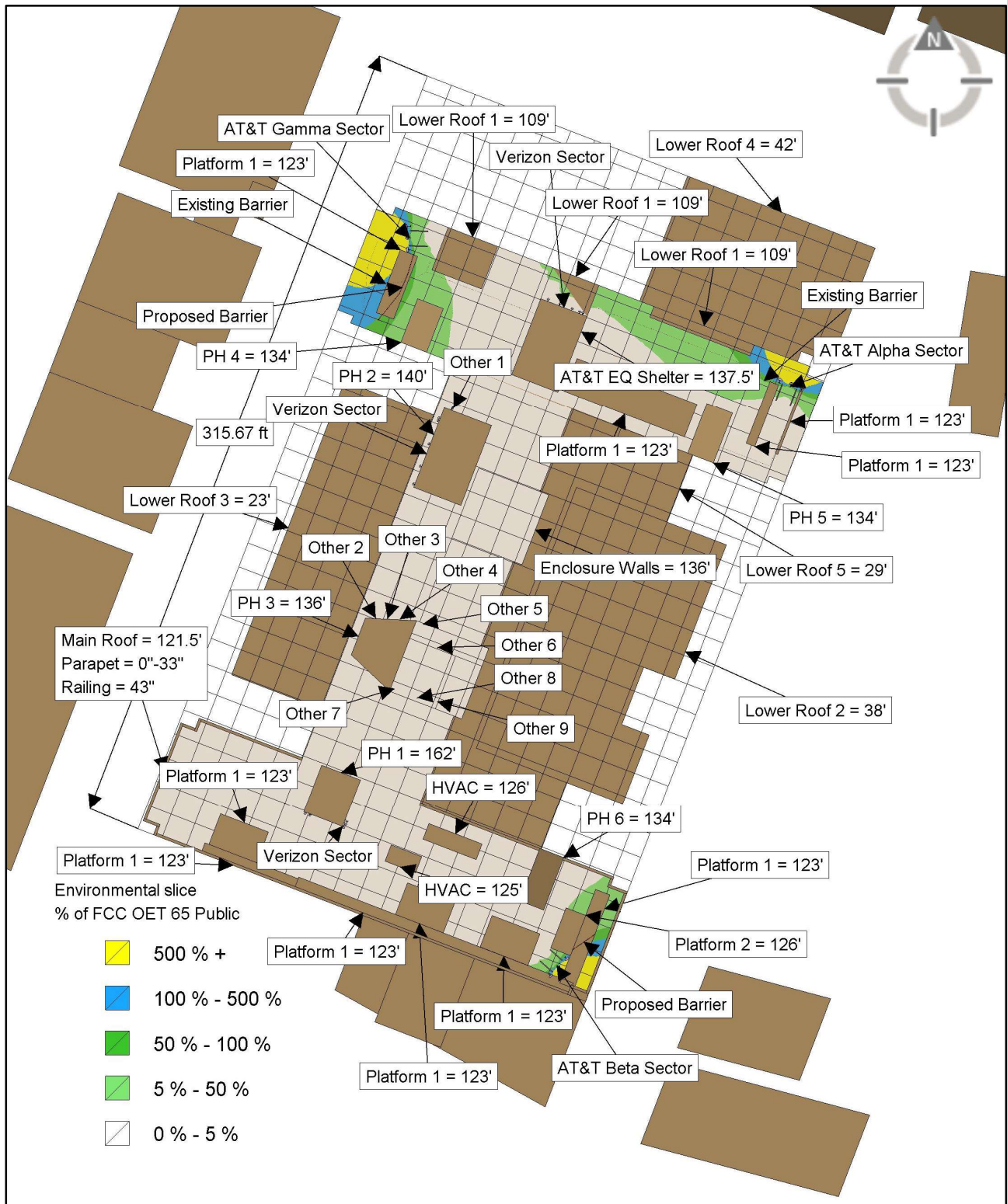
AT&T Only with 5000% Threshold



Grid Size: 10'

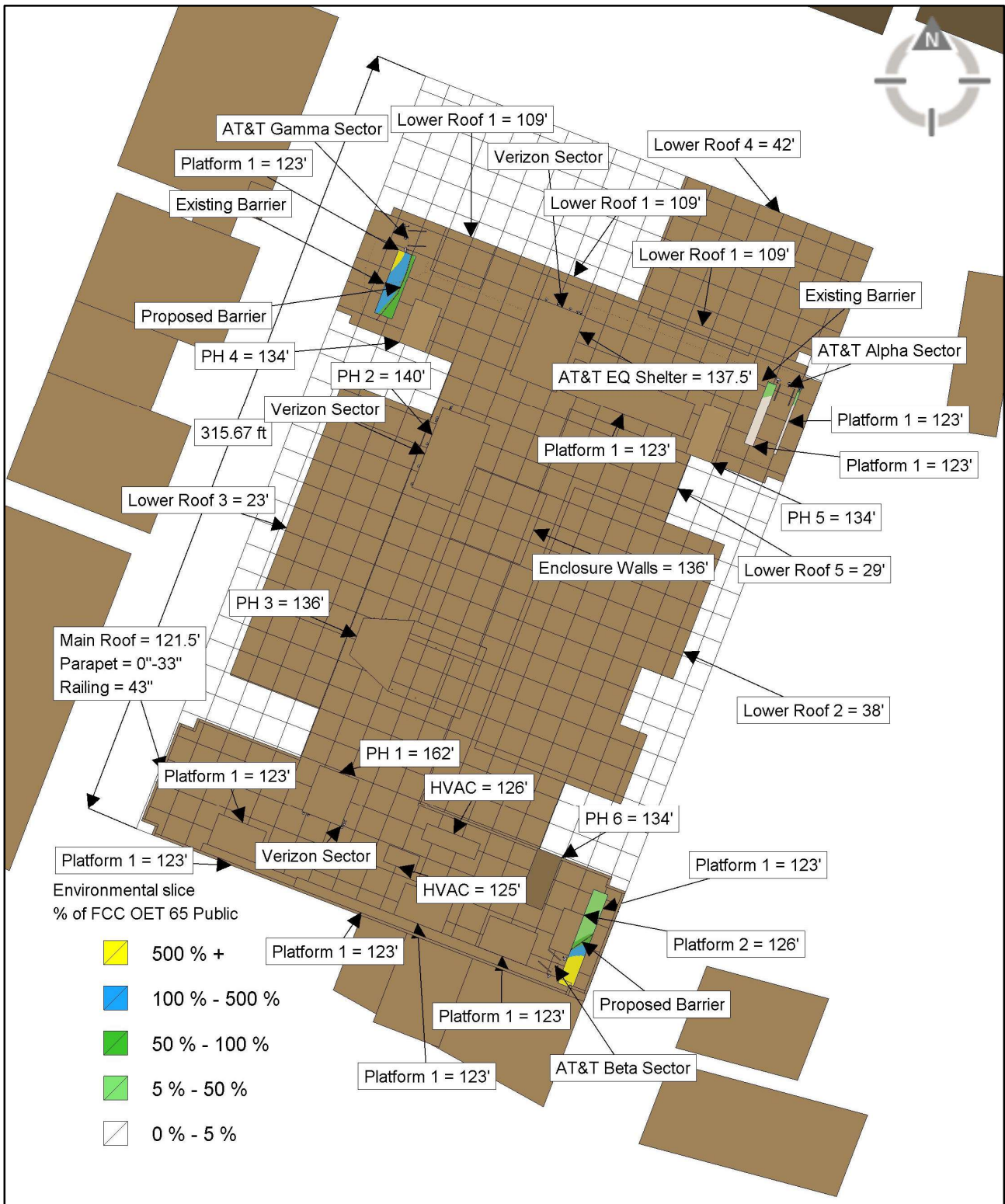


Main Level 121.5'



