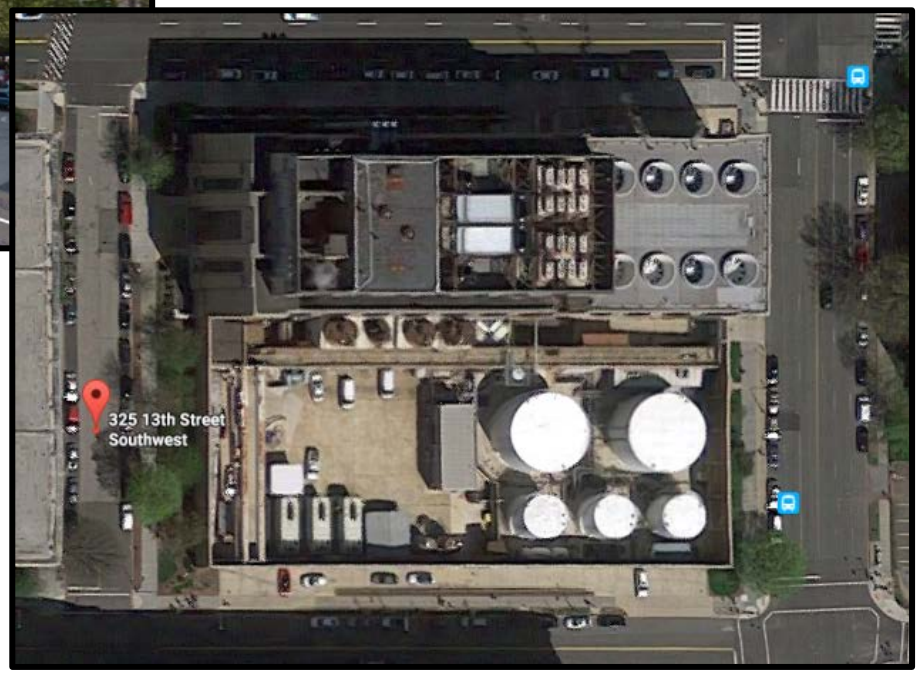
Verizon Wireless Communications Facility at the Central Heating Plant

SHPO Design Submission

Submitted by the General Services Administration
September 1, 2016

GSA Site Name: Central Heating Plant
Verizon Site Name: Central Heating Small Cell

Central Heating Plant



Project Overview: The proposed facility will include two (2) panel antennas enclosed in two separate stealth concealment boxes mounted to the exterior brick screen wall around the tank yard. All associated equipment will be mounted interior to the screen wall and not visible from any street view.

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Contact Information

AGENCY PROJECT MANAGER

Gary L. Porter (GSA Sponsor)
Historic Preservation Specialist
US General Services Administration

301 7th Street Southwest, Washington DC 20407
(202) 205-7766
Gary.Porter@gsa.gov

Project Report

Introduction:

Cellco Partnership, d/b/a Verizon Wireless is licensed by the Federal Communications Commission (FCC) to provide wireless service, including licenses to deploy its network in the Greater Washington, D.C. metropolitan area. The GSA Central Heating Building has been selected as a potential site to help fulfill coverage objectives for the immediate area as part of this network.

Project Description:

Verizon Wireless proposes to install and maintain a wireless telecommunications facility on the exterior walls of the GSA Central Heating Plant, which will be a "Small Cell" Installation. The proposed facility will include two (2) panel antennas enclosed in two separate stealth concealment boxes, one (1) GPS antenna, and four (4) remote radio head (RRH) devices and coax cables on the interior side of the building screen walls.

The proposed panel antennas are to be flush-mounted to the exterior side of the brick screen wall which encloses the tank yard, one on the east side and one on the south side (at the corner with the east wall, at a rad center elevation of 20'-4" above ground level. The mounting materials for all panel antennas will be stainless steel, and penetrations will be specified to go through mortar joints, rather than through the brick. The proposed panel antennas will be approximately 23.6" x 6.7" x 4.1" in size. The antennas will be enclosed in a stealth concealment boxes, constructed of RF friendly material and painted to match the brick design of the building.

The RRH's and coax cables will be installed on the interior side of the building screen wall and will thus not be visible from the outside.

A radio frequency ("RF") letter is enclosed, indicating that the proposed facility will comply with RF radiation guidelines adopted by the FCC and safety regulations adopted by OSHA.

Existing Conditions:

There are no existing Verizon antennas on this facility.

Capacity Issues:

Having solid voice communications is an important and a critical necessity related to every day public safety, and is certainly critical in the event of emergencies or unplanned events. Voice communication requires robust data capacity to ensure reliability. Additionally, with the proliferation of Smartphones – apps, photography and video streaming demand a persistent connection to the network, as the phones connect to the "Cloud" and do not release from it, even when not in use. This creates an unprecedented demand on the capacity of the network, particularly at large scale events where users are congregated in one place, and utilizing these streaming features non-stop.

Safety Considerations:

It is Verizon Wireless' goal to continue to provide reliable service to the public. From a safety perspective, there is an immediate need to improve capacity throughout DC and particularly in the core of the Capital area and National Mall area. Verizon Wireless is a major supplier of mobile communications to all of the U.S. Government Agencies and is the priority network provider for DC Government, which includes the majority of first responders. The Capitol Police, Park Police, and many other crucial public safety agencies utilize the Verizon network as well. Improvements to capacity are not only critical for the improved safety for the many large scale events held throughout the year but are highly critical in the event of an emergency or other "unplanned event". The proposed facility will help to ensure that the network can continue to provide enough capacity for both the public and emergency service agencies to utilize.

Project Report

Existing Antennas Installations:

There is an existing macro/rooftop installation by another carrier at this facility.

Project Budget:

No government funds are being utilized for the installation of the proposed antennas.

Project Schedule:

Construction commence: December 2016

Construction completion: 1st Quarter 2017

Historic Preservation:

GSA, in coordination with Verizon Wireless, is initiating this review required under Section 106 of the National Historic Preservation Act of 1996, and Verizon Wireless will assist GSA as required.

Building Codes and Operational Maintenance:

Installation of the proposed antennas will be done in compliance with the International Building Code 2015. Verizon Wireless will conduct regular periodic inspections of the site to ensure its continued, safe operation. The roof is a secured area and is not accessible by the general public.

Conclusion:

Verizon Wireless has worked very closely with GSA to design the telecommunications facility to pose minimal impact on the subject building and the surrounding area.

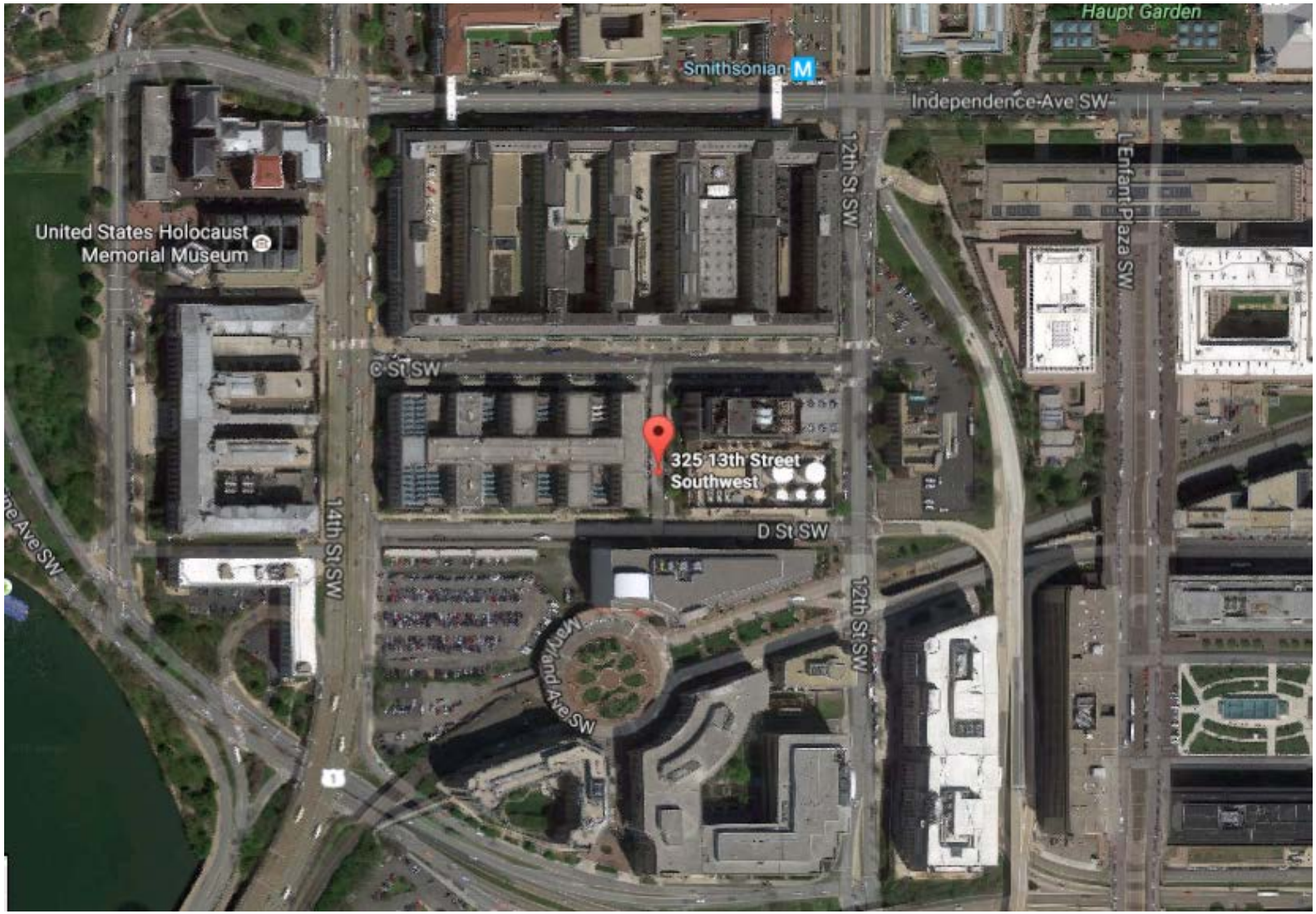
Alternatives Considered:

The proposed installation is designed to bring enhanced Verizon Wireless in-vehicle service along 12th Street, “C” St. and “D” St., as well as in-building service for the office buildings along those routes. There are no other viable buildings on which these antennas could be placed.

verizon

EXHIBITS

Vicinity Map



Aerial Map

Neighborhood Description

The neighborhood around the proposed Verizon facility location is described as:

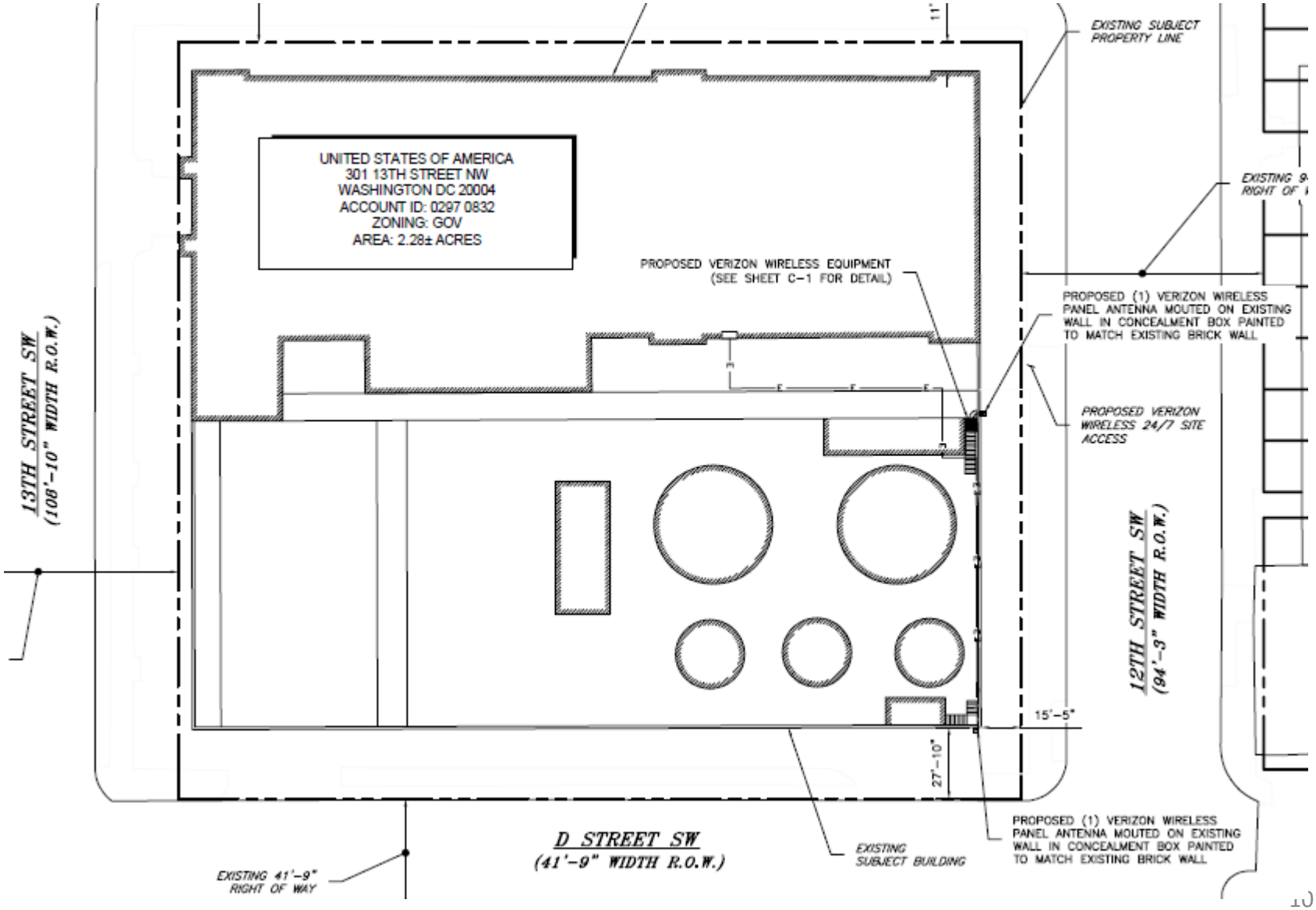
To the North are the USDA Foreign Agricultural Service Building.

To the West is the FCC Building and then the Bureau of Engraving Building.

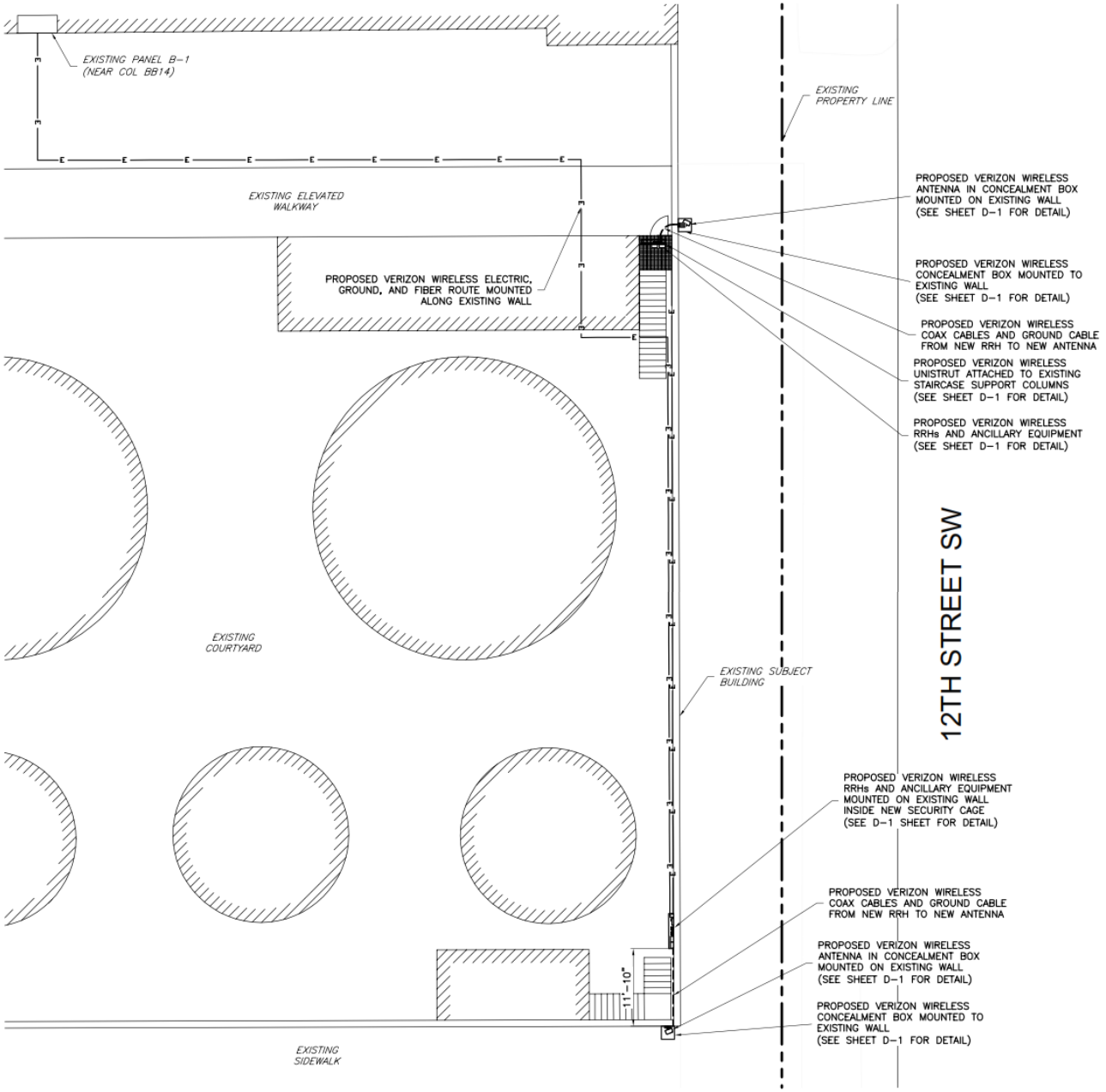
To the South is a large office building for Aviation Metron, Booze Allen Hamilton, and the Biotechnology Innovation Organization, and also a CVS retail store and Starbucks.

To the East is a small office building and parking lot, and beyond that is L'Enfant Plaza, including the Pentagon FCU and the Congressional FCU.

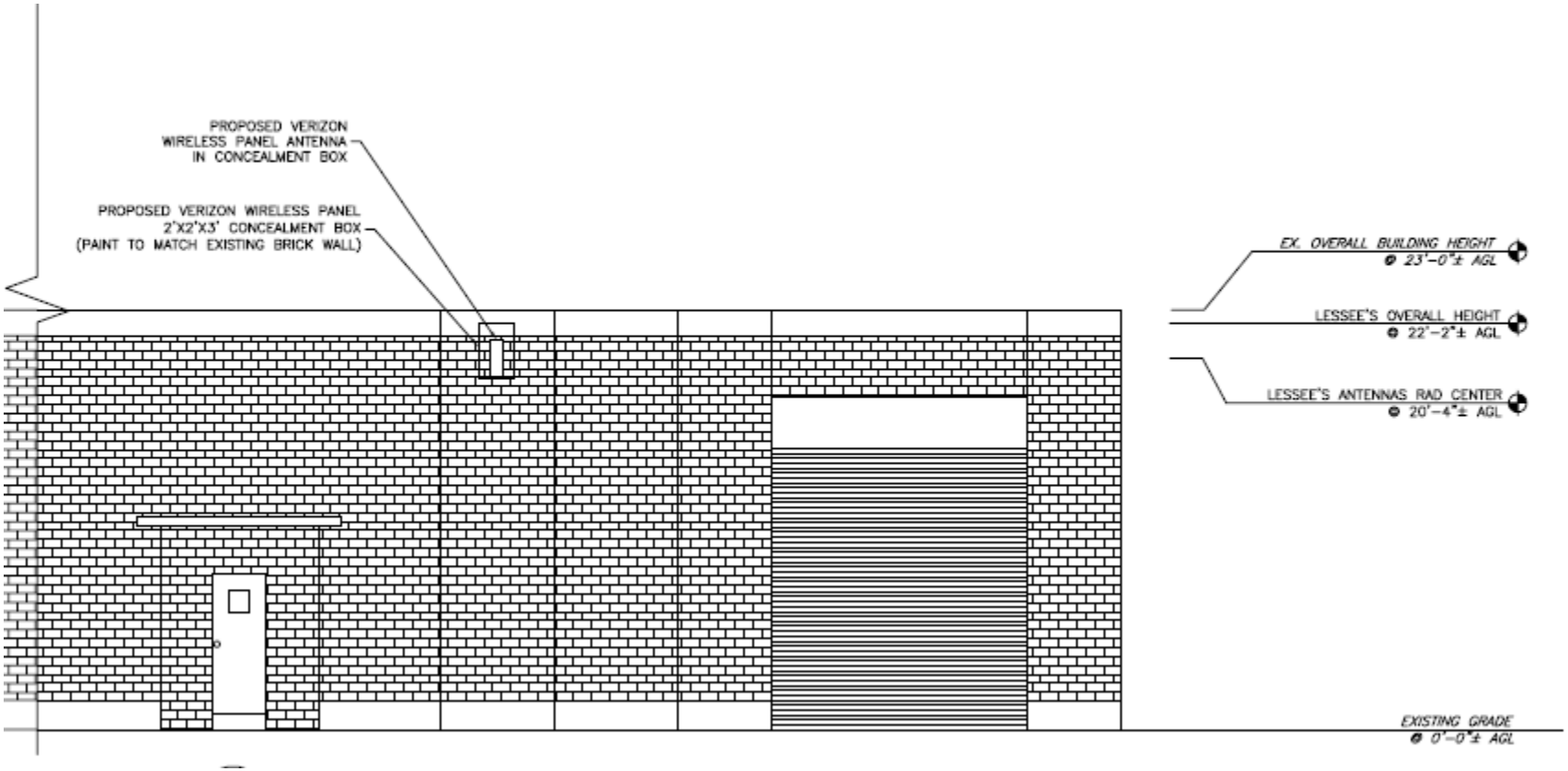
Property Overview



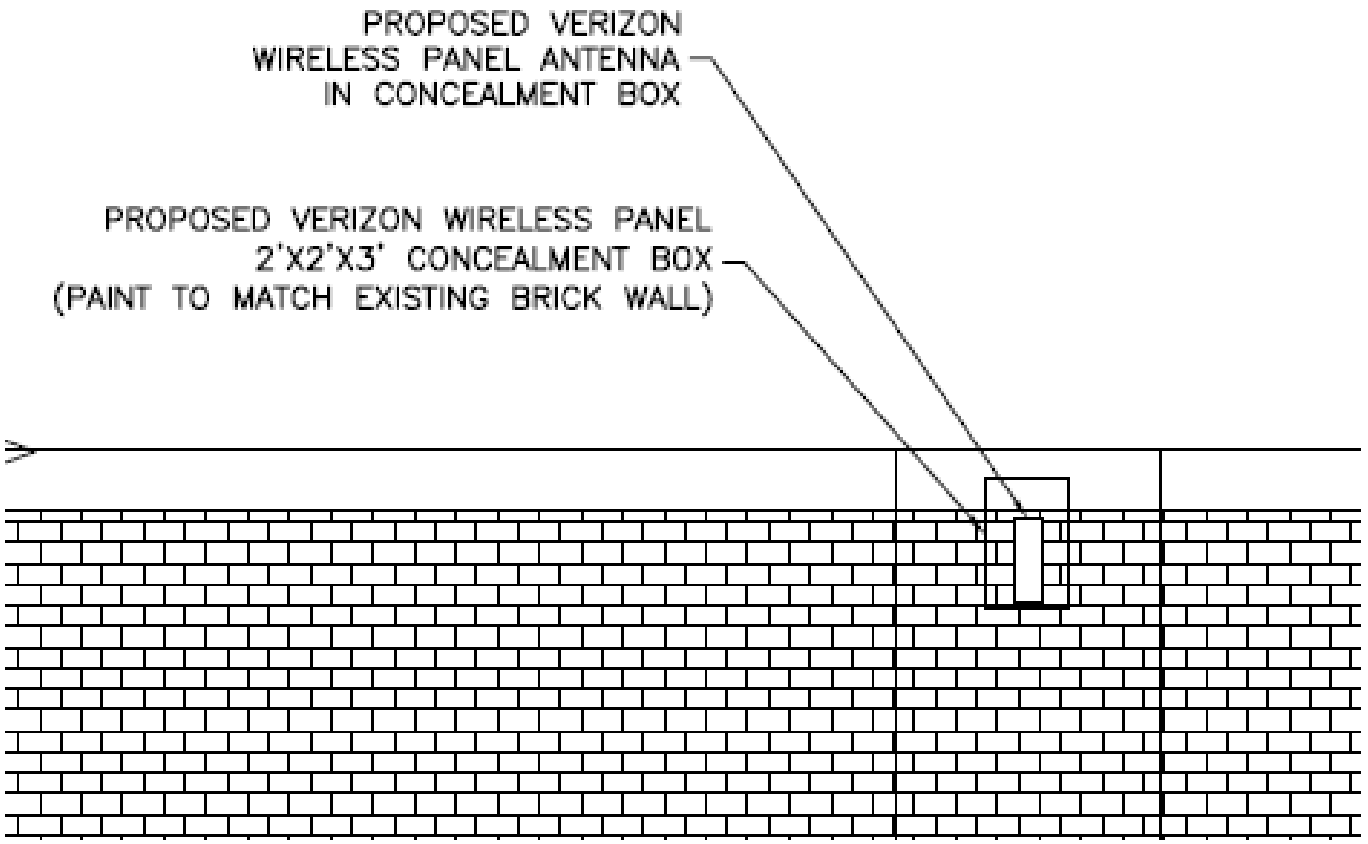
Enlarged Layout



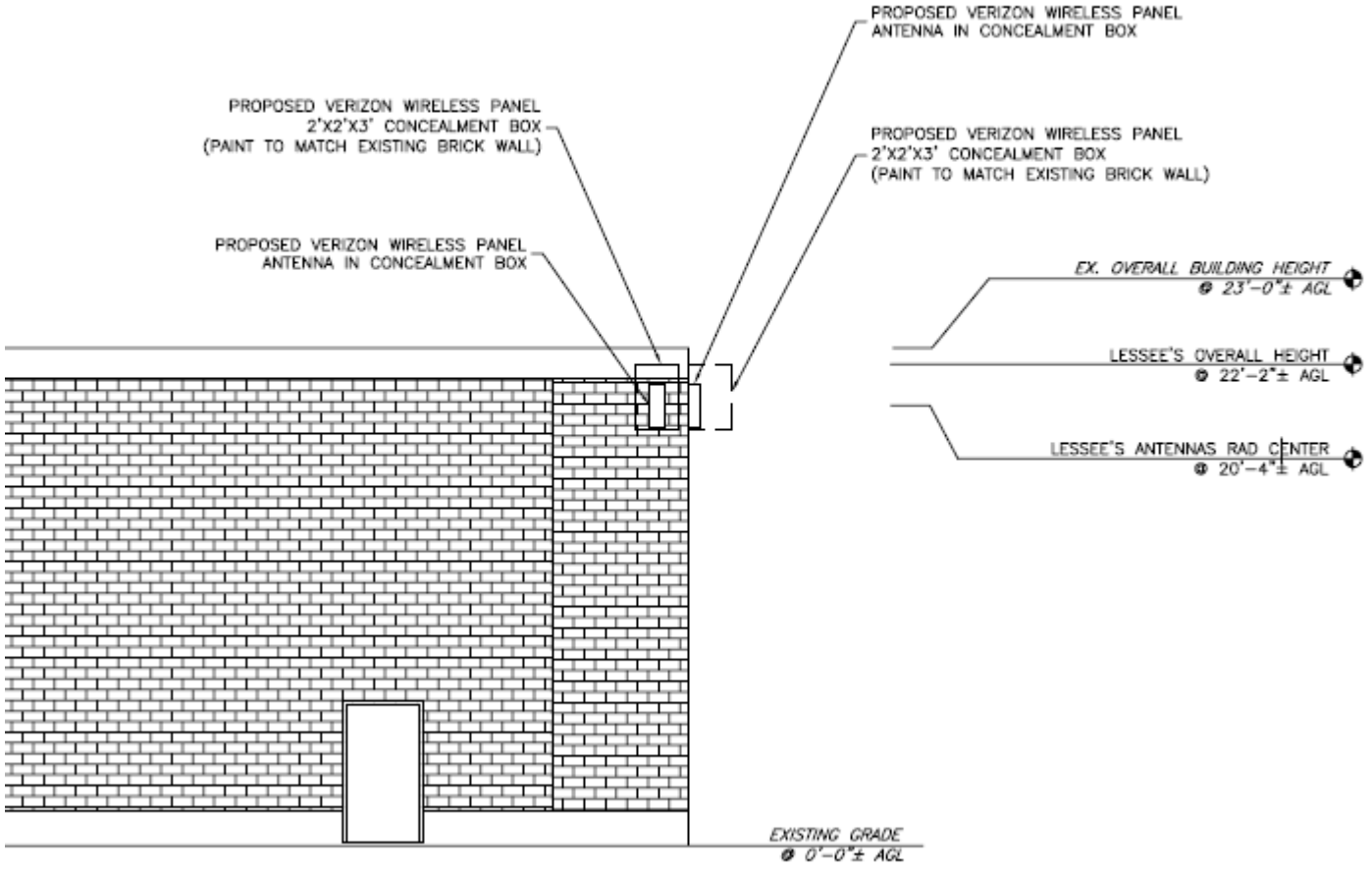
East Elevation



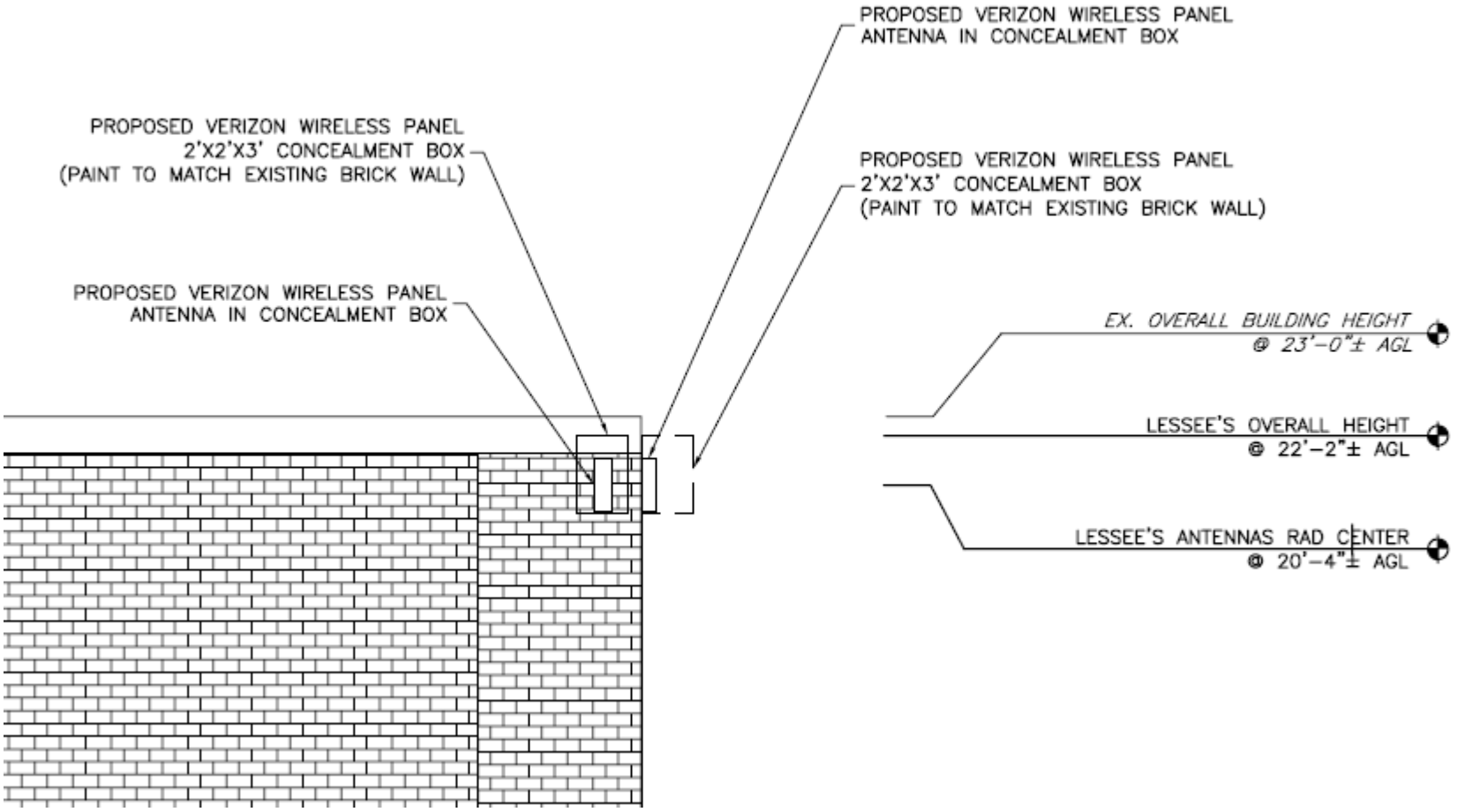
East Elevation – Enlarged View



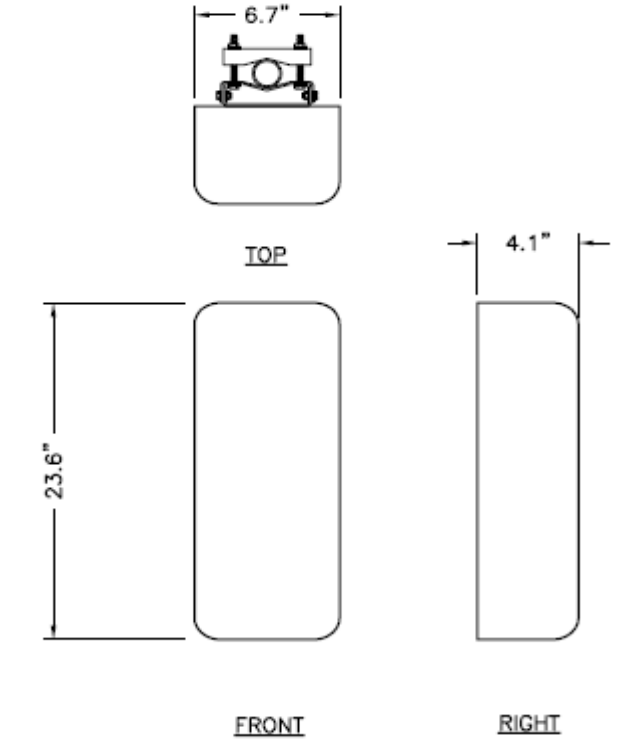
South Elevation



South Elevation – Enlarged View



Antenna Detail



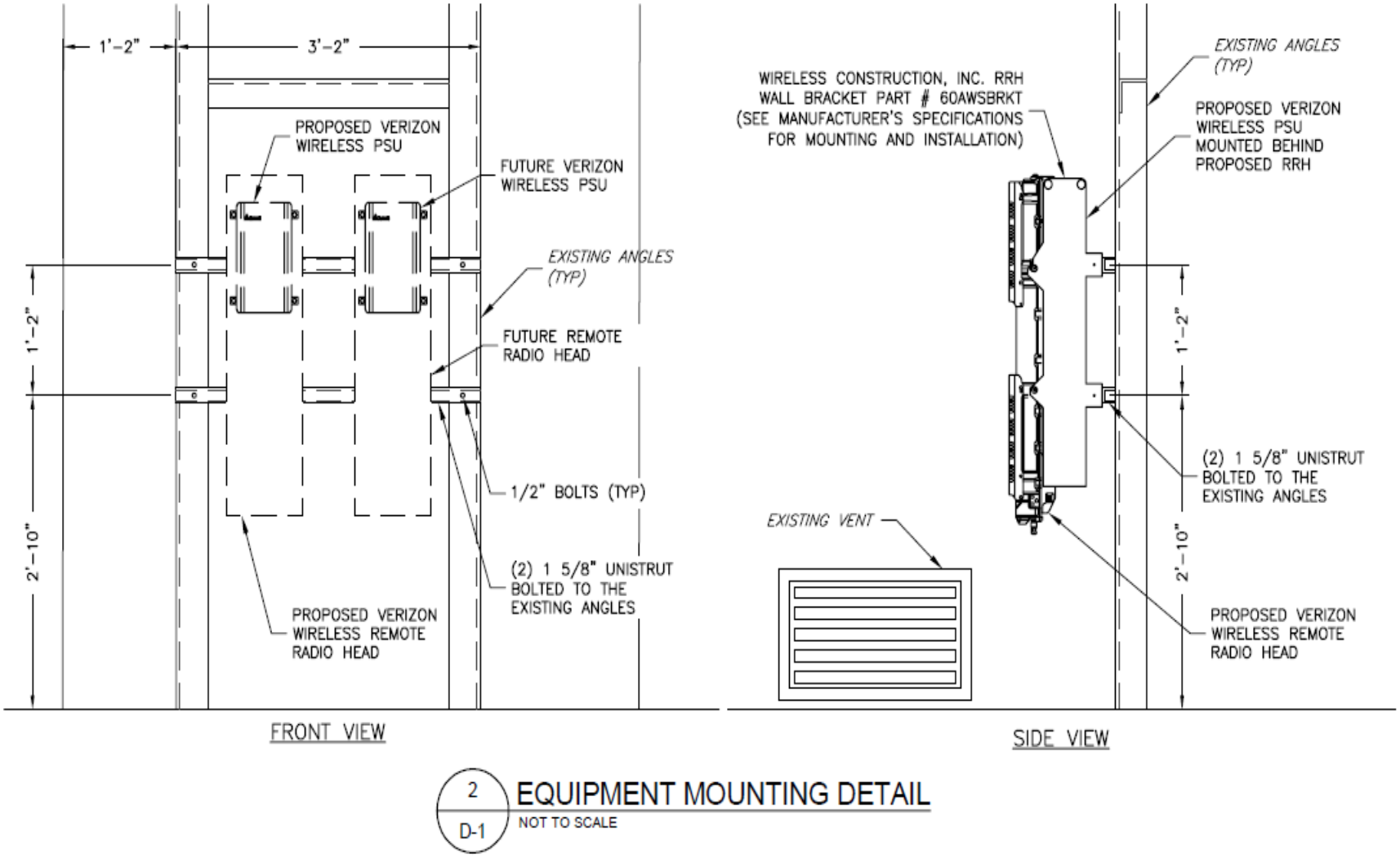
MECHANICAL SPECIFICATIONS

HEIGHT:	23.6 IN
WIDTH:	6.7 IN
DEPTH:	4.1 IN
WEIGHT:	8.4 LBS

2 / D-1 V65S-1XR ANTENNA DETAIL

NOT TO SCALE

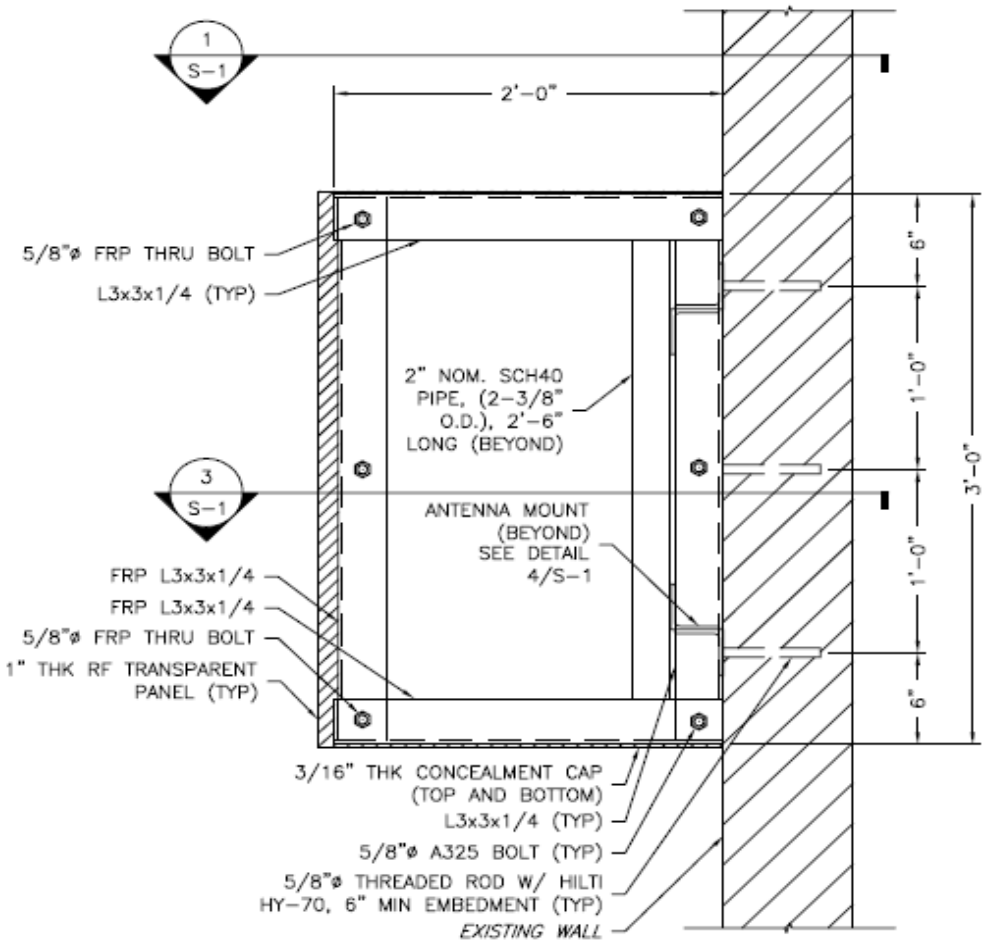
RRH Mounting Detail



2 / D-1 EQUIPMENT MOUNTING DETAIL

NOT TO SCALE

Concealment Box Detail



2 / S-1 CONCEALMENT BOX SIDE ELEVATION

SCALE: 1-1/2" = 1'-0"

Antenna Specification Sheet

Product Specifications

COMMSCOPE®

V65S-1XR

Single Band MetroCell Antenna, 1695–2690 MHz, 65° horizontal beamwidth, internal RET with manual override.

- Provides a future-ready antenna solution with flexibility to reassign antenna, for example GSM 1800 service to 2.6GHz LTE at a later date
- Employs state-of-the-art ultra wideband technology providing excellent RF performance in all bands
- RF technology flexible—suitable for LTE, UMTS, CDMA, GSM, AWS, WiMAX, and other applications from 1.7–2.7 GHz
- Excellent RF pattern control over the full operating band and tilt range for desired coverage and interference containment
- Remote beam tilt management is an optional feature using Andrew's Teletilt® system
- Integrated Internal Remote Electrical Tilt (RET), with independent control of electrical tilt with manual override on all arrays

Electrical Specifications

Frequency Band, MHz	1695–1880	1850–1990	1920–2200	2300–2500	2500–2690
Gain, dBi	13.4	13.7	13.9	14.6	14.5
Beamwidth, Horizontal, degrees	70	69	69	63	61
Beamwidth, Vertical, degrees	18.6	17.2	16.4	14.4	13.7
Beam Tilt, degrees	0–20	0–20	0–20	0–20	0–20
USLS (First Lobe), dB	20	21	28	19	20
Front-to-Back Ratio at 180°, dB	29	27	28	29	27
Isolation, dB	25	25	25	25	25
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	300	300	300	250	250
Polarization	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Antenna Specification Sheet

Product Specifications

COMMSCOPE

W65S-TXR

Band	Single band
Brand	DualPol®
Operating Frequency Band	1695 – 2690 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	PVC, UV resistant
Reflector Material	Aluminum
RF Connector Interface	4.1-9.5 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	2
Wind Loading, frontal	118.0 N @ 150 km/h 26.5 lbf @ 150 km/h
Wind Loading, lateral	48.0 N @ 150 km/h 10.8 lbf @ 150 km/h
Wind Loading, rear	151.0 N @ 150 km/h 33.9 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Depth	105.0 mm | 4.1 in
Length	600.0 mm | 23.6 in
Width	170.0 mm | 6.7 in
Net Weight, without mounting kit	3.8 kg | 8.4 lb

RF Design Engineer Support Letter

verizonwireless

RE: Verizon Wireless
Central Heating Plant GSA Small Cell Site
325 13th Street , SW
Washington, DC 20228

August 17, 2016

To Whom It May Concern,

Verizon Wireless operates a Personal Communication Service authorized by the Federal Communications Commission (FCC) to provide state of the art digital wireless communications in many parts of the nation, including Washington, DC. Verizon Wireless' operations and network are licensed and regulated by the FCC.

The antennas, as proposed and designed for the above noted site, are in compliance with all applicable FCC requirements. In addition, the proposed site meets all applicable ANSI/IEEE C95.1-1992 exposure levels, as adopted by the FCC requirements.

Antenna Model: Commscope HBXX-6513DS EIRP = 125 Watts/MHz (AWS)

The means used to determine the RF levels for this installation were generated thru the "link budget" i.e. computer model calculation. This formula determines the RF level by calculating the transmit power, antenna gain and equipment specifications of the base station components.

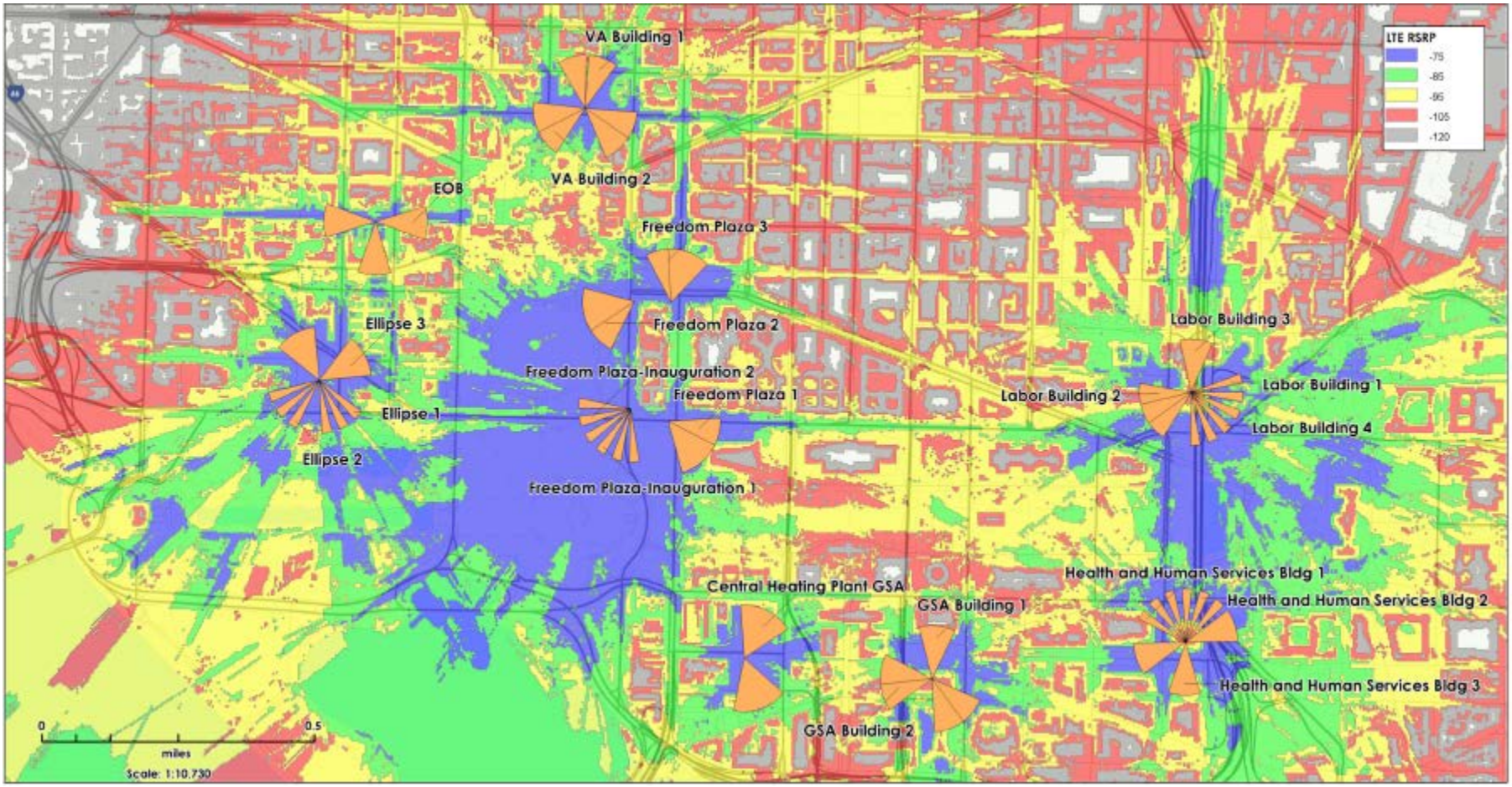
Verizon Wireless is committed to compliance with all government regulations and standards. Please contact Verizon Wireless if you have any questions regarding this matter.

Sincerely,

Roque Fial

Roque Fial
RF Design Engineer / Verizon Wireless
9000 Junction Drive
Annapolis Junction, MD 20701
301-512-2406

RF Propagation Map – Overview



EOB: GSA Central Office

Ellipse: DOI South Annex

GSA Building: GSA Regional Office Building (ROB)

Central Heating Plant

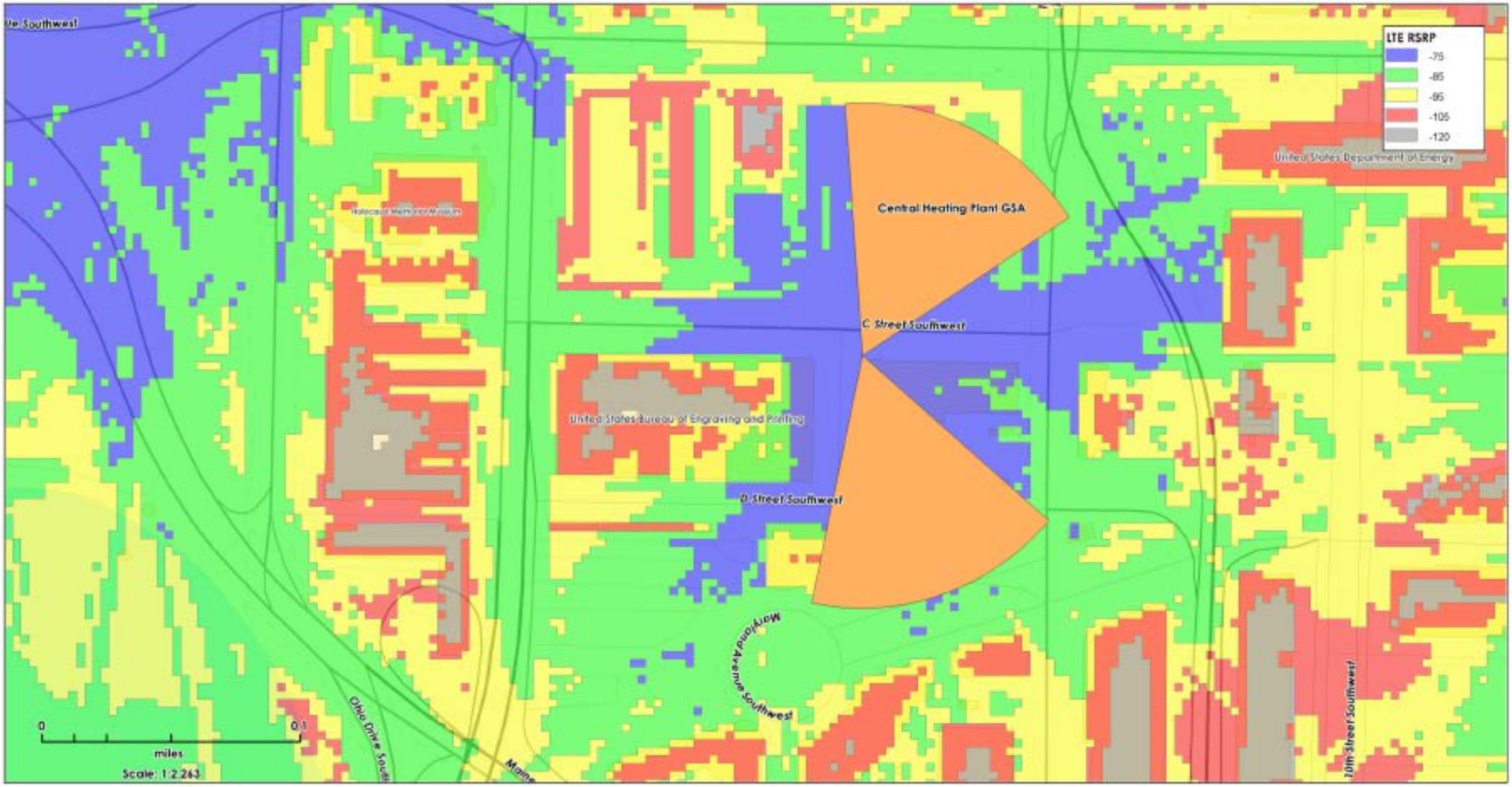
VA Building: Veterans' Affairs

Freedom Plaza: Department of Commerce

Labor Building: DOL/Frances Perkins

Health and Human Services: HHS/Hubert Humphrey

RF Propagation Map – Central Heating Plant



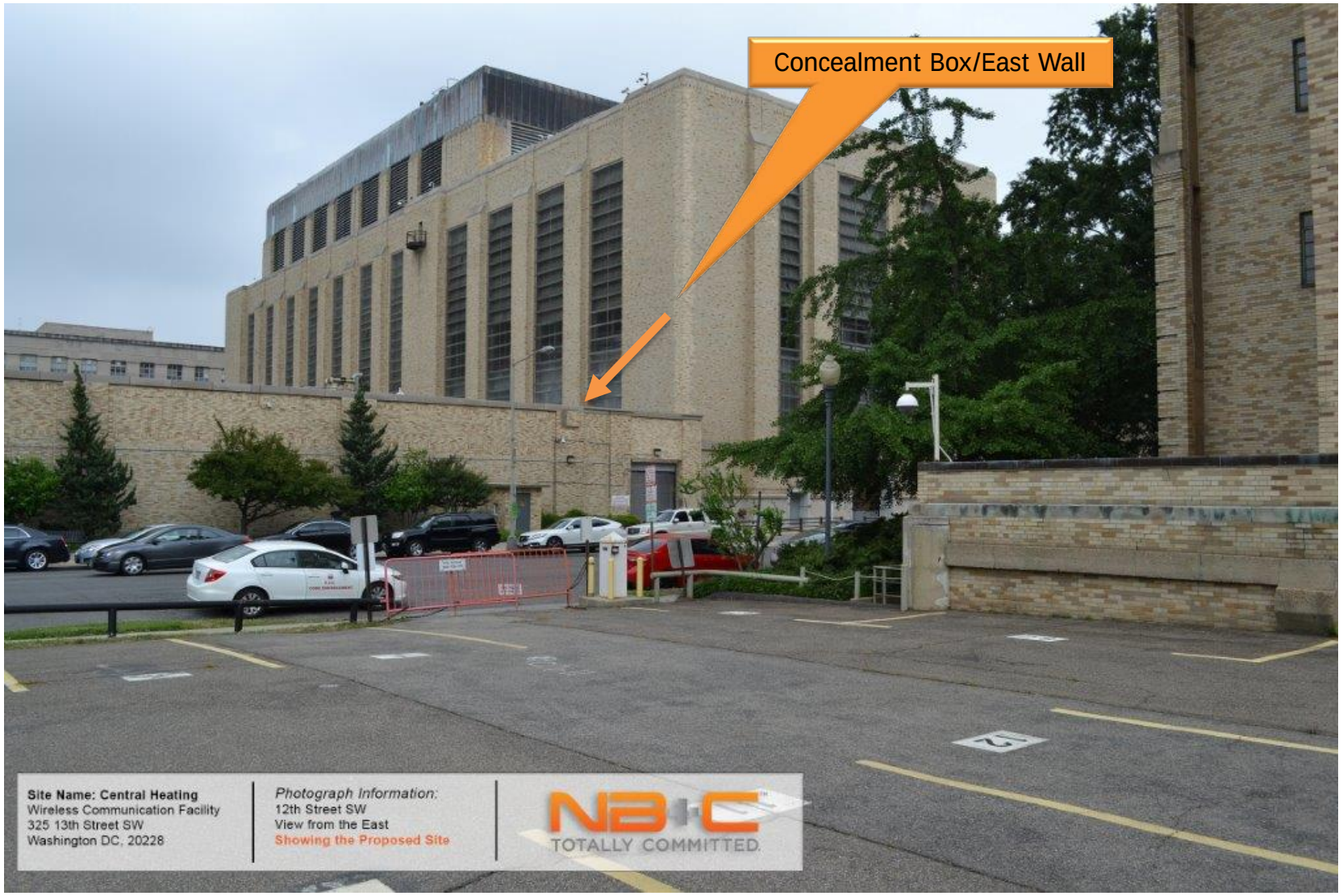
verizon

PHOTO SIMULATIONS

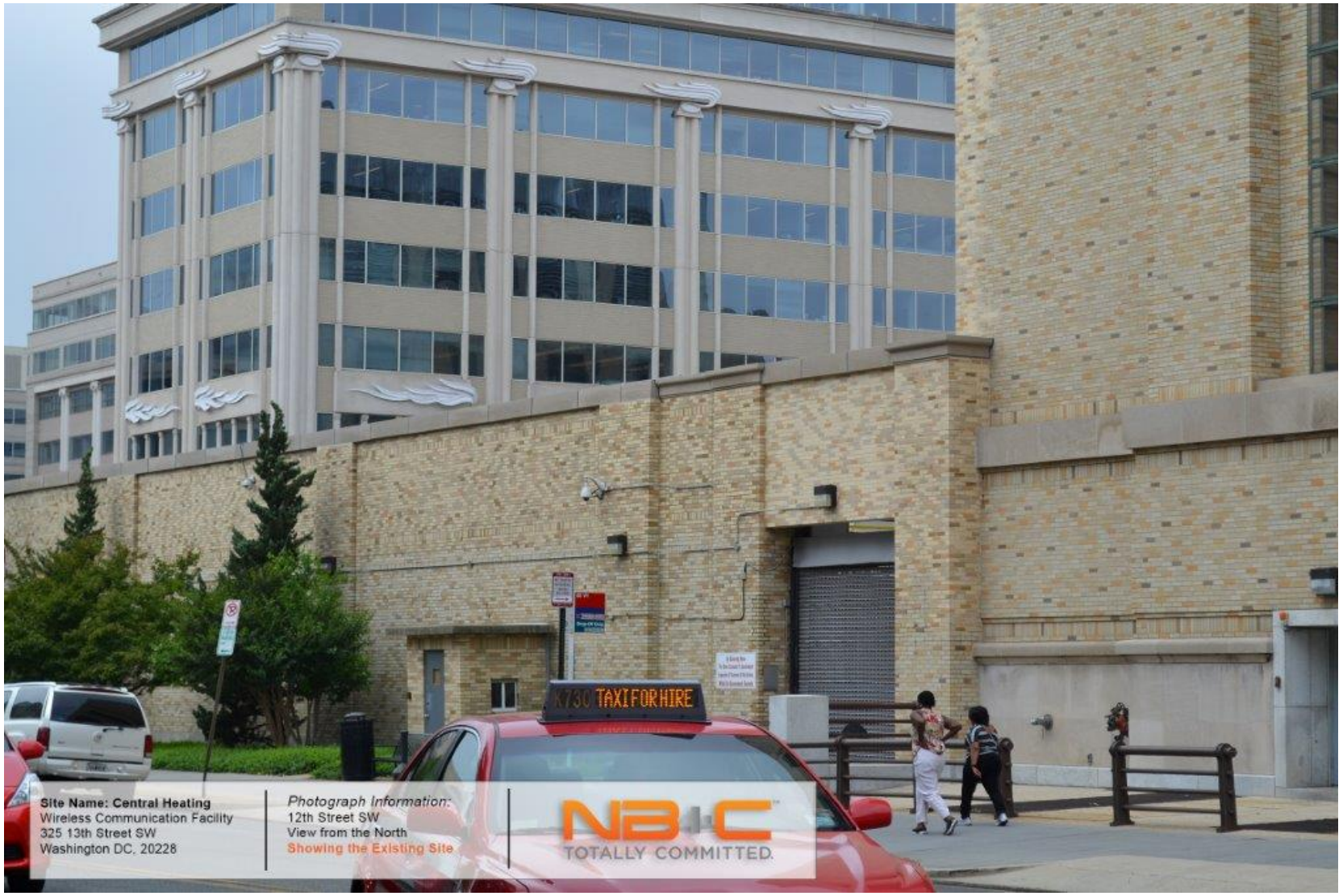
Photo Simulation Location Legend

East View – Existing Condition

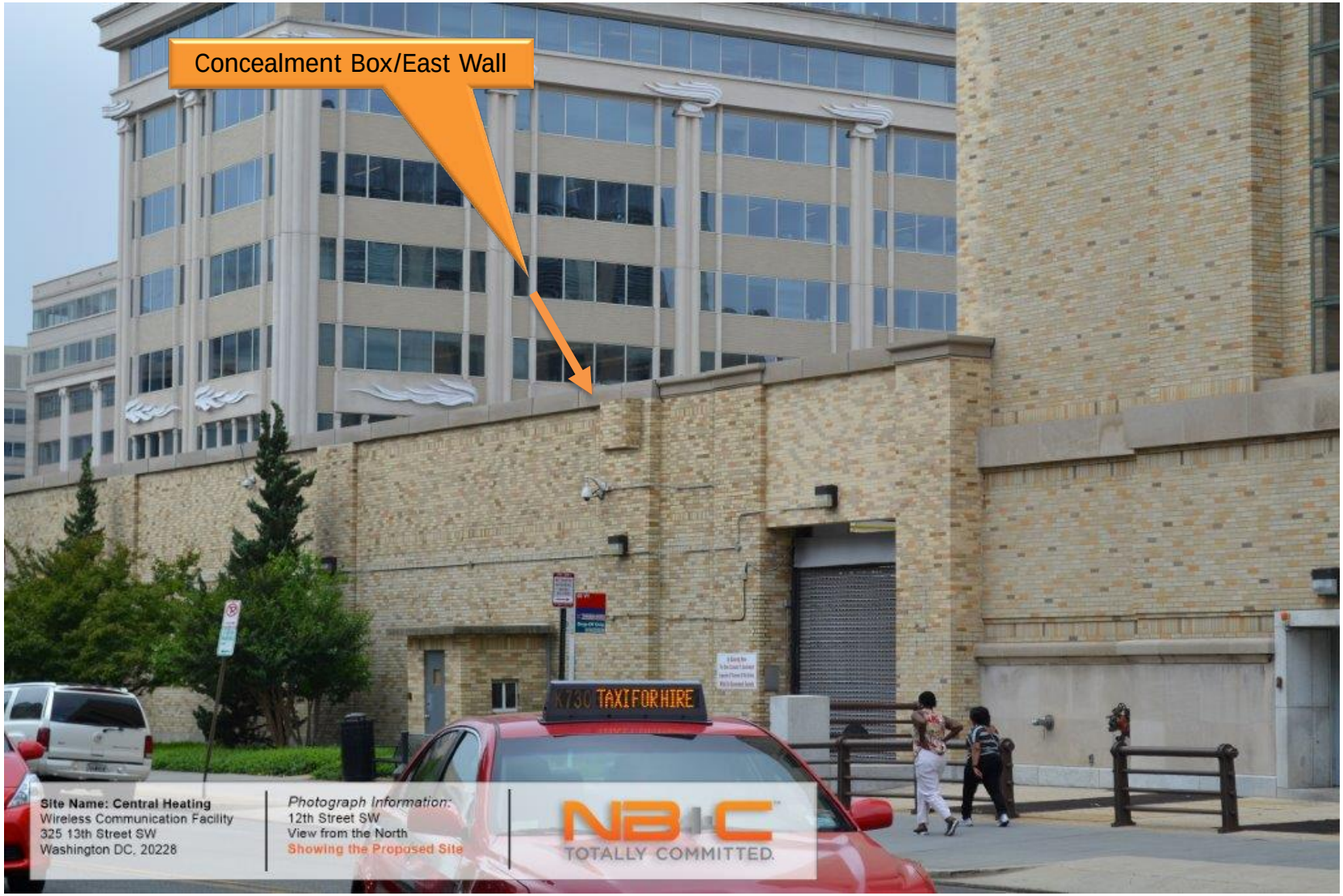
East View – Proposed Condition



North View – Existing Condition



North View – Proposed Condition



West View – Existing Condition

West View – Proposed Condition

South View – Existing Condition

South View – Proposed Condition

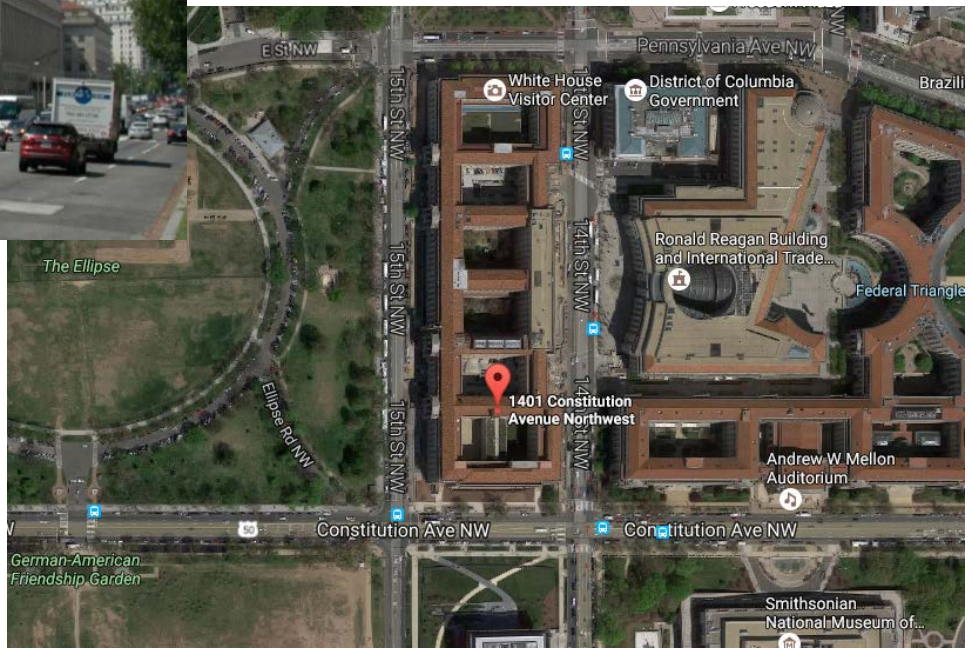
Verizon Wireless Communications Facility at the U.S. Department of Commerce

SHPO Design Submission

Submitted by the General Services Administration
September 1, 2016

GSA Site Name: DOC/Department of Commerce
Verizon Site Name: Freedom Plaza

US Department of Commerce



Project Overview:

The temporary modification of this site will include the addition of a 3’ sphere antenna to the south end of the west balcony and a microwave antenna at the west end of the south balcony.

