

# ARCHSTONE BUILDING

2000 COMMONWEALTH AVENUE  
BOSTON, MA 02135

## SITE NO.: 4B00090A

SITE TYPE: MODERNIZATION UPGRADE 700MHz - 702Cu

### GENERAL NOTES

- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
- THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE PROJECT OWNER'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
- THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
- THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS / CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
- THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
- THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
- THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
- THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE PROJECT OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
- ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY:  
DIG SAFE SYSTEM (MA, ME, NH, RI, VT): 1-888-344-7233  
CALL BEFORE YOU DIG (CT): 1-800-922-4455

### VICINITY MAP:

1"=1000'



### DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

### SHEET INDEX

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A-2	EAST & NORTH ELEVATIONS	0
A-3	WEST & SOUTH ELEVATIONS	0
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A-5	EQUIPMENT PLAN	0
S-1	STRUCTURAL DETAILS	0
E-1	ELECTRIC & GROUNDING DETAILS	0

### PROJECT SUMMARY

SITE NUMBER: 4B00090A  
 SITE NAME: ARCHSTONE BUILDING  
 SITE ADDRESS: 2000 COMMONWEALTH AVENUE BOSTON, MA 02135  
 ASSESSOR'S PARCEL NO.: 2102464000  
 ZONING DISTRICT: MFR-2 (MULTIFAMILY RESIDENTIAL DISTRICT)  
 CONSTRUCTION TYPE: MODERNIZATION UPGRADE 700MHz  
 LAND OWNER: TRUSTEES OF BOSTON COLLEGE 140 COMMONWEALTH AVENUE BOSTON, MA 02467  
 APPLICANT: T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766  
 ARCHITECT: CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752  
 STRUCTURAL ENGINEER: CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752

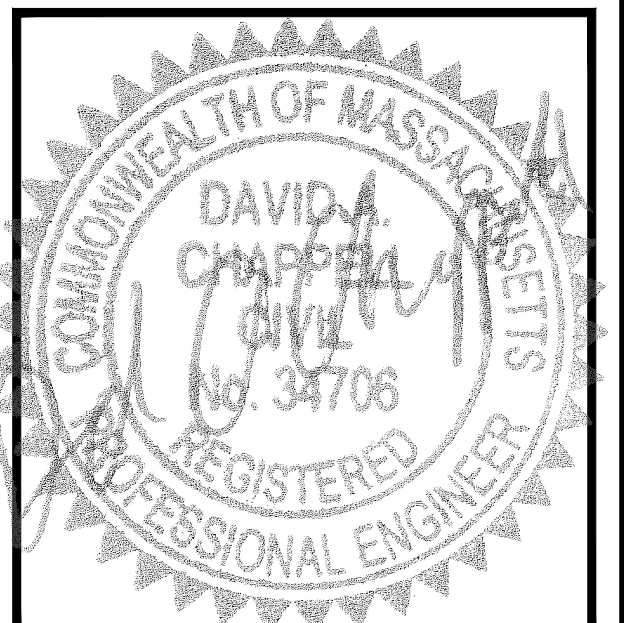
Mobile

T-MOBILE NORTHEAST LLC  
15 COMMERCE WAY, SUITE B  
NORTON, MA 02766  
OFFICE: (508) 286-2700



Civil - Structural - Land Surveying

R.K. EXECUTIVE CENTRE  
201 BOSTON POST ROAD WEST  
SUITE 101  
MARLBOROUGH, MA 01752  
(508)481-7400  
www.chappellengineering.com



### APPROVALS

STRUCTURE OWNER \_\_\_\_\_  
 LEASING \_\_\_\_\_  
 R.F. \_\_\_\_\_  
 ZONING \_\_\_\_\_  
 CONSTRUCTION \_\_\_\_\_  
 A/E \_\_\_\_\_

PROJECT NO: 4B00090A

DRAWN BY: CMC

CHECKED BY: JMT

### VERSION

NO.	DATE	DESCRIPTION
0	01/11/17	CONSTRUCTION REVIEW

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### ARCHSTONE BUILDING

2000 COMMONWEALTH AVENUE  
BOSTON, MA 02135

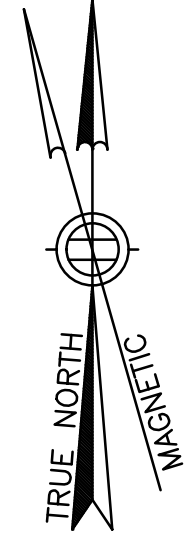
SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1





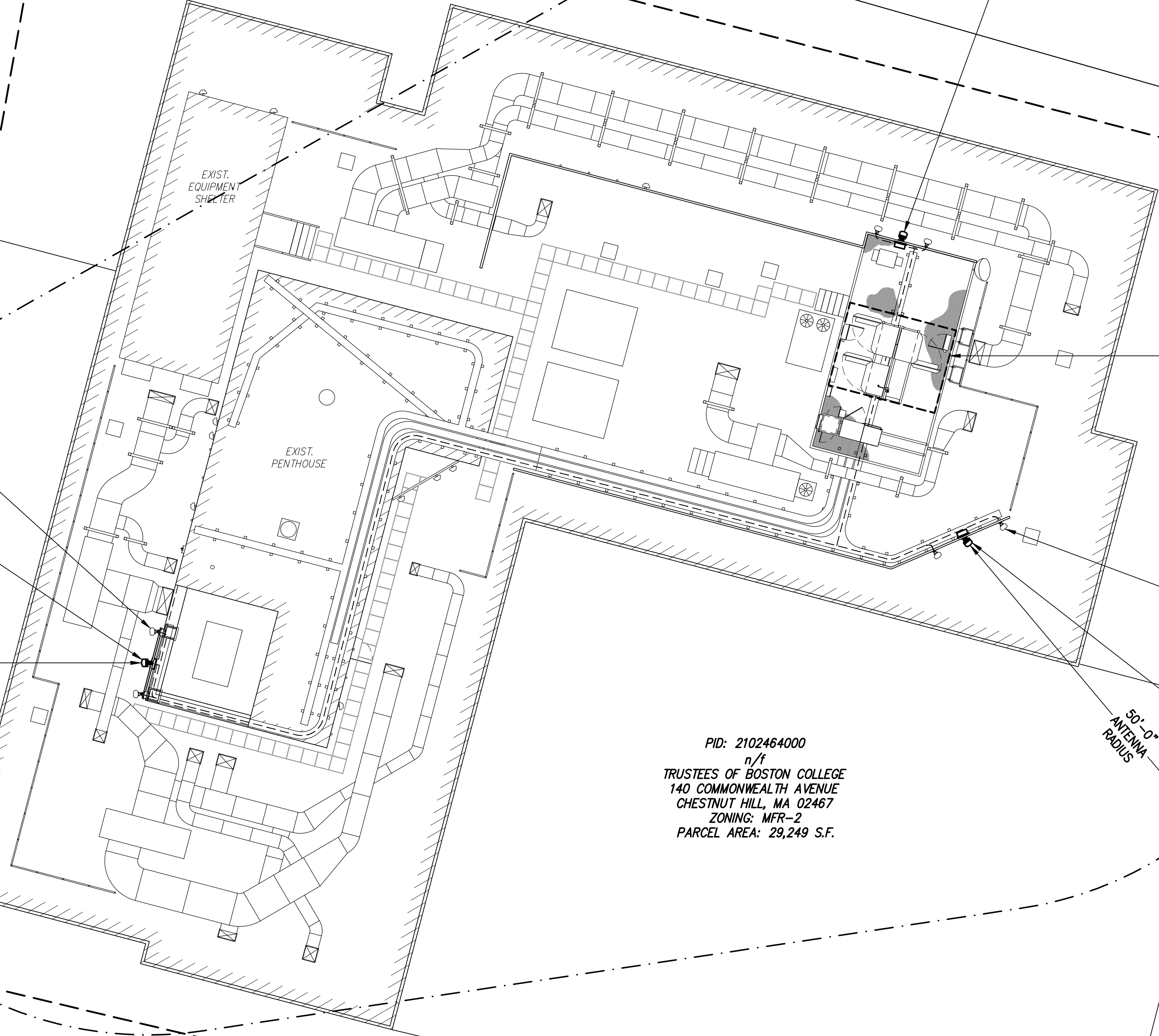
PID: 2102463000  
 n/f  
 RESERVOIR PARK CONDO TR.  
 2016 COMMONWEALTH AVE.  
 BRIGHTON, MA 02135

**GAMMA SECTOR**  
 EXIST. T-MOBILE AIR21 ANTENNAS  
 (TOTAL OF 2) FACADE MOUNTED  
 TO EXIST. COLUMNS (TO REMAIN)

**GAMMA SECTOR**  
 PROP. T-MOBILE (1) PANEL  
 ANTENNA MOUNTED TO EXIST.  
 PENTHOUSE ON PROP. ANTENNA  
 MOUNT (PAINT TO MATCH)

50'-0"  
 ANTENNA  
 RADIUS

PID: 2102442005  
 n/f  
 COMMONWEALTH OF MASSACHUSETTS MDC  
 COMMONWEALTH AVE.  
 BRIGHTON, MA 02135



PID: 2102464000  
 n/f  
 TRUSTEES OF BOSTON COLLEGE  
 140 COMMONWEALTH AVENUE  
 CHESTNUT HILL, MA 02467  
 ZONING: MFR-2  
 PARCEL AREA: 29,249 S.F.

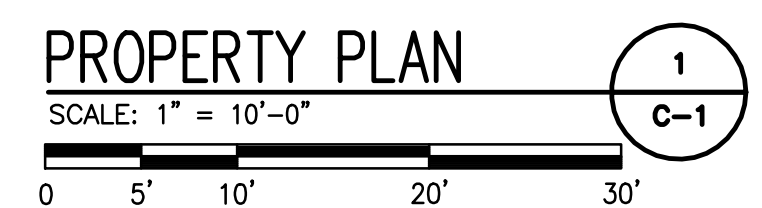
COMMONWEALTH AVENUE

EXIST. T-MOBILE 168 S.F.  
 LEASE AREA ON EXIST.  
 STEEL PLATFORM

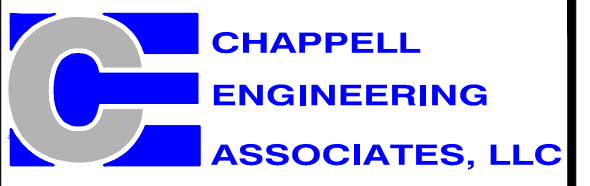
ALPHA & BETA SECTORS  
 EXIST. T-MOBILE AIR21 ANTENNAS  
 (2 PER SECTOR, TOTAL OF 4)  
 FACADE MOUNTED TO EXIST.  
 SCREENWALL (TO REMAIN)

**ALPHA & BETA SECTORS**  
 PROP. T-MOBILE PANEL ANTENNAS  
 (1 PER SECTOR, TOTAL OF 2)  
 FACADE MOUNTED TO EXIST.  
 SCREENWALL ON PROP. ANTENNA  
 MOUNTS (PAINT TO MATCH)

