

**BOARD OF ADJUSTMENT - APPLICATION FOR CONDITIONAL USE PERMIT
(Communication Antenna or Tower or Wind Energy Conversion System)**

TO: Board of Adjustment
Community Development Department
City Hall, 701 E. Broadway, Columbia, Missouri 65201

SUBJECT: Notice of application in regard to the following described property located in the City of Columbia, County of Boone, State of Missouri (legal description):

See Legal Description attached to this Application for Conditional Use Permit as Exhibit A.

Which is presently zoned **PD Planned Development** and known, or to be known, as **1205 W. Broadway Street, Columbia, Missouri 65203** (Street Number and Name)

County Assessor's 14 Digit Real Estate Tax Number: **163170016009001**

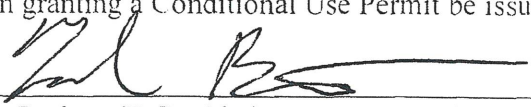
Notice is hereby given that Applicant(s) hereby applies to the Board of Adjustment of the City of Columbia, Missouri for a Conditional Use Permit to make the following use of the above described property (attached additional pages for response or separate letter detailing desired use of property):

Applicant SBA Towers II LLC submits this CUP Application seeking to modify its existing 110-foot-tall cell tower, which was approved by the City pursuant to CUP issued in 2012 and is located on the property identified above, from a stealth design to a monopole design, as for fully explained in the exhibits attached hereto.

The Board of Adjustment is authorized to grant said permit in accordance with the use-specific standards established in **Section 29-3.3 and 29-6.4(m)(2)(i) and (ii)**, as applicable, City of Columbia Code of Ordinances. The applicant hereby acknowledges reading Section 29-6.4(m) and **providing supplemental documentation to completely answer the "Criteria for Approval" questions** of said section, as applicable, and further understands failure to provide responses to said questions may constitute an incomplete application or result in Board denial of the application.

Applicant(s) requests that a Certificate of Decision granting a Conditional Use Permit be issued by the Board of Adjustment.

September 26, 2025
DATE


SIGNATURE(S) 
PRINTED NAME: Zachary T. Buchheit, Attorney at Stinson LLP
ADDRESS: 7700 Forsyth Blvd., Suite 1100, St. Louis, MO 63015
TELEPHONE: 314-345-7038

CAPACITY OR INTEREST IN PROPERTY: Applicant SBA Towers II LLC is a lessee of the property from landowner Broadway Office Park Condominium Association, as demonstrated by the documents attached hereto as Exhibits B, C, and D.

This application is hereby acknowledged as being received for Board of Adjustment consideration by:

COMMUNITY DEVELOPMENT DIRECTOR OR DESIGNEE

DATE

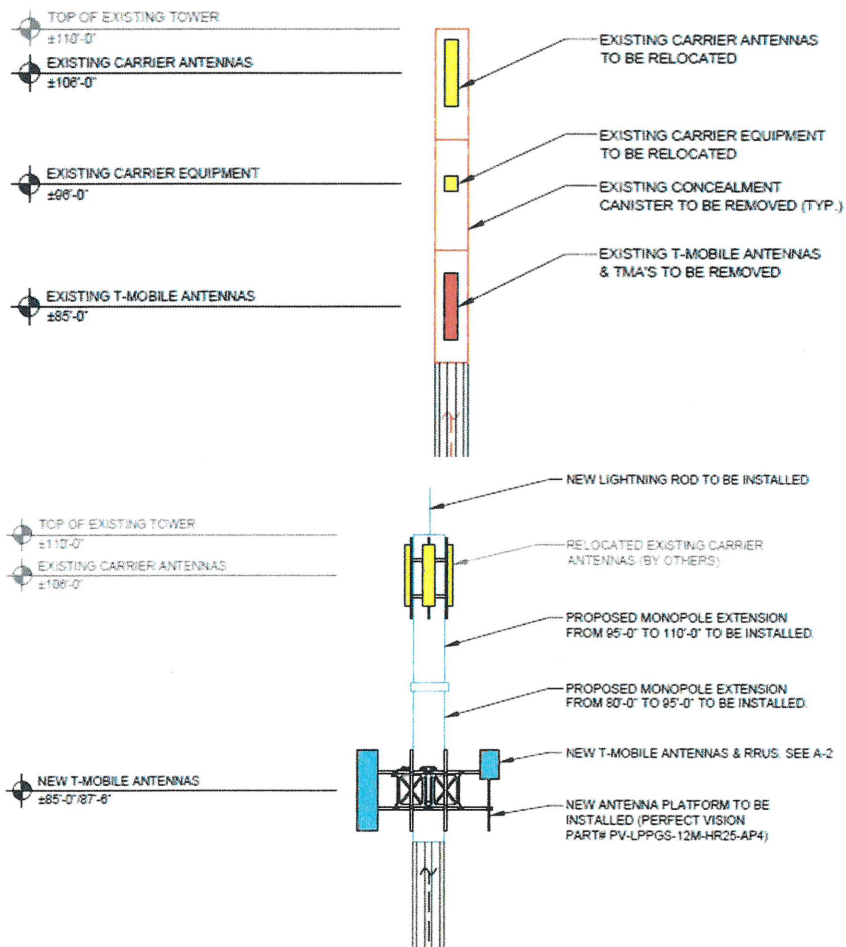

9/29/2025

ADDITIONAL INFO ABOUT CUP APPLICATION / CODE CRITERIA RESPONSES

Summary of the Modification Requested in this CUP Application:

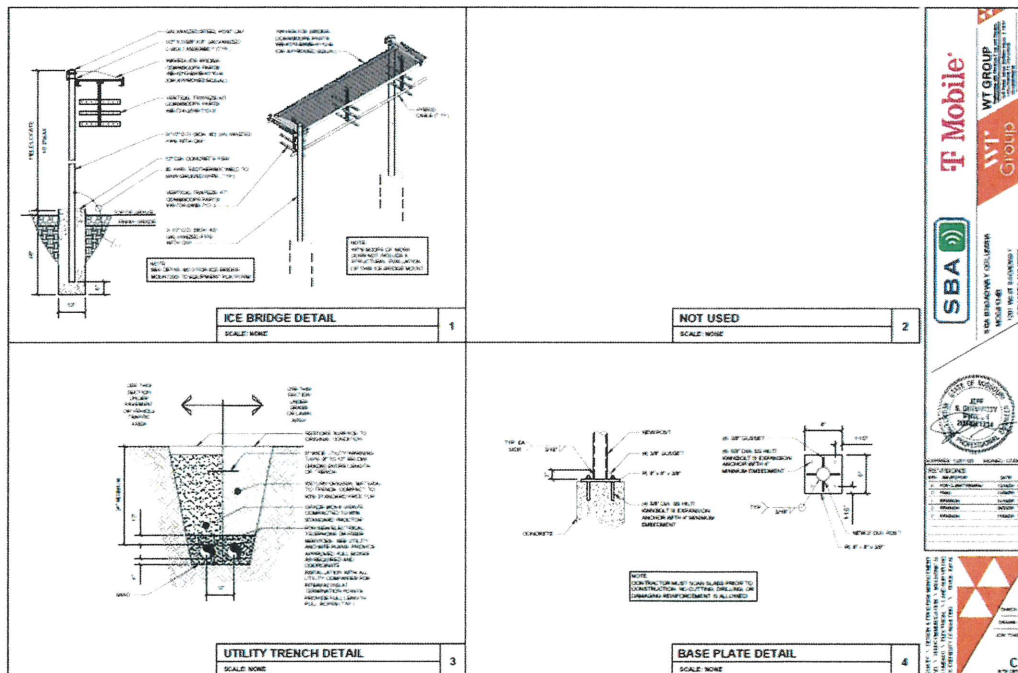
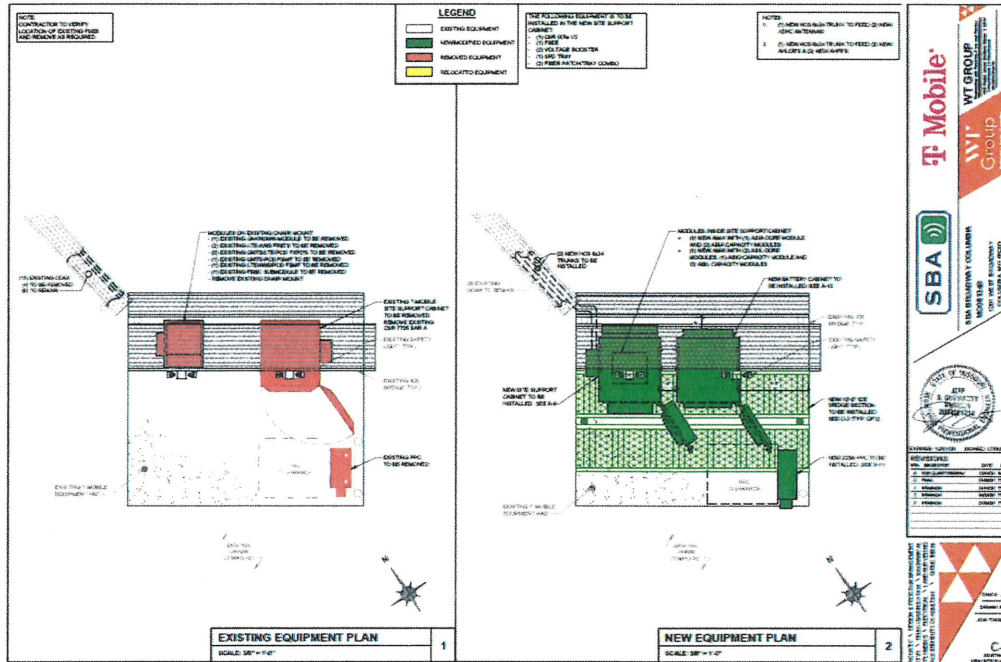
This CUP application is not for construction of a new cell tower, but instead is for the modification of an existing 110-foot-tall tower to convert it from a stealth design to a monopole design. The existing tower was approved by the City pursuant to a CUP issued on September 11, 2012. On the existing tower, T-Mobile is mounted at 85 feet and AT&T is mounted at 106 feet, and there is availability for additional equipment to be mounted at 75 feet and also 96 feet. These mounting heights and collocation abilities will not change with the requested modification, so this tower provides four (4) antenna arrays.

The location and height (among other things) of the tower will not change as part of this modification. Instead, the modification will involve removal of the top three canisters and all internal equipment from 80 feet to 110 feet on the existing tower, and replacement of this 30-foot area with a new monopole section. A new platform extending less than 20 feet horizontally (less than 10 feet on each side of the monopole) will be installed at the 85-foot-mark to support T-Mobile equipment, along with six antennas and six remote radio units on the platform, matching existing T-Mobile antenna elevation. Additionally, all existing AT&T equipment at the 106-foot-mark will be removed and replaced with flush mounted equipment at this same height. All cabling will be routed inside the new monopole structure. These modifications from the 80-foot-mark to the 110-foot-mark on the existing tower are reflected in the design drawing pasted below:



ADDITIONAL INFO ABOUT CUP APPLICATION / CODE CRITERIA RESPONSES

As for the equipment installed on the ground as part of the modification, all such equipment will remain within the existing compound area. There currently are two cabinets installed in the compound. One of those two cabinets will be removed and replaced with a cabinet similar in appearance and size to the other existing cabinet, which will remain unchanged. The new cabinets, like the existing cabinets, comply with the Code's size requirements. Additionally, the existing power plant controller will be replaced with a similar unit either of the same size or only negligibly larger. Additionally, two ice bridges will be installed over the ground equipment as part of this modification, with each being a maximum height of 10-feet-tall and depicted in the design drawings pasted below:



ADDITIONAL INFO ABOUT CUP APPLICATION / CODE CRITERIA RESPONSES

Explanation of Reason for the Modification Requested in this CUP Application:

T-Mobile is not able to provide Ultra Capacity 5G coverage from the existing stealth-designed tower based on equipment limitations in stealth towers. But T-Mobile will be able to provide Ultra Capacity 5G coverage from the modified monopole-designed tower. So this requested modification and conversion is necessary to support T-Mobile's equipment and technologies to add Ultra Capacity 5G to the surrounding area, which will increase T-Mobile's coverage and speed and improve the connection for the community and the residents in the surrounding area, which in turn improves the quality of life for the surrounding subdivisions and the commercial areas nearby, including restaurants and businesses such as Anytime Fitness, Gerbes Bakery and Deli, Shelter Insurance, ARC Activity and Recreation Center, Cleek's Home Furnishings, and Columbia/Boone County Public Health and Human Services.

Modification Requested Is Not Uncommon:

In June 2024, SBA successfully completed the conversion of a stealth canister tower to a full monopole tower with exterior mounts on the University of Missouri's nearby campus. The University was fully supportive of the tower enhancements and promptly approved the conversion.

Restrictions Imposed on Zoning Authorities by Mo. Rev. Stat. § 67.5094:

In 2014, the Missouri Legislature enacted Mo. Rev. Stat. § 67.5094 as part of its passage into law of the Uniform Wireless Communications Infrastructure Deployment Act. Mo. Rev. Stat. § 67.5094 specifically prohibits local zoning authorities, such as the City of Columbia, from requiring or considering certain information or documents as part of a CUP application for a new or modified cell tower. In pertinent part related to SBA's CUP application, Mo. Rev. Stat. § 67.5094 states as follows:

In order to ensure uniformity across the state of Missouri with respect to the consideration of every application, an authority shall not:

- (1) Require an applicant to submit information about, or evaluate an applicant's business decisions with respect to its designed service, customer demand for service, or quality of its service to or from a particular area or site;
- (2) Evaluate an application based on the availability of other potential locations for the placement of wireless support structures or wireless facilities, including without limitation the option to collocate instead of construct a new wireless support structure or for substantial modifications of a support structure, or vice versa; provided, however, that solely with respect to an application for a new wireless support structure, an authority may require an applicant to state in such applicant's application that it conducted an analysis of available collocation opportunities on existing wireless towers within the same search ring defined by the applicant, solely for the purpose of confirming that an applicant undertook such an analysis; for collocation to any certified historic structure as defined in section 253.545, in addition to all other applicable time requirements, there shall be a thirty-day time period before approval of an application. During such time period, an authority shall hold one or more public hearings on collocation to a certified historic structure;

ADDITIONAL INFO ABOUT CUP APPLICATION / CODE CRITERIA RESPONSES

(3) Dictate the type of wireless facilities, infrastructure or technology to be used by the applicant, including, but not limited to, requiring an applicant to construct a distributed antenna system in lieu of constructing a new wireless support structure; . . .

(16) Impose any requirements or obligations regarding the presentation or appearance of facilities, including, but not limited to, those relating to the kind or type of materials used and those relating to arranging, screening, or landscaping of facilities if such regulations or obligations are unreasonable.

Mo. Rev. Stat. § 67.5094(3) and (16) above preclude the City from denying SBA's CUP for a modification of an existing tower from stealth to monopole design, as any such denial would "dictate the type of wireless facilities, infrastructure and technology" used by SBA and would impose unreasonable requirements or obligations on SBA regarding the presentation and appearance of its facilities.

Columbia, Missouri Code of Ordinances Section 29-6.4(m)(2)(i) General Criteria:

SBA submits the following responses to the general criteria identified in Section 29-6.4(m)(2)(i) of the City's Code of Ordinances:

- (A) The proposed conditional use complies with all standards and provisions in this chapter applicable to the base and overlay zone district where the property is located;

SBA Response: This tower is located on property zoned PD Planned Development, and it complies with all applicable standards and provisions in the Code of Ordinances. See also Mo. Rev. Stat. § 67.5094(3) and (16) above, which preclude an authority from "dictat[ing] the type of wireless facilities, infrastructure and technology" used by SBA or imposing unreasonable requirements or obligations on SBA regarding the presentation and appearance of its facilities.

- (B) The proposed conditional use is consistent with the city's adopted comprehensive plan;

SBA Response: The proposed use aligns with the goals of Columbia Imagined, the City's comprehensive plan, which supports infrastructure improvements that enhance connectivity and public safety. Specifically, among other things, the proposed use furthers the following goal from the comprehensive plan: "Working with communications providers, to install the best wireless and fiber networks and emerging technologies." (See pages 93 (Goal 5) and Page 143 (Policy Two)). The conversion will improve cellular service in the area, supporting both residential and commercial needs, in furtherance of Columbia Imagined. (See Section 1.3 Infrastructure, page 37) (<https://www.como.gov/wp-content/uploads/2021/02/ColumbiaImagined-FINAL.pdf>)

- (C) The proposed conditional use will be in conformance with the character of the adjacent area, within the same zoning district, in which it is located. In making such a determination, consideration may be given to the location, type and height of buildings or structures and the type and extent of landscaping and screening on the site;

ADDITIONAL INFO ABOUT CUP APPLICATION / CODE CRITERIA RESPONSES

SBA Response: The surrounding area includes a mix of residential, commercial, and institutional uses. While the stealth design of the existing tower was originally intended to minimize visual impact, the proposed monopole will be designed with neutral colors and minimal lighting to blend with the environment. Moreover, the location and height of the existing tower, and the landscaping and screening on the site, will not change as part of the conversion from stealth to monopole design.

- (D) Adequate access is provided and is designed to prevent traffic hazards and minimize traffic congestion;

SBA Response: Access to the site remains unchanged and is sufficient for maintenance and emergency response of the tower as modified. The conversion will not generate additional traffic, congestion, or traffic hazards, and no modifications to public access routes are required.

- (E) Sufficient infrastructure and services exist to support the proposed use, including, but not limited to, adequate utilities, storm drainage, water, sanitary sewer, electricity, and other infrastructure facilities are provided; and

SBA Response: All necessary infrastructure is in place to support the upgraded monopole tower, including utilities, storm drainage, water, sanitary sewer, electricity, and other infrastructure. No additional utility extensions or upgrades are needed.

- (F) The proposed conditional use will not cause significant adverse impacts to surrounding properties.

SBA Response: The proposed conversion from stealth to monopole will not cause significant adverse impacts to surrounding properties. In fact, the upgrade from stealth to monopole design will enhance telecommunications service by allowing carriers on the tower to make new 5G coverage available to the surrounding area (where it is currently unavailable), which is a significant public benefit specific to the surrounding properties.

Columbia, Missouri Code of Ordinances Section 29-6.4(m)(2)(ii) Criteria for Communication Antennas and Towers:

SBA submits the following responses to the criteria for communication antennas and towers identified in Section 29-6.4(m)(2)(ii) of the City's Code of Ordinances:

- (A) Whether or not existing towers are located within the geographic area necessary to meet the applicant's engineering requirements;

SBA Response: Mo. Rev. Stat. § 67.5094(1)-(2) precludes the City from requiring SBA to provide the requested information or from evaluating the requested information as part of its consideration of SBA's CUP application. However, SBA and T-Mobile conducted an analysis of potential available collocation opportunities on existing wireless towers within the necessary and applicable coverage area but no

ADDITIONAL INFO ABOUT CUP APPLICATION / CODE CRITERIA RESPONSES

such available towers exist. Moreover, SBA's CUP application seeks to modify and convert an existing stealth tower to a monopole design, so this criteria does not apply.

- (B) Whether or not existing towers, structures or buildings within the applicant's required geographic area are of sufficient height to meet system engineering requirements;

SBA Response: Mo. Rev. Stat. § 67.5094(1)-(2) precludes the City from requiring SBA to provide the requested information or from evaluating the requested information as part of its consideration of SBA's CUP application. However, SBA and T-Mobile conducted an analysis of potential available collocation opportunities on existing towers, structures, and buildings within the necessary and applicable coverage area but no such available towers, structures or buildings exist. Moreover, SBA's CUP application seeks to modify and convert an existing stealth tower to a monopole design, so this criteria does not apply.

- (C) Whether or not existing towers or structures have sufficient structural strength to support the applicant's proposed antenna;

SBA Response: Mo. Rev. Stat. § 67.5094(1)-(2) precludes the City from requiring SBA to provide the requested information or from evaluating the requested information as part of its consideration of SBA's CUP application. However, SBA and T-Mobile conducted an analysis of potential available collocation opportunities on existing towers and structures within the necessary and applicable coverage area but no such available towers or structures exist. Moreover, SBA's CUP application seeks to modify and convert an existing stealth tower to a monopole design, so this criteria does not apply. In any event, SBA's existing tower has sufficient structural strength to support the proposed modification. See the attached Exhibit / Attachment I, showing a passing structural analysis after the proposed modifications are incorporated.

- (D) Whether or not the fees, costs, or other contractual terms required by the owner(s) of existing tower(s), structure(s) or building(s) within the required geographic area of the applicant or to retrofit the existing tower(s) or structure(s) are reasonable;

SBA Response: Mo. Rev. Stat. § 67.5094(1)-(2) precludes the City from requiring SBA to provide the requested information or from evaluating the requested information as part of its consideration of SBA's CUP application. However, SBA and T-Mobile conducted an analysis of potential available collocation opportunities on existing towers, structures, and buildings within the necessary and applicable coverage area but no such available towers, structures, or buildings exist. Moreover, SBA's CUP application seeks to modify and convert an existing stealth tower to a monopole design, so this criteria does not apply.

- (E) Whether or not there are other limiting conditions that render existing towers, structures or buildings within the applicant's required geographic area unsuitable;

SBA Response: Mo. Rev. Stat. § 67.5094(1)-(2) precludes the City from requiring SBA to provide the requested information or from evaluating the requested

ADDITIONAL INFO ABOUT CUP APPLICATION / CODE CRITERIA RESPONSES

information as part of its consideration of SBA's CUP application. However, SBA and T-Mobile conducted an analysis of potential available collocation opportunities on existing towers, structures, and buildings within the necessary and applicable coverage area but no such available towers, structures, or buildings exist. Moreover, SBA's CUP application seeks to modify and convert an existing stealth tower to a monopole design, so this criteria does not apply.

- (F) Whether or not the proposal minimizes the number and size of towers or structures that will be required in the area;

SBA Response: The proposal minimizes the number and size of towers required in the area by utilizing an existing site with an existing tower and simply converting that existing tower from a stealth to monopole design. Rather than constructing a new tower, the applicant is converting an existing tower to make it more usable and to provide additional and improved service and coverage to the community in the area, thereby reducing visual clutter and land use impact.

- (G) Whether or not the applicant has previously failed to take advantage of available shared use opportunities provided by this section or otherwise; and

SBA Response: Mo. Rev. Stat. § 67.5094(1)-(2) precludes the City from requiring SBA to provide the requested information or from evaluating the requested information as part of its consideration of SBA's CUP application. However, SBA and T-Mobile conducted an analysis of potential available collocation opportunities on existing towers, structures, and buildings within the necessary and applicable coverage area but no such available towers, structures, or buildings exist. Moreover, SBA's CUP application seeks to modify and convert an existing stealth tower to a monopole design, so this criteria does not apply. Regardless, SBA has not previously failed to take advantage of shared use opportunities. The existing stealth tower was previously approved in 2012 as a stealth monopole design, which limits carrier ability to upgrade equipment. The proposed change to standard monopole will be engineered to support co-location and newer 5G technology.

- (H) Whether or not the applicant has provided sufficient evidence indicating that the tower will be made available for use by others, subject to reasonable technical limitations and reasonable financial terms.

SBA Response: The proposed monopole will be made available for shared use by other carriers, subject to reasonable technical limitations and financial terms. On the existing stealth tower, T-Mobile is mounted at 85 feet and AT&T is mounted at 106 feet, and there is availability for additional equipment to be mounted at 75 feet and also 96 feet. These mounting heights and collocation abilities will not change with the requested modification. The design will include capacity for multiple antenna arrays, promoting infrastructure efficiency and reducing the need for additional towers.