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AGENCY PROJECT MANAGER

Gary L. Porter (GSA Sponsor)
Historic Preservation Specialist
US General Services Administration

301 7th Street Southwest, Washington DC 20407
(202) 205-7766
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Project Report

Project Description:

Cellco Partnership, d/b/a Verizon Wireless is licensed by the Federal Communications Commission (FCC) to provide wireless service, including licenses to deploy its network in the Greater Washington, D.C. metropolitan area. Verizon Wireless proposes to implement modifications to the existing telecommunications facility on the roof of the Department of Commerce (Commerce) building in order to continue to meet coverage and capacity objectives for the immediate area as part of this network.

Existing Conditions:

The existing facility consists of three antenna sectors, resulting in a total of twelve antennas. Each of the existing sectors consists of four antennas that are mounted with non-penetrating compression mounts to the balcony balustrade of the northwest, northeast and southeast corners of the building, respectively. The equipment cabinets that support this facility are located in an interior room on the attic floor of the Commerce Building.

Temporary Proposed Changes:

The temporary modification of this site will include the addition of a 3' sphere antenna to the south end of the west balcony and a 1' microwave antenna at the west end of the south balcony. The sphere antenna will be painted to match the existing façade. The antennas will be completely non-penetrating and non-altering to the building – and will be installed on a ballasted tripod mounts. The associated RRH's will be likewise installed on non-penetrating ballasted sleds. Post Inauguration the temporary equipment will be removed in its entirety and the site will be returned to its exact original condition.

Note: Verizon Wireless is proposing to add a permanent sector in this same proximity which will include balustrade mounted antennas consistent with those already installed by Verizon and other carriers in similar locations. That application is pending, and separate from this temporary proposal

Project Schedule:

The upgrades for this site are needed to accommodate the expected extreme capacity issues for the upcoming Presidential Inauguration, and will need to be completed by early December in order to integrate and optimize into the network.

Construction commence: Install Mid-November 2016

Construction completion: Remove by February 4, 2017 (weather permitting)

Visibility:

The proposed temporary installation will be painted to match in order to reduce visibly. The visual impact of the modifications will be temporary and minimal to the aesthetics of the building and the surrounding area.

Project Report

Capacity Issues:

Solid voice communications are an important necessity related to every day public safety, and are especially critical in the event of emergencies or unplanned events. Voice communication requires robust data capacity to ensure reliability. Additionally, with the proliferation of Smartphones – apps, photography and video streaming demand a persistent connection to the network, as the phones connect to the "Cloud" and do not release from it, even when not in use. This creates an unprecedented demand on the capacity of the network, particularly at large scale events where users are congregated in one place, and utilizing these streaming features non-stop. The modification of the site will help to maintain an adequate level of network capacity.

Safety Considerations:

It is Verizon Wireless' goal to continue to provide reliable service to the public. From a safety perspective, there is an immediate need to improve capacity throughout DC and particularly in the core of the Capital and National Mall areas. Verizon Wireless is a major supplier of mobile communications to all of the US Government Agencies and is the priority network provider for DC Government, which includes the majority of first responders. Capitol Police, Park Police and many other crucial public safety agencies utilize the Verizon network, as well. Improvements to capacity are not only crucial for the improved safety for the many large scale events held throughout the year but are highly critical in the event of an emergency or other "unplanned event". The modification of this facility will help to ensure that the network can continue to provide enough capacity for both the public and emergency service agencies to utilize.

Alternatives Considered:

Because this building is already utilized as a telecommunication facility, no alternate structures were considered. The existing site will continue to meet coverage and capacity objectives once the proposed modification are made.

Project Budget:

No government funds are being utilized for the installation of the proposed antennas.

Existing Antennas Installations:

In addition to the existing Verizon Wireless equipment, there are numerous other antennas and related equipment located on this rooftop. These antennas are operated by other wireless carriers, commercial providers, and governmental agencies.

Historic Preservation:

GSA, in coordination with Verizon Wireless, is initiating this review required under Section 106 of the National Historic Preservation Act of 1996, and Verizon Wireless will assist GSA as required.

Building Codes and Operational Maintenance:

Installation of the proposed antennas will be completed in compliance with the International Building Code 2015. Verizon Wireless will conduct regular periodic inspections of the site to ensure its continued, safe operation. The roof is a secured area and is not accessible by the general public.

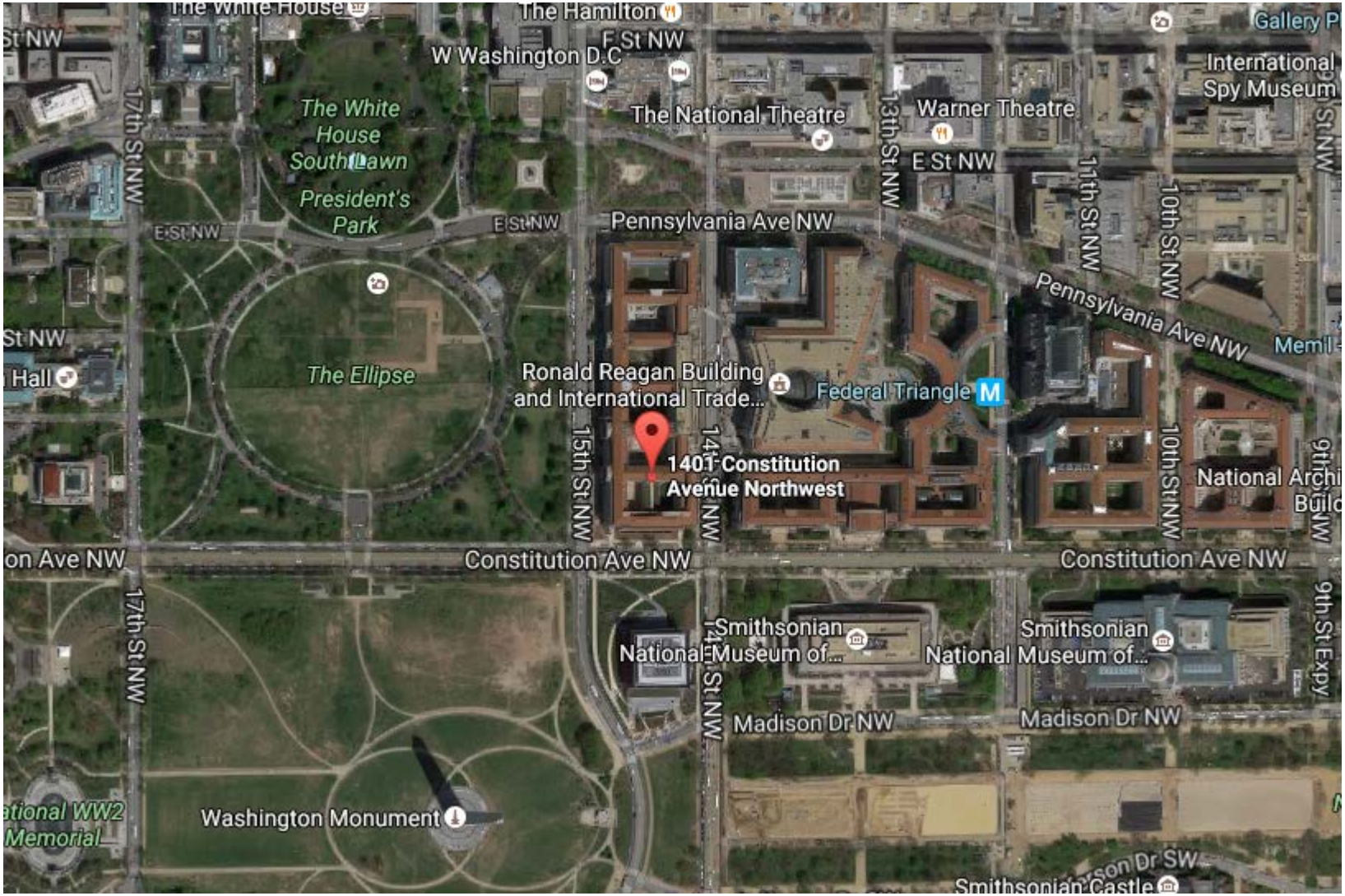
Conclusion:

Verizon Wireless has worked very closely with GSA to design the modifications to this existing telecommunications facility. The resulting changes will pose minimal impact on the subject building and the surrounding area.

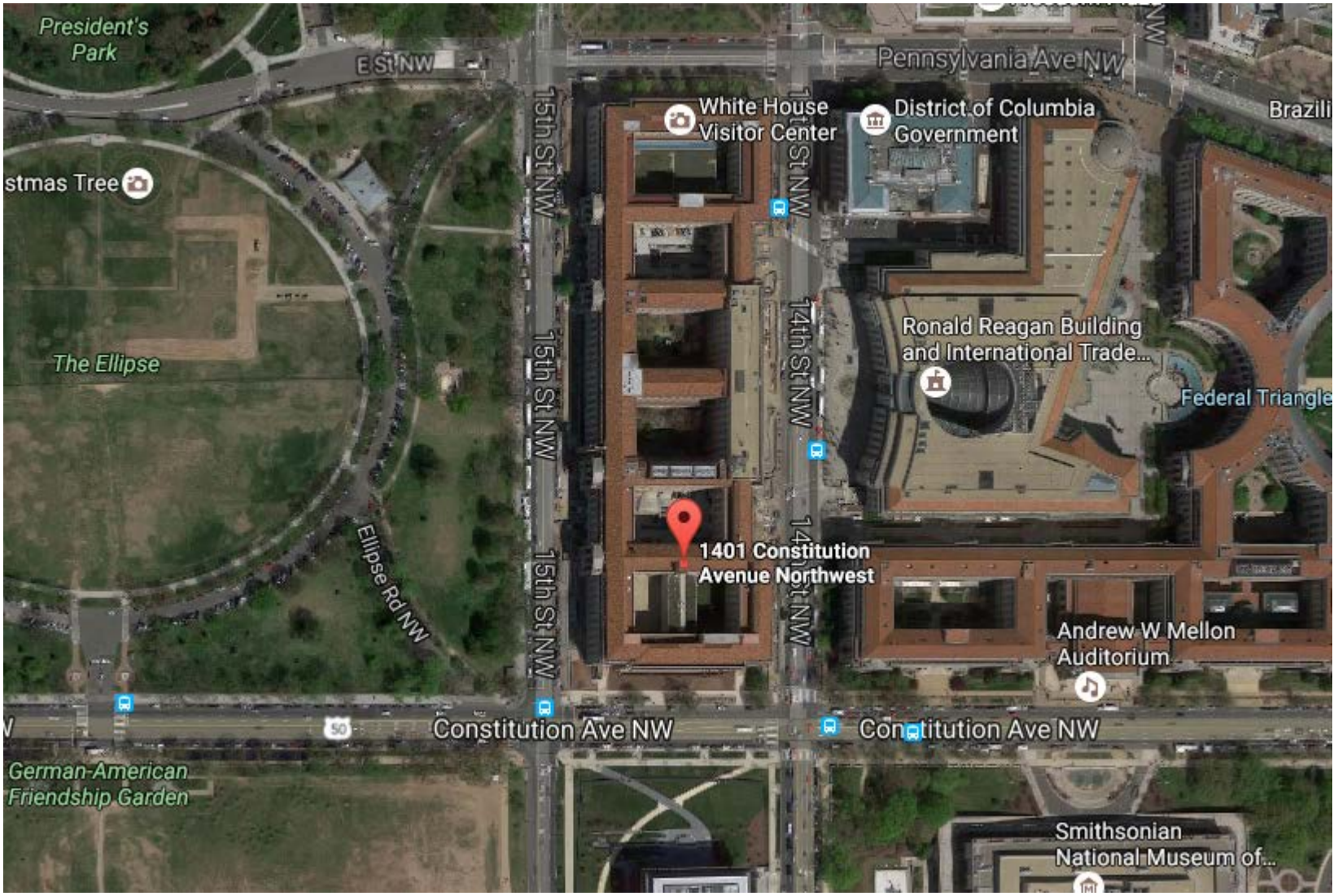
verizon

EXHIBITS

Vicinity Map



Aerial Map


President's Park
E St NW
Pennsylvania Ave NW
White House Visitor Center
District of Columbia Government
Brazili
stmas Tree
15th St NW
14th St NW
The Ellipse
Ronald Reagan Building and International Trade...
Federal Triangle
1401 Constitution Avenue Northwest
Ellipse Rd NW
Andrew W Mellon Auditorium
Constitution Ave NW
Constitution Ave NW
German-American Friendship Garden
Smithsonian National Museum of...

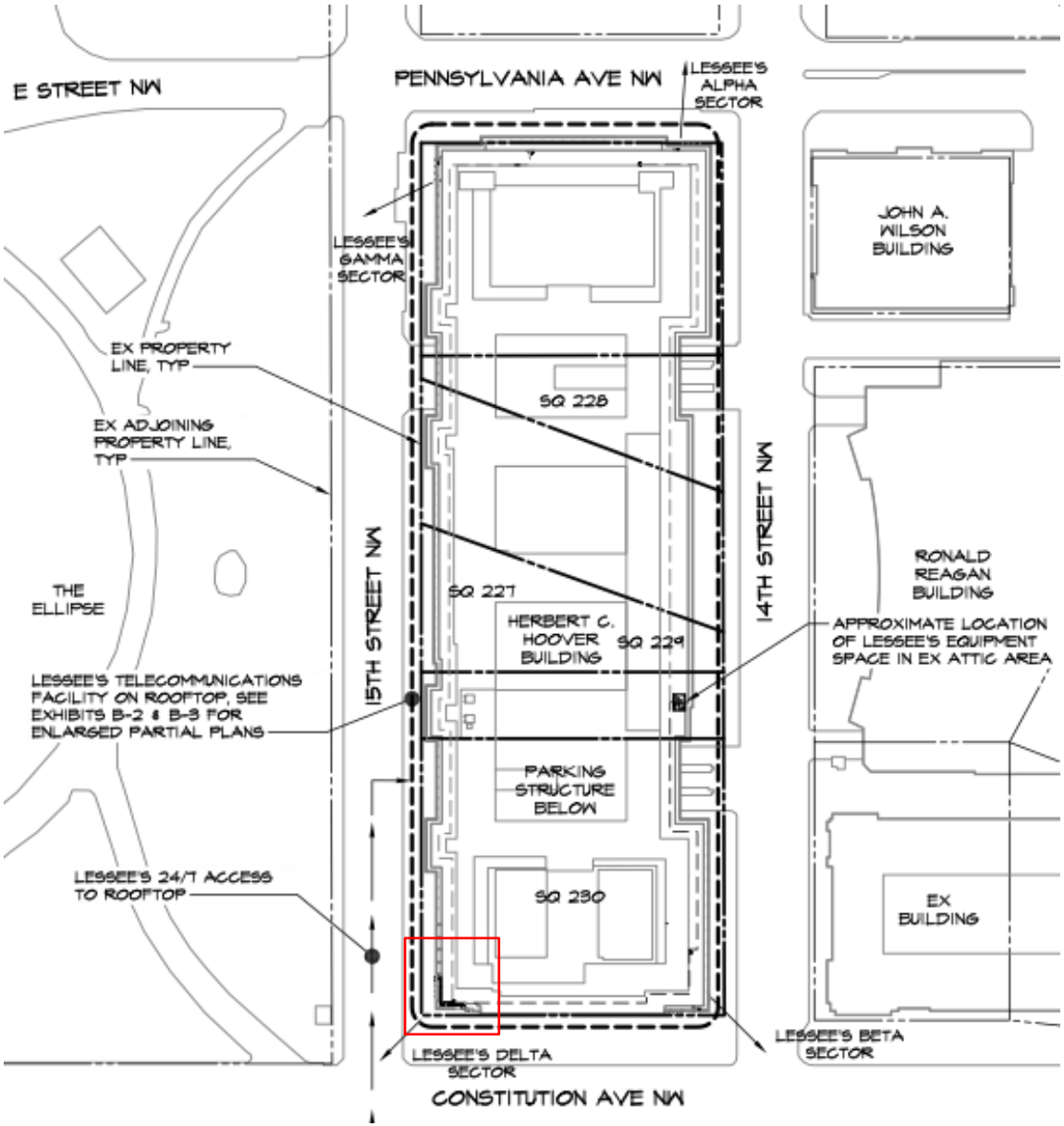
Neighborhood Description

Surrounding landmarks include:

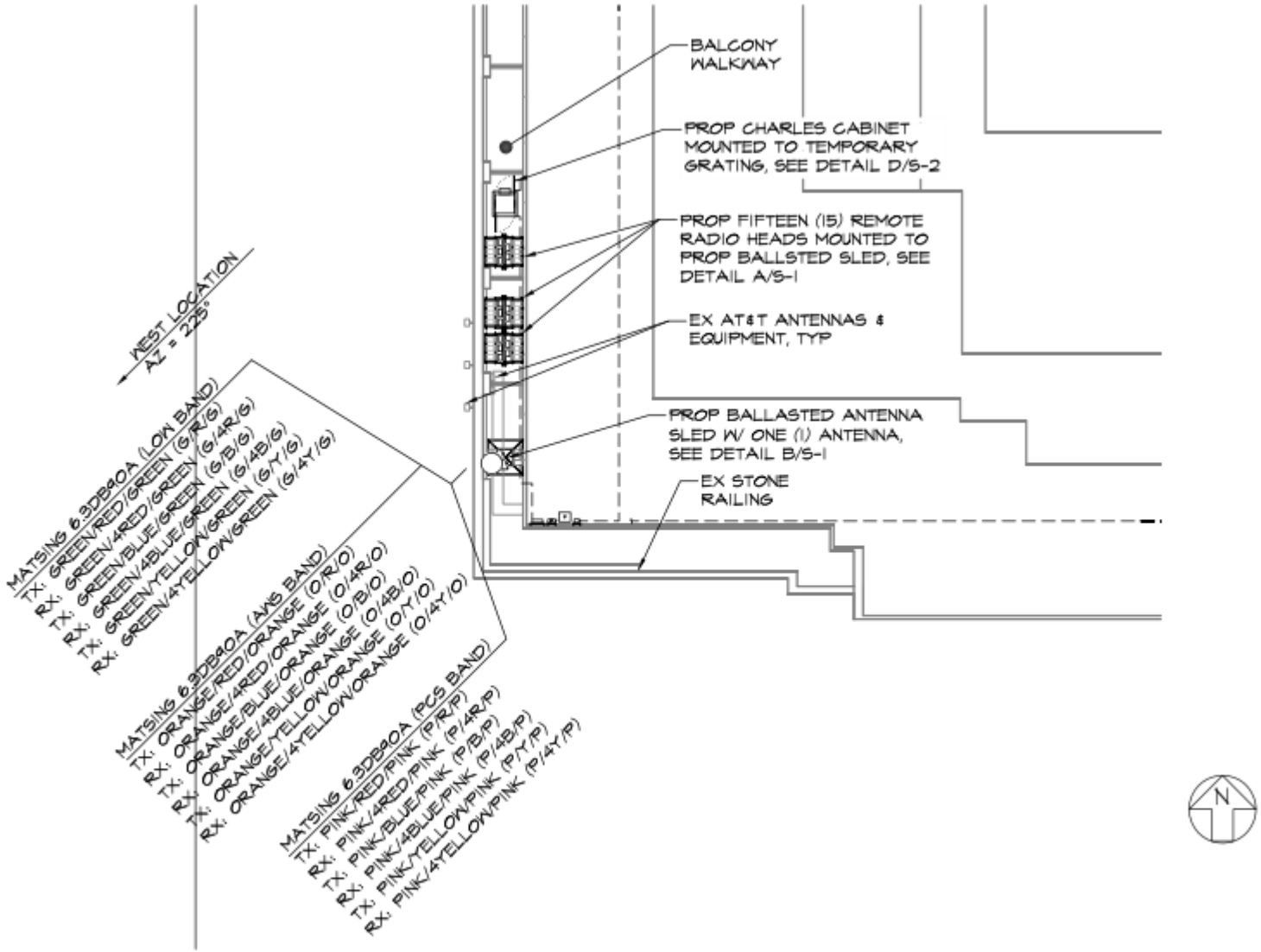
- **To the North of the Building**: The National Theatre
- **To the East of the Building**: CVS Pharmacy, Hudson Institute
- **To the South of the Building**: District of Columbia Government Building, The UPS Store
- **To the West of the Building**: Pershing Park, White House Visitor's Center

Overview Map

- Details view shown on later slides



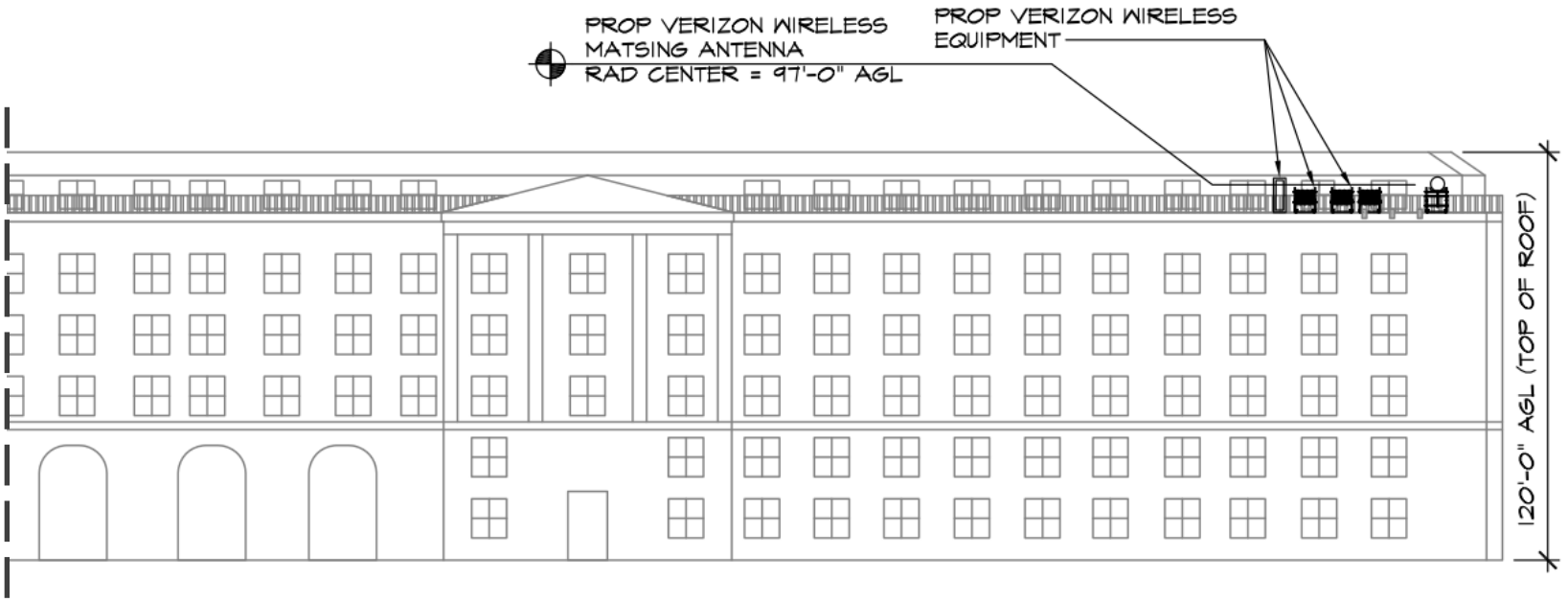
Gamma Sector Detail



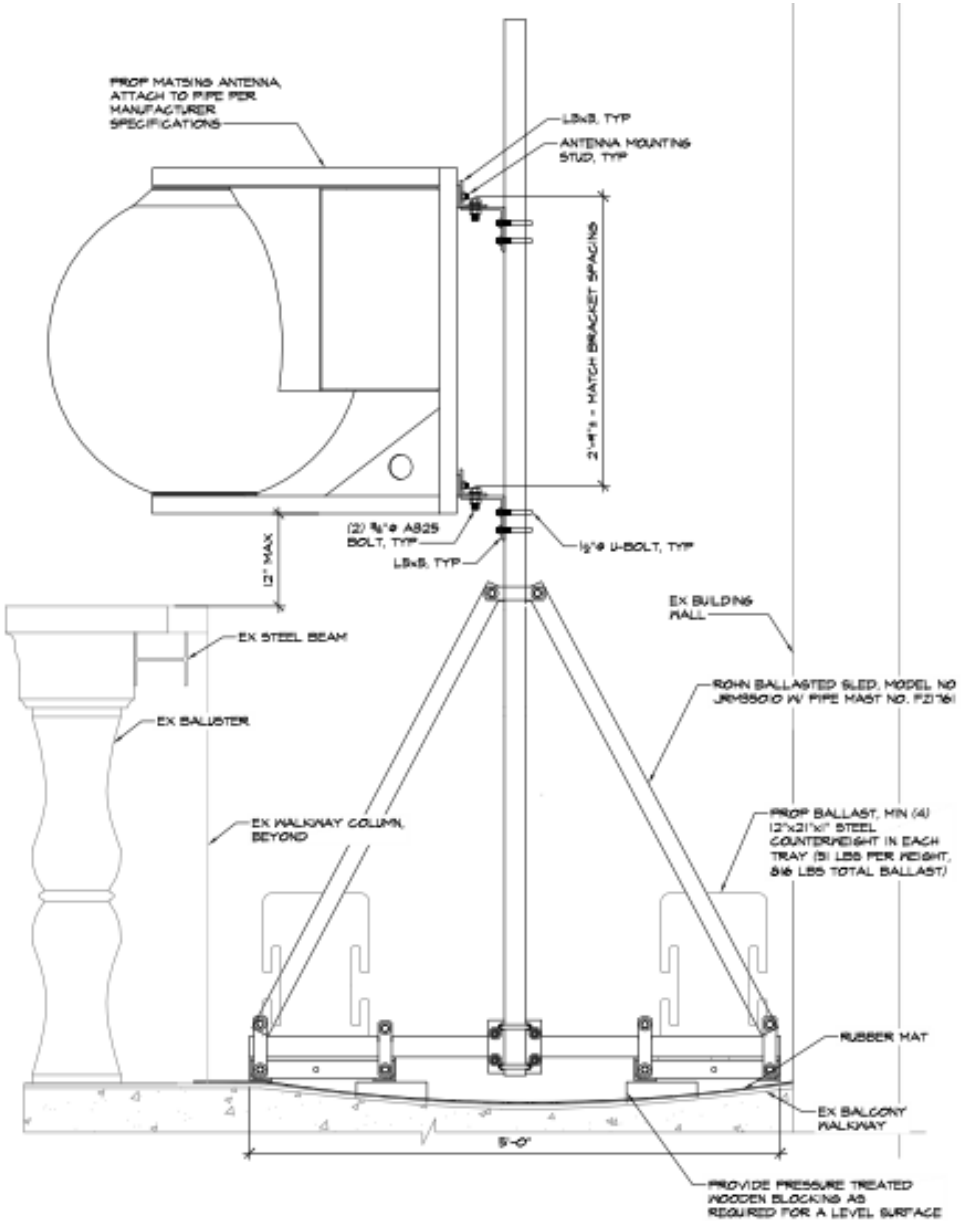
TEMPORARY INSTALLATION WEST LOCATION

SCALE: 1" = 20'-0"

Partial Building Elevation - West



Temporary Antenna Mounting Detail



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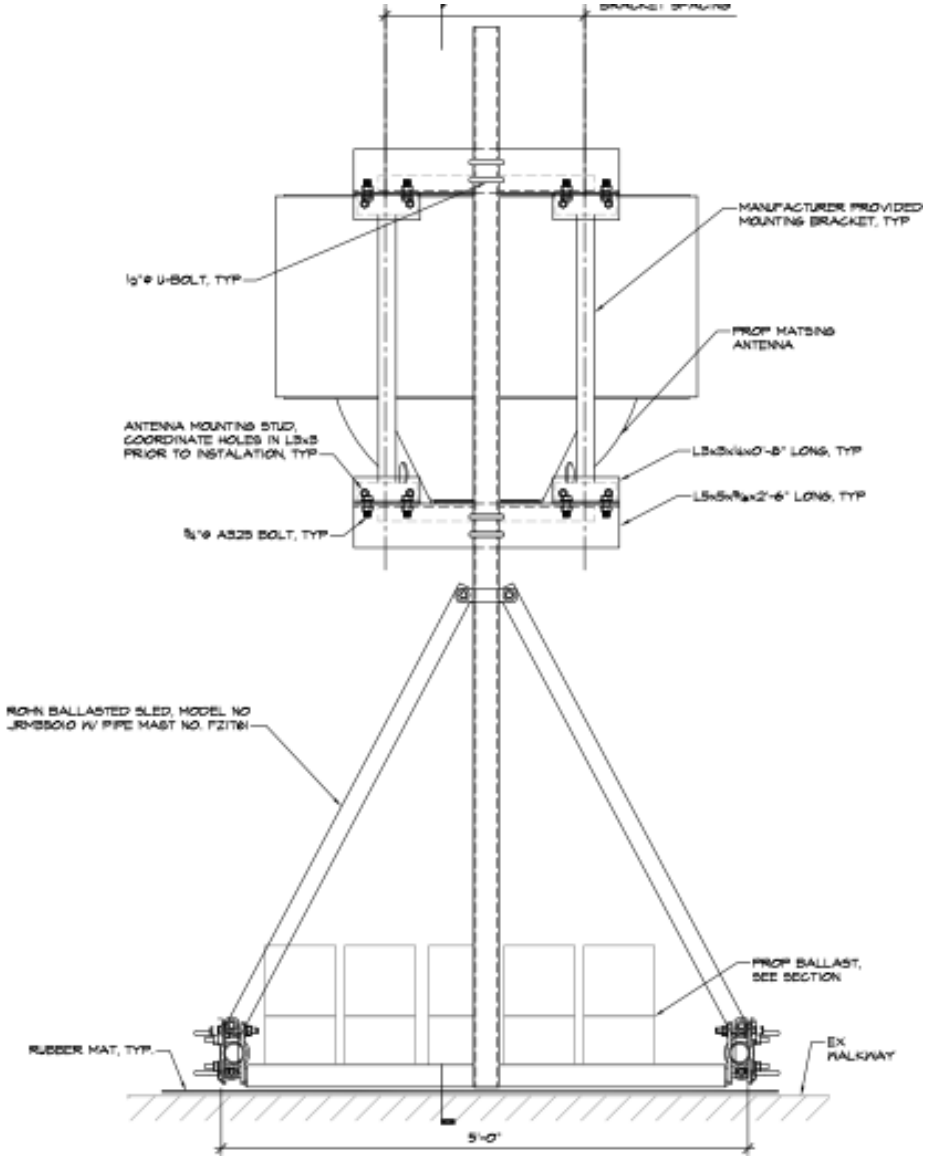
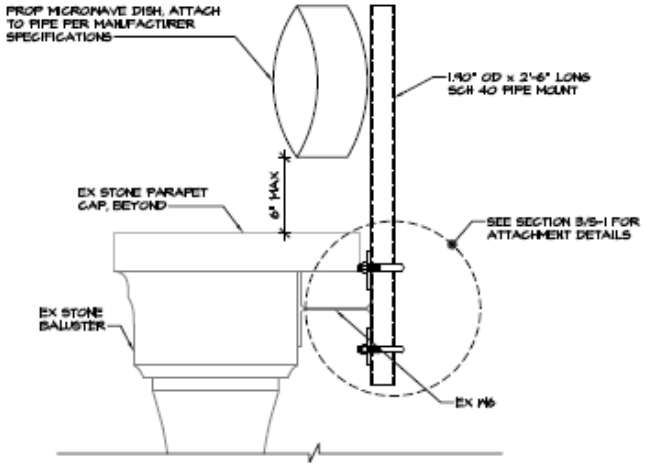
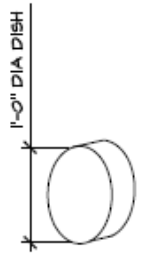
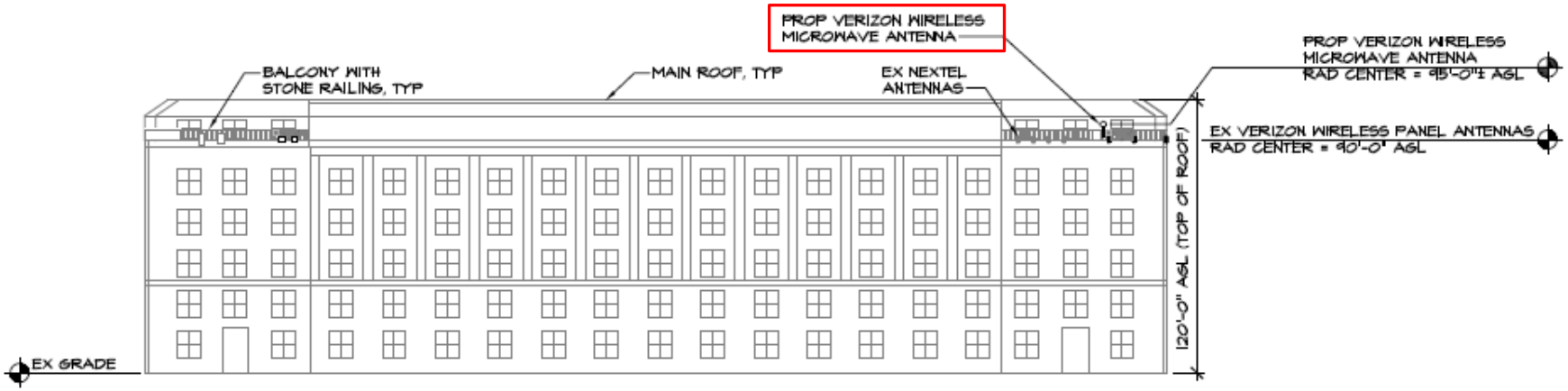


Temporary 1’ Diameter Microwave Mounting Detail





RFS SBI-220CMPT



SOUTH BUILDING ELEVATION

SCALE: NOT TO SCALE

Proposed Antennas – MATSING 6.3DB90-A

ESTIMATED TECHINCAL SPECIFICATIONS PER BEAM		
Frequency	698-896 MHz	1710-2690 MHz
Gain	16.5dBi	24dBi
Return Loss	>15dB	>15dB
Polarization	Dual Slant ±45	Dual Slant ±45
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level)	40° ± 4°	20° ± 2°
Vertical Beamwidth (10dB level)	42°	21°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	6
Manual Adjustable Tilt per 20° sector (each sector having 2 high-band beams and 1 low-band beam)	10° to 25°	0° to 15°
First Sidelobe Level	<-18dB	<-18dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port -Polarization	>28dB	>28dB
Isolation Port to Port – Beam	>28dB	>28dB
Power Rating	400W per port	300W per port
Intermodulation	<-150dBc	<-150dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	6 7/16 DIN female	12 7/16 DIN female

MATSING
RF Lens Technologies

MS-6.3DB90-A

Multi-Beam Dual Band Spherical Lens Antenna: 3 independent low frequency (698-896MHz-A, 790-960MHz-B) cross-polarized beams and 6 independent high-frequency (1710-2690MHz) cross-polarized beams, with 0-15° tilt for each 40° sector and 2X2 MIMO support per beam. Sector consists of 1 low-band beam and 2 high-band beams.

***Optional Packages:**

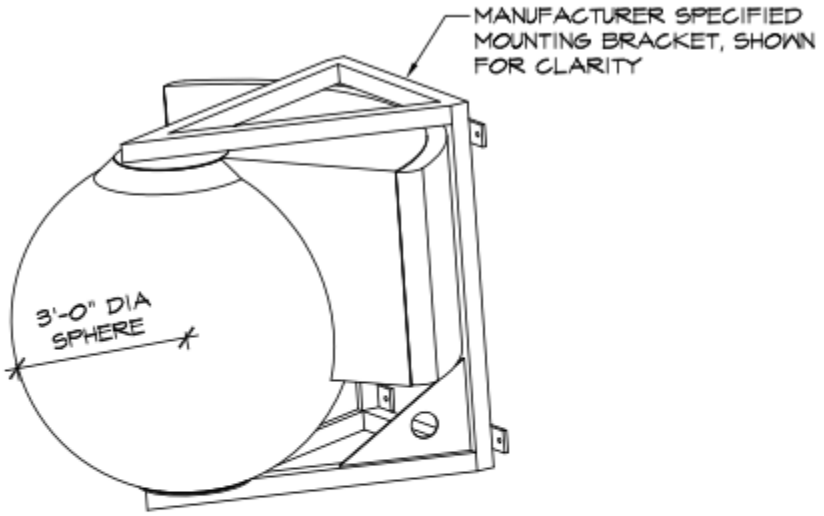
a) **MS-6.3DB90-RET**
AISG 2.0 Remote Electrical Tilt

b) **MS-6.3DB90-B**
Low Band Frequency Range (800-960MHz)

ESTIMATED MECHINCAL DATA	
Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 100 x 110 x 120 cm 39 x 43 x 47 inch
Antenna Weight	60kg 132lbs
Radome Material	Fibre Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

QTY: 1

Proposed Antennas – MATSING 6.3DB90-A



MATSING 6.3DB90

VERIZON WIRELESS TEMPORARY ANTENNA DETAILS

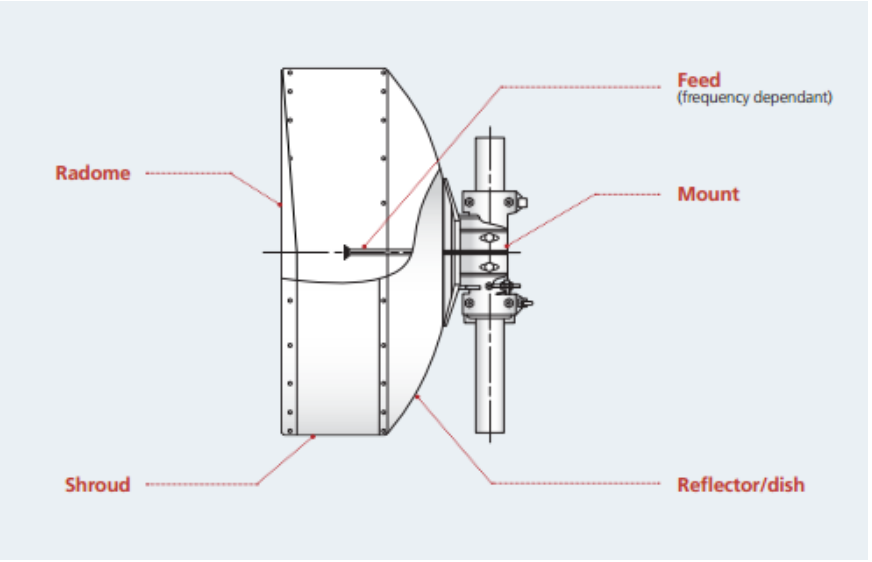
NOT TO SCALE

Proposed Antennas – RFS SBI-220 CMPT Microwave

Technical Data Sheet			SB1-220CMPT		RFS
RFS Compactline	1 ft	21.2 - 23.6 GHz	Single polarized	Ultra high performance	

Electrical Specifications	SB1-220CMPT	
Operating Frequency Band	21.2 - 23.6 GHz	
Half Power Beamwidth (deg.)	2.7 °	
Low Band Gain	35.5	dBi
Mid Band Gain	35.8	dBi
High Band Gain	36.2	dBi
VSWR / Return Loss (dB)	1.3 / 17.7	
Front-to-Back Ratio (dB)	61.0	
Cross Polarization Discrimnation (dB)	30.0	
Inter Port Isolation (dB)	n.a.	
ETSI 302 217	Class 3	
US FCC Part 101	A	

Mechanical Specifications	SB1-220CMPT
Nominal Diameter ft (m)	1 (0.3)
Elevation Fine Adjustment	± 20
Azimuth Fine Adjustment	± 15
Polarization Adjustment	± 5°
Operational Wind Speed	252Km/h
Survival Wind Speed	320Km/h
Net Weight approx. (Kg)	6
Max. Pressure in Feed (oper.)	0.4



RF Design Engineer Support Letter

verizonwireless

RE: Verizon Wireless
Freedom Plaza Site
1401 Constitution Ave, NW
Washington, DC 20004

August, 11, 2016

To Whom It May Concern,

Verizon Wireless operates a Personal Communication Service authorized by the Federal Communications Commission (FCC) to provide state of the art digital wireless communications in many parts of the nation, including Washington, DC. Verizon Wireless' operations and network are licensed and regulated by the FCC.

The antennas, as proposed and designed for the above noted site, are in compliance with all applicable FCC requirements. In addition, the proposed site meets all applicable ANSI/IEEE C95.1-1992 exposure levels, as adopted by the FCC requirements.

Antenna Model:	MATSING 6.3DB901	ERP = 245 Watts/MHz (Low Band)
	MATSING 6.3DB901	EIRP= 1255 Watts/MHz (High Band)

The means used to determine the RF levels for this installation were generated thru the "link budget" i.e. computer model calculation. This formula determines the RF level by calculating the transmit power, antenna gain and equipment specifications of the base station components.

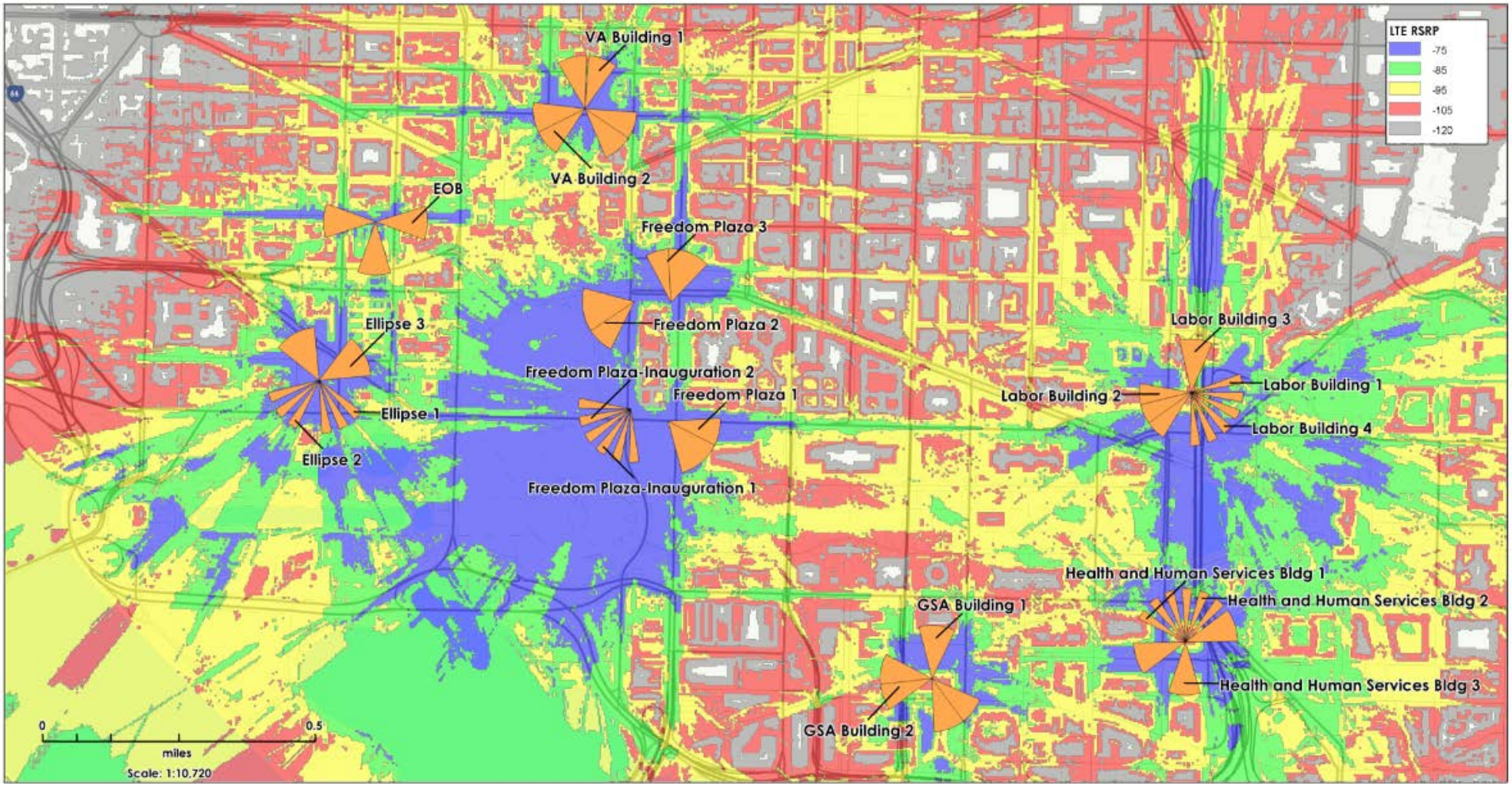
Verizon Wireless is committed to compliance with all government regulations and standards. Please contact Verizon Wireless if you have any questions regarding this matter.

Sincerely,

Roque Fial

Roque Fial
RF Design Engineer / Verizon Wireless
7600 Montpelier Road
Laurel, MD 20723
301-512-2406

RF Propagation Map – Overview



EOB: GSA Central Office

Ellipse: DOI South Annex

GSA Building: GSA Regional Office Building (ROB)

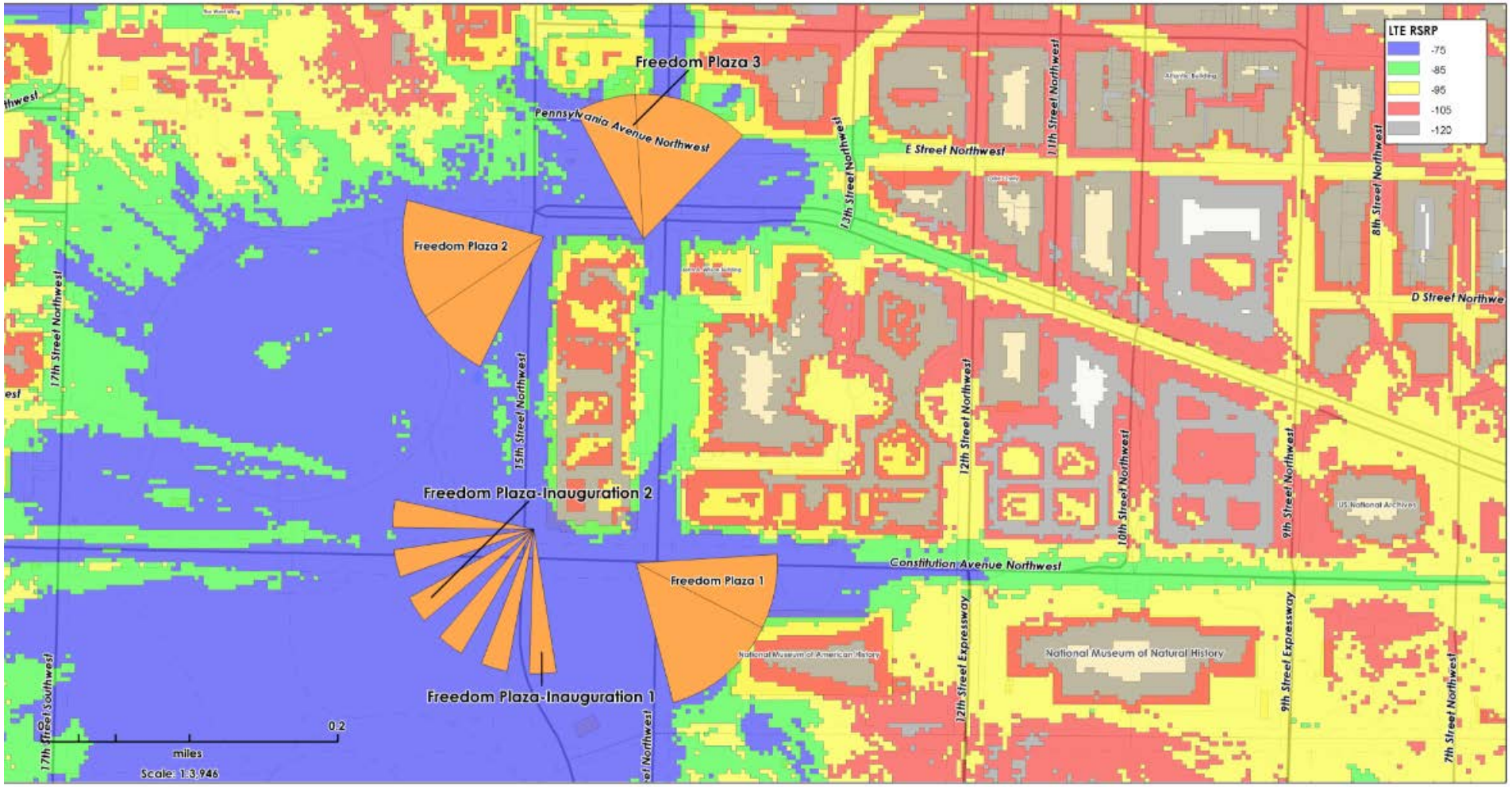
Health and Human Services: HHS/Hubert Humphrey

VA Building: Veterans' Affairs

Freedom Plaza: Department of Commerce

Labor Building: DOL/Frances Perkins

RF Propagation Map – Department of Commerce / Freedom Plaza



verizon

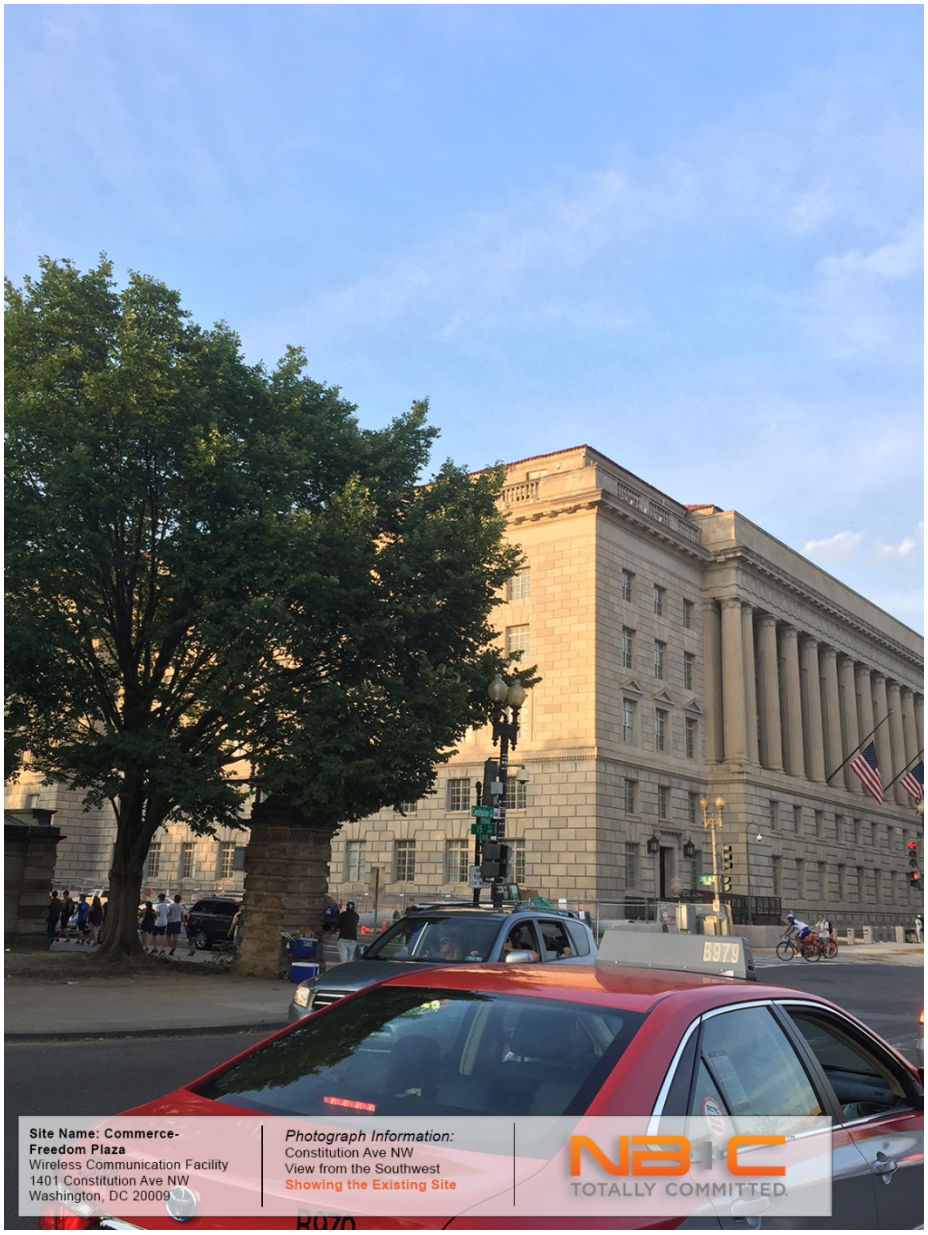
PHOTO SIMULATIONS

Photo Simulation Location Legend

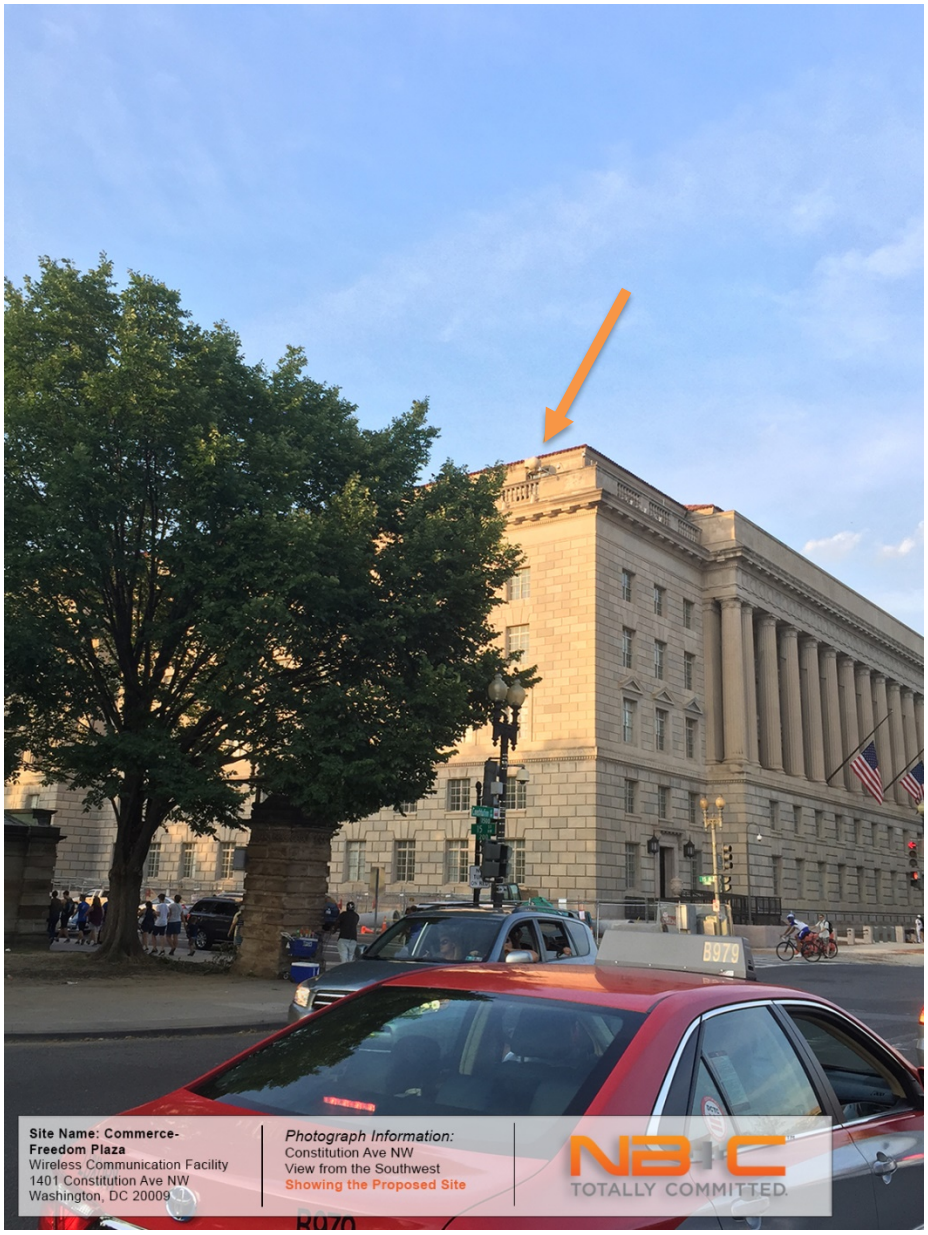
View 1 – Constitution Avenue, Existing

View 1 – Constitution Avenue, Proposed

View 2 – Constitution Avenue, Existing



View 1 – Constitution Avenue, Proposed



View 3 – Constitution Avenue, Proposed

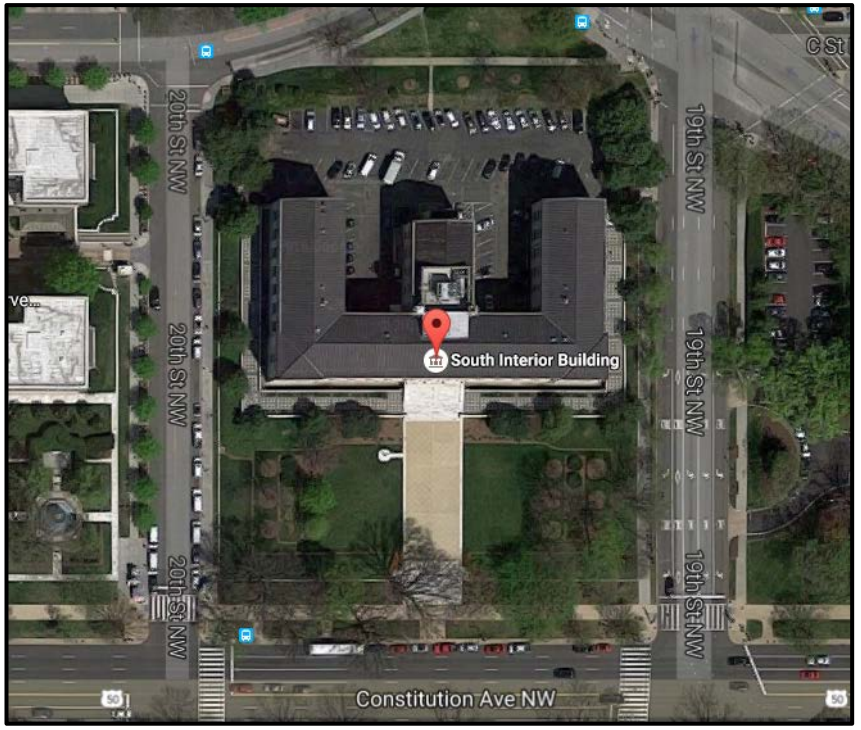
Verizon Wireless Communications Facility at the Interior South Annex Building

SHPO Design Submission

Submitted by the General Services Administration
September 1, 2016

GSA Site Name: DOI South Annex
Verizon Site Name: Ellipse

Interior South Annex Building



Project Overview:

The modification of this site will include: a reduction in coax cables, the addition of RRH's, changes of antenna models, the addition of two sphere antennas, and a reduction in overall antenna count.

Table of Contents

Contact Information

AGENCY PROJECT MANAGER

Gary L. Porter (GSA Sponsor)
Historic Preservation Specialist
US General Services Administration

301 7th Street Southwest, Washington DC 20407
(202) 205-7766
Gary.Porter@gsa.gov

Project Report

Project Description:

Cellco Partnership, d/b/a Verizon Wireless is licensed by the Federal Communications Commission (FCC) to provide wireless service, including licenses to deploy its network in the Greater Washington, D.C. metropolitan area. Verizon Wireless proposes to implement modifications to the existing telecommunications facility on the roof the Department of the Interior South Annex Building (DOI South Annex), in order to continue to meet coverage and capacity objectives for the immediate area as part of this network.

Existing Conditions:

The existing facility consists of four antenna sectors, resulting and a total of 10 antennas. The first and second sectors consist of four antennas flush mounted to the existing eastern chimney and one antenna flush mounted to the building façade. The third and fourth sectors consist of four antennas mounted to the existing western chimney and one antenna flush mounted to the building façade. The equipment that supports this facility is located on a steel equipment platform that is located below roof level in the cooling tower area, and is not visible from any exterior vantage point.

Proposed Changes:

The modification of this site will include: a reduction in coax cables, the addition of RRH's, changes of antenna models, the addition of two sphere antennas and a reduction in overall antenna count.

The total number of antennas, after modification, will be reduced from ten to eight antennas. The number of RRH's will be increased to 30 RRH's, and they will be located on the existing equipment platform in the cooling tower area. As a result of the modifications, the first and second sectors will now consist of four total antennas, three flush mounted to the east chimney and one flush mounted to the building façade. The third and fourth sectors will now consist of four total antennas, three flush mounted to the west chimney and one flush mounted to the building façade. The new antennas will not exceed the maximum height of the current installation.

The number of coax cable will be reduced as a result of the reduction in the number to total antennas, this adjustment will not be visible from the ground.