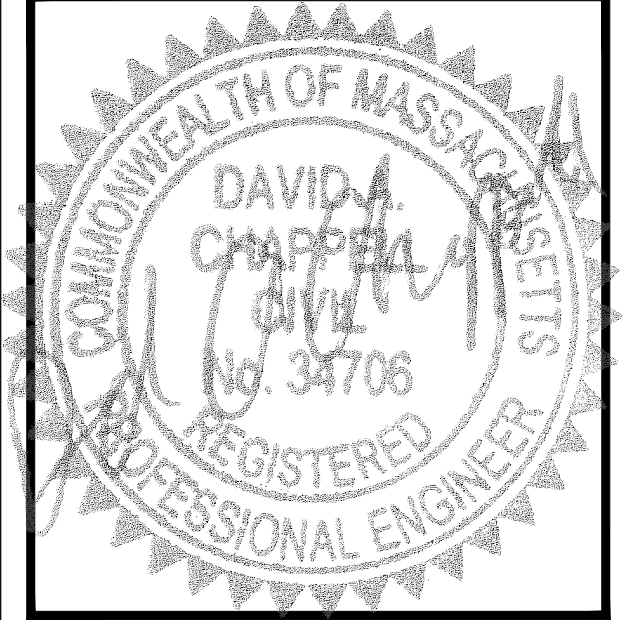
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 n/f  
 RESERVOIR GARDENS CONDO TR.  
 1992 COMMONWEALTH AVE.  
 BRIGHTON, MA 02135



T-MOBILE NORTHEAST LLC  
 15 COMMERCE WAY, SUITE B  
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APPROVALS

STRUCTURE OWNER \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

PROJECT NO: 4B00090A

DRAWN BY: CMC

CHECKED BY: JMT

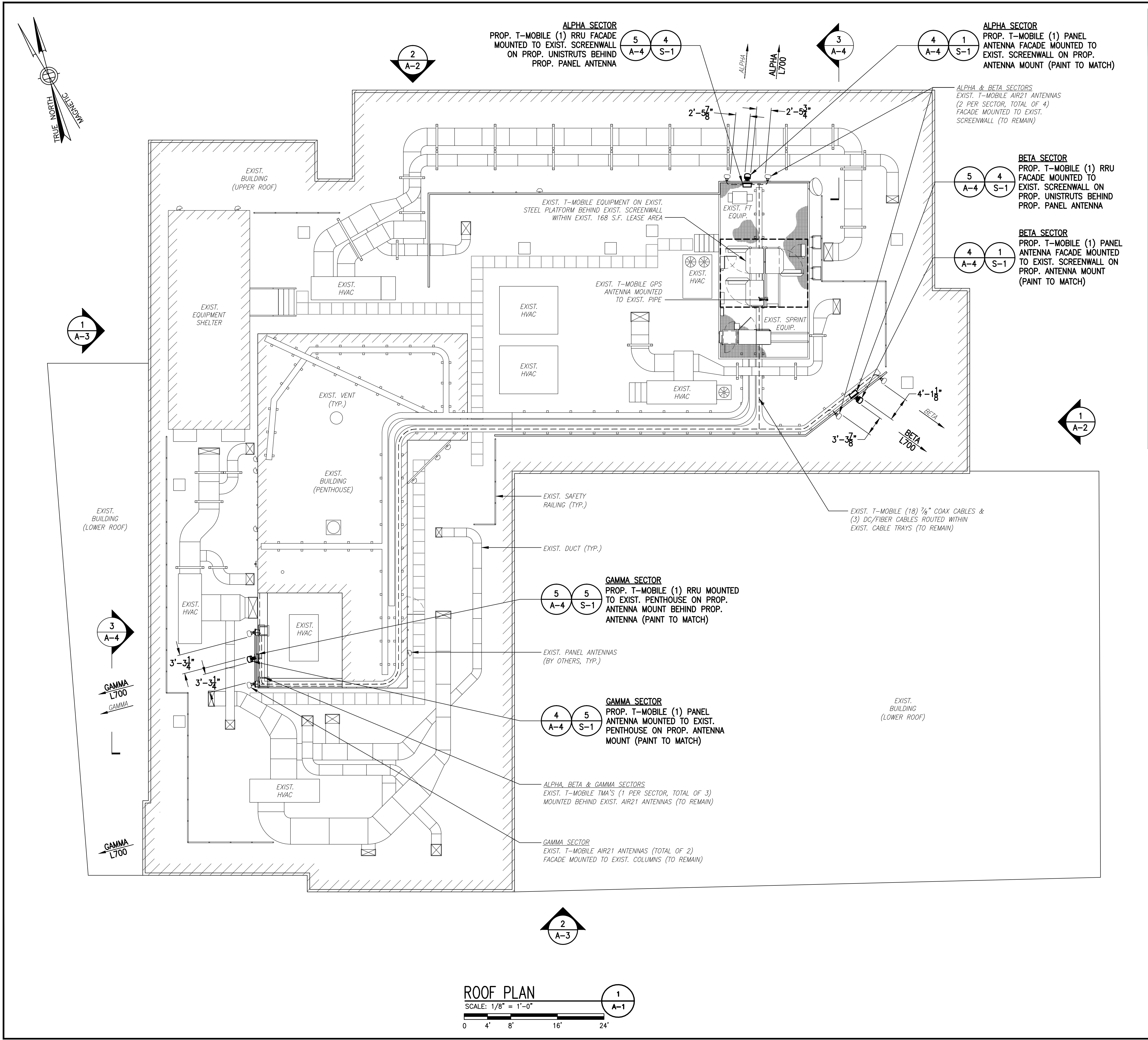
VERSION	
0	01/11/17 CONSTRUCTION REVIEW

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**ARCHSTONE BUILDING**  
 2000 COMMONWEALTH AVENUE  
 BOSTON, MA 02135

SHEET TITLE  
**PROPERTY PLAN**

SHEET NUMBER  
**C-1**



### EQUIPMENT SCHEDULE

**CURRENT EQUIPMENT**

- THREE (3) ERICSSON KRC118023-1 AIR21 B2A/B4P (QUAD) ANTENNAS
- THREE (3) ERICSSON KRC118023-1 AIR21 B2P/B4A (QUAD) ANTENNAS
- THREE (3) GENERIC STYLE 1B TWIN AWS TMA'S
- EIGHTEEN (18) 7/8" COAX CABLES
- THREE (3) DC/FIBER CABLES
- ONE (1) GPS ANTENNA AND ASSOCIATED 1/2" COAX CABLE
- TWO (2) ERICSSON RBS 2106 EQUIPMENT CABINETS
- ONE (1) ERICSSON RBS 3106 EQUIPMENT CABINET WITH 6131 UPGRADE
- TWO (2) BOOSTERS
- ONE (1) PPC CABINET

**EQUIPMENT TO BE REMOVED**

- NONE

**EQUIPMENT TO BE ADDED**

- THREE (3) COMMSCOPE LNX-6513DS-A1M 4' (DUAL) ANTENNAS
- THREE (3) RRUS11 B12

**FINAL EQUIPMENT CONFIGURATION**

- THREE (3) ERICSSON KRC118023-1 AIR21 B2A/B4P (QUAD) ANTENNAS
- THREE (3) ERICSSON KRC118023-1 AIR21 B2P/B4A (QUAD) ANTENNAS
- THREE (3) COMMSCOPE LNX-6513DS-A1M 4' (DUAL) ANTENNAS
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- TWO (2) BOOSTERS
- ONE (1) PPC CABINET

**EXISTING EQUIPMENT SPACE REQUIREMENTS WILL NOT CHANGE**

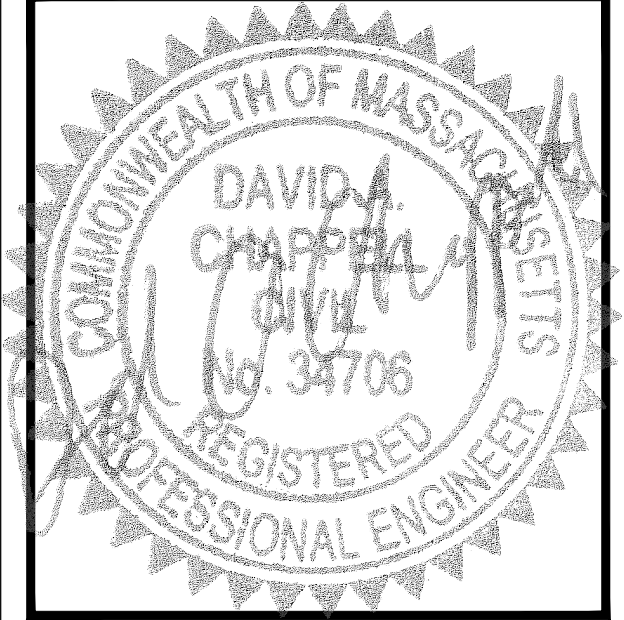
RF CONFIGURATION  
702Cu

**T-Mobile**

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OFFICE: (508) 286-2700

**CHAPPELL ENGINEERING ASSOCIATES, LLC**  
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**APPROVALS**

STRUCTURE OWNER \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

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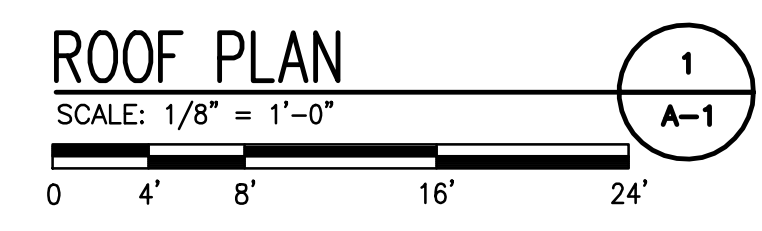
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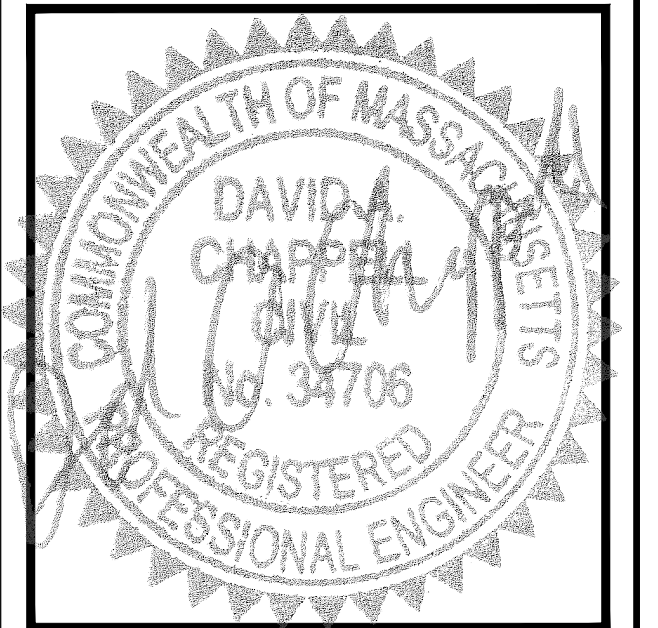
**ARCHSTONE BUILDING**