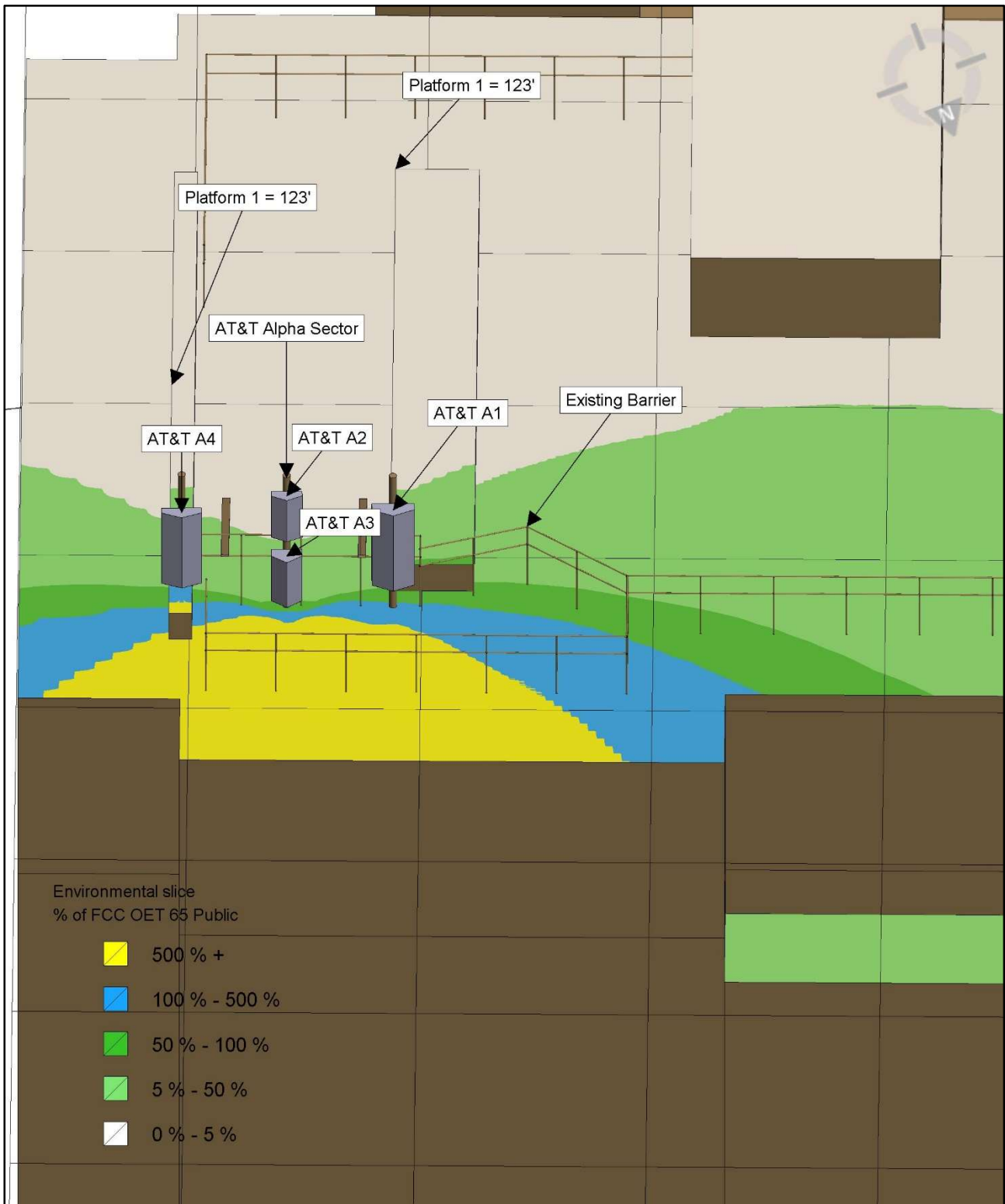
Grid Size: 10'

Platform 1 Level 123'



Grid Size: 10'

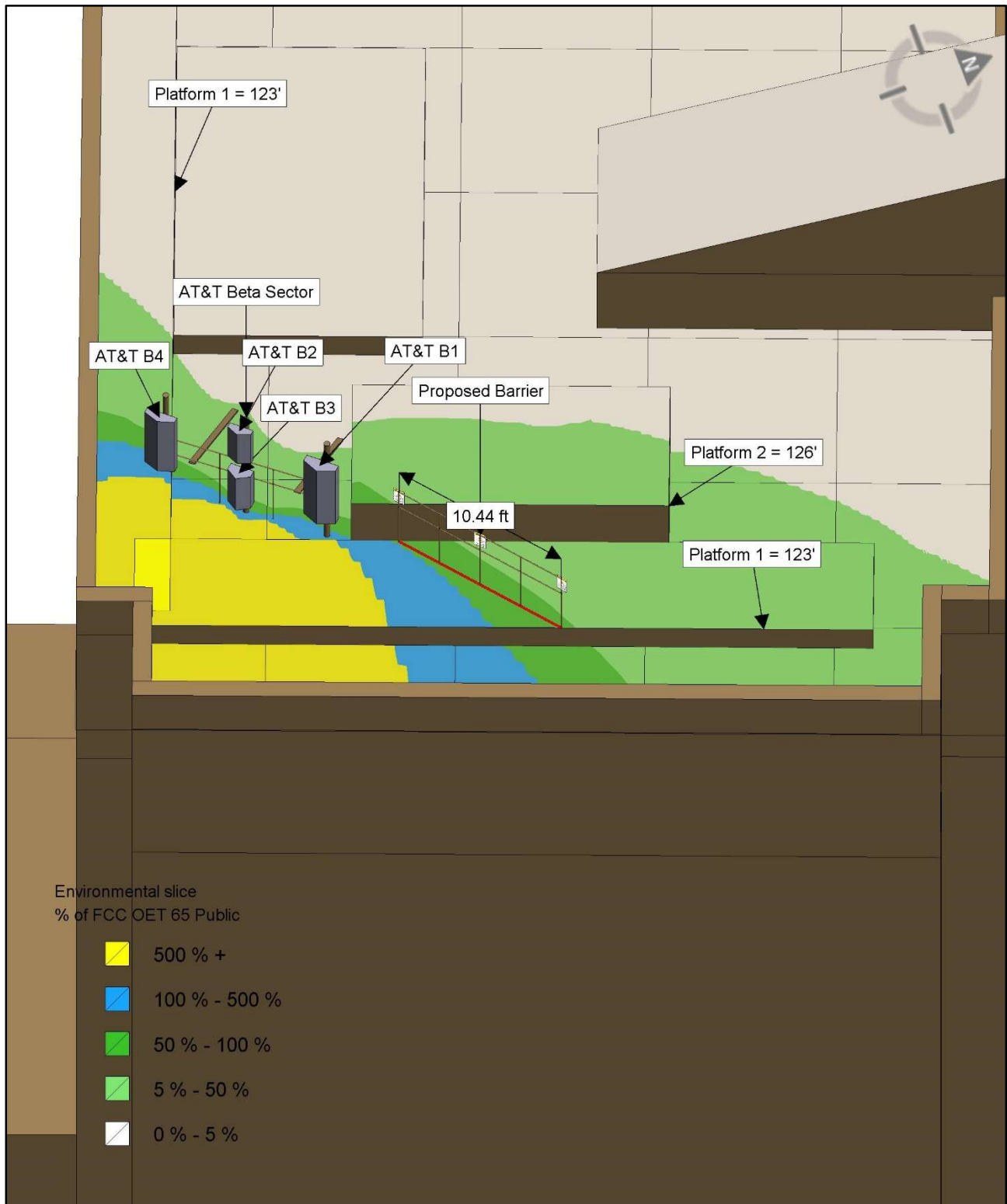
### Alpha Emissions



Grid Size: 10'