Visibility:

The modification of this installation will be no more visible than the current installation. Though the sphere antennas would be mounted on the Constitution Avenue side of the building, there are very limited vantage points on the Mall where they would potentially be visible. Presently, the chimney mounted antennas are moderately visible from the rear of the building. The visual impact of the modifications will be extremely minimal to the aesthetics of the building and the surrounding area.

Project Report

Capacity Issues:

Solid voice communications are an important necessity related to every day public safety, and are especially critical in the event of emergencies or unplanned events. Voice communication requires robust data capacity to ensure reliability. Additionally, with the proliferation of Smartphones – apps, photography and video streaming demand a persistent connection to the network, as the phones connect to the "Cloud" and do not release from it, even when not in use. This creates an unprecedented demand on the capacity of the network, particularly at large scale events where users are congregated in one place, and utilizing these streaming features non-stop. The modification of the site will help to maintain an adequate level of network capacity.

Safety Considerations:

It is Verizon Wireless' goal to continue to provide reliable service to the public. From a safety perspective, there is an immediate need to improve capacity throughout DC and particularly in the core of the Capital and National Mall areas. Verizon Wireless is a major supplier of mobile communications to all of the US Government Agencies and is the priority network provider for DC Government, which includes the majority of first responders. Capitol Police, Park Police and many other crucial public safety agencies utilize the Verizon network, as well. Improvements to capacity are not only crucial for the improved safety for the many large scale events held throughout the year but are highly critical in the event of an emergency or other "unplanned event". The modification of this facility will help to ensure that the network can continue to provide enough capacity for both the public and emergency service agencies to utilize.

Alternatives Considered:

Because this building is already utilized as a telecommunication facility, no alternate structures were considered. The existing site will continue to meet coverage and capacity objectives once the proposed modification are made.

Project Budget:

No government funds are being utilized for the installation of the proposed antennas.

Project Schedule:

The upgrades for this site are needed to accommodate the expected extreme capacity issues for the upcoming Presidential Inauguration, and will need to be completed by early December in order to integrate and optimize into the network.

Construction commence: Mid-November 2016

Construction completion: December 2, 2016

Historic Preservation:

GSA, in coordination with Verizon Wireless, is initiating this review required under Section 106 of the National Historic Preservation Act of 1996, and Verizon Wireless will assist GSA as required.

Building Codes and Operational Maintenance:

Installation of the proposed antennas will be completed in compliance with the International Building Code 2015. Verizon Wireless will conduct regular periodic inspections of the site to ensure its continued, safe operation. The roof is a secured area and is not accessible by the general public.

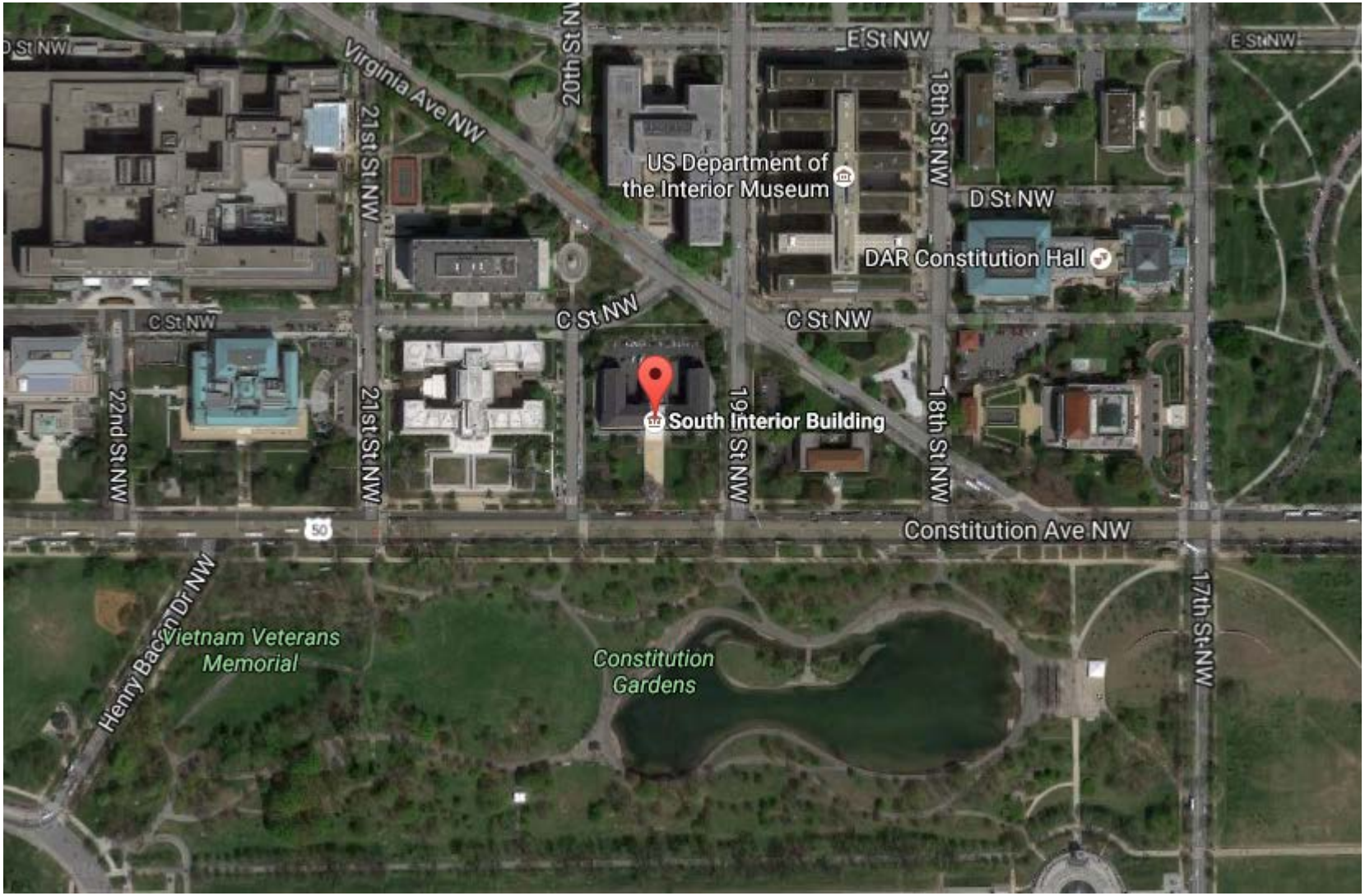
Conclusion:

Verizon Wireless has worked very closely with GSA to design the modifications to this existing telecommunications facility. The resulting changes will pose minimal impact on the subject building and the surrounding area.

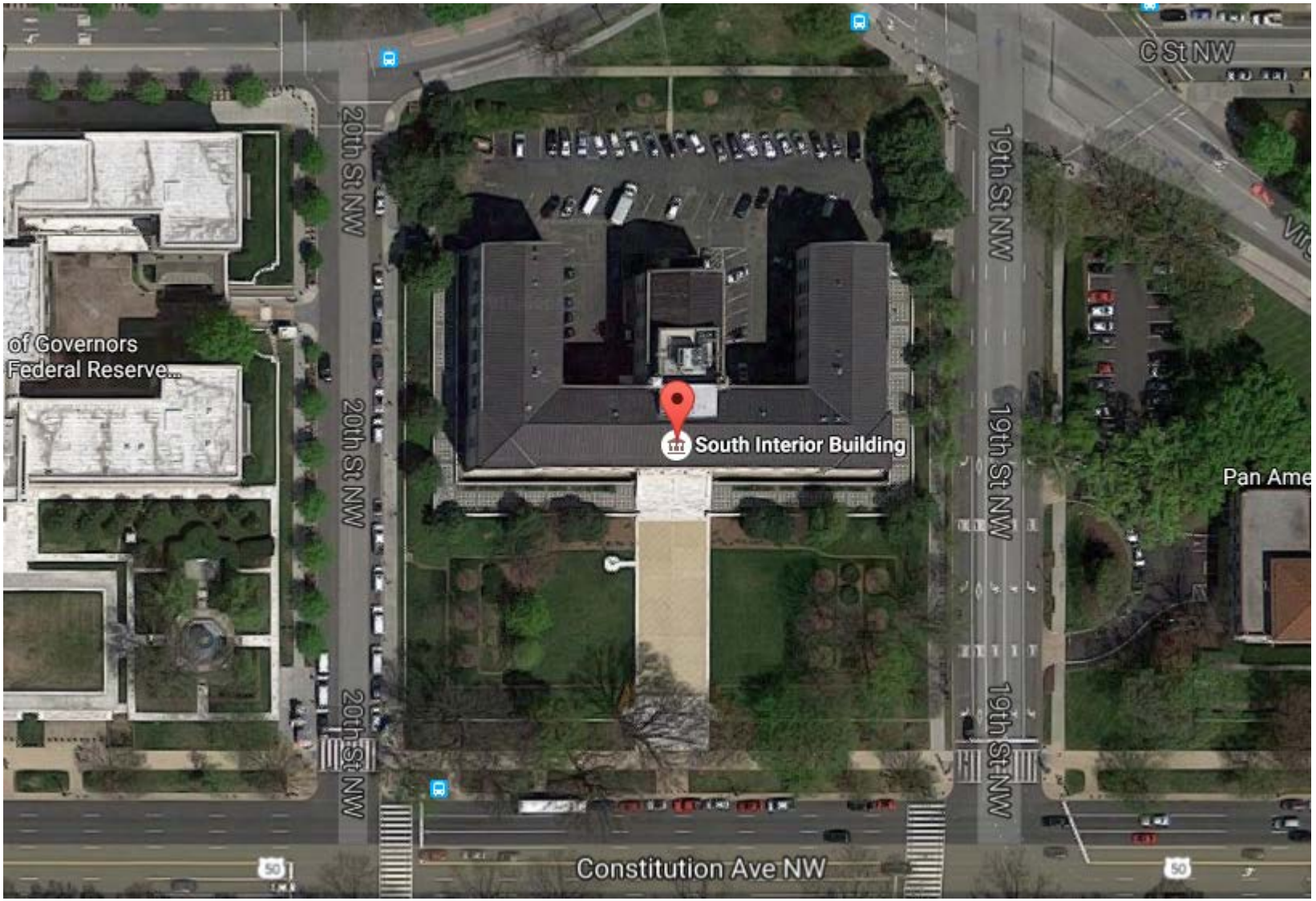
verizon

EXHIBITS

Vicinity Map



Aerial Map


C St NW
20th St NW
19th St NW
of Governors
Federal Reserve...
South Interior Building
Pan Ame
Constitution Ave NW

Neighborhood Description

Surrounding landmarks include:

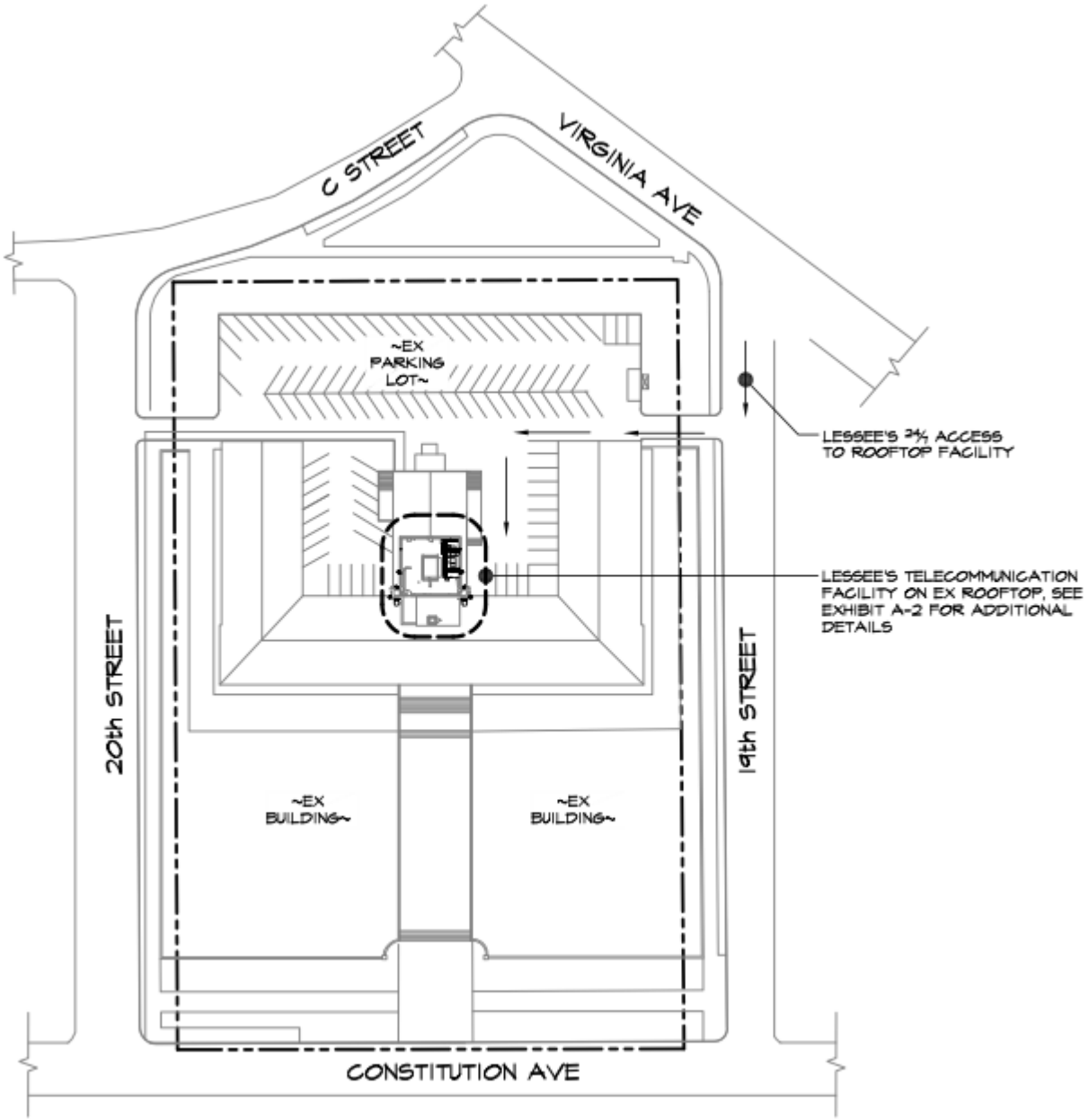
To the North of the building: US Office of Personnel Management, US Department of Interior

To the East of the building: Pan American Annex, The Liberator Simon Bolivar Memorial

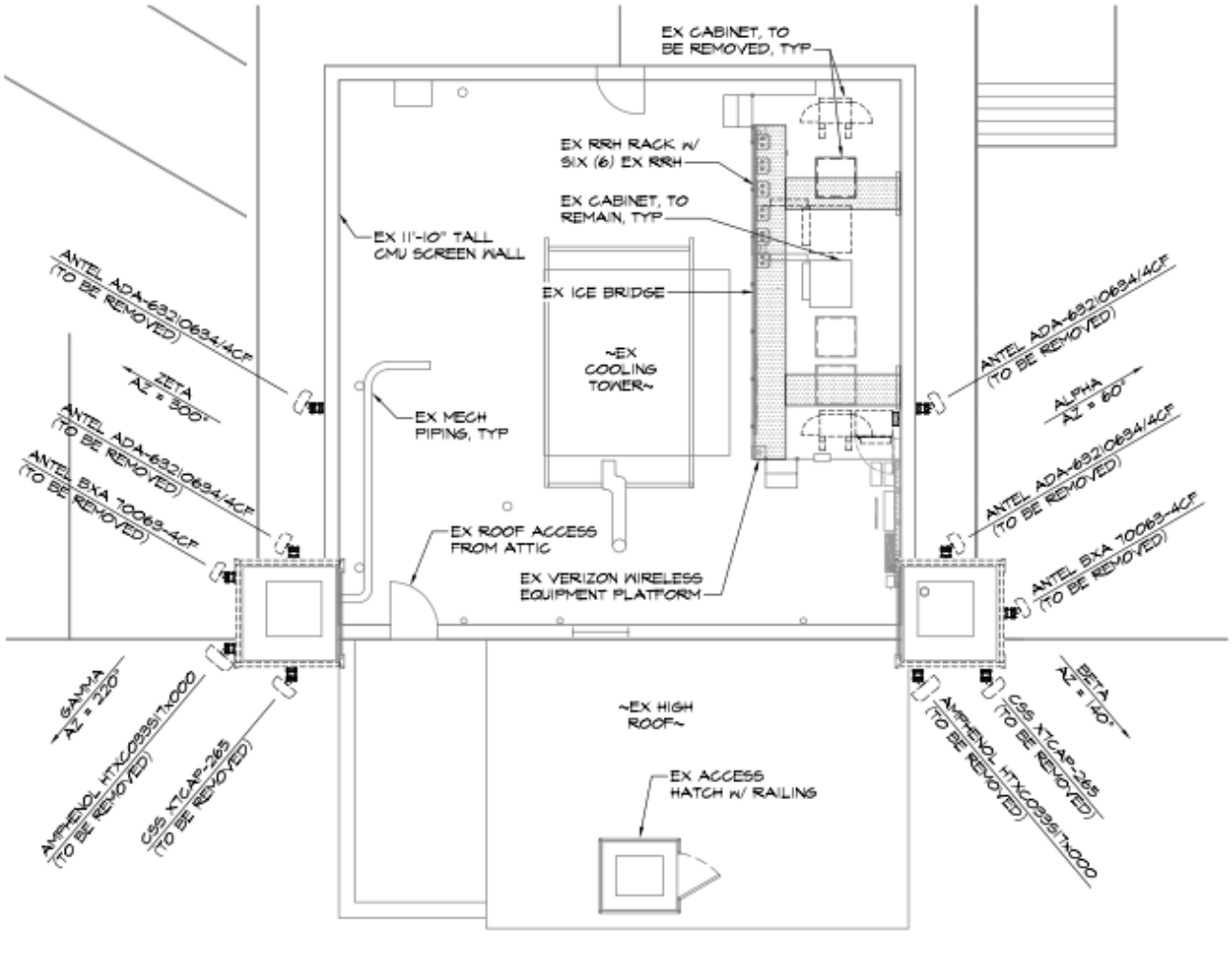
To the South of the building: National Mall, Constitution Gardens

To the West of the building: Board of Governors of the Federal Reserve, National Academy of the Sciences

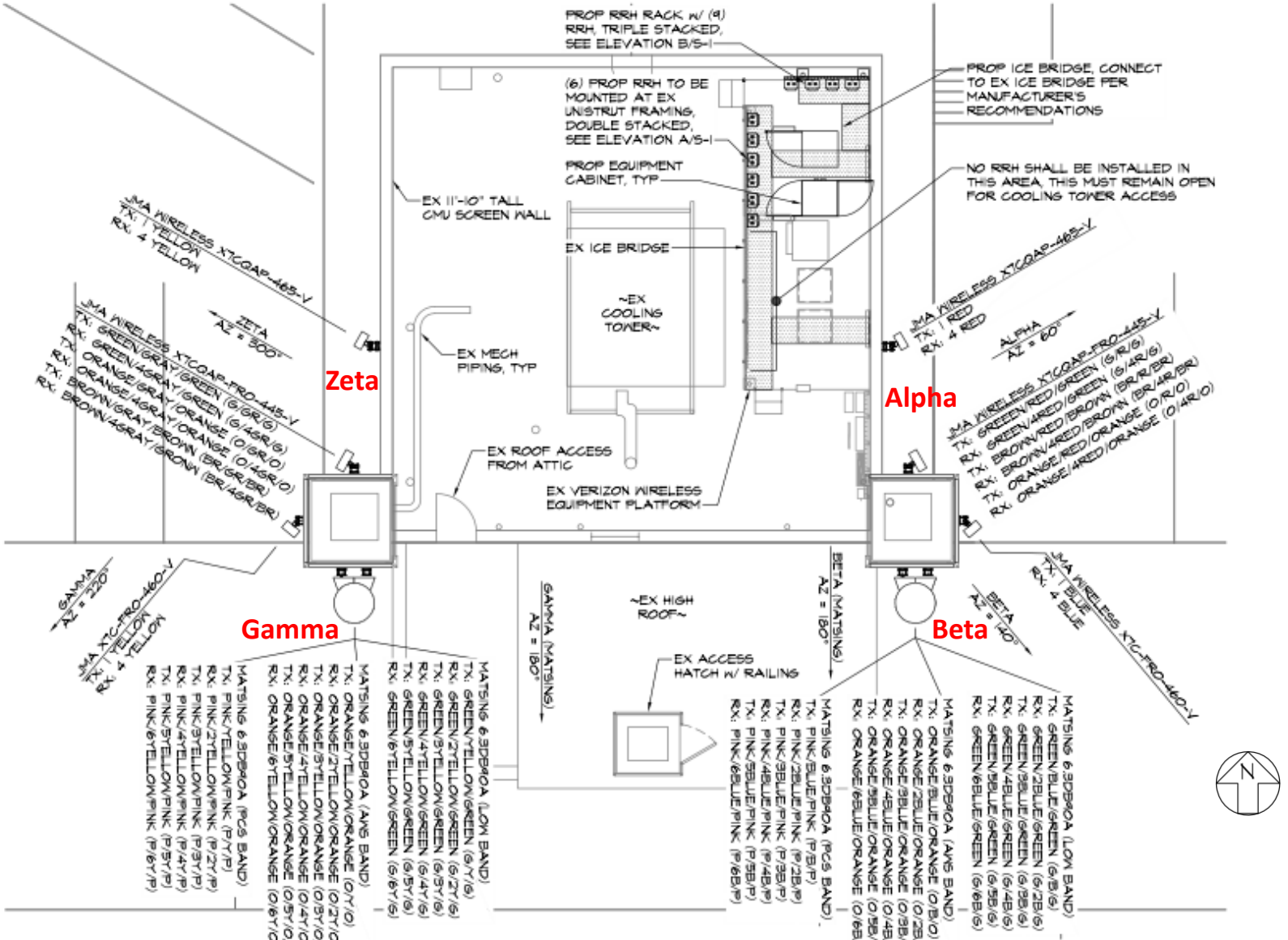
Overview Map



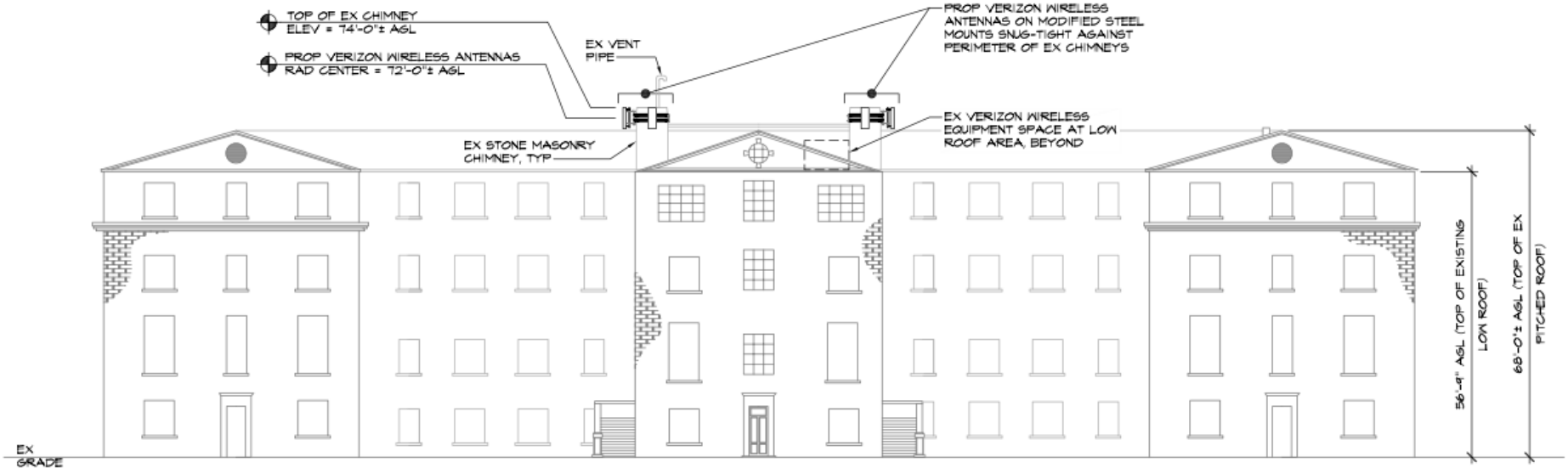
Roof Layout – Existing Condition



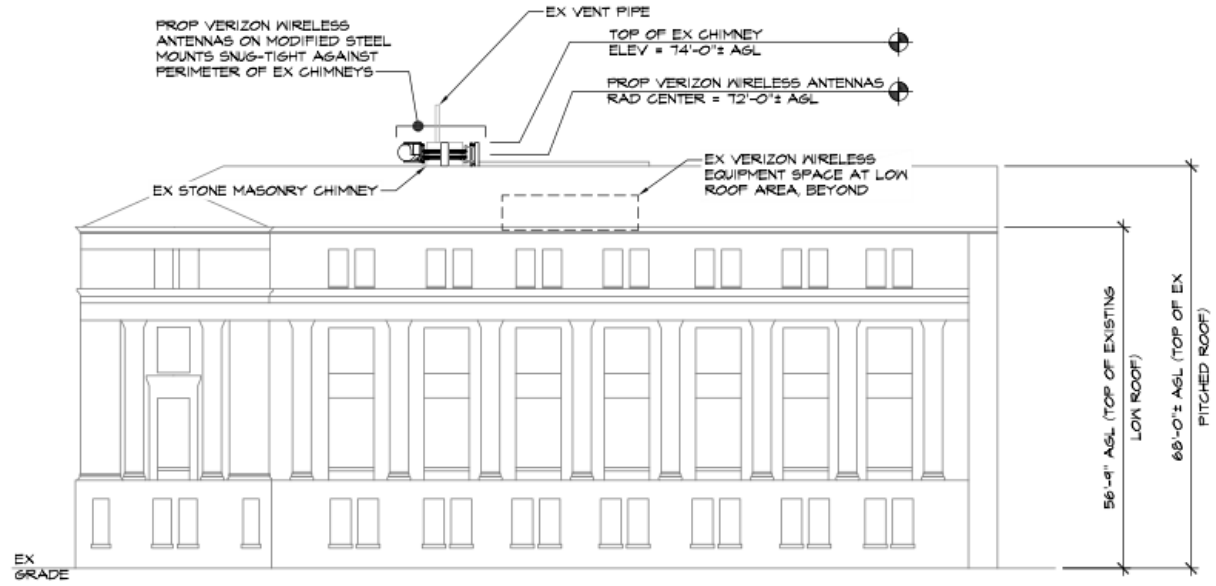
Roof Layout – Proposed



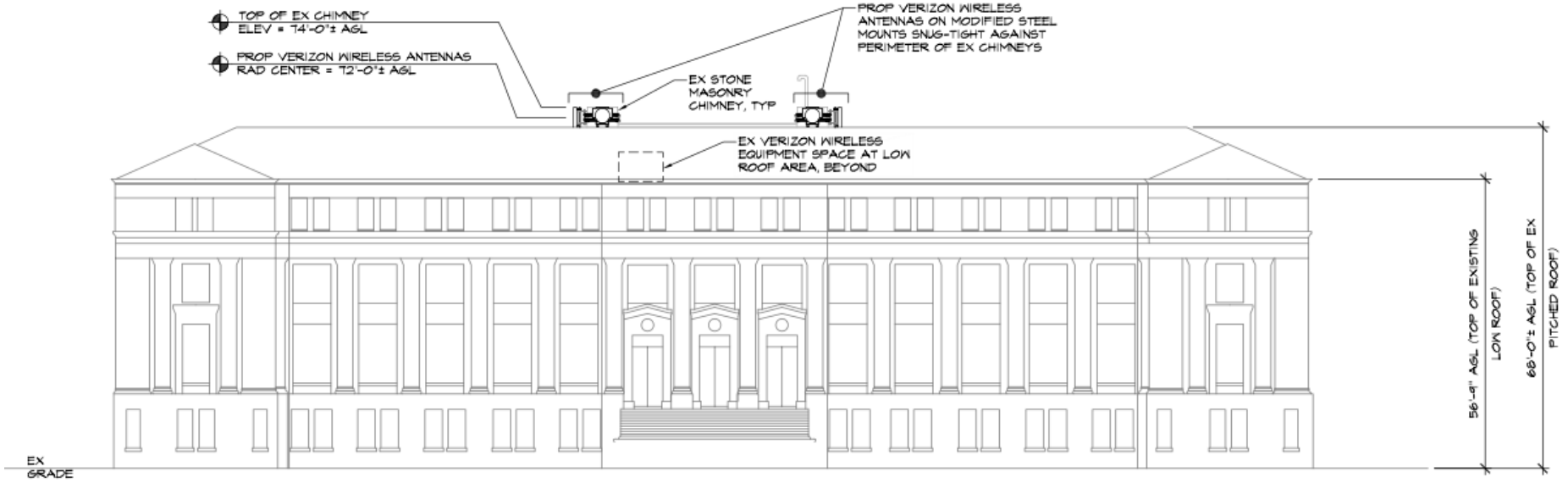
Building Elevation - North



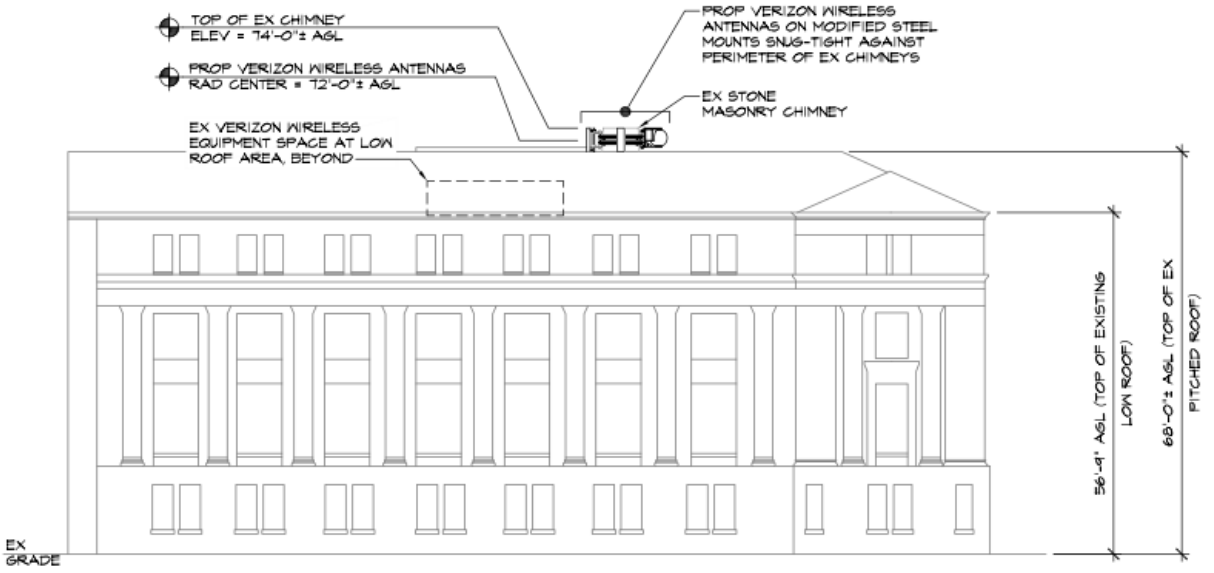
Building Elevation - East



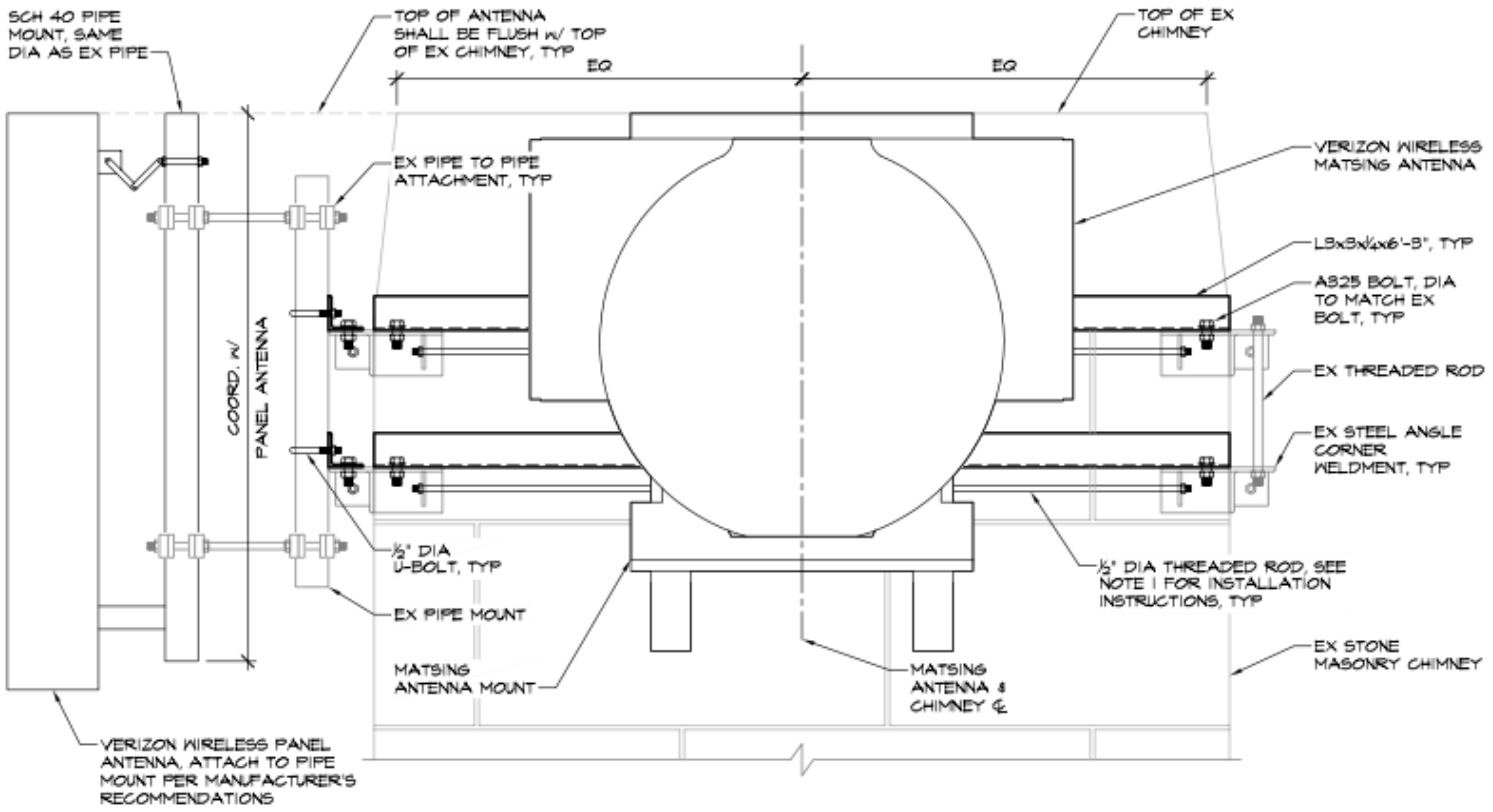
Building Elevation - South



Building Elevation - West



West Chimney – South Elevation Detail

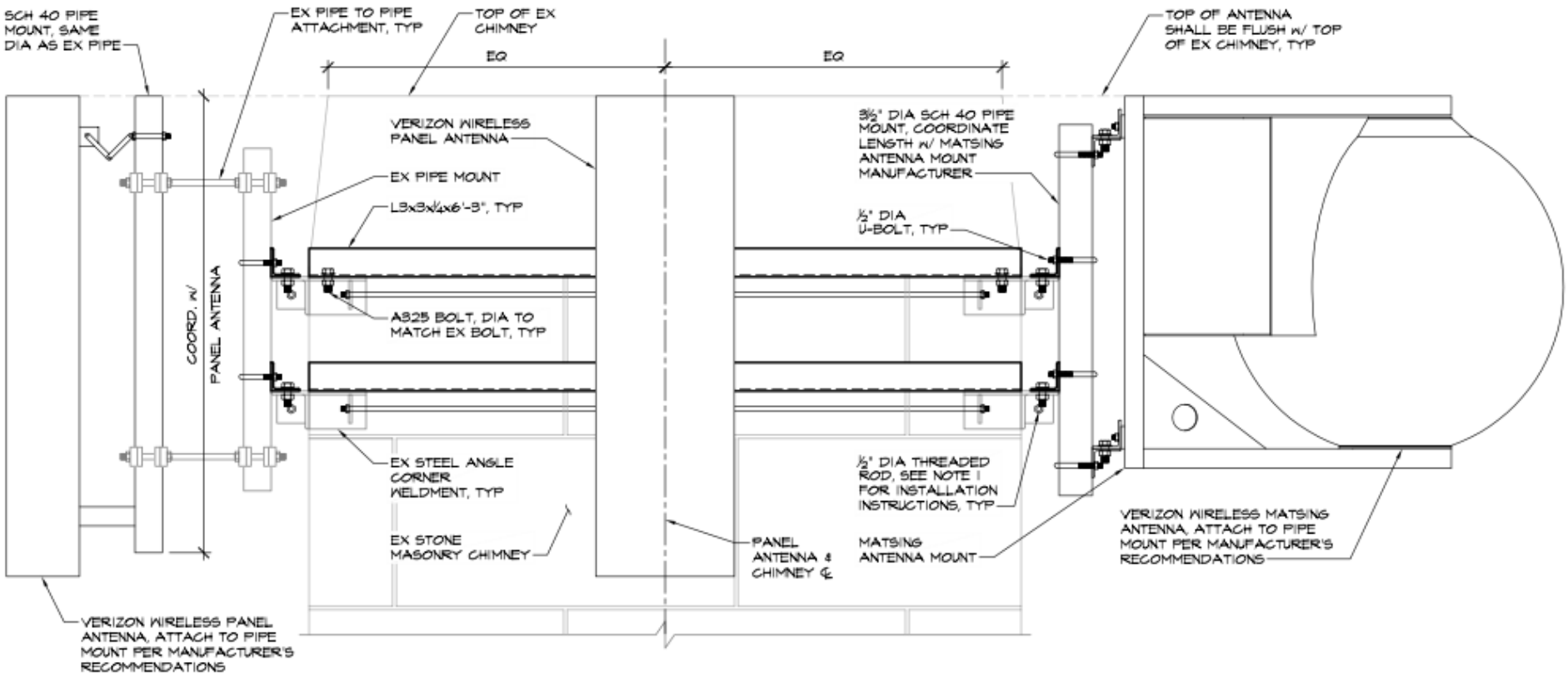


C SOUTH ELEVATION OF WEST CHIMNEY

NOTES:

1. ALL THREADED RODS SHALL BE TENSIONED TO A MINIMUM OF 2,500 LBS OR 3,500 LBS MAX. CONTRACTOR SHALL TIGHTEN RODS EVENLY TO ENSURE UNIFORM LOAD DISTRIBUTION AND TENSIONS IN ALL RODS.
2. ALL ANTENNA MOUNT COMPONENTS SHALL RECEIVE A HOT DIPPED GALVANIZED FINISH PRIOR TO INSTALLATION.
3. ALL PANEL ANTENNA, PIPE MOUNTS, & SUPPORTING HARDWARE SHALL BE PAINTED TO MATCH EX BUILDING FACADE.

West Chimney – West Elevation Detail

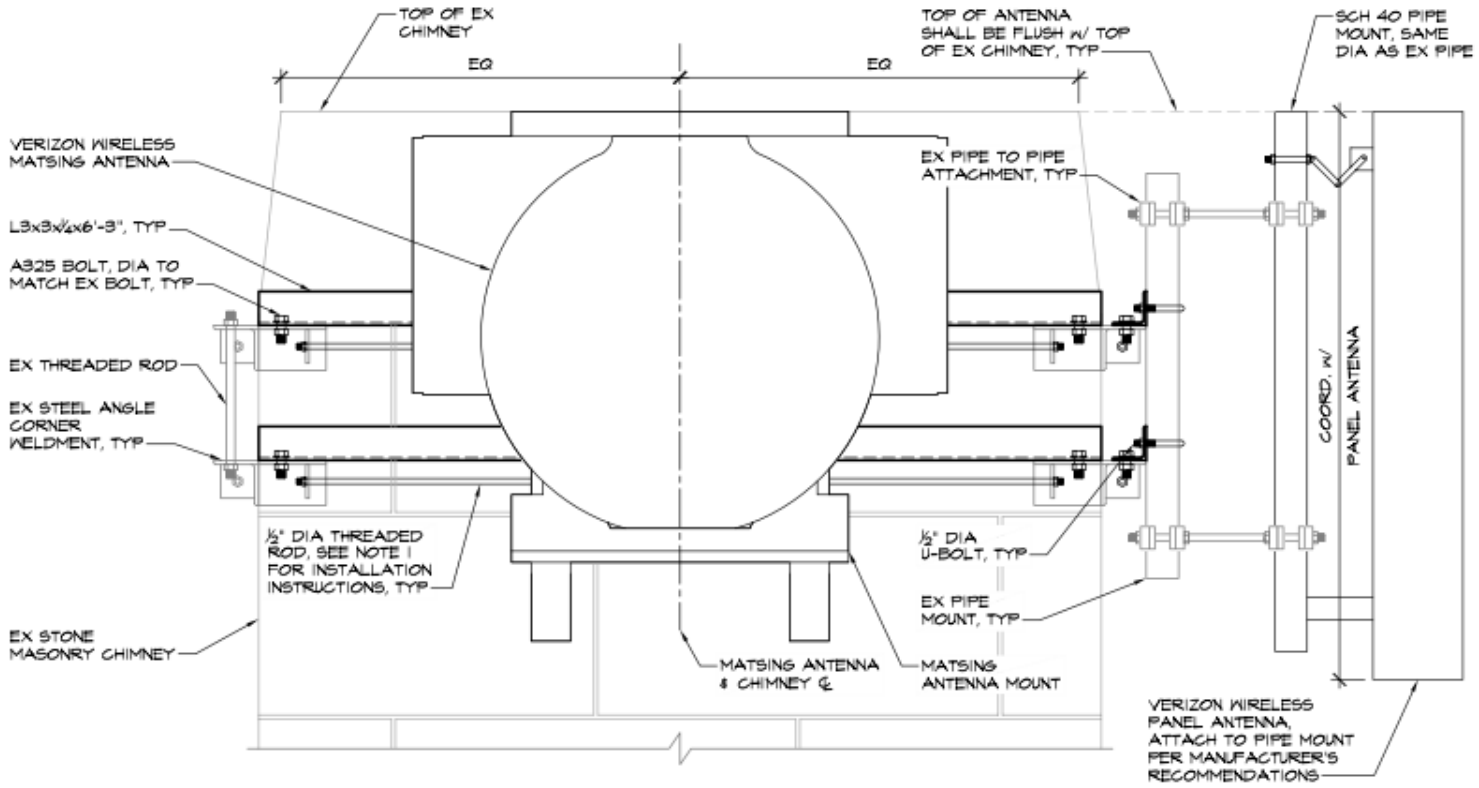


D WEST ELEVATION OF WEST CHIMNEY

NOTES:

1. ALL THREADED RODS SHALL BE TENSIONED TO A MINIMUM OF 2,500 LBS OR 3,500 LBS MAX. CONTRACTOR SHALL TIGHTEN RODS EVENLY TO ENSURE UNIFORM LOAD DISTRIBUTION AND TENSIONS IN ALL RODS.
2. ALL ANTENNA MOUNT COMPONENTS SHALL RECEIVE A HOT DIPPED GALVANIZED FINISH PRIOR TO INSTALLATION.
3. ALL PANEL ANTENNA, PIPE MOUNTS, & SUPPORTING HARDWARE SHALL BE PAINTED TO MATCH EX BUILDING FACADE.

East Chimney – South Elevation Detail

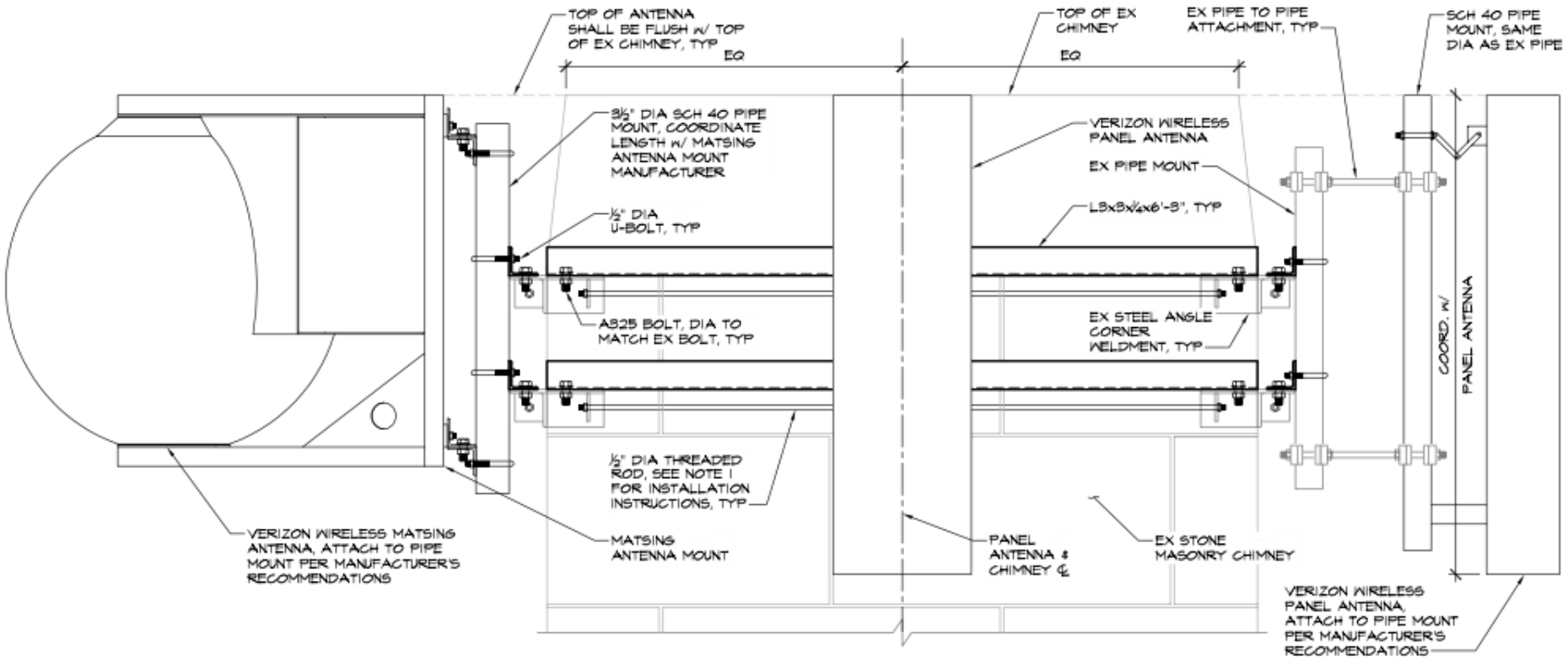


E SOUTH ELEVATION OF EAST CHIMNEY

NOTES:

1. ALL THREADED RODS SHALL BE TENSIONED TO A MINIMUM OF 2,500 LBS OR 3,500 LBS MAX. CONTRACTOR SHALL TIGHTEN RODS EVENLY TO ENSURE UNIFORM LOAD DISTRIBUTION AND TENSIONS IN ALL RODS.
2. ALL ANTENNA MOUNT COMPONENTS SHALL RECEIVE A HOT DIPPED GALVANIZED FINISH PRIOR TO INSTALLATION.
3. ALL PANEL ANTENNA, PIPE MOUNTS, & SUPPORTING HARDWARE SHALL BE PAINTED TO MATCH EX BUILDING FACADE.

East Chimney – East Elevation Detail



F EAST ELEVATION OF EAST CHIMNEY

NOTES:

1. ALL THREADED RODS SHALL BE TENSIONED TO A MINIMUM OF 2500 LBS OR 3500 LBS MAX. CONTRACTOR SHALL TIGHTEN RODS EVENLY TO ENSURE UNIFORM LOAD DISTRIBUTION AND TENSIONS IN ALL RODS.
2. ALL ANTENNA MOUNT COMPONENTS SHALL RECEIVE A HOT DIPPED GALVANIZED FINISH PRIOR TO INSTALLATION.
3. ALL PANEL ANTENNA, PIPE MOUNTS, & SUPPORTING HARDWARE SHALL BE PAINTED TO MATCH EX BUILDING FACADE.

Additional Detail on Design Alternatives Considered

It should be noted that MANY alternatives were considered for this location, due to the building's historical nature and location on Constitution Avenue.

Options included:

- Extending both chimneys to conceal proposed antennas in faux boxes to match existing masonry. *(Though a great option aesthetically, making all antennas disappear, it was discarded because it changed the entire roofline of the building.)*
- Putting the antennas forward on the flat roof, and concealing with a screen wall to match existing building. *(Again, discarded because it changed the roofline of the building.)*
- It was discussed at the CFA meeting to shroud the Matsing sphere antennas, extending a box on front of the chimneys to match masonry. This was investigated heavily and subsequently engineered. *(This was ultimately discarded, as well. The existing compression mounts are not adequate to support the eccentric wind and weight loading of the RF friendly enclosure, and therefore a more substantial and positive connection would be required. Specifically, post-installed anchors would be required to be drilled into the stone masonry, to permit such an installation. Based on the configuration of the roof below the Matsing antenna, it was not possible to post down to the roof structure, and provide an aesthetic solution. If the Matsing were to be enclosed, then the anchorage of the Matsing enclosure would need to be worked around the existing compression mount hardware, that is supporting the panel antennas on the other faces of the mount. The profile elevations would still have been very visible and cumbersome looking, as a result.)*
- Ultimately, it was felt that the option presented herein was the least visible from any vantage point – and maintained the building's historical and structural integrity as much as possible.

Proposed Antennas – JMA X7C-FRO-460-V

X7C-FRO-460-V

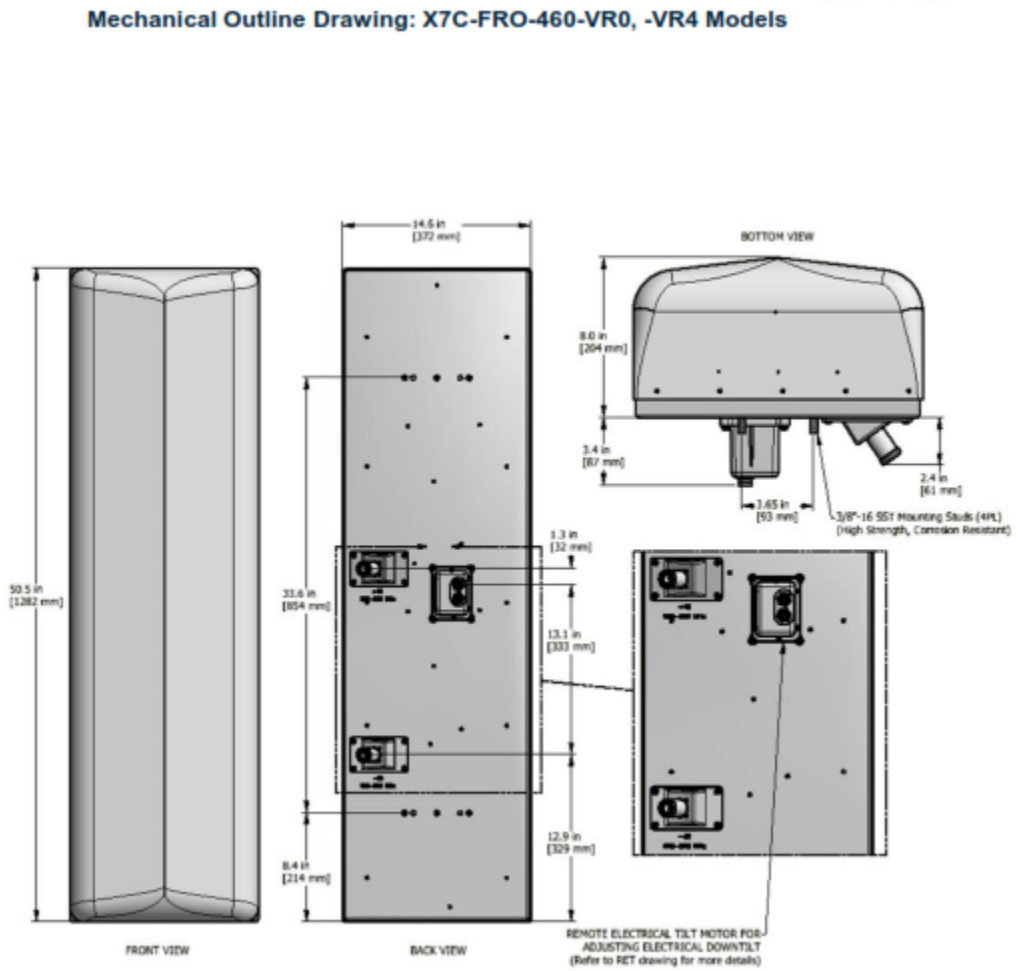
±45° Polarization, 698-896MHz, Fast-Roll-Off, 50.5" Length, 60° Horizontal Pattern, Variable E-Tilt

- Fast Roll Off (FRO) improves Intra and Inter-Cell SINR
- Separate housing and reflector construction optimizes RF performance while maximizing mechanical strength
- Good Passive Intermodulation (PIM) performance reduces harmful interference
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET control

ELECTRICAL SPECIFICATIONS		
Frequency Band, MHz	**698-824**	**824-896**
Horizontal Beam width, 3dB points	59°	56°
Gain, dBi	14.9	15.3
Vertical Beam width, 3dB points	17.6°	15.6°
Front-to-Back at 180°, dB	>30	
Upper Side lobe Suppression, dB (typical)	<-18	
Polarization	+/-45°	
Electrical Downtilt Range (see Ordering Information)	VR0: 0 to 12°, VR4: 4 to 16°	
VSWR/Return Loss, dB (maximum)	1.5:1/14.0	
Isolation Between Ports, dB (minimum)	-25	
Intermodulation (2x20w), IM3, dBc	-150	
Impedance, ohms	50	
Maximum Power Per Connector, CW (w)	500	

QTY: 2

Proposed Antennas – JMA X7C-FRO-460-V



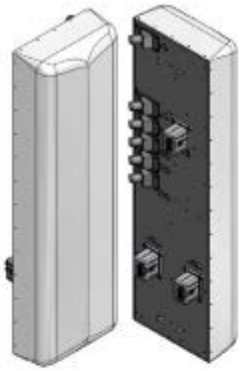
Proposed Antennas – JMA X7CQAP-465-V

X7CQAP-465-V

1 Xpol Low Band 2 Xpol High Band 698-896/1695-2180 MHz, 50.5°, 65° H-Beam

Variable E-Tilt, RET/MET

- 6 Port Antenna:
  - 1 Low Band with separate tilt & 2 High Band Antennas, all with separate tilts in a single radome
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET or manual MET tilt control

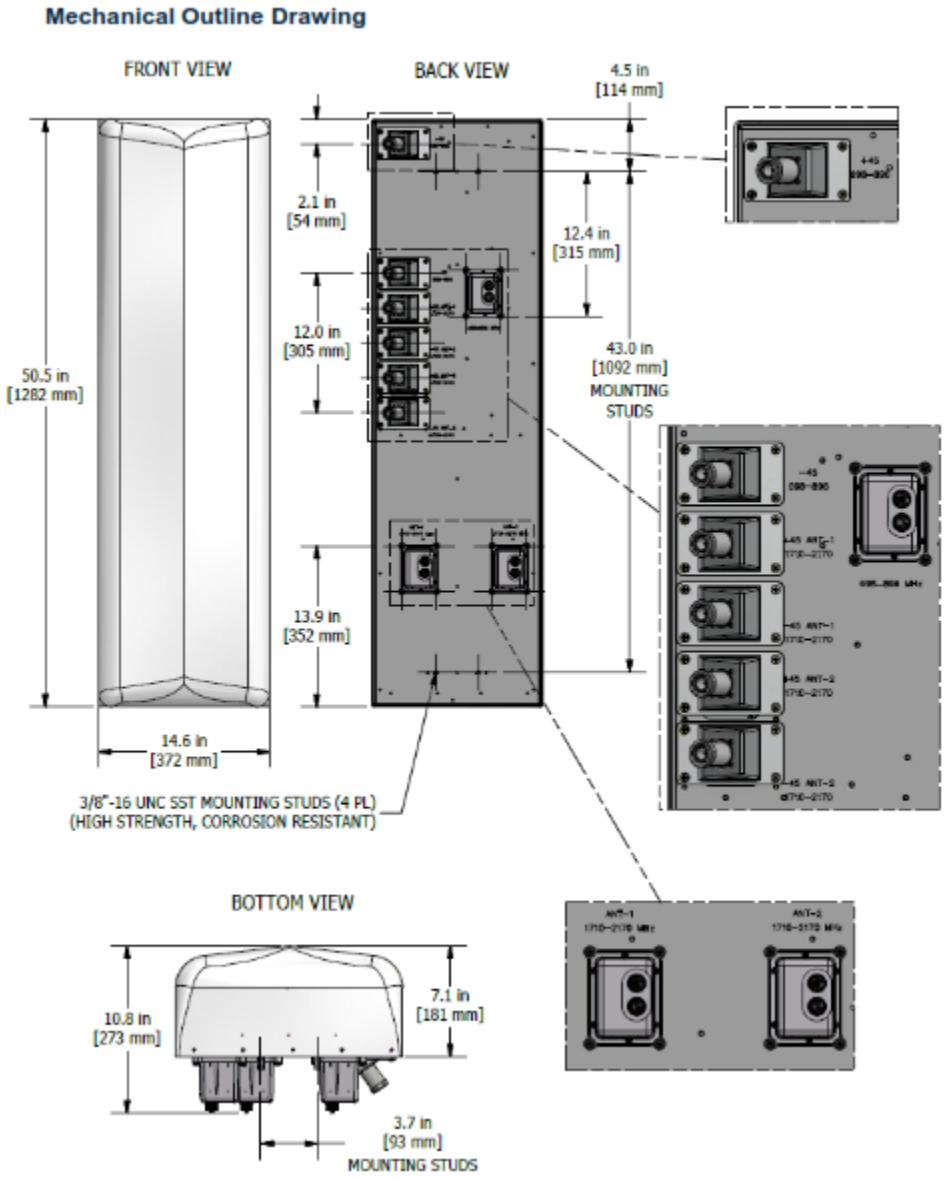


ELECTRICAL SPECIFICATIONS

Frequency Band, MHz	698-824	824-896	1695-1880	1850-1990	1920-2180
Horizontal Beam Width, 3dB points	63°	60°	61°	62°	67°
Gain, dBi	13.6	14.2	15.6	15.9	16.2
Vertical Beam Width, 3dB points	17.4°	15.0°	7.4°	7.0°	6.9°
Upper Side Lobe Suppression, Typical, dB	<-18	<-18	<-18	<-18	<-18
Cross Polar Ratio (CPR) at Bore Sight,dB	>20	>20	>20	>20	>20
Cross Polar Ratio (CPR) at Sector +/- 60°, dB	>10	>5	>5	>10	>10
Front-to-Back at 180°, dB	> 28		> 28		
Polarization	+/- 45°		2x +/- 45°		
Electrical Down Tilt	0°-12° or 4°-16°		0°-6° or 4°-10°		
VSWR/Return Loss, dB, Maximum	1.5:1/-14.0		1.5:1/-14.0		
Isolation Between Ports, dB, Minimum	> 28		> 28		
Co – Polar Isolation Inter Antenna	N/A		> 28		
Intermodulation (2x20w), IM3, dBc	-153		-153		
Impedance, ohms	50		50		
Maximum Power Per Connector, CW (w)	500		250		

QTY: 2

Proposed Antennas – JMA X7CQAP-465-V



Proposed Antennas – X7CQAP-FRO-445-V

X7CQAP-FRO-445-V

1 Xpol Low Band 2 Xpol in High Band, 698-896/1695-2180 MHz, 50.5", 45° Fast Roll Off H-Beam

Variable E-Tilt, RET/MET

- 6 Port Macro Cell Antenna: 1 Low Band, 2 High Band Antennas in a single radome, all with separate tilts
- Fast Roll Off (FRO)
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET or manual MET tilt control

MECHANICAL SPECIFICATIONS	
Dimensions, Length/Width/Depth	50.5 x 18.6 x 7.7 in. (1282/479/196 mm)
Connector (Quantity) Type non- IP Model	(6 total: 2 low, 4 high band) 7-16 DIN Female
Connector Torque	220-265 lbf-in (23-30 N-m)
Connector Location	Back
Antenna Weight	39 lbs (16.4 kg)
Bracket Weight	18.2 lbs (8.25 Kg)
Standard Bracket Kit	P/N 919061
Mechanical Down Tilt Range	0°-12°
Radome Material	High Strength Luran, UV Stabilized, ASTM D1925
Wind Survival	150 mph (241 km/h)
Front Wind Load @100mph	163.6 lbf (728.6 N) @100mph
Equivalent Flat Plate @ 100mph	3.26 sq-ft (c*2) @ 100mph

QTY: 2

Proposed Antennas – MATSING 6.3DB90-A

ESTIMATED TECHINCAL SPECIFICATIONS PER BEAM		
Frequency	698-896 MHz	1710-2690 MHz
Gain	16.5dBi	24dBi
Return Loss	>15dB	>15dB
Polarization	Dual Slant ±45	Dual Slant ±45
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level)	40° ± 4°	20° ± 2°
Vertical Beamwidth (10dB level)	42°	21°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	6
Manual Adjustable Tilt per 20° sector (each sector having 2 high-band beams and 1 low-band beam)	10° to 25°	0° to 15°
First Sidelobe Level	<-18dB	<-18dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port -Polarization	>28dB	>28dB
Isolation Port to Port – Beam	>28dB	>28dB
Power Rating	400W per port	300W per port
Intermodulation	<-150dBc	<-150dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	6 7/16 DIN female	12 7/16 DIN female

MATSING
RF Lens Technologies

MS-6.3DB90-A

Multi-Beam Dual Band Spherical Lens Antenna: 3 independent low frequency (698-896MHz-A, 790-960MHz-B) cross-polarized beams and 6 independent high-frequency (1710-2690MHz) cross-polarized beams, with 0-15° tilt for each 40° sector and 2X2 MIMO support per beam. Sector consists of 1 low-band beam and 2 high-band beams.

***Optional Packages:**

a) **MS-6.3DB90-RET**
AISG 2.0 Remote Electrical Tilt

b) **MS-6.3DB90-B**
Low Band Frequency Range (800-960MHz)

ESTIMATED MECHINCAL DATA	
Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 100 x 110 x 120 cm 39 x 43 x 47 inch
Antenna Weight	60kg 132lbs
Radome Material	Fibre Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

QTY: 2

RF Design Engineer Support Letter

verizonwireless

RE: Verizon Wireless
Ellipse Site
1951 Constitution Ave, NW
Washington, DC 20006

August, 11, 2016

To Whom It May Concern,

Verizon Wireless operates a Personal Communication Service authorized by the Federal Communications Commission (FCC) to provide state of the art digital wireless communications in many parts of the nation, including Washington, DC. Verizon Wireless' operations and network are licensed and regulated by the FCC.

The antennas, as proposed and designed for the above noted site, are in compliance with all applicable FCC requirements. In addition, the proposed site meets all applicable ANSI/IEEE C95.1-1992 exposure levels, as adopted by the FCC requirements.

Antenna Model:	MATSING 6.3DB901	ERP = 245 Watts/MHz (Low Band)
	MATSING 6.3DB901	EIRP= 1255 Watts/MHz (High Band)
	CSS X7CQAP-FRO-445	ERP=126 Watts/MHz (Low Band)
	CSS X7CQAP-FRO-445	EIRP=215 Watts/MHz (High Band)

The means used to determine the RF levels for this installation were generated thru the "link budget" i.e. computer model calculation. This formula determines the RF level by calculating the transmit power, antenna gain and equipment specifications of the base station components.