2000 COMMONWEALTH AVENUE  
BOSTON, MA 02135

SHEET TITLE  
**ROOF PLAN**

SHEET NUMBER  
**A-1**





APPROVALS

STRUCTURE OWNER \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

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VERSION

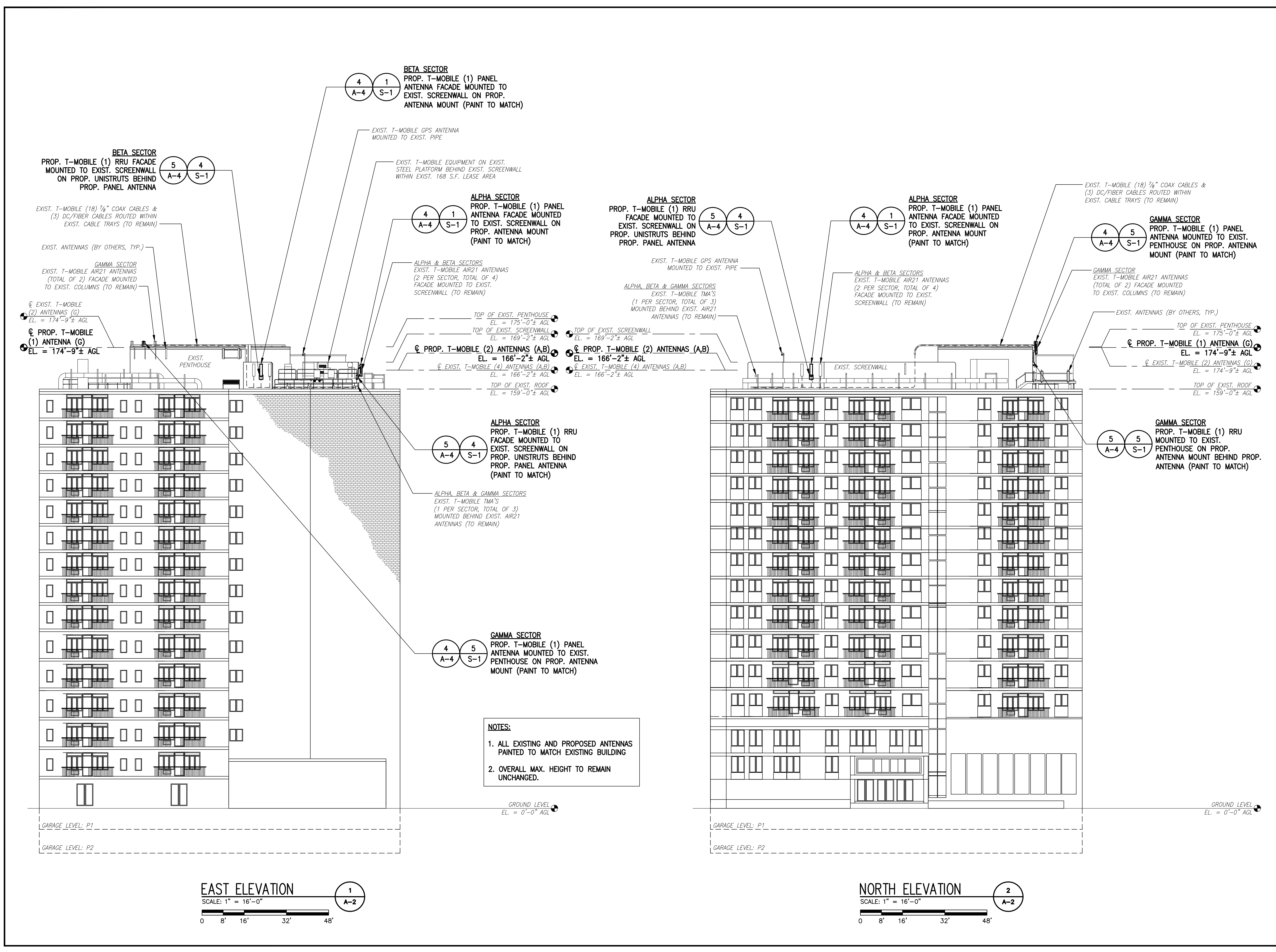
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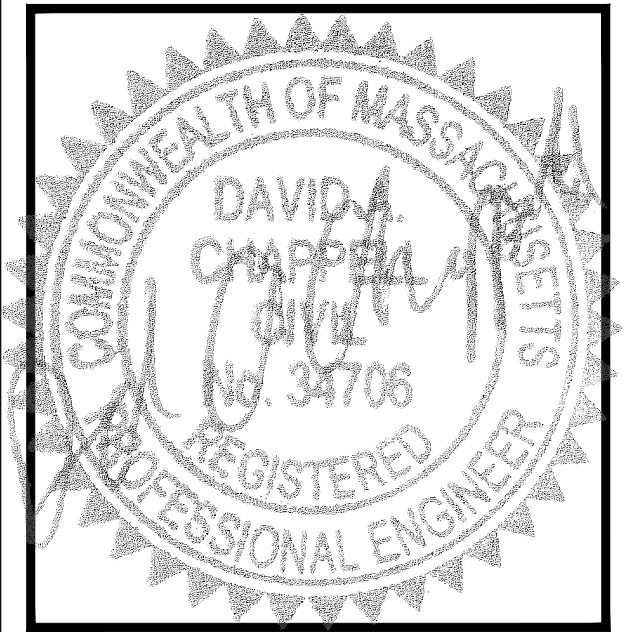
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ARCHSTONE  
BUILDING  
2000 COMMONWEALTH AVENUE  
BOSTON, MA 02135

SHEET TITLE  
ELEVATIONS

SHEET NUMBER  
A-2





APPROVALS

STRUCTURE OWNER \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

PROJECT NO: 4B00090A

DRAWN BY: CMC

CHECKED BY: JMT

VERSION

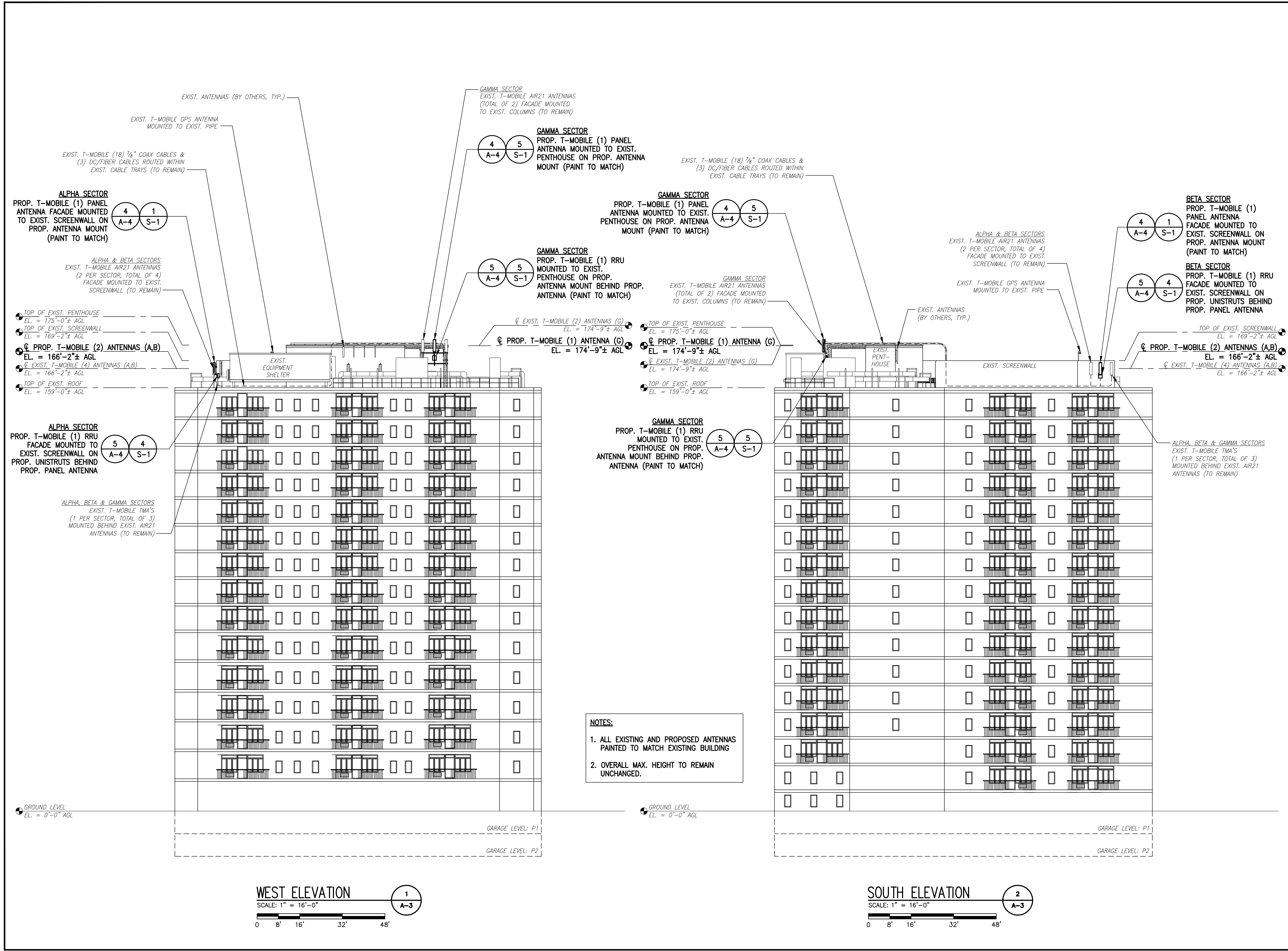
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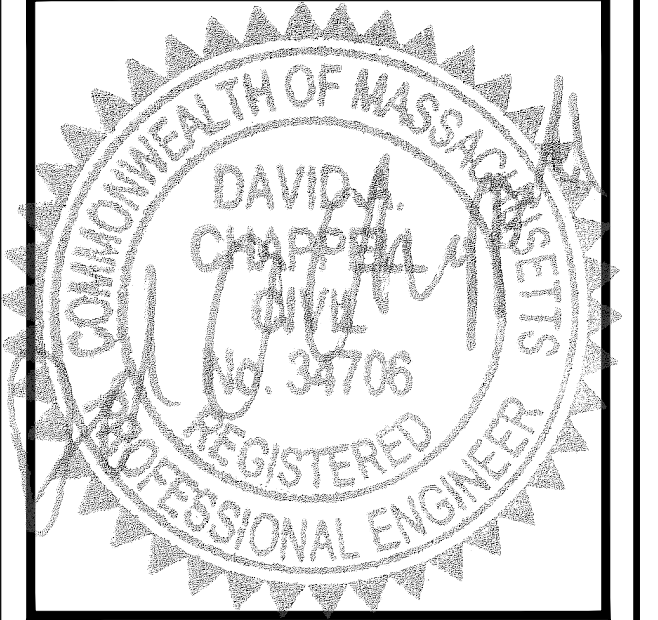
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BUILDING  
2000 COMMONWEALTH AVENUE  
BOSTON, MA 02135