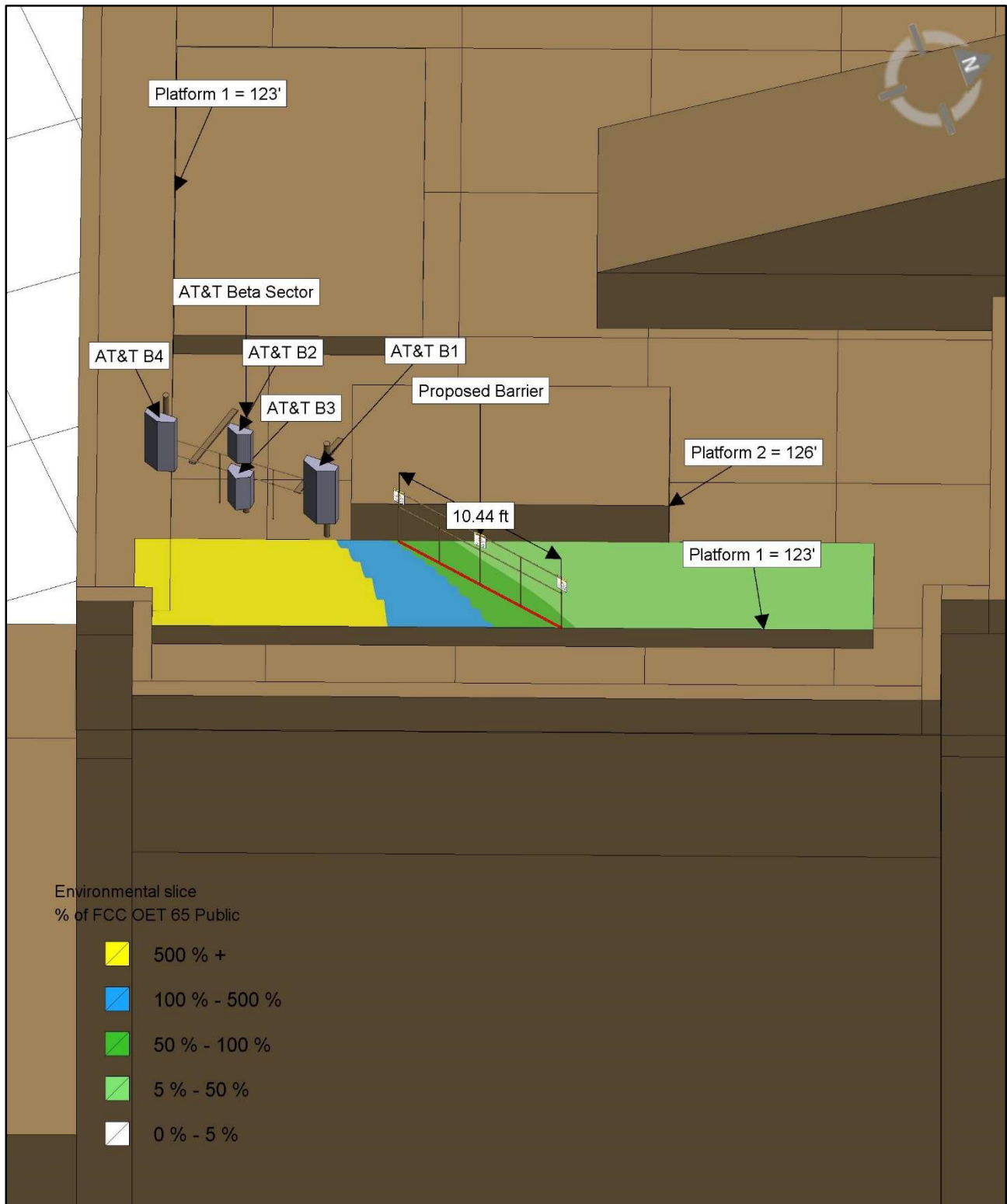


### Beta Emissions



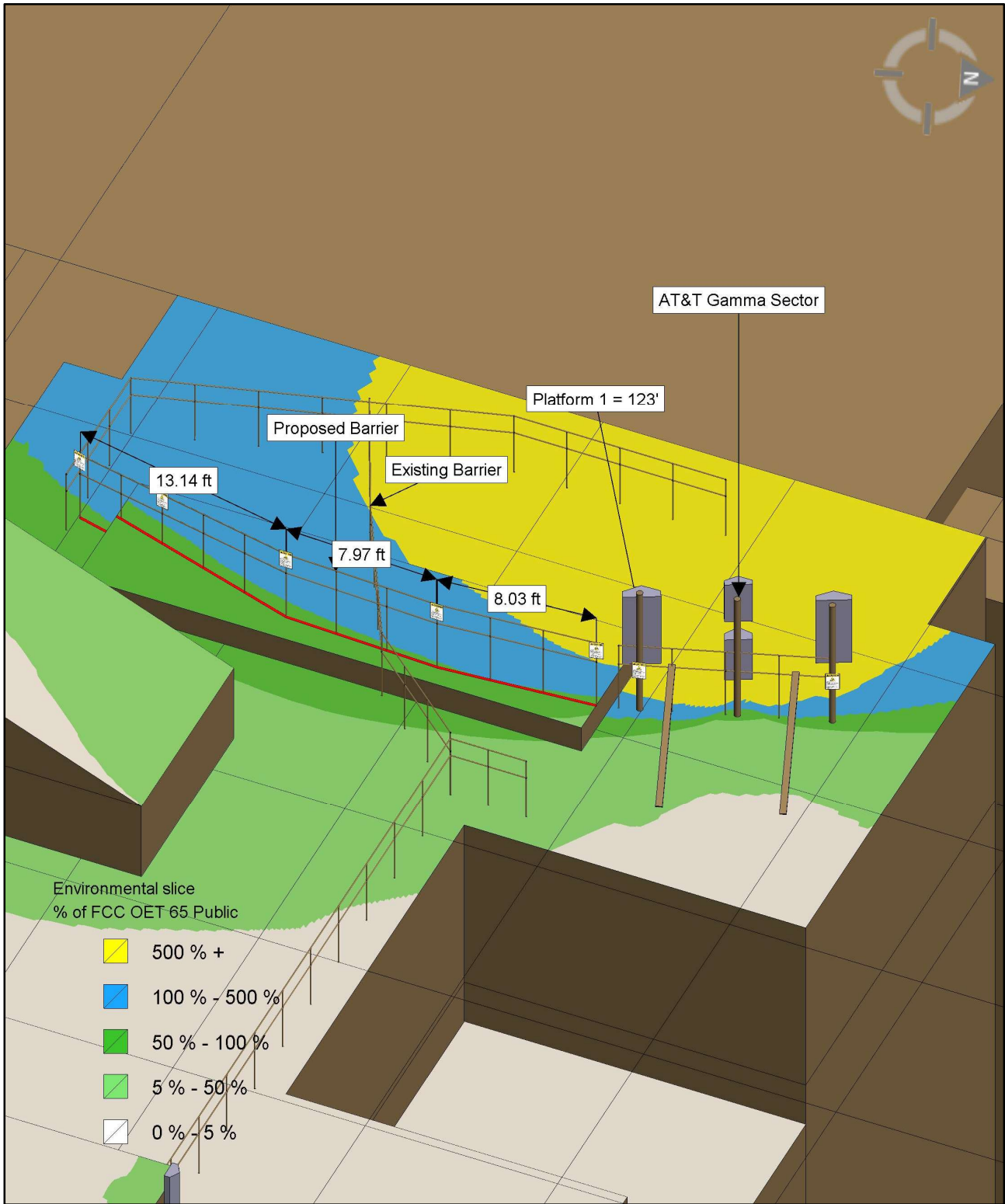
Grid Size: 10'

Beta Platform 1 Level 123'



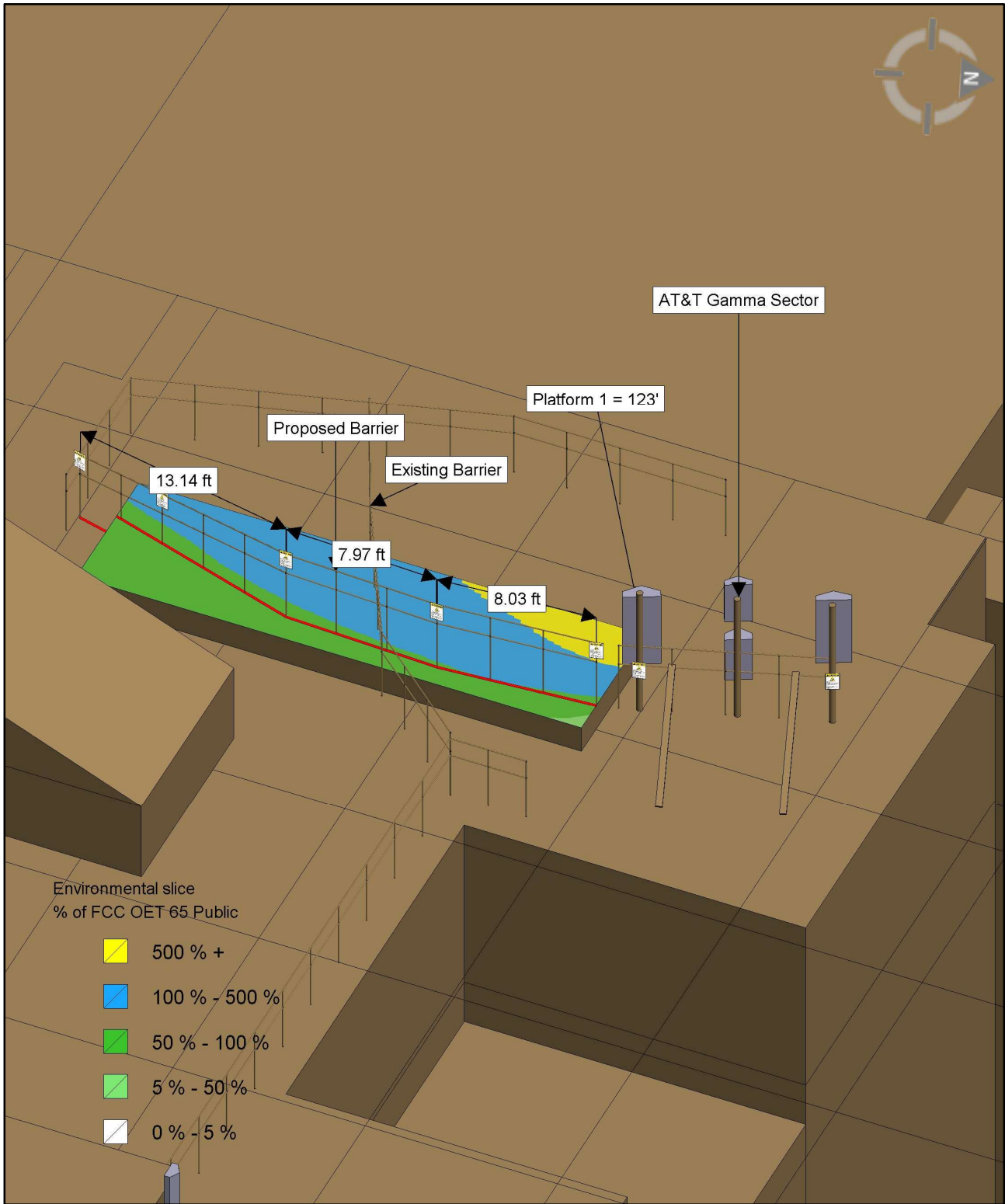
Grid Size: 10'