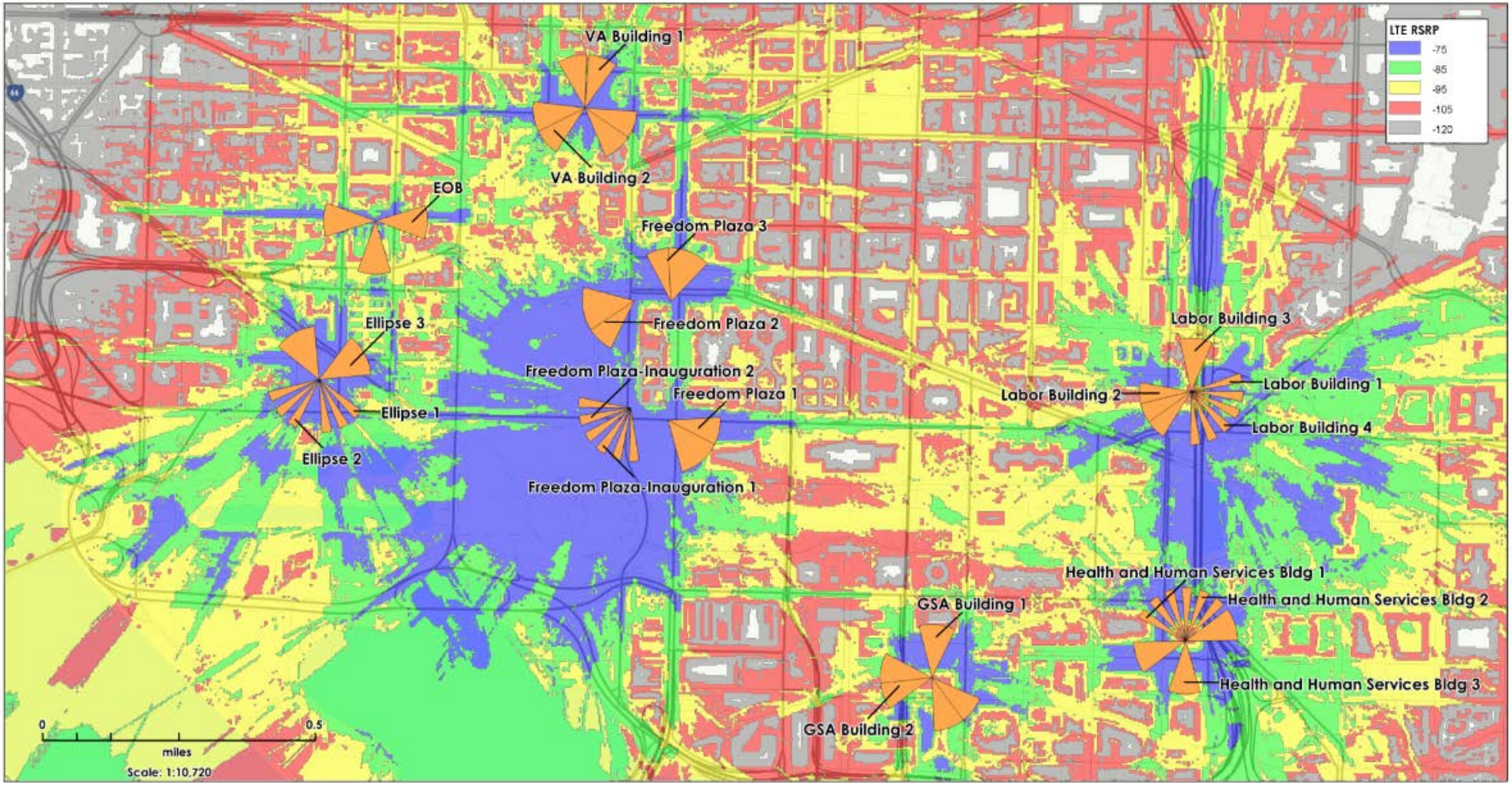
Verizon Wireless is committed to compliance with all government regulations and standards. Please contact Verizon Wireless if you have any questions regarding this matter.

Sincerely,

Roque Fial

Roque Fial
RF Design Engineer / Verizon Wireless
7600 Montpelier Road
Laurel, MD 20723
301-512-2406

RF Propagation Map – Overview



EOB: GSA Central Office

Ellipse: DOI South Annex

GSA Building: GSA Regional Office Building (ROB)

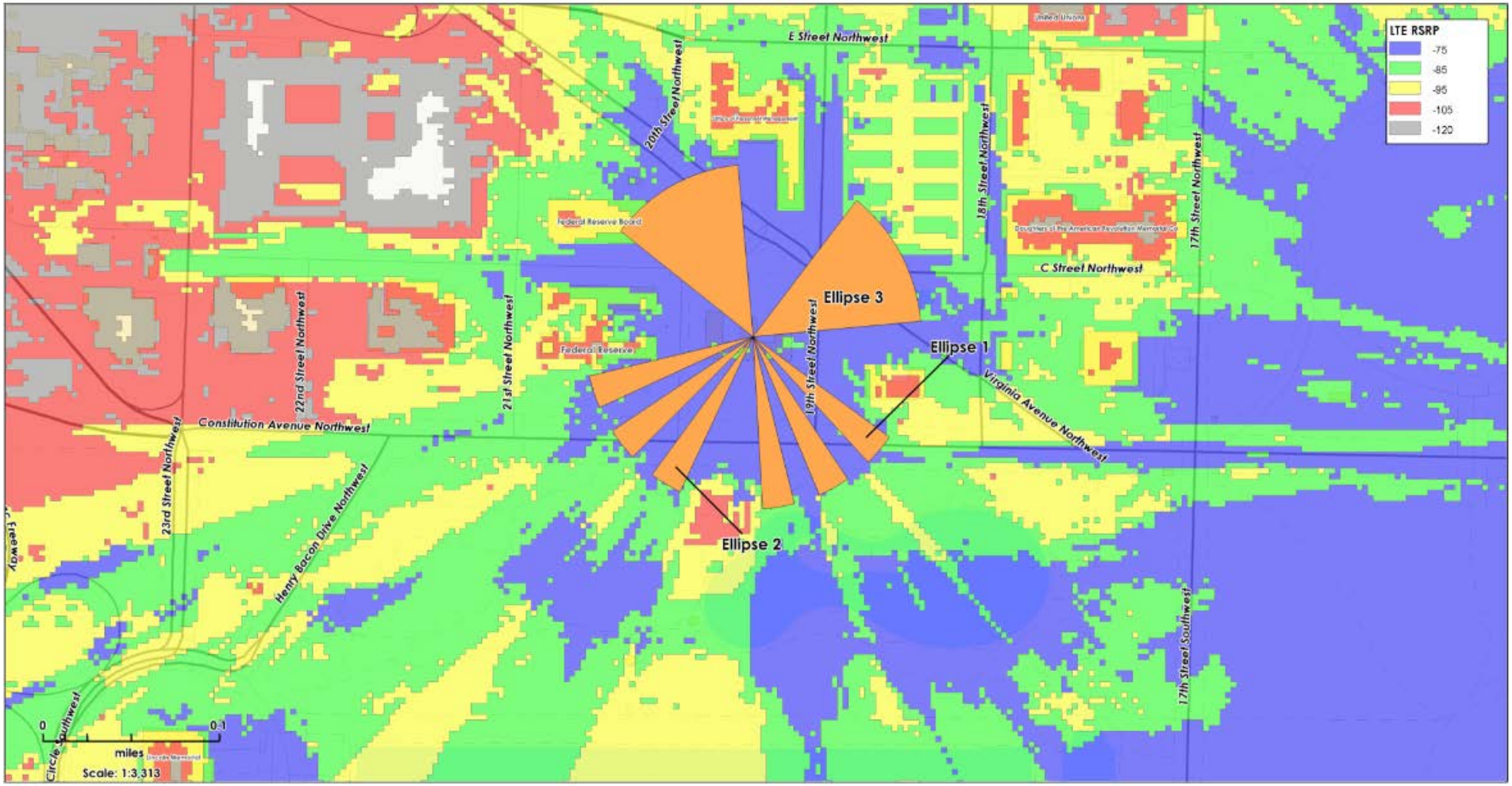
Health and Human Services: HHS/Hubert Humphrey

VA Building: Veterans' Affairs

Freedom Plaza: Department of Commerce

Labor Building: DOL/Frances Perkins

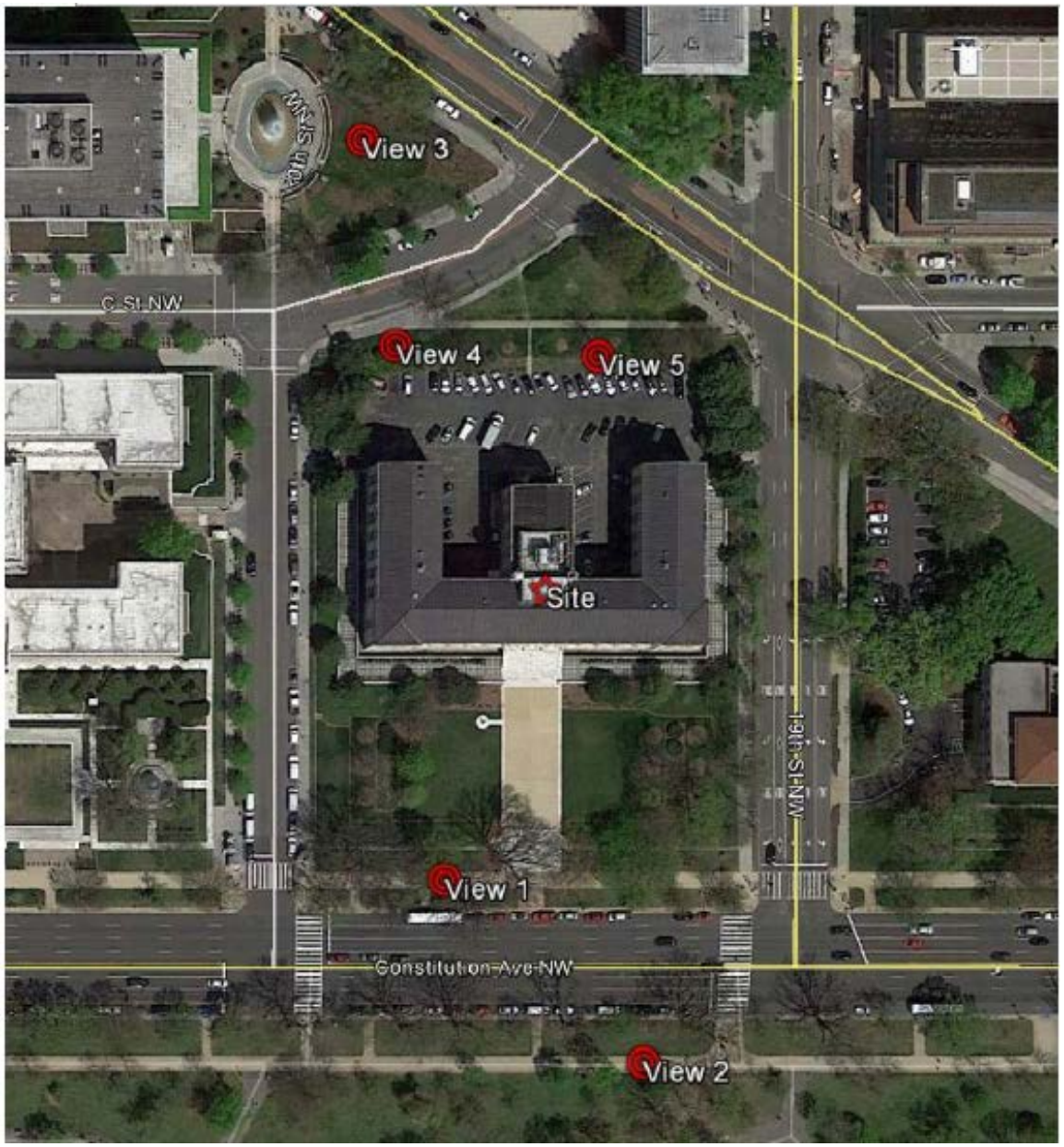
RF Propagation Map – Ellipse (DOI south Annex)



verizon

PHOTO SIMULATIONS

Photo Simulation Location Legend



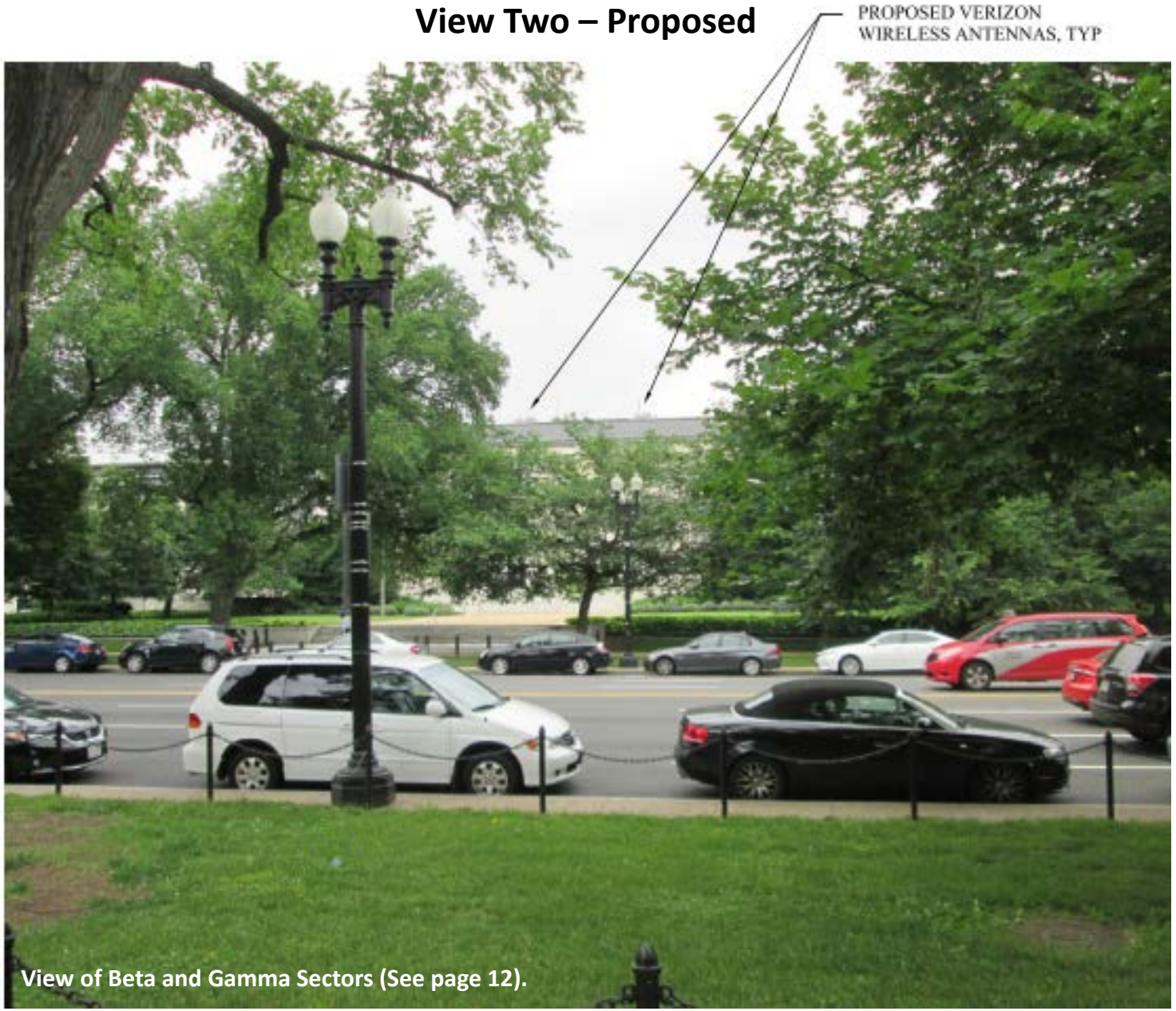
verizon

MORRIS & RITCHIE ASSOCIATES, INC.
1220-C East Joppa Road, Suite 505
Towson, Maryland 21286
410-821-1690
410-821-1748 Fax

View One – Not Visible

View Two – Existing Condition

View Two – Proposed



View of Beta and Gamma Sectors (See page 12).

View Three – Existing Condition

View Three – Proposed

View of Zeta and Gamma Sectors (See page 12).

View Four – Existing Condition

View Four – Proposed

View of Zeta and Gamma Sectors (See page ##).

View Five – Existing Condition

View Five – Proposed

View of Alpha and Beta Sectors (See page ##).

Close Up View of Sphere Antenna/West Chimney Mount

***Additional Detail Requested by CFA**

View of West Chimney Mount, South Elevation (See page 17).

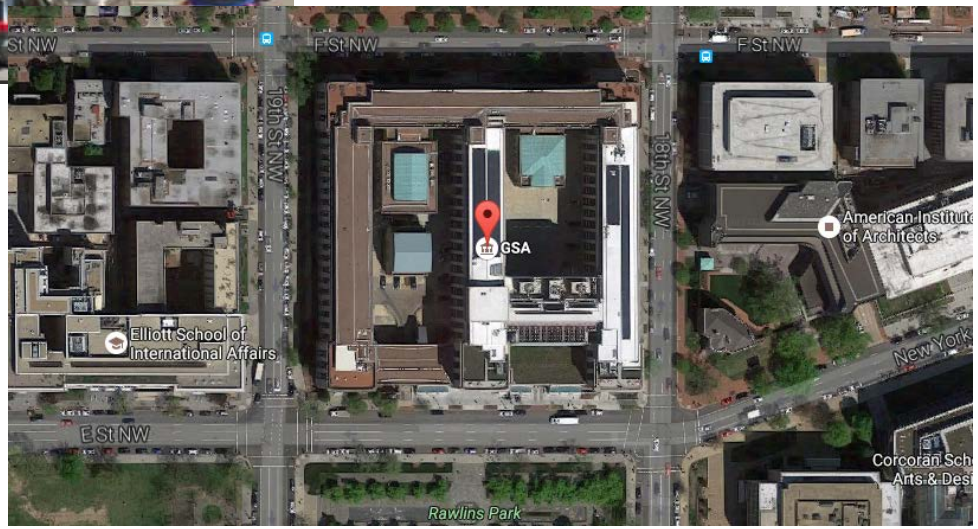
Verizon Wireless Communications Facility at General Services Administration Central Office

SHPO Design Submission

Submitted by the General Services Administration
September 1, 2016

GSA Site Name: GSA Central Office
Verizon Site Name: EOB

GSA Central Office



Project Overview:

The modification of this site will include: the addition of RRH's, the addition of one antenna per sector, swapping existing antennas with updated models, and the relocation of the north facing sector to the south side of the building, to be mounted to existing louvers.

Table of Contents

Contact Information

AGENCY PROJECT MANAGER

Gary L. Porter (GSA Sponsor)
Historic Preservation Specialist
US General Services Administration

301 7th Street Southwest, Washington DC 20407
(202) 205-7766
Gary.Porter@gsa.gov

Project Report

Project Description:

Cellco Partnership, d/b/a Verizon Wireless is licensed by the Federal Communications Commission (FCC) to provide wireless service, including licenses to deploy its network in the Greater Washington, D.C. metropolitan area. Verizon Wireless proposes to implement modifications to the existing telecommunications facility on the roof of the General Service Administration Central Office (GSA Central Office, in order to continue to meet coverage and capacity objectives for the immediate area as part of this network.

Existing Conditions:

The existing facility consists of three antenna sectors, resulting in a total of nine antennas. Each of the existing sectors consists of three antennas that are mounted to the upper penthouses on the north façade over the main entrance, and the northwest and northeast corners, respectively. The equipment cabinets that support this facility are currently located in a temporary shelter location in the building's interior courtyard. The shelter was placed in this location to allow for the solar panel installation while a steel platform was prepared on the rooftop level of the center wing.

Proposed Changes:

The modification of this site will include: the addition of RRH's, the addition of one antenna per sector, swapping existing antennas with updated models, and the relocation of the north facing sector to the south side of the building, to be mounted to existing louvers.

The total number of antennas, after modification, will be increased from nine to twelve antennas, four per sector. The number of remote radio heads (RRH's) will be increased to 12 RRH's (4 per sector). The newly relocated antennas will not be any more visible in the south location than those of the existing sectors and those of other carriers, and all antennas will be painted to match. Further, pursuant to CFA comments – all antenna sectors have been scrubbed to lower overall heights as much as possible, with the tops of the antennas being aligned and spaced to create a more uniform appearance, and all antennas will be painted to match the façade to which they're mounted.

The equipment located inside the existing shelter in the courtyard will be relocated to the steel rooftop platform that was built previously for Verizon during the installation of the solar panel project, and will utilize outdoor cabinets. This will free up much courtyard space and remove access impediments for the building. The equipment platform is not visible from any ground level vantage point.

Visibility:

The modification of this installation will be no more visible than the current installations. All proposed antennas will be painted to match the color and texture of the surface to which they will be mounted which will greatly reduce the visual impact of the installation. The resulting visual impact of the modification will be extremely minimal to the aesthetics of the building and the surrounding area.

Project Report

Capacity Issues:

Solid voice communications are an important necessity related to every day public safety, and are especially critical in the event of emergencies or unplanned events. Voice communication requires robust data capacity to ensure reliability. Additionally, with the proliferation of Smartphones – apps, photography and video streaming demand a persistent connection to the network, as the phones connect to the "Cloud" and do not release from it, even when not in use. This creates an unprecedented demand on the capacity of the network, particularly at large scale events where users are congregated in one place, and utilizing these streaming features non-stop. The modification of the site will help to maintain an adequate level of network capacity.

Safety Considerations:

It is Verizon Wireless' goal to continue to provide reliable service to the public. From a safety perspective, there is an immediate need to improve capacity throughout DC and particularly in the core of the Capital and National Mall areas. Verizon Wireless is a major supplier of mobile communications to all of the US Government Agencies and is the priority network provider for DC Government, which includes the majority of first responders. Capitol Police, Park Police and many other crucial public safety agencies utilize the Verizon network, as well. Improvements to capacity are not only crucial for the improved safety for the many large scale events held throughout the year but are highly critical in the event of an emergency or other "unplanned event". The modification of this facility will help to ensure that the network can continue to provide enough capacity for both the public and emergency service agencies to utilize.

Alternatives Considered:

Because this building is already utilized as a telecommunication facility, no alternate structures were considered. The existing site will continue to meet coverage and capacity objectives once the proposed modification are made.

Existing Antennas Installations:

In addition to the existing Verizon Wireless equipment, there is at least one other wireless carrier located on this rooftop.

Project Budget:

No government funds are being utilized for the installation of the proposed antennas.

Project Schedule:

The upgrades for this site are needed to accommodate the expected extreme capacity issues for the upcoming Presidential Inauguration, and will need to be completed by early December in order to integrate and optimize into the network.

Construction commence: Mid-November 2016

Construction completion: December 2, 2016

Historic Preservation:

GSA, in coordination with Verizon Wireless, is initiating this review required under Section 106 of the National Historic Preservation Act of 1996, and Verizon Wireless will assist GSA as required.

Building Codes and Operational Maintenance:

Installation of the proposed antennas will be completed in compliance with the International Building Code 2015. Verizon Wireless will conduct regular periodic inspections of the site to ensure its continued, safe operation. The roof is a secured area and is not accessible by the general public.

Conclusion:

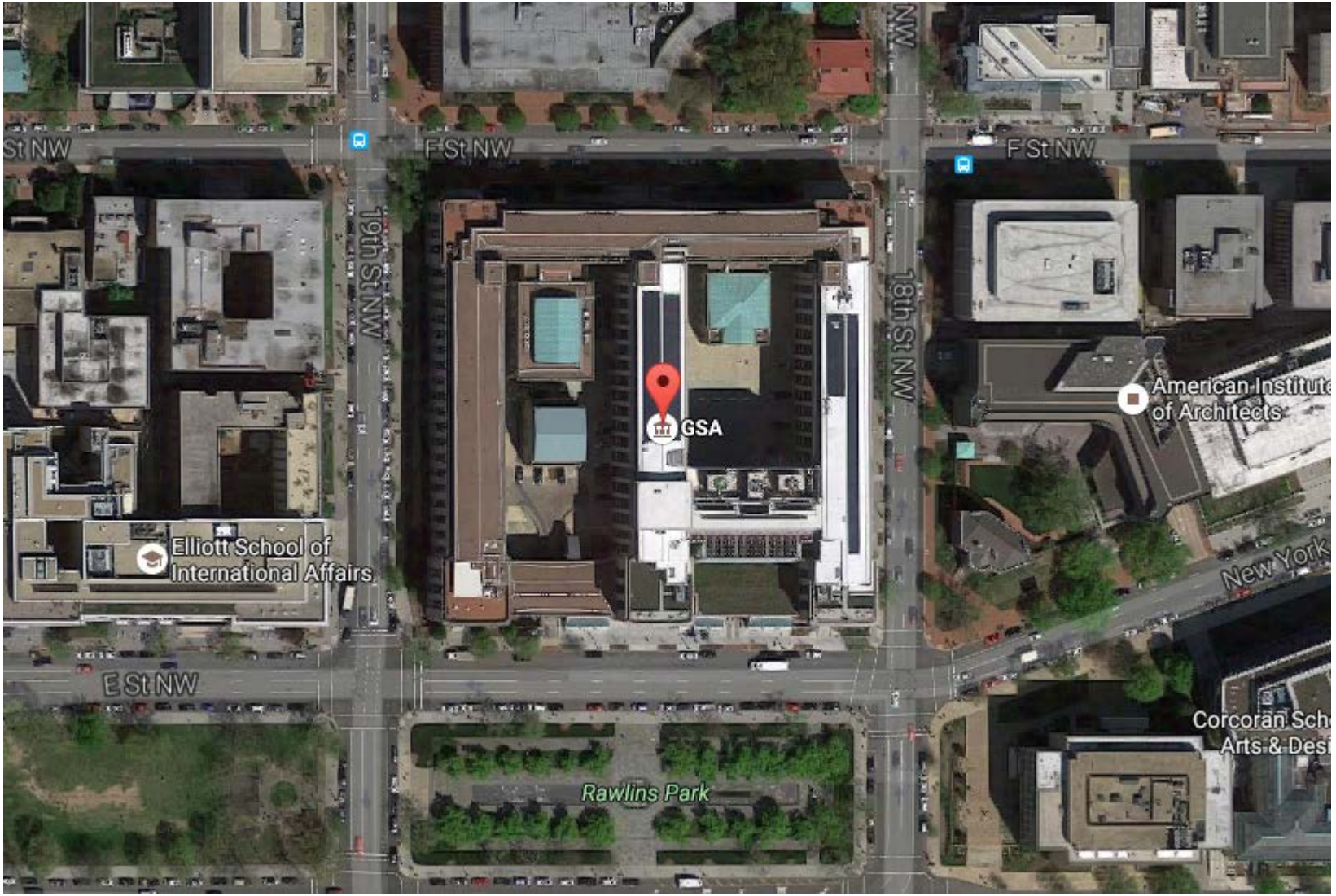
Verizon Wireless has worked very closely with GSA to design the modifications to this existing telecommunications facility. The resulting changes will pose minimal impact on the subject building and the surrounding area.

verizon

EXHIBITS

Vicinity Map

Aerial Map

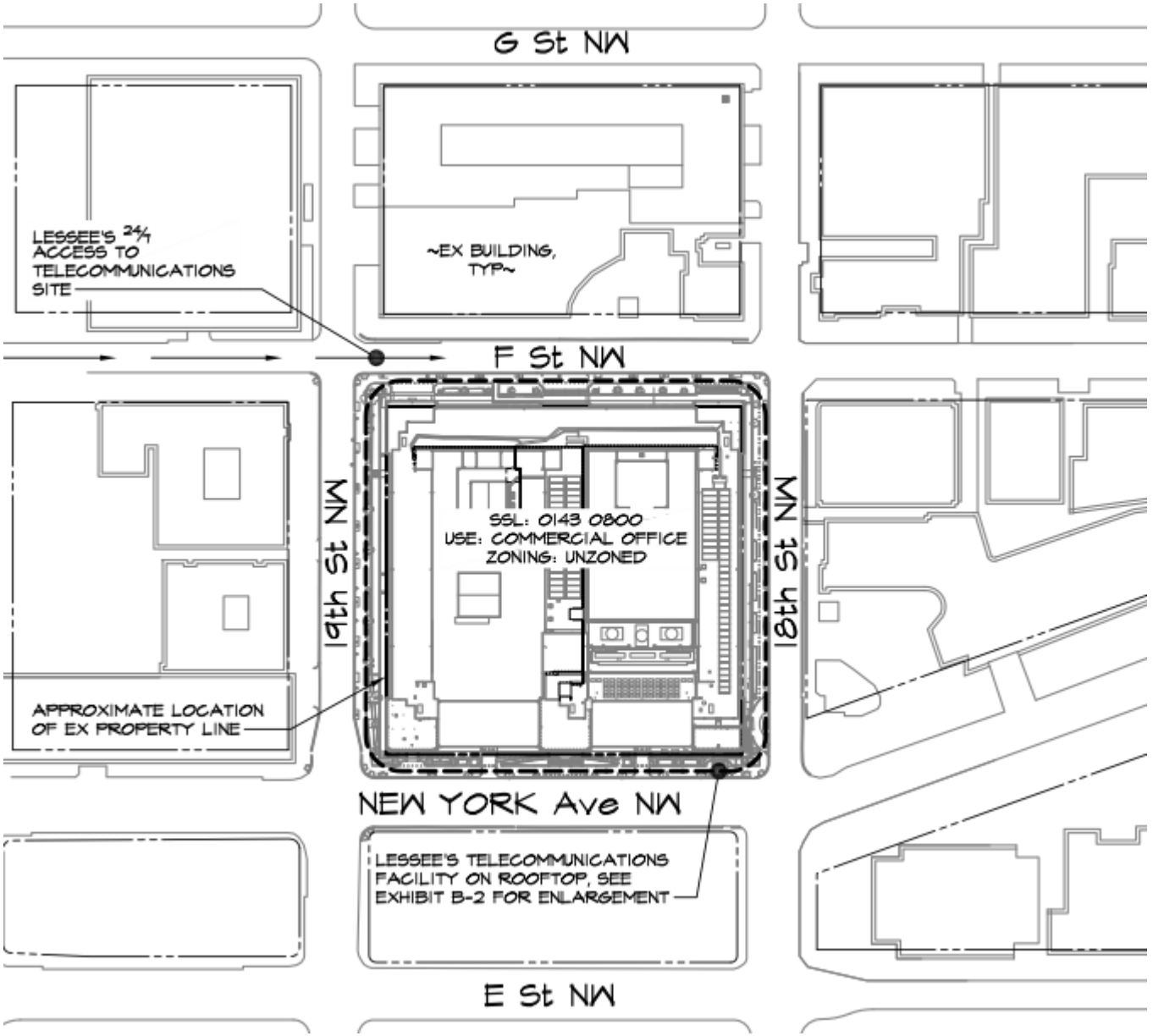

St NW
F St NW
F St NW
19th St NW
18th St NW
NW
GSA
American Institute
of Architects
Elliott School of
International Affairs
New York
E St NW
Rawlins Park
Corcoran Sch
Arts & Desi

Neighborhood Description

Surrounding landmarks include:

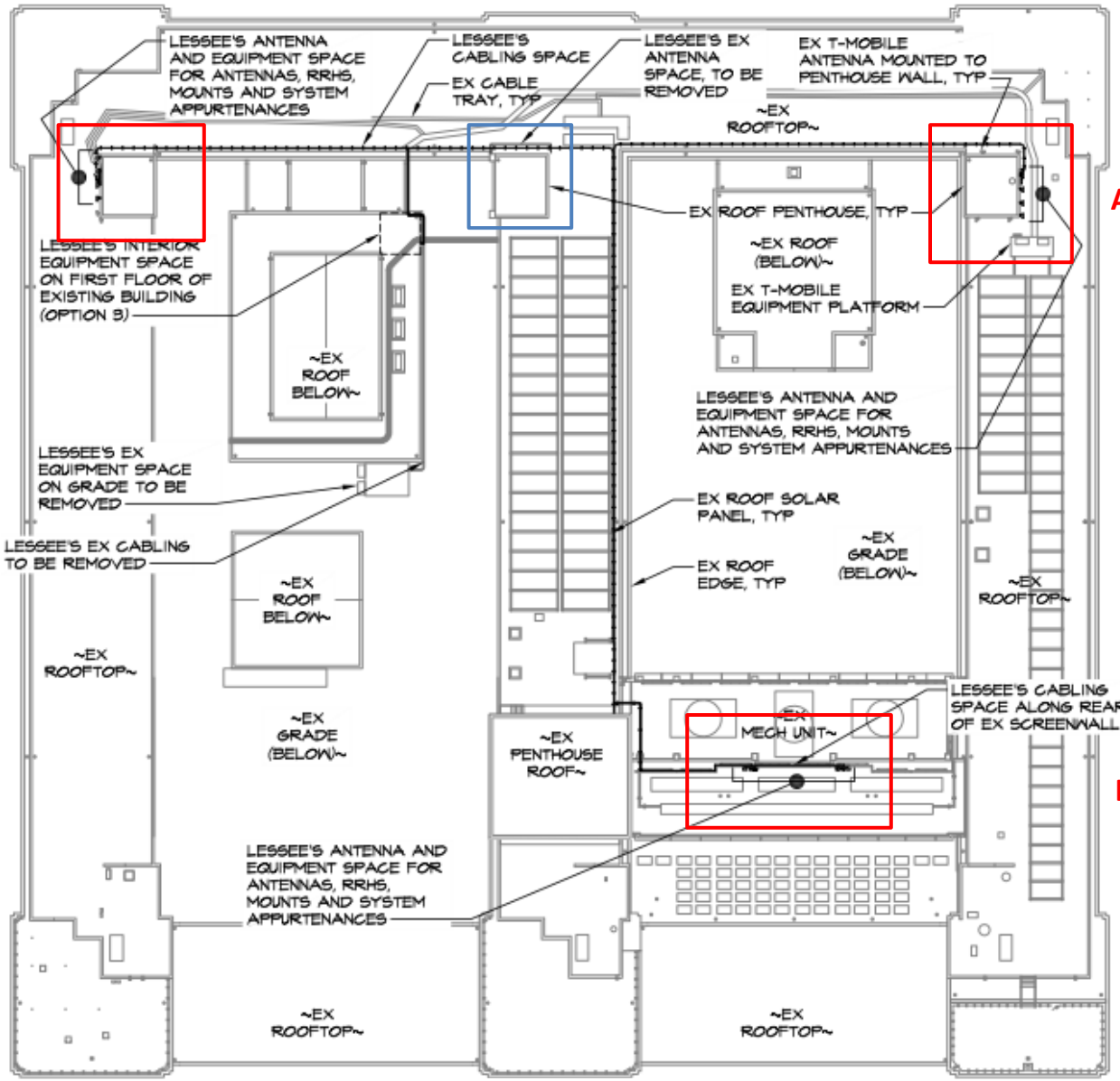
- **To the North of the building**: Young Americas Business Trust.
- **To the East of the Building**: American Institute of Architects, Eisenhower Executive Office Building.
- **To the South of the building**: Rawlins Park. U.S. Department of the Interior.
- **To the West of the building**: Elliott School of International Affairs.

Overview Map

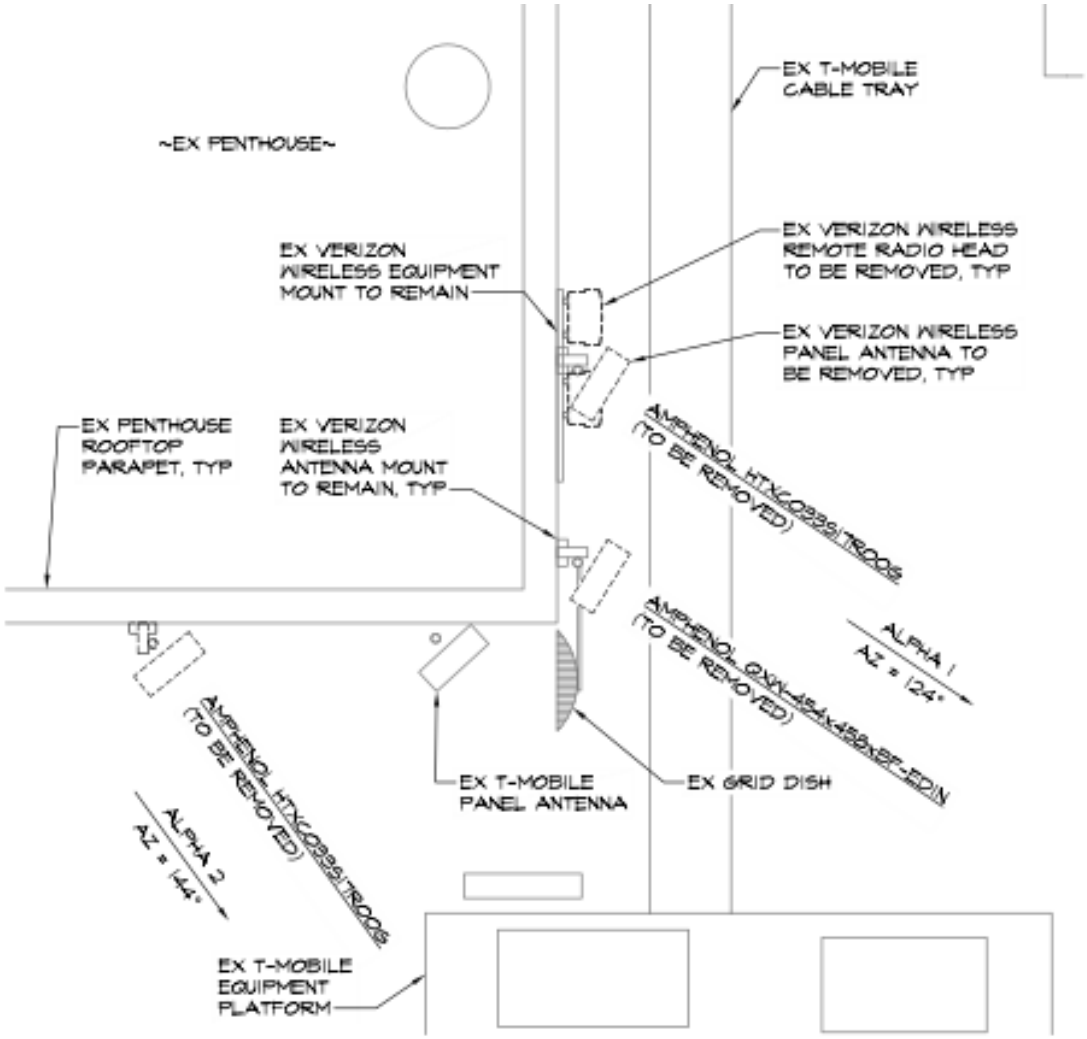


Roof Layout

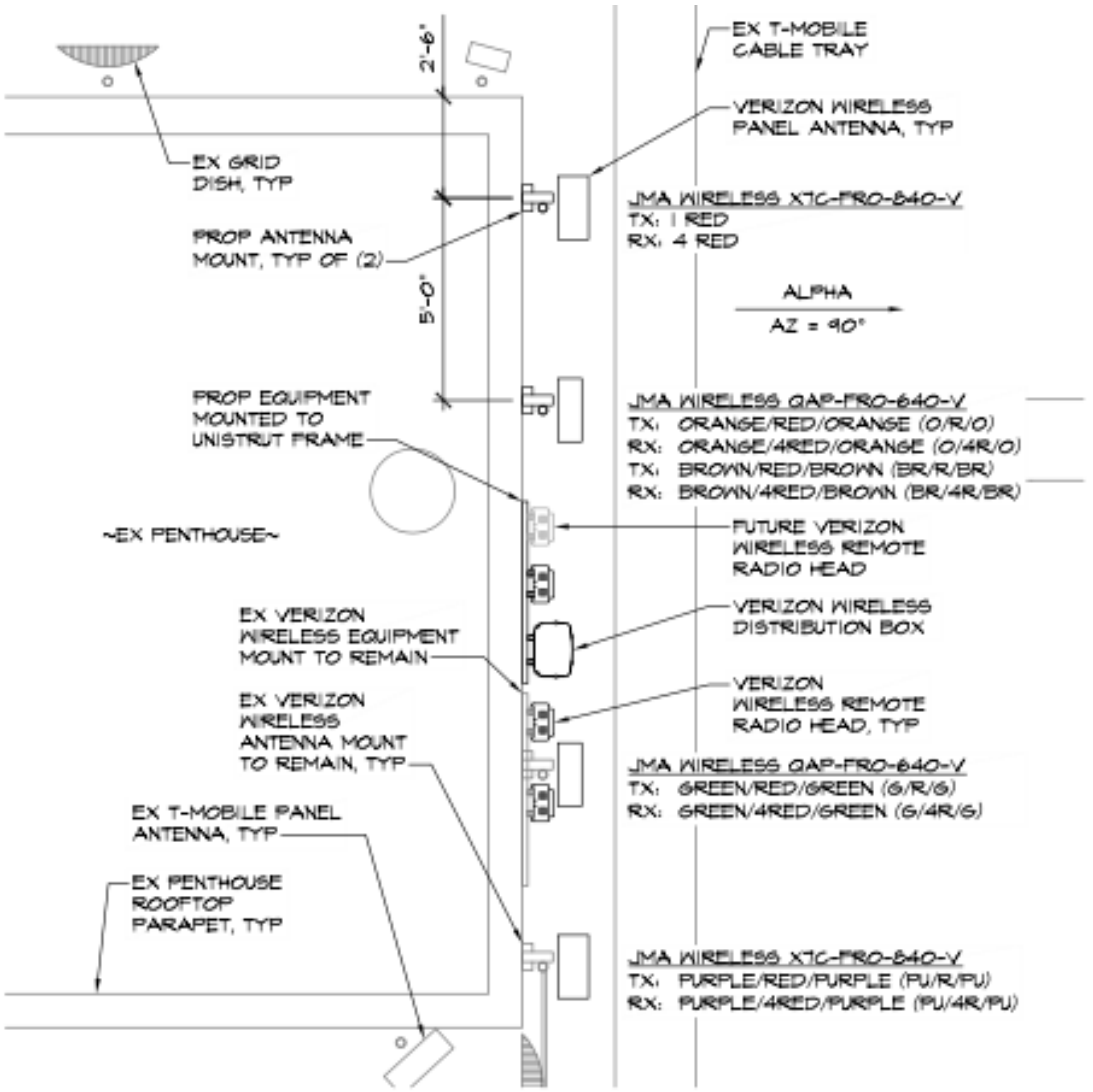
- Details view shown on later slides
- Original Beta Sector Location



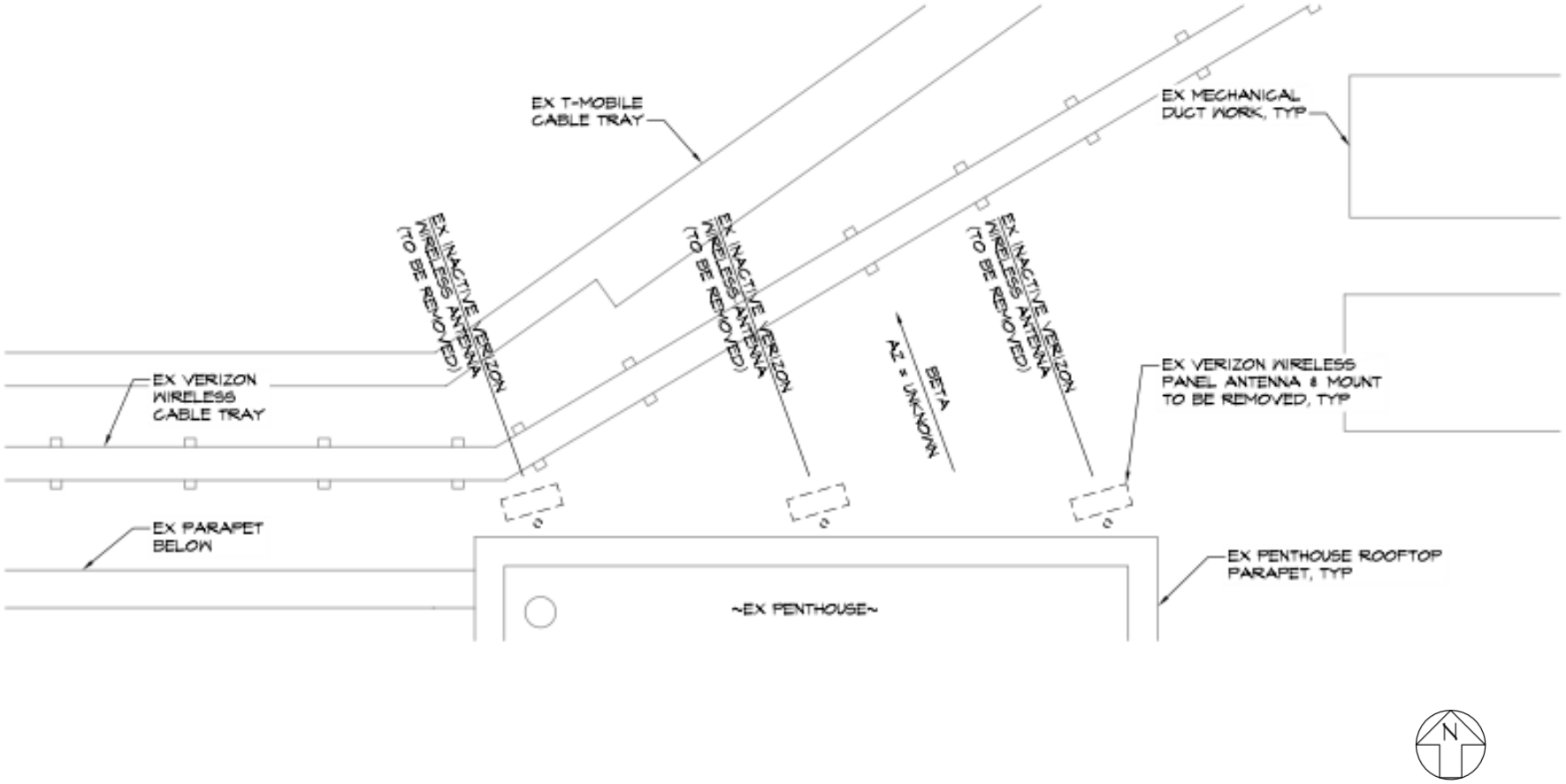
Alpha Sector – Existing Condition



Alpha Sector – Proposed

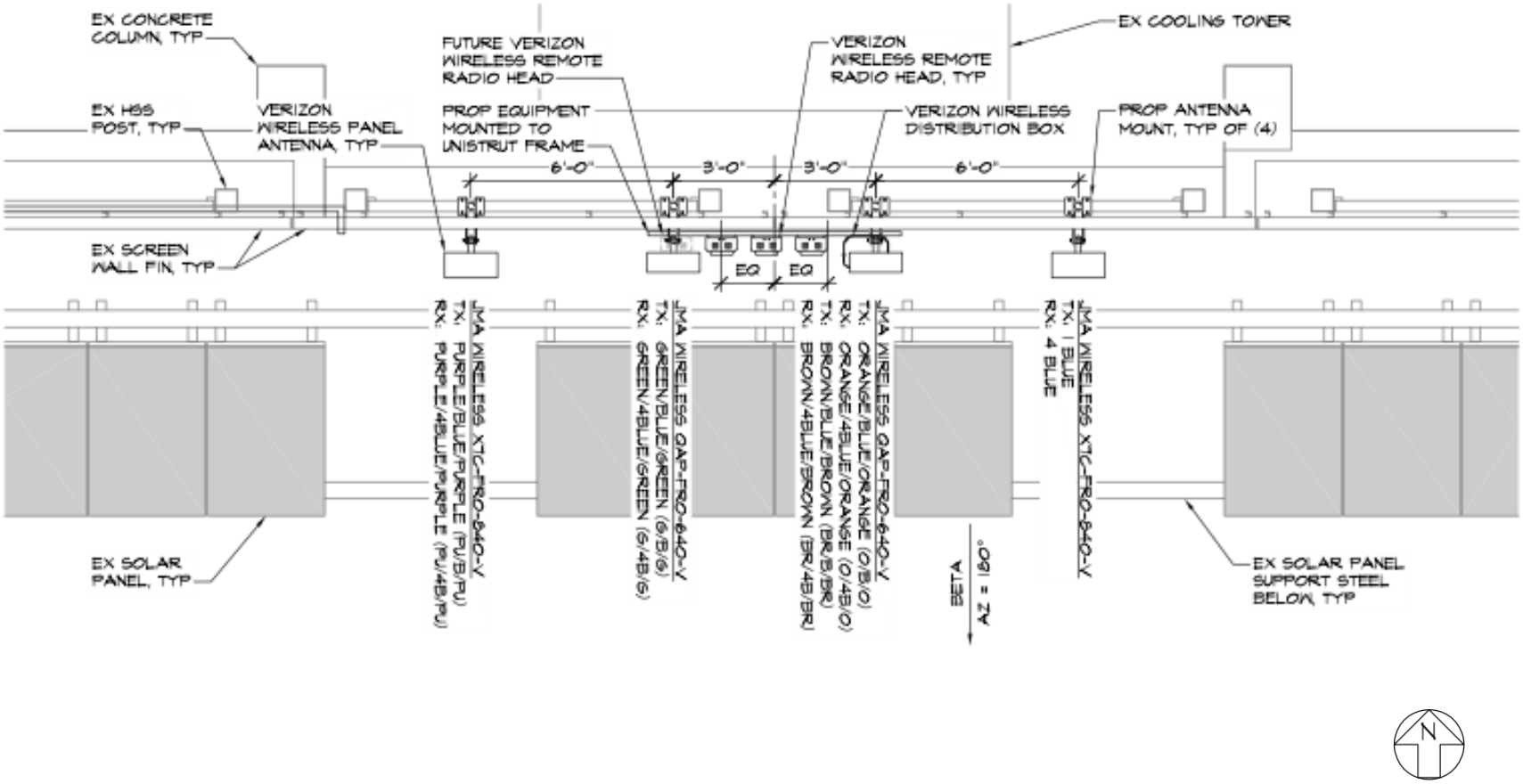


Beta Sector – Existing Condition



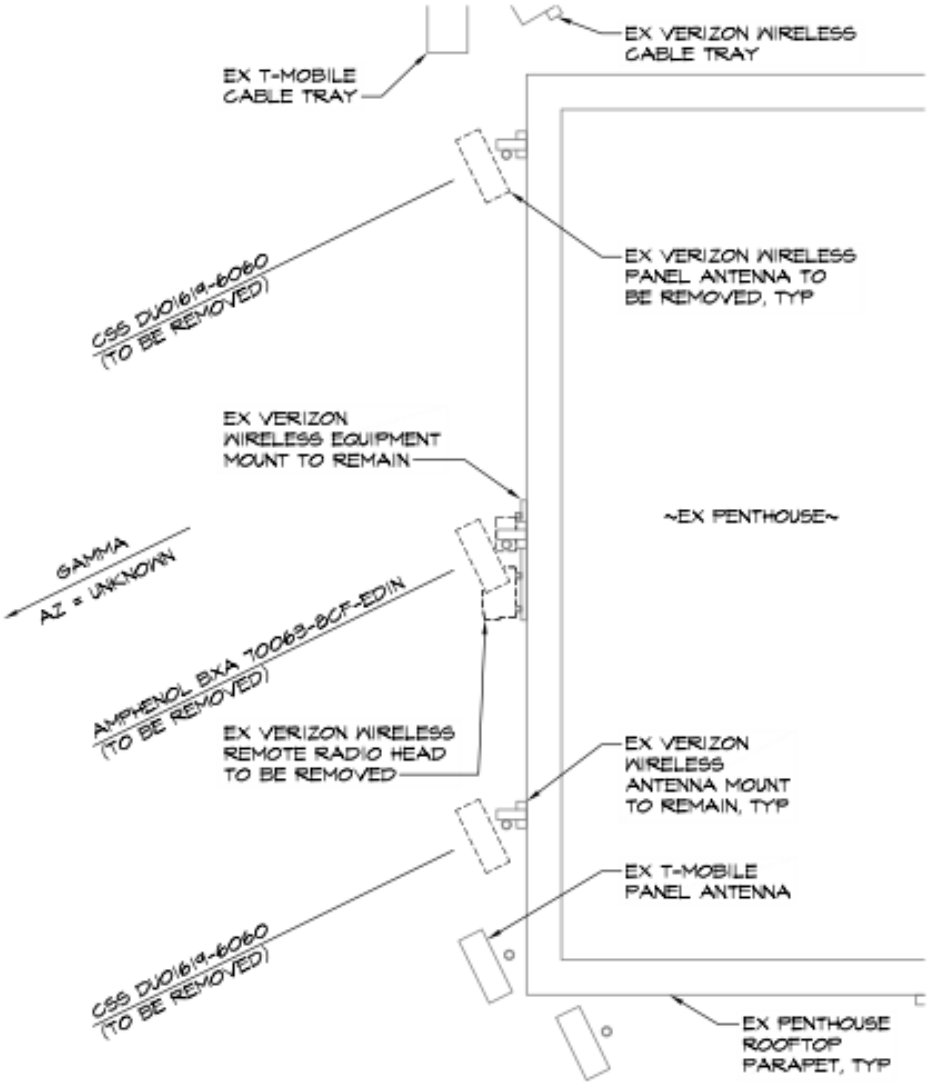
**Original Beta Sector location was on the northern part of the rooftop.

Beta Sector – Proposed

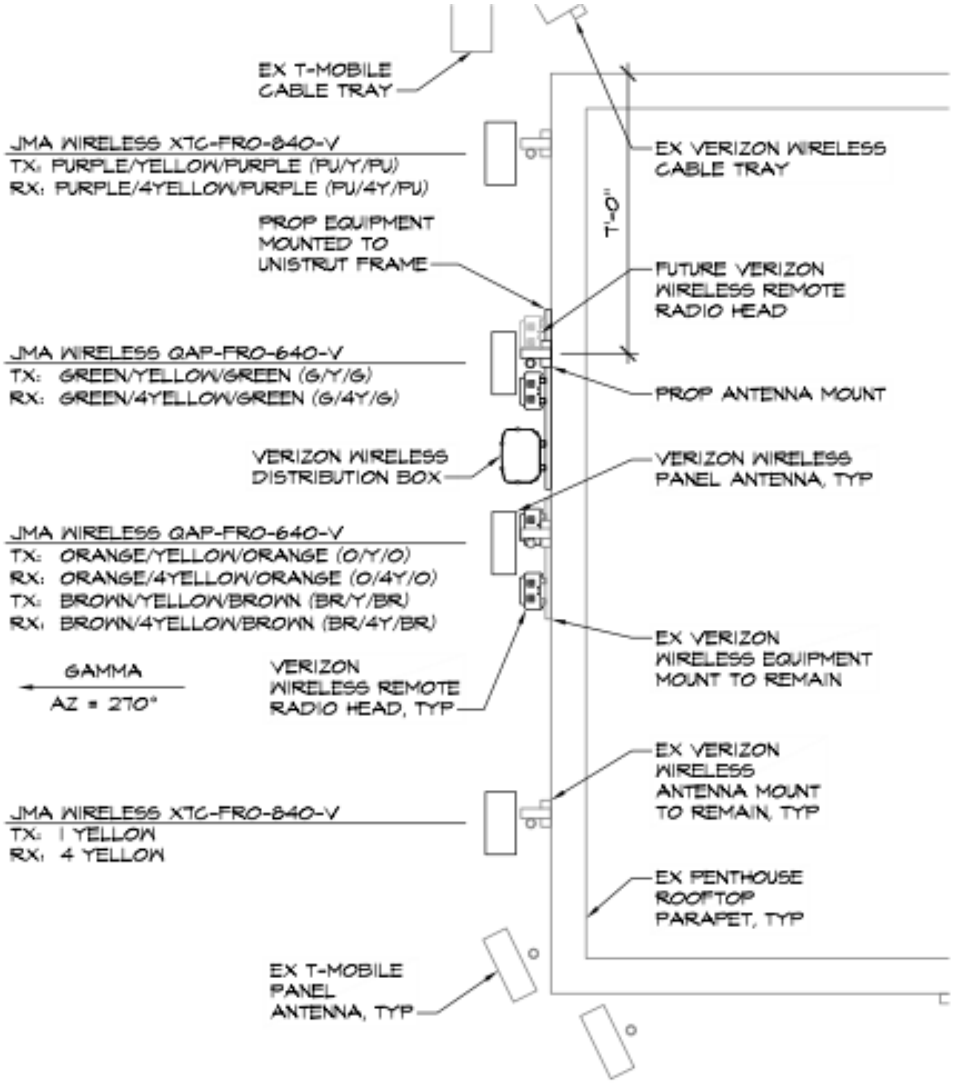


**Beta Sector was relocated to the south façade of the building.

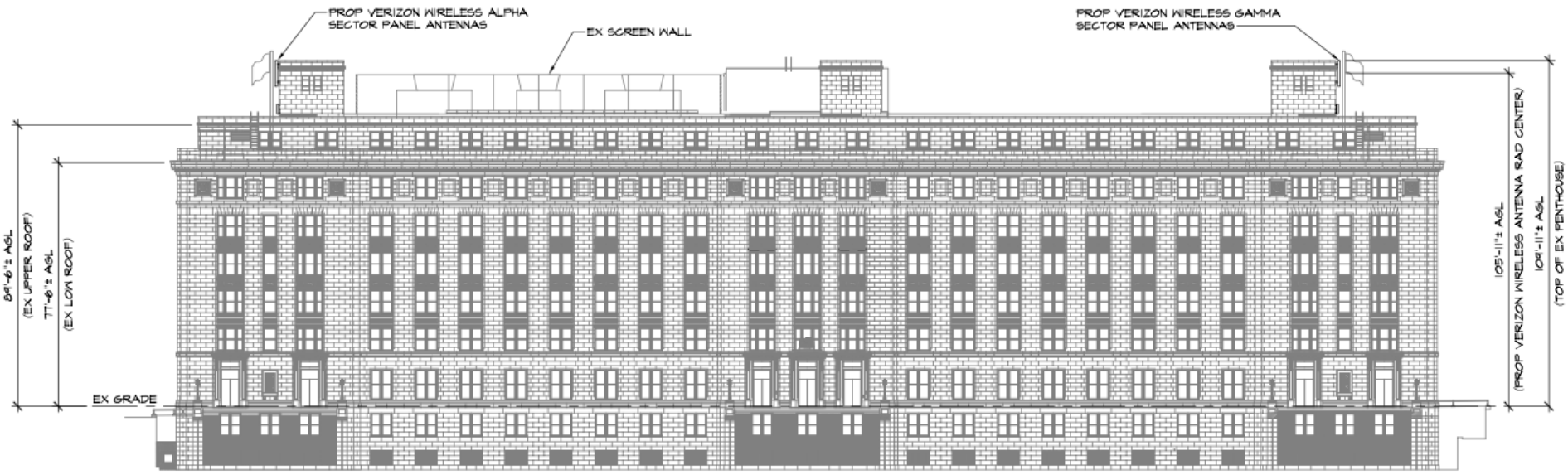
Gamma Sector – Existing Condition



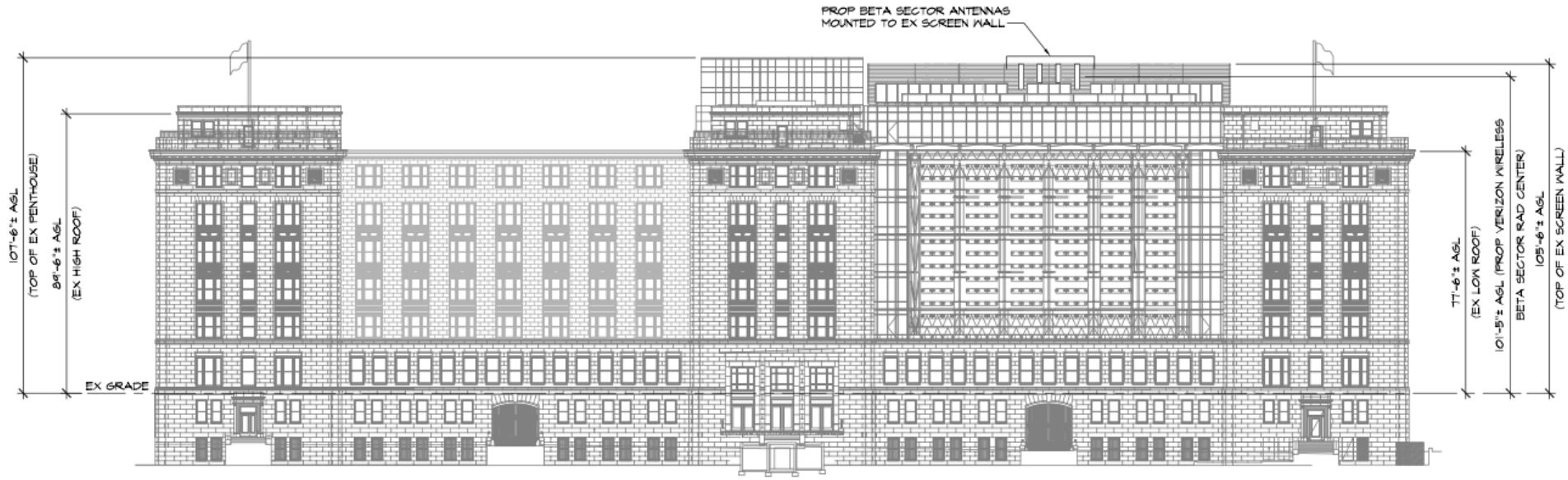
Gamma Sector – Proposed



Building Elevation - North



Building Elevation - South



Proposed Antennas – JMA X7C-FRO-840-V

X7C-FRO-840-V

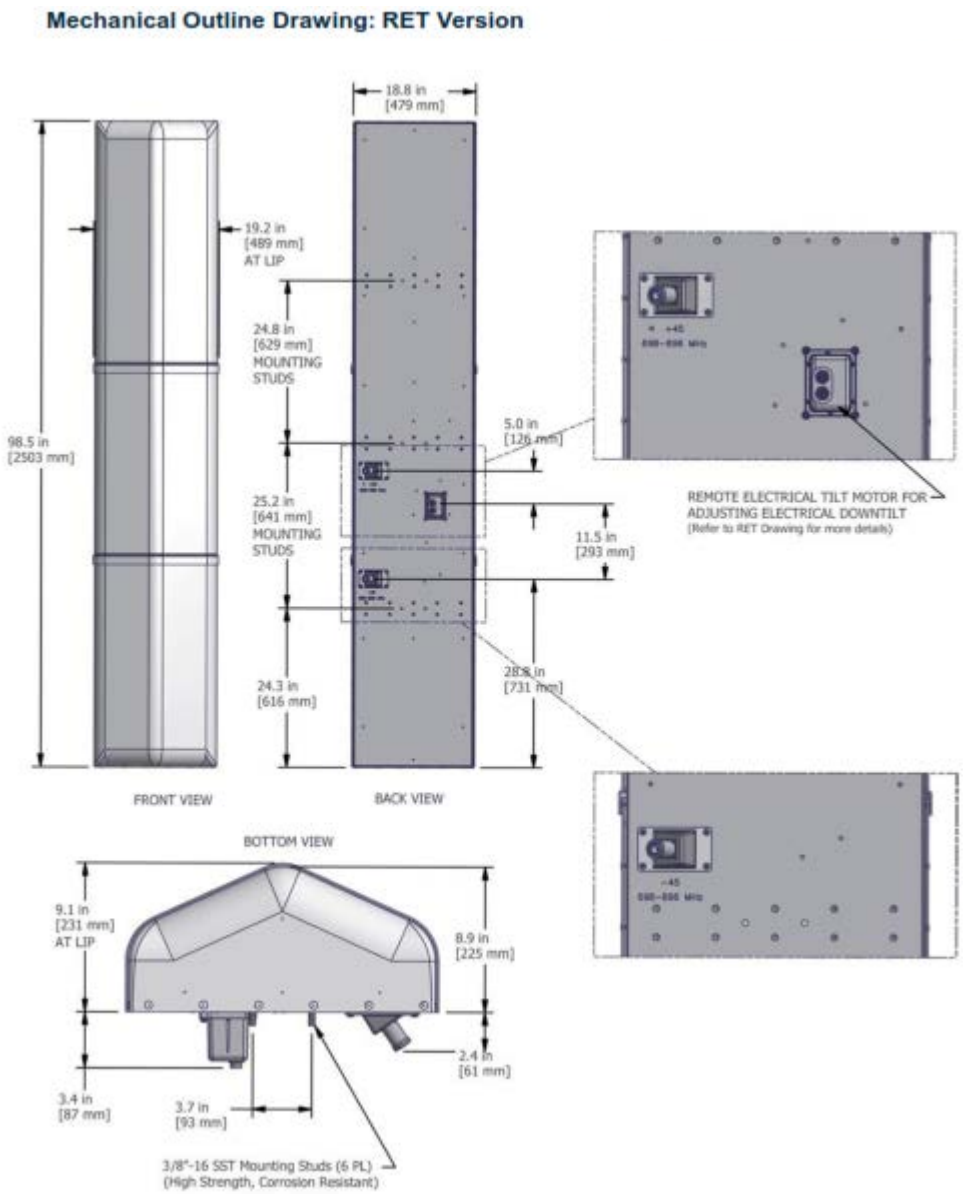
X-Pol Antenna, 698-896MHz, 98.5", Fast Roll off 40° Azimuth
Variable E-Tilt, RET

- Macro Cell Antenna
- Fast Roll Off (FRO)
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET control

ELECTRICAL SPECIFICATIONS		
Frequency Band, MHz	**698-824**	**824-896**
Horizontal Beamwidth, 3dB points	43°	37°
Gain, dBi	16.2	16.9
Vertical Beamwidth, 3dB points	9.3°	8.4°
Front-to-Back at 180°, dB	25	25
Upper Sidelobe Suppression, Typical, dB	-16	-16
Polarization	+/-45°	
Electrical Downtilt	0-6° or 4-10°	
VSWR/Return Loss, dB, Maximum	1.5:1/-14.0	
Isolation Between Ports, dB, Minimum	>28	
Intermodulation (2x20w), IM3, dBc	-150	
Impedance, ohms	50	
Maximum Power Per Connector, CW (w)	500	

QTY: 6

Proposed Antennas – JMA X7C-FRO-840-V

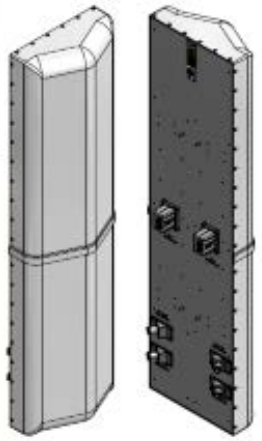


Proposed Antennas – JMA QAP-FRO-640-V

QAP-FRO-640-V

+/- 45° Polarization, (2)1695-2180MHz antennas, 72" Length, Fast Roll Off 40" Horizontal Pattern MIMO, Variable E-Tilt

- Fast Roll Off (FRO) improves Intra and Inter-cell SINR
- Separate housing and reflector construction optimizes RF performance while maximizing mechanical strength
- Good Passive Intermodulation (PIM) performance reduces harmful interference
- Independent tilt per array
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET Tilt Control

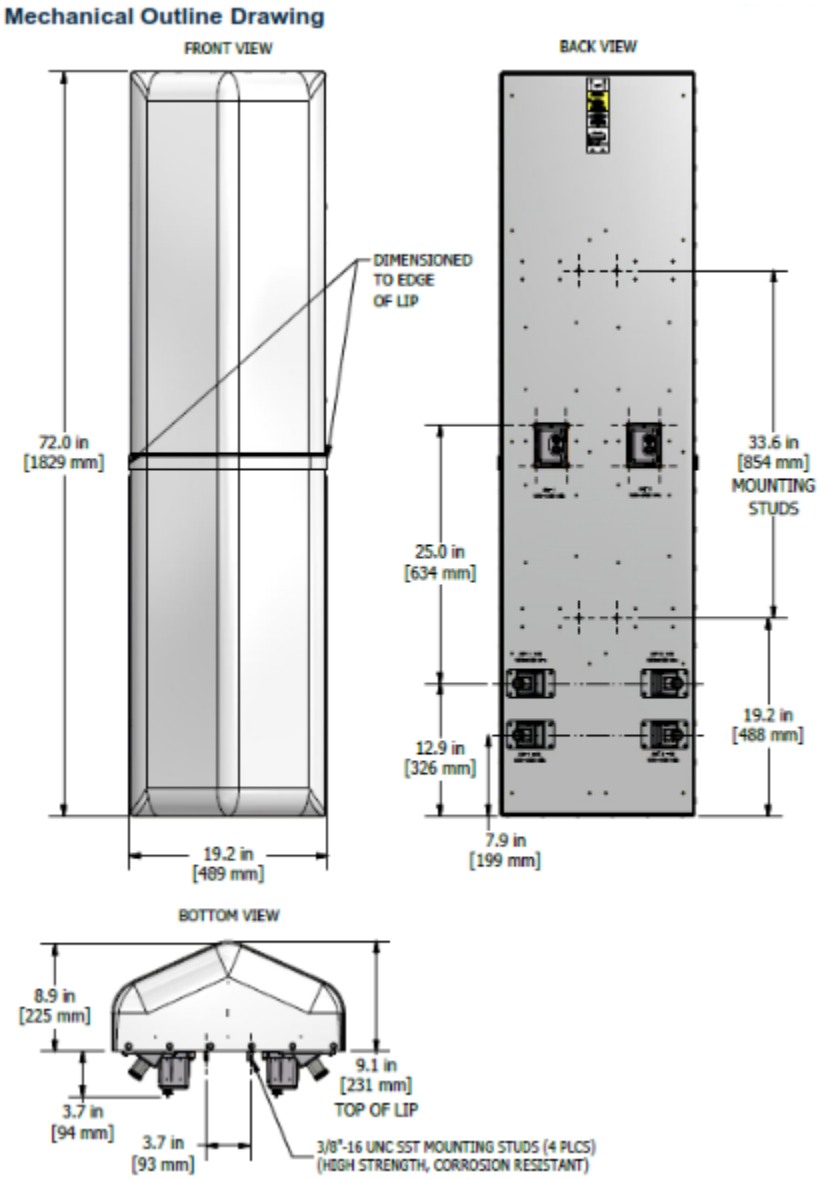


ELECTRICAL SPECIFICATIONS

Frequency Band, MHz	1695-1880	1880-1990	1990-2180
Horizontal Beamwidth, 3dB points	42°	39°	37°
Gain, dBi	19.6	19.4	19.7
Vertical Beamwidth, 3dB points	6.3°	6.4°	6.1°
Front-to-Back at 180°, dB	> 28		
Upper Sidelobe Suppression, Typical, dB	18		
Polarization	+/-45°		
Electrical Downtilt (See Ordering Information)	0°-6°/ 4°-10°		
VSWR/Return Loss, dB, Maximum	1.5:1/14.0		
Isolation Between Ports, dB, Minimum	>28		
Intermodulation (2x20w), IM3, dBc	-150		
Impedance, ohms	50		
Maximum Power Per Connector, CW	250		

QTY: 6

Proposed Antennas – JMA QAP-FRO-640-V



RF Design Engineer Support Letter

verizonwireless

RE: Verizon Wireless
GSA Central Office Site
1800 F Street, NW
Washington, DC 20006

August, 10, 2016

To Whom It May Concern,

Verizon Wireless operates a Personal Communication Service authorized by the Federal Communications Commission (FCC) to provide state of the art digital wireless communications in many parts of the nation, including Washington, DC. Verizon Wireless' operations and network are licensed and regulated by the FCC.