SHEET TITLE  
ELEVATIONS

SHEET NUMBER  
A-3





APPROVALS

STRUCTURE OWNER \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

PROJECT NO: 4B00090A

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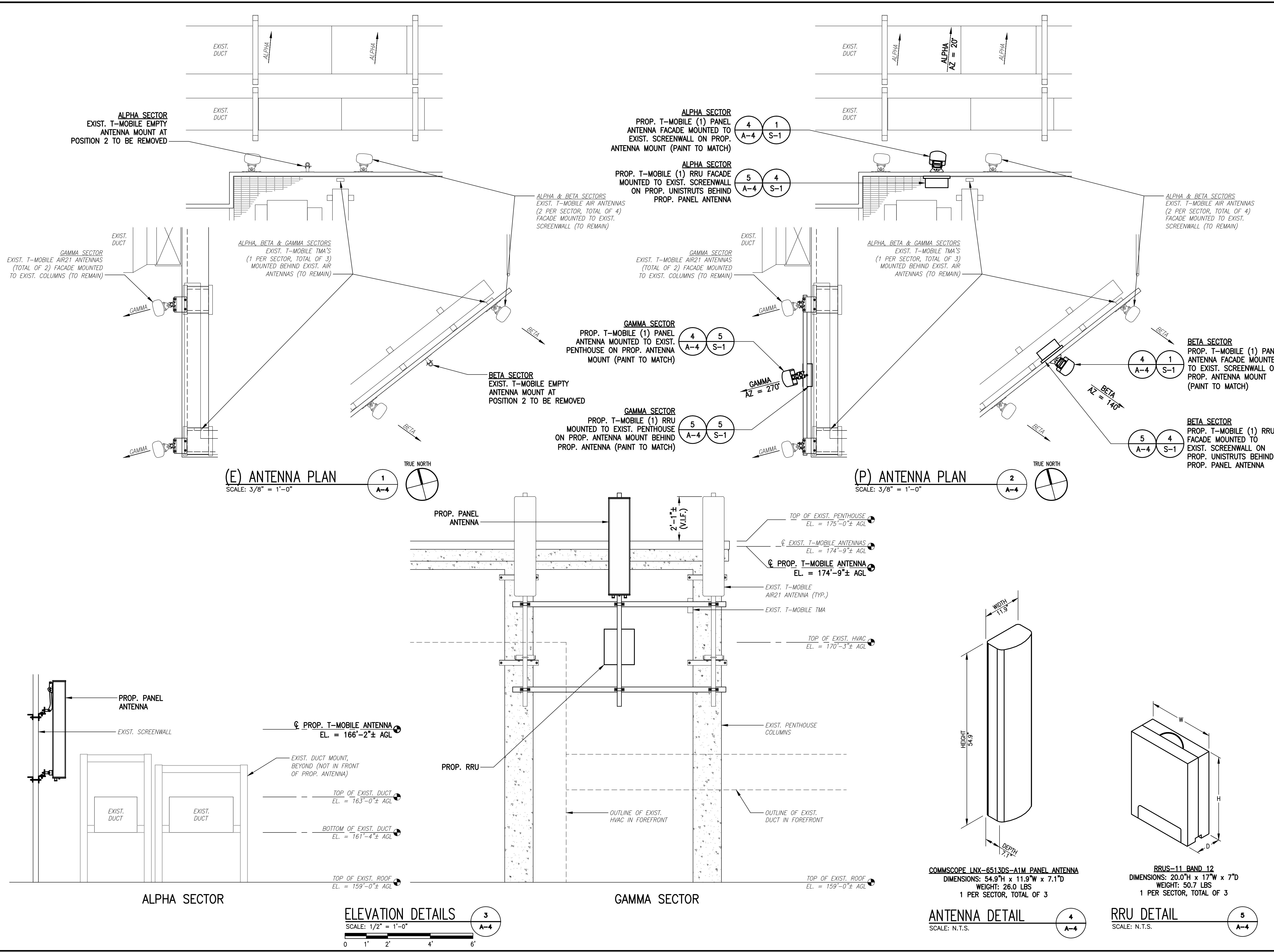
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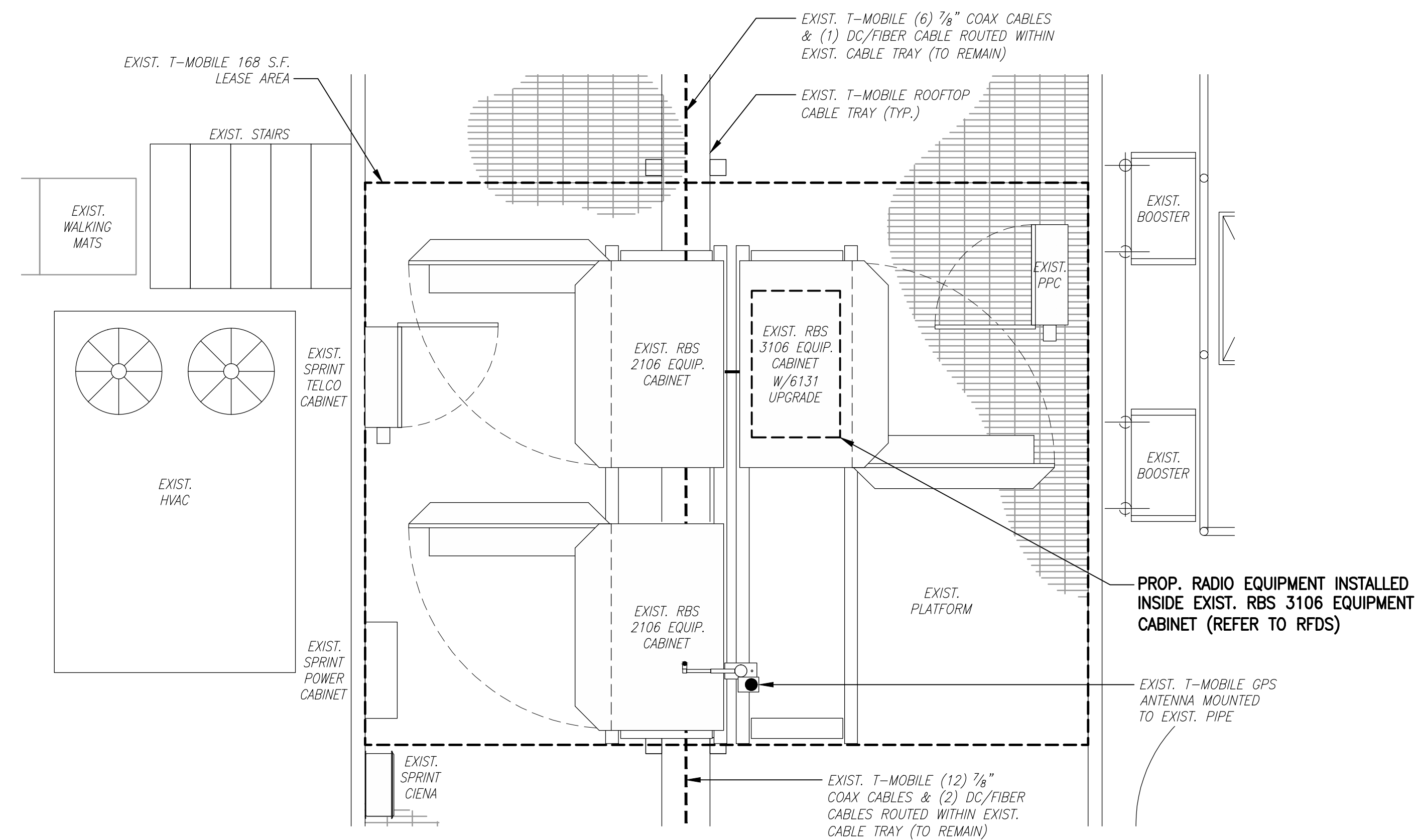
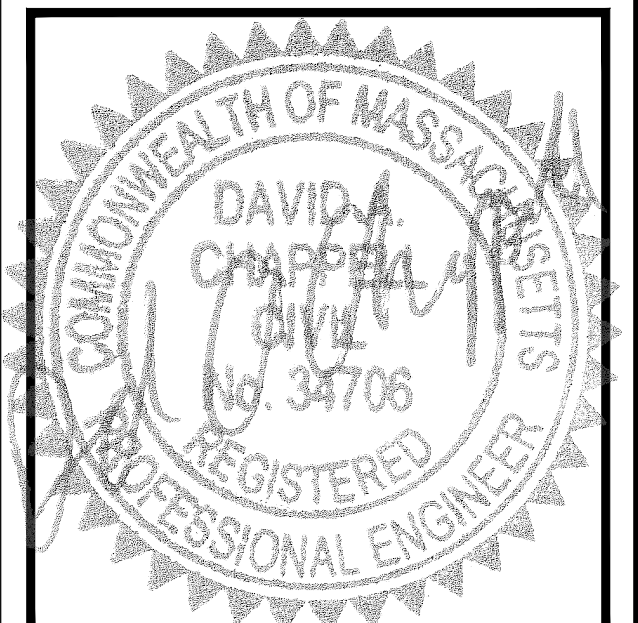
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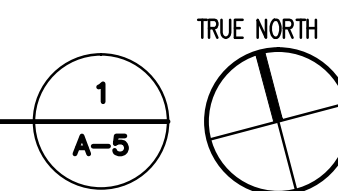
SHEET TITLE  
ANTENNA PLANS & DETAILS

SHEET NUMBER  
A-4





**EQUIPMENT PLAN**  
SCALE: 1/2" = 1'-0"



APPROVALS

STRUCTURE OWNER \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

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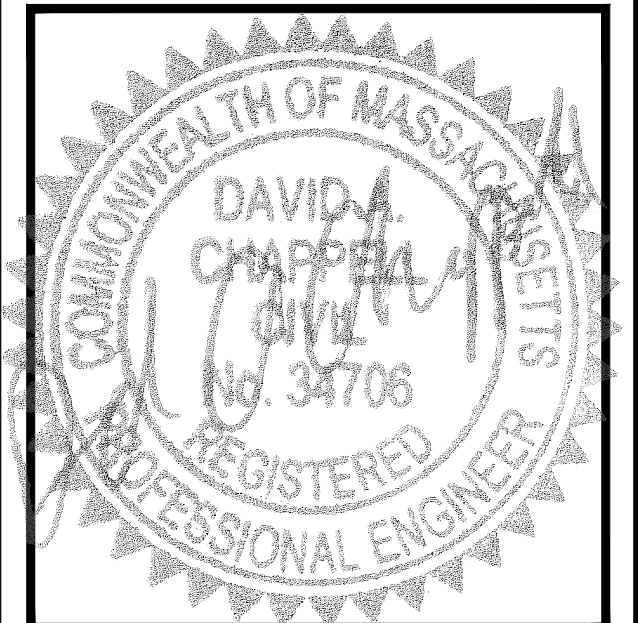
**ARCHSTONE  
BUILDING**