### Gamma Emissions



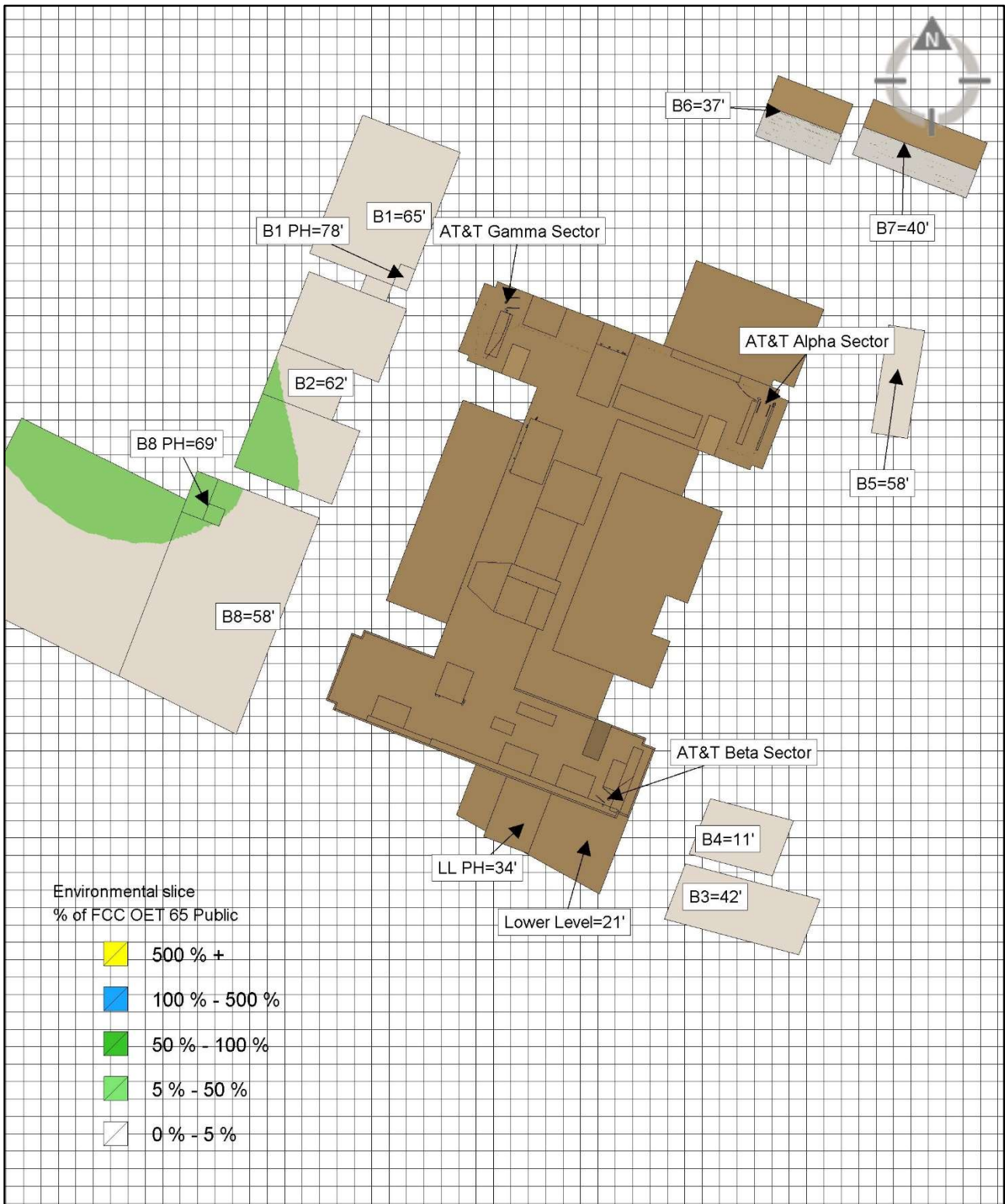
Grid Size: 10'

Gamma Platform 1 Level 123'



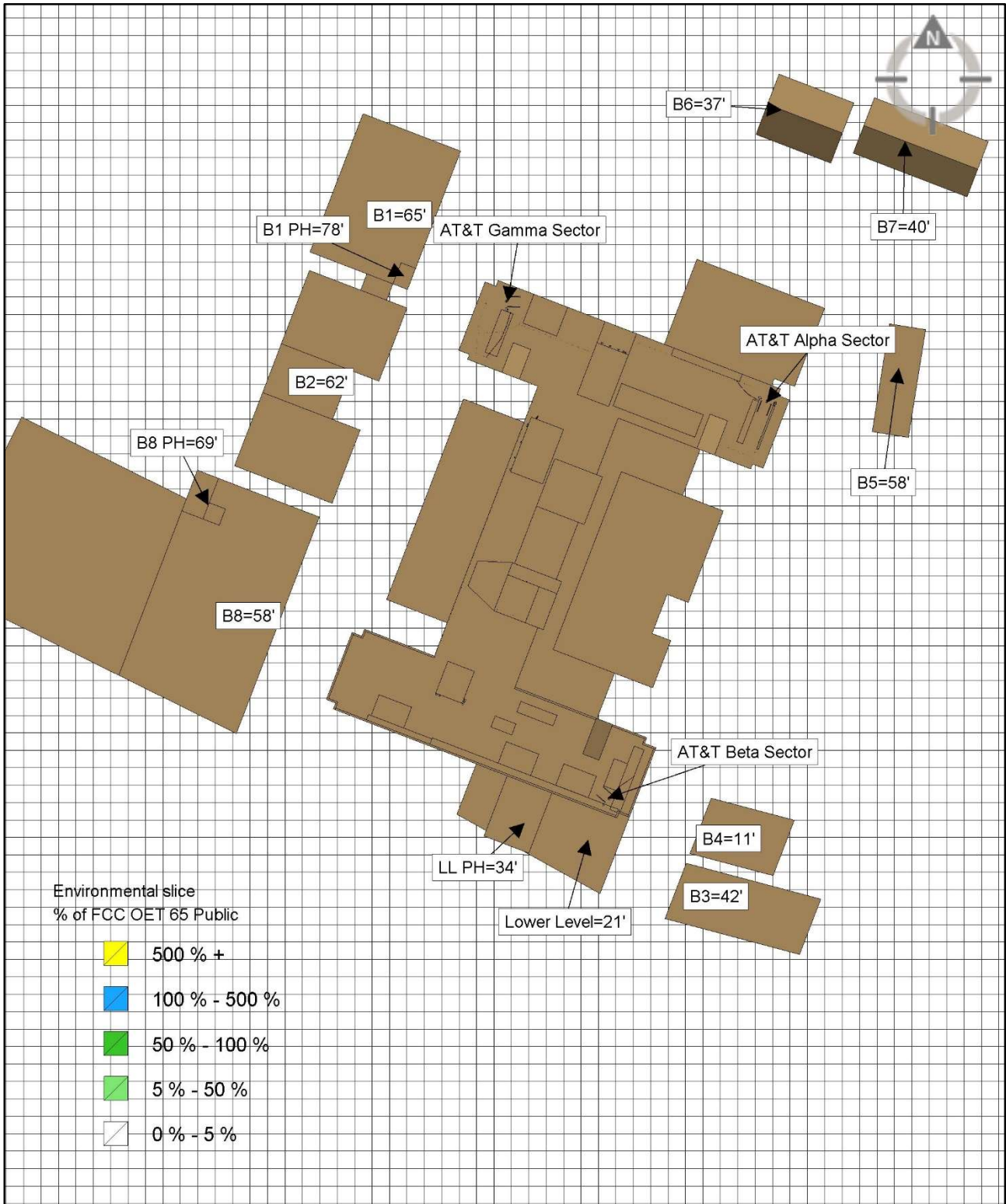
Grid Size: 10'