The antennas, as proposed and designed for the above noted site, are in compliance with all applicable FCC requirements. In addition, the proposed site meets all applicable ANSI/IEEE C95.1-1992 exposure levels, as adopted by the FCC requirements.

Antenna Model: CSS X7C-FRO-840	ERP = 275 Watts/MHz (Low Band)
CSS QAP-FRO-640	EIRP= 370 Watts/MHz (High Band)
CSS X7C-FRO-840	ERP= 495 Watts (850 Band)

The means used to determine the RF levels for this installation were generated thru the "link budget" i.e. computer model calculation. This formula determines the RF level by calculating the transmit power, antenna gain and equipment specifications of the base station components.

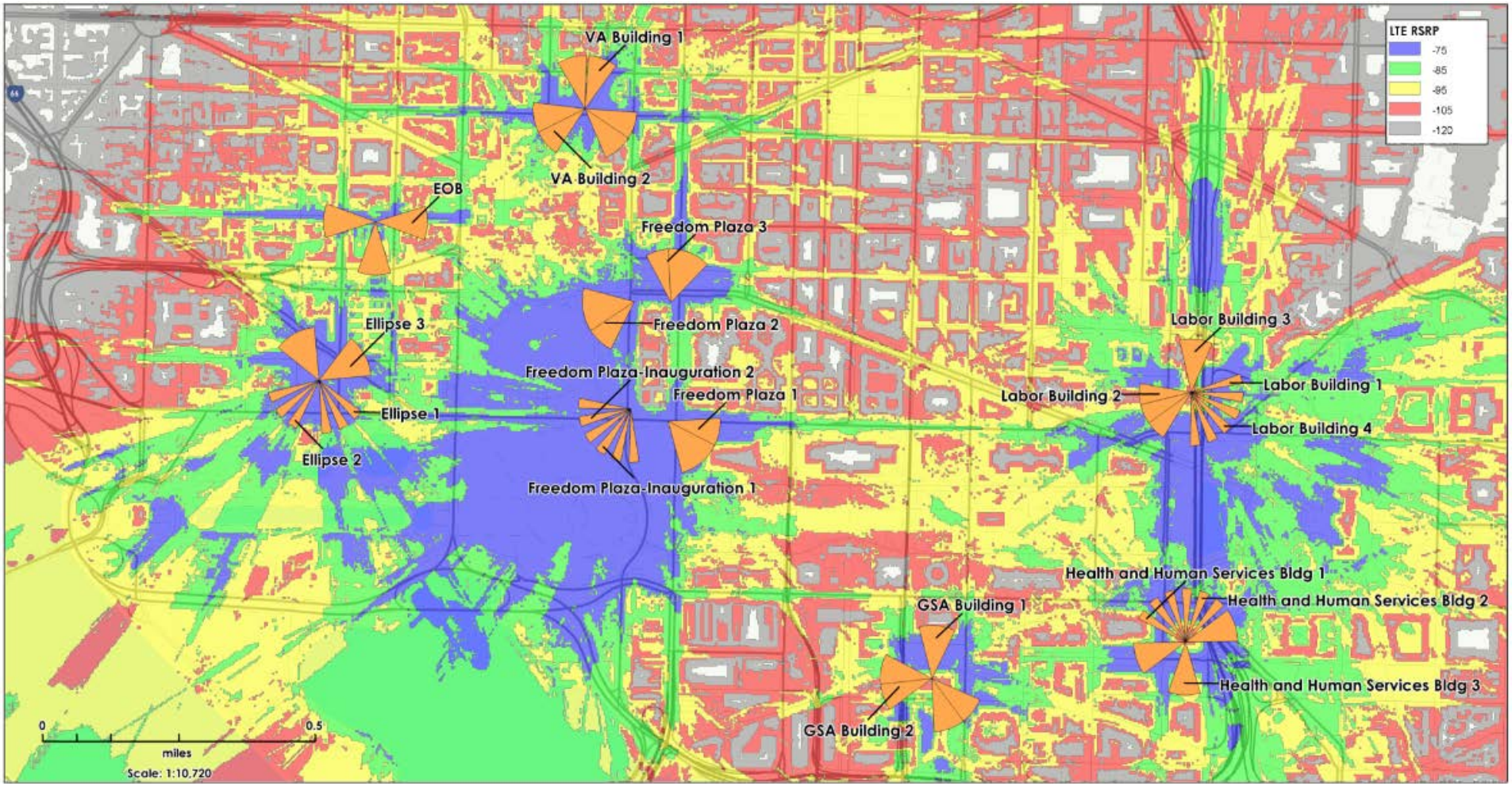
Verizon Wireless is committed to compliance with all government regulations and standards. Please contact Verizon Wireless if you have any questions regarding this matter.

Sincerely,

Roque Fial

Roque Fial
RF Design Engineer / Verizon Wireless
7600 Montpelier Road
Laurel, MD 20723
301-512-2406

RF Propagation Map – Overview



EOB: GSA Central Office

Ellipse: DOI South Annex

GSA Building: GSA Regional Office Building (ROB)

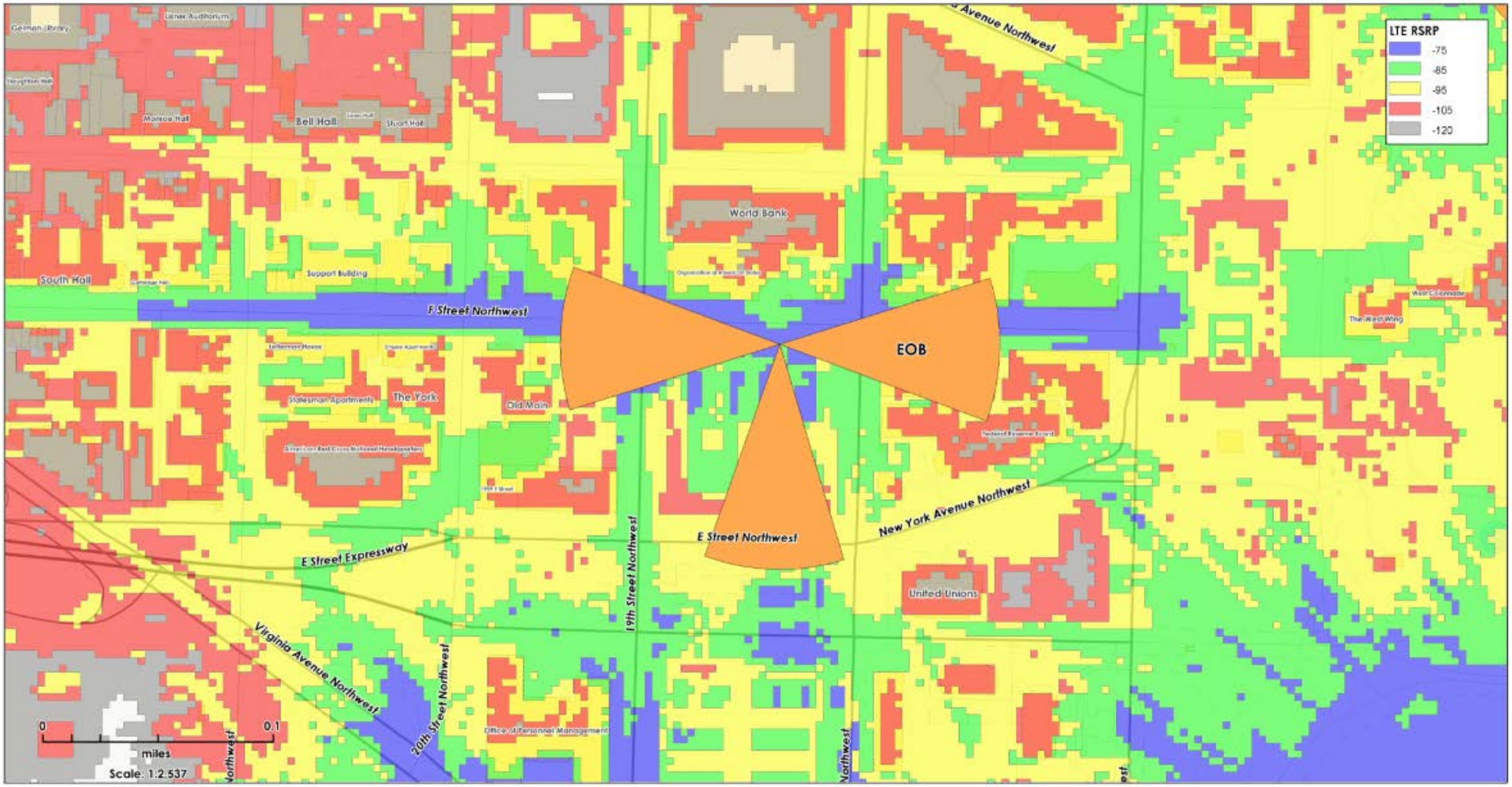
Health and Human Services: HHS/Hubert Humphrey

VA Building: Veterans' Affairs

Freedom Plaza: Department of Commerce

Labor Building: DOL/Frances Perkins

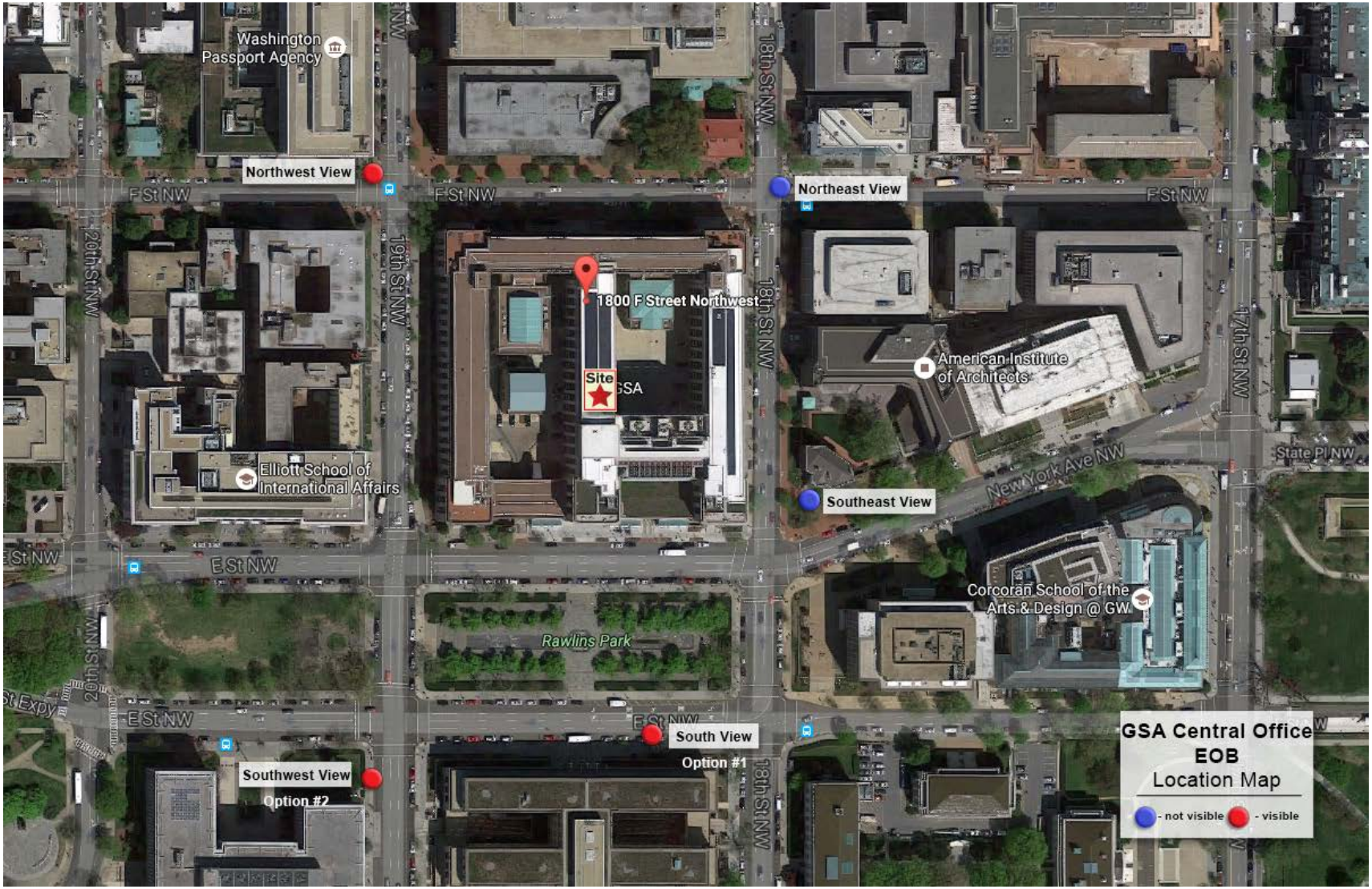
RF Propagation Map – GSA Central Office (VZW EOB)



verizon

PHOTO SIMULATIONS

Photo Simulation Location Legend



South View – Existing Condition

South View – Proposed

View of Beta Sector (See page 14).

Southeast View – Not Visible

Northwest View – Existing Condition

Northwest View – Proposed

View of Gamma Sector (See page 17).

Northeast View – Not Visible

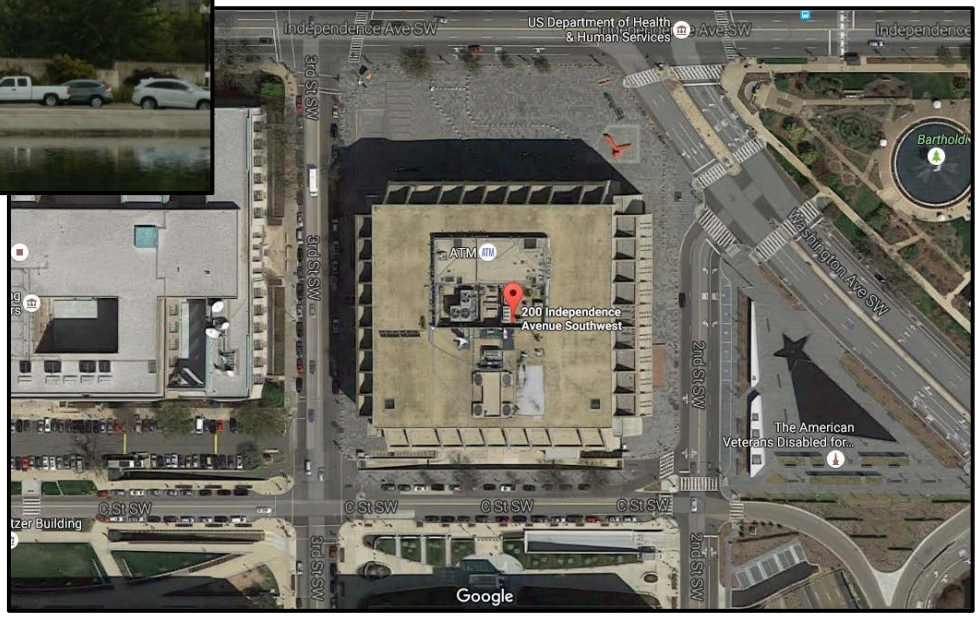
Verizon Wireless Communications Facility at Hubert Humphrey/Health and Human Services

SHPO Design Submission

Submitted by the General Services Administration
September 1, 2016

GSA Site Name: Hubert Humphrey/HHS
Verizon Site Name: HHS

Hubert Humphrey/Health and Human Services Building



Project Overview:

The modification of this site will include: a reduction in coax cables, the addition of RRH's, a reduction in overall antenna count, the addition of a sphere antenna to be concealed in a stealth enclosure, and the relocation of an existing sector.

Table of Contents

Contact Information

AGENCY PROJECT MANAGER

Gary L. Porter (GSA Sponsor)
Historic Preservation Specialist
US General Services Administration

301 7th Street Southwest, Washington DC 20407
(202) 205-7766
Gary.Porter@gsa.gov

Project Report

Project Description:

Cellco Partnership, d/b/a Verizon Wireless is licensed by the Federal Communications Commission (FCC) to provide wireless service, including licenses to deploy its network in the Greater Washington, D.C. metropolitan area. Verizon Wireless proposes to implement modifications to the existing telecommunications facility on the roof of the Hubert Humphrey/Health and Human Services Building (HHS), in order to continue to meet coverage and capacity objectives for the immediate area as part of this network.

Existing Conditions:

The existing facility consists of four antenna sectors, resulting in a total of sixteen antennas. The Alpha sector consists of five antennas that are flush mounted to the northern façade of the penthouse. The Beta sector consists of five antennas that are mounted to the eastern façade of the penthouse. The Gamma sector consists of two antennas that are sled mounted on the southern area of the rooftop. And the Delta sector consists of four antennas that are flush mounted on the western façade of the penthouse. The equipment cabinets that support this facility are currently located in an interior room on the top floor of the HHS Building.

Proposed Changes:

The modification of this site will include: a reduction in coax cables, the removal of an existing equipment cabinet, the addition of RRH's, a reduction in overall antenna count, the addition of a sphere antenna to be concealed in a stealth enclosure, and the relocation of an existing sector.

The total number of antennas, after modification, will be reduced from sixteen to thirteen antennas. The number of RRH's will be increased to 30 RRH's. As a result of the modifications, the Alpha sector will be reduced to a single 3' sphere shaped antenna, which will be concealed behind a proposed RF friendly screen wall. The Beta sector will have four antennas, removing one and swapping the existing with updated antenna models. The Gamma sector, which is currently sled mounted on the roof deck, will be relocated to the south façade of the existing penthouse structure and will include four antennas. These newly flush mounted antennas will not be any more visible in this location and will utilize mounts vacated by Nextel and will remove all equipment from the roof deck (requested by building for re-roofing and solar panel project). Further, pursuant to CFA comments, the relocated antennas have been lowered in overall height and the tops of the antennas have been aligned in order to create a more uniform appearance. The Delta sector will also continue to have four antennas, swapping the existing with updated antenna models.

The number of coax cable will be reduced as a result of the reduction in the number to total antennas. The equipment, located in an interior room, will be replaced with updated equipment however, these changes will not be visible and the size of the equipment room will not be changed.

Visibility:

The modification of this installation will be no more visible than the current installation. Presently the installation are somewhat visible form a distance. The proposed antennas will be [painted to match the façade and a stealth wall will be added to better conceal the 3' sphere shaped antenna. The resulting visual impact of the modification will be extremely minimal to the aesthetics of the building and the surrounding area.

Project Report

Capacity Issues:

Solid voice communications are an important necessity related to every day public safety, and are especially critical in the event of emergencies or unplanned events. Voice communication requires robust data capacity to ensure reliability. Additionally, with the proliferation of Smartphones – apps, photography and video streaming demand a persistent connection to the network, as the phones connect to the "Cloud" and do not release from it, even when not in use. This creates an unprecedented demand on the capacity of the network, particularly at large scale events where users are congregated in one place, and utilizing these streaming features non-stop. The modification of the site will help to maintain an adequate level of network capacity.

Safety Considerations:

It is Verizon Wireless' goal to continue to provide reliable service to the public. From a safety perspective, there is an immediate need to improve capacity throughout DC and particularly in the core of the Capital and National Mall areas. Verizon Wireless is a major supplier of mobile communications to all of the US Government Agencies and is the priority network provider for DC Government, which includes the majority of first responders. Capitol Police, Park Police and many other crucial public safety agencies utilize the Verizon network, as well. Improvements to capacity are not only crucial for the improved safety for the many large scale events held throughout the year but are highly critical in the event of an emergency or other "unplanned event". The modification of this facility will help to ensure that the network can continue to provide enough capacity for both the public and emergency service agencies to utilize.

Alternatives Considered:

Because this building is already utilized as a telecommunication facility, no alternate structures were considered. The existing site will continue to meet coverage and capacity objectives once the proposed modification are made.

Existing Antennas Installations:

In addition to the existing Verizon Wireless equipment, there are numerous other antennas and large microwave dishes located on this rooftop. These antennas are operated by other wireless carriers, commercial providers and governmental agencies.

Project Budget:

No government funds are being utilized for the installation of the proposed antennas.

Project Schedule:

The upgrades for this site are needed to accommodate the expected extreme capacity issues for the upcoming Presidential Inauguration, and will need to be completed by early December in order to integrate and optimize into the network.

Construction commence: Mid-November 2016

Construction completion: December 2, 2016

Historic Preservation:

GSA, in coordination with Verizon Wireless, is initiating this review required under Section 106 of the National Historic Preservation Act of 1996, and Verizon Wireless will assist GSA as required.

Building Codes and Operational Maintenance:

Installation of the proposed antennas will be completed in compliance with the International Building Code 2015. Verizon Wireless will conduct regular periodic inspections of the site to ensure its continued, safe operation. The roof is a secured area and is not accessible by the general public.

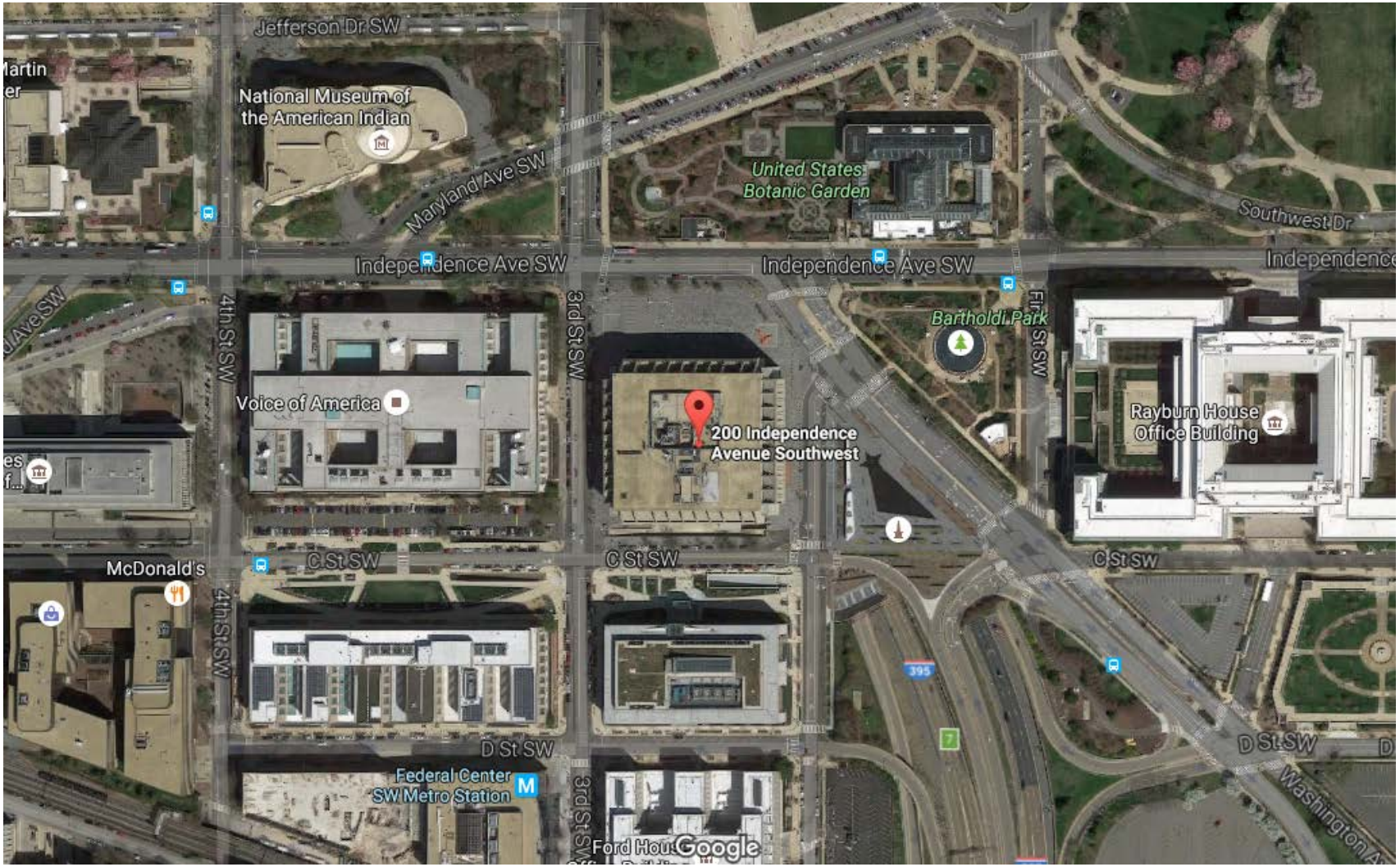
Conclusion:

Verizon Wireless has worked very closely with GSA to design the modifications to this existing telecommunications facility. The resulting changes will pose minimal impact on the subject building and the surrounding area.

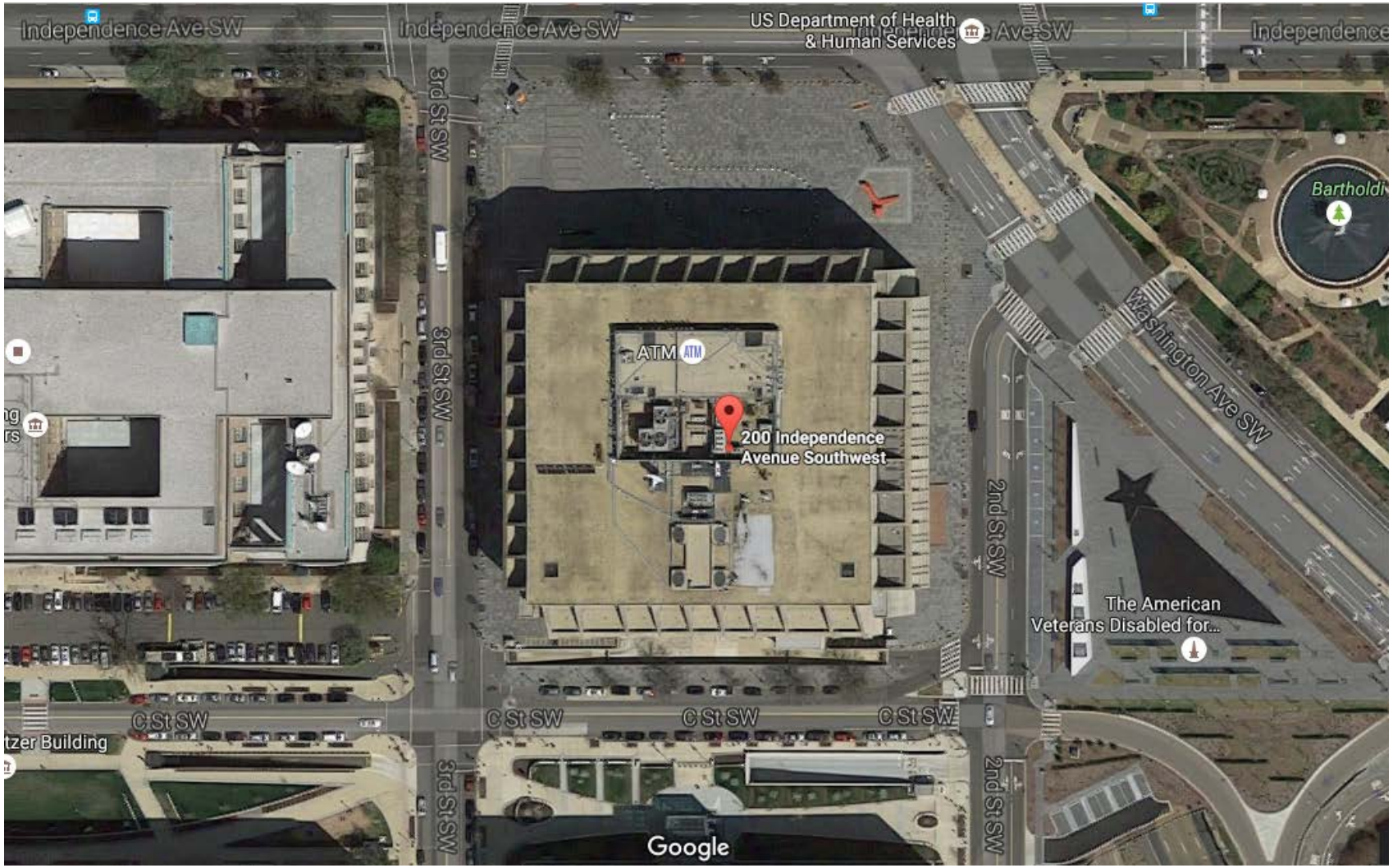
verizon

EXHIBITS

Vicinity Map



Aerial Map


Independence Ave SW
Independence Ave SW
US Department of Health & Human Services
Independence Ave SW
Independence
3rd St SW
3rd St SW
Bartholdi
ATM
200 Independence Avenue Southwest
Washington Ave SW
2nd St SW
The American Veterans Disabled for...
C St SW
C St SW
C St SW
C St SW
tzer Building
3rd St SW
2nd St SW
Google

Neighborhood Description

Surrounding landmarks include:

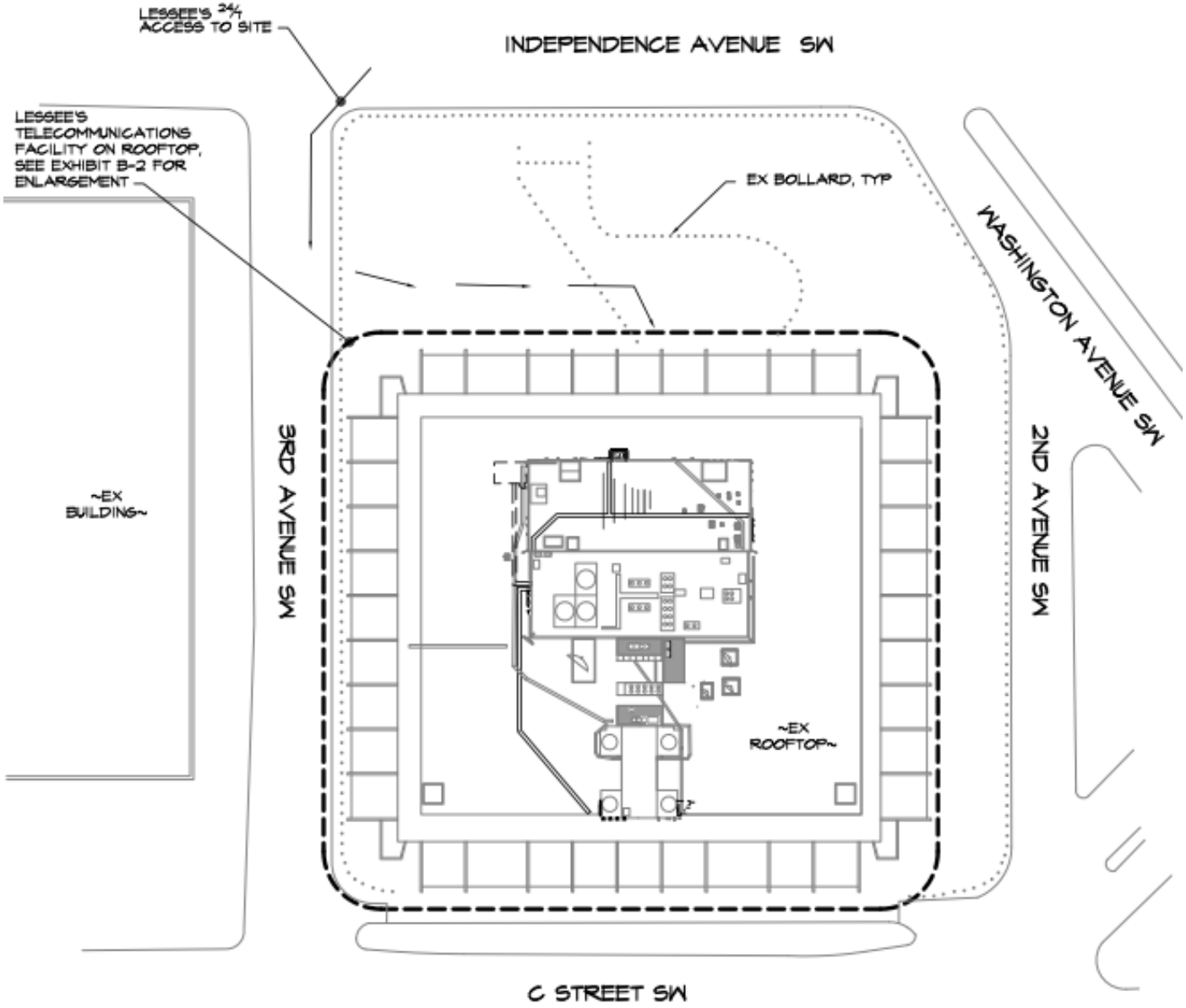
To the North of the HHS building: The United States Botanic Gardens, the National Museum of the American Indian, the Ulysses S. Grant Memorial, Union Square, and the United State Capitol Building.

To the East of the HHS Building: Bartholdi Park, the Rayburn House Office Building, and The Spirit of Justice Park

To the South of the HHA Building: Thomas P. O'Neil Jr. Federal Building, and the Federal Center SW Metro Station.

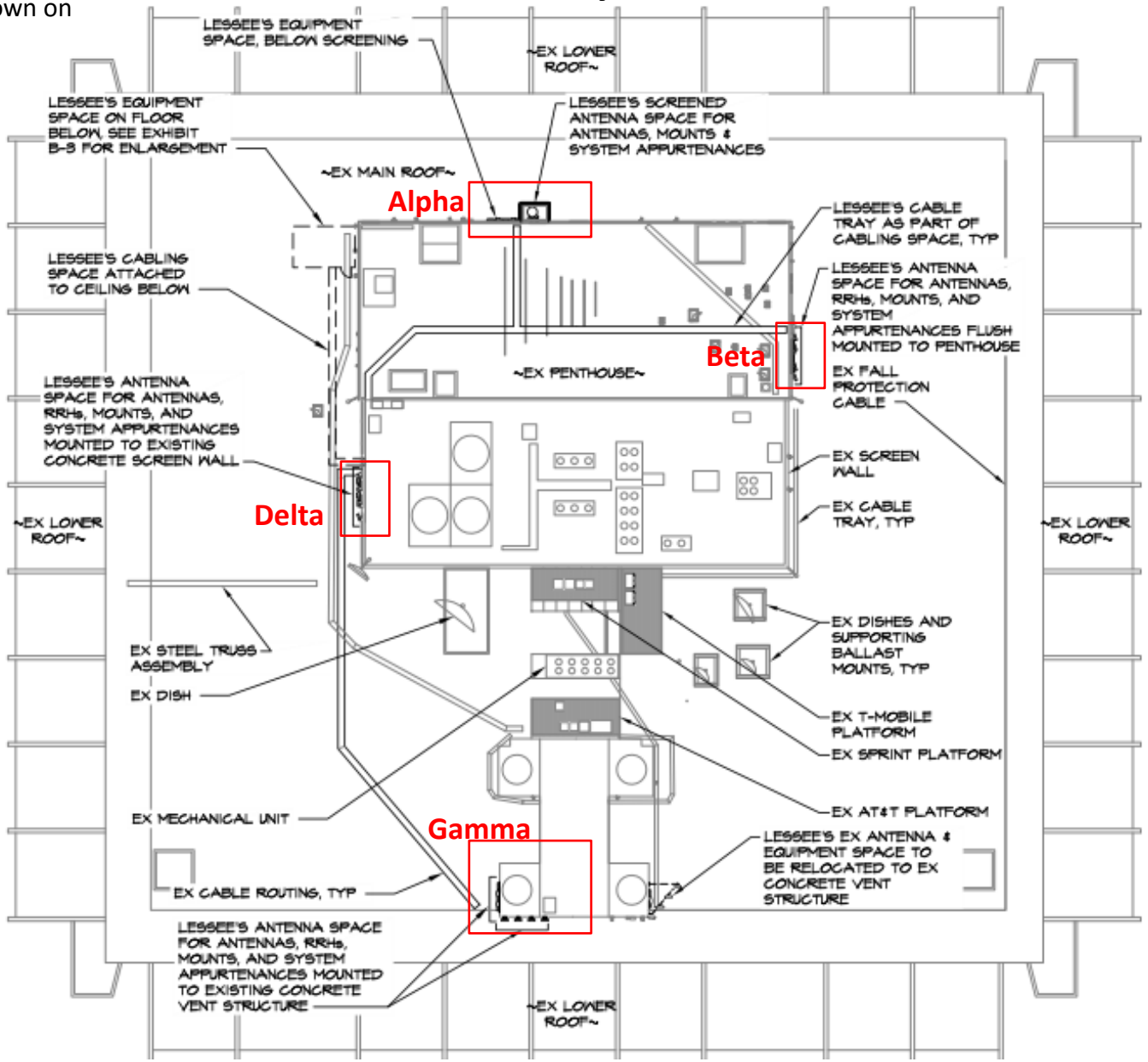
To the West of the HHS Building: the Voice of America building, The Lyndon Baines Johnson Department of Education Building.