2000 COMMONWEALTH AVENUE  
BOSTON, MA 02135

SHEET TITLE  
**EQUIPMENT PLAN**

SHEET NUMBER  
**A-5**





APPROVALS	
STRUCTURE OWNER	_____
LEASING	_____
R.F.	_____
ZONING	_____
CONSTRUCTION	_____
A/E	_____

PROJECT NO: 4B00090A

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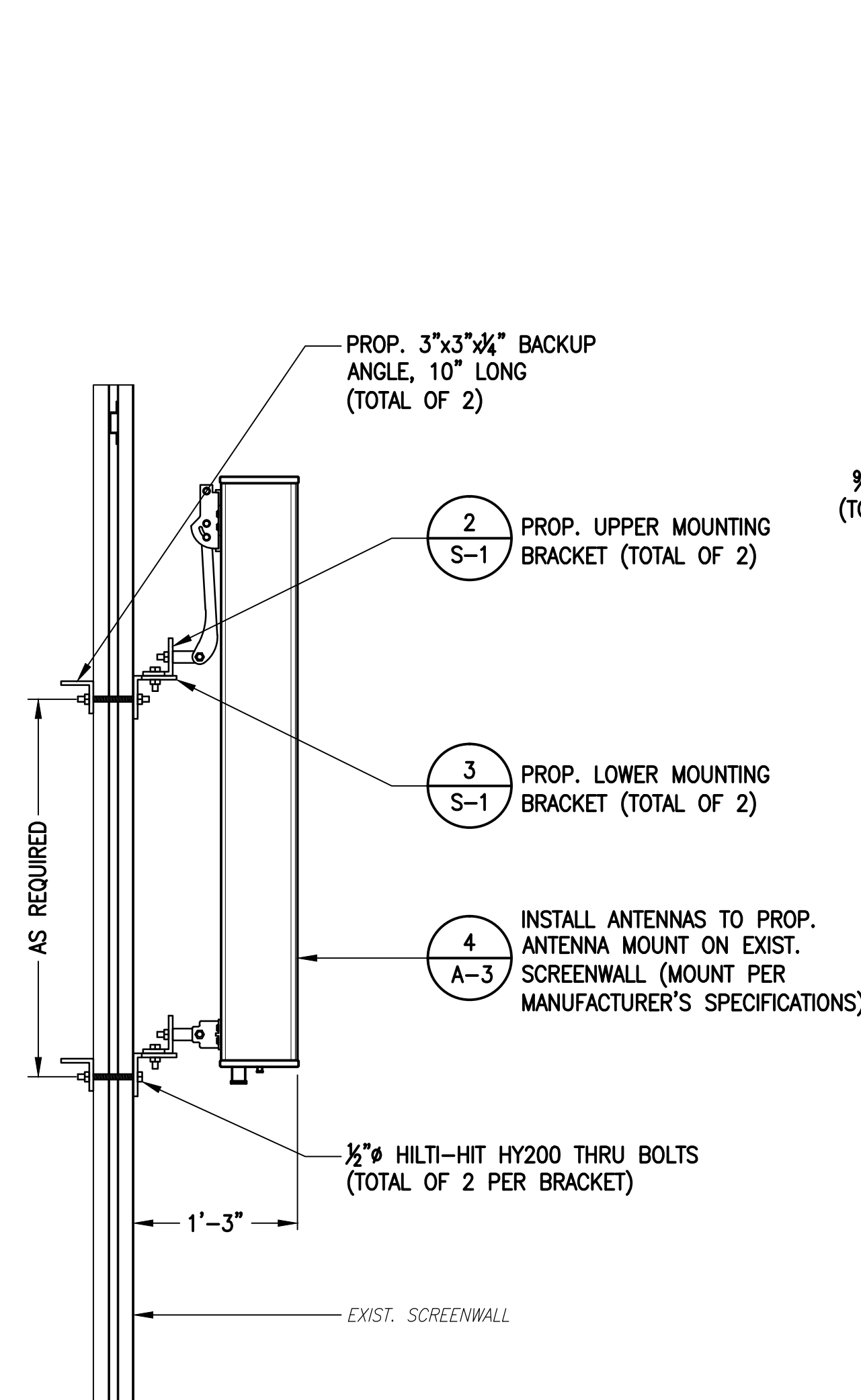
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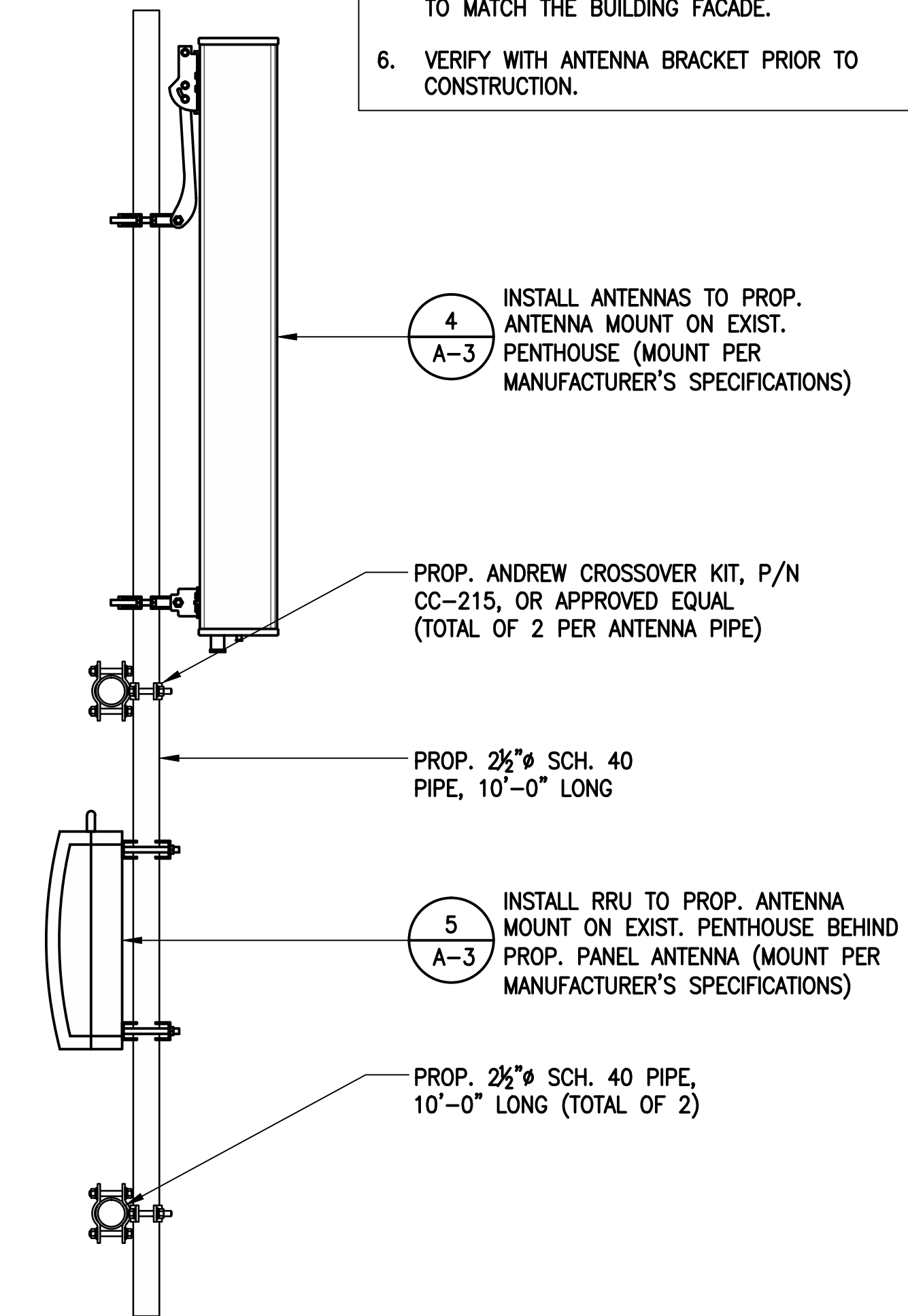
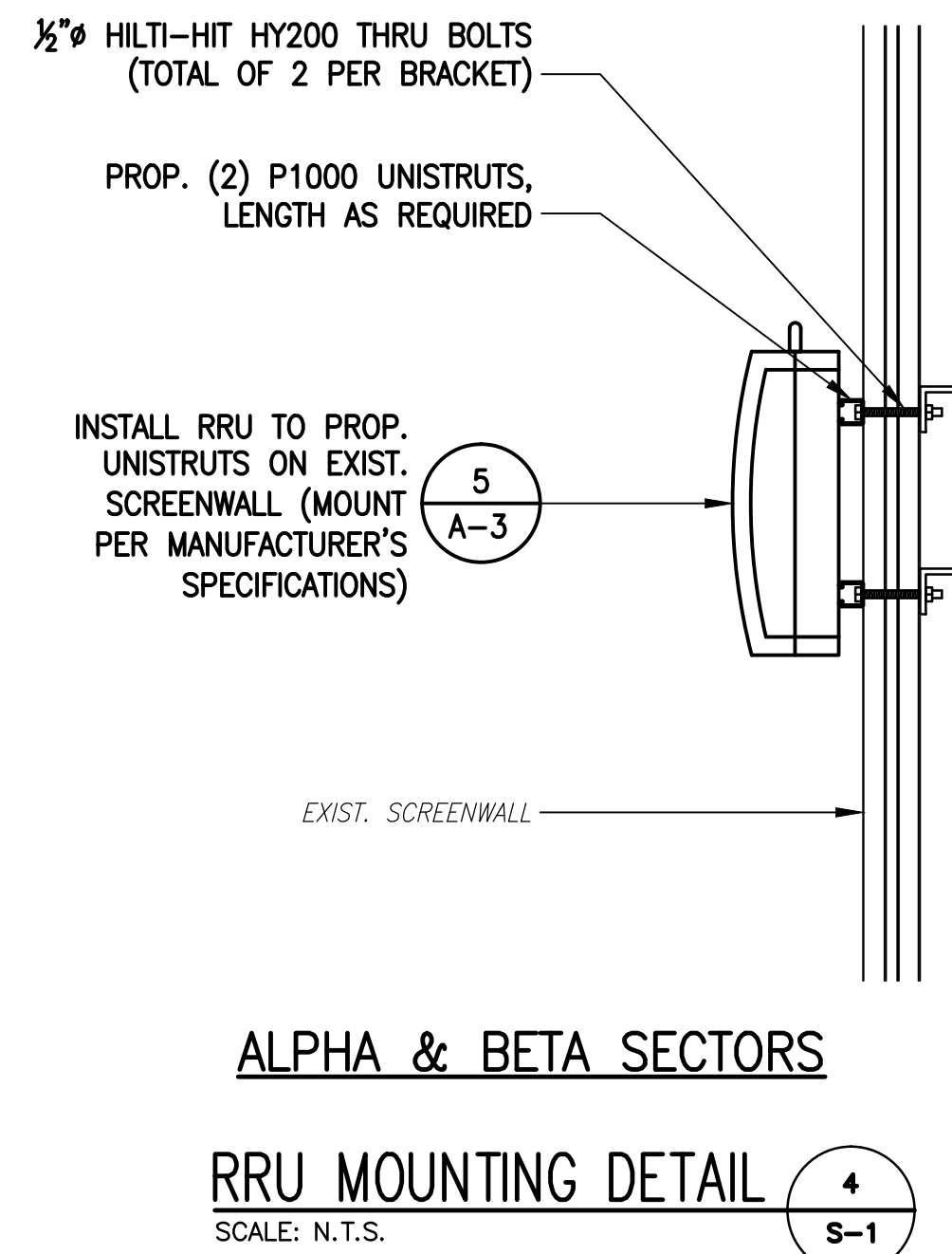
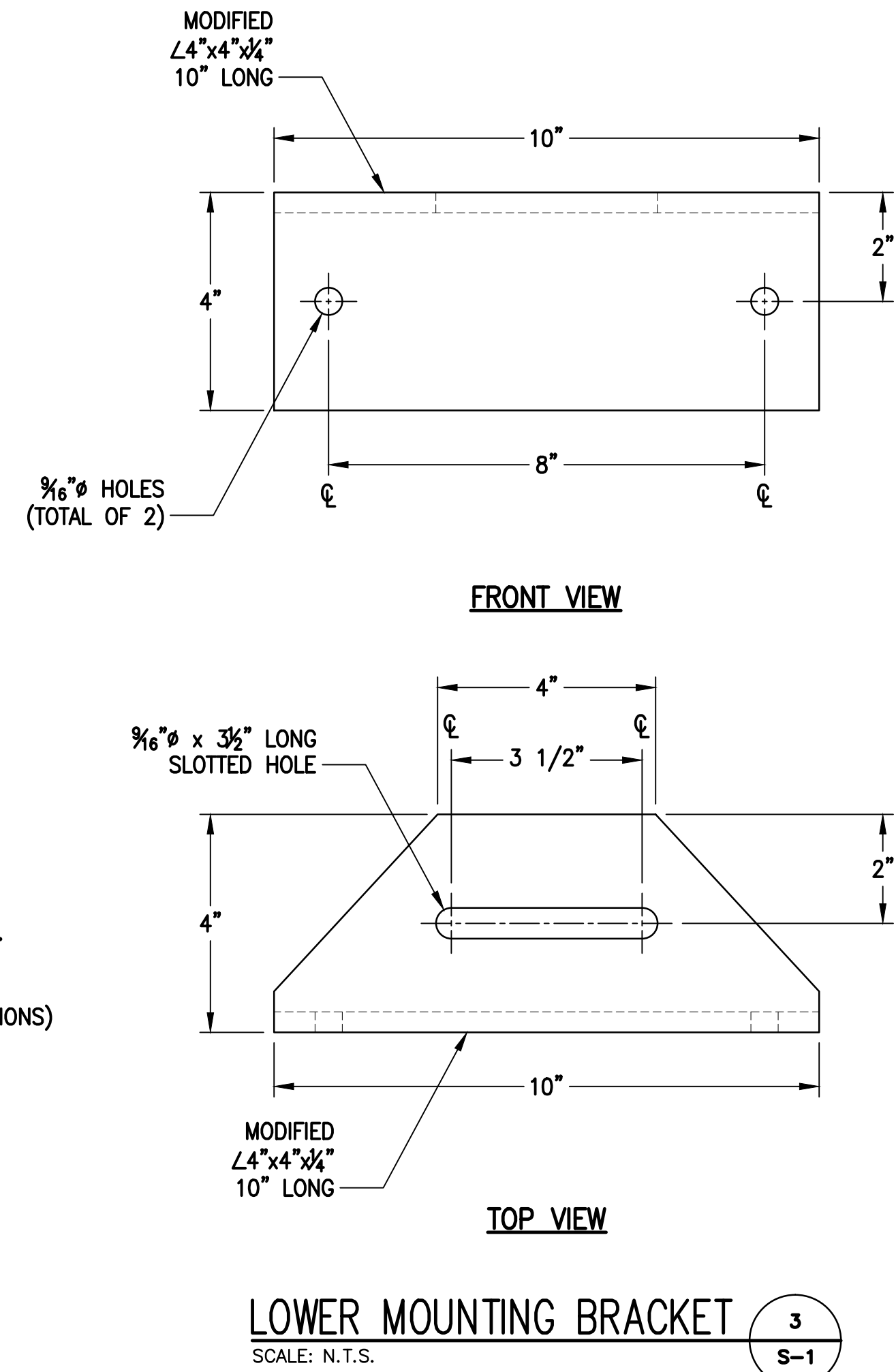
SHEET TITLE  
STRUCTURAL DETAILS