Adjacent Buildings Overview



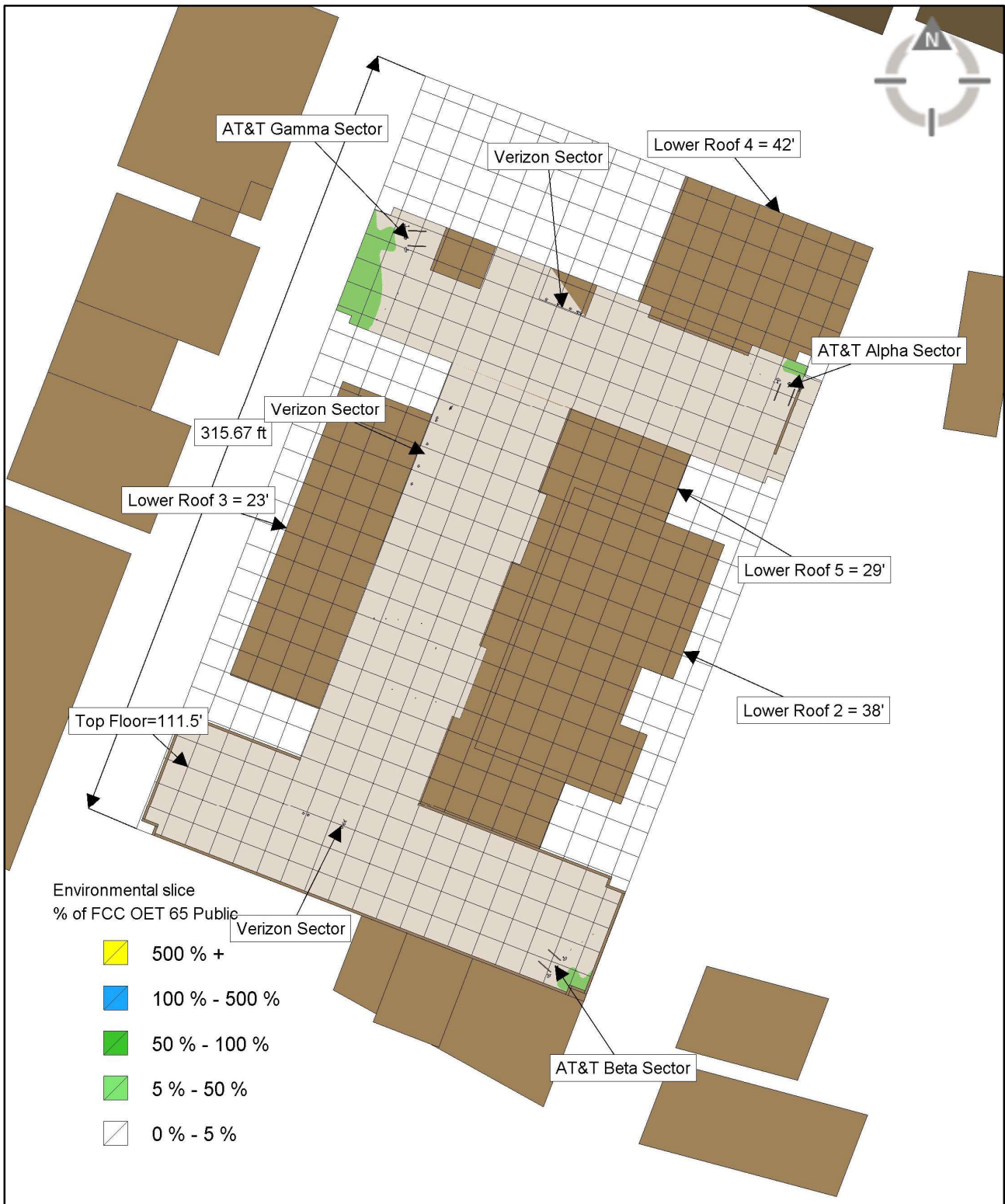


Ground Level (Publicly Accessible Area)



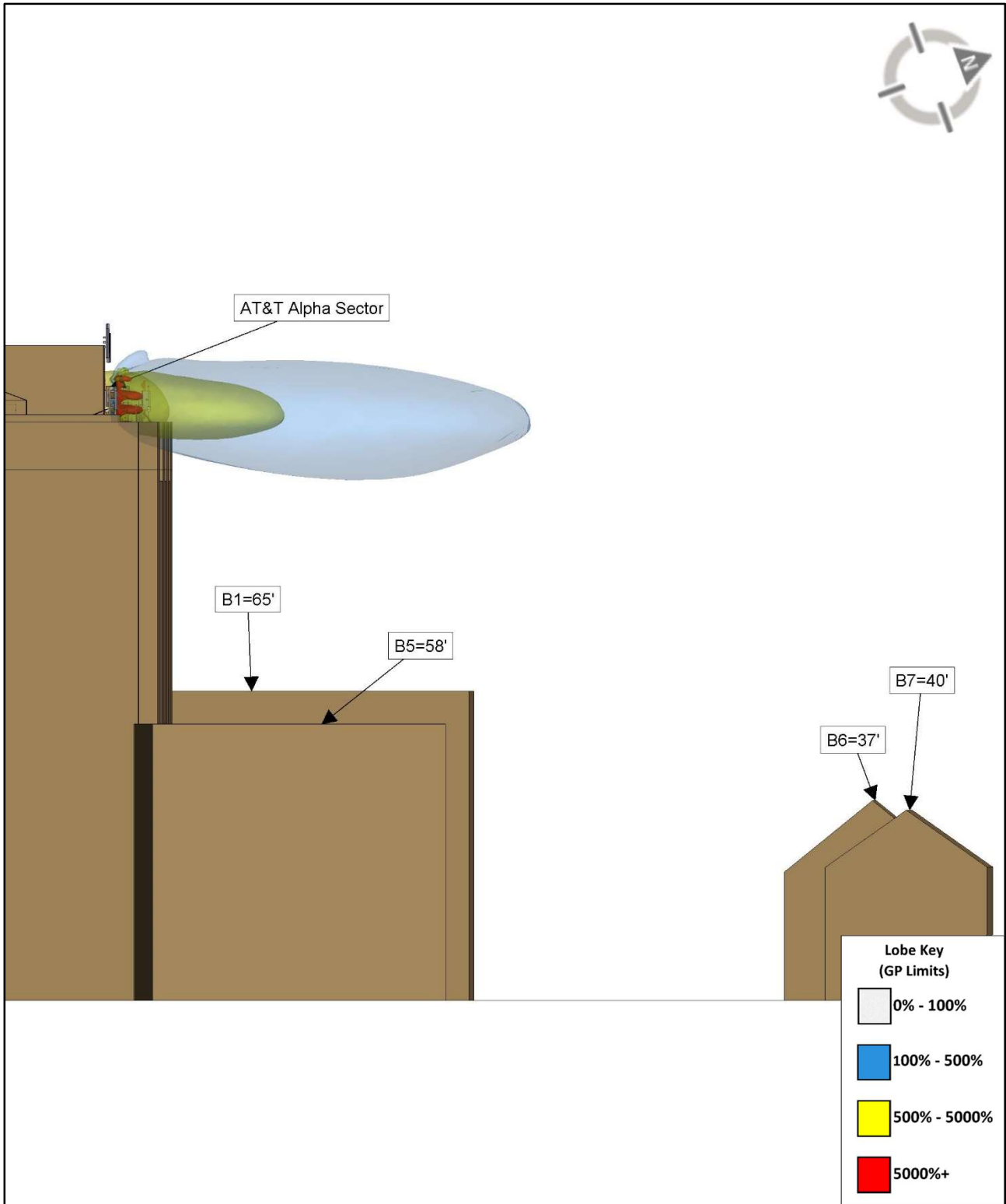
Grid Size: 10'