ANCHOR



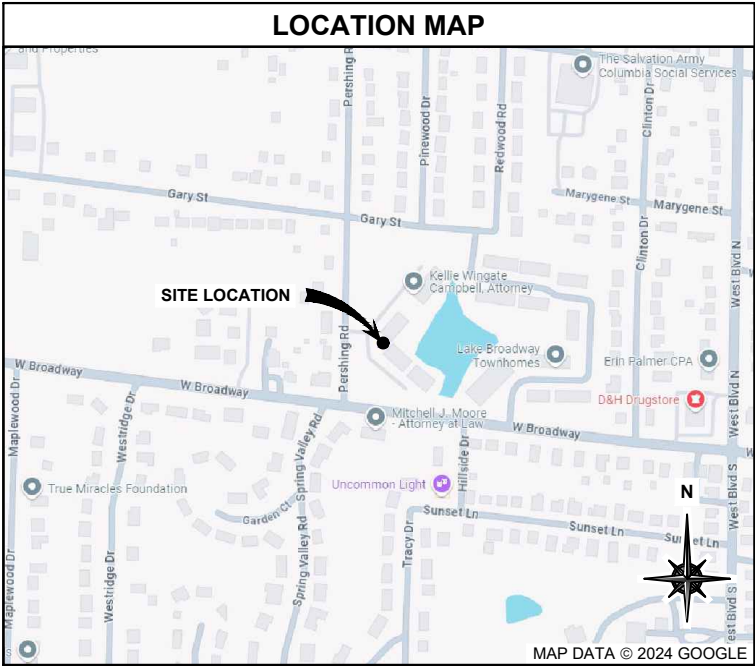
By rhooker at 9:38:15 AM, 7/14/2025

SITE NUMBER:
MO08134B
SITE NAME:
SBA BROADWAY COLUMBIA

SBA SITE NUMBER:
MO17428-A-02
SBA SITE NAME:
WEST BROADWAY

JURISDICTION:
CITY OF COLUMBIA
SITE TYPE:
STEALTH MONOPOLE

SITE ADDRESS:
1201 WEST BROADWAY
COLUMBIA, MO 65203
BOONE COUNTY




PROJECT DESCRIPTION
NO NEW WATER OR SEWER IS REQUIRED AS FACILITY IS UNMANNED.
EXISTING T-MOBILE BUILD OUT:
(3) ANTENNAS, (6) TMA'S, (12) COAX, (4) RF MODULES, (1) UNKNOWN MODULE, (2) SYSTEM MODULES, (1) CHAIR MOUNT & (1) SSC AT GRADE
FINAL T-MOBILE BUILD OUT:
(6) ANTENNAS, (6) RRU'S, (2) HCS 6x24 TRUNKS, (8) COAX, (1) SITE SUPPORT CABINET, (1) BBU CABINET, & (2) AMIA'S IN SSC
SCOPE OF WORK:
<ul style="list-style-type: none">- EXISTING CONCEALMENT CANISTER TO BE REMOVED & NEW TOWER SECTION TO BE INSTALLED- NEW ANTENNA PLATFORM TO BE INSTALLED- REMOVE (3) EXISTING ANTENNAS- REMOVE (6) EXISTING TMA'S AT ANTENNAS- REMOVE (4) EXISTING COAX- REMOVE (1) EXISTING UNKNOWN MODULE- REMOVE (2) EXISTING LTE-AWS FRIE'S- REMOVE (2) EXISTING UMTS/LTE-PCS FXFC'S- REMOVE (1) EXISTING UMTS-PCS FSMF- REMOVE (1) EXISTING LTE/AWS/PCS FSMF- REMOVE (1) EXISTING FBBC SUBMODULE- REMOVE (1) EXISTING SITE SUPPORT CABINET- REMOVE (1) EXISTING CHAIR MOUNT- INSTALL (2) NEW ICE BRIDGE SECTIONS- REMOVE EXISTING FSEE- INSTALL NEW FSEE- REMOVE EXISTING PPC- INSTALL NEW 225A PPC- INSTALL (3) NEW ANTENNAS (1 PER SECTOR)- INSTALL (3) NEW ANTENNAS W/ INTEGRATED RRU'S (1 PER SECTOR)- INSTALL (3) NEW AHFII'S (1 PER SECTOR)- INSTALL (3) NEW AHLOB'S (1 PER SECTOR)- INSTALL (2) NEW HCS 6x24 TRUNKS- INSTALL (1) NEW SITE SUPPORT CABINET- INSTALL (1) NEW BBU CABINET- INSTALL (1) NEW AMIA WITH (1) ASIA CORE MODULE AND (2) ABIA CAPACITY MODULES- INSTALL (1) NEW AMIA WITH (2) ASIL CORE MODULES, (1) ABIO CAPACITY MODULE AND (3) ABIL CAPACITY MODULES- REMOVE EXISTING CSR 7705 SAR A- INSTALL NEW CSR IXRe V2

PROJECT TEAM	
<u>A&E:</u> WT GROUP, LLC. 2675 PRATUM AVENUE HOFFMAN ESTATES, IL 60192 CONTACT: TIM KUEN TEL: (224) 293-6333 FAX: (224) 293-6444	<u>SITE ACQUISITION:</u> SBA COMMUNICATION CORPORATION 8051 CONGRESS AVENUE BOCA RATON, FL 33487-1307 TEL: (800) 487-SITE (7483)
<u>APPLICANT:</u> T-MOBILE 6200 SPRINT PKWY OVERLAND PARK, KS 66211 TEL: (855) 977-5086 CONTACT: T.B.D	<u>TOWER OWNER:</u> SBA COMMUNICATION CORPORATION 8051 CONGRESS AVENUE BOCA RATON, FL 33487-1307 TEL: (800) 487-SITE (7483)
<u>STRUCTURAL:</u> TOWER ENGINEERING SOLUTIONS 1320 GREENWAY DRIVE, SUITE 600 IRVING, TX 75038 TEL: (972) 483-0607 FAX: (972) 975-9615	

PROPERTY INFORMATION
SITE ADDRESS 1201 WEST BROADWAY COLUMBIA, MO 65203
TOWER INFORMATION STRUCTURE HEIGHT: 110'-0" STEALTH MONOPOLE - HIGHEST TOWER APPURTENANCE: T.B.D. - T-MOBILE ANTENNA RAD CENTER: 85'-0"/87'-6" - T-MOBILE ANTENNA TIP HEIGHT: 89'-0"/89'-0"
COORDINATES (NAD 1983) LATITUDE: 38.953200° N LONGITUDE: -92.357117° W
GROUND ELEVATION 725.00' (PER GOOGLE EARTH)

CODE COMPLIANCE	
ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE FOLLOWING CODES:	
<u>BUILDING CODE:</u> 2018 INTERNATIONAL BUILDING CODE (2018 IBC)	<u>ELECTRICAL CODE:</u> 2017 NATIONAL ELECTRICAL CODE (2017 NEC)

SHEET INDEX	
<u>SHEET NUMBER:</u>	<u>DESCRIPTION:</u>
T-1	TITLE SHEET
GN-1	GENERAL NOTES
C-1	OVERALL SITE PLAN
C-2	EXISTING & NEW SITE PLANS
C-3	SITE DETAILS
A-1	TOWER ELEVATION
A-2	ANTENNA PLANS
A-3	ANTENNA & CABLE SCHEDULE
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
A-7	EQUIPMENT DETAILS
A-8	EQUIPMENT DETAILS
A-9	EQUIPMENT DETAILS
A-10	EQUIPMENT DETAILS
A-11	EQUIPMENT DETAILS
E-1	UTILITY PLAN
E-2	ELECTRICAL DETAILS
GR-1	GROUNDING RISER
GR-2	GROUNDING DETAILS
-	TOWER MODIFICATION DRAWINGS

UTILITIES	
<u>ELECTRIC:</u> N/A CONTACT: N/A TEL: N/A	
<u>FIBER:</u> N/A CONTACT: N/A TEL: N/A	

REFERENCED MATERIALS
A SITE WALK WAS NOT PERFORMED FOR THIS SITE PER SCOPE OF WORK. COMPOUND, ELEVATION, EQUIPMENT LAYOUT AND ANTENNA PLANS SHOWN WITHIN THIS SET WERE TAKEN FROM AVAILABLE DOCUMENTS/DRAWINGS PROVIDED BY OTHERS.

SBA BROADWAY COLUMBIA
MO08134B
1201 WEST BROADWAY
COLUMBIA, MO 65203

REVISIONS

REV.	ISSUED FOR	DATE	BY
A	FOR CLIENT REVIEW	12/18/24	RAK
0	FINAL	01/08/25	TRK
1	REVISION	01/15/25	TRK
2	REVISION	06/23/25	TRK
3	REVISION	07/08/25	TRK

AQUATIC \ DESIGN & PROGRAM MANAGEMENT
CIVIL \ TELECOMMUNICATION \ MECHANICAL
PLUMBING \ ELECTRICAL \ LAND SURVEYING
ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK: JKR
DRAWN: RAK
JOB: T2400870

T-1
TITLE SHEET

GENERAL REQUIREMENTS:

- 1.1 INTENT
- THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
 - THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH.
 - THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
 - THE PURPOSE OF THE SPECIFICATIONS IS TO INTERPRET THE INTENT OF THE DRAWINGS AND TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
 - MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE MADE OR PERMITTED BY THE OWNER WITHOUT ISSUING A CHANGE ORDER.

- 1.2 CONFLICTS
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
 - THE BIDDER, IF AWARDED THE CONTRACT, WILL NOT BE ALLOWED ANY EXTRA COMPENSATION BY REASON OF ANY MATTER OR THING CONCERNING WHICH SUCH BIDDER MIGHT HAVE FULLY INFORMED THEMSELVES PRIOR TO THE BIDDING.
 - NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS GOVERNING THE WORK.

- 1.3 CONTRACTS AND WARRANTIES
- CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS.

- 1.4 STORAGE
- ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.
 - THE BTS MUST BE STORED INSIDE UNTIL THERE IS POWER ON SITE.

- 1.5 CLEAN UP
- THE CONTRACTORS SHALL AT ALL TIMES KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR EMPLOYEES AT WORK AND AT THE COMPLETION OF THE WORK, THEY SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA, INCLUDING ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS AND SHALL LEAVE THEIR WORK CLEAN AND READY FOR USE.
 - EXTERIOR: VISUALLY INSPECT EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER.
 - REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
 - IF NECESSARY TO ACHIEVE A UNIFORM DEGREE OF CLEANLINESS, HOSE DOWN THE EXTERIOR OF THE STRUCTURE.
 - INTERIOR: VISUALLY INSPECT INTERIOR SURFACE AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER FROM WALLS/FLOOR/CEILING.
 - REMOVE ALL TRACES OF SPLASHED MATERIAL FROM ADJACENT SURFACES.
 - REMOVE PAINT DROPPINGS, SPOTS, STAINS AND DIRT FROM FINISHED SURFACES.

- 1.6 CHANGE ORDER PROCEDURE
- CHANGE ORDERS MAY BE INITIATED BY THE OWNER AND/OR THE CONTRACTOR INVOLVED. THE CONTRACTOR, UPON VERBAL REQUEST FROM THE OWNER SHALL PREPARE A WRITTEN PROPOSAL DESCRIBING THE CHANGE IN WORK OR MATERIALS AND ANY CHANGES IN THE CONTRACT AMOUNT AND PRESENT TO THE OWNER WITHIN 72 HRS FOR APPROVAL. SUBMIT REQUESTS FOR SUBSTITUTIONS IN THE FORM AND IN ACCORDANCE WITH PROCEDURES REQUIRED FOR CHANGE ORDER PROPOSALS. ANY CHANGES IN SCOPE OF WORK OR MATERIALS WHICH ARE PERFORMED BY THE CONTRACTOR WITHOUT A WRITTEN CHANGE ORDER AS DESCRIBED AND APPROVED BY THE OWNER SHALL PLACE FULL RESPONSIBILITY OF THESE ACTIONS ON THE CONTRACTOR.

- 1.7 RELATED DOCUMENTS AND COORDINATION
- GENERAL CARPENTRY, ELECTRICAL AND ANTENNA DRAWINGS ARE INTERRELATED. IN PERFORMANCE OF THE WORK, THE CONTRACTOR MUST REFER TO ALL DRAWINGS. ALL COORDINATION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

- 1.8 SHOP DRAWINGS
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS TO THE OWNER FOR APPROVAL.
 - ALL SHOP DRAWINGS SHALL BE REVIEWED, CHECKED AND CORRECTED BY CONTRACTOR PRIOR TO SUBMITTAL TO THE OWNER.

- 1.9 PRODUCTS AND SUBSTITUTIONS
- SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.
 - SUBMIT ALL NECESSARY PRODUCT DATA AND CUT SHEETS WHICH PROPERLY INDICATE AND DESCRIBE THE ITEMS, PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE OWNER SUBMIT ACTUAL SAMPLES TO THE OWNER FOR APPROVAL IN LIEU OF CUT SHEETS.

- 1.10 QUALITY ASSURANCE
- ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

- 1.11 ADMINISTRATION
- BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT. THIS PROJECT MANAGER WILL DEVELOP A MASTER SCHEDULE FOR THE PROJECT WHICH WILL BE SUBMITTED TO THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
 - SUBMIT A BAR TYPE PROGRESS CHART NOT MORE THAN 3 DAYS AFTER THE DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK ON THE SCHEDULE, INDICATING A TIME BAR FOR EACH MAJOR CATEGORY OR UNIT OF WORK TO BE PERFORMED AT SITE, PROPERLY SEQUENCED AND COORDINATED WITH OTHER ELEMENTS OF WORK AND SHOWING COMPLETION OF THE WORK SUFFICIENTLY IN ADVANCE OF THE DATE ESTABLISHED FOR SUBSTANTIAL COMPLETION OF THE WORK.
 - PRIOR TO COMMENCING CONSTRUCTION, THE OWNER SHALL SCHEDULE AN ON-SITE MEETING WITH ALL MAJOR PARTIES. THIS WOULD INCLUDE (THOUGH NOT LIMITED TO) THE OWNER, PROJECT MANAGER, CONTRACTOR, LAND OWNER REPRESENTATIVE, LOCAL TELEPHONE COMPANY, TOWER ERECTION FOREMAN (IF SUBCONTRACTED).
 - CONTRACTOR SHALL BE EQUIPPED WITH SOME MEANS OF CONSTANT COMMUNICATIONS, SUCH AS A MOBILE PHONE OR A BEEPER. THIS EQUIPMENT WILL NOT BE SUPPLIED BY THE OWNER, NOR WILL WIRELESS SERVICE BE ARRANGED.
 - DURING CONSTRUCTION, CONTRACTOR MUST ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES. CONTRACTOR WILL COMPLY WITH ALL SAFETY REQUIREMENTS IN THEIR AGREEMENT.
 - PROVIDE WRITTEN DAILY UPDATES ON SITE PROGRESS TO THE OWNER.
 - COMPLETE INVENTORY OF CONSTRUCTION MATERIALS AND EQUIPMENT IS REQUIRED PRIOR TO START OF CONSTRUCTION.
 - NOTIFY THE OWNER / PROJECT MANAGER IN WRITING NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, TOWER ERECTIONS, AND EQUIPMENT CABINET PLACEMENTS.

- 1.12 INSURANCE AND BONDS
- CONTRACTOR SHALL AT THEIR OWN EXPENSE CARRY AND MAINTAIN FOR THE DURATION OF THE PROJECT ALL INSURANCE AS REQUIRED AND LISTED AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER. REFER TO THE MASTER AGREEMENT FOR REQUIRED INSURANCE LIMITS.
 - THE OWNER SHALL BE NAMED AS AN ADDITIONAL INSURED ON ALL POLICIES.
 - CONTRACTOR MUST PROVIDE PROOF OF INSURANCE.

ANTENNA INSTALLATION:

- 1.1 REQUIREMENTS OF REGULATOR AGENCIES
- FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.
 - INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATION IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES, SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
 - TIA - TELECOMMUNICATIONS INDUSTRY ASSOCIATION TIA-222-H. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
 - FAA - FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7460-IH, OBSTRUCTION MARKING AND LIGHTING.
 - FCC - FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES AND FORM 715A, HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.
 - AISC - AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
 - NEC - NATIONAL ELECTRICAL CODE - ON TOWER LIGHTING KITS.
 - UL - UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.
 - IN ALL CASES, PART 77 OR THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.
 - 2012 LIFE SAFETY CODE NFPA -101.

GENERAL ELECTRIC PROVISION:

- SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
- CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATIONS TEST, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
- EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULL BOX, J-BOX, SWITCH BOX, ETC., IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.).
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU.
- ALL CONDUIT INSTALLED SHALL BE SURFACE MOUNTED OR DIRECT BURIAL UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL CARRY OUT THEIR WORK IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY AND LOCAL CODES AND O.S.H.A.
- CONTRACTOR TO OBTAIN ALL PERMITS, PAY PERMIT FEES, AND BE RESPONSIBLE FOR SCHEDULING INSPECTIONS.
- COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
- ALL CONDUIT SHALL HAVE A PULL WIRE OR ROPE.

- PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS AND CIRCUITS.
- ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC., SHALL BE TURNED OVER TO THE OWNER AT JOB COMPLETION.
- USE T-TAP CONNECTIONS ON ALL MULTI-CIRCUITS WITH COMMON NEUTRAL CONDUCTOR FOR LIGHTING FIXTURES.
- ALL CONDUCTORS SHALL BE COPPER.
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
- PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
- PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH APPLICABLE LOCAL BUILDING CODES.
- WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS.
- GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER UNLESS OTHERWISE NOTED.
- ALL MATERIALS SHALL BE U.L. LISTED.
- CONDUIT
 - RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3
 - ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTING SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
 - FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT SHALL HAVE FULL SIZE EQUIPMENT GROUND WIRE.
 - CONDUIT RUNS SHALL BE SURFACE MOUNTED UNLESS INDICATED OTHERWISE. CONDUIT INDICATED SHALL RUN PARALLEL OR AT RIGHT ANGLES TO CEILING, FLOOR OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH THE OWNER PRIOR TO INSTALLING. NO HORIZONTAL CONDUITS SHALL BE BELOW 7'-6" A.F.F. NO BX OR ROMEX CABLE IS PERMITTED.
 - PARALLEL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 (UNLESS NOTED OTHERWISE) AT A MINIMUM DEPTH OF 30" BELOW GRADE - STACKED UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 (UNLESS NOTED OTHERWISE) AT A MINIMUM DEPTH OF 24" BELOW GRADE.
 - ABOVE GROUND CONDUIT SHALL BE P.V.C. SCHEDULE 80 (UNLESS NOTED OTHERWISE).
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUND TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.



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GN-1
GENERAL NOTES

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GENERAL SITE NOTES:

1. CONTRACTOR WILL NOT START CONSTRUCTION UNTIL AFTER THEY HAVE RECEIVED THE PRE-CON PACKAGE AND HAVE A PRE-CON WALK WITH THE PROJECT MANAGER.
2. CONTRACTOR TO HIRE PUBLIC (811) AND PRIVATE LOCATING SERVICE IN ORDER TO LOCATE AND PROTECT ALL SURFACE UTILITIES. DO NOT SCALE OFF THESE PLANS FOR ANY BELOW GRADE UTILITIES
3. CONTRACTOR SHALL VERIFY ALL EXISTING BURIED AND OVERHEAD UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL REPAIR ALL DAMAGED UTILITIES AT HIS OWN COST AND COORDINATE ANY REPAIRS WITH RESPECTIVE UTILITY COMPANY.
4. CONTRACTOR TO VERIFY ALL HEIGHTS AND AZIMUTHS IN FIELD PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY T-MOBILE AND ENGINEERING FIRM OF ANY DISCREPANCIES BEFORE PROCEEDING.
5. CONTRACTOR SHALL RESTORE AND REPAIR ANY DAMAGED AREAS CAUSED BY CONSTRUCTION.



OVERALL SITE PLAN

SCALE: 1" = 60'-0"

1



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NOTE:
CONTRACTOR TO VERIFY
LOCATION OF EXISTING FSEB
AND REMOVE AS REQUIRED

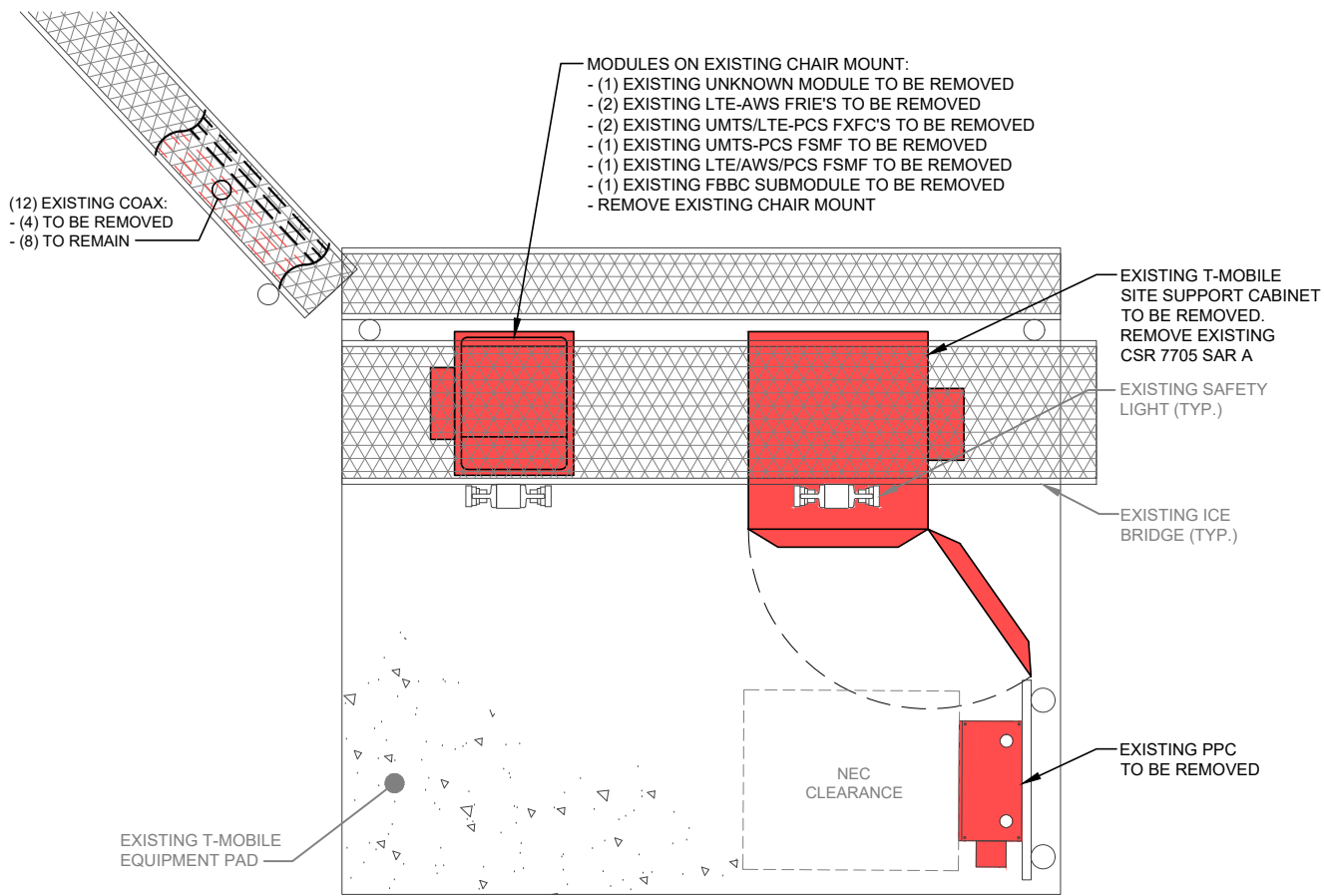
LEGEND

- EXISTING EQUIPMENT
- NEW/MODIFIED EQUIPMENT
- REMOVED EQUIPMENT
- RELOCATED EQUIPMENT

THE FOLLOWING EQUIPMENT IS TO BE
INSTALLED IN THE NEW SITE SUPPORT
CABINET:
- (1) CSR IXRe V2
- (1) FSEE
- (2) VOLTAGE BOOSTER
- (1) SPD TRAY
- (2) FIBER PATCH/TRAY COMBO