SHEET NUMBER  
S-1

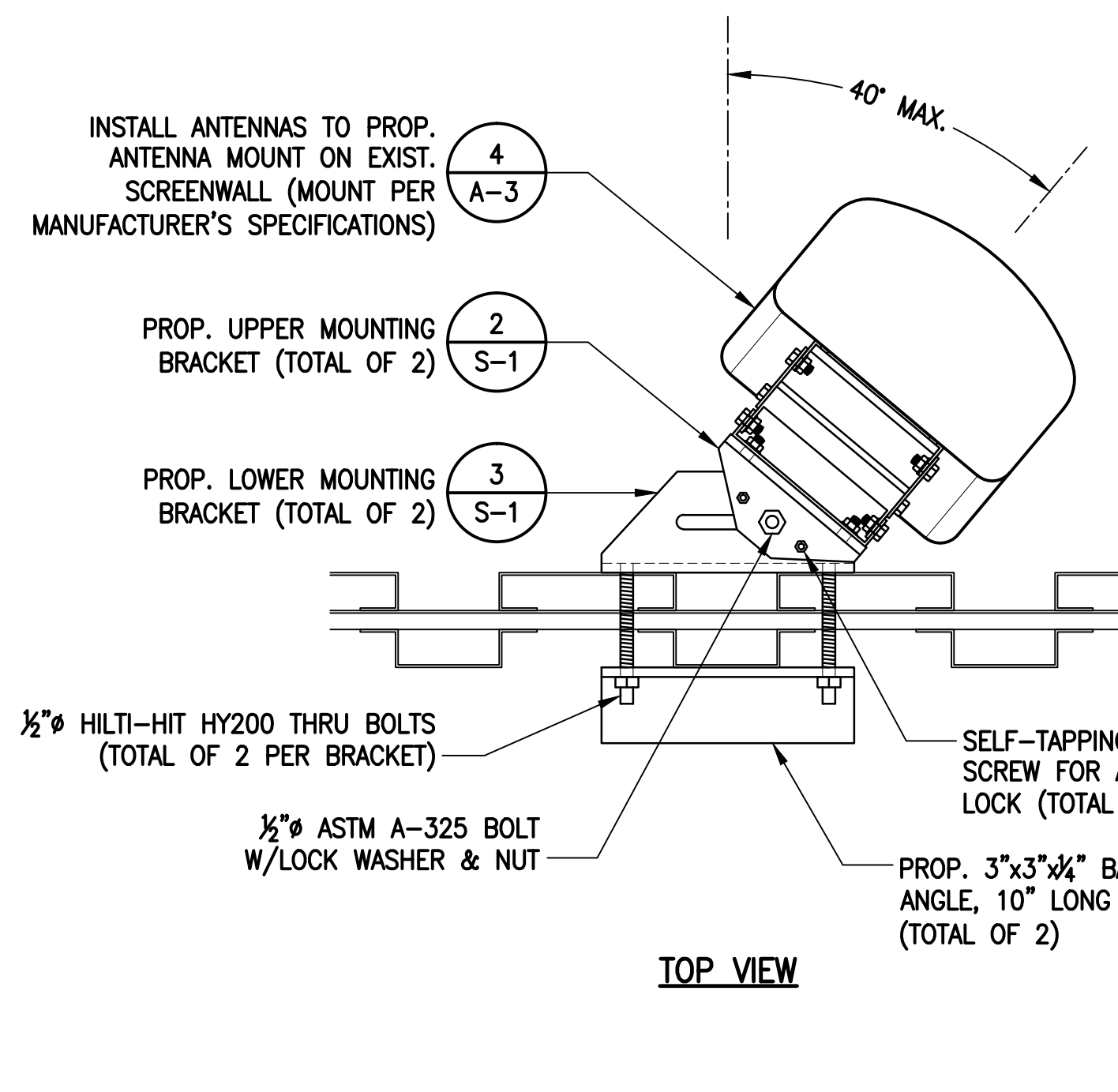
- NOTES:
1. VERIFY DOWNTILT MOUNTING KIT BOLT LAYOUT PRIOR TO FABRICATION.
  2. ROTATE UPPER CONNECTION TO REQUIRED AZIMUTH. TIGHTEN BOLT AND INSTALL SELF TAPPING SCREWS.
  3. WEATHER SEAL AROUND EXTERIOR WALL ATTACHMENT ANGLES WITH SILICONE SEALANT.
  4. PAINT ALL ANTENNAS, MOUNTS AND ASSOCIATED EQUIPMENT TO MATCH BUILDING FACADE.
  5. ALL COAX IS TO BE NEATLY BUNDLED AND PAINTED TO MATCH THE BUILDING FACADE.
  6. VERIFY WITH ANTENNA BRACKET PRIOR TO CONSTRUCTION.



SIDE VIEW



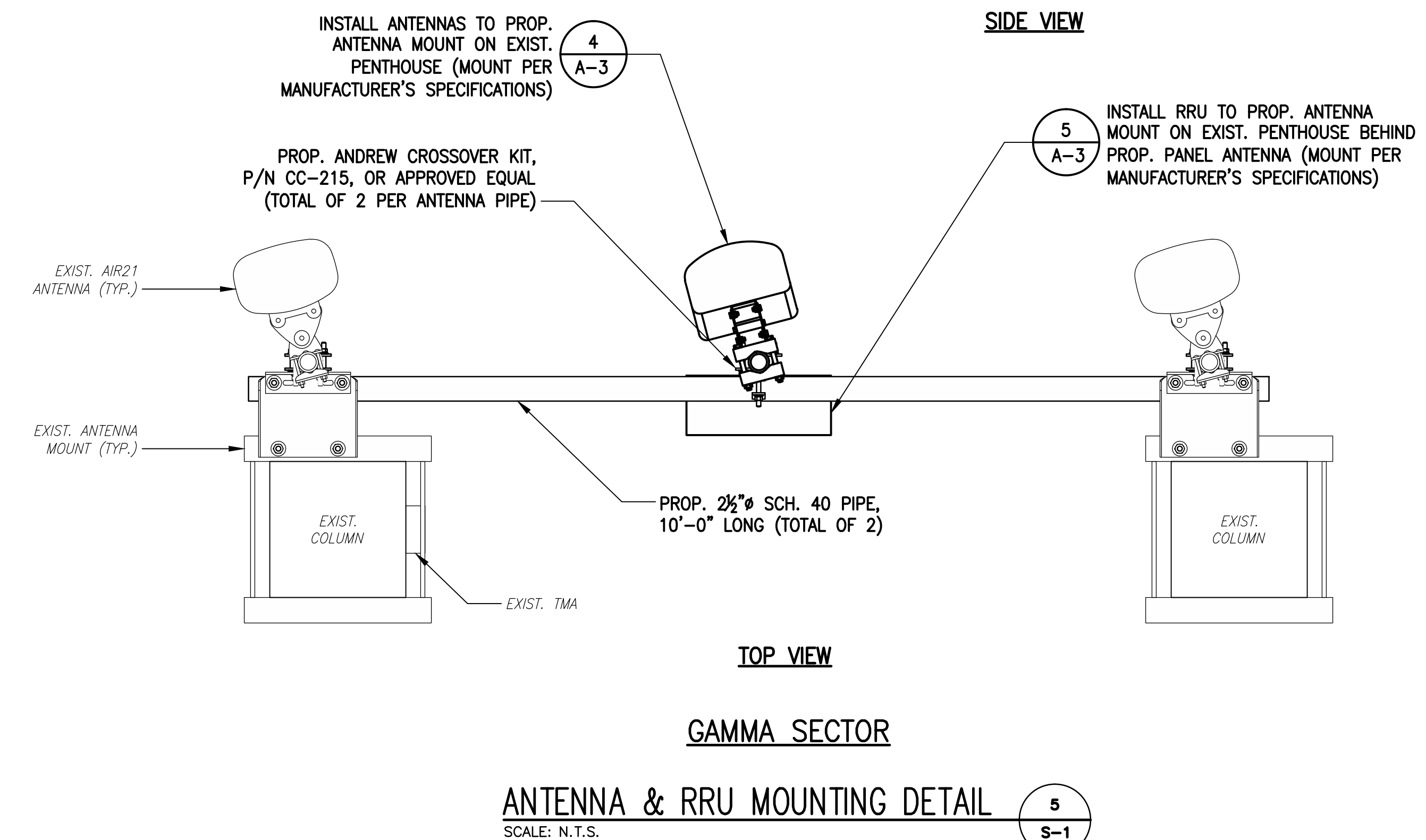
SIDE VIEW

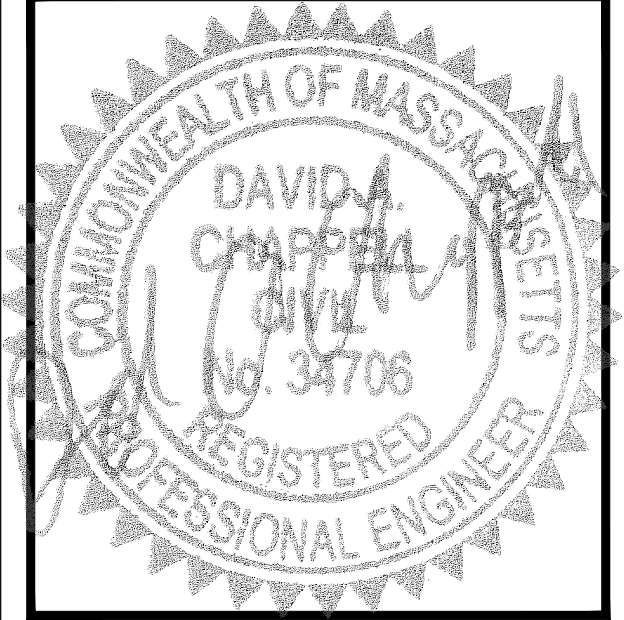


ALPHA & BETA SECTORS

ANTENNA MOUNTING DETAIL 1 S-1

SCALE: N.T.S.