Overview Map

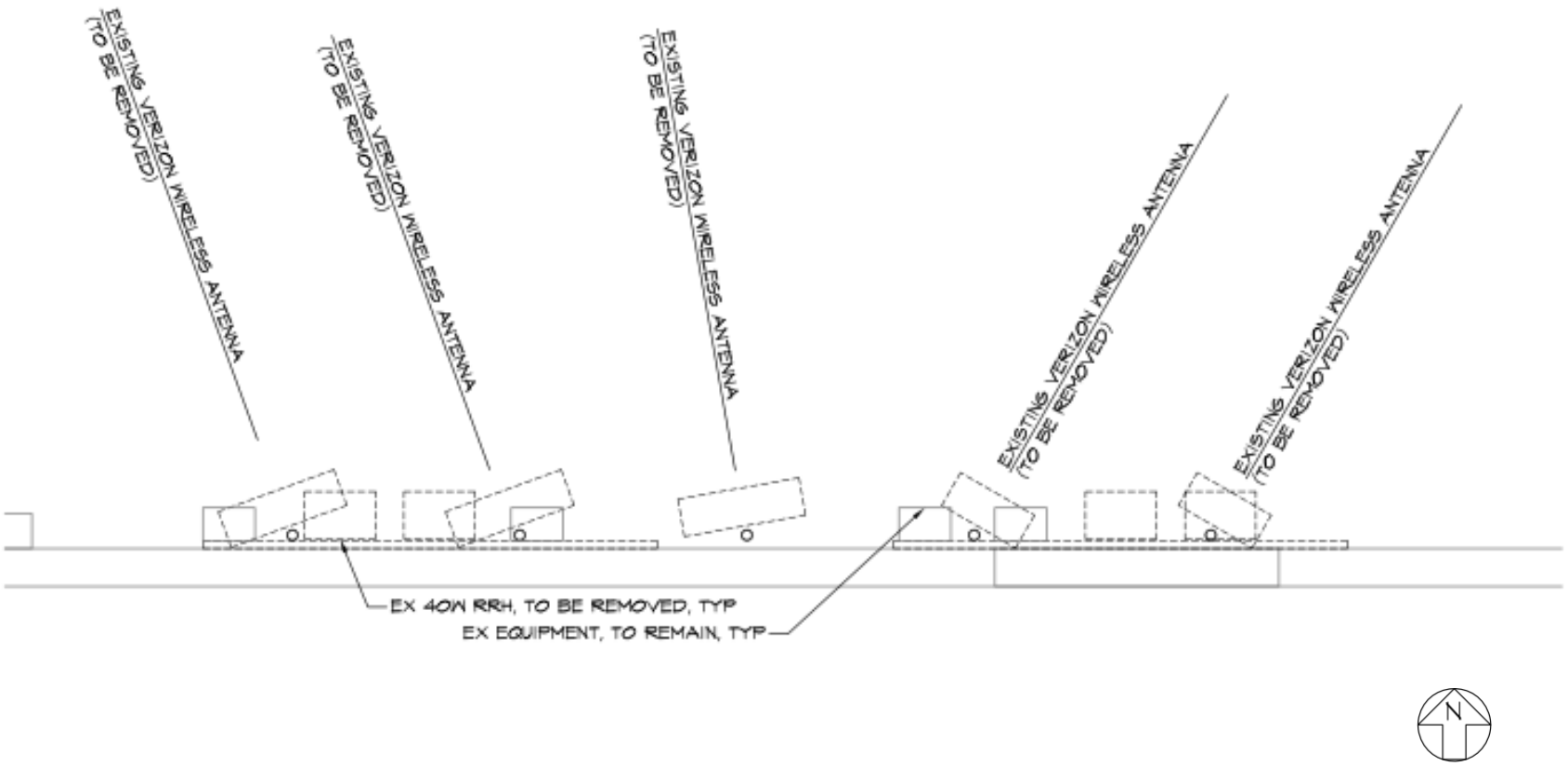


Roof Layout

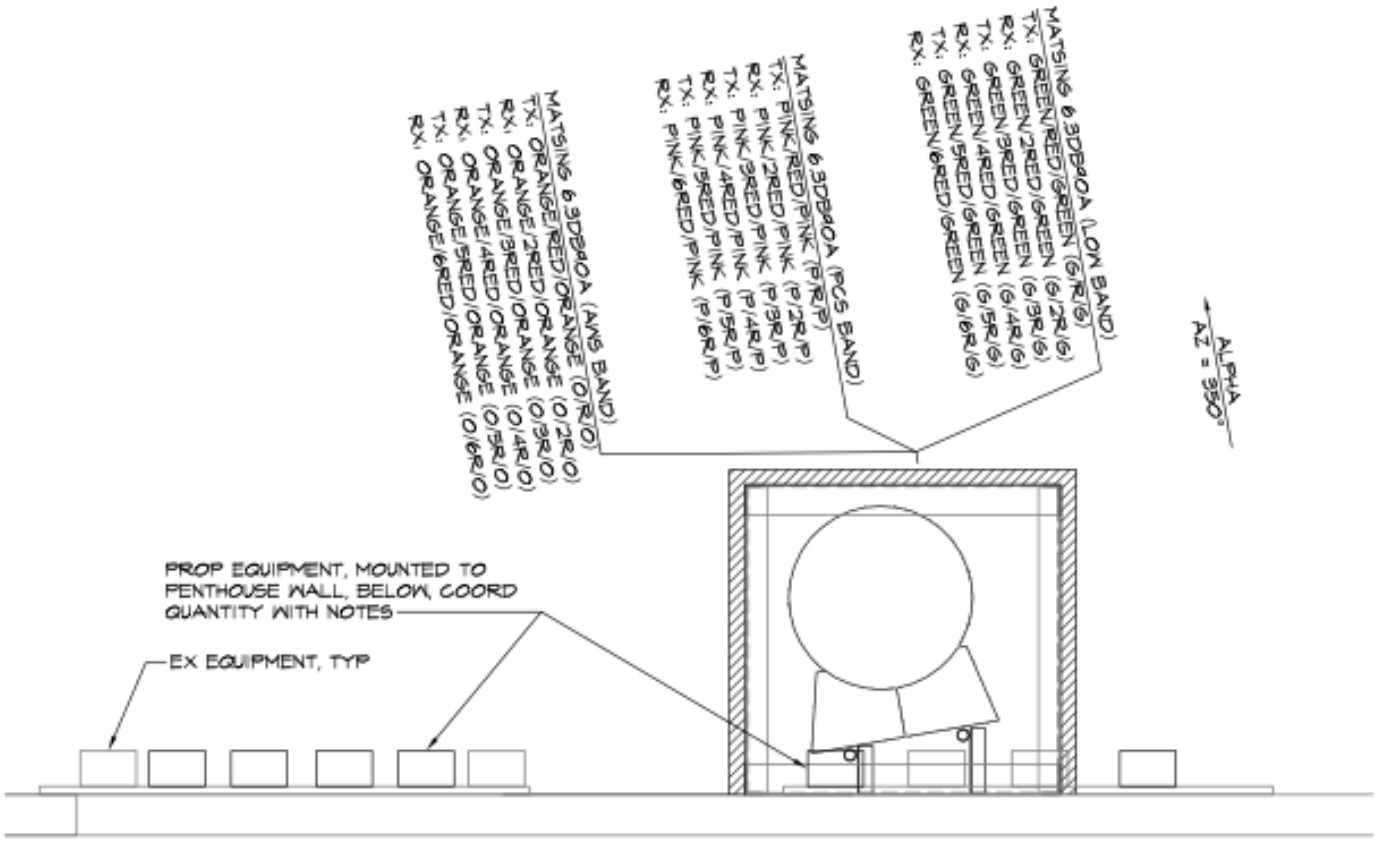
- Details view shown on later slides



Alpha Sector – Existing Condition

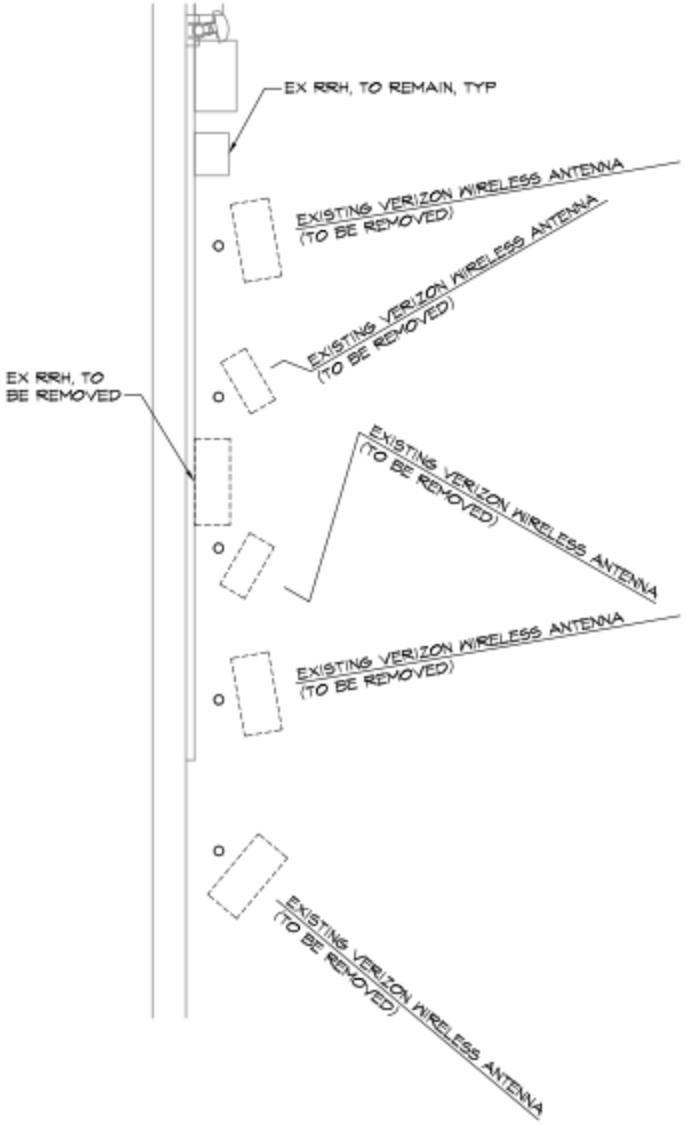


Alpha Sector – Proposed

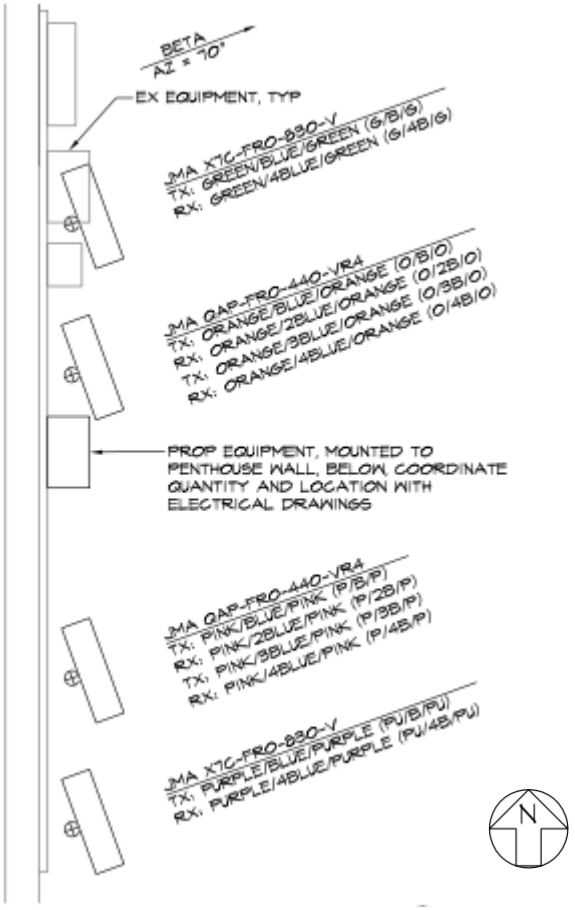


Beta Sector

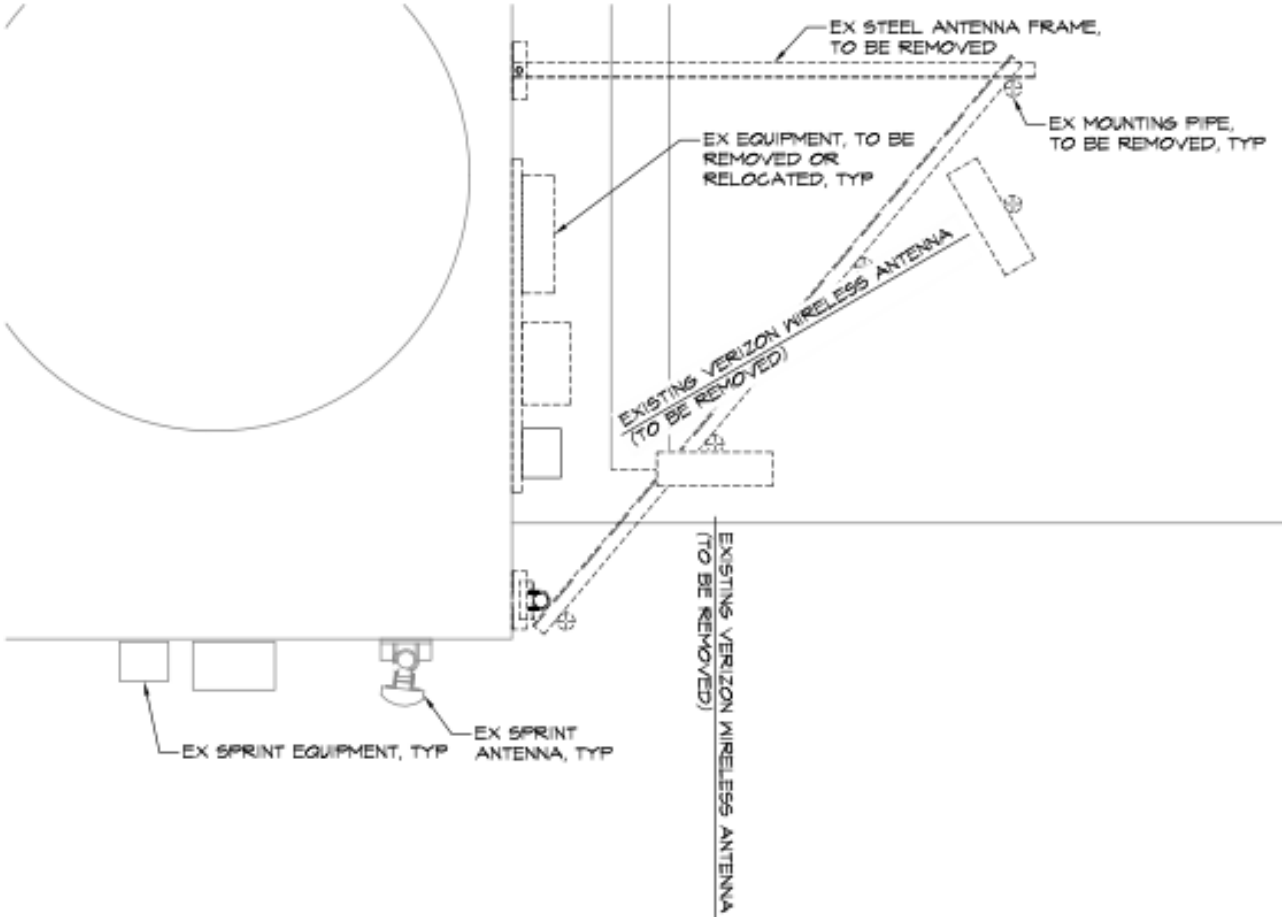
Existing Condition



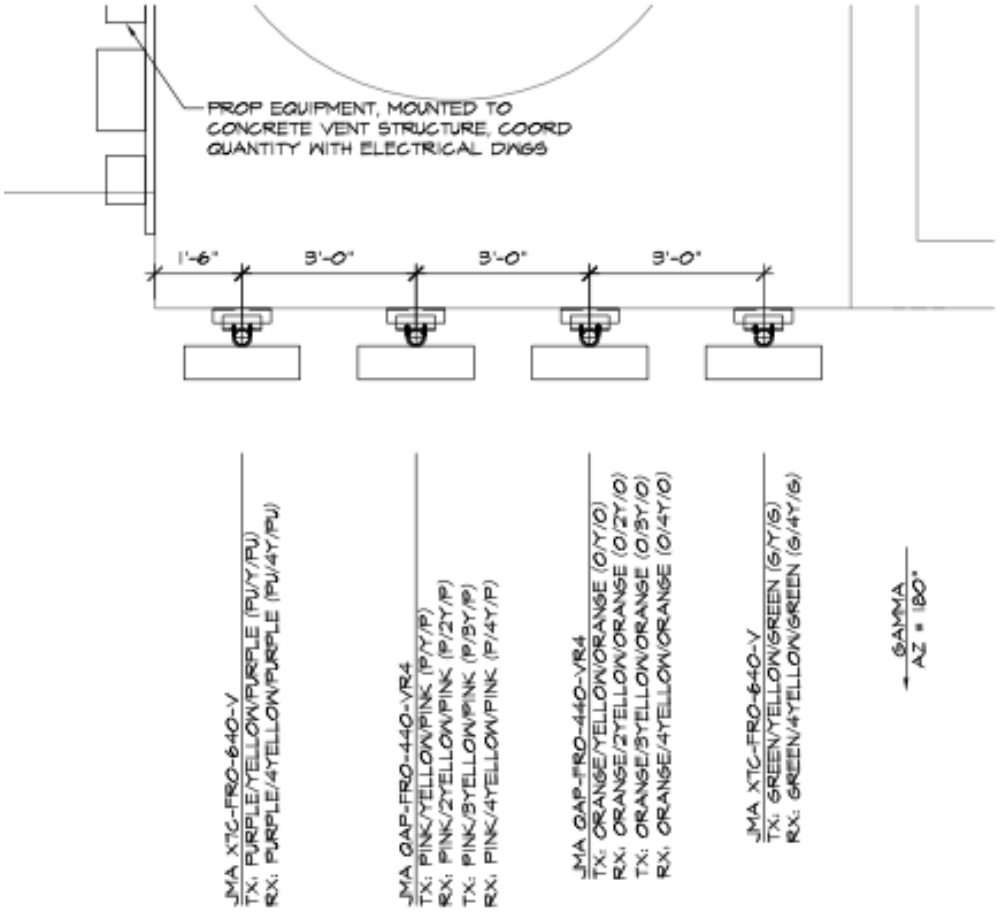
Proposed



Gamma Sector – Existing Condition

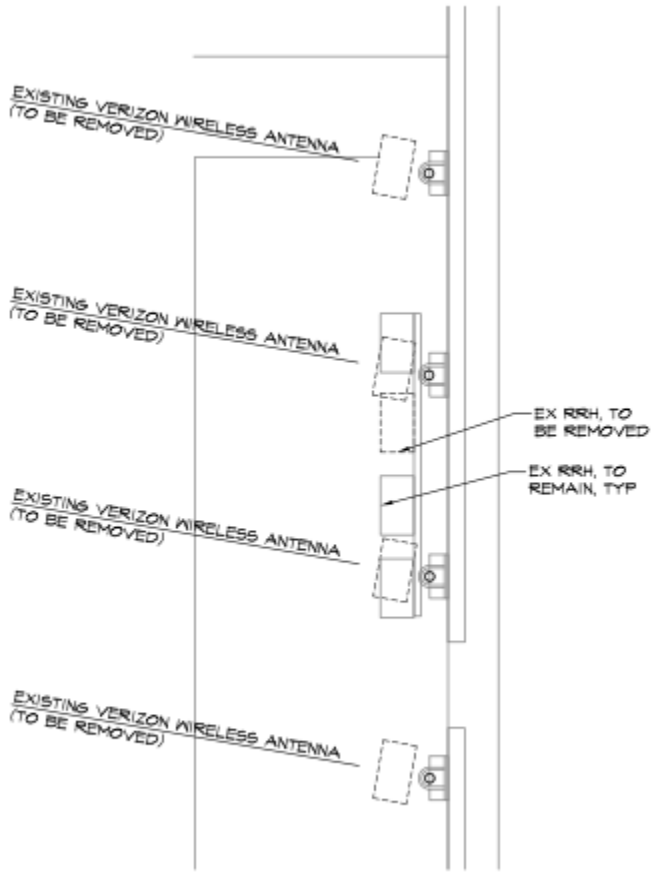


Gamma Sector – Proposed

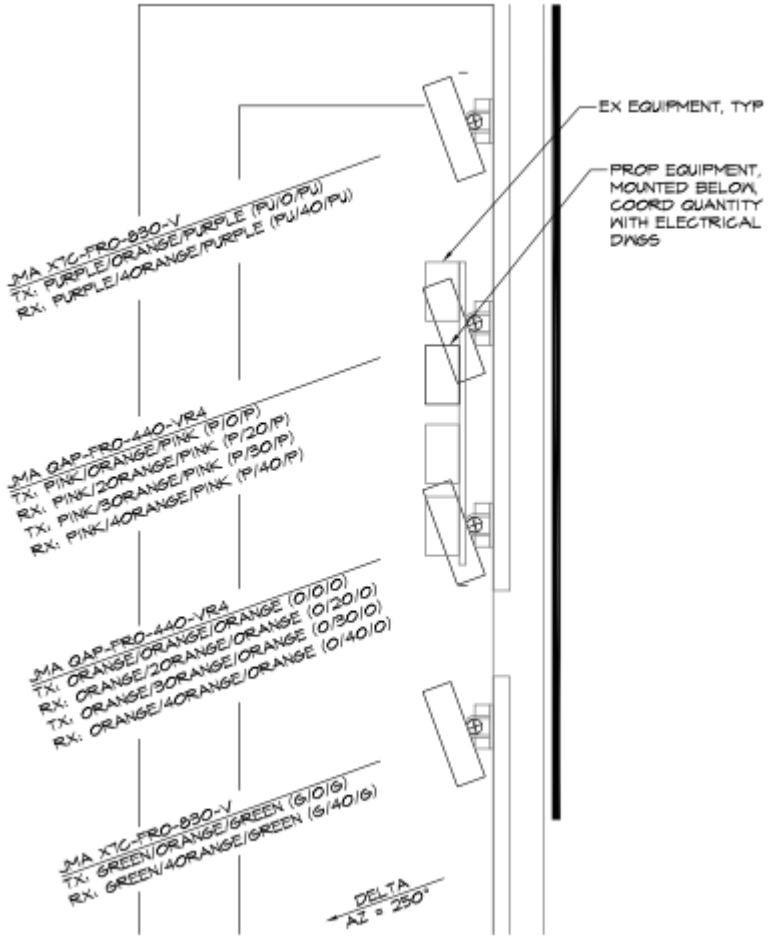


Delta Sector

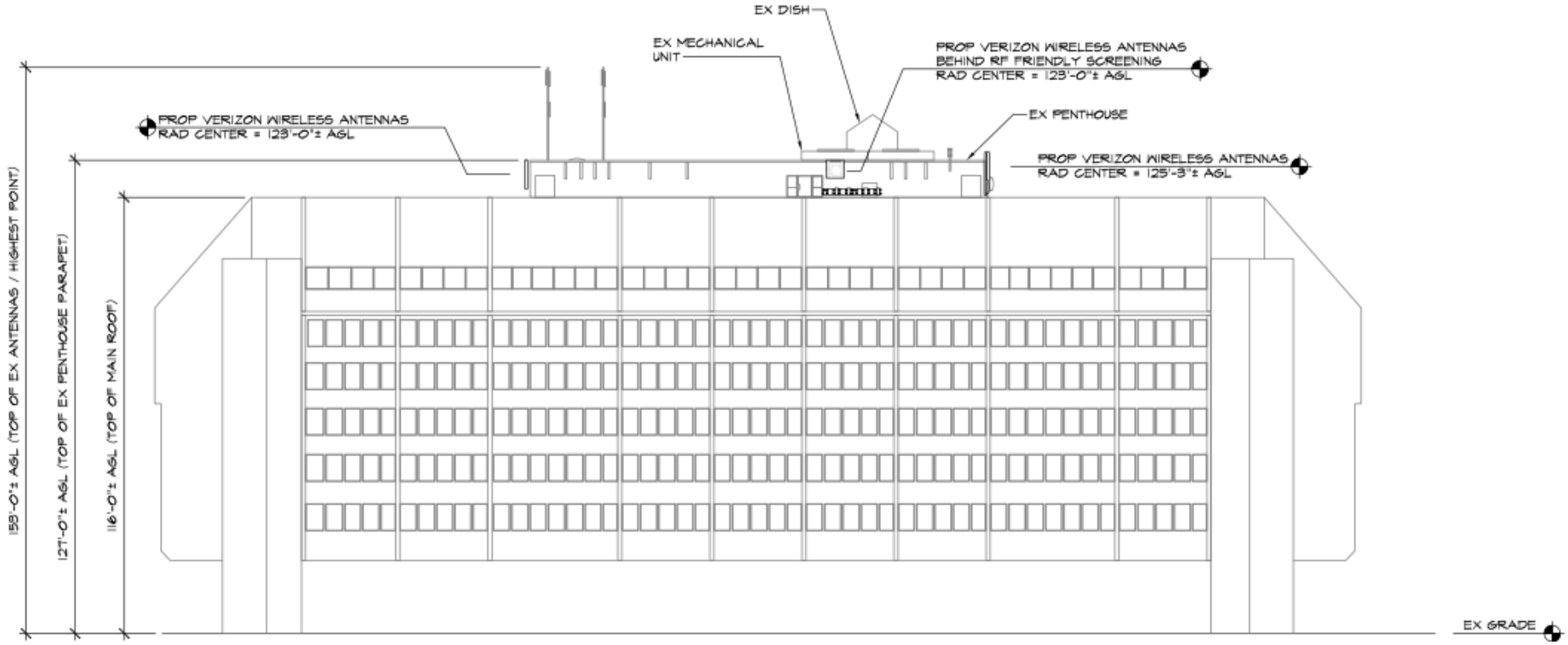
Existing Condition



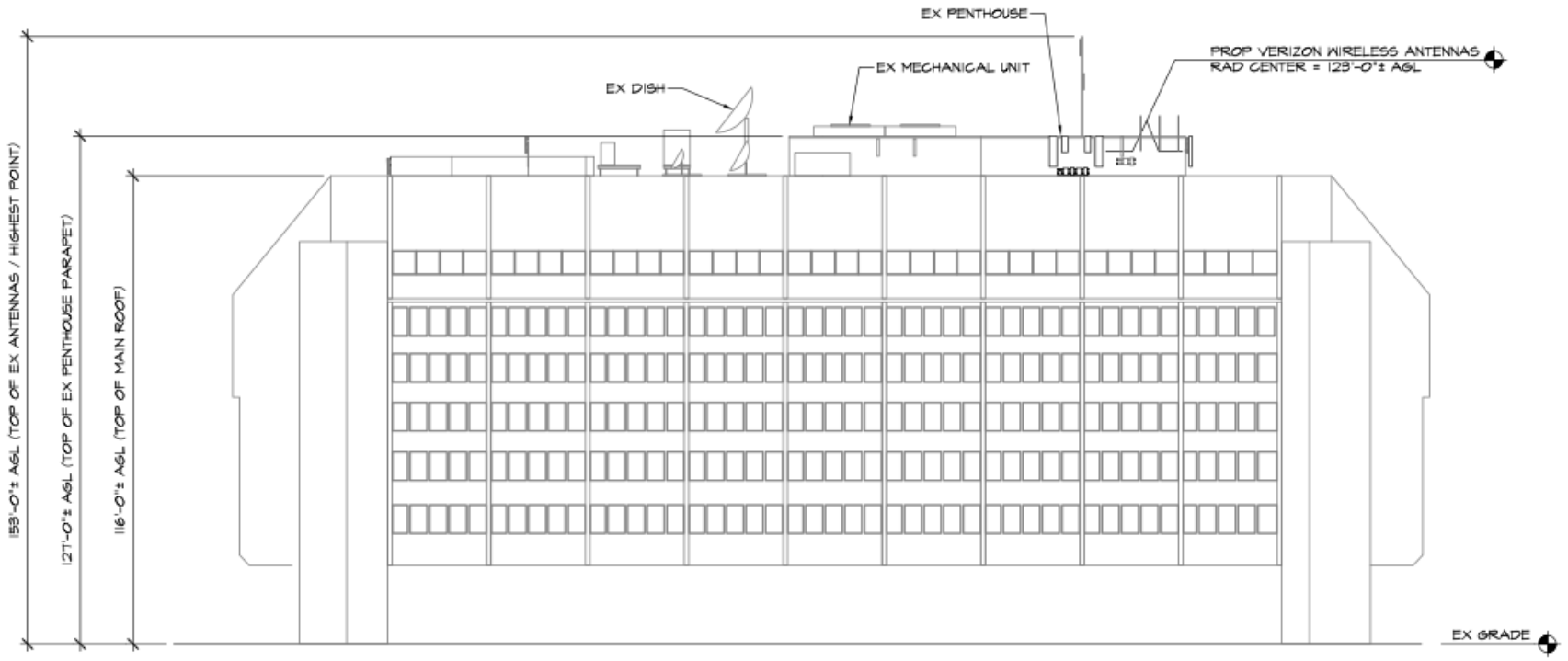
Proposed



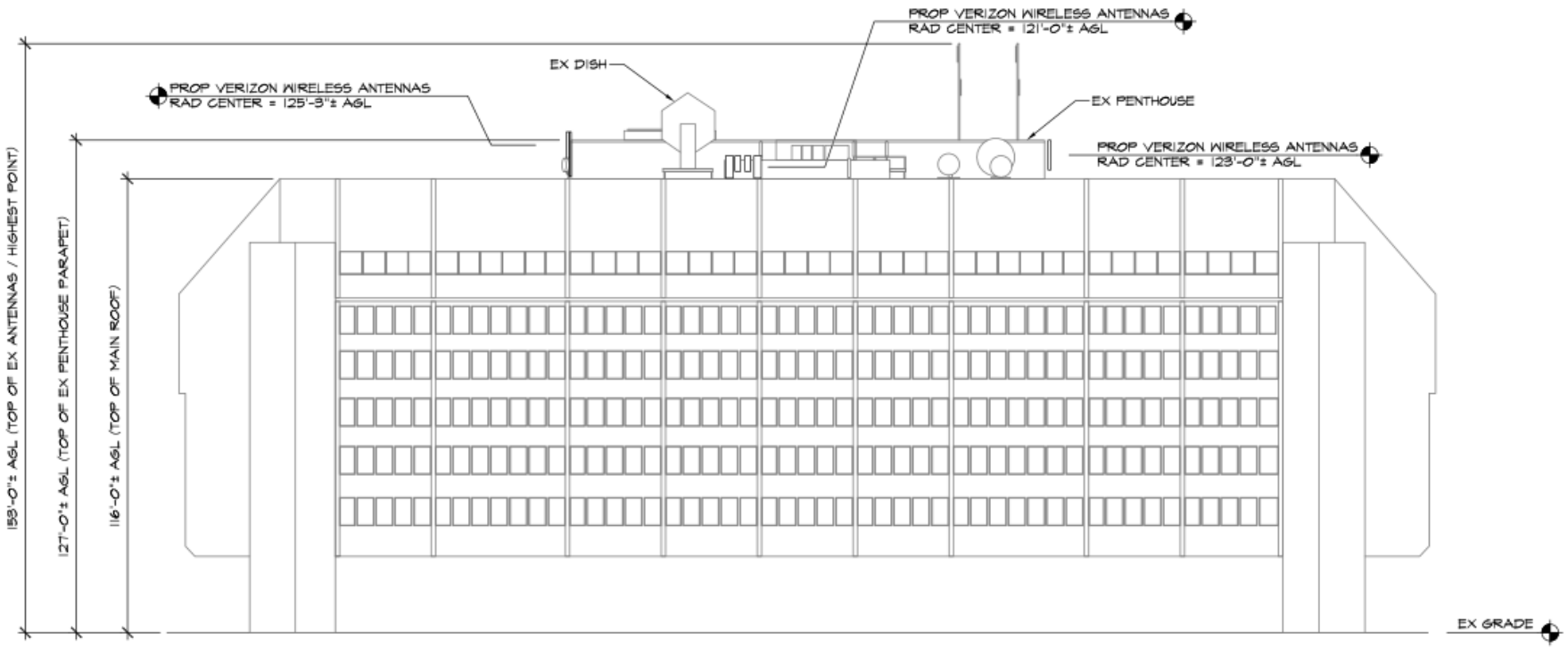
Building Elevation - North



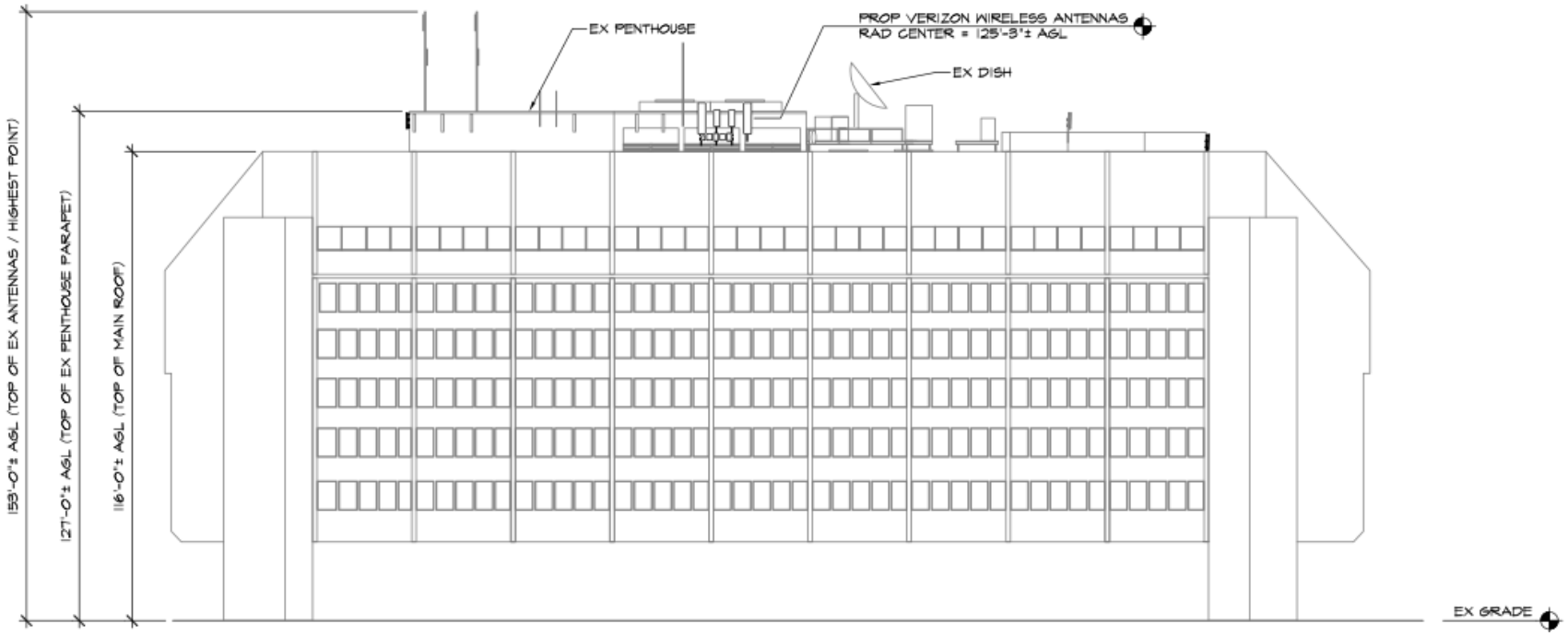
Building Elevation - East



Building Elevation – South



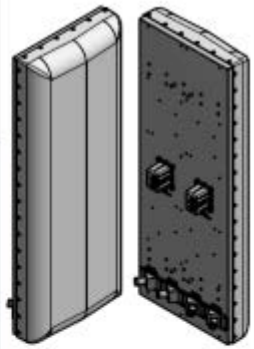
Building Elevation - West



Proposed Antennas – JMA X7C-FRO-830-V

QAP-FRO-440-V

1695-2180MHz, 50.5" Fast Roll Off 40° H-Beam MIMO Antenna RET/MET



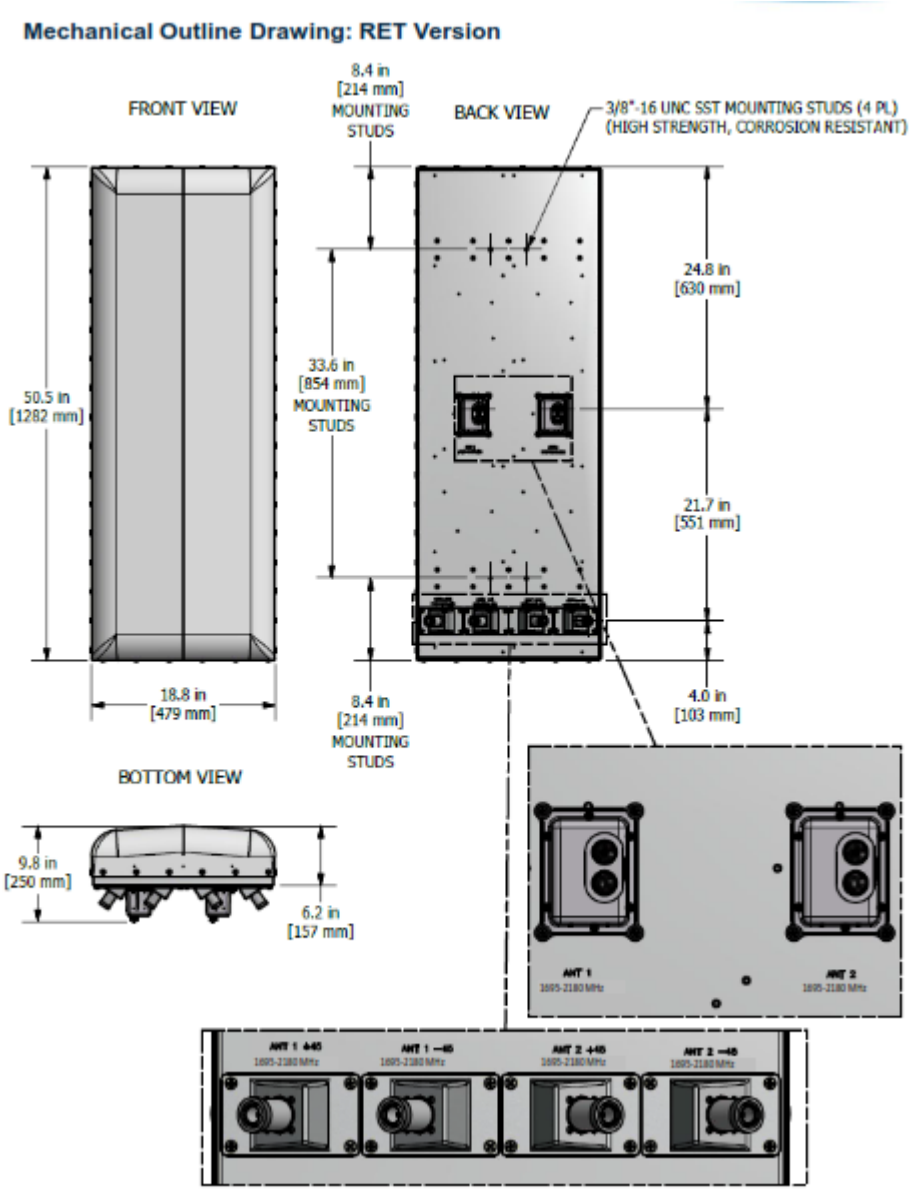
- 4-Port 1695-2180 MHz Fast Roll Off (FRO) Antenna:
  - Two High Band Antennas in a Single Radome, Each with Separate Tilts
- Can be used for MIMO Applications
- Suitable for LTE/CDMA/UMTS/GSM
- AISG v2.0 RET or Manual (MET) Tilt Control

ELECTRICAL SPECIFICATIONS

Frequency Band, MHz	1695-1880	1850-1990	1920-2180
Horizontal Beamwidth, 3dB points	40°	36°	33°
Gain, dBi	17.4	17.7	17.9
Vertical Beamwidth, 3dB points	7.3°	7.2°	6.7°
Front-to-Back at 180°, dB		> 26	
Upper Sidelobe Suppression, Typical, dB		<-30	
Polarization		+/-45°	
Electrical Downtilt		0°-6° or 4°-10°	
VSWR/Return Loss, dB, Maximum		1.5:1/14.0	
Isolation Between Ports, dB, Minimum		>28	
Intermodulation (2x20w), IM3, dBc		-150	
Impedance, ohms		50	
Maximum Power Per Connector, CW		250	

QTY: 4

Proposed Antennas – JMA X7C-FRO-830-V

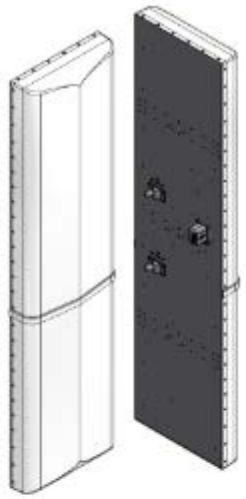


Proposed Antennas – JMA QAP-FRO-440-VR4

X7C-FRO-830-V

X-Polarization, 698-896MHz, 96°, Fast Roll Off, 30° H-Beam
Variable E-Tilt, RET

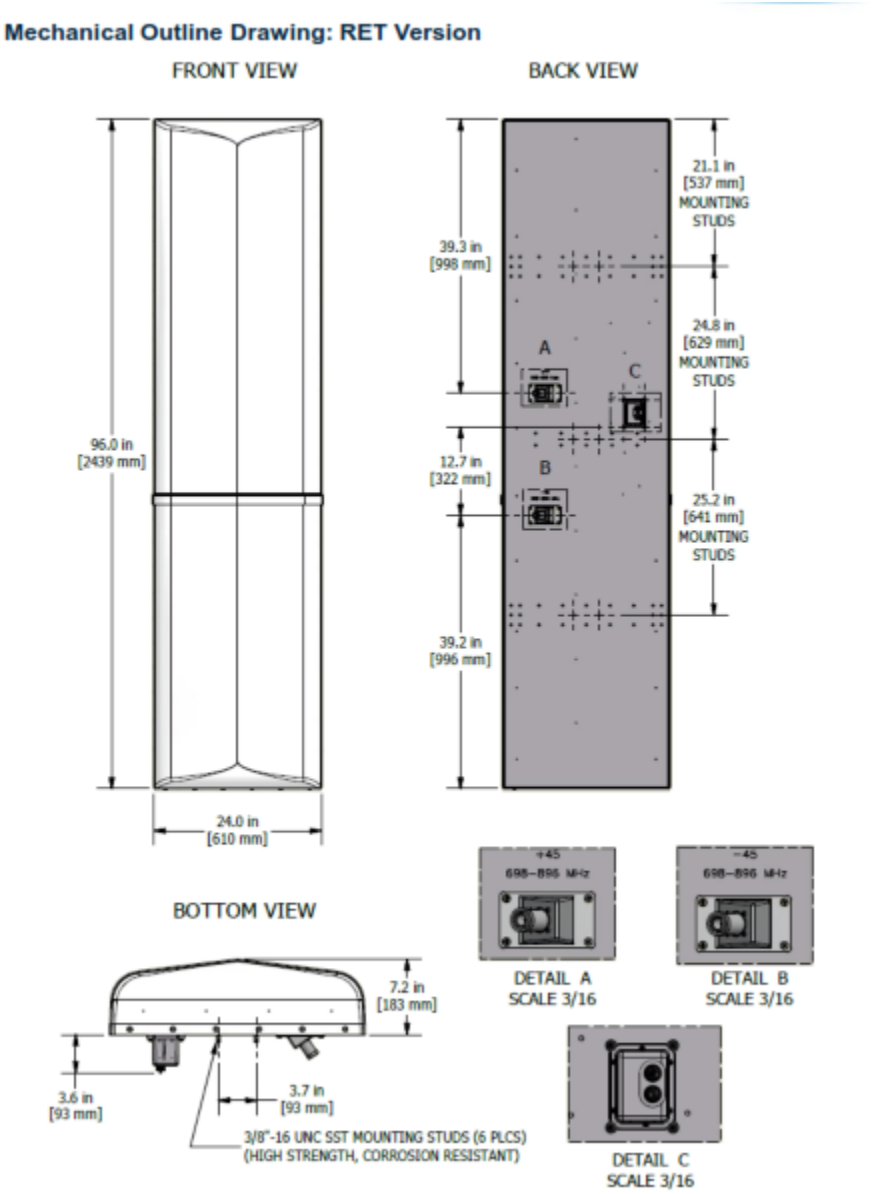
- Macro Cell Antenna
- Fast Roll Off (FRO)
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET control



ELECTRICAL SPECIFICATIONS		
Frequency Band, MHz	**698-824**	**824-896**
Horizontal Beamwidth, 3dB points	35°	30°
Gain, dBi	16.9	19.7
Vertical Beamwidth, 3dB points	9.7°	8.5°
Front-to-Back at 180°, dB	>30	
Upper Sidelobe Suppression, Typical, dB	<-16	
Azimuth Sidelobe Suppresion, Typical dB	<-15	
Polarization	+/-45°	
Electrical Downtilt	0°-6° or 4°-10°	
VSWR/Return Loss, dB, Maximum	1.5:1/-14.0	
Isolation Between Ports, dB, Minimum	>28	
Intermodulation (2x20w), IM3, dBc	-150	
Impedance, ohms	50	
Maximum Power Per Connector, CW (w)	500	

QTY: 6

Proposed Antennas – JMA QAP-FRO-440-VR4

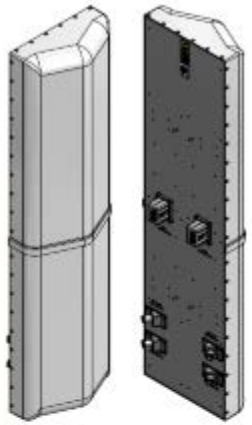


Proposed Antennas – JMA QAP-FRO-640-V

QAP-FRO-640-V

+/- 45° Polarization, (2)1695-2180MHz antennas, 72" Length, Fast Roll Off 40° Horizontal Pattern MIMO, Variable E-Tilt

- Fast Roll Off (FRO) improves Intra and Inter-cell SINR
- Separate housing and reflector construction optimizes RF performance while maximizing mechanical strength
- Good Passive Intermodulation (PIM) performance reduces harmful interference
- Independent tilt per array
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET Tilt Control

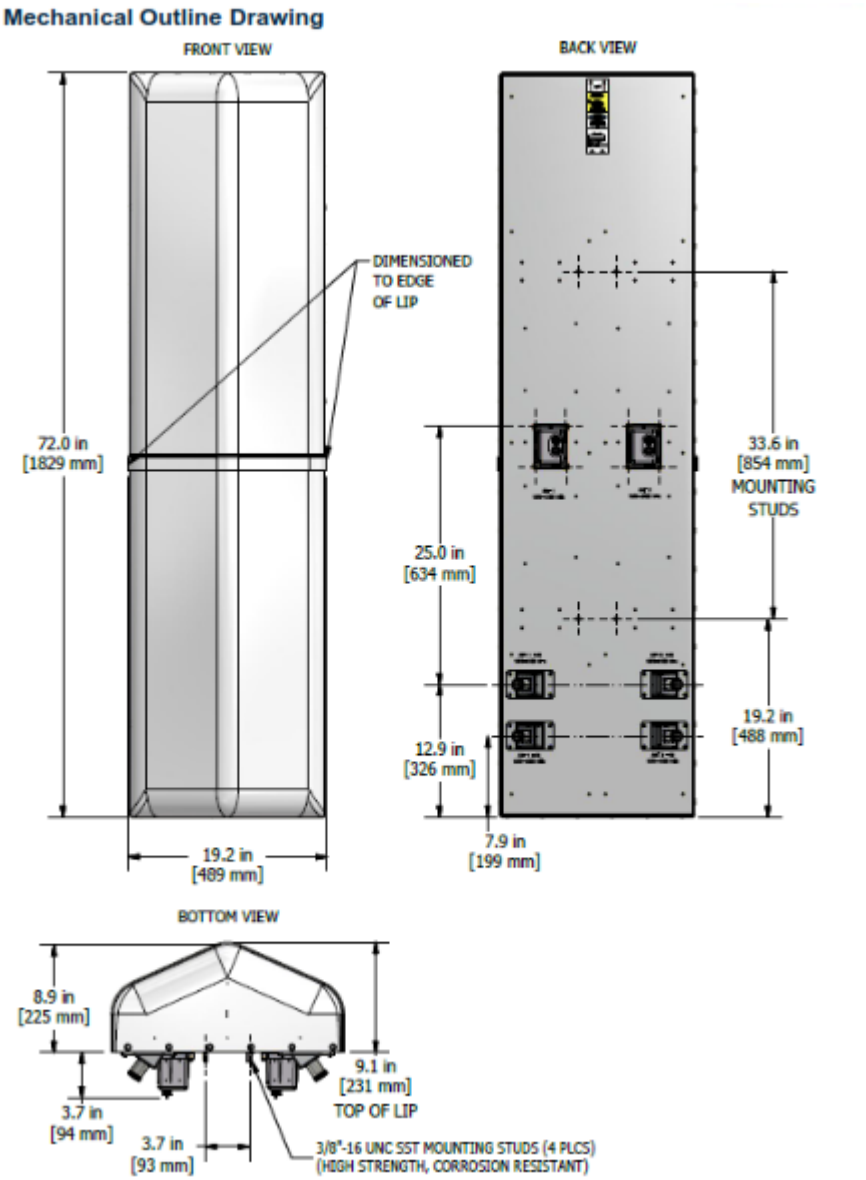


ELECTRICAL SPECIFICATIONS

Frequency Band, MHz	1695-1880	1880-1990	1990-2180
Horizontal Beamwidth, 3dB points	42°	39°	37°
Gain, dBi	19.6	19.4	19.7
Vertical Beamwidth, 3dB points	6.3°	6.4°	6.1°
Front-to-Back at 180°, dB	> 28		
Upper Sidelobe Suppression, Typical, dB	18		
Polarization	+/-45°		
Electrical Downtilt (See Ordering Information)	0°-6°/ 4°-10°		
VSWR/Return Loss, dB, Maximum	1.5:1/14.0		
Isolation Between Ports, dB, Minimum	>28		
Intermodulation (2x20w), IM3, dBc	-150		
Impedance, ohms	50		
Maximum Power Per Connector, CW	250		

QTY: 2

Proposed Antennas – JMA QAP-FRO-640-V



Proposed Antennas – MATSING 6.3DB90-A

ESTIMATED TECHINCAL SPECIFICATIONS PER BEAM		
Frequency	698-896 MHz	1710-2690 MHz
Gain	16.5dBi	24dBi
Return Loss	>15dB	>15dB
Polarization	Dual Slant ±45	Dual Slant ±45
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level)	40° ± 4°	20° ± 2°
Vertical Beamwidth (10dB level)	42°	21°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	6
Manual Adjustable Tilt per 20° sector (each sector having 2 high-band beams and 1 low-band beam)	10° to 25°	0° to 15°
First Sidelobe Level	<-18dB	<-18dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port -Polarization	>28dB	>28dB
Isolation Port to Port – Beam	>28dB	>28dB
Power Rating	400W per port	300W per port
Intermodulation	<-150dBc	<-150dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	6 7/16 DIN female	12 7/16 DIN female

MATSING
RF Lens Technologies

MS-6.3DB90-A

Multi-Beam Dual Band Spherical Lens Antenna: 3 independent low frequency (698-896MHz-A, 790-960MHz-B) cross-polarized beams and 6 independent high-frequency (1710-2690MHz) cross-polarized beams, with 0-15° tilt for each 40° sector and 2X2 MIMO support per beam. Sector consists of 1 low-band beam and 2 high-band beams.

***Optional Packages:**

a) **MS-6.3DB90-RET**
AISG 2.0 Remote Electrical Tilt

b) **MS-6.3DB90-B**
Low Band Frequency Range (800-960MHz)

ESTIMATED MECHINCAL DATA	
Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 100 x 110 x 120 cm 39 x 43 x 47 inch
Antenna Weight	60kg 132lbs
Radome Material	Fibre Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

QTY: 1

RF Design Engineer Support Letter

verizonwireless

RE: Verizon Wireless
Health and Human Services Bldg Site
200 Independence Ave, SW
Washington, DC 20024

August, 10, 2016

To Whom It May Concern,

Verizon Wireless operates a Personal Communication Service authorized by the Federal Communications Commission (FCC) to provide state of the art digital wireless communications in many parts of the nation, including Washington, DC. Verizon Wireless' operations and network are licensed and regulated by the FCC.

The antennas, as proposed and designed for the above noted site, are in compliance with all applicable FCC requirements. In addition, the proposed site meets all applicable ANSI/IEEE C95.1-1992 exposure levels, as adopted by the FCC requirements.

Antenna Model: MATSING 6.3DB901	ERP = 245 Watts/MHz (Low Band)
MATSING 6.3DB901	EIRP= 1145 Watts/MHz (High Band)
CSS X7C-FRO-830	ERP=260 Watts/MHz) (Low Band)
CSS QAP-FRO-440	EIRP=281 Watts/MHz (High Band)

The means used to determine the RF levels for this installation were generated thru the "link budget" i.e. computer model calculation. This formula determines the RF level by calculating the transmit power, antenna gain and equipment specifications of the base station components.

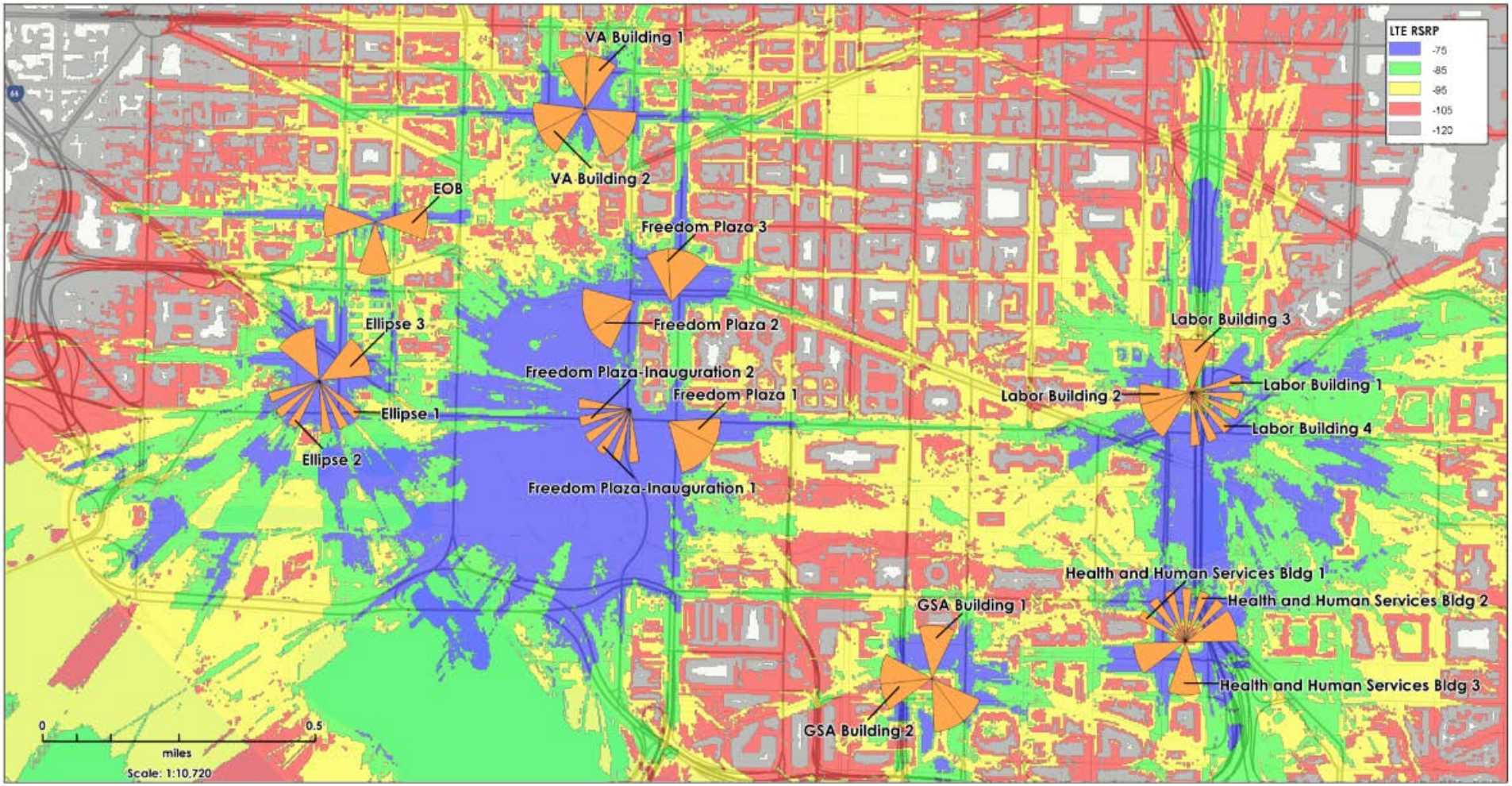
Verizon Wireless is committed to compliance with all government regulations and standards. Please contact Verizon Wireless if you have any questions regarding this matter.

Sincerely,

Roque Fial

Roque Fial
RF Design Engineer / Verizon Wireless
7600 Montpelier Road
Laurel, MD 20723
301-512-2406

RF Propagation Map – Overview



EOB: GSA Central Office

Ellipse: DOI South Annex

GSA Building: GSA Regional Office Building (ROB)

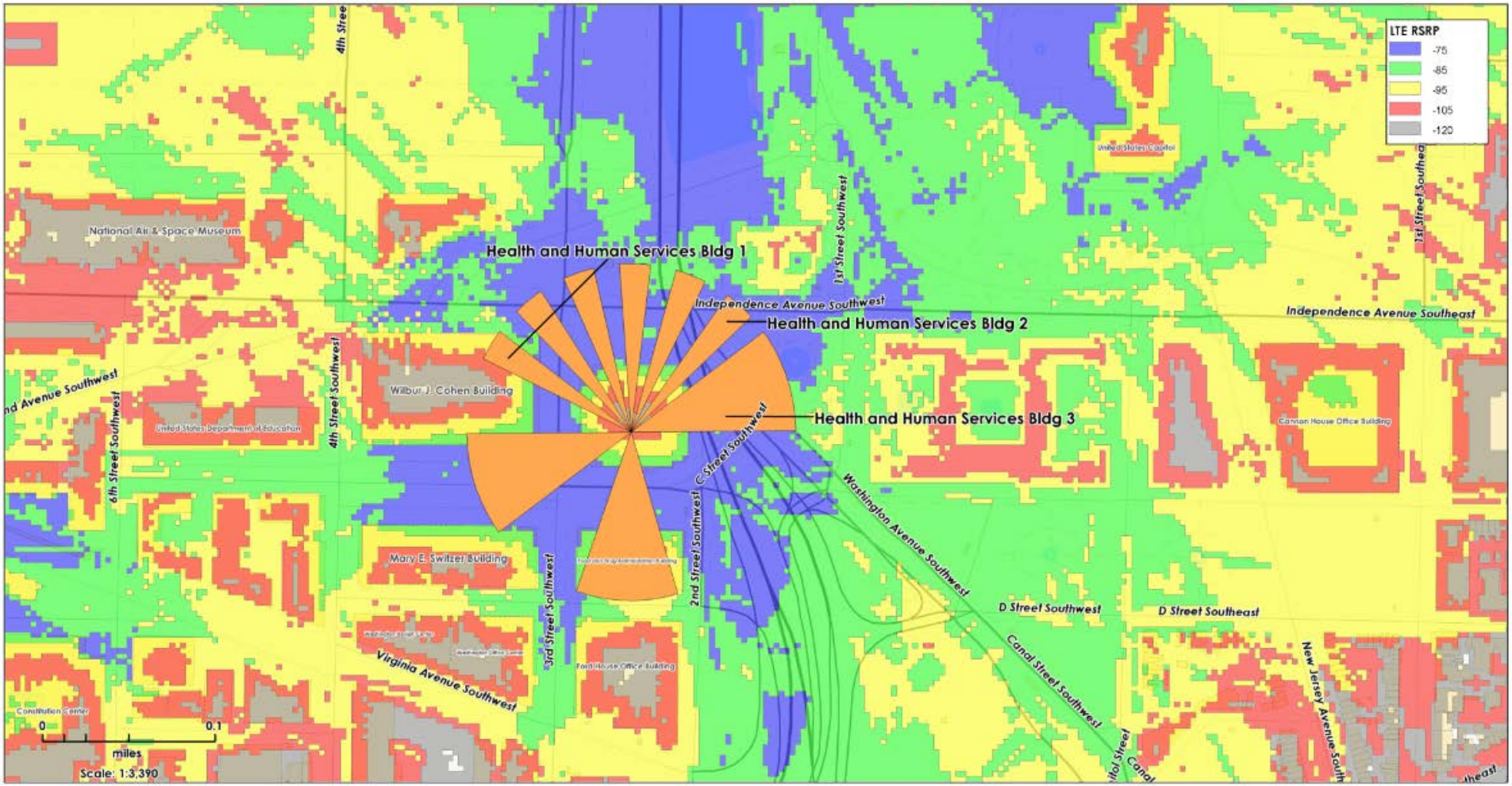
Health and Human Services: HHS/Hubert Humphrey

VA Building: Veterans' Affairs

Freedom Plaza: Department of Commerce

Labor Building: DOL/Frances Perkins

RF Propagation Map – Hubert Humphrey / HHS



verizon

PHOTO SIMULATIONS

Photo Simulation Location Legend

North View – Existing Condition

North View – Proposed

View of Alpha Sector (See page 13).

Northeast View – Existing Condition

Northeast View – Proposed

View of Alpha Sector (See page 13).

East View – Not Visible

South View – Existing Condition

South View – Proposed

View of Gamma Sector (See page 16).

West View – Not Visible

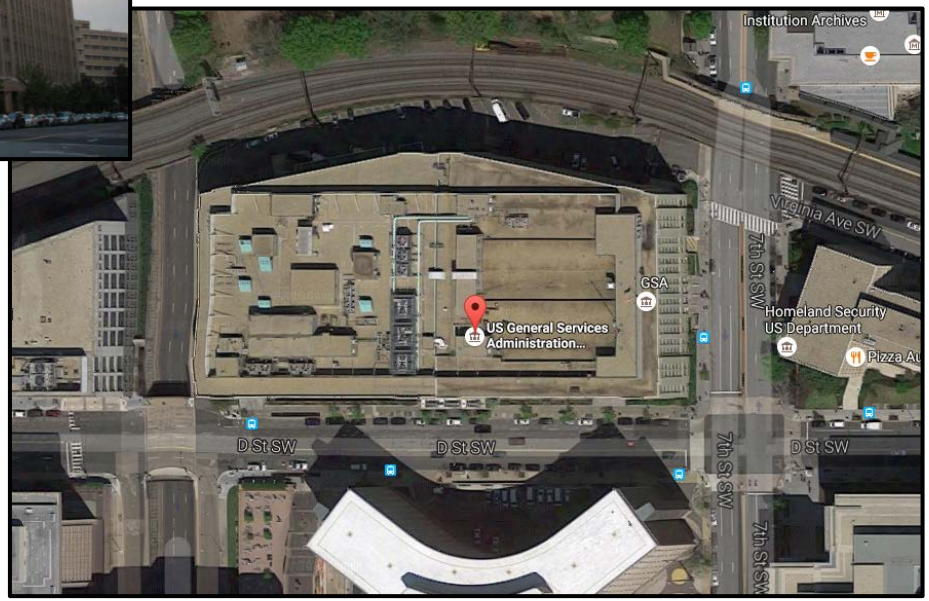
Verizon Wireless Communications
GSA Regional Office Building

SHPO Design Submission

Submitted by the General Services Administration
September 1, 2016

GSA Site Name: GSA ROB
Verizon Site Name: GSA Building

GSA Regional Office Building (ROB)



Project Overview:

The modification of this site will include: a reduction in the number coax cables, the additions of RRH's, and changing antenna models.

Table of Contents

Contact Information

AGENCY PROJECT MANAGER

Gary L. Porter (GSA Sponsor)
Historic Preservation Specialist
US General Services Administration

301 7th Street Southwest, Washington DC 20407
(202) 205-7766
Gary.Porter@gsa.gov

Project Report

Project Description:

Cellco Partnership, d/b/a Verizon Wireless is licensed by the Federal Communications Commission (FCC) to provide wireless service, including licenses to deploy its network in the Greater Washington, D.C. metropolitan area. Verizon Wireless proposes to implement modifications to the existing telecommunications facility on the roof the US General Services Administration Regional Office Building (ROB), in order to continue to meet coverage and capacity objectives for the immediate area as part of this network.

Existing Conditions:

The existing facility consists of three antenna sectors, with five antennas per sector, resulting and a total of fifteen (15) antennas. The alpha sector consist of five antennas that are flush mounted to the northern façade of an existing screen wall. The beta sector consists of five antennas that are mounted to the western façade of the existing screen wall. And the gamma sector consists of five antennas that are mounted to the eastern façade of the existing screen wall. The equipment shelter that support this facility is located on the rooftop, behind the existing screen walls.

Proposed Changes:

The modification of this site will include: a reduction in the number coax cables, the additions of RRH's, and changing antenna models.

After the modification, the total number of antennas will remain the same, however, there will be a slight size variation between the new and the existing antennas models. The new antennas will not exceed the height of the screen wall to which they will be mounted. The newly mounted antennas will be no more visible than the installation as it exists today, and pursuant to CFA comments – all antenna sectors have been scrubbed to lower overall heights as much as possible, with the tops of the antennas being aligned to create a more uniform appearance, and all antennas will be painted to match the façade to which they're mounted. The number of coax cables will be reduced as a result of the adjustment to the existing equipment, this change will not be visible from the ground.

Visibility:

The current installation is partially visible from the surrounding area. There will be a slight increase in the width of some of the antenna panels; however, this adjustment will not increase the visibility of the installation from the ground. The final height of the installation will not increase due to the modification which will allow the visibility of the installation to remain minimal.

Project Report

Capacity Issues:

Solid voice communications are an important necessity related to every day public safety, and are especially critical in the event of emergencies or unplanned events. Voice communication requires robust data capacity to ensure reliability. Additionally, with the proliferation of Smartphones – apps, photography and video streaming demand a persistent connection to the network, as the phones connect to the "Cloud" and do not release from it, even when not in use. This creates an unprecedented demand on the capacity of the network, particularly at large scale events where users are congregated in one place, and utilizing these streaming features non-stop. The modification of the site will help to maintain an adequate level of network capacity.

Safety Considerations:

It is Verizon Wireless' goal to continue to provide reliable service to the public. From a safety perspective, there is an immediate need to improve capacity throughout DC and particularly in the core of the Capital and National Mall areas. Verizon Wireless is a major supplier of mobile communications to all of the US Government Agencies and is the priority network provider for DC Government, which includes the majority of first responders. Capitol Police, Park Police and many other crucial public safety agencies utilize the Verizon network, as well. Improvements to capacity are not only crucial for the improved safety for the many large scale events held throughout the year but are highly critical in the event of an emergency or other "unplanned event". The modification of this facility will help to ensure that the network can continue to provide enough capacity for both the public and emergency service agencies to utilize.

Alternatives Considered:

Because this building is already utilized as a telecommunication facility, no alternate structures were considered. The existing site will continue to meet coverage and capacity objectives once the proposed modification are made.

Project Budget:

No government funds are being utilized for the installation of the proposed antennas.

Project Schedule:

The upgrades for this site are needed to accommodate the expected extreme capacity issues for the upcoming Presidential Inauguration, and will need to be completed by early December in order to integrate and optimize into the network.

Construction commence: Mid-November 2016

Construction completion: December 2, 2016

Historic Preservation:

GSA, in coordination with Verizon Wireless, is initiating this review required under Section 106 of the National Historic Preservation Act of 1996, and Verizon Wireless will assist GSA as required.

Building Codes and Operational Maintenance:

Installation of the proposed antennas will be completed in compliance with the International Building Code 2015. Verizon Wireless will conduct regular periodic inspections of the site to ensure its continued, safe operation. The roof is a secured area and is not accessible by the general public.

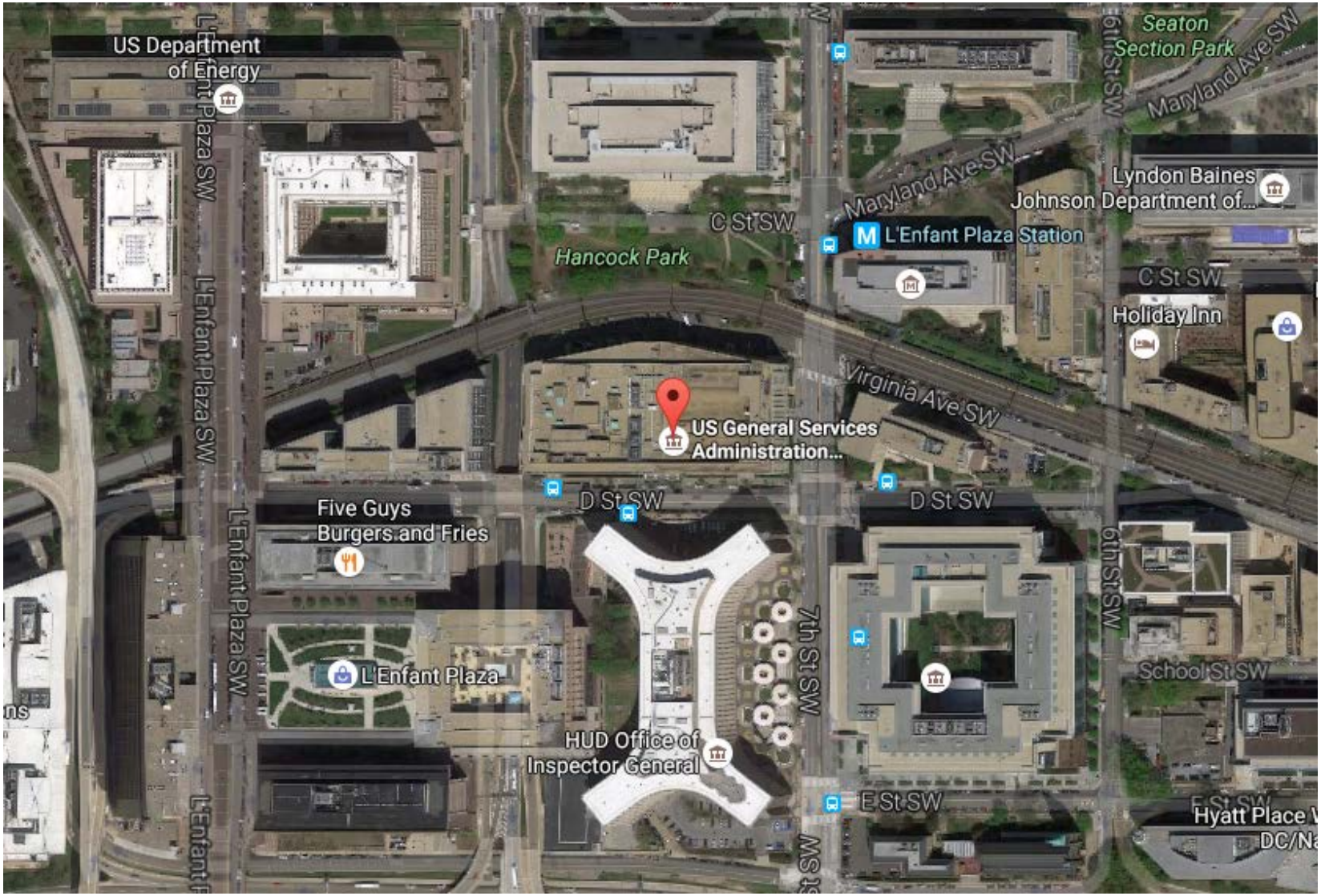
Conclusion:

Verizon Wireless has worked very closely with GSA to design the modifications to this existing telecommunications facility. The resulting changes will pose minimal impact on the subject building and the surrounding area.

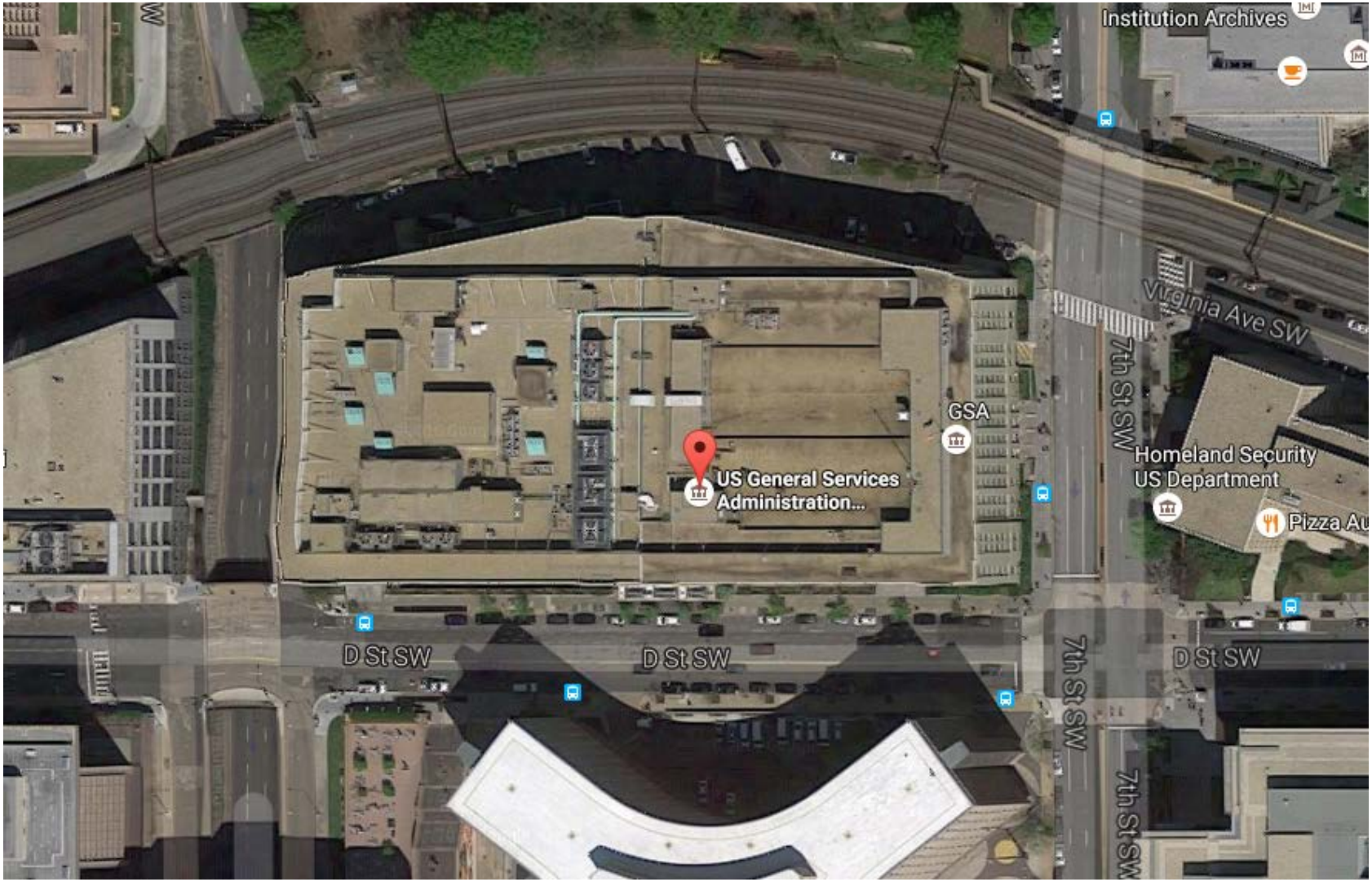
verizon

EXHIBITS

Vicinity Map



Aerial Map


Institution Archives
Virginia Ave SW
7th St SW
GSA
US General Services Administration...
Homeland Security US Department
Pizza Au
D St SW
D St SW
7th St SW
D St SW
7th St SW

Neighborhood Description

Surrounding landmarks include:

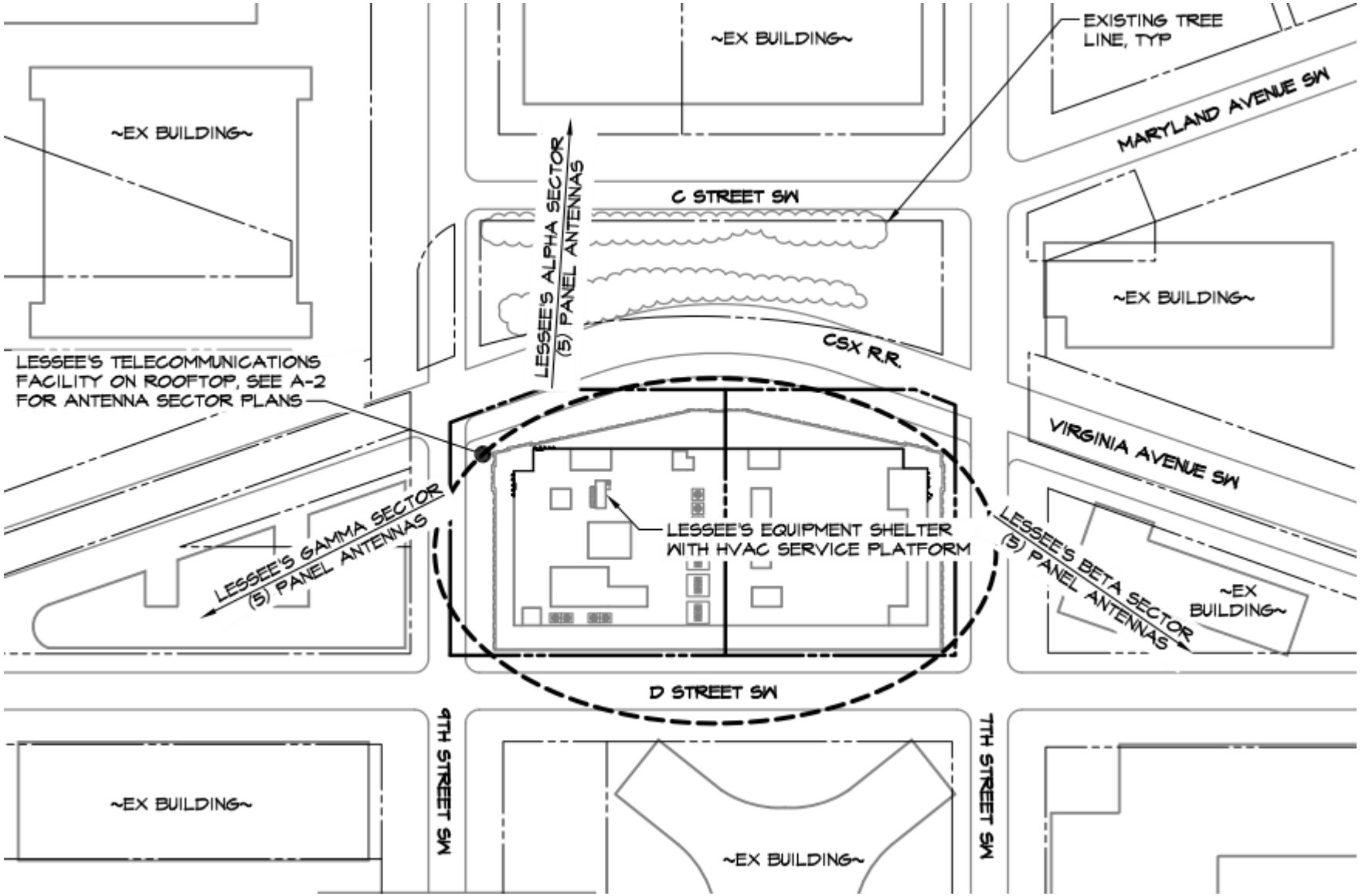
To the North of the HHS building: The United States Botanic Gardens, the National Museum of the American Indian, the Ulysses S. Grant Memorial, Union Square, and the United State Capitol Building.

To the East of the HHS Building: Bartholdi Park, the Rayburn House Office Building, and The Spirit of Justice Park

To the South of the HHA Building: Thomas P. O'Neil Jr. Federal Building, and the Federal Center SW Metro Station.

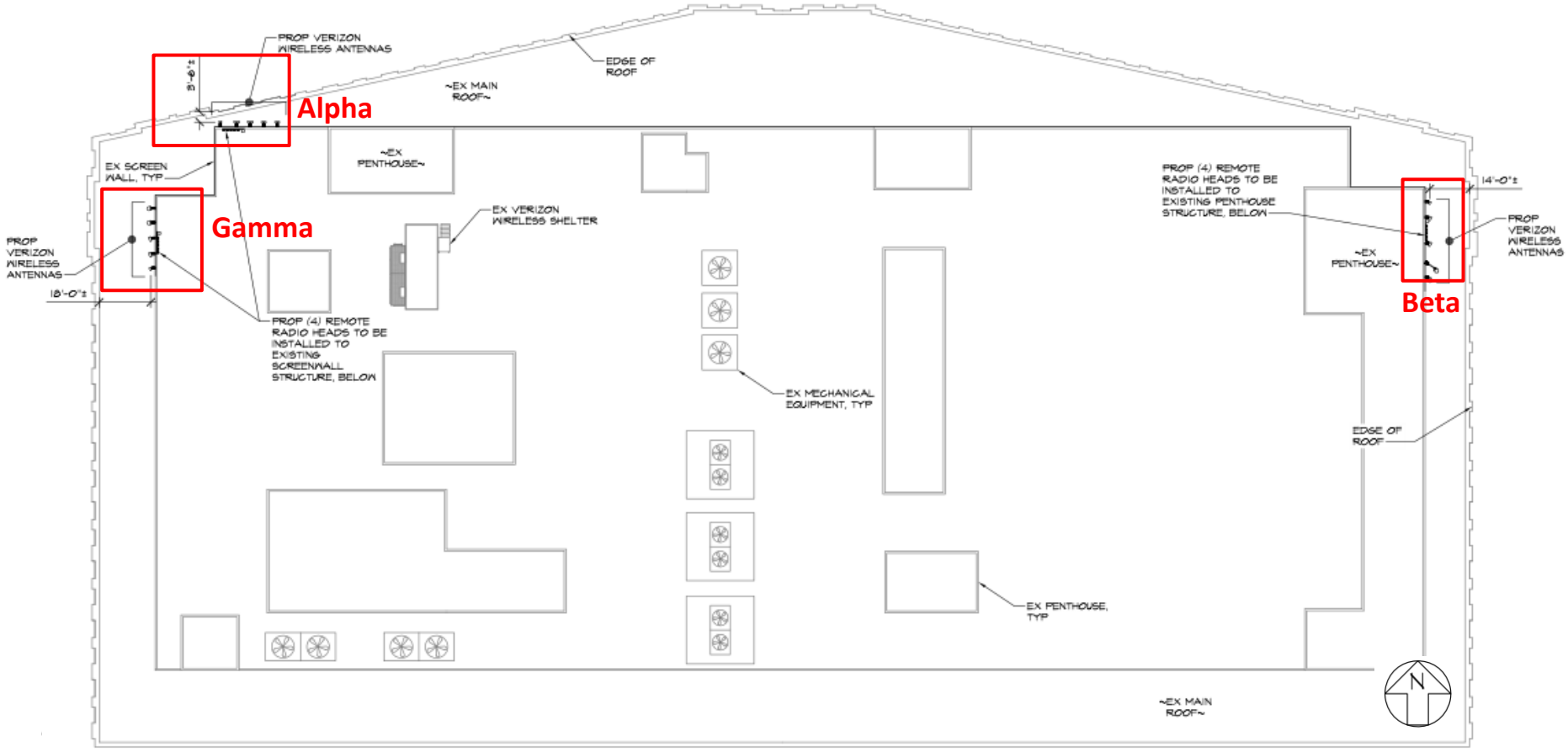
To the West of the HHS Building: the Voice of America building, The Lyndon Baines Johnson Department of Education Building.