NOTES:

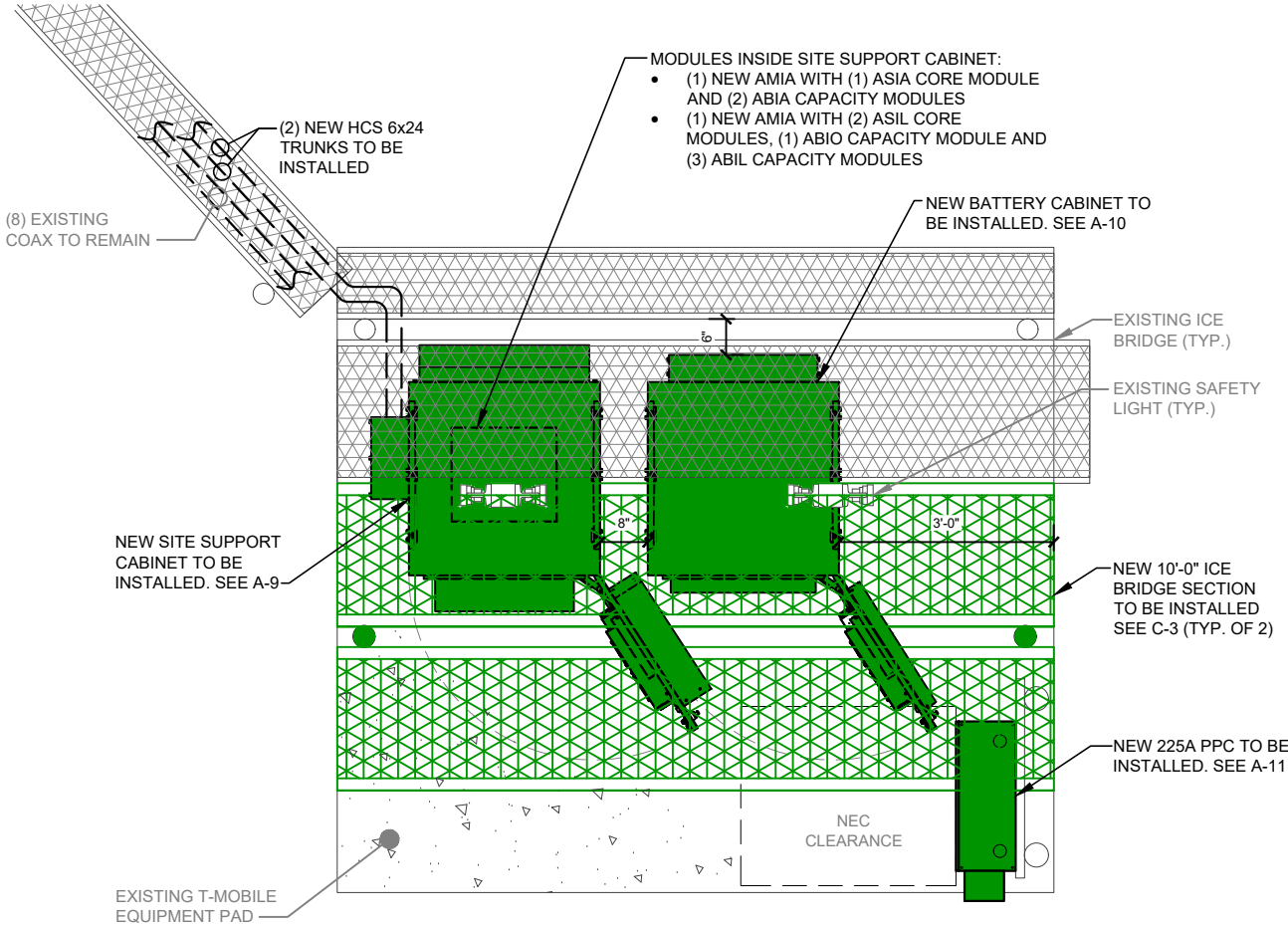
- (1) NEW HCS 6x24 TRUNK TO FEED (3) NEW AEHC ANTENNAS
- (1) NEW HCS 6x24 TRUNK TO FEED (3) NEW AHLOB'S & (3) NEW AHFII'S.



EXISTING EQUIPMENT PLAN

SCALE: 3/8" = 1'-0"

1



NEW EQUIPMENT PLAN

SCALE: 3/8" = 1'-0"

2



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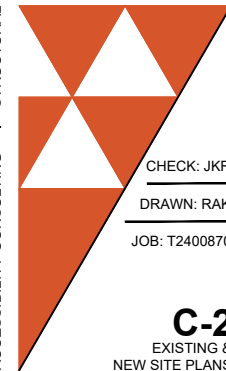


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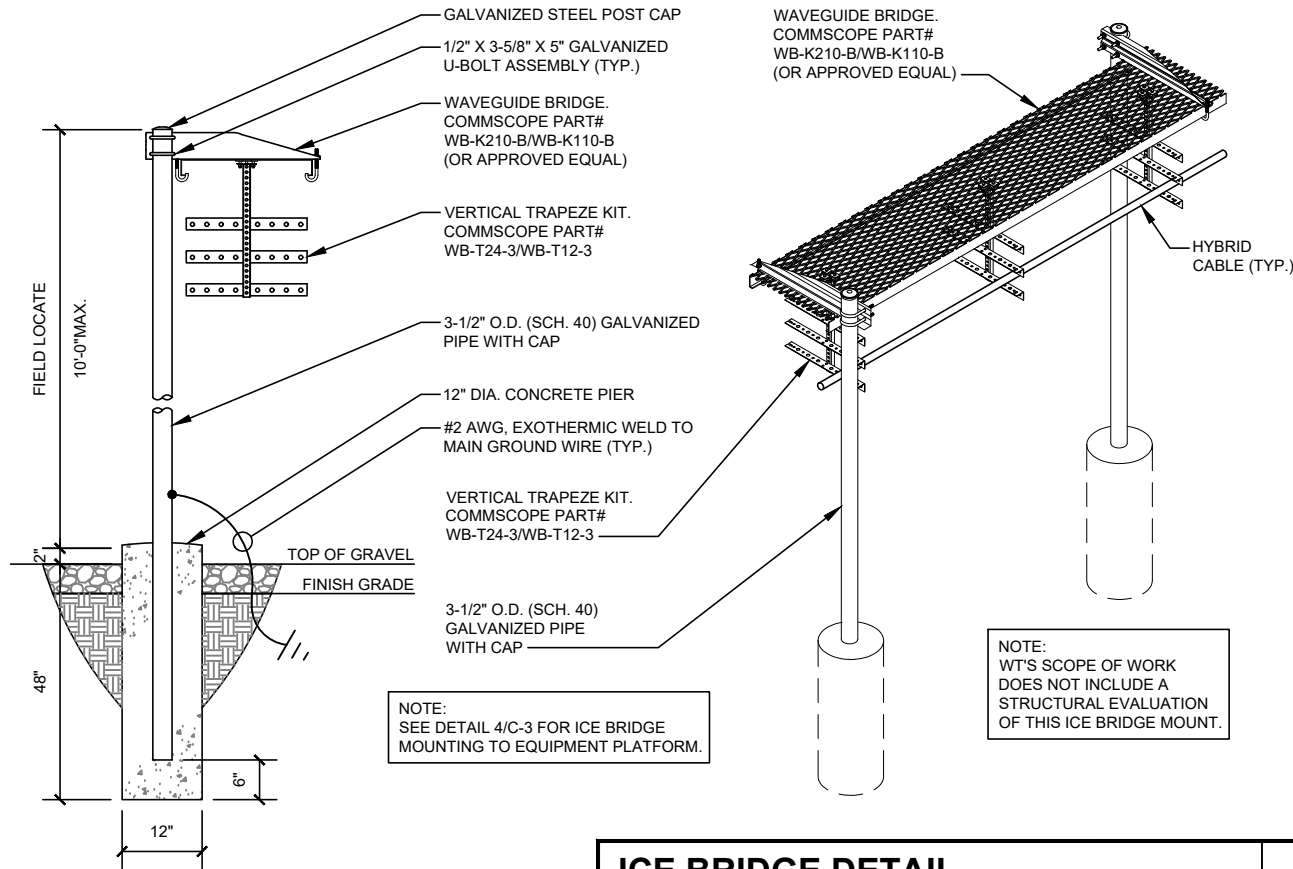
C-2

EXISTING &
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ICE BRIDGE DETAIL

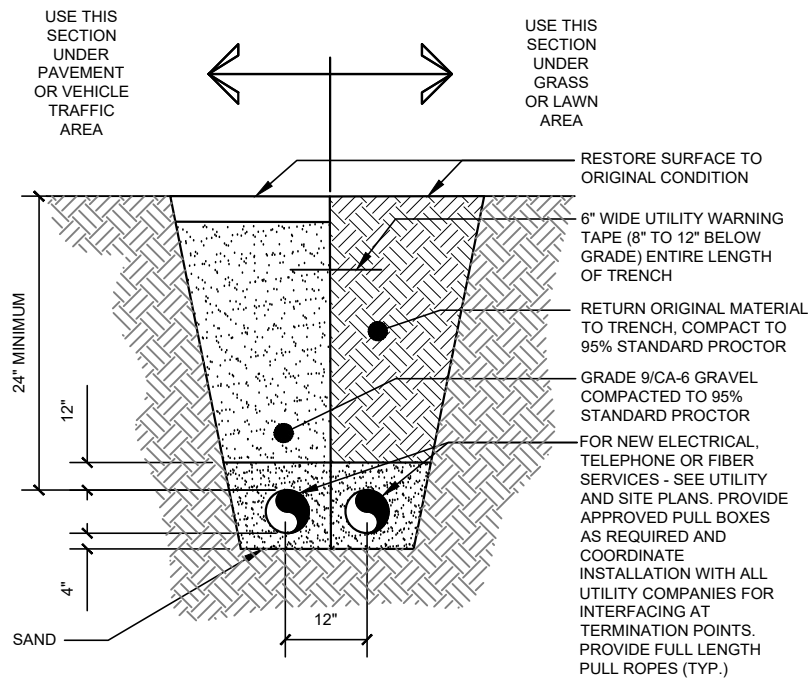
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1

NOT USED

SCALE: NONE

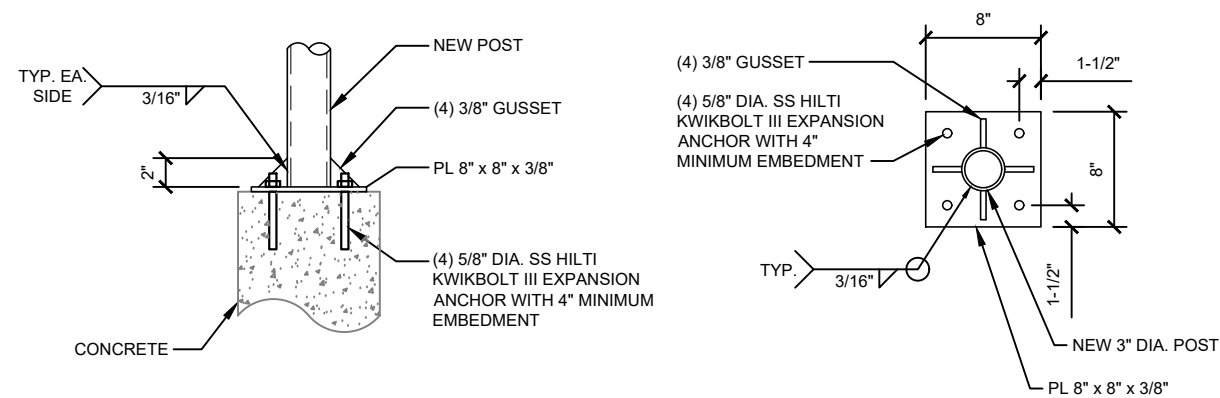
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UTILITY TRENCH DETAIL

SCALE: NONE

3



BASE PLATE DETAIL

SCALE: NONE

4



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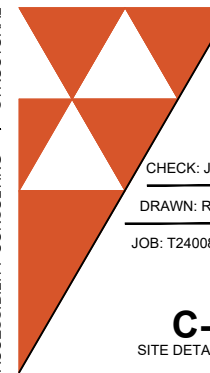
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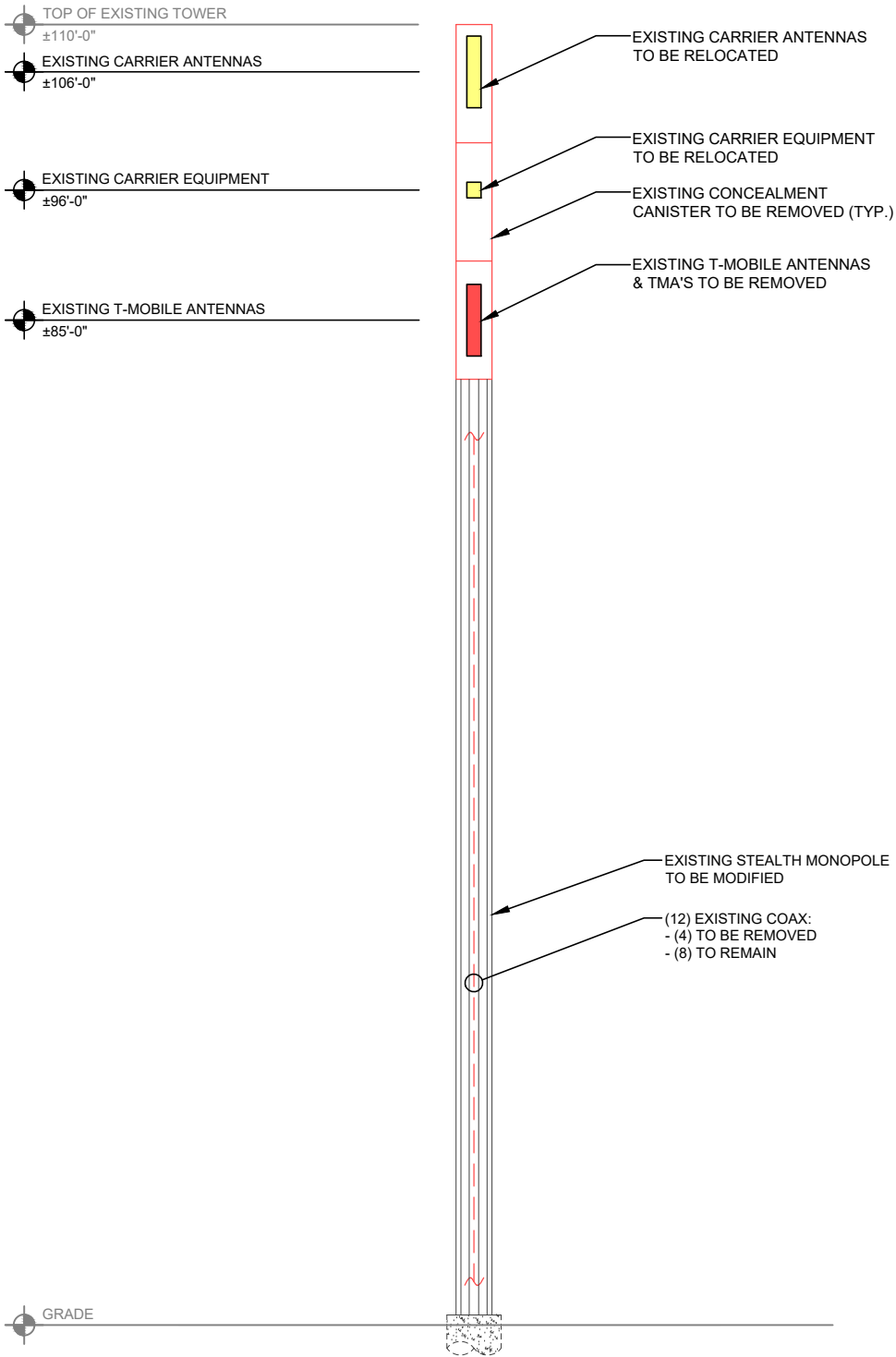


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C-3
SITE DETAILS



EXISTING ELEVATION

SCALE: 1" = 15'-0"

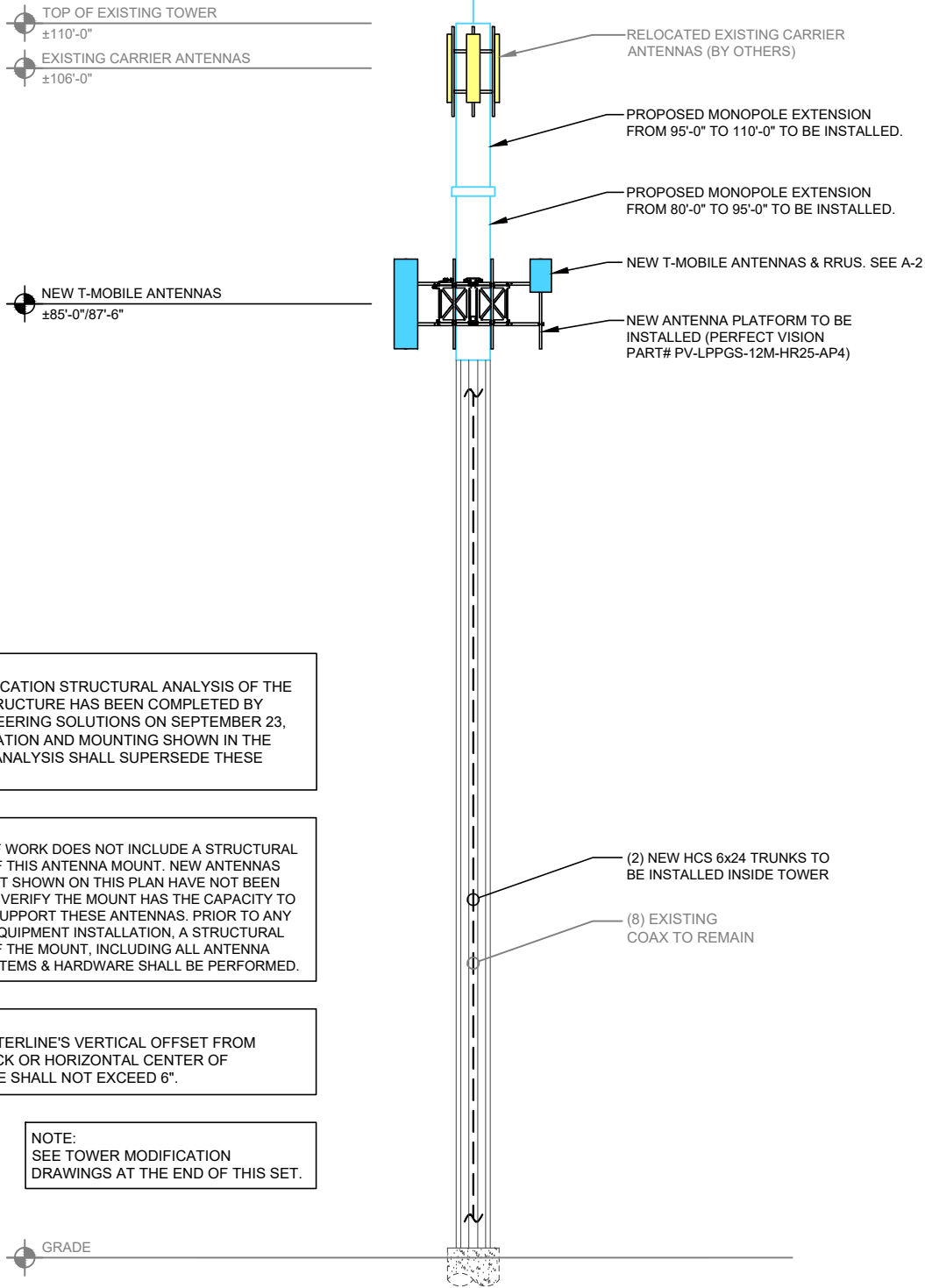
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LEGEND

- EXISTING EQUIPMENT
- NEW EQUIPMENT
- REMOVED EQUIPMENT
- RELOCATED EQUIPMENT

NOTE:
PER SBA COMMUNICATIONS CORPORATION, THE FOLLOWING ARE ISSUES THAT NEED TO BE ADDRESSED REGARDING THE T-MOBILE EQUIPMENT BEING RELOCATED DURING THE REPLACEMENT OF THE TOP TOWER SECTION:

- T-MOBILE WILL BE RESPONSIBLE FOR REMOVING THEIR EXISTING EQUIPMENT FROM THE CONCEALMENT CANISTER AND MOVING IT TO A LOWER ELEVATION DURING THE TOWER MODIFICATION. IF A LOWER ELEVATION DOES NOT WORK FOR T-MOBILE, THEN THEY WILL NEED TO PROCURE A COW.
- ONCE THE MODIFICATION DESIGNS ARE COMPLETED, BID'S RECEIVED, MODIFICATION PO RECEIVED, AND THE AMD EXECUTED; T-MOBILE WILL NEED TO COORDINATE WITH SBA'S GENERAL CONTRACTOR TO HAVE THE EXISTING EQUIPMENT REMOVED.
- ONCE THE NEW SECTION IS INSTALLED, T-MOBILE WILL BE RESPONSIBLE FOR MOVING THEIR EQUIPMENT TO THEIR NEW RAD CENTER.
- CARRIER IS RESPONSIBLE FOR EQUIPMENT FIT AND ANY DAMAGE TO SHROUDS OR WIND BANDS DURING CONSTRUCTION. COAX MUST TRANSITION TO 1/2" JUMPERS AT BULKHEAD.



NOTE:
A POST MODIFICATION STRUCTURAL ANALYSIS OF THE TOWER OR STRUCTURE HAS BEEN COMPLETED BY TOWER ENGINEERING SOLUTIONS ON SEPTEMBER 23, 2024. THE LOCATION AND MOUNTING SHOWN IN THE STRUCTURAL ANALYSIS SHALL SUPERSEDE THESE DRAWINGS.

NOTE:
WT'S SCOPE OF WORK DOES NOT INCLUDE A STRUCTURAL EVALUATION OF THIS ANTENNA MOUNT. NEW ANTENNAS AND EQUIPMENT SHOWN ON THIS PLAN HAVE NOT BEEN EVALUATED TO VERIFY THE MOUNT HAS THE CAPACITY TO ADEQUATELY SUPPORT THESE ANTENNAS. PRIOR TO ANY ANTENNA OR EQUIPMENT INSTALLATION, A STRUCTURAL EVALUATION OF THE MOUNT, INCLUDING ALL ANTENNA MOUNTING SYSTEMS & HARDWARE SHALL BE PERFORMED.

NOTE:
ANTENNA CENTERLINE'S VERTICAL OFFSET FROM PLATFORM DECK OR HORIZONTAL CENTER OF SECTOR FRAME SHALL NOT EXCEED 6".

NOTE:
SEE TOWER MODIFICATION DRAWINGS AT THE END OF THIS SET.