APPROVALS

STRUCTURE OWNER \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

PROJECT NO: 4B00090A

DRAWN BY: CMC

CHECKED BY: JMT

VERSION

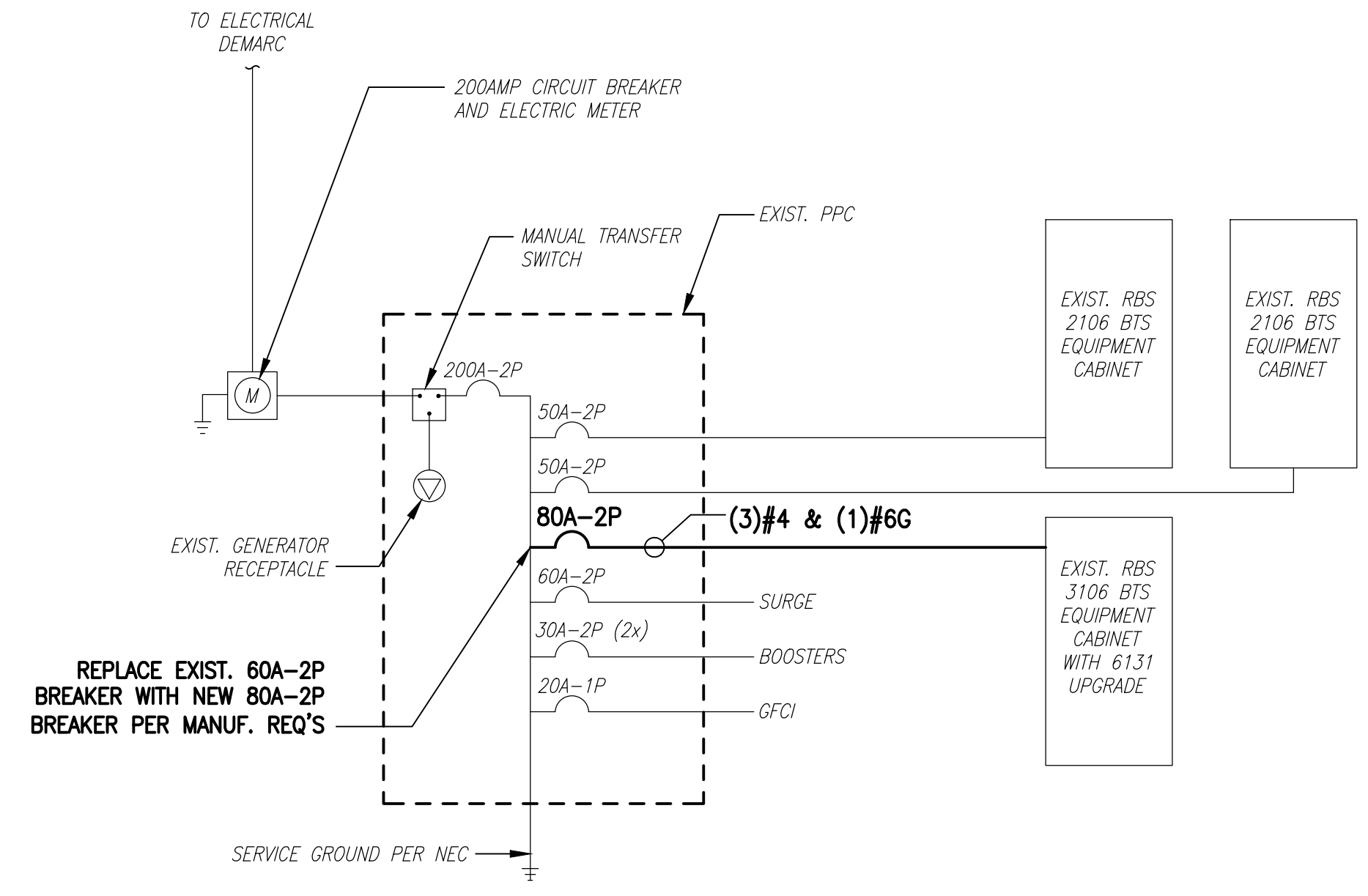
NO.	DATE	DESCRIPTION
0	01/11/17	CONSTRUCTION REVIEW

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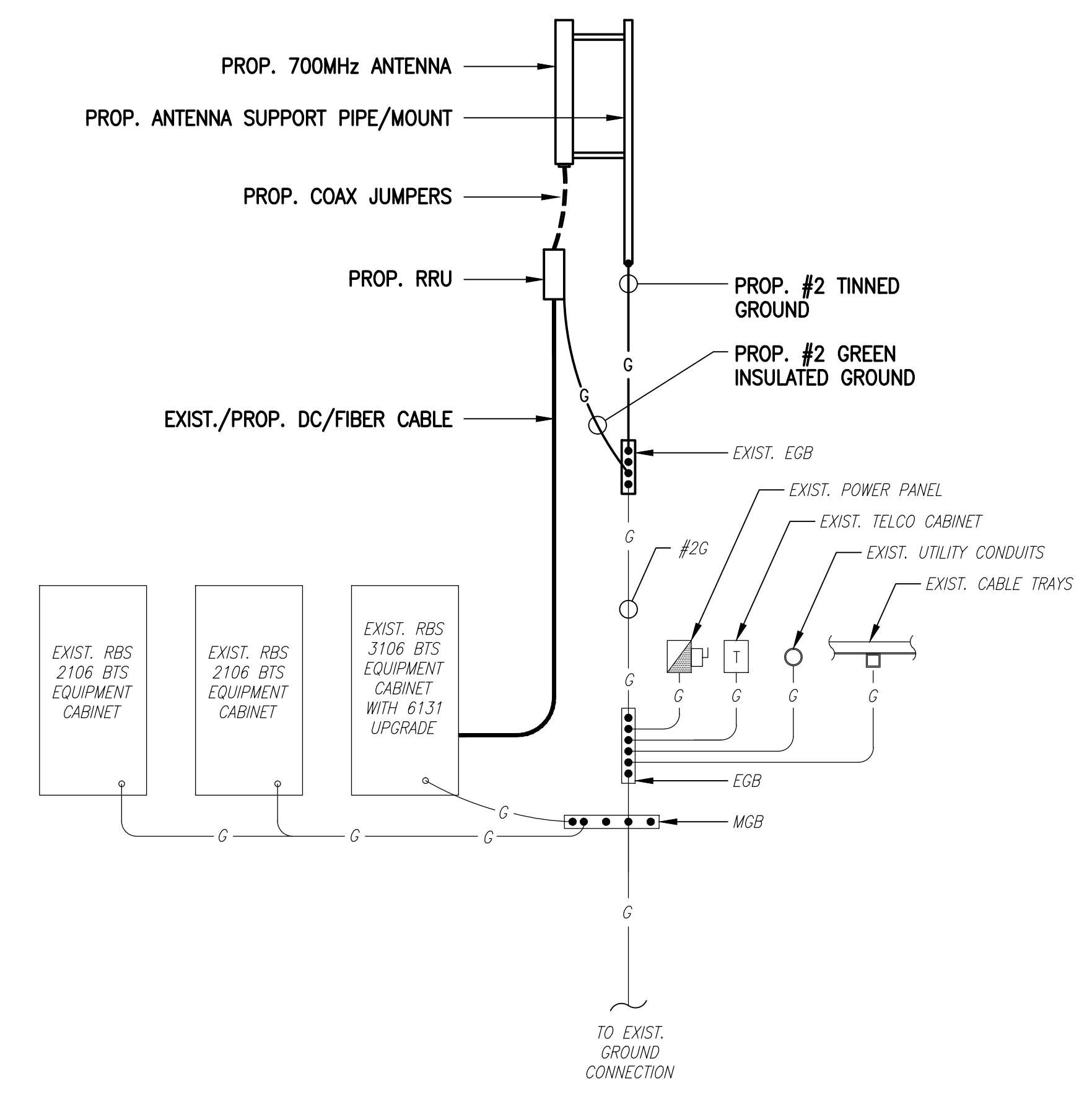
**ARCHSTONE BUILDING**  
 2000 COMMONWEALTH AVENUE  
 BOSTON, MA 02135