Top Floor Level (10dB Material Attenuation Applied to Simulate Top Floor Reductions)

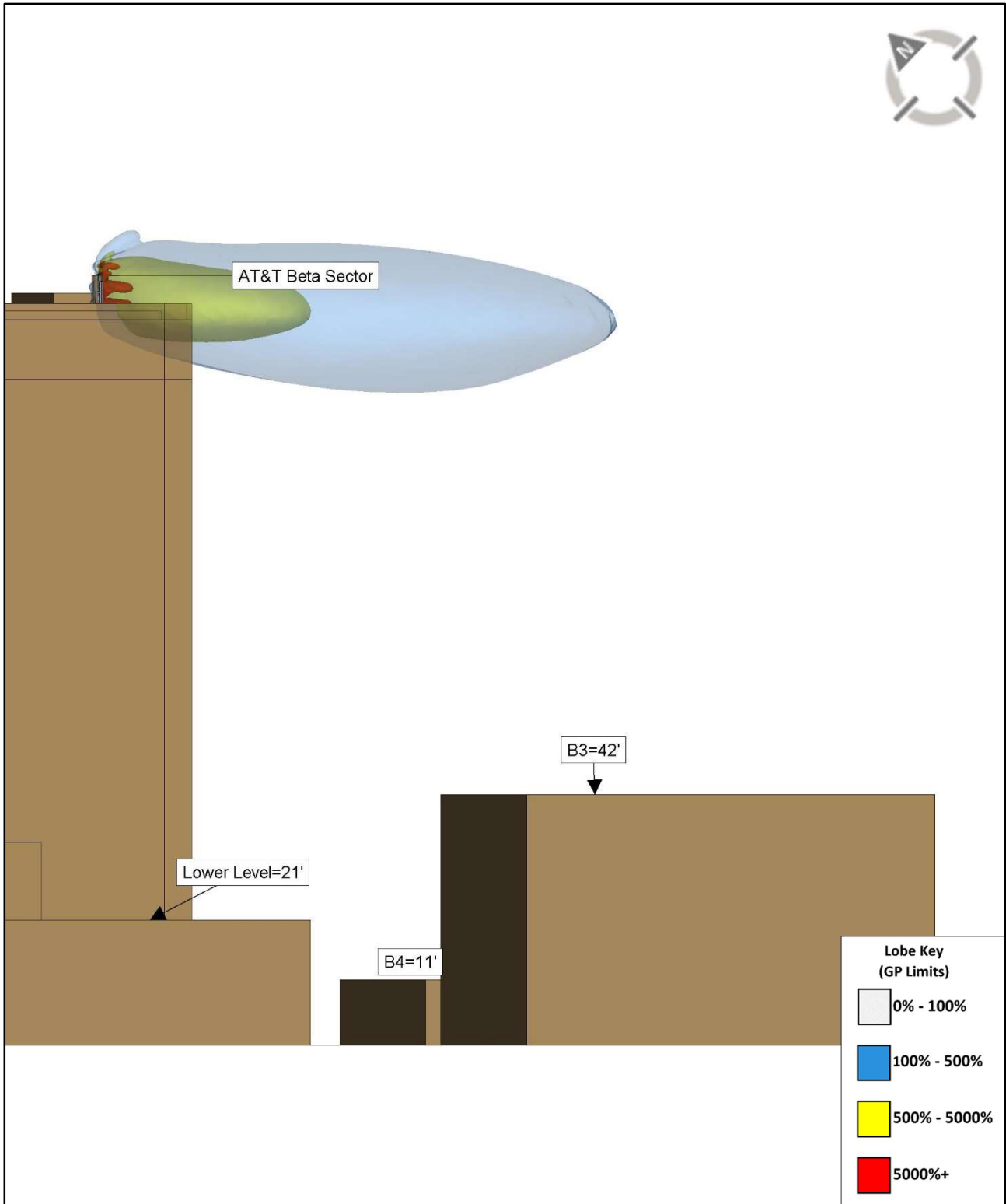


Grid Size: 10'

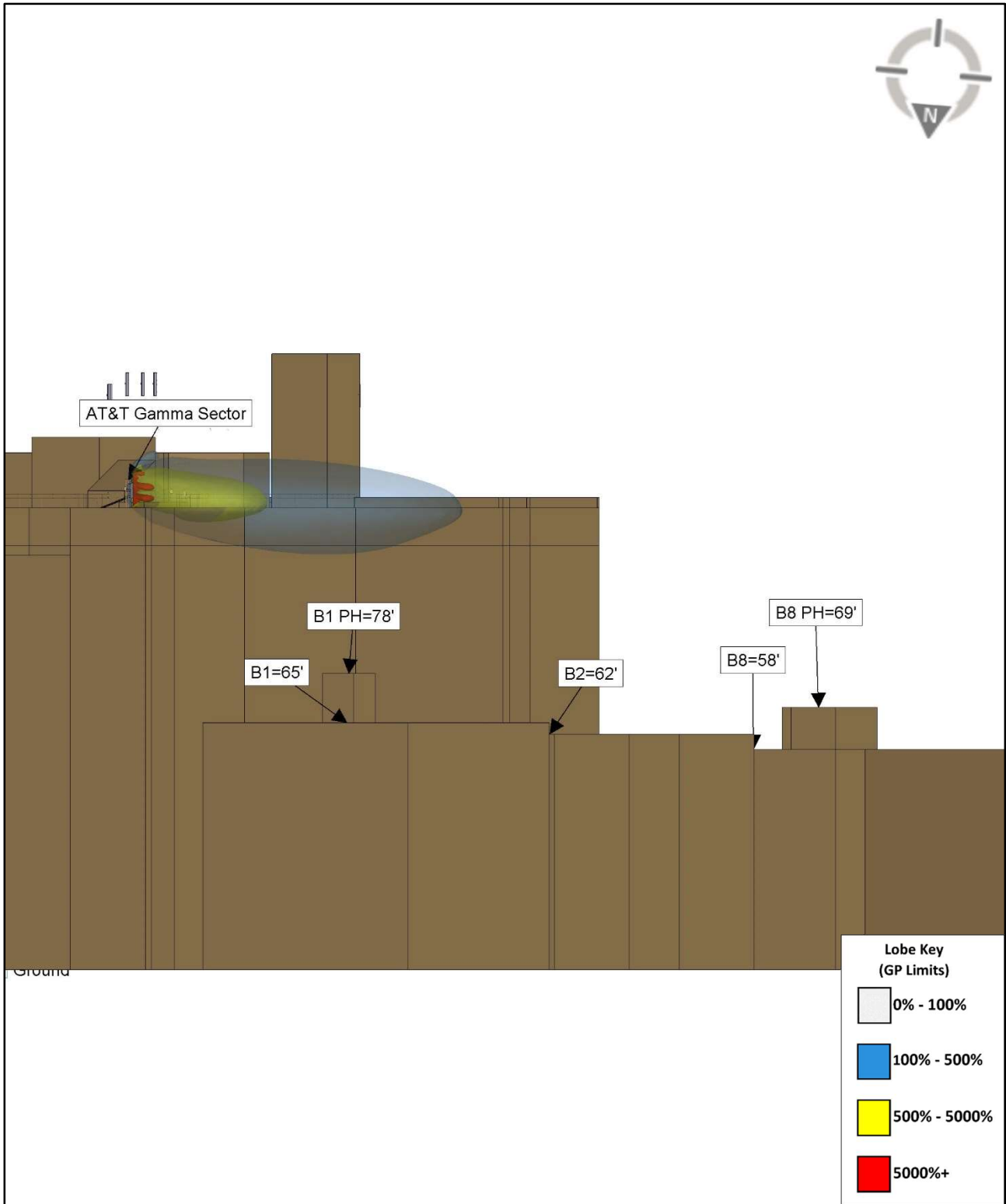
Alpha Sector Elevation View (3D Lobe)



Beta Sector Elevation View (3D Lobe)