NEW ELEVATION

SCALE: 1" = 15'-0"

2



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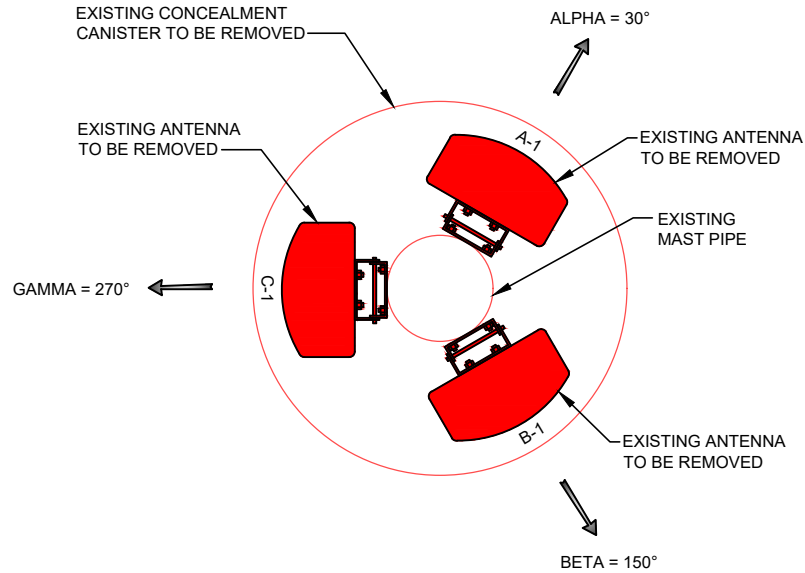
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TOWER ELEVATION



NOTE:
CONTRACTOR TO REMOVE (6)
EXISTING TMA'S AT ANTENNAS
(NOT SHOWN FOR CLARITY).

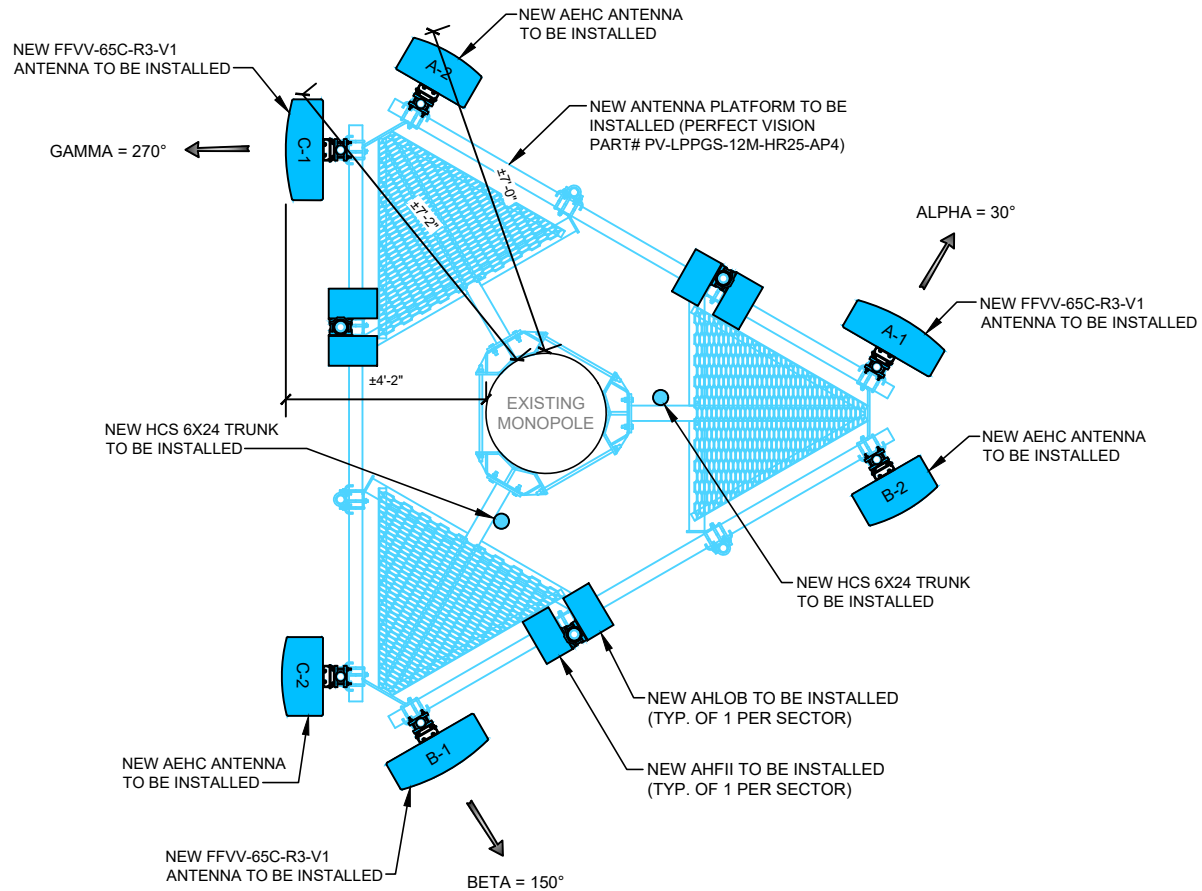


EXISTING ANTENNA PLAN

SCALE: NONE

1

LEGEND	
	EXISTING EQUIPMENT
	NEW EQUIPMENT
	REMOVED EQUIPMENT
	RELOCATED EQUIPMENT



NEW ANTENNA PLAN

SCALE: NONE

2

NOTE:
A POST MODIFICATION STRUCTURAL ANALYSIS OF THE TOWER OR STRUCTURE HAS BEEN COMPLETED BY TOWER ENGINEERING SOLUTIONS ON SEPTEMBER 23, 2024. THE LOCATION AND MOUNTING SHOWN IN THE STRUCTURAL ANALYSIS SHALL SUPERSEDE THESE DRAWINGS.

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NOTE:
ANTENNA INFORMATION OBTAINED FROM T-MOBILE RF DATA CONFIGURATION SHEET DATED 01/17/24.



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ANTENNA PLANS

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ANTENNA & CABLE SCHEDULE						
SECTOR	ALPHA		BETA		GAMMA	
LOCATION	A-2	A-1	B-2	B-1	C-2	C-1
TECHNOLOGY	N2500	LTE 600, N600, LTE PCS, LTE AWS, N1900, N2100	N2500	LTE 600, N600, LTE PCS, LTE AWS, N1900, N2100	N2500	LTE 600, N600, LTE PCS, LTE AWS, N1900, N2100
AZIMUTH	30°		150°		270°	
RAD CENTER	87'-6"	85'-0"	87'-6"	85'-0"	87'-6"	85'-0"
COLOR CODING	(SEE CHART ON A-4)					
MODEL #	AEHC (ACTIVE ANTENNA-MASSIVE MIMO)	COMMSCOPE FFVV-65C-R3-V1 (OCTO)	AEHC (ACTIVE ANTENNA-MASSIVE MIMO)	COMMSCOPE FFVV-65C-R3-V1 (OCTO)	AEHC (ACTIVE ANTENNA-MASSIVE MIMO)	COMMSCOPE FFVV-65C-R3-V1 (OCTO)
MECHANICAL DOWNTILT	0	0	0	0	0	0
ELECTRICAL DOWNTILT	-	-	-	-	-	-
RRU TYPE	AEHC (INTEGRATED)	AHFII / AHLOB	AEHC (INTEGRATED)	AHFII / AHLOB	AEHC (INTEGRATED)	AHFII / AHLOB
HCS DIA. & TYPE	SHARED HCS 6x24 TRUNK (2 OF 2)	HCS 6x24 TRUNK (1 OF 2)	HCS 6x24 TRUNK (2 OF 2)	SHARED HCS 6x24 TRUNK (1 OF 2)	SHARED HCS 6x24 TRUNK (2 OF 2)	SHARED HCS 6x24 TRUNK (1 OF 2)
HCS ACTUAL LENGTH	-	±100'-0"	±100'-0"	-	-	-
HCS FACTORY LENGTH	-	125'-0"	125'-0"	-	-	-

NOTE:
A POST MODIFICATION STRUCTURAL ANALYSIS OF THE TOWER OR STRUCTURE HAS BEEN COMPLETED BY TOWER ENGINEERING SOLUTIONS ON SEPTEMBER 23, 2024. THE LOCATION AND MOUNTING SHOWN IN THE STRUCTURAL ANALYSIS SHALL SUPERSEDE THESE DRAWINGS.

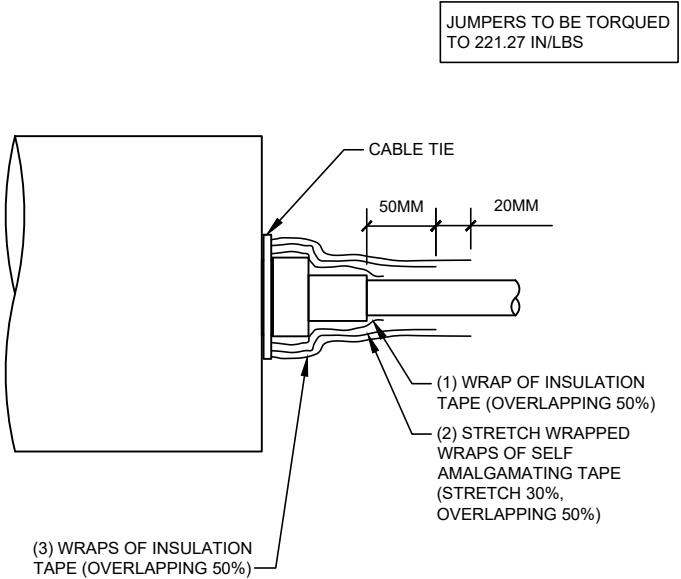
NOTE:
WT'S SCOPE OF WORK DOES NOT INCLUDE A STRUCTURAL EVALUATION OF THIS ANTENNA MOUNT. NEW ANTENNAS AND EQUIPMENT SHOWN ON THIS PLAN HAVE NOT BEEN EVALUATED TO VERIFY THE MOUNT HAS THE CAPACITY TO ADEQUATELY SUPPORT THESE ANTENNAS. PRIOR TO ANY ANTENNA OR EQUIPMENT INSTALLATION, A STRUCTURAL EVALUATION OF THE MOUNT, INCLUDING ALL ANTENNA MOUNTING SYSTEMS & HARDWARE SHALL BE PERFORMED.

NOTE:
ANTENNA INFORMATION OBTAINED FROM T-MOBILE RF DATA CONFIGURATION SHEET DATED 01/17/24.

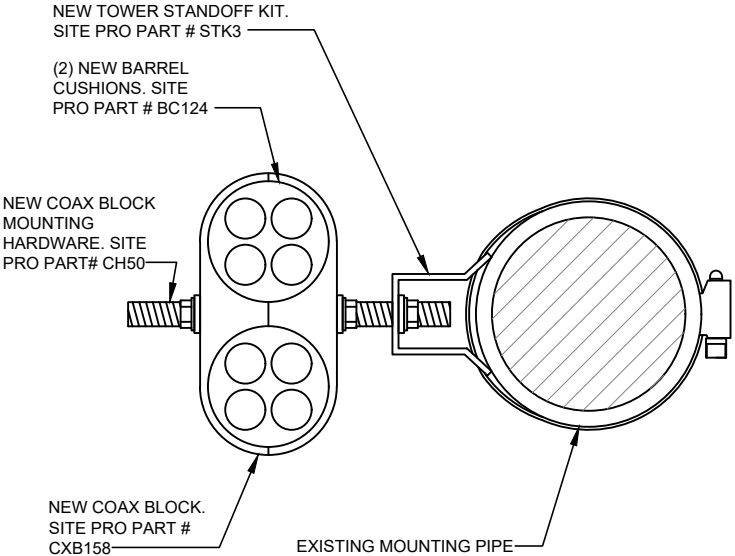
NEW HCS 6x24 TRUNK LENGTH	ACTUAL LENGTH	ACTUAL LENGTH +10% SAFETY FACTOR	FACTORY LENGTH
FROM SSC TO ANTENNA LOCATION	±100'-0"	±110'-0"	125'-0"

NOTE:
NEW HCS 6x24 JUMPERS TO BE ORDERED IN 5M, 10M, OR 20M LENGTHS.

ANTENNA & CABLE SCHEDULE	1
SCALE: NONE	



RF JUMPER CONNECTION DETAIL	2
SCALE: NONE	



RF JUMPER MOUNTING DETAIL	3
SCALE: NONE	



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A-3
ANTENNA &
CABLE SCHEDULE

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NOTE:
CABLE COLOR CODING ON THIS
SHEET IS PRELIMINARY AND
PENDING FINAL COLOR CODING
DESIGN FROM CARRIER.

HCS 6x24 (1 of 2)							
Fiber Pair Identification			Top of Tower		Bottom of tower		Comments
Trunk #	Fiber Pair	Bundle Color	Sector	RF Module	System Module	BB Port	
1	1	None	Alpha	AHFII1	OPT1		
1	2	None	Alpha	AHFII1	OPT2		
1	3	None	Alpha	AHFII1	OPT3		
1	4	None					
1	5	None	Alpha	AHLOB1	OPT1		
1	6	None	Alpha	AHLOB1	OPT2		
1	7	White	Beta	AHFII2	OPT1		
1	8	White	Beta	AHFII2	OPT2		
1	9	White	Beta	AHFII2	OPT3		
1	10	White					
1	11	White	Beta	AHLOB2	OPT1		
1	12	White	Beta	AHLOB2	OPT2		
1	13	Green	Gamma	AHFII3	OPT1		
1	14	Green	Gamma	AHFII3	OPT2		
1	15	Green	Gamma	AHFII3	OPT3		
1	16	Green					
1	17	Green	Gamma	AHLOB3	OPT1		
1	18	Green	Gamma	AHLOB3	OPT2		
1	19	Blue					
1	20	Blue					
1	21	Blue					
1	22	Blue					
1	23	Blue					
1	24	Blue					

HCS 6X24 (1 OF 2)				
Trunk #	DC Pair Color	Sector	RF Module	HCS Trunk Lengths Where Booster Required
1	Red	Alpha	AHFII1	All HCS trunk lengths
1	Green	Beta	AHFII2	All HCS trunk lengths
1	Blue	Gamma	AHFII3	All HCS trunk lengths
1	Yellow	Alpha	AHLOB1	For 80m and longer
1	White	Beta	AHLOB2	For 80m and longer
1	Black	Gamma	AHLOB3	For 80m and longer

HCS 6x24 (2 of 2)							
Fiber Pair Identification			Top of Tower		Bottom of tower		Comments
Trunk #	Fiber Pair	Bundle Color	Sector	RF Module	System Module	BB Port	
1	1	None	Alpha	AEHC1	OPT1		
1	2	None	Alpha	AEHC1	OPT2		
1	3	None	Alpha	AEHC1	OPT3		
1	4	None	Alpha	AEHC1	OPT4		
1	5	None					
1	6	None					
1	7	White	Beta	AEHC2	OPT1		
1	8	White	Beta	AEHC2	OPT2		
1	9	White	Beta	AEHC2	OPT3		
1	10	White	Beta	AEHC2	OPT4		
1	11	White					
1	12	White					
1	13	Green	Gamma	AEHC2	OPT1		
1	14	Green	Gamma	AEHC2	OPT2		
1	15	Green	Gamma	AEHC2	OPT3		
1	16	Green	Gamma	AEHC2	OPT4		
1	17	Green					
1	18	Green					
1	19	Blue					
1	20	Blue					
1	21	Blue					
1	22	Blue					
1	23	Blue					
1	24	Blue					

HCS 6X24 (2 OF 2)				
Trunk #	DC Pair Color	Sector	RF Module	HCS Trunk Lengths Where Booster Required
1	Red	Alpha	AEHC1	For 20m and longer
1	Green	Beta	AEHC2	For 20m and longer
1	Blue	Gamma	AEHC3	For 20m and longer
1	Yellow			
1	White			
1	Black			



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A-4

EQUIPMENT DETAILS

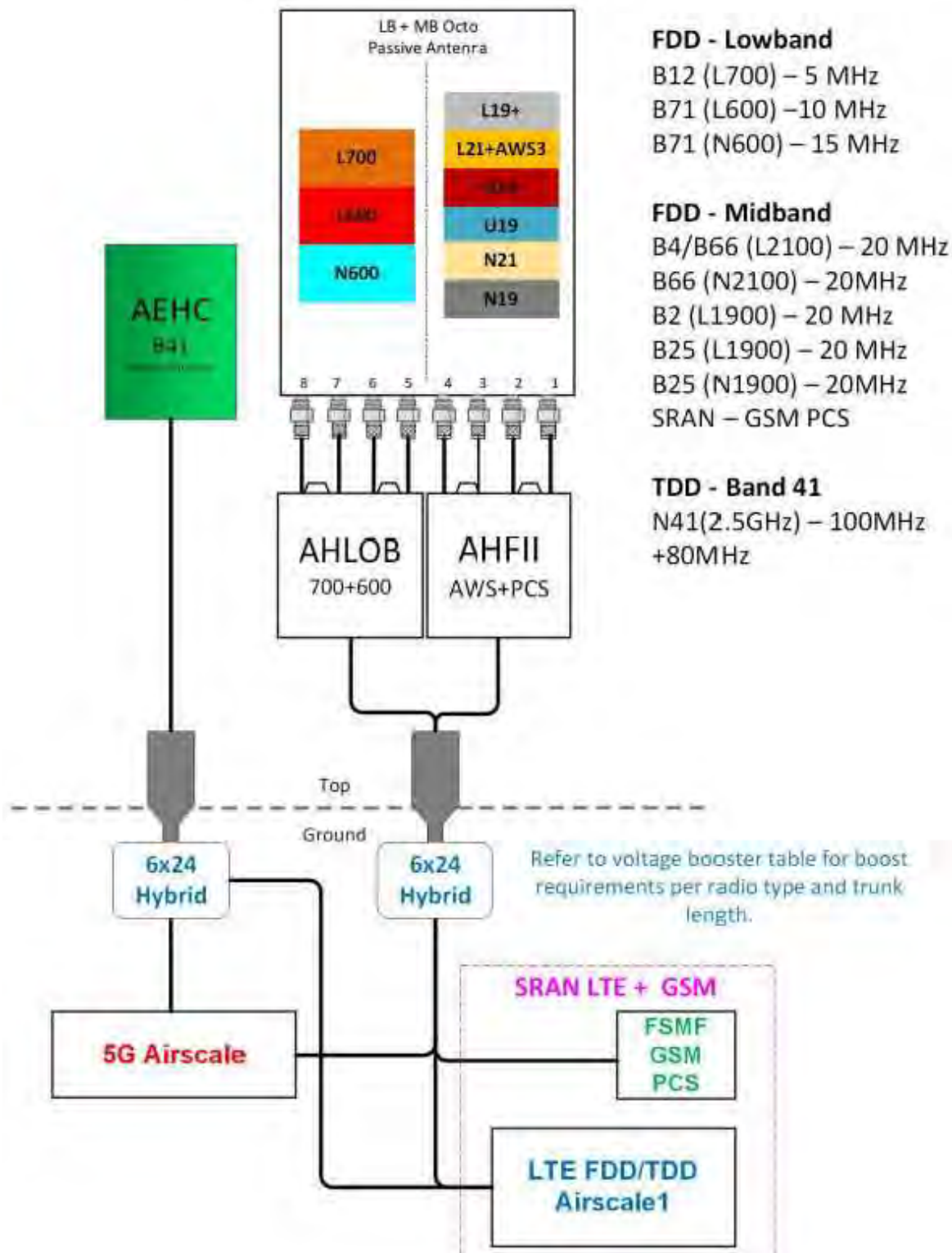
HCS 6x24 COLOR CODING

SCALE: NONE

1

Configuration 56790EBH_SR_T_6x24

* For 5G and LTE Airscale BB dimensioning refer to Fiber Port matrices.
(Alpha, Beta & Gamma)



RF PLUMBING DIAGRAM

SCALE: NONE

1



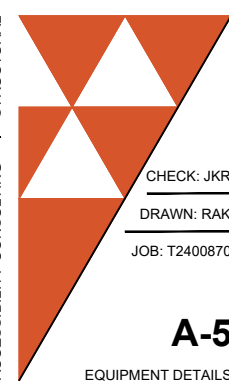
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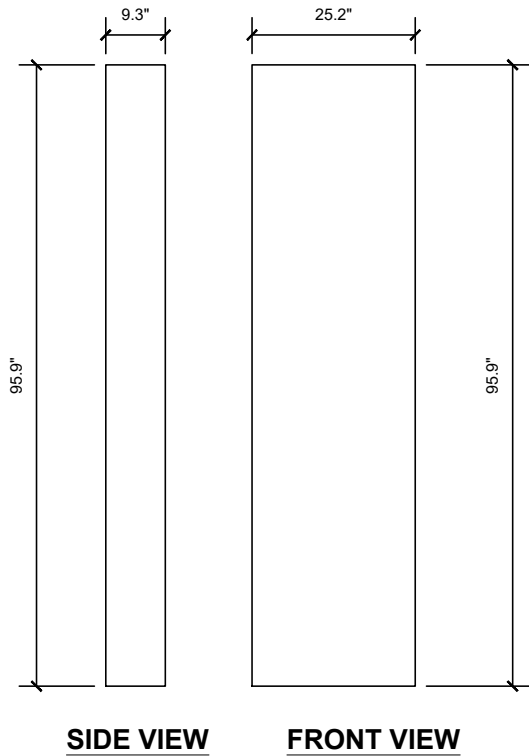


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COMMSCOPE
ANTENNA
FFVV-65C-R3-V1

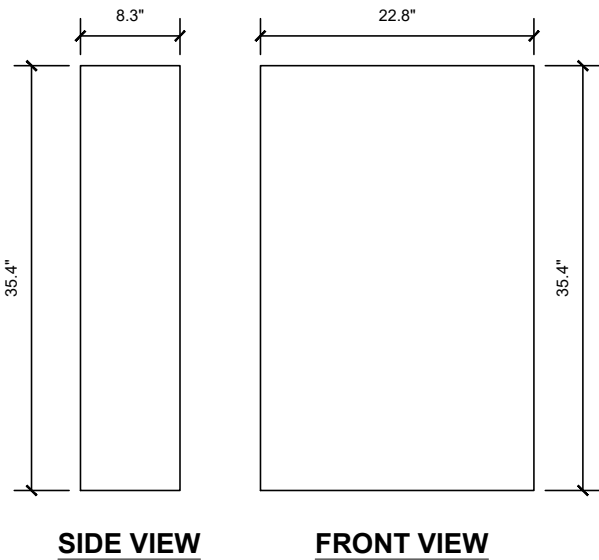
DIMENSIONS, HxWxD: 95.9"x25.2"x9.3"
ANTENNA WEIGHT: 124.6 lbs



ANTENNA DETAIL

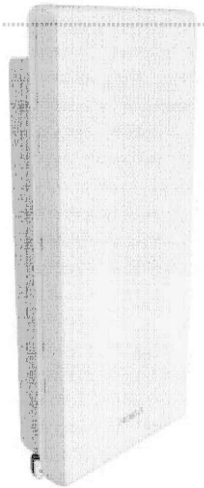
SCALE: NONE

1



NOKIA
ANTENNA
AEHC AIRSCALE

DIMENSIONS, HxWxD: 35.4"x22.8"x8.3"
ANTENNA WEIGHT: 99.2 lbs

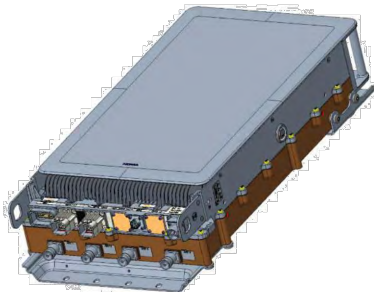
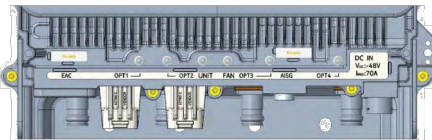
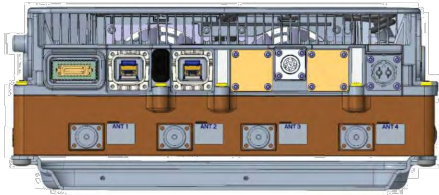