Overview Map

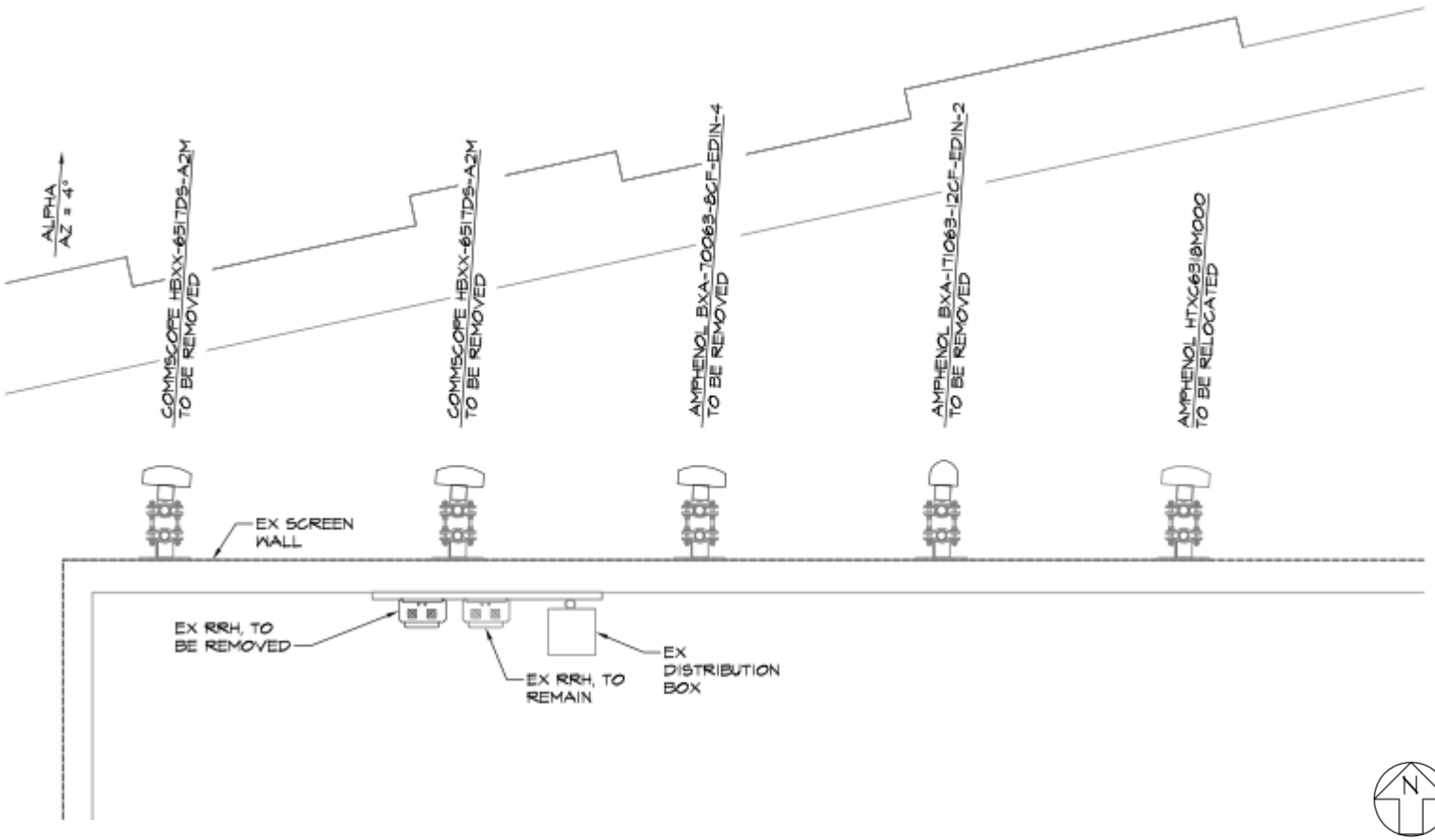


Roof Layout

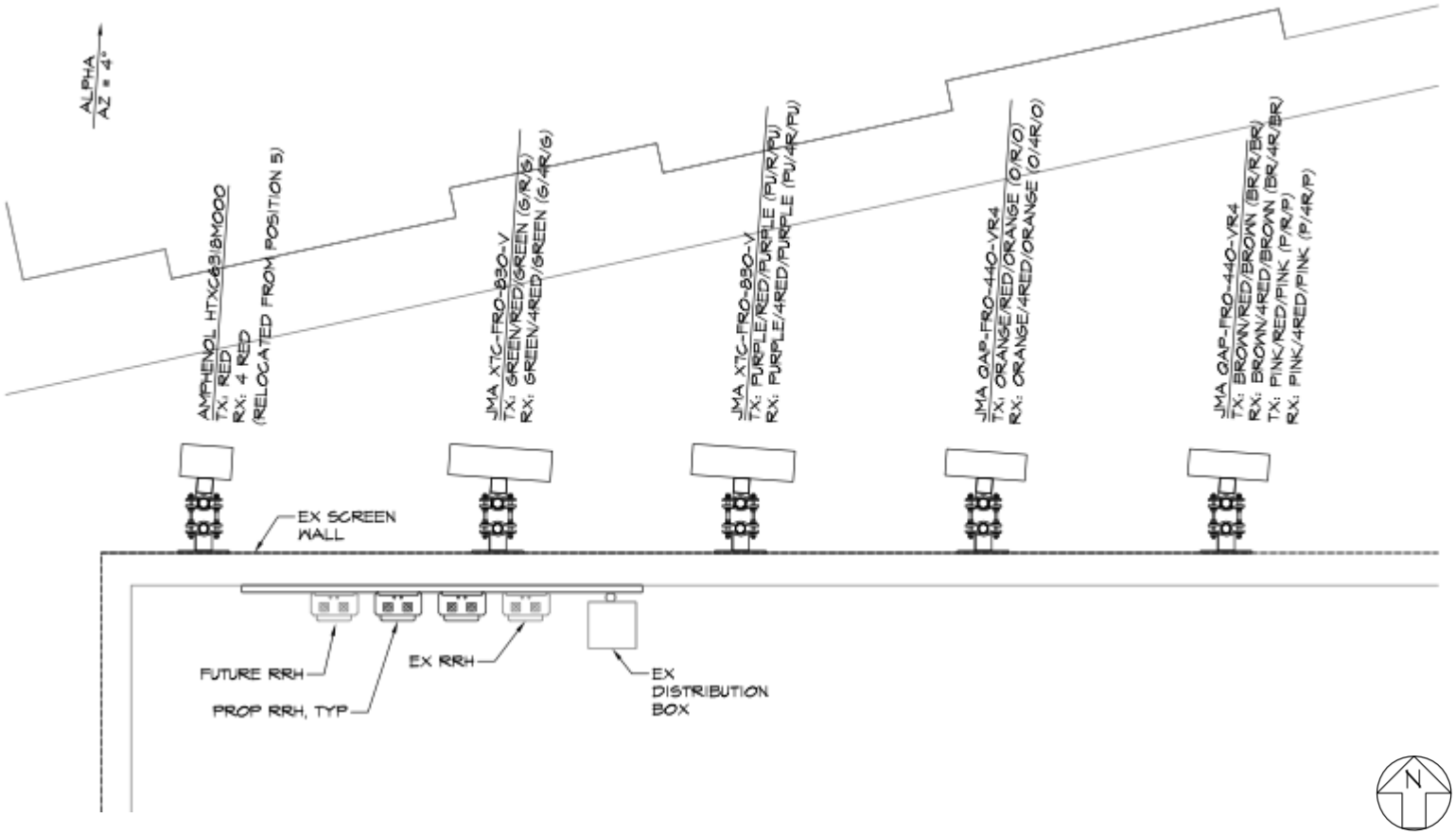
- Details view shown on later slides



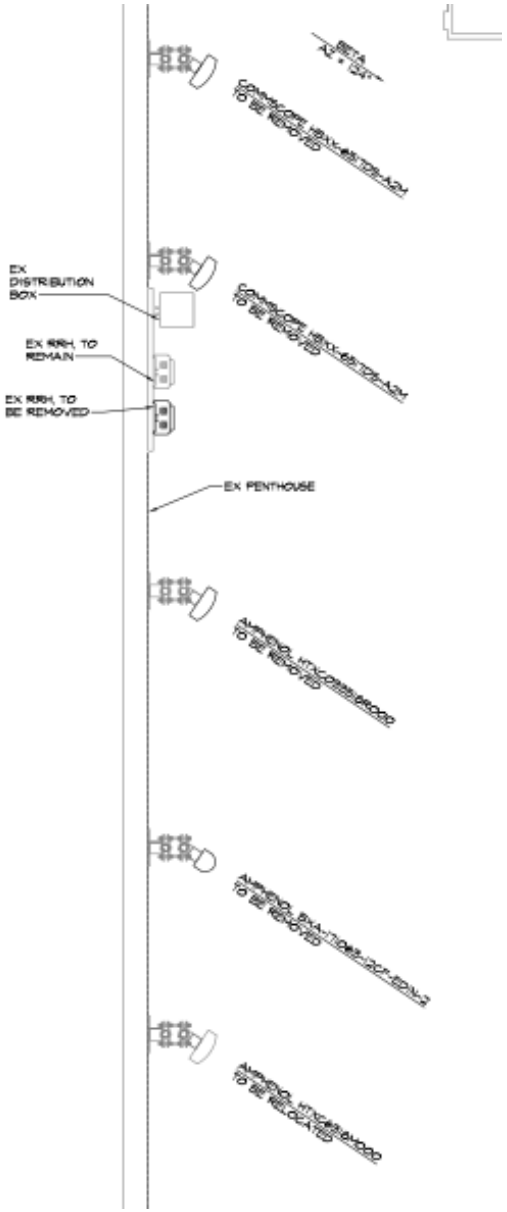
Alpha Sector – Existing Condition



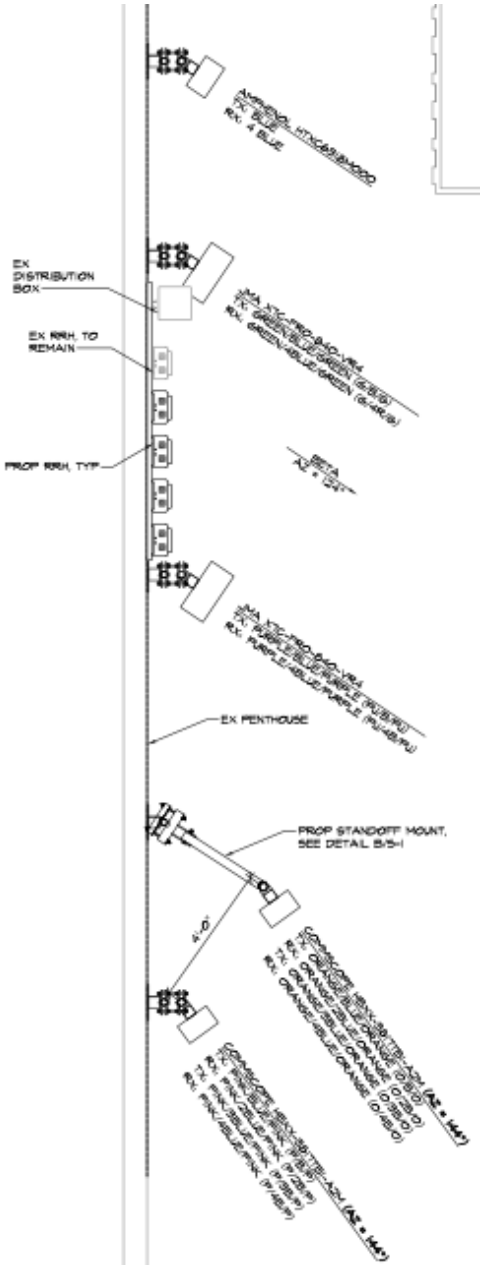
Alpha Sector – Proposed



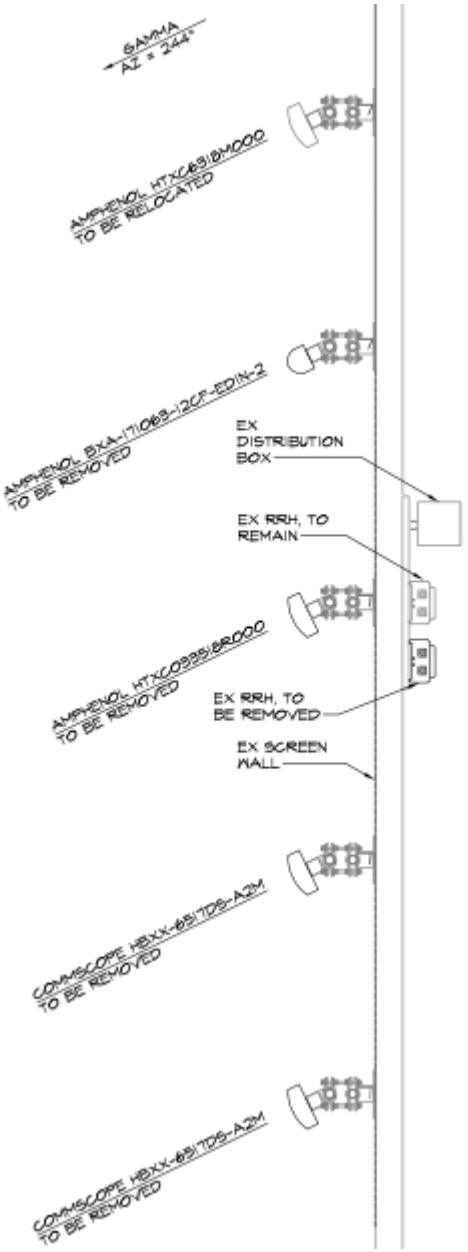
Beta Sector – Existing Condition



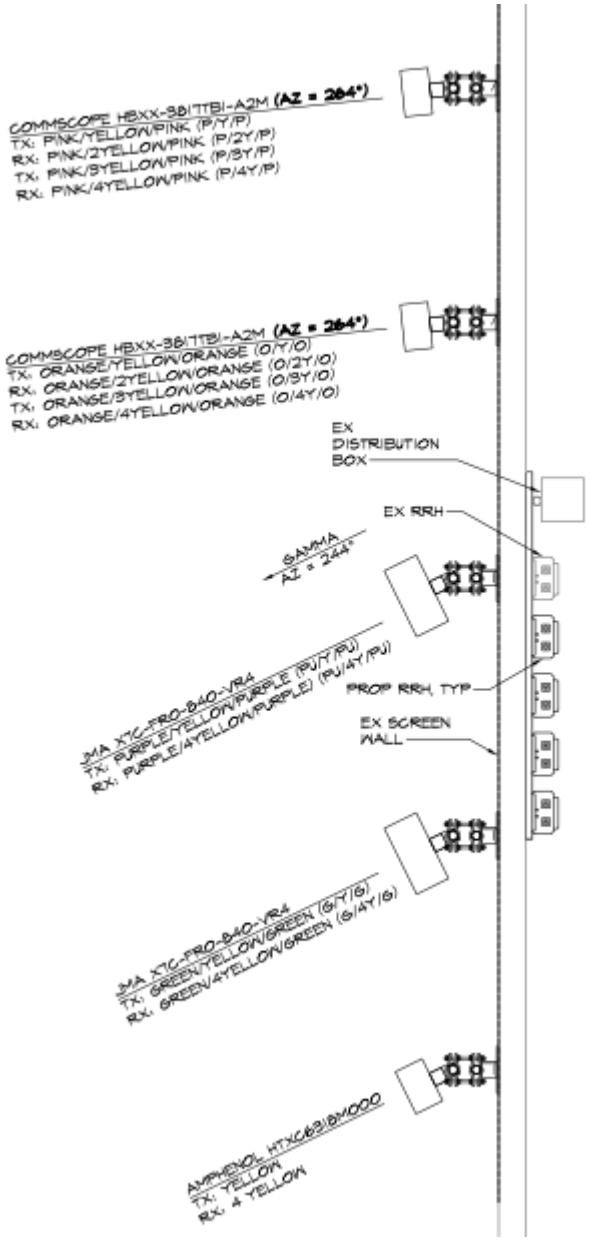
Beta Sector – Proposed



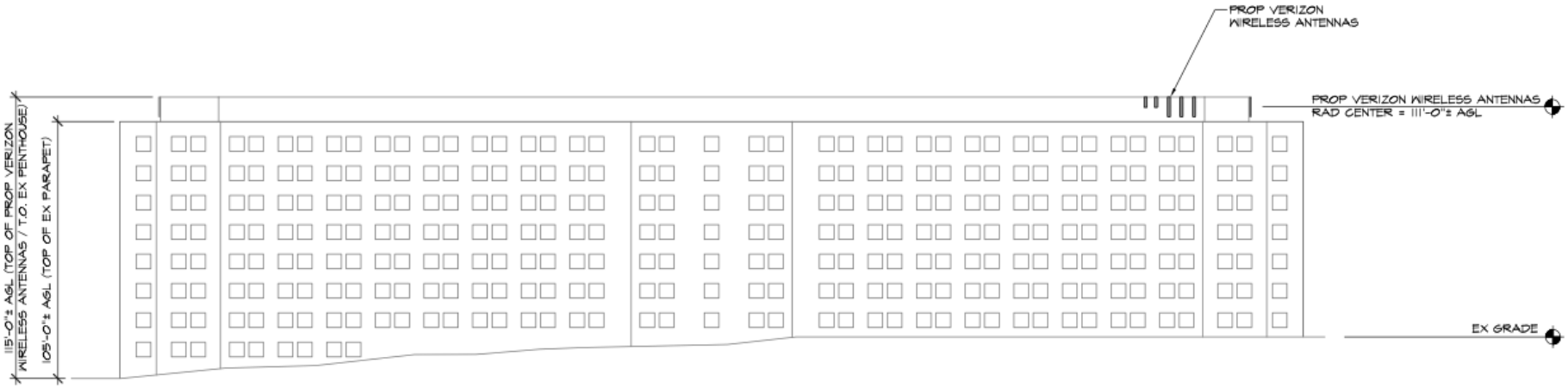
Gamma Sector – Existing Condition



Gamma Sector – Proposed

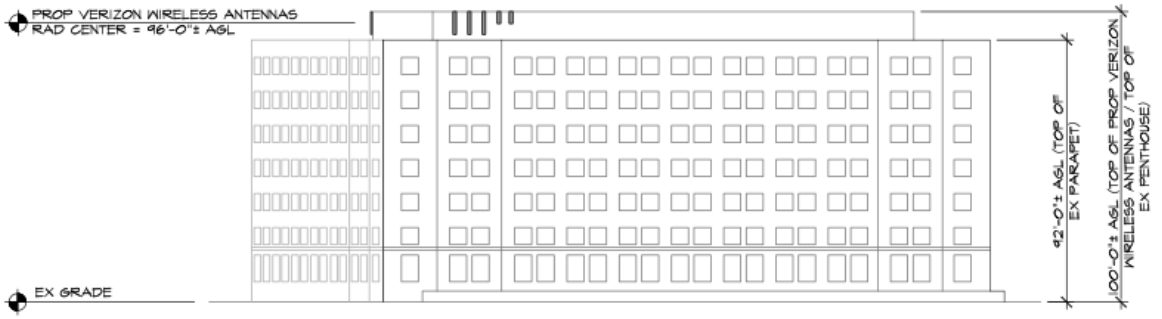


Building Elevation - North



Building Elevation - East

Building Elevation - West

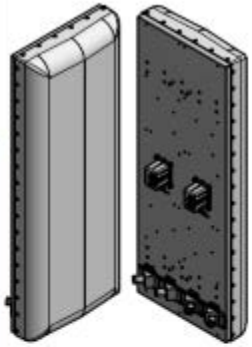


Building Elevation - South

Proposed Antennas – JMA QAP-FRO-440-VR4

QAP-FRO-440-V

1695-2180MHz, 50.5" Fast Roll Off 40° H-Beam MIMO Antenna RET/MET



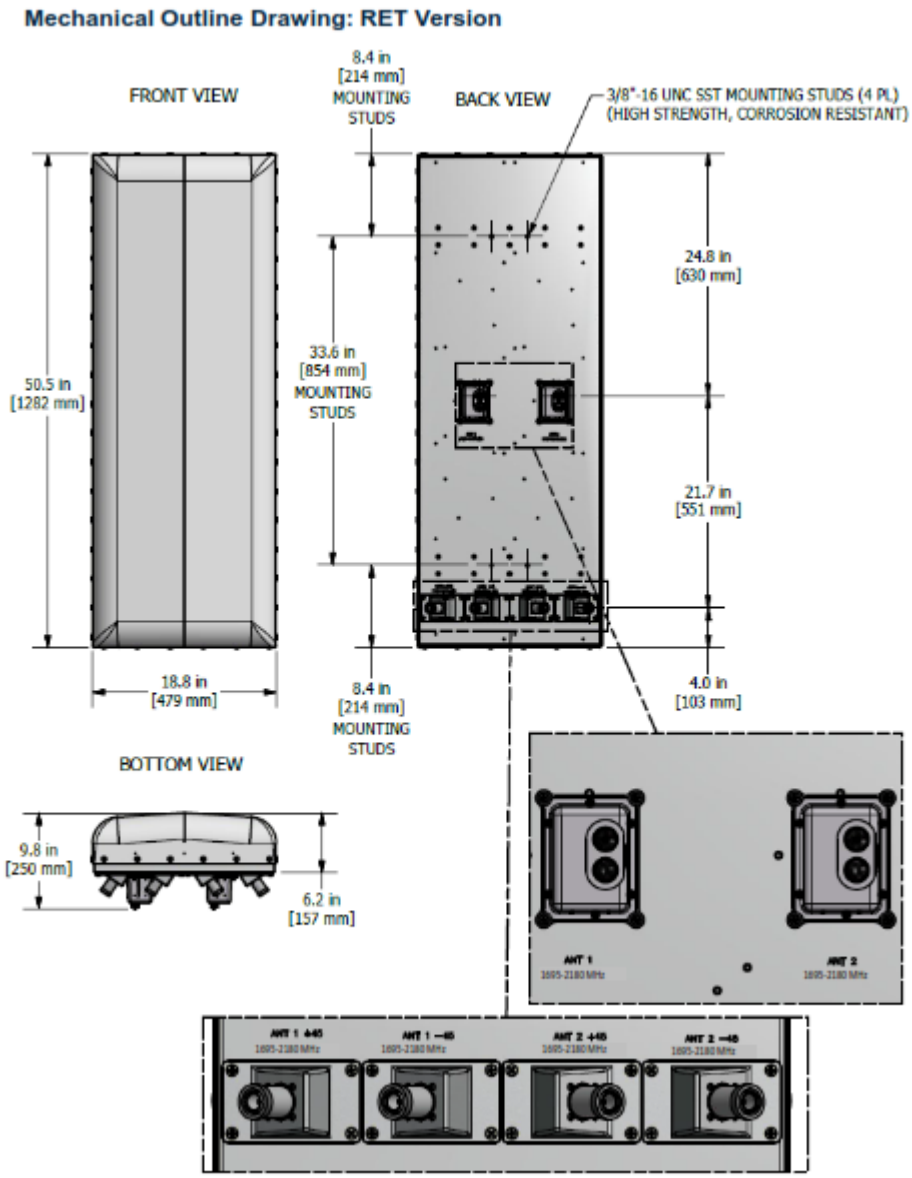
- 4-Port 1695-2180 MHz Fast Roll Off (FRO) Antenna:
  - Two High Band Antennas in a Single Radome, Each with Separate Tilts
- Can be used for MIMO Applications
- Suitable for LTE/CDMA/UMTS/GSM
- AISG v2.0 RET or Manual (MET) Tilt Control

ELECTRICAL SPECIFICATIONS

Frequency Band, MHz	1695-1880	1850-1990	1920-2180
Horizontal Beamwidth, 3dB points	40°	36°	33°
Gain, dBi	17.4	17.7	17.9
Vertical Beamwidth, 3dB points	7.3°	7.2°	6.7°
Front-to-Back at 180°, dB	> 28		
Upper Sidelobe Suppression, Typical, dB	<-30		
Polarization	+/-45°		
Electrical Downtilt	0°-6° or 4°-10°		
VSWR/Return Loss, dB, Maximum	1.5:1/14.0		
Isolation Between Ports, dB, Minimum	>28		
Intermodulation (2x20w), IM3, dBc	-150		
Impedance, ohms	50		
Maximum Power Per Connector, CW	250		

QTY: 2

Proposed Antennas – JMA QAP-FRO-440-VR4

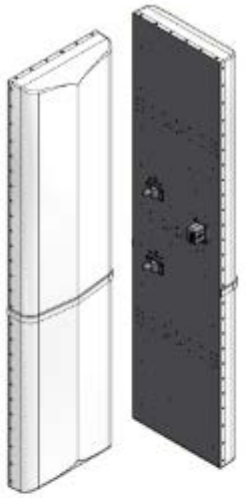


Proposed Antennas – JMA X7C-FRO-830-V

X7C-FRO-830-V

X-Polarization, 698-896MHz, 96°, Fast Roll Off, 30° H-Beam
Variable E-Tilt, RET

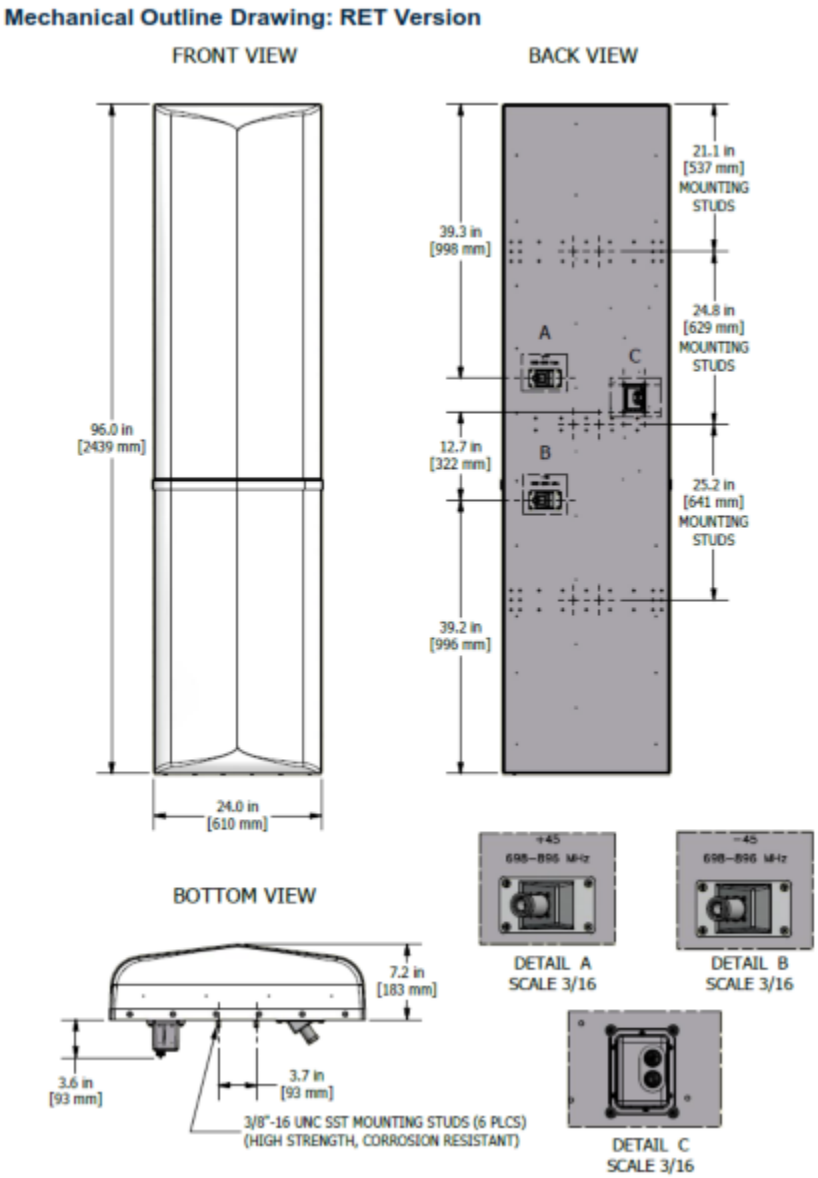
- Macro Cell Antenna
- Fast Roll Off (FRO)
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET control



ELECTRICAL SPECIFICATIONS		
Frequency Band, MHz	**698-824**	**824-896**
Horizontal Beamwidth, 3dB points	35°	30°
Gain, dBi	16.9	19.7
Vertical Beamwidth, 3dB points	9.7°	8.5°
Front-to-Back at 180°, dB	>30	
Upper Sidelobe Suppression, Typical, dB	<-15	
Azimuth Sidelobe Suppresion, Typical dB	<-15	
Polarization	+/-45°	
Electrical Downtilt	0°-6° or 4°-10°	
VSWR/Return Loss, dB, Maximum	1.5:1/-14.0	
Isolation Between Ports, dB, Minimum	>26	
Intermodulation (2x20w), IM3, dBc	-150	
Impedance, ohms	50	
Maximum Power Per Connector, CW (w)	500	

QTY: 2

Proposed Antennas – JMA X7C-FRO-830-V



Proposed Antennas – Commscope HBXX 3817TB1

Product Specifications

COMMSCOPE®

HBXX-3817TB1-VTM | HBXX-3817TB1-A2M

Single Band Twin Beam Capacity Antenna, 1710–2180 MHz, 2x 38° horizontal beamwidth, RET compatible

- Enhances network capacity through six sectors site application with only three antenna faces
- Single panel design supporting two separate beams perfectly optimized at horizontal pointing angles of +27 degrees and –27 degrees from boresight
- Maximizes frequency spectrum utilization to increase Average Revenue Per User (ARPU)
- Reduces antenna count to minimize Cap-Ex and Op-Ex costs
- High gain with excellent sector edge roll-off and azimuth sidelobe suppression
- Each antenna downtilt can be independently adjusted for greater flexibility in network optimization

QTY: 4

Proposed Antennas – Commscope HBXX 3817TB1

Product Specifications

COMMSCOPE®

HBXX-3817TB1-VTM | HBXX-3817TB1-A2M

Antenna Type	Multibeam
Band	Single band
Brand	DualPol®
Operating Frequency Band	1710 – 2180 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	4
Wind Loading, frontal	438.0 N @ 150 km/h 98.5 lbf @ 150 km/h
Wind Loading, lateral	142.0 N @ 150 km/h 31.9 lbf @ 150 km/h
Wind Loading, rear	514.0 N @ 150 km/h 115.6 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Depth	181.0 mm | 7.1 in
Length	1390.0 mm | 54.7 in
Width	301.0 mm | 11.9 in
Net Weight, without mounting kit	16.5 kg | 36.4 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator	HBXX-3817TB1-A2M

Proposed Antennas – JMA Z7C-FRO-840-V

X7C-FRO-840-V

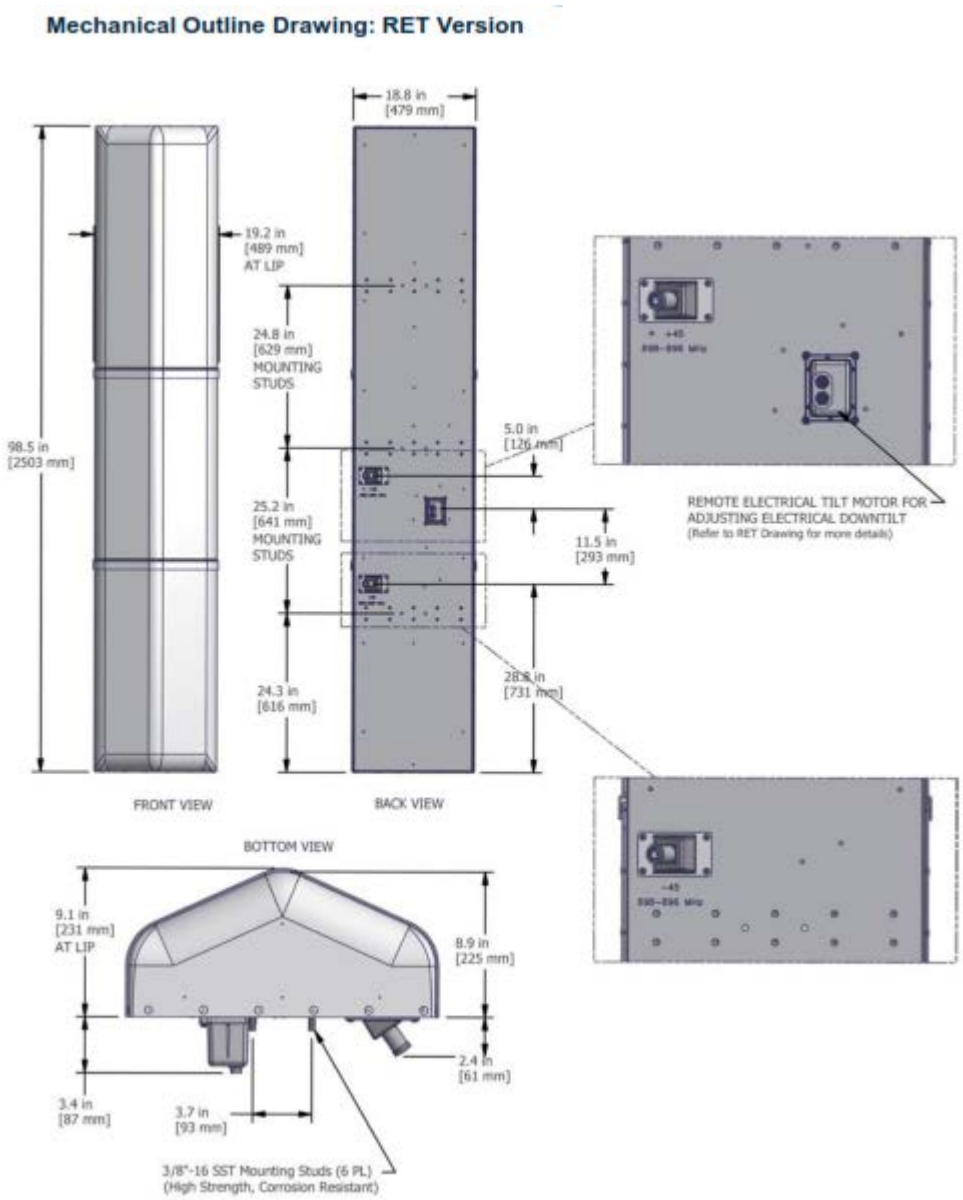
X-Pol Antenna, 698-896MHz, 98.5", Fast Roll off 40° Azimuth
Variable E-Tilt, RET

- Macro Cell Antenna
- Fast Roll Off (FRO)
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET control

ELECTRICAL SPECIFICATIONS		
Frequency Band, MHz	**698-824**	**824-896**
Horizontal Beamwidth, 3dB points	43°	37°
Gain, dBi	16.2	16.9
Vertical Beamwidth, 3dB points	9.3°	8.4°
Front-to-Back at 180°, dB	25	25
Upper Sidelobe Suppression, Typical, dB	-18	-18
Polarization	+/-45°	
Electrical Downtilt	0-6° or 4-10°	
VSWR/Return Loss, dB, Maximum	1.5:1/-14.0	
Isolation Between Ports, dB, Minimum	>28	
Intermodulation (2x20w), IM3, dBc	-150	
Impedance, ohms	50	
Maximum Power Per Connector, CW (w)	500	

QTY: 4

Proposed Antennas – JMA Z7C-FRO-840-V



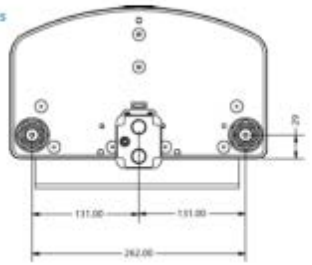
Proposed Antennas – Amphenol HTXC6318M000

Ordering Options		
When ordering...	Replace "x" with "M" for Manual Electrical Tilt or "R" for Remote Electrical Tilt	
Manual Electrical Tilt	HTXC6318M000	
Remote Electrical Tilt AISG v1.1	HTXC6318R000	
Remote Electrical Tilt AISG v2.0 / 3GPP	HTXC6318R000G	
Remote Electrical Tilt Ericsson Proprietary	HTXC6318R000E	
Electrical Characteristics	696-960 MHz	
Frequency bands	696-806 MHz	806-960 MHz
Polarization	±45°	
Horizontal beamwidth	65°	63°
Vertical beamwidth	8°	7°
Gain	15.4 dBd (17.5 dBi)	15.9 dBd (18.0 dBi)
Electrical downtilt	0-10°	
Impedance	50Ω	
VSWR	≤1.5:1	
Upper sidelobe suppression (0°)	> 16 dB	> 16 dB
Front-to-back ratio (+/-30°)	> 30 dB	> 30 dB
Isolation between ports	< -30 dB	
IM3 (2x20W carrier)	-150 dBc	
Input power	500 W	
Lightning protection	Direct Ground	
Connector(s)	2 Ports / EDIN / Female / Bottom	
Mechanical Characteristics		
Dimensions HTXC6318M000 (LxWxD)	2411 x 304 x 180 mm	94.9 x 12.0 x 7.1 in
Dimensions HTXC6318R000 (LxWxD)	2590 x 304 x 194 mm	102.0 x 12.0 x 7.6 in
Depth with z-brackets	220 mm	8.7 in
Weight without mounting brackets	18 kg	39.7 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind loads (160 km/hr or 100 mph)	Front: 695 N; Side: 530 N	Front: 201 lbf; Side: 119 lbf
Remote Electrical Downtilt Control		
Remote Electrical Tilt (RET) Control	The remote control of the electrical tilt is managed by an external unit.	
RET Module Part Number (one per antenna)	RETU-EA01 for AISG v1.1 protocol (one unit included with HTXC6318R000)	
	RETU-EG01 for AISG v2.0 / 3GPP protocol (one unit included with HTXC6318R000G)	
	RETU-EE01 for Ericsson Proprietary protocol (one unit included with HTXC6318R000E)	

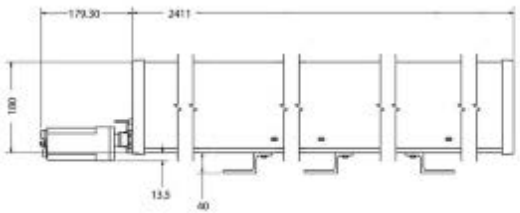
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210006	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs

HTXC6318R000

Bottom View/Dimensions



Side View/Dimensions



QTY: 3

RF Design Engineer Support Letter

verizonwireless

RE: Verizon Wireless
GSA Building Site
451 7th Street, SW
Washington, DC 20024

August, 10, 2016

To Whom It May Concern,

Verizon Wireless operates a Personal Communication Service authorized by the Federal Communications Commission (FCC) to provide state of the art digital wireless communications in many parts of the nation, including Washington, DC. Verizon Wireless' operations and network are licensed and regulated by the FCC.

The antennas, as proposed and designed for the above noted site, are in compliance with all applicable FCC requirements. In addition, the proposed site meets all applicable ANSI/IEEE C95.1-1992 exposure levels, as adopted by the FCC requirements.

Antenna Model: CSS X7C-FRO-830	ERP = 260 Watts/MHz (Low Band)
CSS QAP-FRO-440	EIRP= 265 Watts/MHz (High Band)
Commscope HBXX-3817TB	EIRP=340 Watts/MHz) (High Band)
ANTEL HTXC6318R	ERP=493 Watts (850 Band)

The means used to determine the RF levels for this installation were generated thru the "link budget" i.e. computer model calculation. This formula determines the RF level by calculating the transmit power, antenna gain and equipment specifications of the base station components.

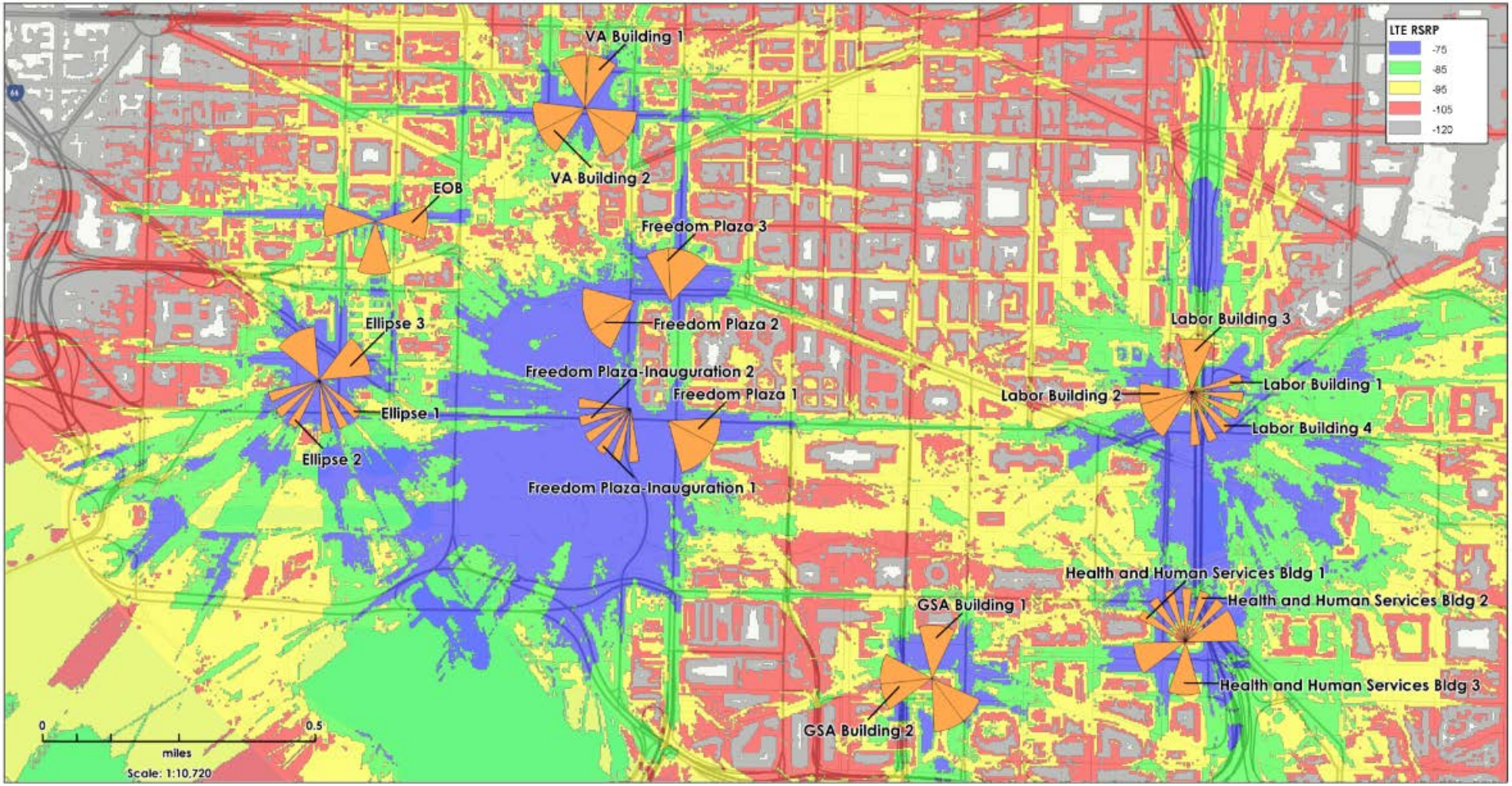
Verizon Wireless is committed to compliance with all government regulations and standards. Please contact Verizon Wireless if you have any questions regarding this matter.

Sincerely,

Roque Fial

Roque Fial
RF Design Engineer / Verizon Wireless
7600 Montpelier Road
Laurel, MD 20723
301-512-2406

RF Propagation Map – Overview



EOB: GSA Central Office

Ellipse: DOI South Annex

GSA Building: GSA Regional Office Building (ROB)

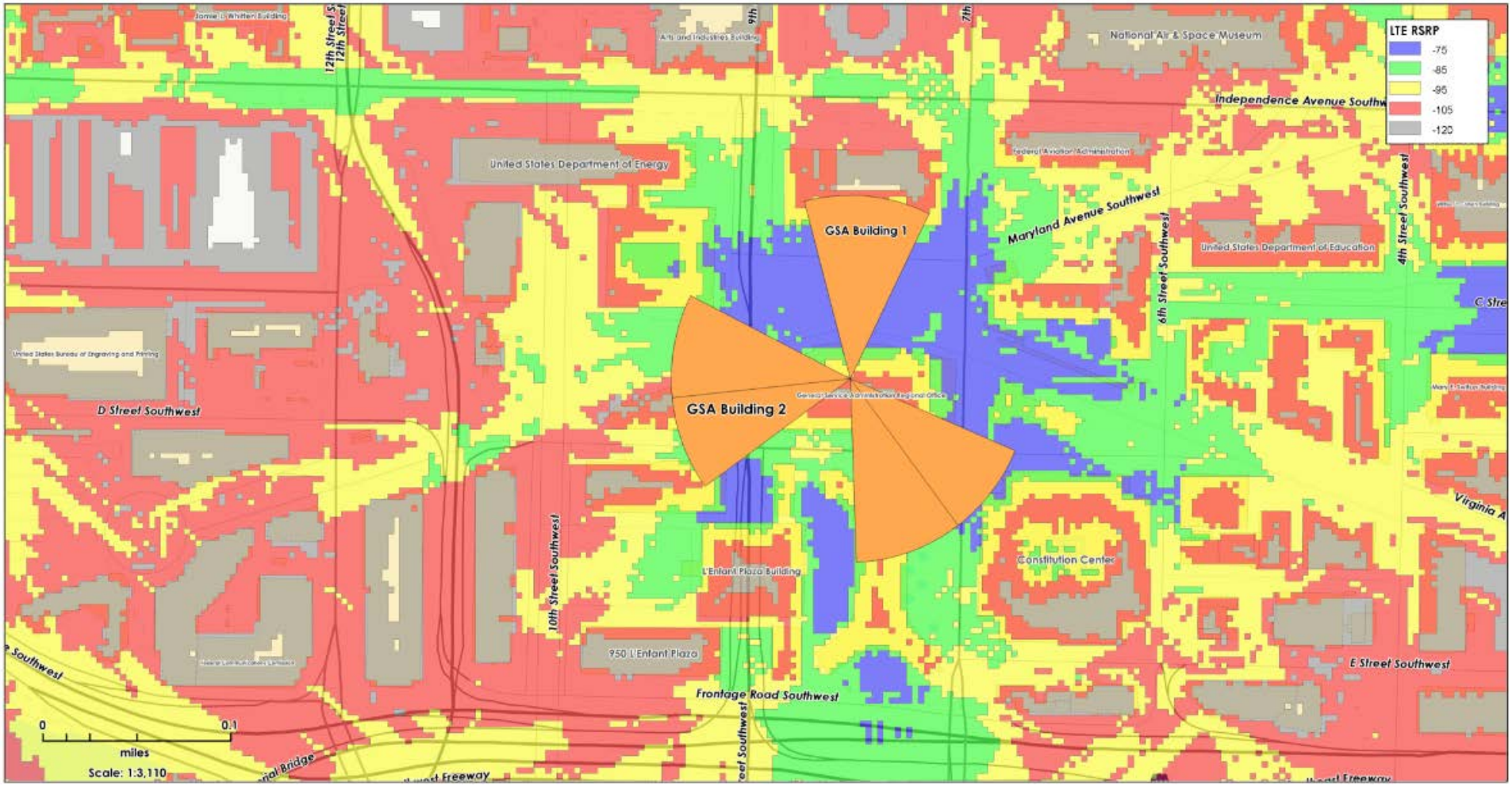
Health and Human Services: HHS/Hubert Humphrey

VA Building: Veterans' Affairs

Freedom Plaza: Department of Commerce

Labor Building: DOL/Frances Perkins

RF Propagation Map – GSA Regional Office Building



verizon

PHOTO SIMULATIONS

Photo Simulation Location Legend

View One, C St. and Maryland Ave. – Existing Condition

View One, C St. and Maryland Ave. – Proposed

View of Beta Sector (See page 15).

View Two, 7th St. and Virginia Ave. – Existing Condition

View Two, 7th St. and Virginia Ave. – Proposed

View of Beta Sector (See page 15)

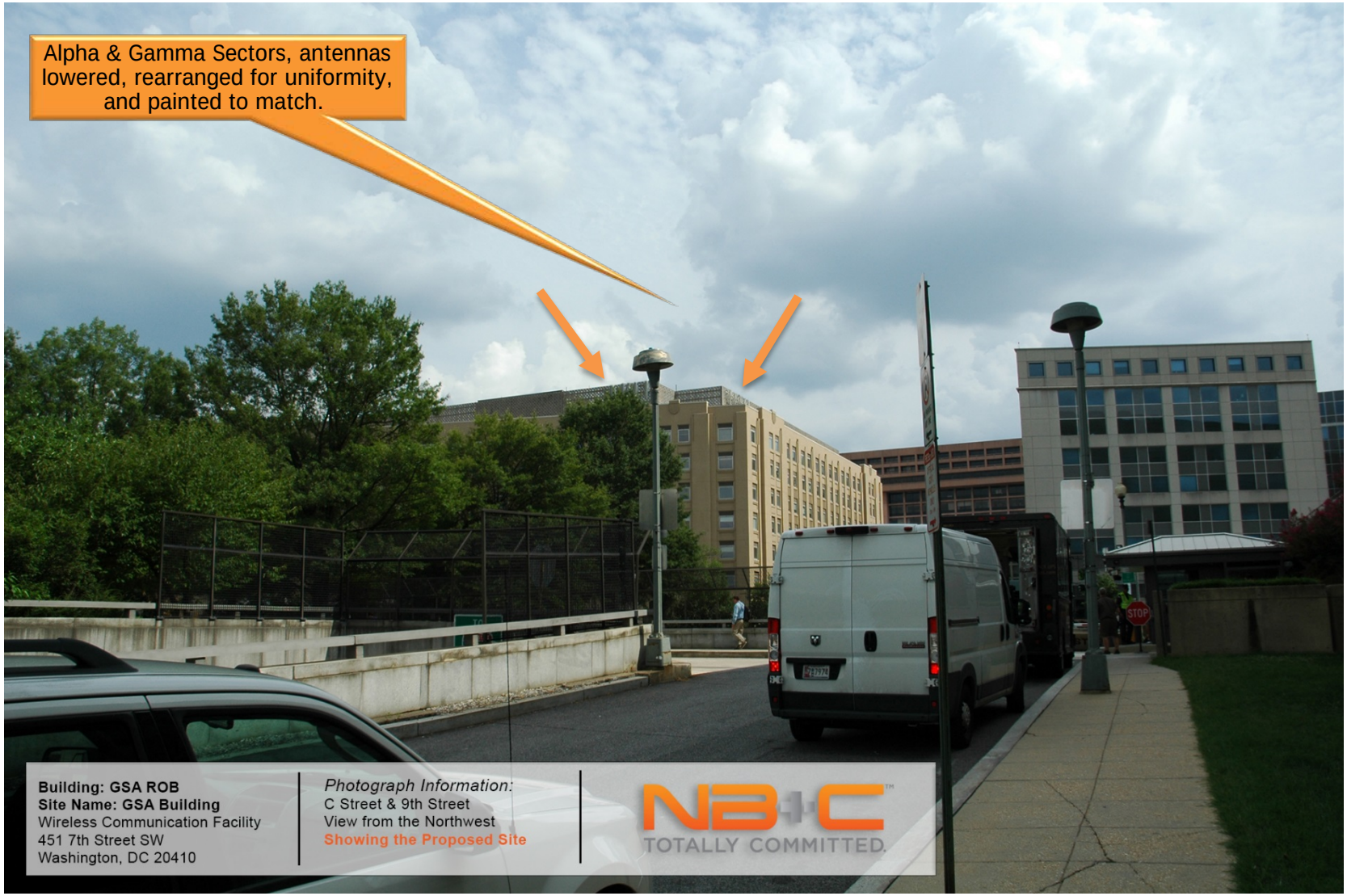
View Three, D St. and 9th St. – Existing Condition

View Three, D St. and 9th St. – Proposed

View of Gamma Sector (See page 17).

View Five, C St. and 9th St. – Existing Condition

View Five, C St. and 9th St. – Proposed



View of Alpha and Gamma Sectors (See pages 13 & 17)

View Five, Hancock Park – Existing Condition

View Five, Hancock Park – Proposed

View of Alpha and Gamma Sectors (See pages 13 & 17).

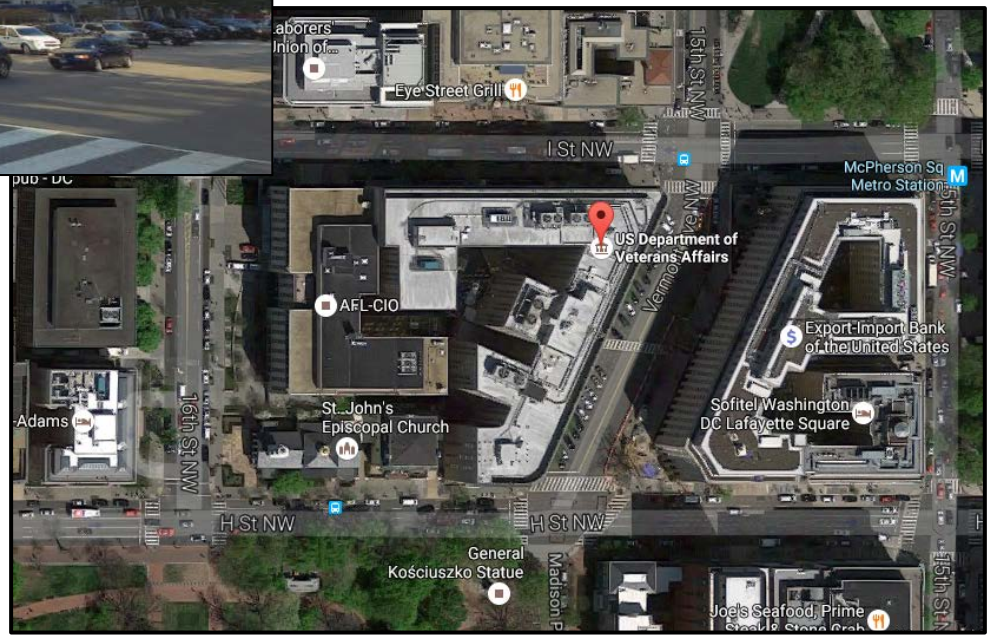
Verizon Wireless Communications Facility at the U.S. Department of Veterans Affairs

SHPO Design Submission

Submitted by the General Services Administration
September 1, 2016

GSA Site Name: Veterans Affairs
Verizon Site Name: VA Building

U.S. Department of Veterans' Affairs



Project Overview:

The modification of this site will include: a reduction in coax cables, the addition of RRH's, and changing the antenna models.

Table of Contents

Contact Information

AGENCY PROJECT MANAGER

Gary L. Porter (GSA Sponsor)
Historic Preservation Specialist
US General Services Administration

301 7th Street Southwest, Washington DC 20407
(202) 205-7766
Gary.Porter@gsa.gov

Project Report

Project Description:

Cellco Partnership, d/b/a Verizon Wireless is licensed by the Federal Communications Commission (FCC) to provide wireless service, including licenses to deploy its network in the Greater Washington, D.C. metropolitan area. Verizon Wireless proposes to implement modifications to the existing telecommunications facility on the roof of the U.S. Department of Veteran Affairs building in order to continue to meet coverage and capacity objectives for the immediate area as part of this network.

Existing Conditions:

The existing facility consists of three antenna sectors, resulting and a total of fifteen antennas. The first sector consists of five antennas that are sled mounted to the northern area of the roof. The second and third sectors are mounted to the east and west face of the existing penthouse and include five antennas per sector. The equipment cabinets that support this facility are located within an equipment shelter that is centrally located on the rooftop.

Proposed Changes:

The modification of this site will include: a reduction in coax cables, the removal of an existing equipment cabinet, the addition of RRH's, and changing the antenna models.

After the modification, the total number of antennas will remain the same; however, there will be a slight size variation between the new and the existing antenna models. The new antennas will not exceed the maximum height of the current installation and will not exceed the height of the penthouse to which they are mounted. The number of RRH's will be increase to 24, as a result of the modifications. The number of coax cable will be reduced as a result of the adjustment to the existing equipment, this change will not be visible from the ground.

Visibility:

The current installation is partially visible from McPherson Square (to the south), the modifications to the southern sectors will not increase the visibility of the equipment from this location. The slight antenna size increase will result in the top of the one sector becoming visible from some locations to the west of the building. The visual impact of the modifications will be extremely minimal to the aesthetics of the building and the surrounding area.

Capacity Issues:

Solid voice communications are an important necessity related to every day public safety, and are especially critical in the event of emergencies or unplanned events. Voice communication requires robust data capacity to ensure reliability. Additionally, with the proliferation of Smartphones – apps, photography and video streaming demand a persistent connection to the network, as the phones connect to the "Cloud" and do not release from it, even when not in use. This creates an unprecedented demand on the capacity of the network, particularly at large scale events where users are congregated in one place, and utilizing these streaming features non-stop. The modification of the site will help to maintain an adequate level of network capacity.

Project Report

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It is Verizon Wireless' goal to continue to provide reliable service to the public. From a safety perspective, there is an immediate need to improve capacity throughout DC and particularly in the core of the Capital and National Mall areas. Verizon Wireless is a major supplier of mobile communications to all of the US Government Agencies and is the priority network provider for DC Government, which includes the majority of first responders. Capitol Police, Park Police and many other crucial public safety agencies utilize the Verizon network, as well. Improvements to capacity are not only crucial for the improved safety for the many large scale events held throughout the year but are highly critical in the event of an emergency or other "unplanned event". The modification of this facility will help to ensure that the network can continue to provide enough capacity for both the public and emergency service agencies to utilize.

Alternatives Considered:

Because this building is already utilized as a telecommunication facility, no alternate structures were considered. The existing site will continue to meet coverage and capacity objectives once the proposed modification are made.

Project Budget:

No government funds are being utilized for the installation of the proposed antennas.

Project Schedule:

The upgrades for this site are needed to accommodate the expected extreme capacity issues for the upcoming Presidential Inauguration, and will need to be completed by early December in order to integrate and optimize into the network.

Construction commence: Mid-November 2016

Construction completion: December 2, 2016

Historic Preservation:

GSA, in coordination with Verizon Wireless, is initiating this review required under Section 106 of the National Historic Preservation Act of 1996, and Verizon Wireless will assist GSA as required.

Building Codes and Operational Maintenance:

Installation of the proposed antennas will be completed in compliance with the International Building Code 2015. Verizon Wireless will conduct regular periodic inspections of the site to ensure its continued, safe operation. The roof is a secured area and is not accessible by the general public.

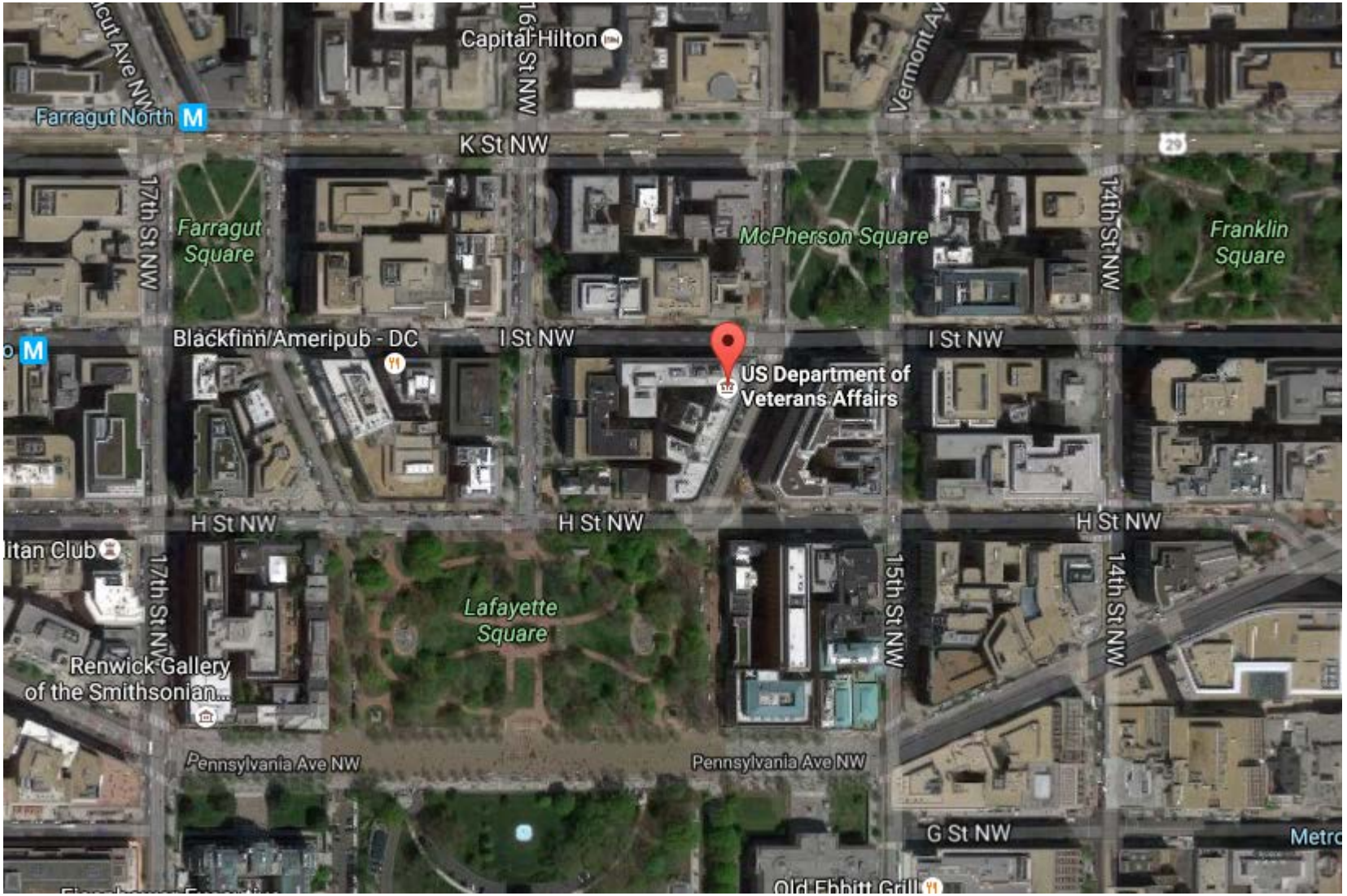
Conclusion:

Verizon Wireless has worked very closely with GSA to design the modifications to this existing telecommunications facility. The resulting changes will pose minimal impact on the subject building and the surrounding area.