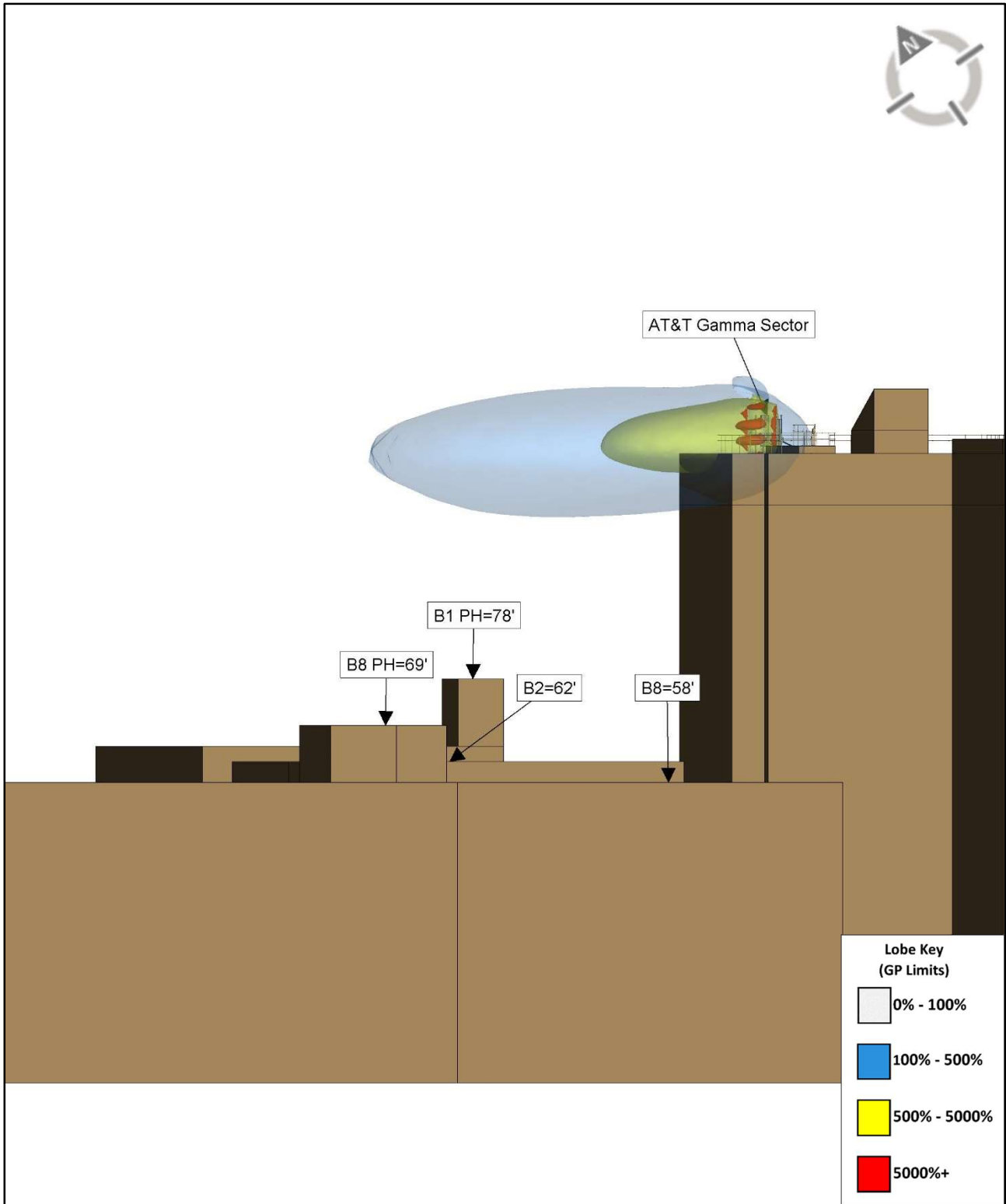


Gamma Sector Elevation View 1 (3D Lobe)





Gamma Sector Elevation View 2 (3D Lobe)



#### 4.0 STATEMENT OF COMPLIANCE

Centerline conducted a theoretical modeling utilizing maximum radio powers at 100% duty cycle to determine whether the subject facility is in compliance with FCC regulations.

Based on the information analyzed, AT&T will be compliant with FCC Regulations once the mitigation measures recommended in this report are implemented.

#### 4.1 RECOMMENDATIONS

Existing Signage and Barriers (AT&T Sectors)										
Location	Information	Notice	Notice 2	Caution	Caution 2	Caution 2B	Caution 2C	Warning	Warning 2	Barriers
Alpha	0	0	0	0	3	0	0	0	0	X
Beta	0	0	0	0	2	0	0	0	0	0
Gamma	0	0	0	0	4	0	0	0	0	X
Access 1	0	0	0	0	0	0	0	0	0	0

Recommended Signage and Barriers (AT&T Sectors) – Actions that MUST be Taken							
Location	Notice 2	Caution 2	Caution 2B	Caution 2C	Warning 2	Barriers	
Alpha	0	0	0	0	0	X	
Beta	0	3	0	0	0	X	
Gamma	0	3	0	0	0	X	
Access 1	0	0	0	0	0	0	

Final Compliant Configuration (AT&T Sectors) – All Mitigation Items that MUST be in Place										
Location	Information	Notice	Notice 2	Caution	Caution 2	Caution 2B	Caution 2C	Warning	Warning 2	Barriers
Alpha	0	0	0	0	3	0	0	0	0	X
Beta	0	0	0	0	5	0	0	0	0	X
Gamma	0	0	0	0	7	0	0	0	0	X
Access 1	0	0	0	0	0	0	0	0	0	0

**Alpha:**

- No action required.

**Beta:**

- Install a 10’ barrier on Platform 1 as depicted in the diagrams below. Install (3) Caution 2 signs on the proposed barrier.

**Gamma:**

- Install a 29’ barrier on Platform 1 as depicted in the diagrams below. Relocate (2) Caution 2 signs from the existing barrier onto the proposed barrier. Install (3) additional Caution 2 signs on the proposed barrier.

**APPENDIX A: AT&T RF SIGNAGE**

Sign	Description	Sign	Description
	<p><b>Information 1 Sign</b></p> <p>Gives guidelines on how to proceed and who to contact regarding areas that may exceed either the FCC's General Population or Occupational emissions limits.</p>		<p><b>Caution 2C Sign</b></p> <p>Gives specific information on how to proceed and who to contact regarding antennas that are façade mounted, concealed or on stand-alone structures.</p>
	<p><b>Blue Notice 1 Sign</b></p> <p>Used to alert individuals that they are entering an area that may exceed the FCC's General Population emissions limit. Must be positioned such that persons approaching from any angle have ample warning to avoid the marked areas.</p>		<p><b>Blue Notice 2 Sign</b></p> <p>Used to alert individuals that they are entering an area that may exceed the FCC's General Population emissions limits. To be used on barriers or antenna sectors as a hybrid of the Information 1 and Blue Notice 1 signs.</p>
	<p><b>Yellow Caution 1 Sign-Rooftop</b></p> <p>Used to inform individuals that they are entering an area that may exceed the FCC's Occupational emissions limit. Must be positioned such that persons approaching from any angle have ample warning to avoid the marked areas.</p>		<p><b>Yellow Caution 2 Sign-Rooftop</b></p> <p>Used to alert individuals that they are entering an area that may exceed the FCC's Occupational emissions limit. To be used on barriers or antenna sectors as a hybrid of the Information 1 and Yellow Caution 1 signs.</p>
	<p><b>Yellow Caution 2B Sign-Tower</b></p> <p>Used to inform individuals that they are entering an area that may exceed the FCC's Occupational emissions limits. Must be placed at the base of the tower to warn tower climbers of potential for exposure.</p>		<p><b>Warning 2 Sign</b></p> <p>Used to inform individuals that they are entering an area that may exceed the FCC's Occupational emissions limit by a factor of 10 or greater. Must be positioned such that persons approaching from any angle have ample warning to avoid the marked areas.</p>

**APPENDIX B: FCC GUIDELINES AND EMISSIONS THRESHOLD LIMITS**

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter ( $\text{mW}/\text{cm}^2$ ) or microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in  $\text{mW}/\text{cm}^2$ ) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ( $f_{\text{MHz}}/1500$ ). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of  $1 \text{ mW}/\text{cm}^2$  ( $1000 \mu\text{W}/\text{cm}^2$ ). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Because exposure limits may vary for each frequency band, it is necessary to report % MPE rather than power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the MPE limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population 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 population 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.