ANTENNA DETAIL

SCALE: NONE

2

RRH Product name	Nokia AHLOB AirScale RRH 4T4R B71/85 320W
Model number	475910A
Rated max Tx power	320 W
Number of TXRX	4TX4RX
Beamforming	No
SW supported techno.	3GPP compliant, FCC&ISED, FDD-LTE, NR
Frequency range	Band 71: RX 663 MHz – 698 MHz, TX 617 MHz – 652 MHz Band 85: RX 698 MHz – 716 MHz, TX 728 MHz – 746 MHz



AHLOB DETAIL

SCALE: NONE

3

AHFII AirScale RRH 4T4R B25/66 480W
Technical data

Product Specifications	
Standard	3GPP compliant
Supported RAT*	2G, 3G, 4G, 5G or combination i.e. 4G/5G, IoT (SA,GB,IB), FDD
Band / Frequency range	Band 25: RX 1850 MHz – 1915 MHz, TX 1930 MHz – 1995 MHz Band 66: RX 1710 MHz – 1780 MHz, TX 2110 MHz – 2200 MHz
Max. supported modulation*	256QAM UL / 1024 QAM DL
Number of TX/RX paths*	4T4R
Instantaneous bandwidth (IBW)*	Full band
Occupied bandwidth (OBW)*	Full band, OBW B25 65MHz (UL/DL), B66 70MHz (UL) 90MHz (DL)
Max. RF output power*	4x80W in any band while 4x40W in other band
Dimensions (H×W×D)	641 x 342 x 115 mm (core), 676 x 369 x 145 mm (envelope)*
Volume	25 L
Weight (excluding mounting bracket)	32 kg**
Supply voltage / Connector type	DC -40.5 V ... -60 V / Nokia 2 pole connector
Antenna ports	4 x 4.3-10
Optical ports*	3 x SF28 Ports CPRI 9.8 Gbps (Rate 7)
Other interfaces / Connector type	RET RS485, AISG 3.0, EAC MDR26
Operational temperature range	-40 °C ... +55 °C
Cooling	Forced Convection (fans)
Installation options	Pole, wall, rail
Ingress / Surge protection	IP65, DC Power Port: 20 kA 8/20 μs

* = 25.2" x 13.5" x 4.5"
** = 70.5 lbs



AHFII DETAIL

SCALE: NONE

4



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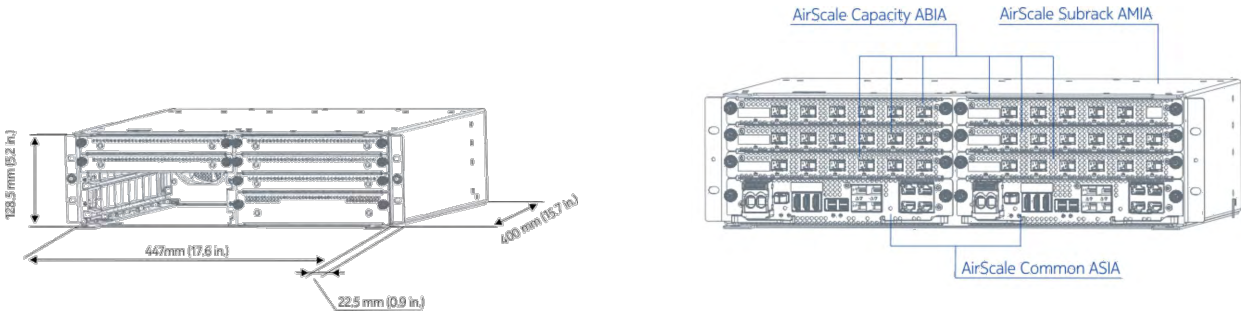
A-6

EQUIPMENT DETAILS

Nokia AirScale System Module Indoor consists of the following items:

- One Nokia AirScale Subrack (AMIA), including backplane for high bandwidth connectivity between processing plug-in units
- One or two Nokia AirScale Common (ASIA) plug-in units for transport interfacing and for centralized processing
- Up to six Nokia AirScale Capacity (ABIA) plug-in units for baseband processing and for optical interfaces with radio units

The AirScale Subrack (AMIA) has a 3U height and fits into a standard 19 in. rack. Multiple subracks can be stacked on top of each other. The indoor subrack includes fans, a backplane for internal communication, and the DC-feed. The direction of the cooling air can be changed by rotating fans. The default direction is front-to-back.



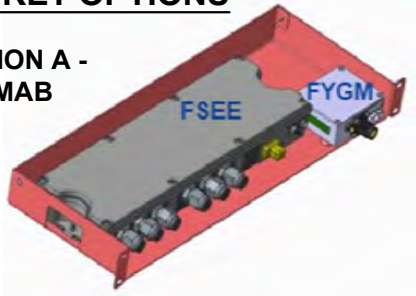
AMIA DETAIL

SCALE: NONE

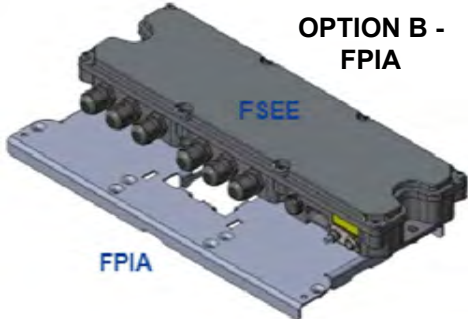
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BRACKET OPTIONS

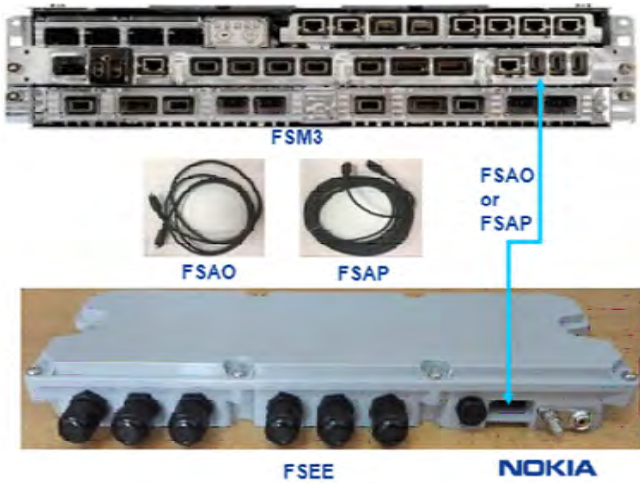
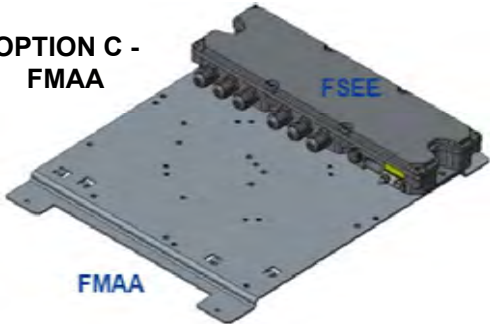
OPTION A - FMAB



OPTION B - FPIA



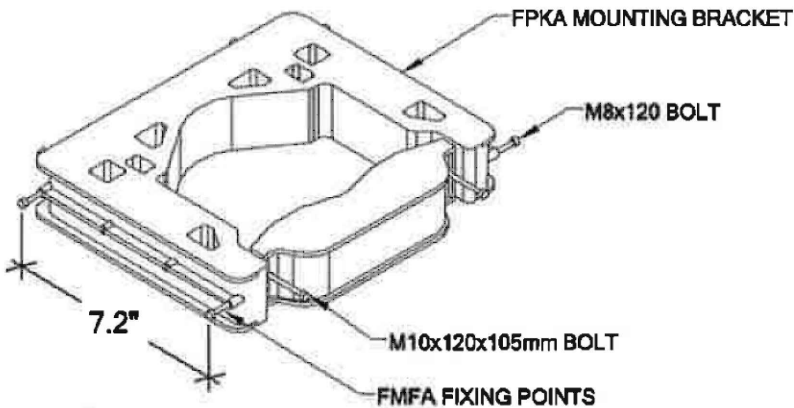
OPTION C - FMAA



FSEE DETAIL

SCALE: NONE

2



FPKA MOUNTING BRACKET DETAIL

SCALE: NONE

3

NOT USED

SCALE: NONE

4



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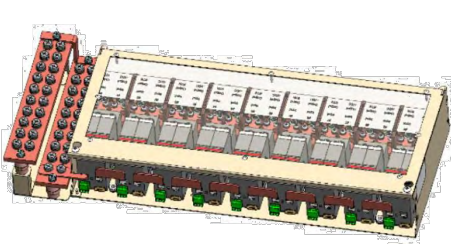
19" Flexbox (extendable)
Flexbox-19" 1U trunk enclosure 24 x LC D
Singlemode UPC/APC and Multimode OM4



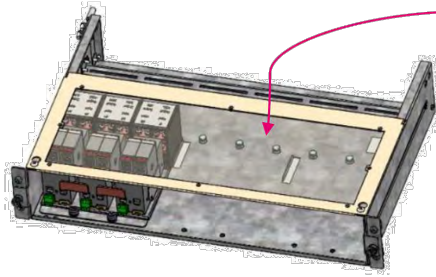
FIBER TRAY DETAIL

SCALE: NONE

1



FLOOR MOUNT



RACK MOUNT



EXPANSION PLATE (AS-NEEDED)

SPD TRAY DETAIL

SCALE: NONE

2

NOTE:
MANUFACTURER AND PART # OF NEW
VOLTAGE BOOSTER TO BE VERIFIED.

Upconverter
Unit

PDU



Breaker Configs Supported

- HCS 6x24: 6 x 40A†
- HCS 2.0: 3 x 80A*†
- HCS 1.0: 1 x 200A*

VOLTAGE BOOSTER DETAIL

SCALE: NONE

3

NOT USED

SCALE: NONE

4



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A-8

EQUIPMENT DETAILS

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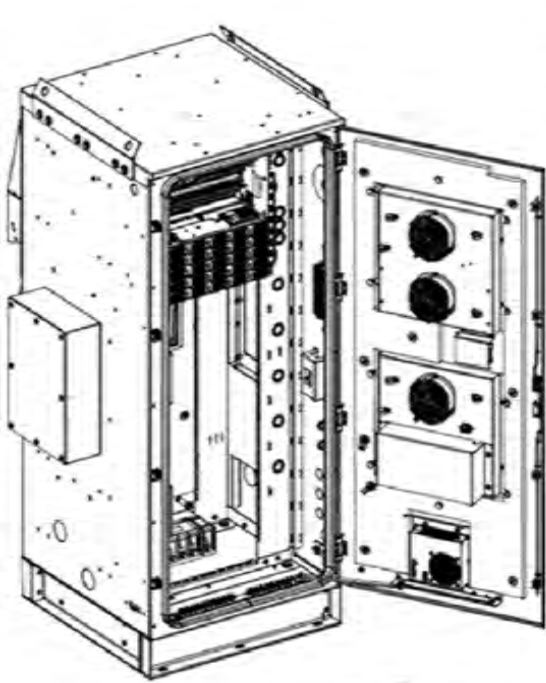
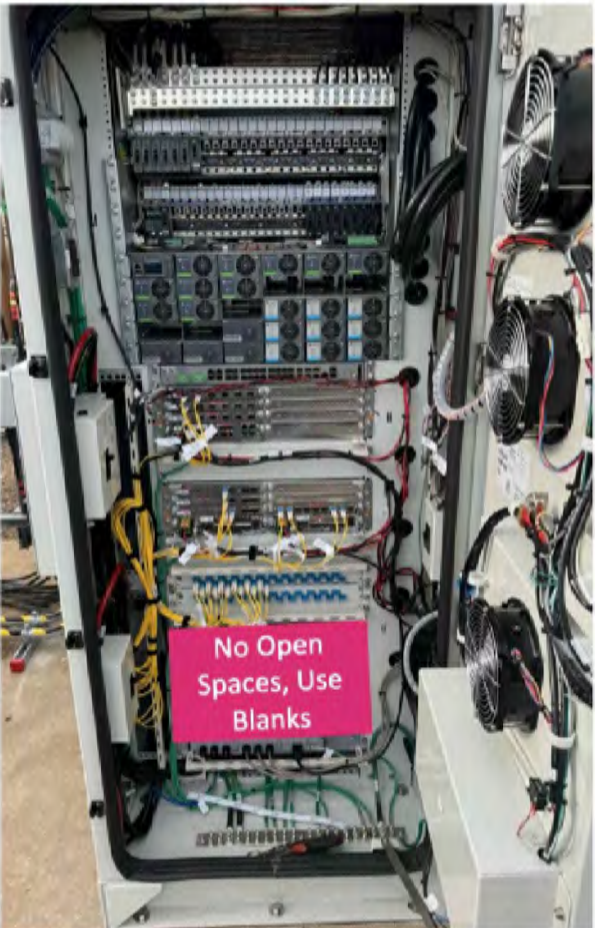
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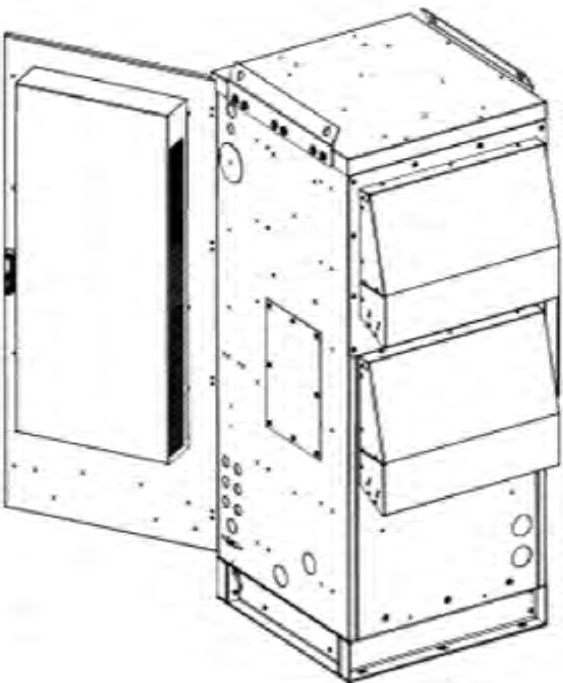
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Breaker Shelf			
Rectifier Shelf			
CSR (XR-E / SAS)	1	15" Plate with Cable Guide Unusable - Blocked by AC Breaker	
AircScale # 1	2		
	3		
	4		
2RU Blank with 2 x Cable Management Bars	5	15" Plate with Cable Guide Unusable - Blocked by AC Breaker	
	6		
AircScale # 2	7		
	8		
2RU Blank with 2 x Cable Management Bars	9	15" Plate with Cable Guide Unusable - Blocked by AC Breaker	
	10		
	11		
Fiber Patch #1	12		
Fiber Patch #2	13	15" Plate with Cable Guide Unusable - Blocked by AC Breaker	
2RU Blank with 2 x Cable Management Bars	14		
	15		
Fiber Patch #3 (Optional)	16		
Cable Management	17	15" Plate with Cable Guide Unusable - Blocked by AC Breaker	
	18		
Legacy Baseband	19		
	20		
Space for Microwave/AAV	21	15" Plate with Cable Guide Unusable - Blocked by AC Breaker	
	22		
PSEE mounted on PMAB	23		



Front

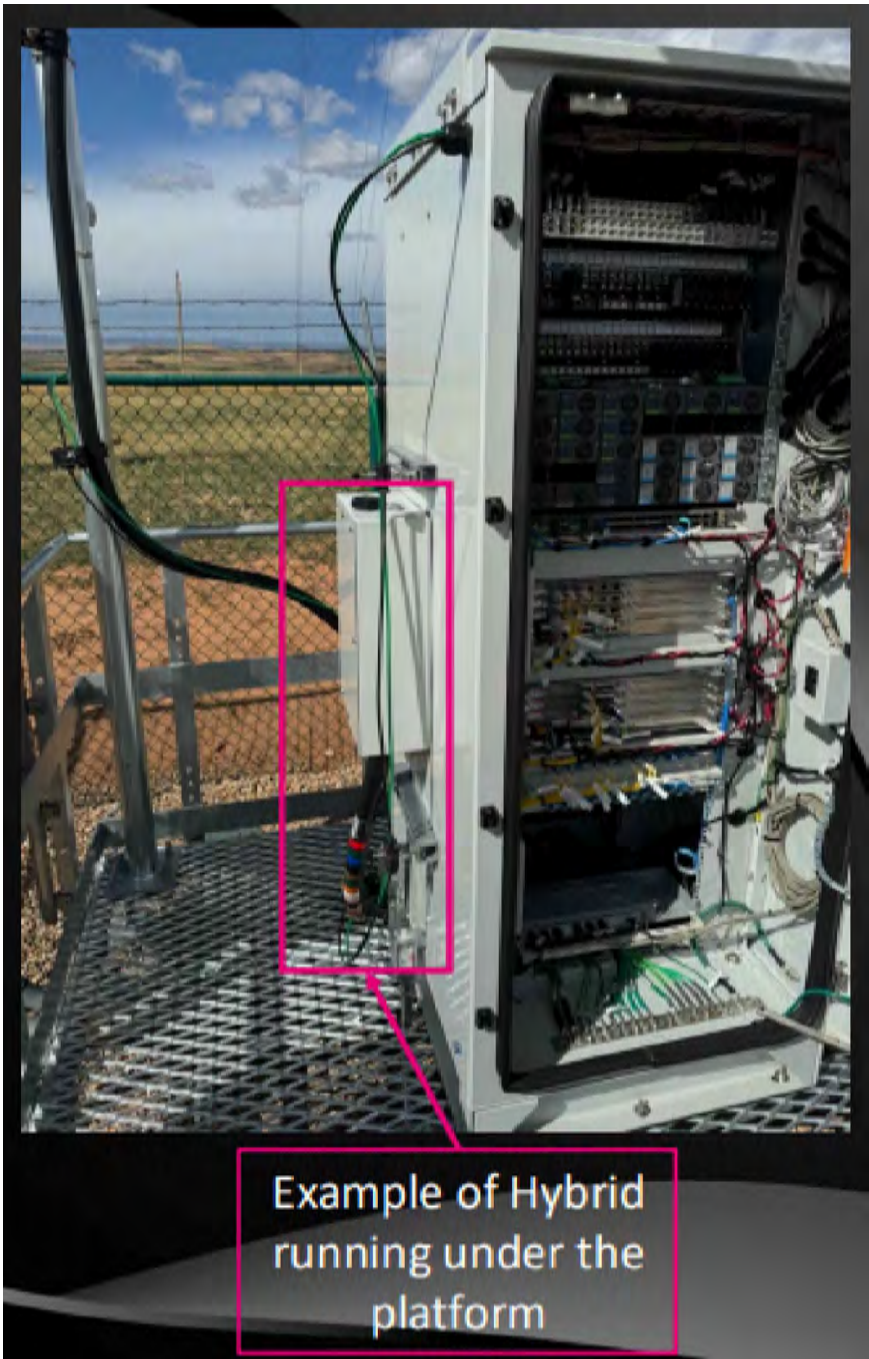


Rear

SITE SUPPORT CABINET DETAIL

SCALE: NONE

1



HCS 6x24 TRUNK ENTRY DETAIL

SCALE: NONE

2



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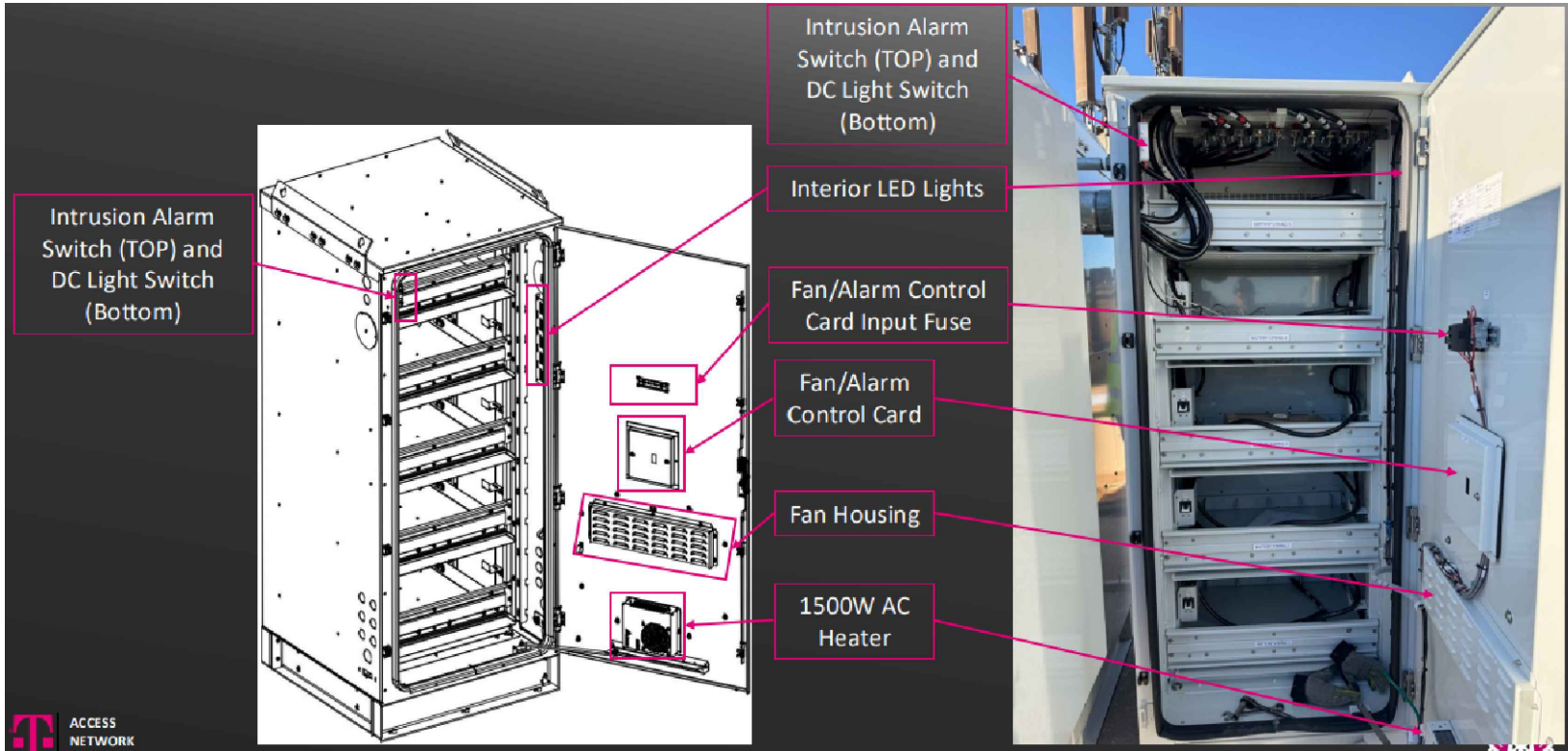
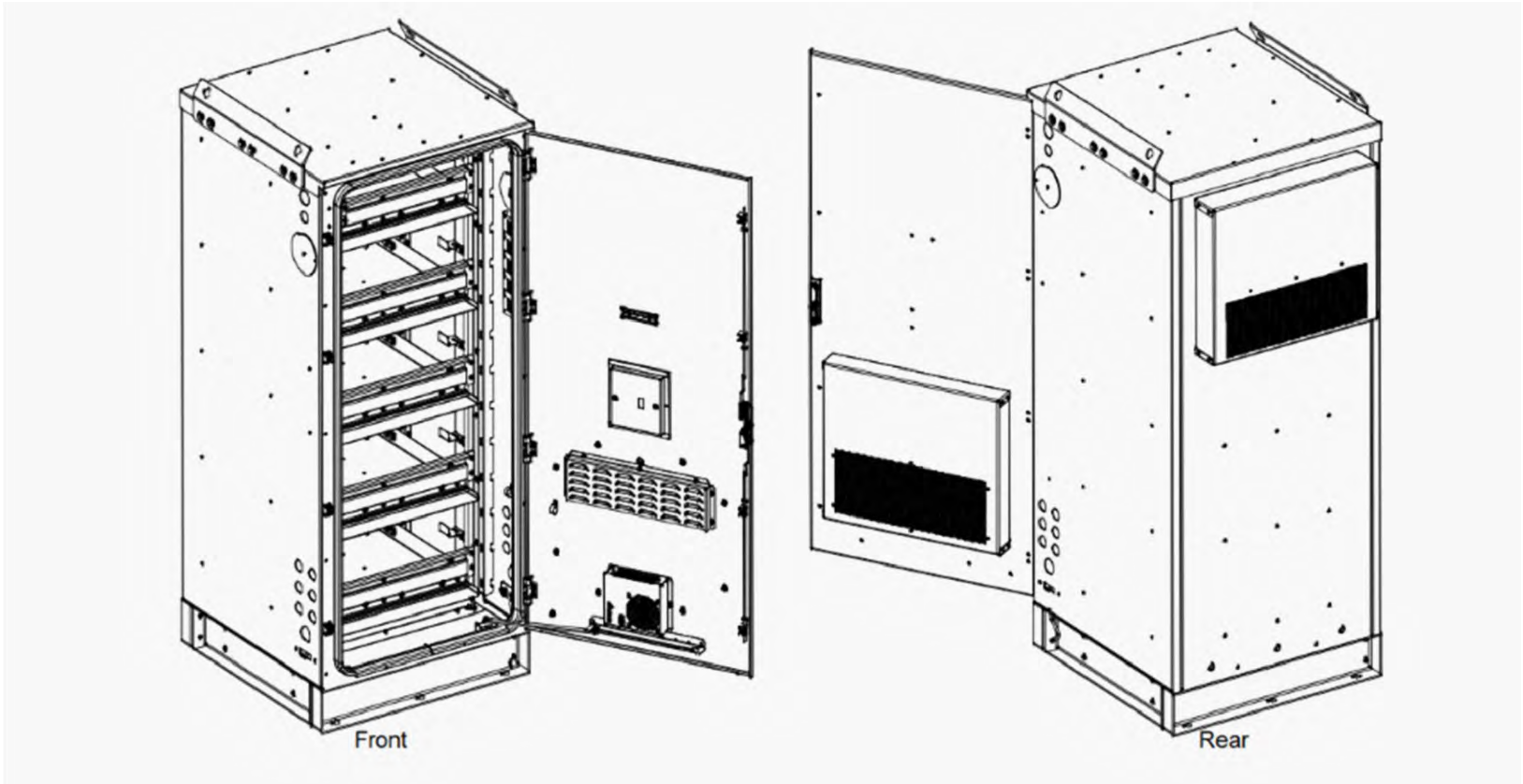
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A-9