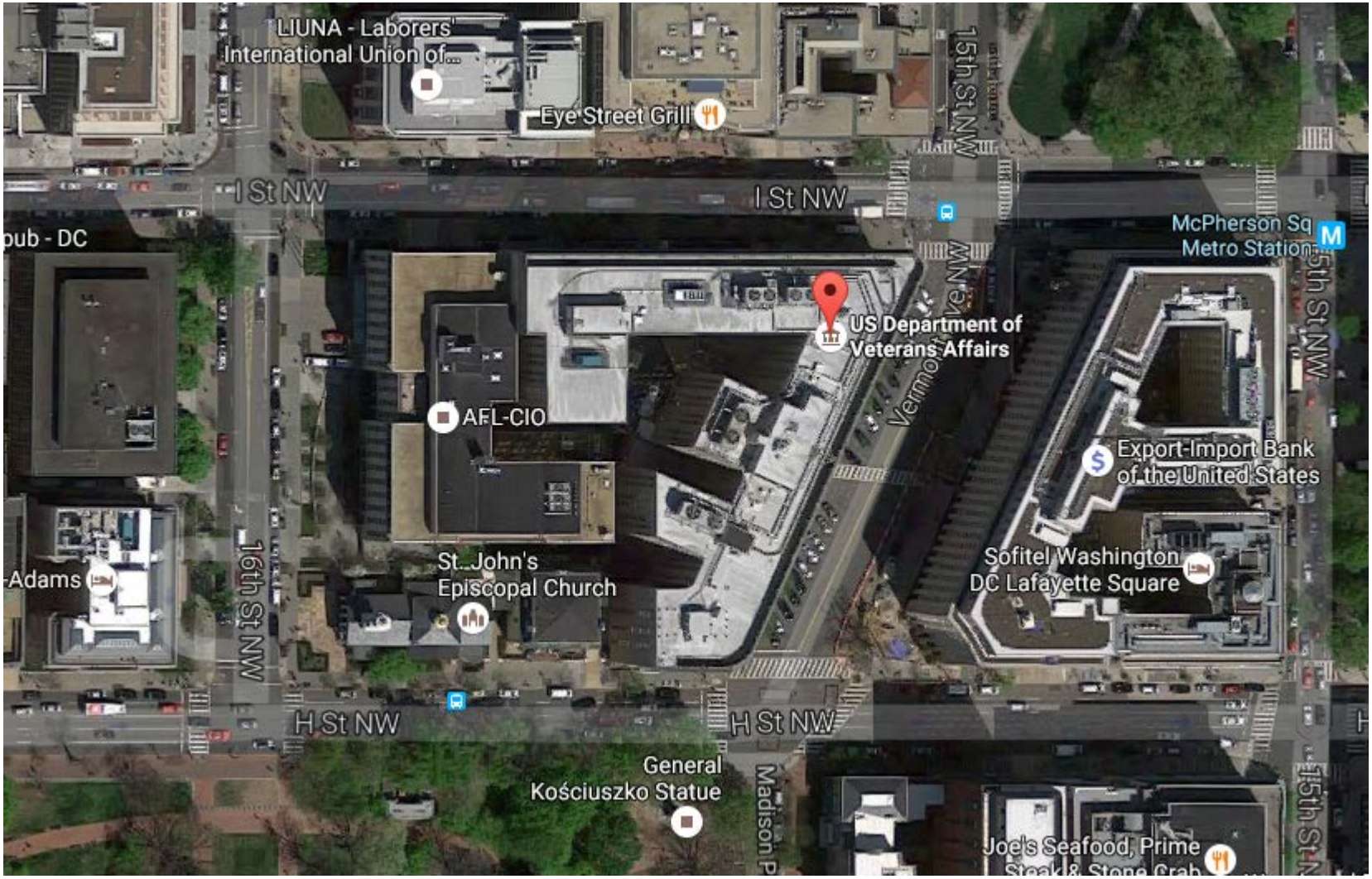
verizon

EXHIBITS

Vicinity Map



Aerial Map

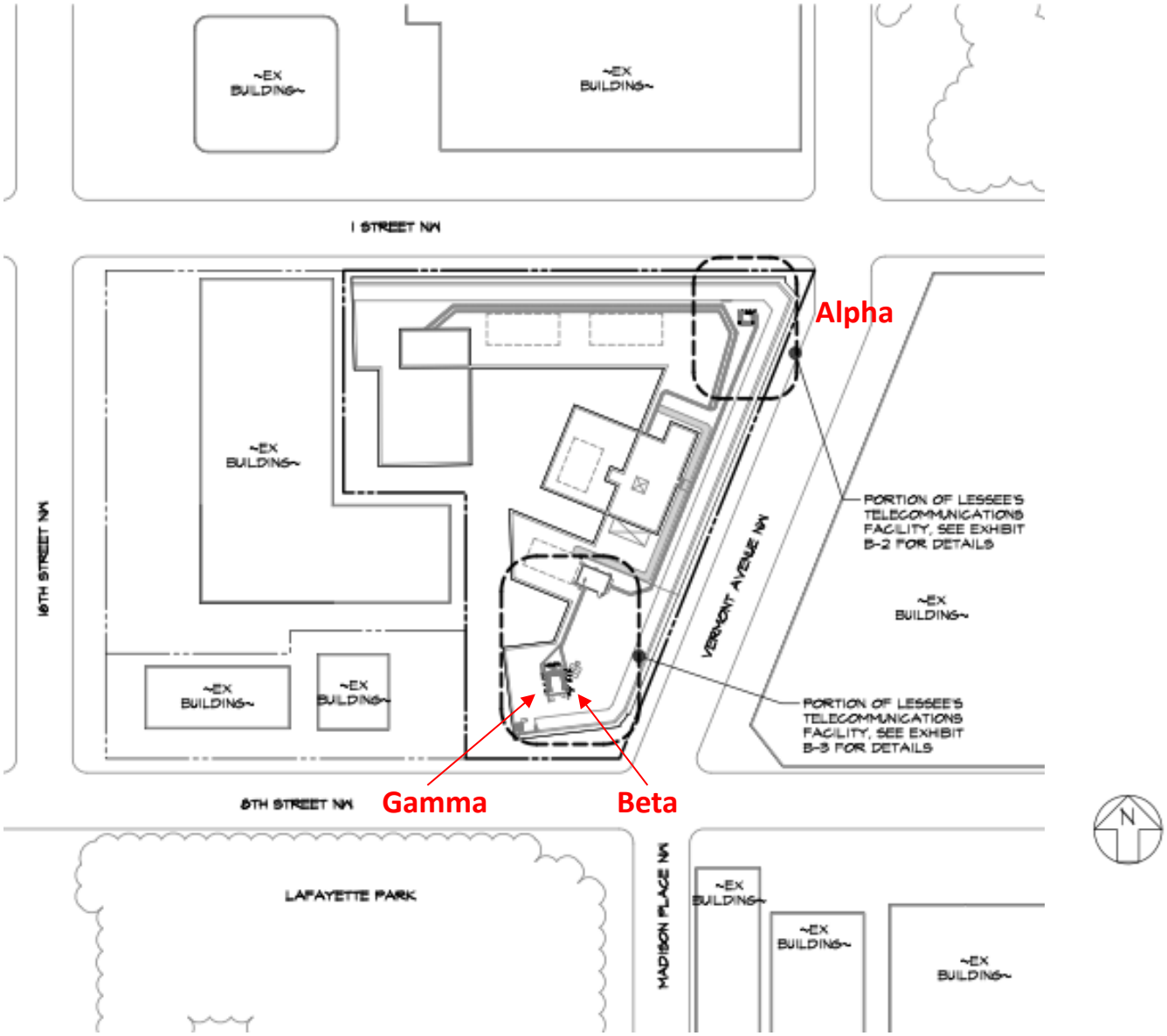

LIUNA - Laborers' International Union of...
Eye Street Grill
15th St NW
I St NW
I St NW
McPherson Sq Metro Station
M
US Department of Veterans Affairs
Vermont Ave NW
15th St NW
AFL-CIO
Export-Import Bank of the United States
16th St NW
St. John's Episcopal Church
Sofitel Washington DC Lafayette Square
H St NW
H St NW
General Kościuszko Statue
Madison P
Joe's Seafood, Prime

Neighborhood Description

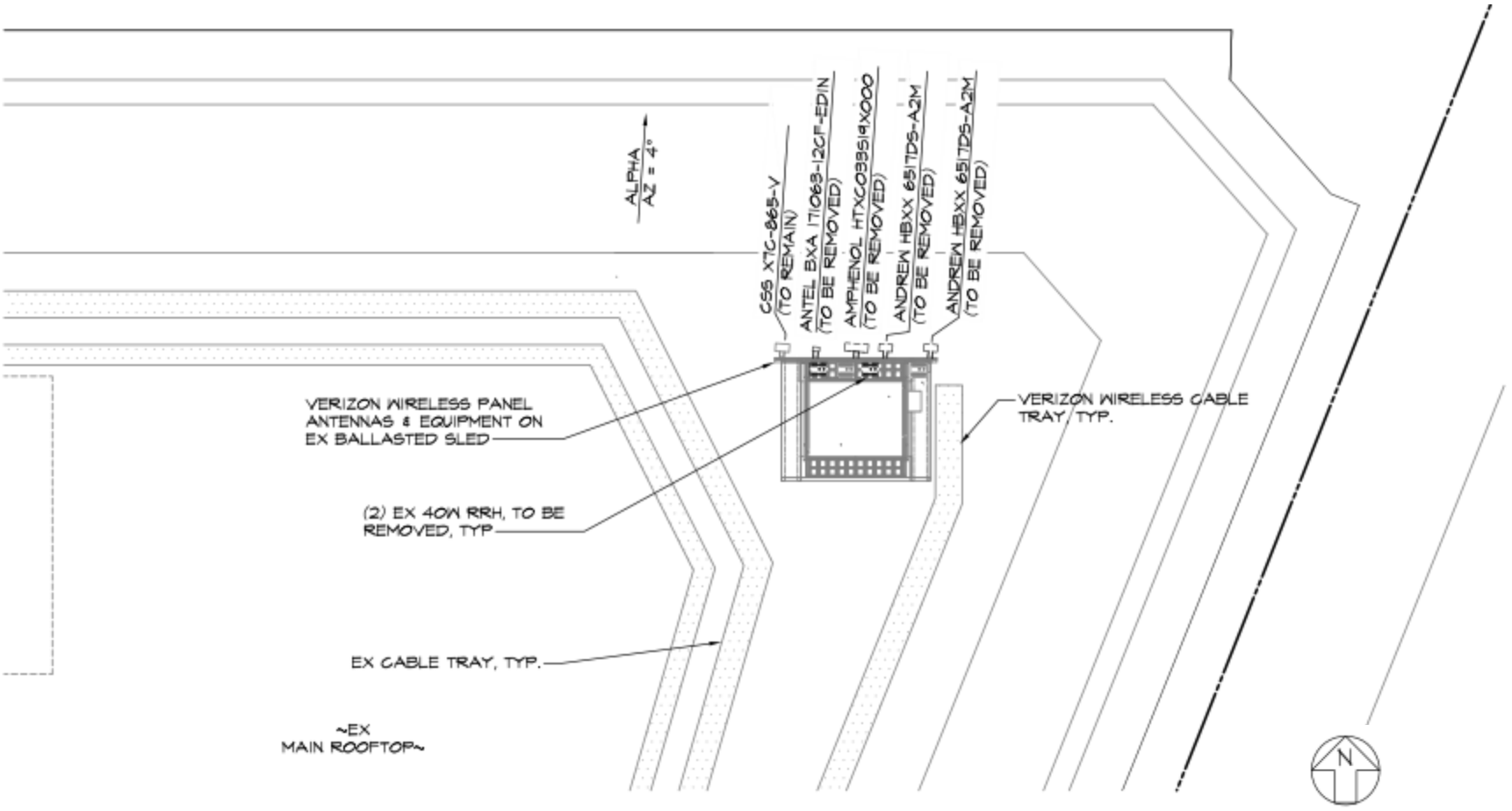
Surrounding landmarks include:

- **To the North of the building**: Federal Aviation Administration, Laborers' International Union of North America.
- **To the East of the Building:** Export/Import Bank of the United States.
- **To the South of the Building**: Lafayette Square, US Court of Federal Claims.
- **To the West of the Building**: St John's Episcopal Church, AFL-CIO, Motion Picture Association of America.

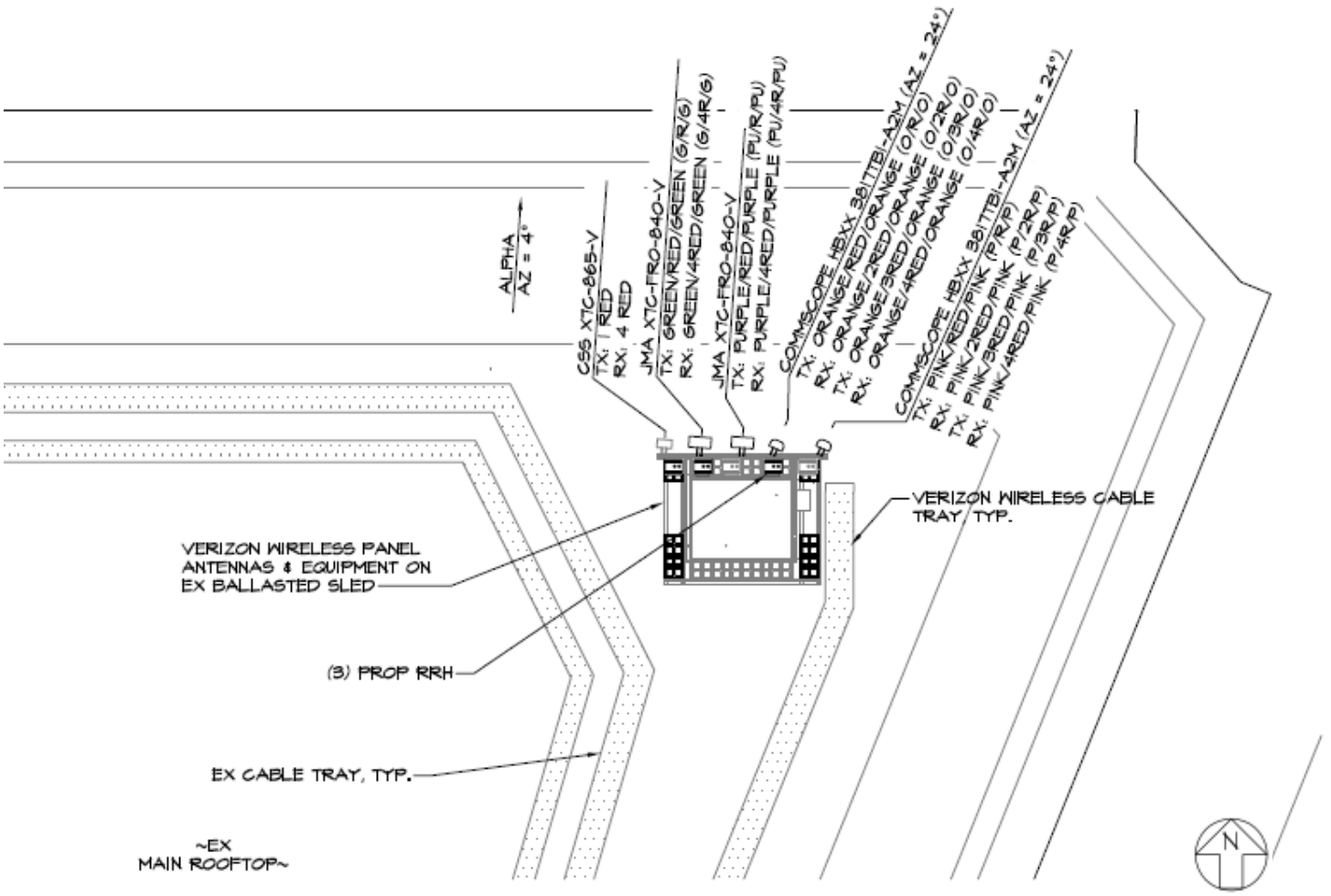
Overview Map



Alpha Sector – Existing Condition

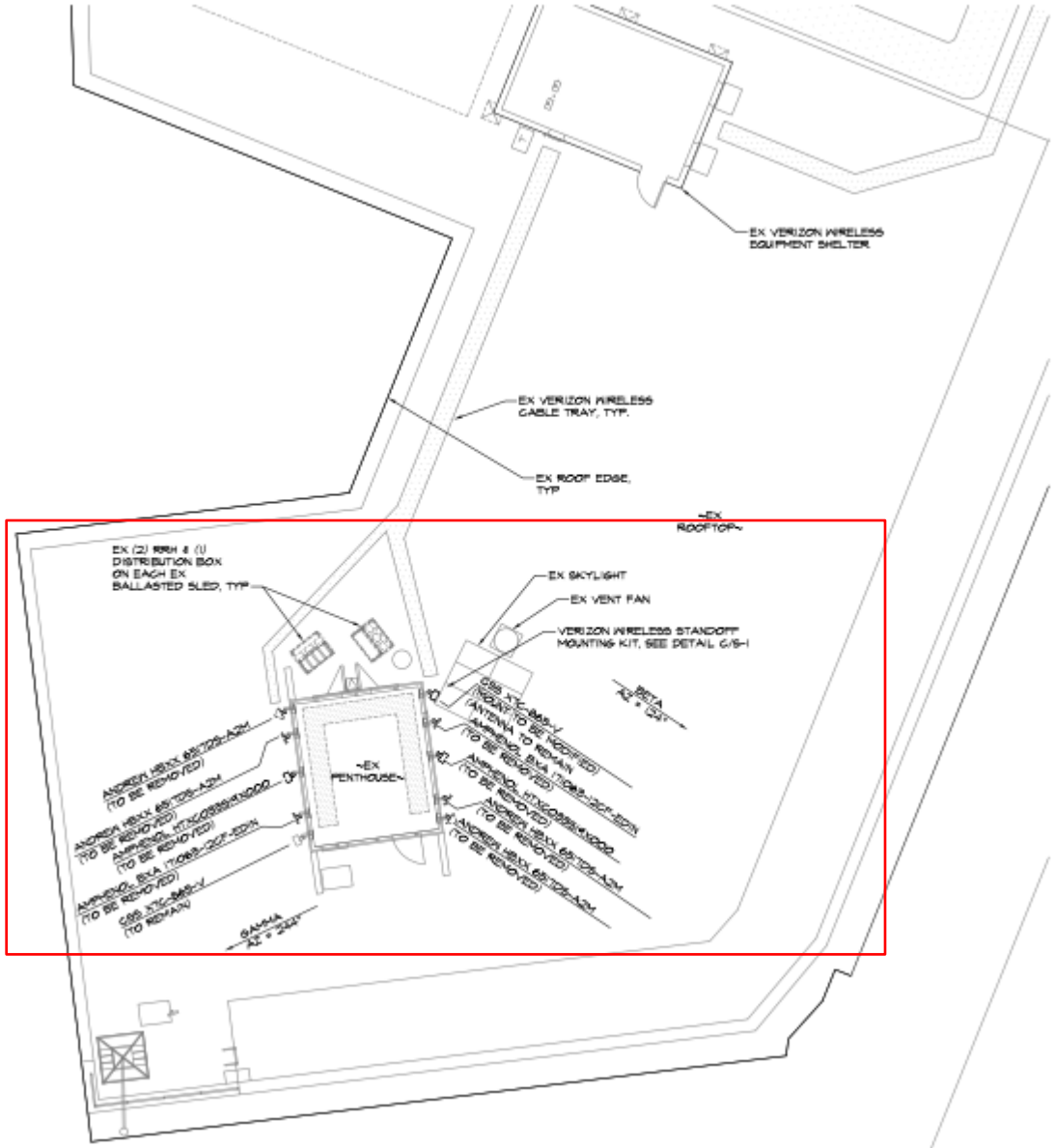


Alpha Sector – Proposed

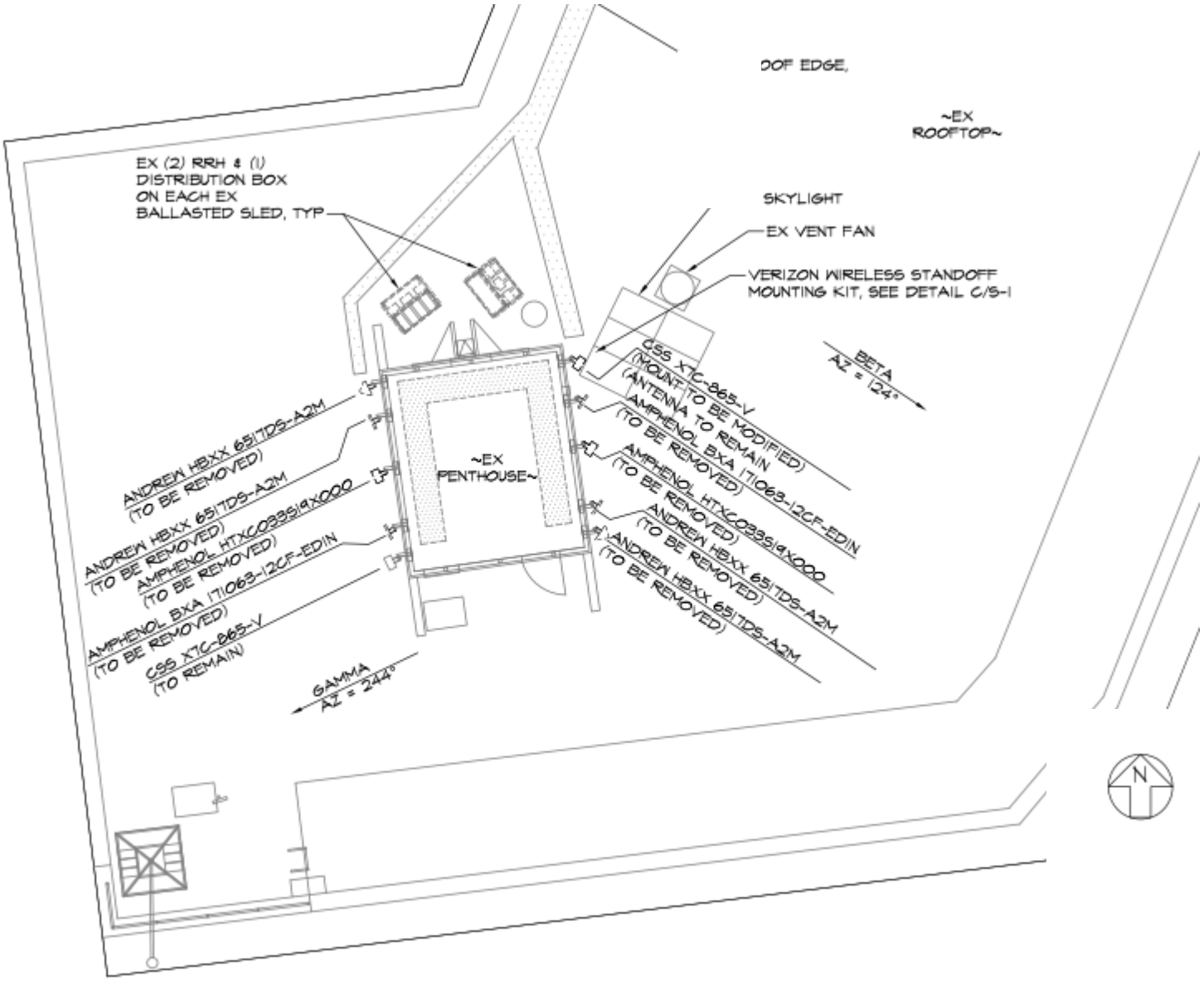


Beta and Gamma Sectors – Existing Condition

- Details view shown on later slides

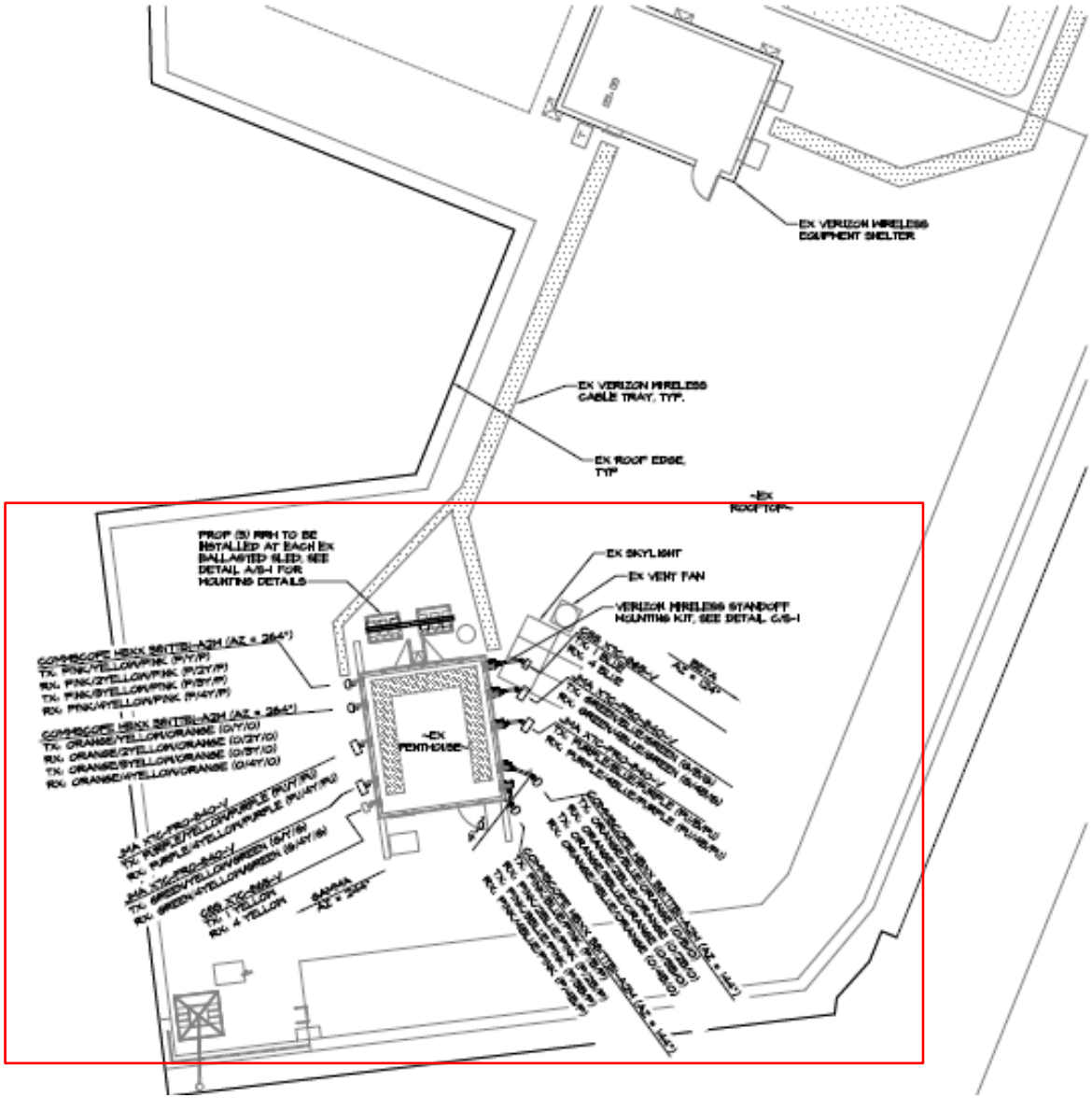


Beta and Gamma Sectors – Existing Condition

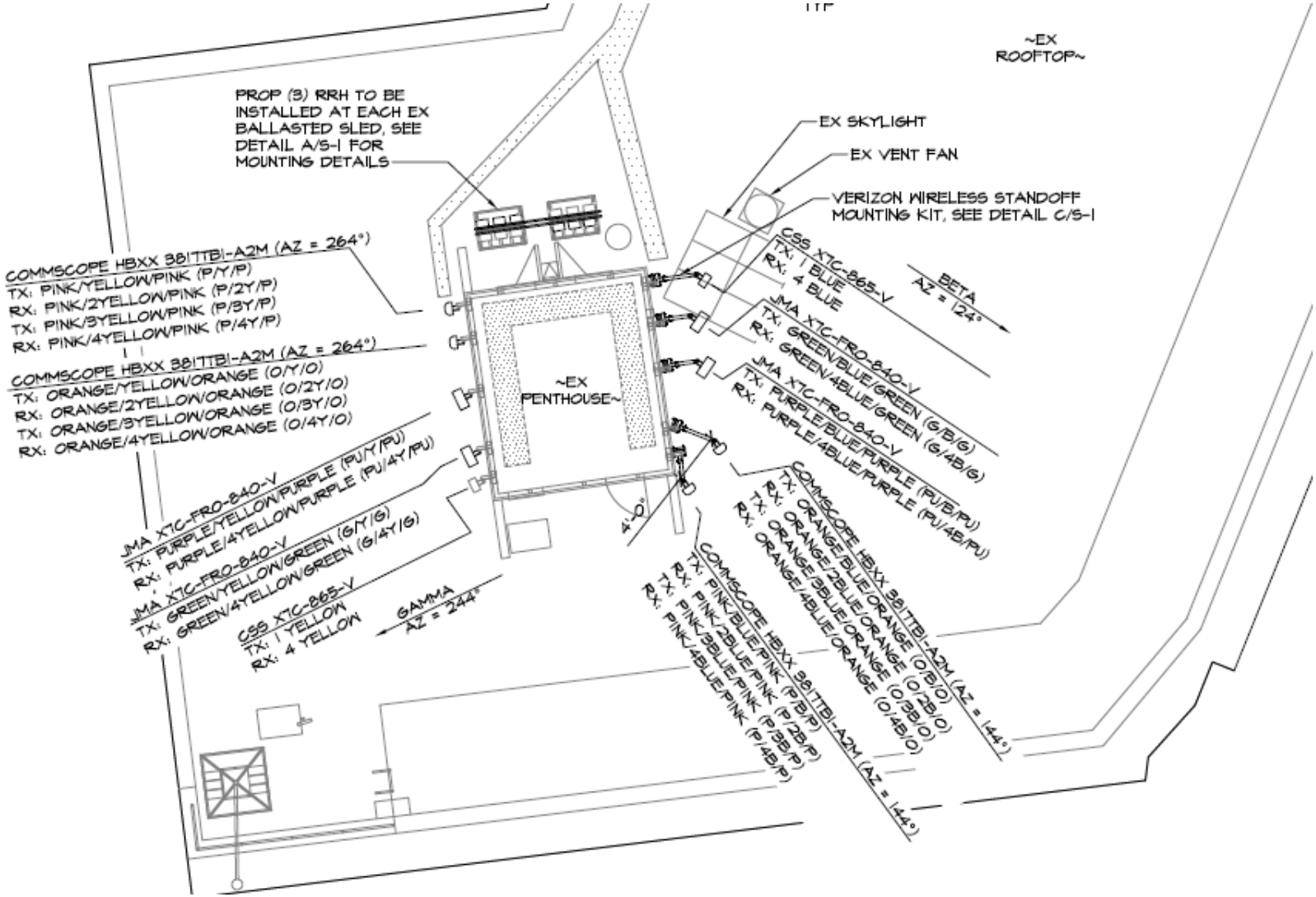


Beta and Gamma Sectors – Proposed

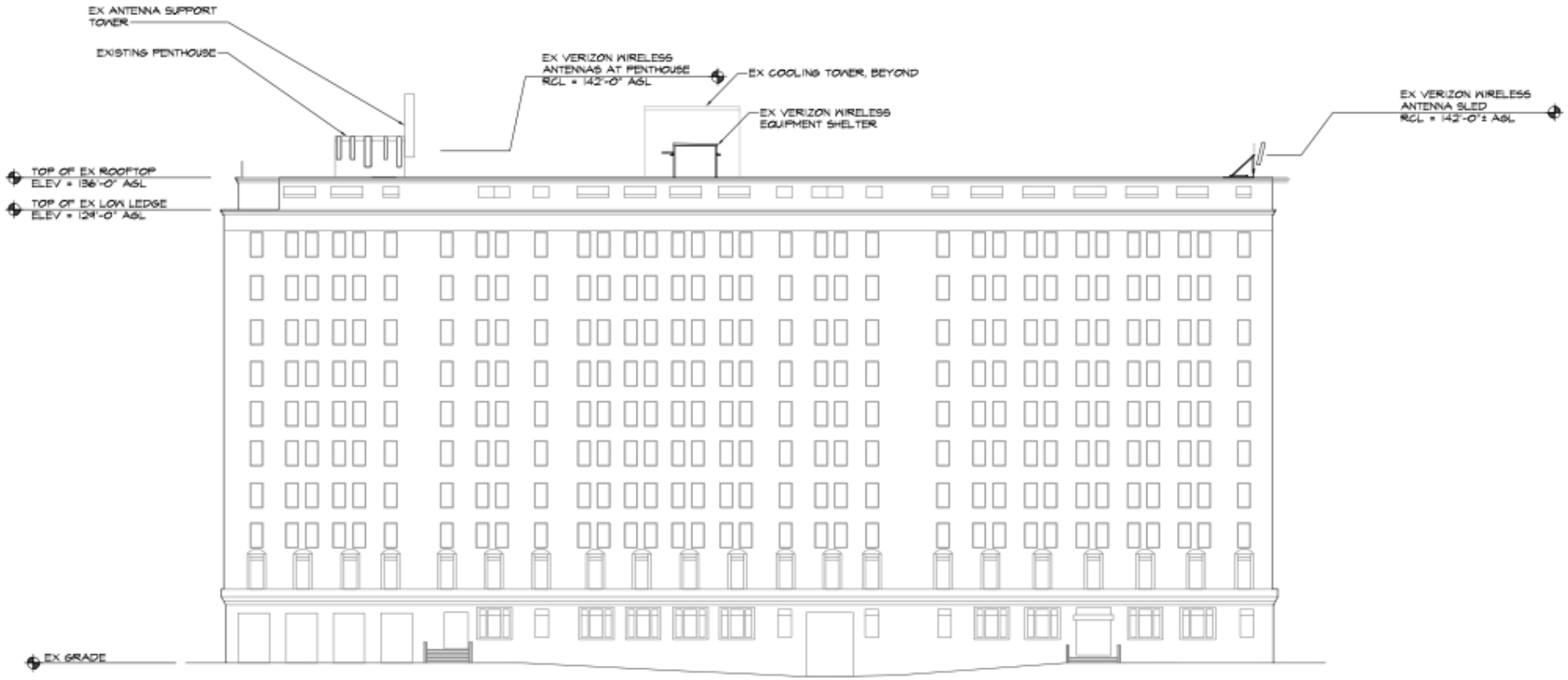
- Details view shown on later slides



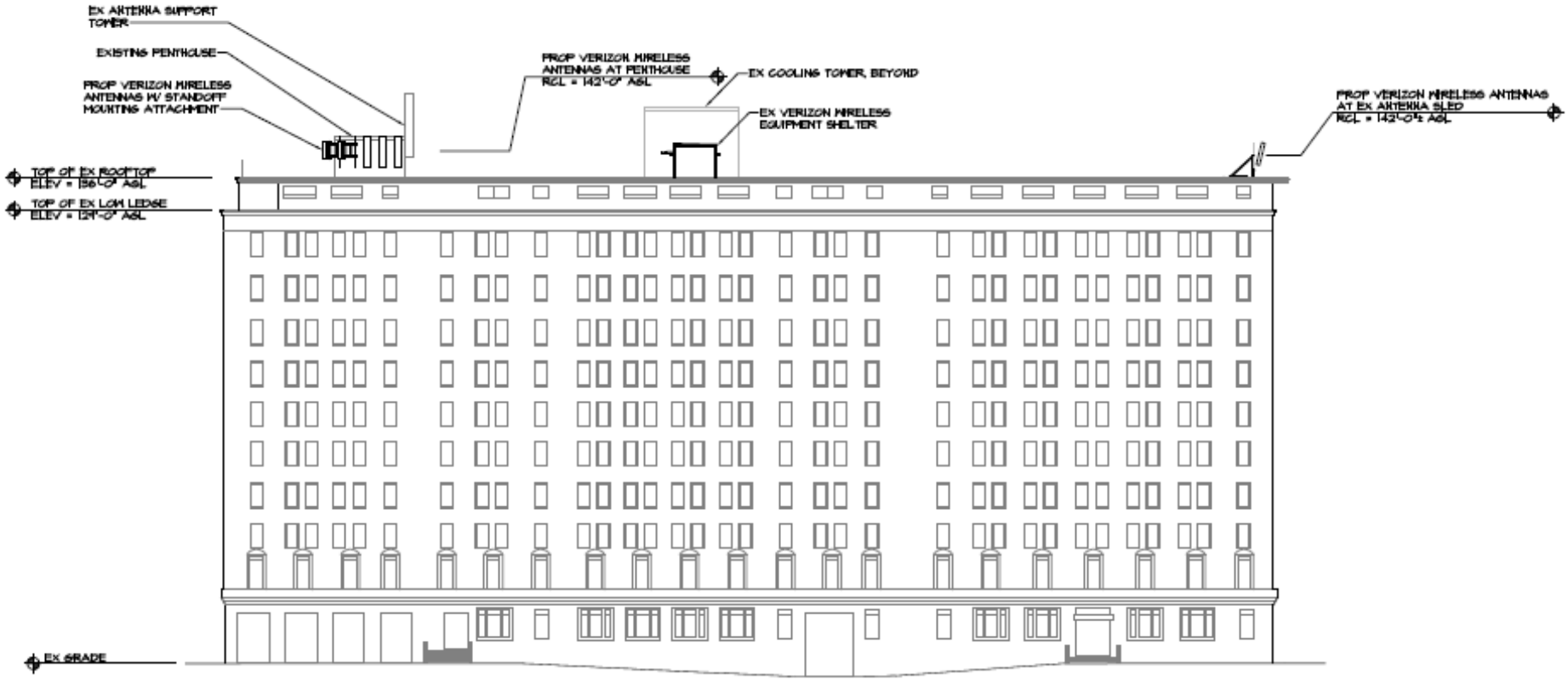
Beta and Gamma Sectors – Proposed



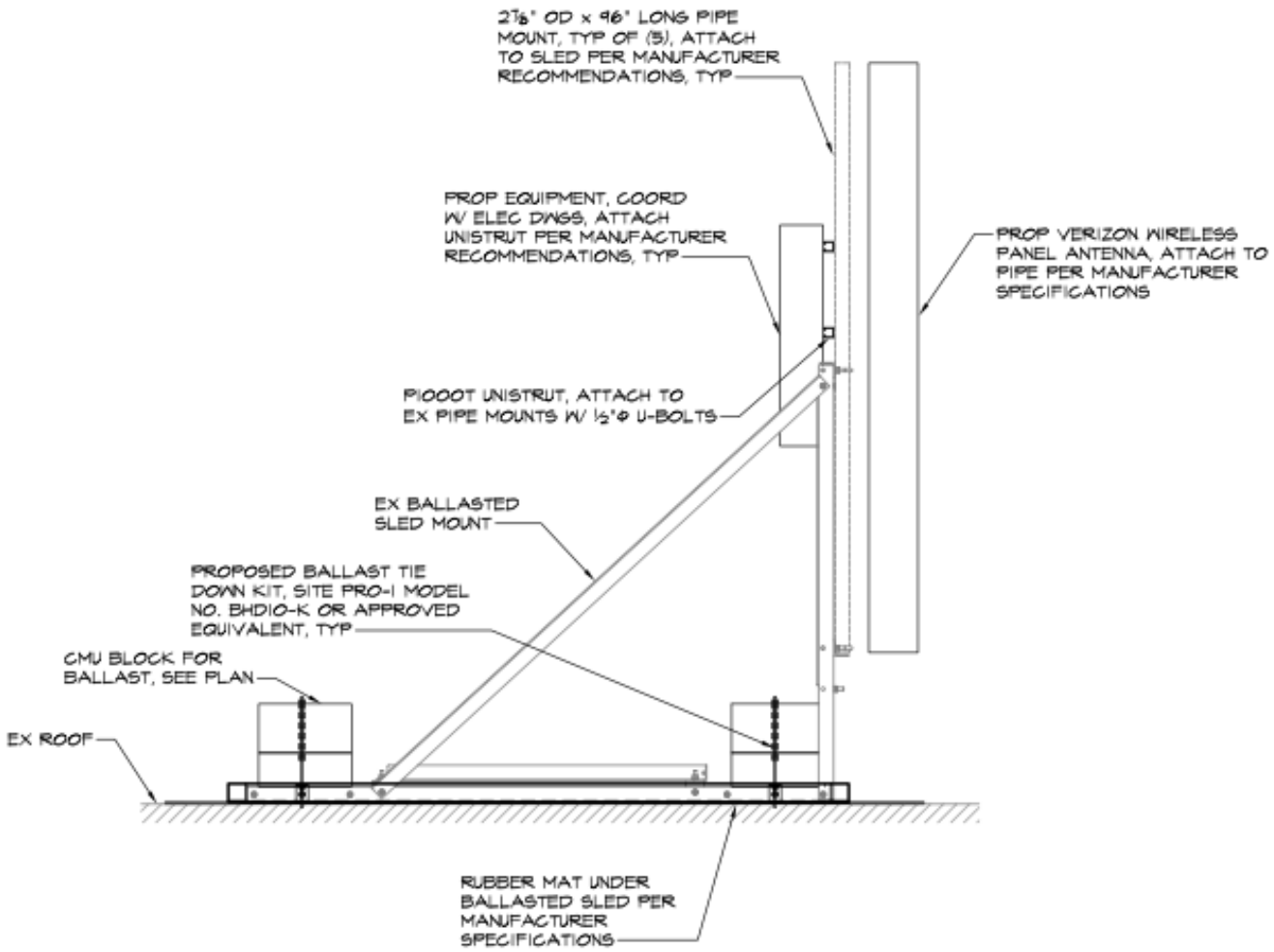
Partial Building Elevation – East, Existing



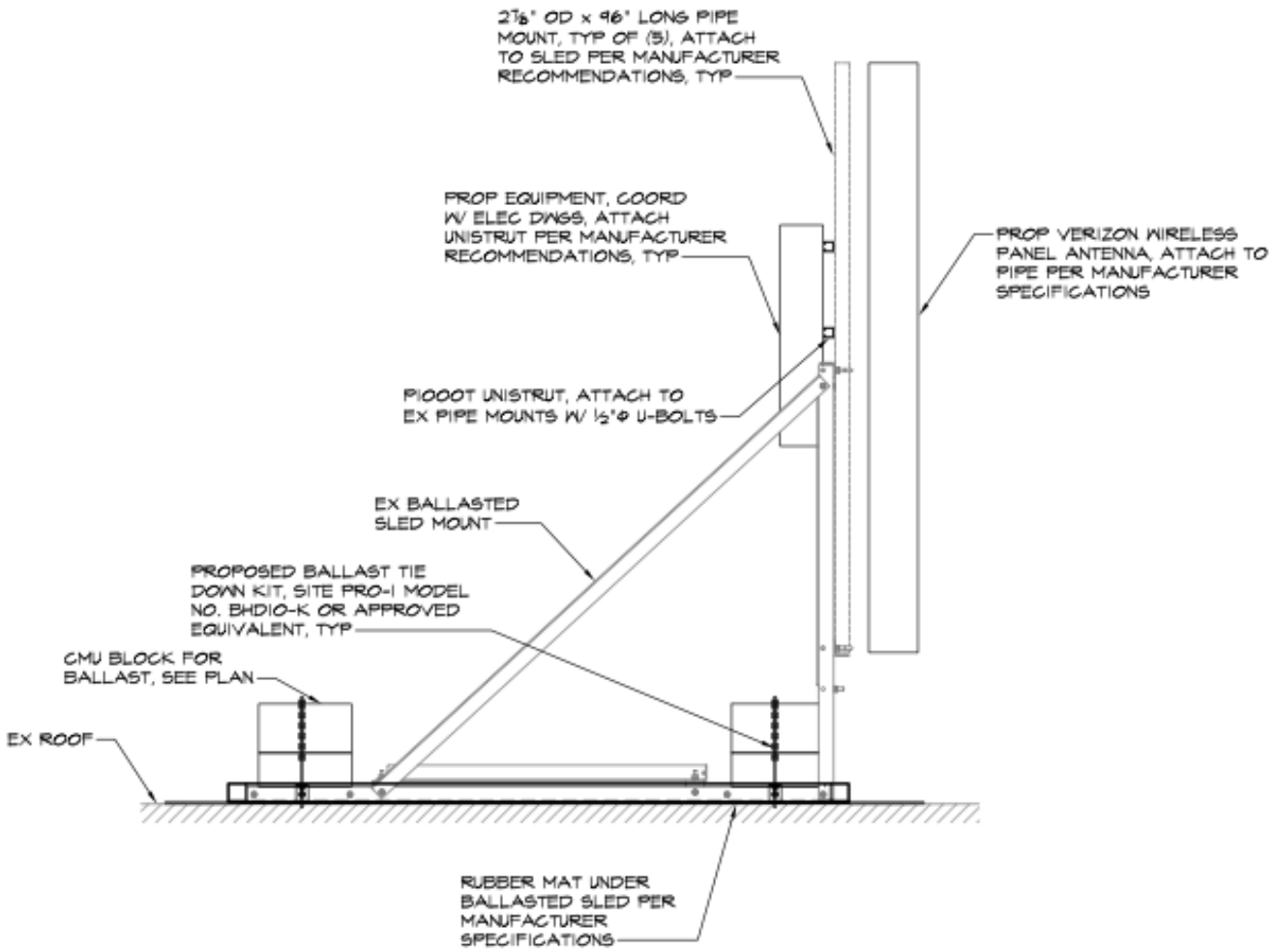
Building Elevation – East, Proposed



Ballasted Antenna Mount Detail



Ballasted Antenna Mount Detail



Proposed Antennas – JMA X7C-FRO-840-V

X7C-FRO-840-V

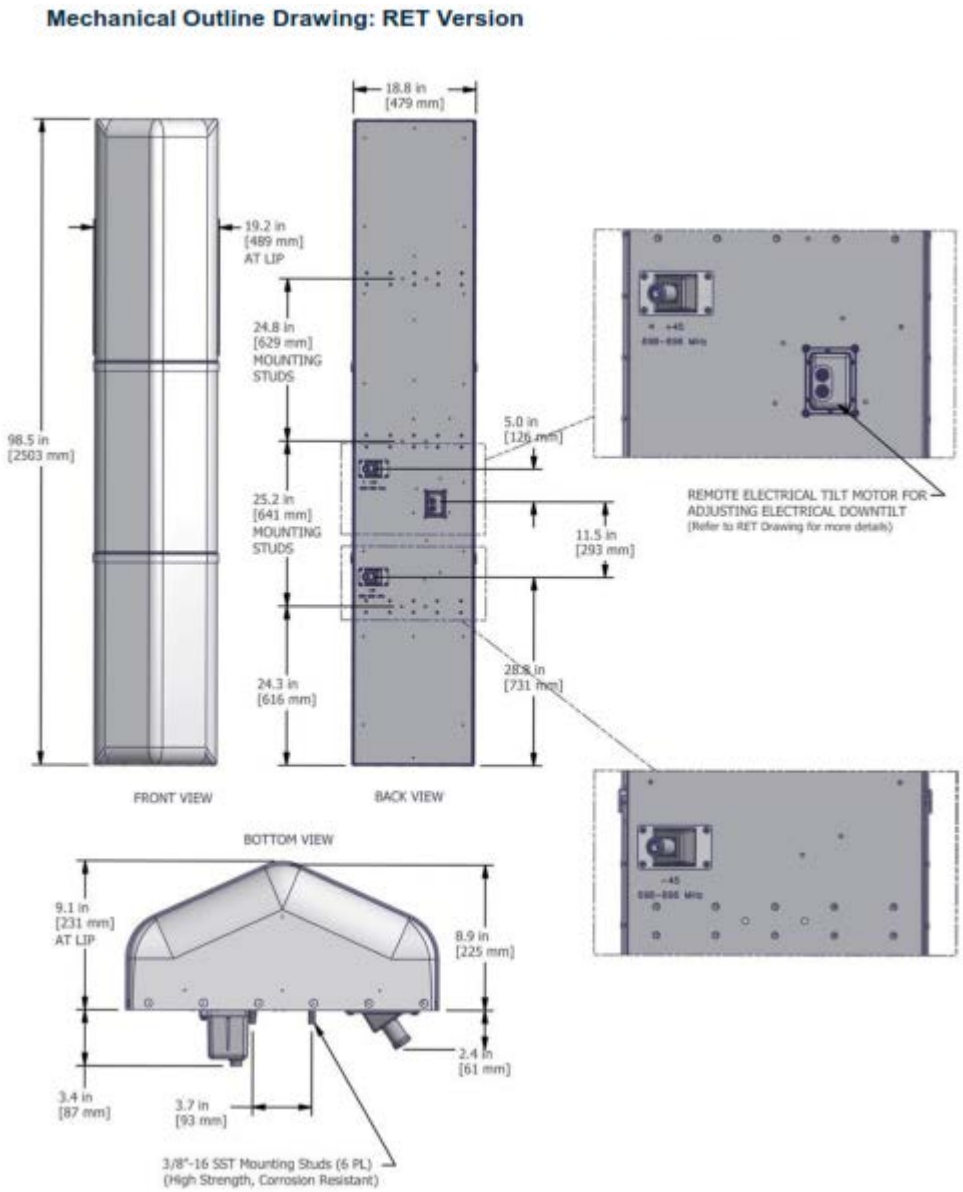
X-Pol Antenna, 698-896MHz, 98.5", Fast Roll off 40° Azimuth
Variable E-Tilt, RET

- Macro Cell Antenna
- Fast Roll Off (FRO)
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET control

ELECTRICAL SPECIFICATIONS		
Frequency Band, MHz	**698-824**	**824-896**
Horizontal Beamwidth, 3dB points	43°	37°
Gain, dBi	16.2	16.9
Vertical Beamwidth, 3dB points	9.3°	8.4°
Front-to-Back at 180°, dB	25	25
Upper Sidelobe Suppression, Typical, dB	-16	-16
Polarization	+/-45°	
Electrical Downtilt	0-6° or 4-10°	
VSWR/Return Loss, dB, Maximum	1.5:1/-14.0	
Isolation Between Ports, dB, Minimum	>28	
Intermodulation (2x20w), IM3, dBc	-150	
Impedance, ohms	50	
Maximum Power Per Connector, CW (w)	500	

QYT: 6

Proposed Antennas – JMA X7C-FRO-840-V



Proposed Antennas – JMA X7C-865-V

X7C-865-V

X-Polarization, 698-896 MHz, 96.0", 65° H-Beam

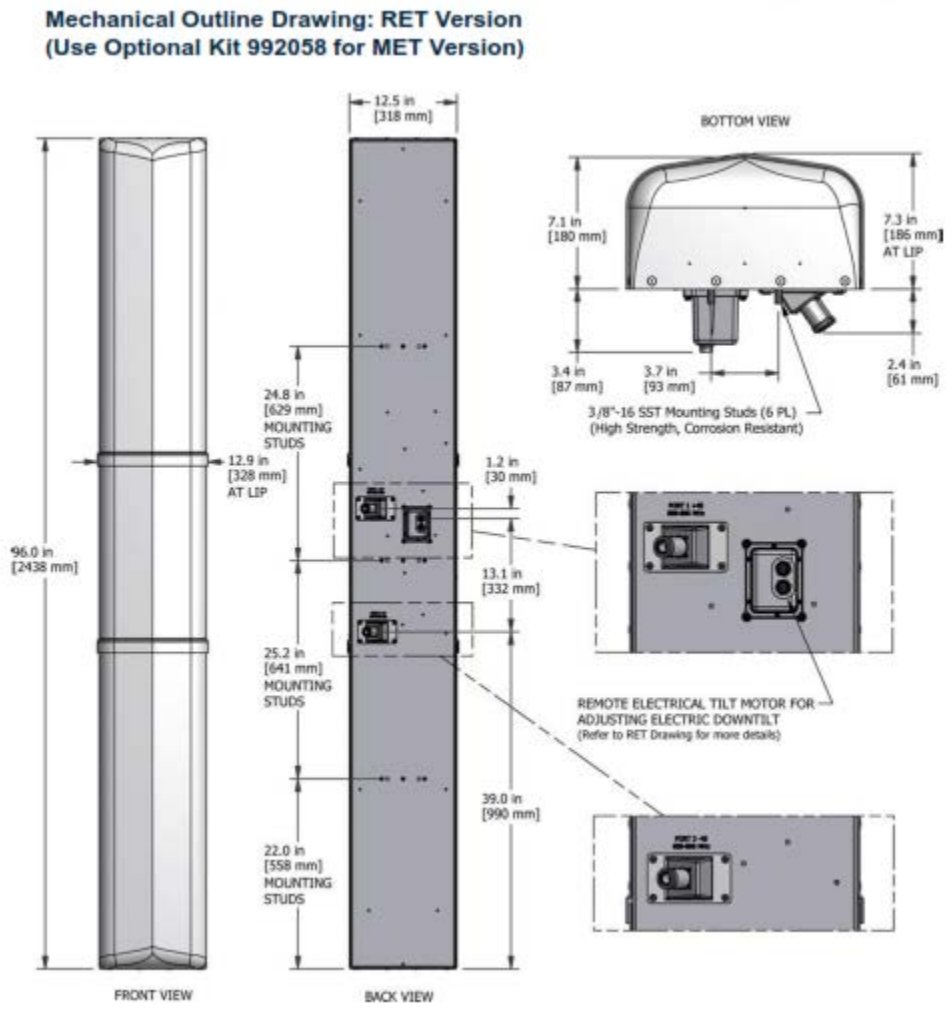
Variable E-Tilt, RET

- Macro Cell Antenna
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET control

ELECTRICAL SPECIFICATIONS		
Frequency Band, MHz	**698-824 MHz**	**824-896 MHz**
Horizontal Beamwidth, 3dB points	70°	65°
Gain, dBi	16.4	16.9
Vertical Beamwidth, 3dB points	9.3°	8.3°
Front-to-Back at 180°, dB	> 26	
Upper Sidelobe Suppression, Typical, dB	22	
Polarization	+/-45°	
Electrical Downtilt Range, 2° Increments	0-6° or 4-10°	
VSWR/Return Loss, dB, Maximum	1.5:1/-14.0	
Isolation Between Ports, dB, Minimum	>26	
Intermodulation (2x20w), IM3, dBc	-150	
Impedance, ohms	50	
Maximum Power Per Connector, CW (w)	500	

QTY: 3 (existing)

Proposed Antennas – JMA X7C-865-V



Proposed Antennas – Commscope HBXX 3817TB1

Product Specifications

COMMSCOPE®

HBXX-3817TB1-VTM | HBXX-3817TB1-A2M

Single Band Twin Beam Capacity Antenna, 1710–2180 MHz, 2x 38° horizontal beamwidth, RET compatible

- Enhances network capacity through six sectors site application with only three antenna faces
- Single panel design supporting two separate beams perfectly optimized at horizontal pointing angles of +27 degrees and –27 degrees from boresight
- Maximizes frequency spectrum utilization to increase Average Revenue Per User (ARPU)
- Reduces antenna count to minimize Cap-Ex and Op-Ex costs
- High gain with excellent sector edge roll-off and azimuth sidelobe suppression
- Each antenna downtilt can be independently adjusted for greater flexibility in network optimization

QTY: 6

Proposed Antennas – Commscope HBXX 3817TB1

Product Specifications

COMMSCOPE®

HBXX-3817TB1-VTM | HBXX-3817TB1-A2M

Antenna Type	Multibeam
Band	Single band
Brand	DualPol®
Operating Frequency Band	1710 – 2180 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	4
Wind Loading, frontal	438.0 N @ 150 km/h 98.5 lbf @ 150 km/h
Wind Loading, lateral	142.0 N @ 150 km/h 31.9 lbf @ 150 km/h
Wind Loading, rear	514.0 N @ 150 km/h 115.6 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Depth	181.0 mm | 7.1 in
Length	1390.0 mm | 54.7 in
Width	301.0 mm | 11.9 in
Net Weight, without mounting kit	16.5 kg | 36.4 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator	HBXX-3817TB1-A2M

RF Design Engineer Support Letter

verizonwireless

RE: Verizon Wireless
VA Building Site
810 Vermont Ave, NW
Washington, DC 20005

August, 10, 2016

To Whom It May Concern,

Verizon Wireless operates a Personal Communication Service authorized by the Federal Communications Commission (FCC) to provide state of the art digital wireless communications in many parts of the nation, including Washington, DC. Verizon Wireless' operations and network are licensed and regulated by the FCC.

The antennas, as proposed and designed for the above noted site, are in compliance with all applicable FCC requirements. In addition, the proposed site meets all applicable ANSI/IEEE C95.1-1992 exposure levels, as adopted by the FCC requirements.

Antenna Model: CSS X7C-FRO-840	ERP = 275 Watts/MHz (Low Band)
Commscope HBXX-3817TB	EIRP=340 Watts/MHz (High Band)
CSS X7C-865	ERP= 450 Watts (850 Band)

The means used to determine the RF levels for this installation were generated thru the "link budget" i.e. computer model calculation. This formula determines the RF level by calculating the transmit power, antenna gain and equipment specifications of the base station components.

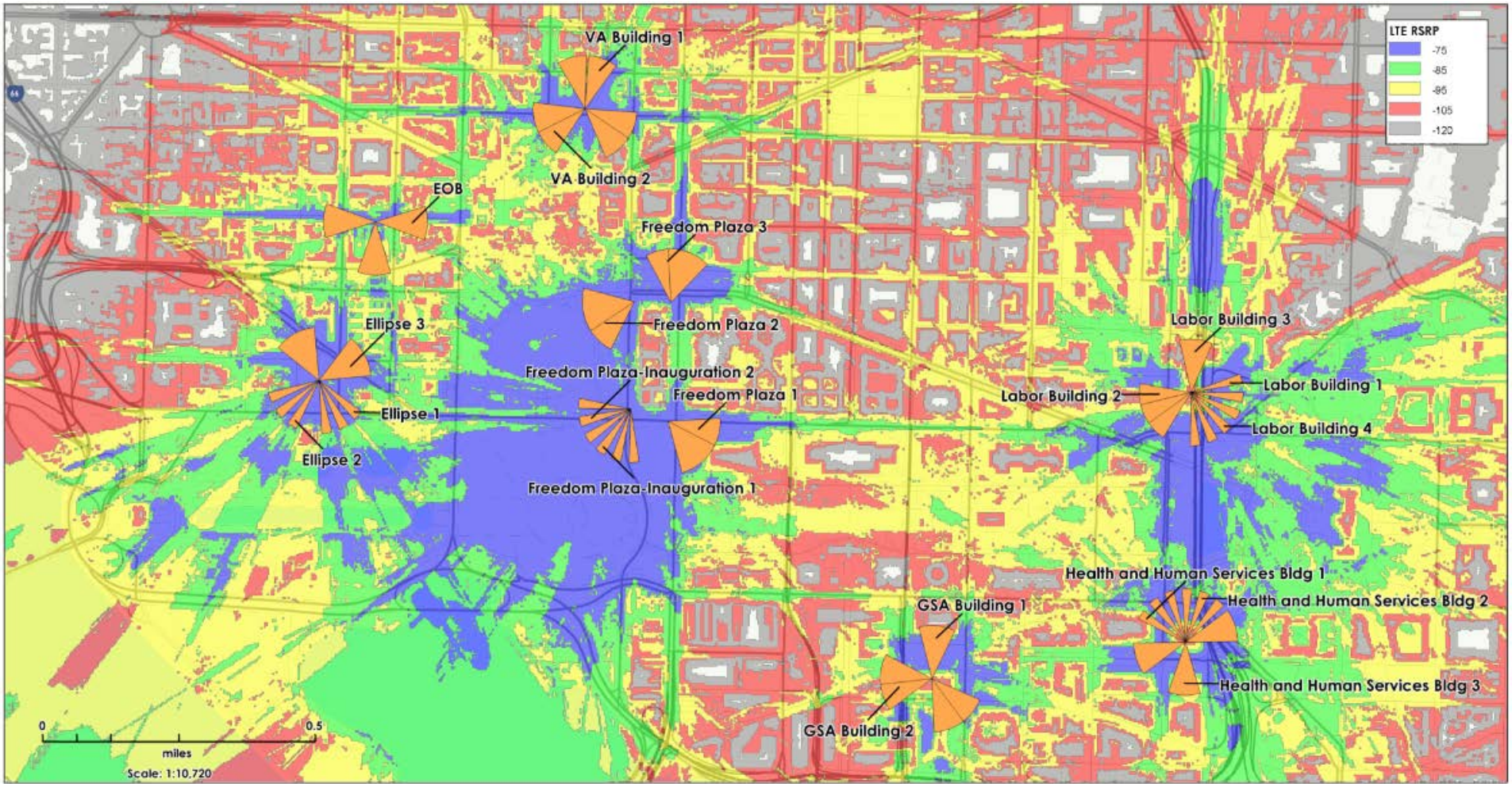
Verizon Wireless is committed to compliance with all government regulations and standards. Please contact Verizon Wireless if you have any questions regarding this matter.

Sincerely,

Roque Fial

Roque Fial
RF Design Engineer / Verizon Wireless
7600 Montpelier Road
Laurel, MD 20723
301-512-2406

RF Propagation Map – Overview



EOB: GSA Central Office

Ellipse: DOI South Annex

GSA Building: GSA Regional Office Building (ROB)

Health and Human Services: HHS/Hubert Humphrey

VA Building: Veterans' Affairs

Freedom Plaza: Department of Commerce

Labor Building: DOL/Frances Perkins

RF Propagation Map – VA Building

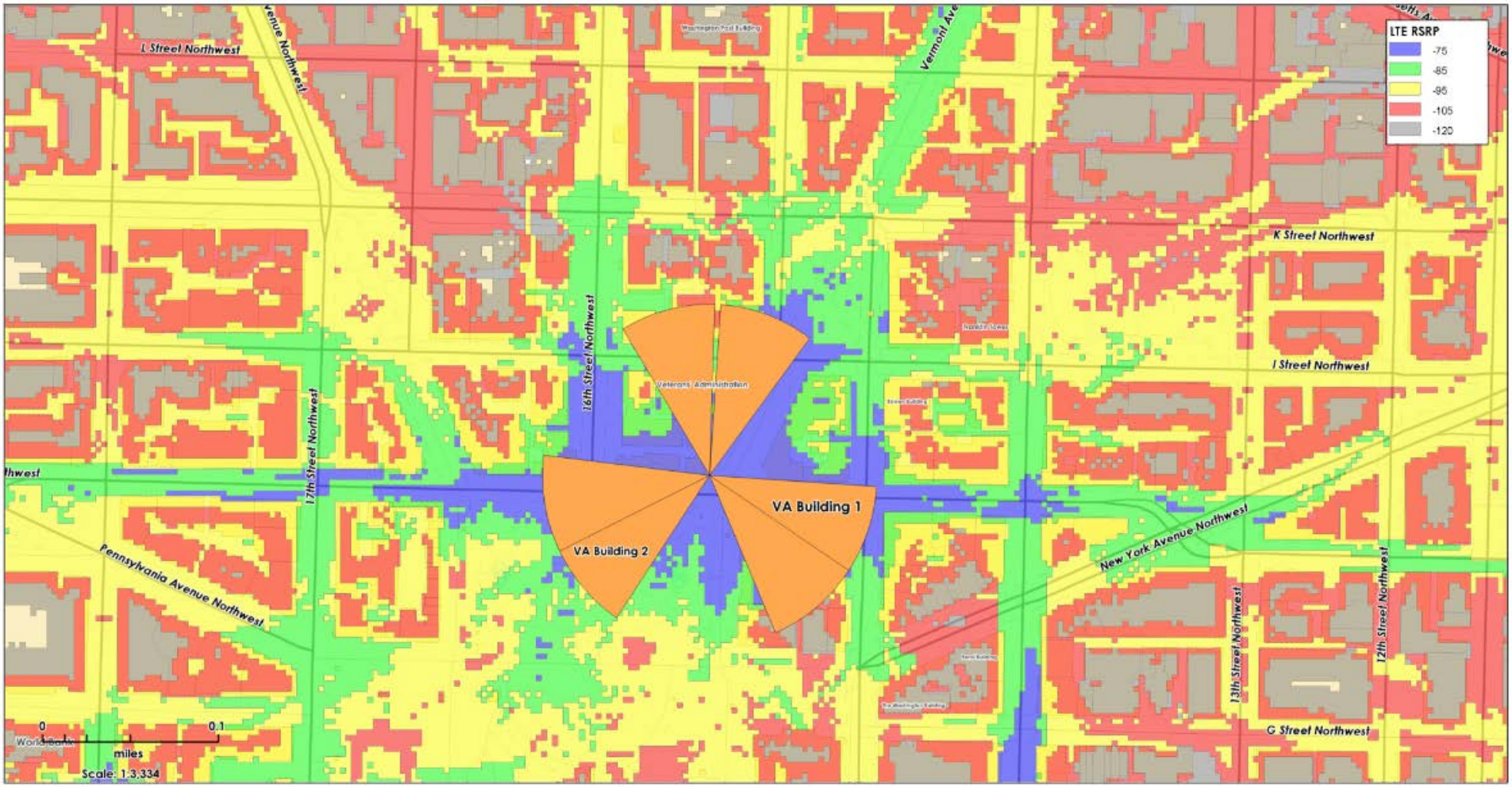


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PHOTO SIMULATIONS

Photo Simulation Location Legend

View One, Madison Place – Not Visible

View Two, McPherson Square – Existing Condition

View Two, McPherson Square – Proposed

View Three, I Street and 16th Street – Not Visible

View Four, Lafayette Square – Existing Condition

View Four, Lafayette Square – Proposed