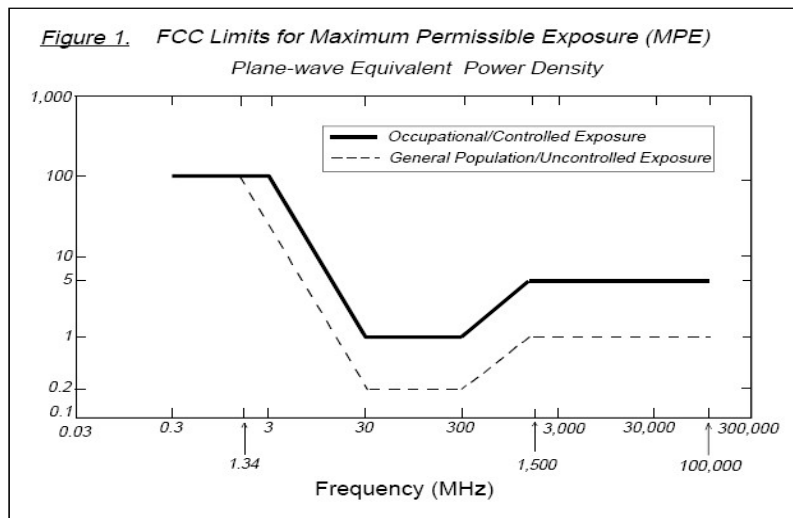
Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Additional details can be found in FCC OET 65.

The FCC mandates that if a site is found to be out of compliance with regard to exposure, any system operator contributing 5% or more to areas exceeding the FCC's allowable limits will be responsible for bringing the site into compliance.

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

f = Frequency in MHz  
 \* Plane-wave equivalent power density





## **APPENDIX C: CALCULATION METHODOLOGY**

IXUS electromagnetic energy (EME) calculation software was used to assess all RF field levels presented in this study. IXUS software uses a fast and accurate EME calculation tool that allows for the determination of RF field strength in the vicinity of radio communication base stations and transmitters. At its core, the IXUS EME calculation module implements evaluation techniques detailed in the ITU-T K.61, CENELEC EN 50383, and IEC 62232 specifications and referenced in *C95.3 IEEE Recommended Practice for Measurements and Computations of Electric, Magnetic, and Electromagnetic Fields with Respect to Human Exposure to Such Fields, 0 Hz to 300 GHz*. The EME calculation result at any point in 3D space is achieved via a synthetic ray tracing technique, a conservative cylindrical envelope method, or through full-wave electromagnetic simulation. The ray tracing method is an advanced computation method described in IEC 622322 where the power is summed from elemental sources representing the individual components of the antenna which are selected by an analysis of published manufacturer datasheets and antenna pattern information. The selection of the solution method is determined by the particular antenna being considered.

**APPENDIX D: CERTIFICATIONS**

I, Katrina Styx, preparer of this report certify that I am fully trained and aware of the rules and regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I have been trained in the procedures and requirements outlined in AT&T's RF Exposure: Responsibilities, Procedures & Guidelines document.

Katrina Styx

11/27/2023

I, Yasir Alqadhili, reviewer and approver of this report certify that I am fully trained and aware of the rules and regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I have been trained in the procedures and requirements outlined in AT&T's RF Exposure: Responsibilities, Procedures & Guidelines document.

Yasir Alqadhili

11/27/2023

## **APPENDIX E: PROPRIETARY STATEMENT**

This report was prepared for the use of AT&T to meet all applicable FCC requirements. 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 Centerline are based solely on the information provided by AT&T 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 Centerline 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.





1350 Mass Ave

*Petitioner*  
CENTERLINE COMMUNICATIONS  
C/O ALLISON CONWELL, AGENT  
750 W CENTER STREET #301  
WEST BRIDGEWATER, MA 02379

160-14-74-37  
PRESIDENT AND FELLOWS OF HARVARD COLLEGE  
HOLYOKE CENTER, ROOM 1017  
1350 MASS AVENUE  
CAMBRIDGE, MA 02138-3895

159-1 / 162-11 / 161-1  
PRESIDENT & FELLOWS OF HARVARD COLLEGE  
C/O HARVARD REAL ESTATE, INC.  
HOLYOKE CENTER, ROOM 1000  
1350 MASSACHUSETTS AVE  
CAMBRIDGE, MA 02138-3895

160-77  
HARVARD STUDENT AGENCIES, INC  
67 MT. AUBURN ST  
CAMBRIDGE, MA 02138

160-83  
PLATIN LLC  
15 WALNUT ST., SUITE 150  
WELLESLEY, MA 02481

160-84  
22 HOLYOKE STREET LLC  
ONE APPLE RD  
BEVERLY, MA 01915

162-62  
76 MOUNT AUBURN STREET, INC.  
C/O NED BANNON  
76 MOUNT AUBURN ST  
CAMBRIDGE, MA 02138

160-38  
HARVARD UNIVERSITY REAL ESATE INC.  
HOLYOKE CENTER - ROOM 1000  
1350 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02138

162-67  
45 DUNSTER STREET LLC  
2 HOLYOKE PLACE  
CAMBRIDGE, MA 02138

160-58  
CAMBRIDGE SAVINGS BANK  
81 WYMAN ST  
WALTHAM, MA 02451

160-59  
DANA CHAMBERS ALLIANCE  
FACILITIES DEPARTMENT  
81 WYMAN ST  
WALTHAM, MA 02451

1160-11  
TRINITY REALTY LIMITED PARTNERSHIP I  
P.O. BOX 380212  
CAMBRIDGE, MA 02238

160-85  
P.C. HOLYOKE STREET, LLC,  
160 FEDERAL ST. 9TH FL  
BOSTON, MA 02110

162-10  
SIGNET ASSOCIATES  
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160-14  
PRESIDENT & FELLOW OF HARVARD HARVARD  
UNIVERSITY R.E. DEPT  
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160-76  
WHOLEY, FREDERICK R.,  
TRS OF THE FREDERICK R. WHOULEY TRS  
15 ANIS ROAD  
BELMONT, MA 02478

159-2  
CITY OF CAMBRIDGE  
C/O YI-AN HUANG  
CITY MANAGER

159-2  
CITY OF CAMBRIDGE  
C/O MEGAN BAYER  
CITY SOLICITOR





# City of Cambridge

MASSACHUSETTS

BOARD OF ZONING APPEAL

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

4 Bds

BZA

## POSTING NOTICE – PICK UP SHEET

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

Name: Yacine Jouri Date: 1/10/24  
(Print)

Address: 1350 Mass Ave

Case No. BZA-251572

Hearing Date: 1/25/24

Thank you,  
Bza Members



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**CITY OF CAMBRIDGE**  
Community Development Department

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**IRAM FAROOQ**  
Assistant City Manager for  
Community Development

**SANDRA CLARKE**  
Deputy Director  
Chief of Administration

To: Board of Zoning Appeal  
From: Harvard Square Advisory Committee  
Date: January 17, 2024  
Re: **1350 Massachusetts Avenue**

**Overview**

The Harvard Square Advisory Committee (the "Committee") met on Wednesday, January 17, 2024 to discuss a special permit application by the President and Fellows of Harvard College for AT&T to modify an existing wireless communications installation at 1350 Massachusetts Avenue. The meeting was conducted pursuant to the provisions of Section 20.50 of the Cambridge Zoning Ordinance in advance of the applicant's request for a special permit from the Board of Zoning Appeal (BZA). Committee members present were Allison Crosbie, John DiGiovanni, Kari Kuelzer, Alexandra Offiong, Matt Simitis (chair), and Nicola Williams. After discussion, the Committee decided to forward a report to the BZA with a positive recommendation, with 6 members present voting in favor.

**Proposal Description**

The Petitioner's modifications include replacing (12) antennas with (12) new antennas in nearly the same location, replacing (6) remote radio heads with (6) remote radio heads in nearly the same location, replacing certain cabling with new cables, adding rectifiers, removing existing diplexers and TMA, and removing and replacing certain equipment in AT&T's existing rooftop equipment shelter.

**Public Comments**

Cambridge resident Suzanne Blier briefly spoke in favor of the application. No other public comments were received by the Committee.

**Recommendations**

Members of the Committee were supportive of the applicant's proposal and had no additional comments on the design or layout. It was noted that Harvard University had conducted an internal review and were also supportive of the project.

Respectfully submitted for the Committee,

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TTY: 617 349-4621  
[www.cambridgema.gov](http://www.cambridgema.gov)

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**Mason Wells**  
Community Development Department