EQUIPMENT DETAILS



BATTERY CABINET DETAIL

SCALE: NONE



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Power Protection Cabinet (PPC) 225A with Generator Input and AC Alarm

Product Features

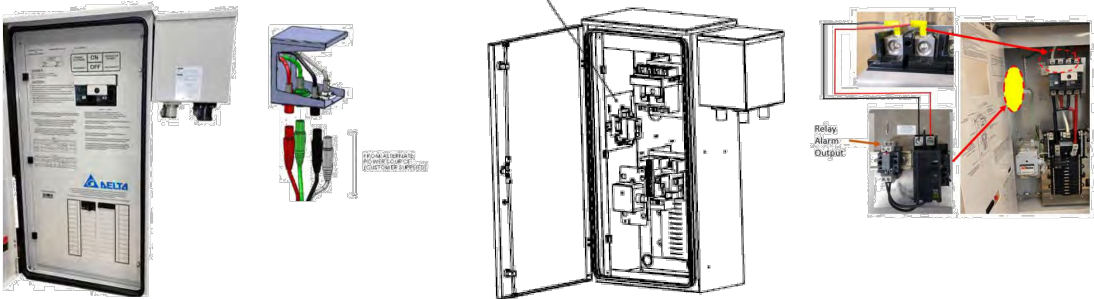
- Single wall Aluminum enclosure
- Powder coated finish
- Pad lockable 3-point door latch
- Type 3R & IP55 rated
- Metal oxide varistor surge protection
- Camlok generator connection
- Main AC Input Detection Alarm

www.deltaww.com



Specifications

Model / Part Number		4910163600
1. General		
Construction	Single layer Aluminum enclosure, Type 3R	
Dimensions (W x H x D)	20.2 x 39 x 11.2 inch excludes generator connections 29.7 x 39 x 11.2 inch including RH Camlok generator box	
Weight	71 lbs (without packaging)	
Finish	Polyester Powder Paint	
Door Latch	3-Point latching, pad lockable UL50 (Cabinet)	
Safety	UL891 Dead Front Switchboard Listed Suitable for Use as Service Equipment (N-G Bonding kit included)	
2. Environment		
Operating temperature	-40°C to +46°C (-40°F to 115°F)	
Humidity (relative)	95%, non-condensing (Max.)	
Protection class	Type 3R	
3. AC Section		
Voltage	240/120 Single Phase (3 wire + Ground)	
Current	225A	
AIC Rating	Utility 65,000 Amps	
Other features	Generator Interface: Camlok Connections (Right Mount)	
	Service Disconnect: Square D 225 Amp (65kAIC) Mechanical Slide Bar Interlock	
	Load Center: Square D 225 Amp, QO Series, 24 Position	
	Surge Protection Device (SPD) - 1 ea. AC2080M-02	
	Square D 30 Amp, 2-Pole Breaker for SPD	
	Ground Bar	
	Silkscreen Dead-Front Lift Off Style	
	Captive Dead-Front Fasteners	
	Loss of AC Input Alarm	
5. Ordering information		
PPC	4910163600	Power Pedestal Cabinet - 225A w/ AC Alarm
AC Alarm Relay Kit FRU	5630102506	Alarm Monitoring Retrofit Kit for PPC



GENERATOR INPUT

*Male Receptacle Twist Lock Panel Mount connectors (not included)

*All specifications are subject to change without prior notice.

EN_z23n2P17/ FH

Delta Group Website:
www.deltaww.com

Product Website:
www.deltapowersolutions.com

United States of America & Canada:
Delta Electronics (USA) Inc.
2925 E. Plano Parkway
Plano, TX (Texas) 75074

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EQUIPMENT DETAILS

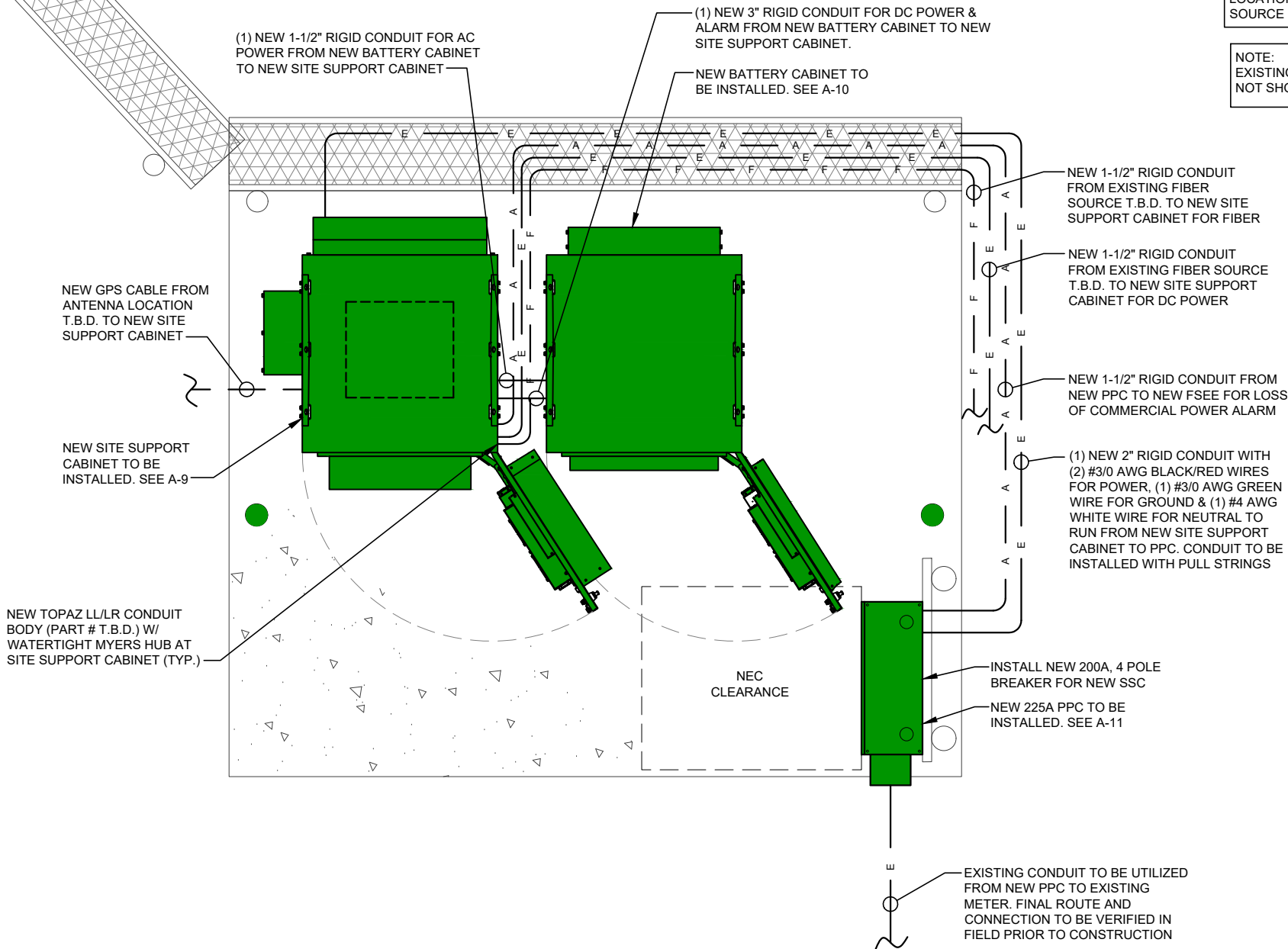
PPC DETAIL

SCALE: NONE

1

LEGEND

F FIBER LINE
E ELECTRIC LINE
A ALARM CABLE



PPC NOTES:

- LOW VOLTAGE CONDUIT FROM PPC TO SSC
- (2) RUNS OF BELDEN 27916A 18 AWG 2 CONDUCTOR TYPE TC CABLE, 600V WIRE
- WIRE TO NORMALLY CLOSED RELAY FOR LOCP
- WIRE TO NORMALLY OPEN RELAY FOR GENERATOR RUN

NOTE:
CONTRACTOR TO CONFIRM
LOCATION OF EXISTING FIBER
SOURCE PRIOR TO CONSTRUCTION.

NOTE:
EXISTING/PROPOSED ICE BRIDGES
NOT SHOWN FOR CLARITY.

VOLTAGE DROP (FOR 200A, 120/240V, 1PH)			
FROM NEW PPC TO EXISTING METER			
LENGTH OF RUN	WIRE SIZE	VOLTAGE DROP (VOLTS)	PERCENTAGE OF VOLTAGE
±50'-0"	(1) RUN OF (3) 3/0 AWG & (1) #6 GND	1.70V	0.71%

UTILITY SCHEDULE					
FROM	TO	WIRE QTY. & TYPE	GROUND	CONDUIT SIZE	FUNCTION
PPC	SSC	(2) 3/0 (1) #4 NEUTRAL WIRE	(1) 3/0 FOR GROUND	2" RMC	ELECTRIC CONDUIT
PPC	SSC	(1) PAIR OF #18 AWG	N/A	1" RMC	ALARM CONDUIT
FIBER ENCL.	SSC	20' SM FIBER	N/A	1" RMC	FIBER CONDUIT
SSC	FIBER ENCL.	(2) #12 AWG	(1) #12 AWG	1" RMC	ELECTRIC CONDUIT
BATTERY CABINET	SSC	(2) CAT-5 CABLES	N/A	3" RMC	TELCO CONDUIT
SSC	BATTERY CABINET	(2) PAIRS OF 4/0 TELCO FLEX POWER CABLES & (3) #12 AWG	N/A	2" RMC	ELECTRIC CONDUIT
BATTERY CABINET	SSC	TBD	N/A	2" RMC	ELECTRIC + ALARM CONDUIT

	ACTUAL LENGTH	ACTUAL LENGTH +10% SAFETY FACTOR	FACTORY LENGTH
GPS ANTENNA CABLE LENGTH	±10'-0"	±11'-0"	98'-5" (30m)

UTILITY PLAN

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

1



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UTILITY PLAN

SITE NUMBER:		T-Mobile		MODEL NUMBER:		4910163600									
VOLTAGE:		240V/120		PHASE:		1		WIRE:		3					
MAIN BREAKER:		200 AMP		BUSS RATING:		225 AMPS		AIC:		65,000					
MOUNT:		SURFACE		NEUTRAL BAR:		YES		GROUND BAR:		YES					
ENCLOSURE TYPE:		NEMA 3R		N to GROUND BOND:		YES									
PANEL STATUS:		NEW		INTERNAL TVSS:		YES									
CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA	PHASE B VA	USAGE FACTOR	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	SURGE ARRESTOR	60	2	ON	0	1.00	9525		1.25	9525	ON	2	150	SITE SUPPORT CABINET	2
3					0	1.00		9525	1.25	9525					4
5	SERVICE LIGHT (IF INSTALLED)	15	1	ON	30	1.00	9555		0.00	0	N/A	---	---	---	6
7	---	---	---	N/A	0	0.00		0	0.00	0	N/A	---	---	---	8
9	---	---	---	N/A	0	0.00	0		0.00	0	N/A	---	---	---	10
11	---	---	---	N/A	0	0.00		0	0.00	0	N/A	---	---	---	12
13	---	---	---	N/A	0	0.00	0		0.00	0	N/A	---	---	---	14
15	---	---	---	N/A	0	0.00		0	0.00	0	N/A	---	---	---	16
17	---	---	---	N/A	0	0.00	0		0.00	0	N/A	---	---	---	18
19	---	---	---	N/A	0	0.00		0	0.00	0	N/A	---	---	---	20
21	---	---	---	N/A	0	0.00	0		0.00	0	N/A	---	---	---	22
23	---	---	---	N/A	0	0.00		0	1.00	180	ON	1	20	GFI	24
							19080	9525	VA			TOTAL KVA	28.61		
												AMPS	119.19		

PANEL SCHEDULE	1
SCALE: NONE	

NOT USED	2
SCALE: NONE	

NOT USED	3
SCALE: NONE	



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ELECTRICAL DETAILS



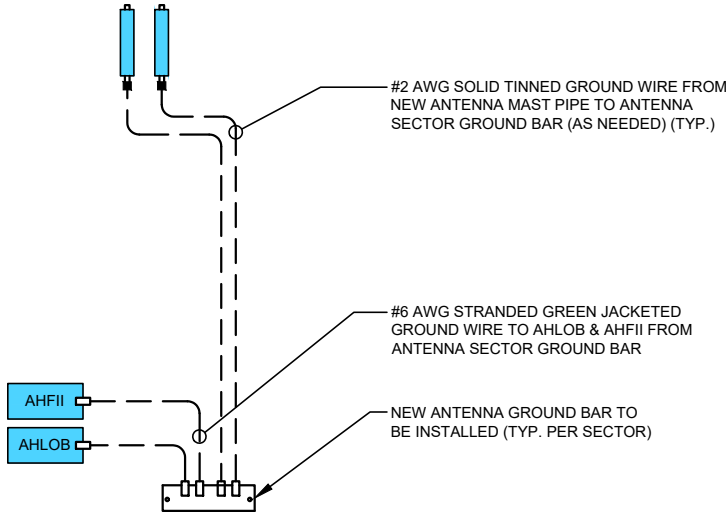
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NOTES:

- ALL ELECTRICAL WORK SHALL CONFORM TO THE LOCAL ELECTRICAL CODE (EDITION ADOPTED BY LOCAL JURISDICTION) AND APPLICABLE LOCAL CODES.
- GROUNDING SHALL COMPLY WITH THE LOCAL ELECTRICAL CODE.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED.
- WIRES AND CABLES FOR POWER AND LIGHTING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN INSULATION. SOLID CONDUCTORS FOR #10 AWG AND SMALLER, STRANDED FOR LARGER THAN #10 AWG. MINIMUM SIZE #12 AWG.
- WIRES AND CABLES FOR POWER SHALL BE INSTALLED IN GALVANIZED RIGID STEEL CONDUIT OR FLEXIBLE LIQUID TIGHT CONDUIT AS INDICATED ON DRAWING.
- CONTRACTOR TO OBTAIN ALL PERMITS, PAY PERMIT FEES, AND BE RESPONSIBLE FOR SCHEDULING INSPECTIONS.
- COORDINATE WITH UTILITY COMPANIES SERVICE ENTRANCE REQUIREMENTS.
- PROVIDE ALL LABOR AND MATERIAL DESCRIBED ON THIS DRAWING, AND ALL ITEMS INCIDENTAL TO COMPLETING AND PRESENTING THIS PROJECT AS FULLY OPERATIONAL.
- GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE TO ANTENNA MASTS, AND THE GROUND BARS. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS.
- GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH COAX CABLE GROUNDING KITS & INSTALL WEATHER PROOFING KIT AT EACH CONNECTION.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE, ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY.
- CONTRACTOR TO PROVIDE GROUND RING AS SHOWN ON GROUNDING SITE PLAN AND GROUNDING RISER DIAGRAM. CONTRACTOR SHALL TEST AND VERIFY THAT THE IMPEDANCE DOES NOT EXCEED 5 OHMS TO GROUND BY MEANS OF A BIDDLE-MEGGER TESTER. GROUNDING AND OTHER OPERATIONAL TESTING SHALL SHALL BE WITNESSED BY THE OWNER'S REPRESENTATIVE.
- CONTRACTOR TO PROVIDE TELEPHONE CONDUIT AS SHOWN ON PLANS.
- CONTRACTOR TO PROVIDE ELECTRIC CONDUIT AS SHOWN ON PLANS.
- NOTIFY LOCAL UTILITY SERVICE PRIOR TO ANY INSTALLATION.
- ALL EQUIPMENT FURNISHED BY OTHERS SHALL BE PROVIDED WITH PROPER MOTOR STARTERS, DISCONNECTS, CONTROLS, ETC. BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND COMPLETELY WIRE ALL ASSOCIATED EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S WIRE DIAGRAMS AND AS REQUIRED FOR A COMPLETE OPERATING INSTALLATION. ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF EQUIPMENT PRIOR TO ROUGH-IN OF CONDUIT AND WIRING TO AVOID CONFLICTS WHERE APPLICABLE.
- GROUNDING CONDUCTORS SHALL BE COPPER OR SOLID TINNED COPPER. ALL CONNECTIONS MADE BELOW GRADE SHALL BE SOLID TINNED COPPER. ALL CONNECTIONS ABOVE GRADE STRANDED IS PERMITTED. BUS BARS TO BE TIN PLATED COPPER
- ALL EXOTHERMIC WELDS ABOVE FINISHED GRADE SHALL BE PAINTED WITH CO-GALVANIZED ZINC ENRICHED PAINT TO MATCH COLOR OBJECT BONDED TO.
- CONNECT COAX GROUND KITS TO MASTER GROUND BAR AT BASE OF TOWER.
- CONNECT COAX GROUND KITS TO GROUND BUS AT TOP OF TOWER.
- CONNECT LNA GROUND TO GROUND BUS AT TOP OF TOWER.
- ALL GROUNDING CONNECTIONS TO BE MADE USING EXOTHERMIC WELD PROCESS UNLESS OTHERWISE APPROVED BY DESIGNER.
- ELECTRICAL CONTRACTOR TO PULL BONDING JUMPER AT CABINET ONLY IF DISCONNECT GROUND IS TIED TO GROUND FIELD INSTEAD OF SEPARATE GROUND ROD.
- PLAN DRAWINGS SHOWN HEREIN DO NOT NECESSARILY DEPICT ELECTRICAL REQUIREMENTS OF INDIVIDUAL EQUIPMENT AND DEVICES SUCH AS THE EQUIPMENT GROUNDING REQUIREMENTS, POWER REQUIREMENTS AND TELCO RACEWAY REQUIREMENTS.
- PLAN DRAWINGS SHOWN HEREIN ARE DIAGRAMMATIC AND DO NOT NECESSARILY DEPICT THE EXACT EQUIPMENT QUANTITIES, LOCATION, LAYOUT AND CONFIGURATION. REFER TO ARCHITECTURAL PLANS FOR EXACT EQUIPMENT LOCATION, LAYOUT AND CONFIGURATION.
- REFER TO ARCHITECTURAL PLANS FOR THE LOCATION OF POWER AND TELCO POINT OF CONNECTIONS, THE DISTANCE OF THE RUN, AND THE SUGGESTED CONDUIT ROUTING. FIELD VERIFY EXISTING CONDITIONS SPECIFICALLY FOR CONDUIT ROUTING PRIOR TO BID.
- NUMBER OF ANTENNAS REPRESENTED IN THIS DETAIL ARE FOR SHOWING CLARITY OF GROUND SYSTEM REQUIREMENTS ONLY. SEE RF INFO FOR ANTENNA QUANTITY.
- CONTRACTOR TO 'NOALOX' ALL CONNECTIONS TO GROUND BARS.
- ALL GROUND WIRES ENTERING GROUND SHALL HAVE PVC SLEEVE.