SHEET TITLE  
**ELECTRIC & GROUNDING DETAILS**

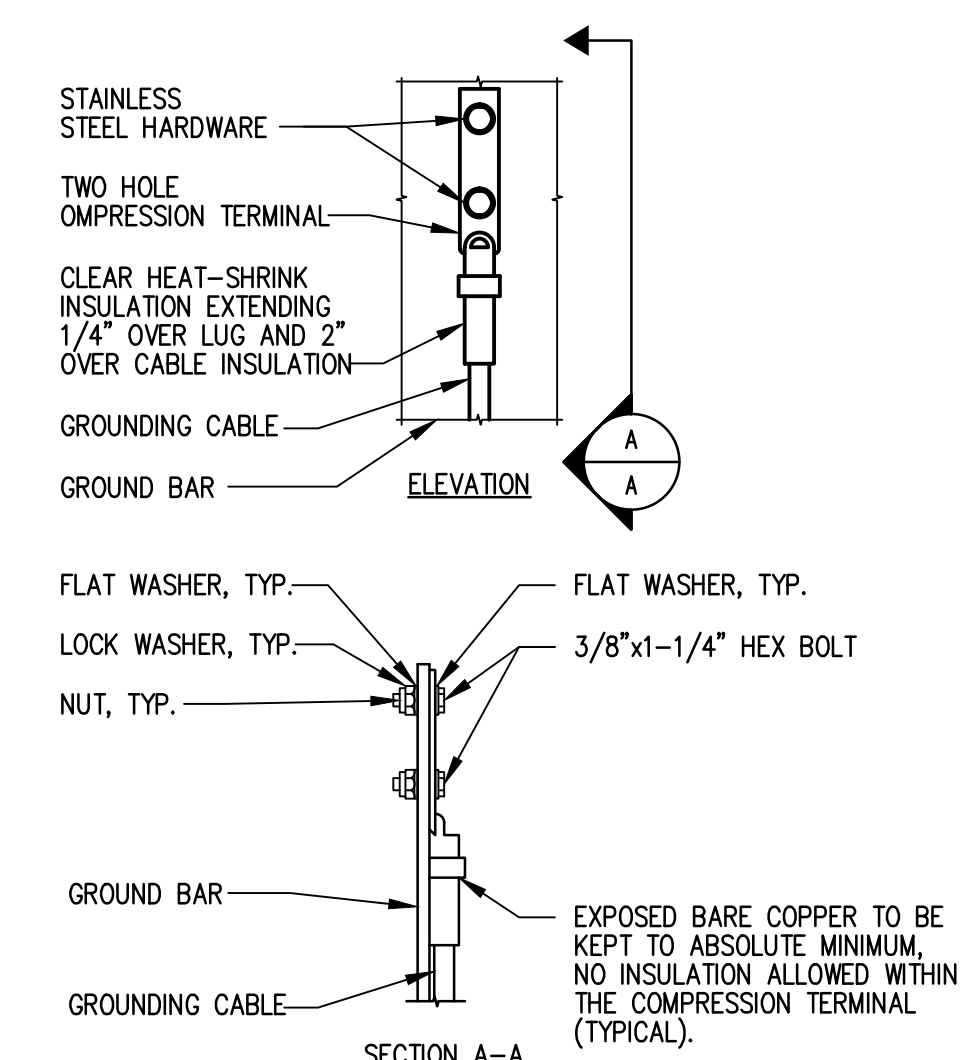
SHEET NUMBER  
**E-1**



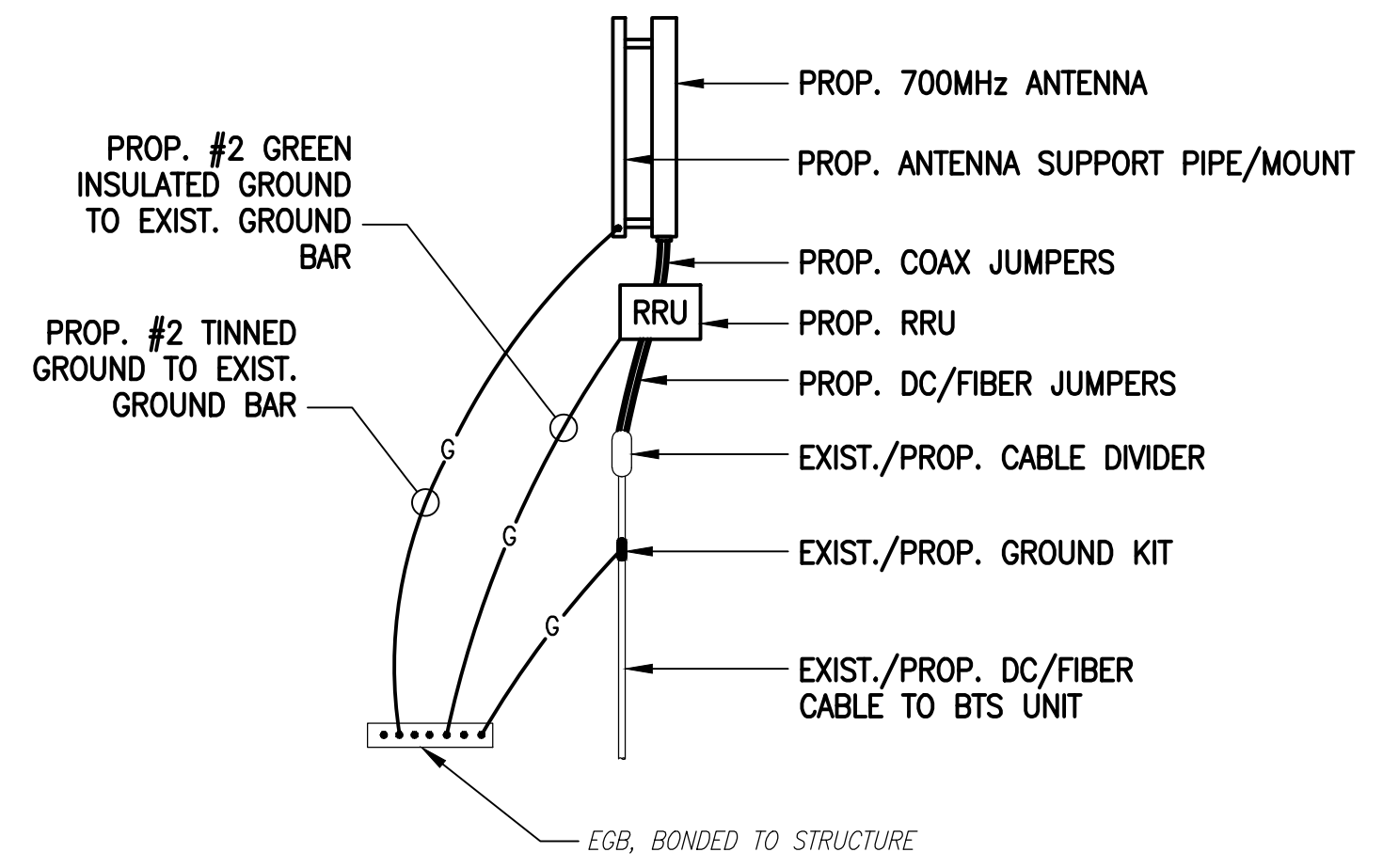
**ONE LINE DIAGRAM**  
 SCALE: NOT TO SCALE



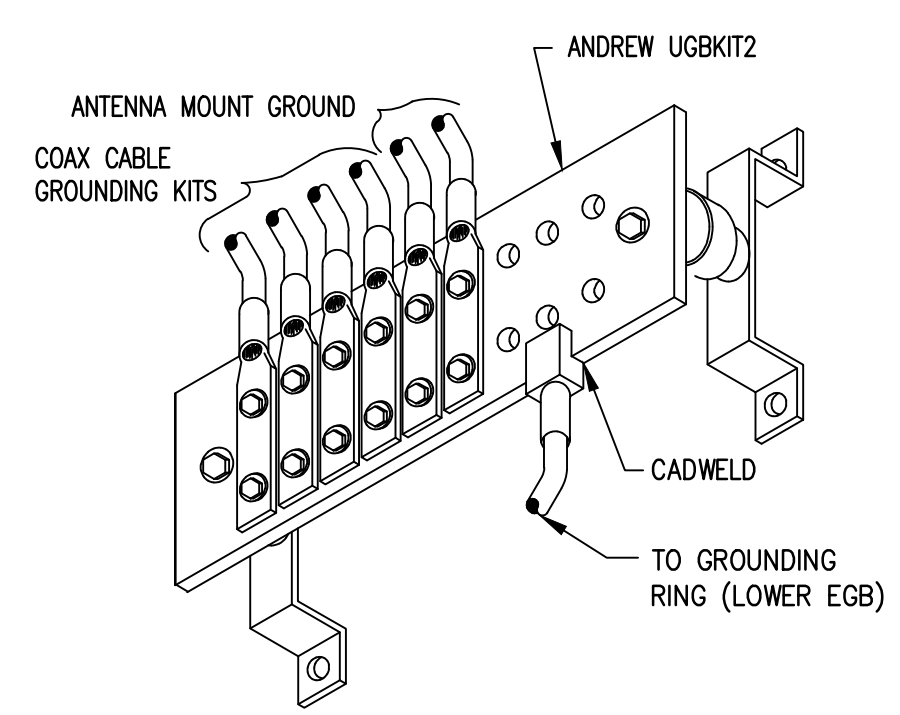
**GROUNDING RISER DIAGRAM**  
 SCALE: NOT TO SCALE



**TYPICAL GROUND BAR CONNECTIONS DETAIL**  
 SCALE: NOT TO SCALE



**HYBRID CABLE CONNECTION AND GROUNDING DETAIL**  
 SCALE: NOT TO SCALE



**GROUND BAR (EGB)**  
 SCALE: NOT TO SCALE

**ELECTRICAL AND GROUNDING NOTES**

- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THINSULATION.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
- WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- PPC SUPPLIED BY PROJECT OWNER.
- GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
- GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
- ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXISTING TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

## Photographic Simulation Package

Proposed Upgrade to Existing Wireless Telecommunications Facility:

4BO0090A Archstone Building  
2000 Commonwealth Avenue  
Boston, MA 02135

- proposed changes to existing Rooftop Mount Antenna Structure Revised Per LE 01-06-17
- documentation photographs taken 10/30/16

Simulation package prepared by:

Virtual Site Simulations, LLC  
9 walts way  
Narragansett, Rhode Island 02882

[www.VirtualSiteSimulations.com](http://www.VirtualSiteSimulations.com)

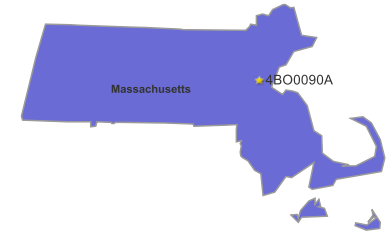


Photo Simulations are for demonstration purposes only. It should not be used in any other fashion or with any other intent. The accuracy of the resulting data is not guaranteed and is not for redistribution



Photolog Map



Proposed Upgrade to Existing Wireless Telecommunications Facility:

4BO0090A Archstone Building  
2000 Commonwealth Avenue  
Boston, MA 02135

Legend:

- ☆ Facility Location
- ⊗ Photo Documentation location
- 1000 Ft Radius

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Existing



Photo #	Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
1	Comm Ave East	42.33878 -71.15517	+/- 0.18 Miles	West	285.57	Year Round

Site: 4BO0090A Archstone Building

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Simulation



Photo #	Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
1	Comm Ave East	42.33878 -71.15517	+/- 0.18 Miles	West	285.57	Year Round

Site: 4BO0090A Archstone Building

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Existing



Photo #	Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
2	Randor @ Kirkwood Rd	42.34072 -71.15652	+/- 0.13 Miles	North West	222.45	Year Round

Site: 4BO0090A Archstone Building

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Simulation



Photo #	Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
2	Randor @ Kirkwood Rd	42.34072 -71.15652	+/- 0.13 Miles	North West	222.45	Year Round

Site: 4BO0090A Archstone Building

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Existing



Photo #	Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
3	Comm Ave West	42.34016 -71.16060	+/- 0.11 Miles	North East	115.56	Year Round

Site: 4BO0090A Archstone Building

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Simulation



Photo #	Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
3	Comm Ave West	42.34016 -71.16060	+/- 0.11 Miles	North East	115.56	Year Round

Site: 4BO0090A Archstone Building

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Existing



Photo #	Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
4	Evergreen Cemetery	42.33906 -71.16170	+/- 0.16 Miles	East	80.5	Year Round

Site: 4BO0090A Archstone Building

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Simulation



Photo #	Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
4	Evergreen Cemetery	42.33906 -71.16170	+/- 0.16 Miles	East	80.5	Year Round

Site: 4BO0090A Archstone Building

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Existing



Photo #	Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
5	Chestnut Hill Driveway	42.33827 -71.15660	+/- 0.14 Miles	South West	310.24	Year Round

Site: 4B00090A Archstone Building

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Simulation



Photo #	Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
5	Chestnut Hill Driveway	42.33827 -71.15660	+/- 0.14 Miles	South West	310.24	Year Round

Site: 4B00090A Archstone Building

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