ANTENNA SECTOR



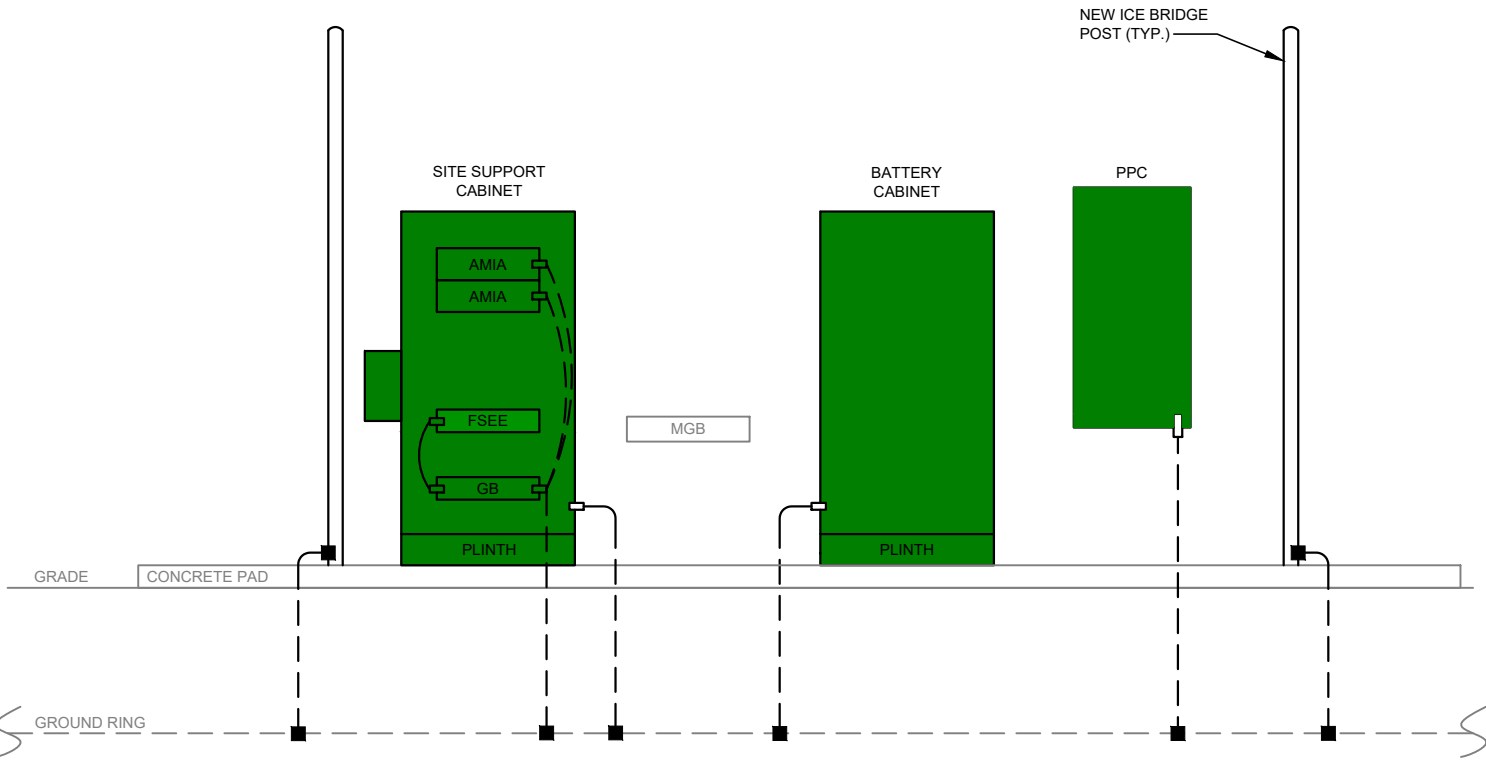
LEGEND

- NEW GROUNDING WIRE
- EXISTING GROUNDING WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- EXISTING EQUIPMENT
- NEW ANTENNA EQUIPMENT
- NEW GROUND EQUIPMENT
- RELOCATED EQUIPMENT

NOTES:

- AMIA TO CABINET GROUND BAR:
#6 AWG STRANDED GREEN JACKETED GROUND WIRE
- FSEE TO CABINET GROUND BAR:
#6 AWG STRANDED GREEN JACKETED GROUND WIRE
- CABINETS TO GROUND RING:
#2 SOLID TINNED COPPER GROUND WIRE IN 1/2" NON METALLIC SEALTIGHT WITH NO-OX, AND CAULKED
- CABINET GROUND BAR TO GROUND RING:
#2 SOLID TINNED COPPER GROUND WIRE IN 1/2" NON METALLIC SEALTIGHT WITH NO-OX, AND CAULKED
- PPC TO GROUND RING:
#2 AWG SOLID TINNED COPPER GROUND WIRE IN 1/2" NON-METALLIC SEALTIGHT WITH NO-OX AND CAULKED
- ICE BRIDGE POST TO GROUND RING:
#2 AWG SOLID TINNED COPPER GROUND WIRE IN 1/2" NON-METALLIC SEALTIGHT WITH NO-OX AND CAULKED

NOTE:
CONTRACTOR TO VERIFY FINAL
GROUNDING SYSTEM RESISTANCE
TO BE UNDER 5 OHMS.



GROUNDING RISER

SCALE: NONE

1



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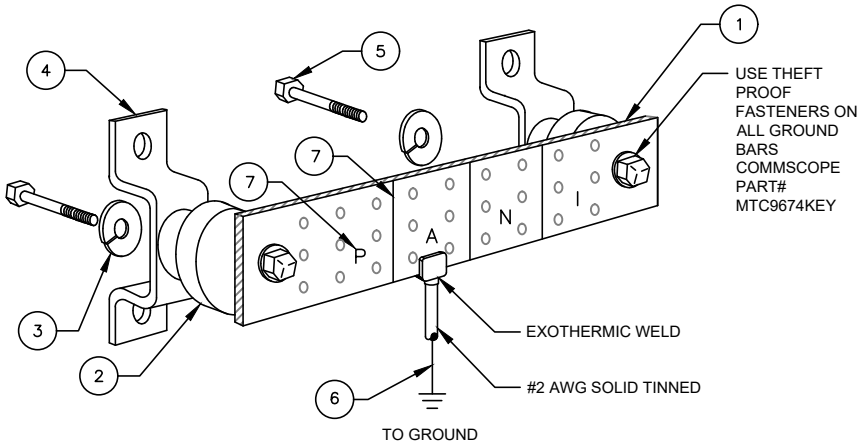
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KEY NOTES:	
1.	1/4" THK ELECTRICAL TINNED GROUND BAR HARGER OR APPROVED EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2.	INSULATORS (UNLESS NOTED OTHERWISE)
3.	3/8" STAINLESS STEEL LOCKWASHERS
4.	WALL MOUNTING BRACKET
5.	3/8" STAINLESS STEEL BNLF BOLTS
6.	EXOTHERMICALLY WELD #2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD
7.	CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS



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

SECTION "P" - SURGE PRODUCERS

- COLLECTOR GROUND BAR
- GENERATOR FRAMEWORK (IF AVAILABLE)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND
- FIBER GROUND BAR
- EQUIPMENT ROOM COLLECTOR GROUND BAR
- HVAC
- RECTIFIER FRAMES

SECTION "A" - SURGE ABSORBERS

- INTERIOR GROUND RING
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING)
- METALLIC COLD WATER PIPE (IF AVAILABLE)
- BUILDING STEEL (IF AVAILABLE)
- AC POWER

SECTION "N" - NON-ISOLATED GROUND ZONE EQUIPMENT

- MISCELLANEOUS NON-ISOLATED GROUND ZONE EQUIPMENT
- CABLE TRAY SYSTEM
- EQUIPMENT FRAMES
- BATTERY RACKS
- DC POWER

SECTION "I" - ISOLATED GROUND ZONE

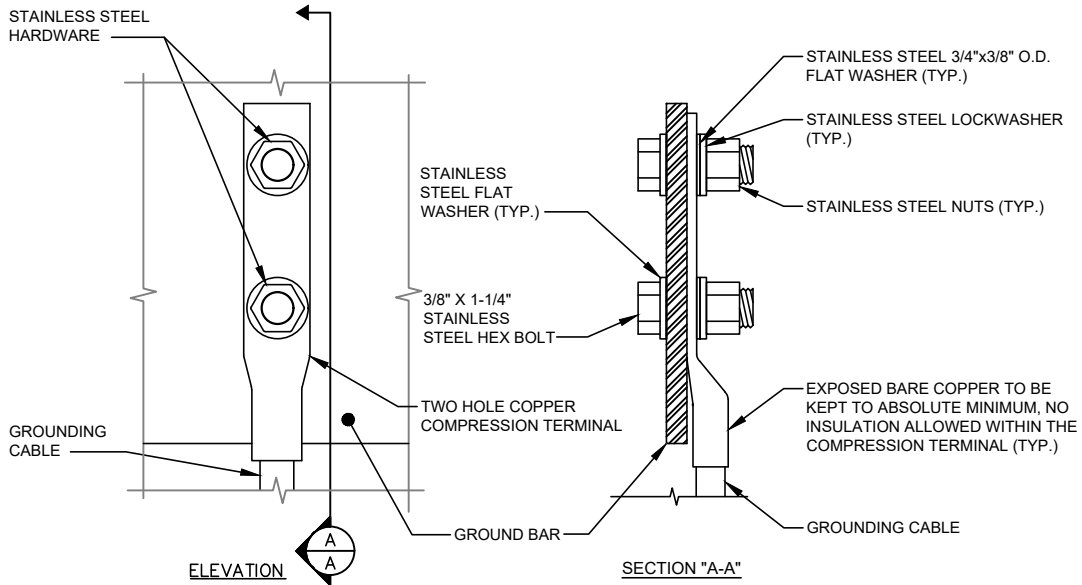
- ISOLATED EQUIPMENT FRAMES
- ISOLATED GROUND BAR - IGB

- NOTES:
- EXTERIOR GROUND BARS TO BE TIN PLATED
 - HARDWARE SHALL BE STAINLESS STEEL
 - CONTRACTOR SHALL GROUP INCOMING WIRES
 - CONTRACTOR TO APPLY 'KOPR-SHIELD' TO ALL CONNECTIONS

GROUND BAR DETAIL

SCALE: NONE

1

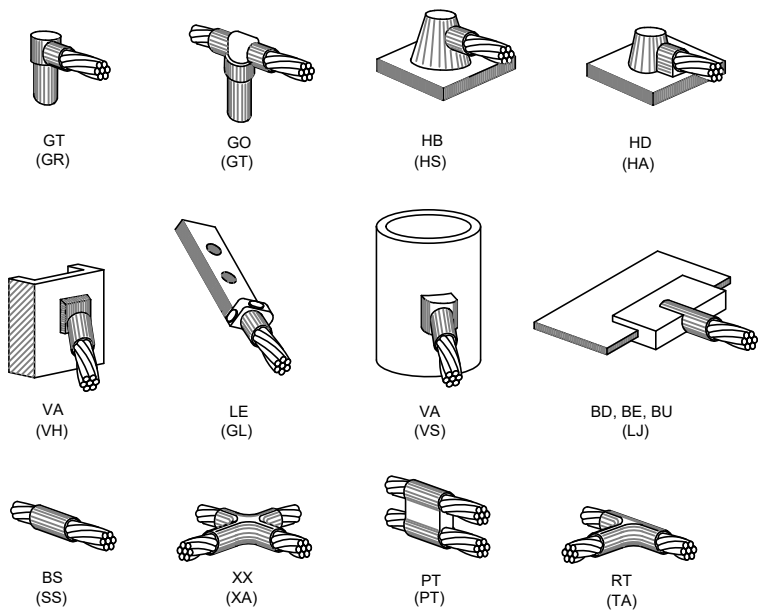


1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS
2. NO CRIMPING OF SOLID #2. USE EXOTHERMIC WELD ONLY

GROUND BAR CONNECTION DETAIL

SCALE: NONE

2

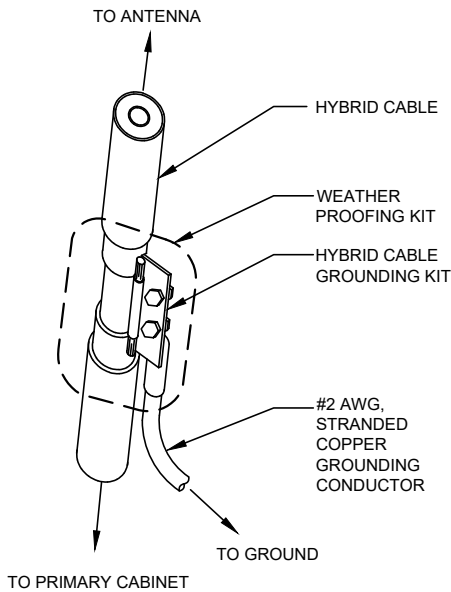


NOTE:
THE FOLLOWING SYMBOLS SHOWN ARE HARGER ULTRAWELD EXOTHERMIC CONNECTIONS WITH PART NUMBERS BELOW. THESE CONNECTIONS MAY BE CROSS-REFERENCED WITH CADWELD CONNECTIONS WHICH ARE SHOWN IN PARENTHESIS.

EXOTHERMIC WELD TYPES

SCALE: NONE

3



HYBRID CABLE GROUNDING KIT

SCALE: NONE

4



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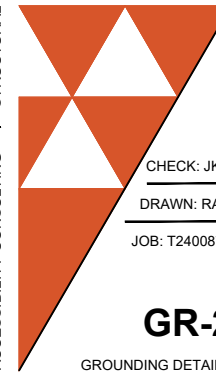


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GROUNDING DETAILS

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PER THE INTERNATIONAL BUILDING CODE THIS STRUCTURE IS CLASSIFIED AS:

1. CONSTRUCTION TYPE II-B (TABLE 601)
2. GROUP U OCCUPANCY (SECTION 312.1 UNOCCUPIED TOWER SITE)

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 110' MONOPOLE TOWER

PROPOSED CARRIER: T-MOBILE

SITE: MO17428-A-SBA / WEST BROADWAY

COORDINATES (LATITUDE: 38.953040°, LONGITUDE: -92.357050°)

CONSTRUCTION CLASS

THE CONSTRUCTION PLAN FOR THIS SITE WOULD
BE A MINIMUM OF A CLASS **IV** AND THE
CONTRACTOR SHALL MAKE FINAL DETERMINATION

PLEASE NOTE THIS SET OF DRAWINGS IS FOR INSTALLATION AND
ASSEMBLY ONLY. FABRICATION DETAIL DRAWINGS ARE NOT PROVIDED AND
MUST BE COMPLETED BY THE STEEL FABRICATOR SELECTED. TES CAN
PROVIDE THE FABRICATION DETAIL DRAWINGS FOR AN ADDITIONAL FEE.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	1
BOM	BILL OF MATERIALS	1
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	1
A-1A	ADDITIONAL DETAILS	1
A-2	MONOPOLE SECTION INSTALLATION DETAILS	0
A-3	MONOPOLE SECTION INSTALLATION DETAILS	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE
TES PROJECT NO. 148637, DATED 06/06/2024.

TES

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SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
148890

CUSTOMER SITE NO:
MO17428-A-SBA
CUSTOMER SITE NAME:
WEST BROADWAY
1201 WEST BROADWAY
COLUMBIA, MO 65203

STACEY E. HESSELBEIN, PE
CIVIL ENGINEERING LICENSE # 2019015881
TOWER ENGINEERING SOLUTIONS, LLC
PROFESSIONAL ENGINEERING CORPORATION
COA # E-2014025012

STATE OF MISSOURI

STACEY E.
HESSELBEIN

NUMBER
PE-2019015881

PROFESSIONAL ENGINEER

10/17/2024

DRAWN BY: DCR | CHECKED BY: TA/JRL

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1	FIRST ISSUE	DCR	09/03/24
1	REVISED	DCR	10/17/24

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TITLE SHEET

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<div><div>SBA</div><div></div></div> 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800)-487-SITE			
TES JOB NO: 148890			
CUSTOMER SITE NO: M017428-A-SBA CUSTOMER SITE NAME: WEST BROADWAY 1201 WEST BROADWAY COLUMBIA, MO 65203			
STACEY E. HESSELBEIN, PE CIVIL ENGINEERING LICENSE # 2019015881 TOWER ENGINEERING SOLUTIONS, LLC PROFESSIONAL ENGINEERING CORPORATION COA # E-2014025012			
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GENERAL NOTES

- ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-H, ANSI/ASSP A10.48, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
- ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER ANSI/ASSP A10.48, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
- CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
- THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
- GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

- ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
- ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINCKOTE GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER’S RECOMMENDATIONS.

WELDING

- ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
- PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5” BEYOND THE PROPOSED FIELD WELD SURFACES.
- ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
- WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
- AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINCKOTE GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER’S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

- ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
- FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
- SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
- THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
- HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

- IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2018 SECTION 1705.2 FOR STEEL CONSTRUCTION & TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

- CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
- FOLLOW MANUFACTURER’S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
- DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER’S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
- A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER’S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
- AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
- BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
- AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
- BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
- CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
- NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
- EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
- CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT
CONDITION FOR TURN-OF-NUT PRETENSIONING^{a,b}

BOLT LENGTH ^f	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 ^d	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS ^d
NOT MORE THAN 4d _b	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN 4d _b BUT NOT MORE THAN 8d _b	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN 8d _b BUT NOT MORE THAN 12d _b	2/3 TURN	5/6 TURN	1 TURN
<p>^a NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.</p> <p>^b APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.</p> <p>^c WHEN THE BOLT LENGTH EXCEEDS 12d_b, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.</p> <p>^d BEVELED WASHER NOT USED.</p>			

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004
RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

- HB12 HOLLO BOLT: 59 FT-LBS
- HB16 HOLLO BOLT: 140 FT-LBS
- HB20 HOLLO BOLT: 221 FT-LBS
- M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

- CONTRACTOR’S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
- HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
- CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
- CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
- ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
- FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
- CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
- ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
- IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
- PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.



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TES JOB NO:
148890

CUSTOMER SITE NO:
MO17428-A-SBA
CUSTOMER SITE NAME:
WEST BROADWAY
1201 WEST BROADWAY
COLUMBIA, MO 65203

STACEY E. HESSELBEIN, PE
CIVIL ENGINEERING LICENSE # 2019015881
TOWER ENGINEERING SOLUTIONS, LLC
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GN-1

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NOTES:

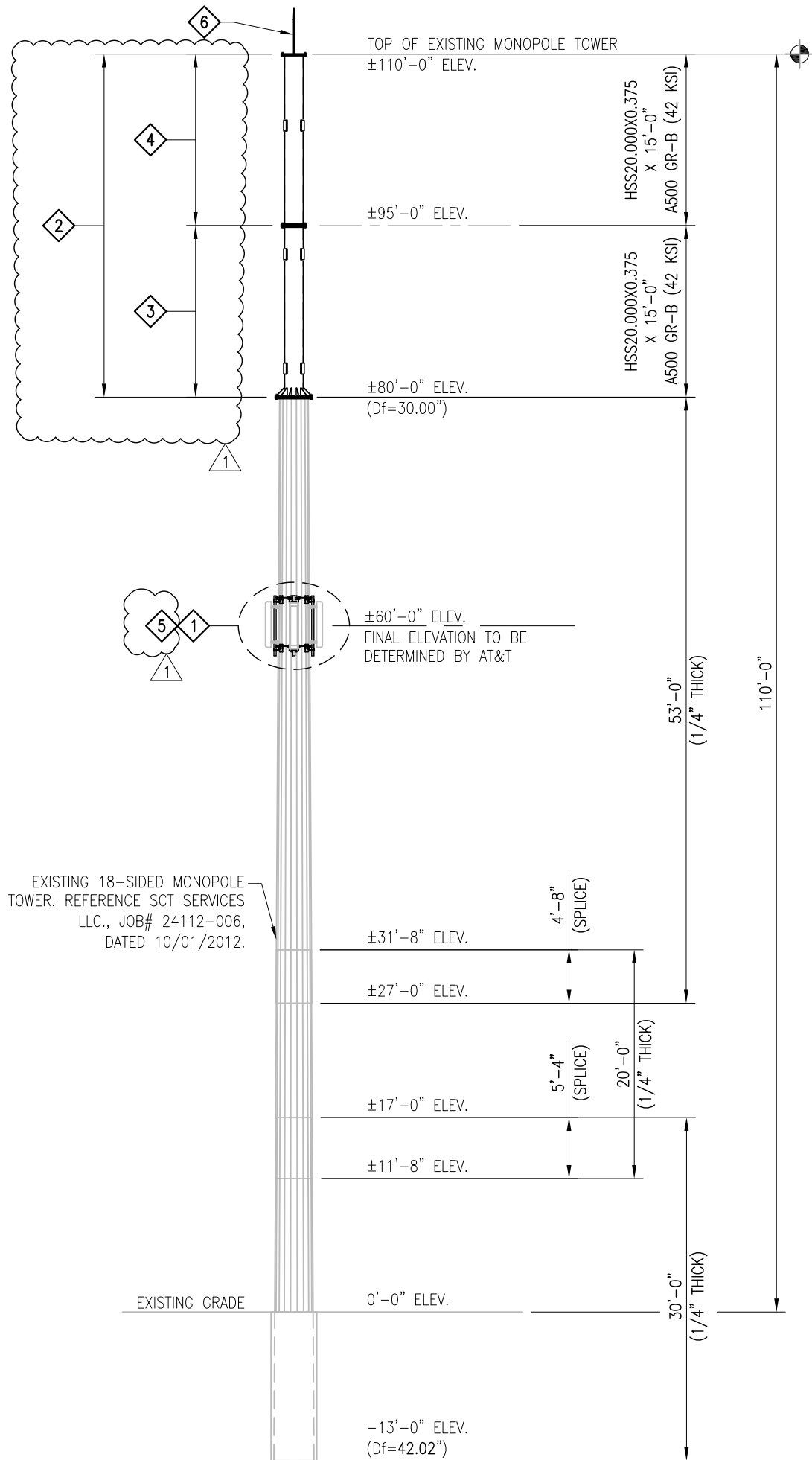
1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
2. TEMPORARY RELOCATION OF EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

SCOPE OF WORK

1. A. TEMPORARILY RELOCATE (3) EXISTING COMMSCOPE - JAH4-65C-R4 - PANEL ANTENNAS AT $\pm 106'-0"$ ELEV. AND ASSOCIATED EQUIPMENT USING PROVIDED 3-SECTOR CHAIN MOUNT AND MOUNT PIPES (T1805KT & MP-1) BELOW NEW FLANGE AT $\pm 60'-0"$ ELEV. (FINAL LOCATION TO BE DETERMINED BY AT&T)
B. RE-ROUTE EXISTING (12) 1 5/8" & (4) RET COAX LINES FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 1 ON SHEET A-1A FOR AZIMUTHS. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH AT&T.
2. REMOVE EXISTING (3) $\pm 30"$ O.D. X $\pm 10'-0"$ CANISTER SHROUDS, TRANSITION CONE AND SPINE FROM $\pm 80'-0"$ TO $\pm 110'-0"$ ELEV.
3. INSTALL NEW HSS20.000X0.375 X 15'-0" A500 GR-B (42 KSI) POLE SECTION FROM $\pm 80'-0"$ TO $\pm 95'-0"$ ELEV. SEE SHEET A-2 FOR DETAILS.
NOTE: NEW MONOPOLE SECTION COLOR TO MATCH EXISTING TOWER COLOR.
4. INSTALL NEW HSS20.000X0.375 X 15'-0" A500 GR-B (42 KSI) POLE SECTION FROM $\pm 95'-0"$ TO $\pm 110'-0"$ ELEV. SEE SHEET A-3 FOR DETAILS.
NOTE: NEW MONOPOLE SECTION COLOR TO MATCH EXISTING TOWER COLOR.
5. CONTRACTOR TO MOVE EXISTING AT&T ANTENNAS AND ASSOCIATED EQUIPMENT BACK TO THE ORIGINAL ELEVATION AT $\pm 106'-0"$ ELEV. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH AT&T.
6. INSTALL NEW LIGHTNING ROD AT TOP OF THE NEW SECTION AND FIELD CUT IT DOWN IF REQUIRED TO MEET FAA APPROVAL. (SEE DETAIL 2 ON SHEET A-1A).
7. APPLY FOUNDATION COATING, SEE NOTES ON SHEET A-1A.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

INSTALLATION NOTE:

VERTICAL ALIGNMENT IS REQUIRED FOR ALL THE EXTENSION PROJECTS, TOWERS OR POLES



TES
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TES JOB NO:
148890

CUSTOMER SITE NO:
MO17428-A-SBA
CUSTOMER SITE NAME:
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1201 WEST BROADWAY
COLUMBIA, MO 65203

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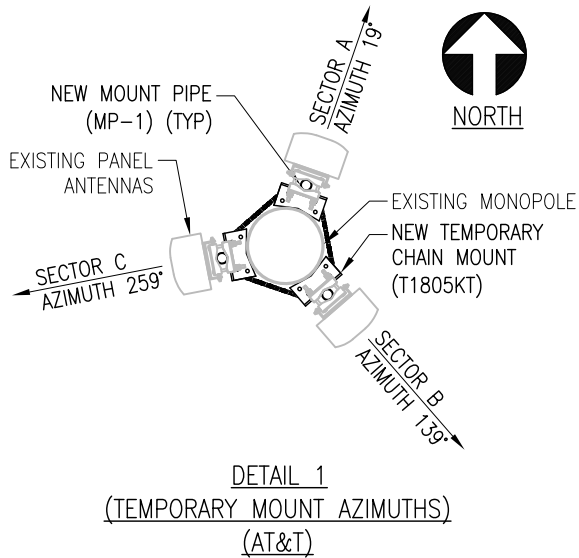
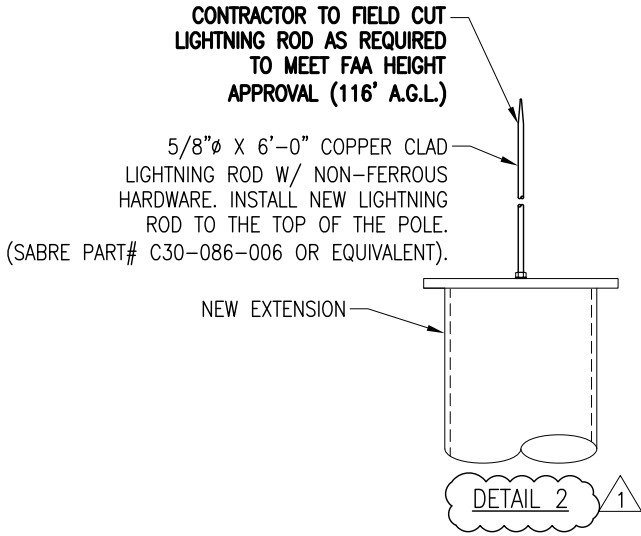


PHOTO 1



PHOTO 2



FOUNDATION COATING NOTES:

1. THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
2. THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
3. THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
4. THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
5. MINIMUM 30 MILS COATING IS REQUIRED.

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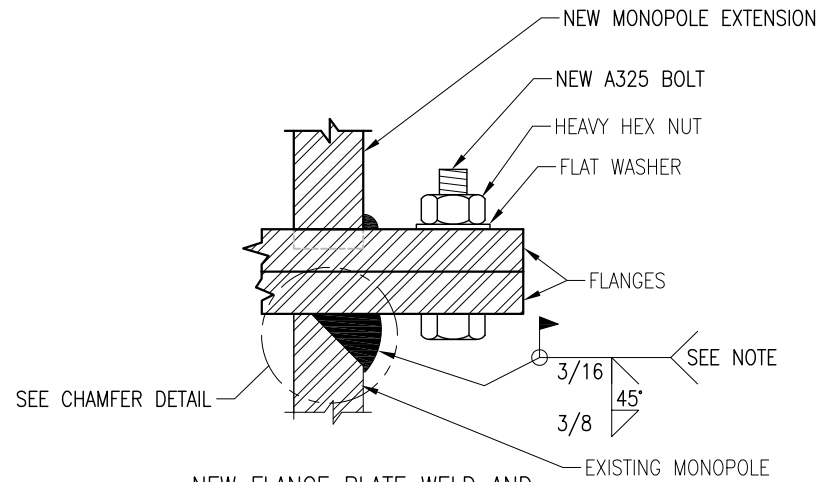
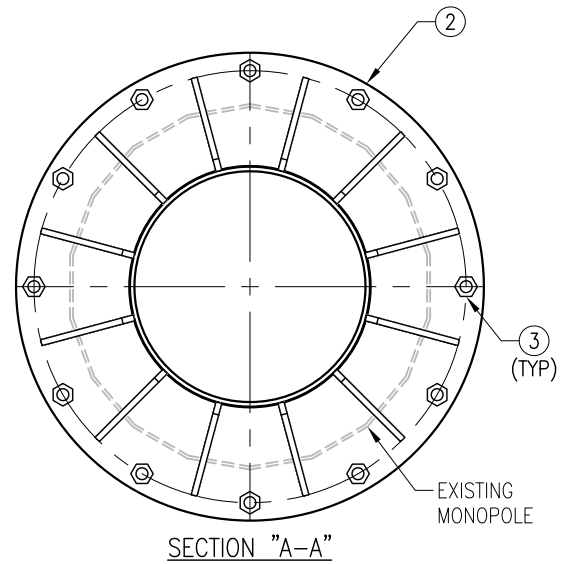
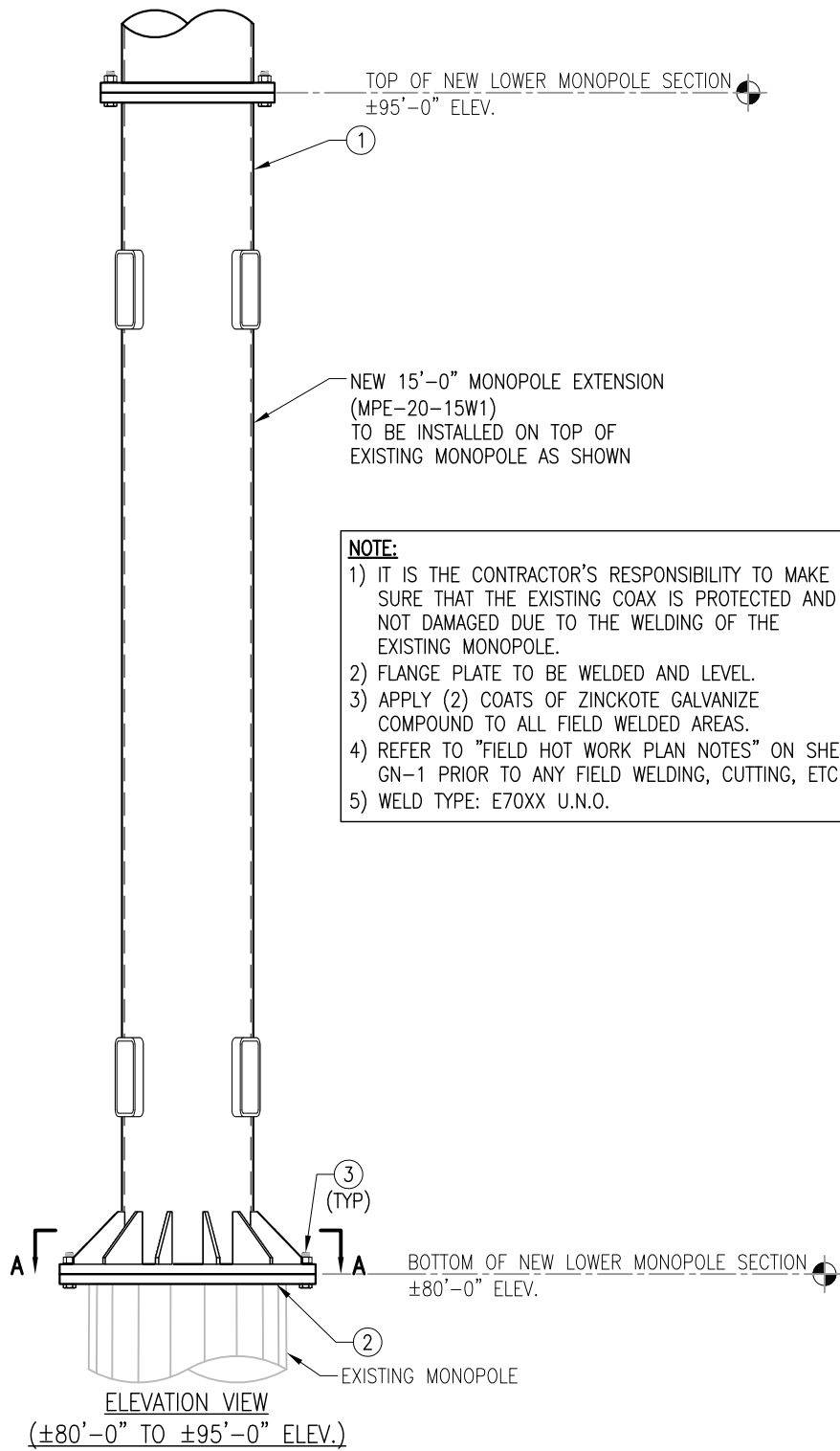
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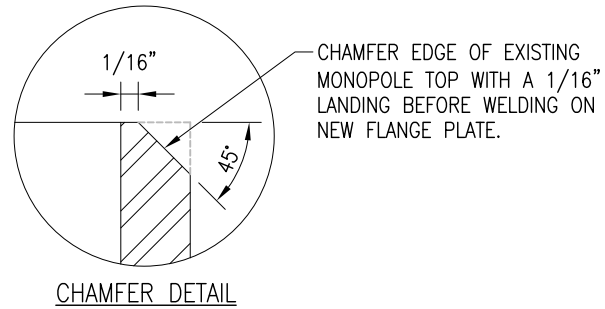
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NEW FLANGE PLATE WELD AND
BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES
ON SHEET GN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH
THIS CONNECTION.



3	12	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
2	1	FP-20	FLANGE PLATE PL 1 1/2" X 3'-3" DIA A572-50
1	1	MPE-20-15W1	MONOPOLE EXTENSION WELDMENT (PIPE HSS20.000X0.375 X 15'-0") (42 KSI) A500 GR-B
ITEM NO.	QTY.	PART NO.	DESCRIPTION

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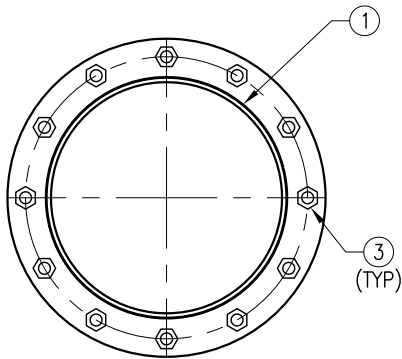
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SHEET TITLE:
**MONOPOLE SECTION
INSTALLATION DETAILS**

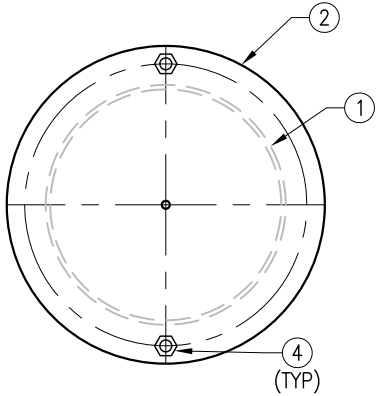
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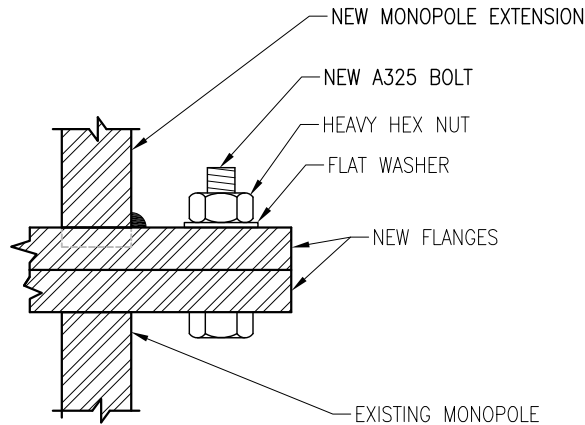
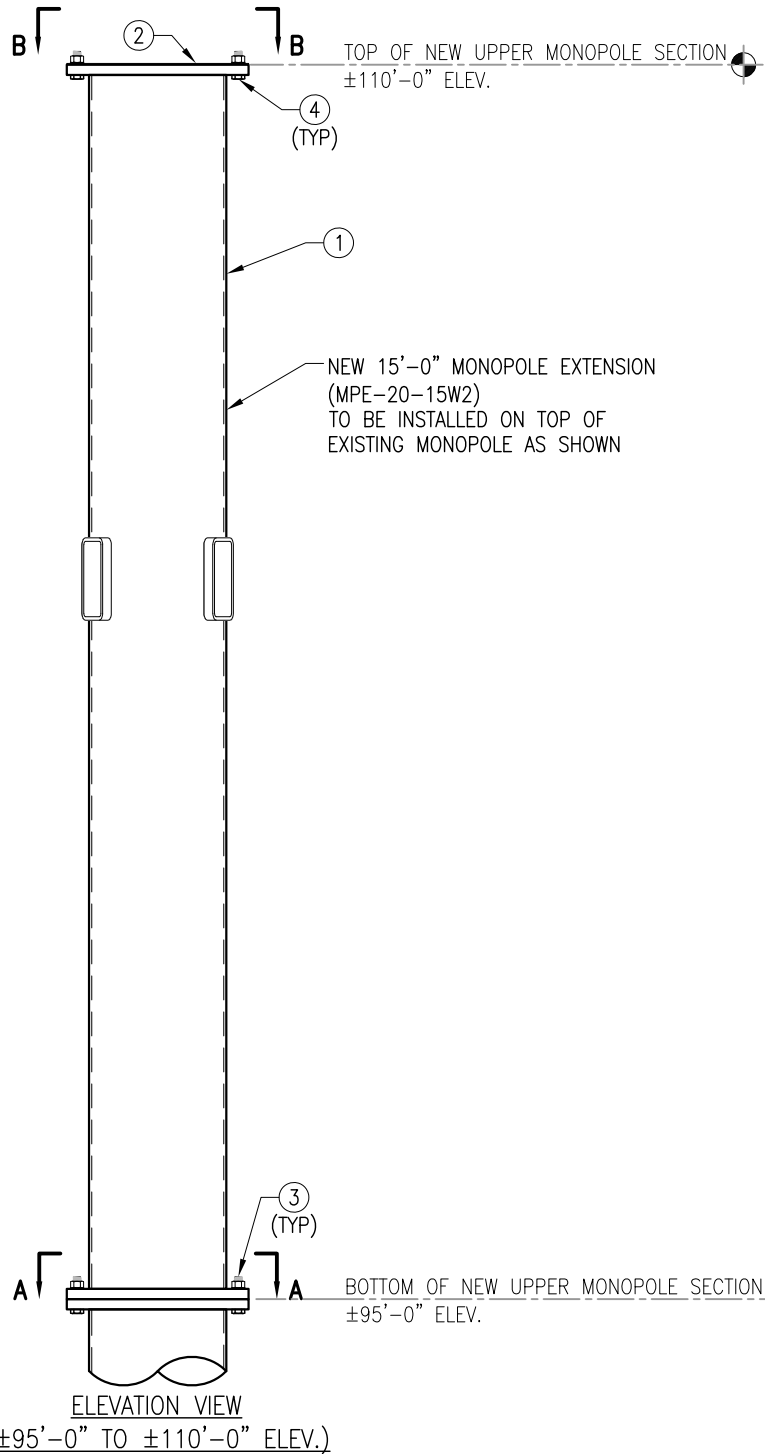
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SECTION "A-A"



SECTION "B-B"



NEW FLANGE PLATE WELD AND BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES
ON SHEET GN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH
THIS CONNECTION.

4	2	---	BOLT 1" X 3 1/2" A325 W/ NUT-FW EA.
3	12	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
2	1	CPL-20	TOP CAP PLATE PL 3/16" X 2'-2 1/2" DIA A36
1	1	MPE-20-15W2	MONOPOLE EXTENSION WELDMENT (PIPE HSS20.000X0.375 X 15'-0") (42 KSI) A500 GR-B
ITEM NO.	QTY.	PART NO.	DESCRIPTION

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MONOPOLE SECTION INSTALLATION DETAILS

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PER THE INTERNATIONAL BUILDING CODE THIS STRUCTURE IS CLASSIFIED AS:

1. CONSTRUCTION TYPE II-B (TABLE 601)
2. GROUP U OCCUPANCY (SECTION 312.1 UNOCCUPIED TOWER SITE)

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 110' MONOPOLE TOWER

PROPOSED CARRIER: T-MOBILE

SITE: MO17428-A-SBA / WEST BROADWAY

COORDINATES (LATITUDE: 38.953040°, LONGITUDE: -92.357050°)

CONSTRUCTION CLASS


THE CONSTRUCTION PLAN FOR THIS SITE WOULD
BE A MINIMUM OF A CLASS **IV** AND THE
CONTRACTOR SHALL MAKE FINAL DETERMINATION

PLEASE NOTE THIS SET OF DRAWINGS IS FOR INSTALLATION AND
ASSEMBLY ONLY. FABRICATION DETAIL DRAWINGS ARE NOT PROVIDED AND
MUST BE COMPLETED BY THE STEEL FABRICATOR SELECTED. TES CAN
PROVIDE THE FABRICATION DETAIL DRAWINGS FOR AN ADDITIONAL FEE.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	1
BOM	BILL OF MATERIALS	1
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	1
A-1A	ADDITIONAL DETAILS	1
A-2	MONOPOLE SECTION INSTALLATION DETAILS	0
A-3	MONOPOLE SECTION INSTALLATION DETAILS	0


NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE
TES PROJECT NO. 148637, DATED 06/06/2024.



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TES JOB NO:
148890

CUSTOMER SITE NO:
MO17428-A-SBA
CUSTOMER SITE NAME:
WEST BROADWAY
1201 WEST BROADWAY
COLUMBIA, MO 65203





STACEY E. HESSELBEIN, PE
CIVIL ENGINEERING LICENSE # 2019015881
TOWER ENGINEERING SOLUTIONS, LLC
PROFESSIONAL ENGINEERING CORPORATION
COA # E-2014025012



10/17/2024

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	FIRST ISSUE	DCR	09/03/24
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TITLE SHEET

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SHEET NUMBER:
T-1

REV #:
1

[illegible]

 A CONGRUEX[®] COMPANY 1320 GREENWAY DRIVE, SUITE 600 IRVING, TX 75038 PHONE: (972) 483-0607			
SBA			
8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800)-487-SITE			
TES JOB NO: 148890			
CUSTOMER SITE NO: M017428-A-SBA			
CUSTOMER SITE NAME: WEST BROADWAY			
1201 WEST BROADWAY COLUMBIA, MO 65203			
STACEY E. HESSELBEIN, PE CIVIL ENGINEERING LICENSE # 2019015881 TOWER ENGINEERING SOLUTIONS, LLC PROFESSIONAL ENGINEERING CORPORATION COA # E-2014025012			
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REV.	DESCRIPTION	BY	DATE
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△	REVISED	DCR	10/17/24
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SHEET NUMBER:		REV #:	
BOM		1	

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-H, ANSI/ASSP A10.48, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER ANSI/ASSP A10.48, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINCKOTE GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINCKOTE GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2018 SECTION 1705.2 FOR STEEL CONSTRUCTION & TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

1. CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
2. FOLLOW MANUFACTURER'S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
3. DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER'S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
4. A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER'S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
5. AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
6. BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
7. AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
8. BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
9. CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
10. NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
11. EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
12. CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

BOLT LENGTH ^f	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 ^d	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS ^d
NOT MORE THAN 4d _b	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN 4d _b BUT NOT MORE THAN 8d _b	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN 8d _b BUT NOT MORE THAN 12d _b	2/3 TURN	5/6 TURN	1 TURN

^a NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

^b APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

^c WHEN THE BOLT LENGTH EXCEEDS 12d_b, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

^d BEVELED WASHER NOT USED.

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

FIELD HOT WORK PLAN NOTES:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASES, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.

NOTES:

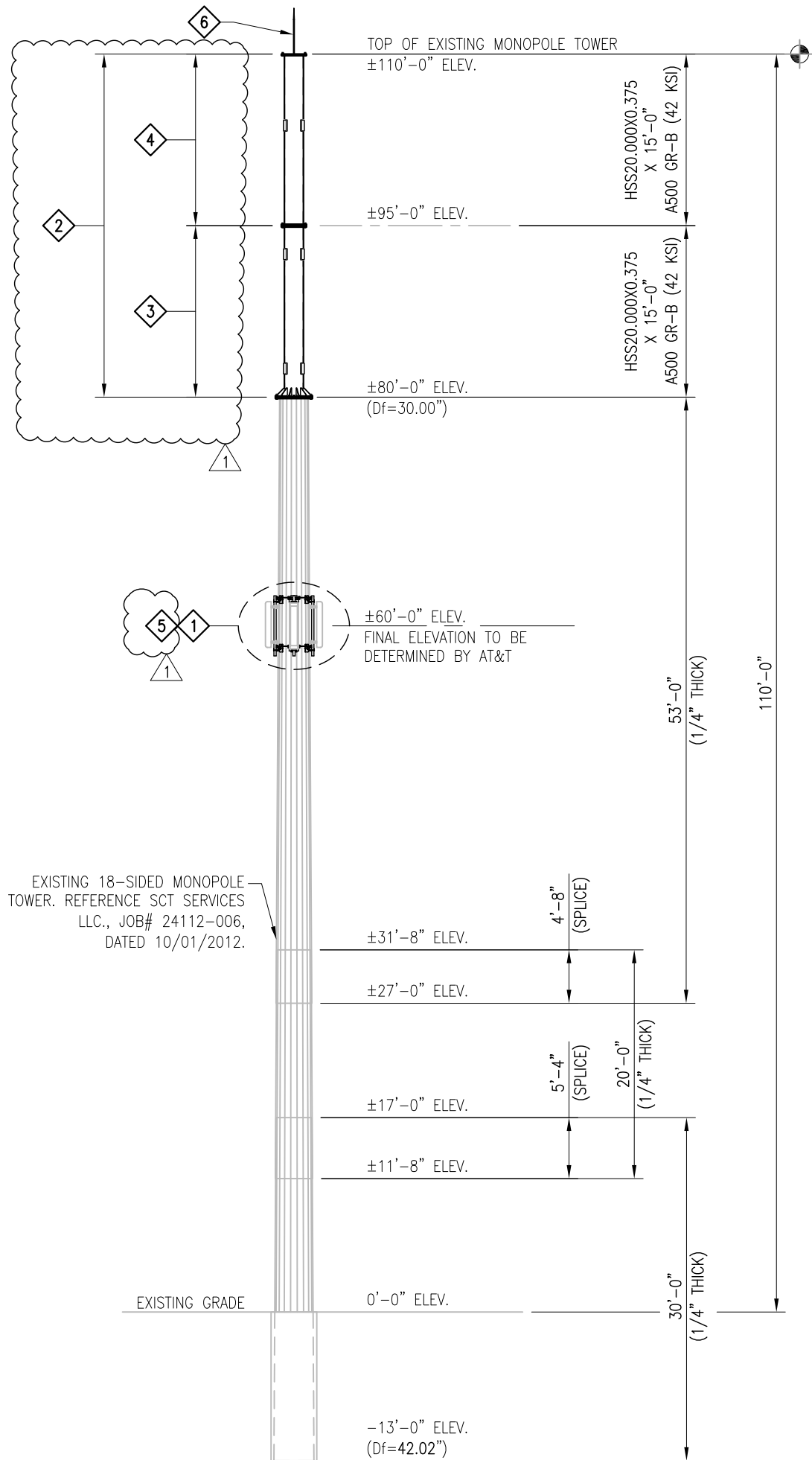
1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
2. TEMPORARY RELOCATION OF EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

SCOPE OF WORK

1. A. TEMPORARILY RELOCATE (3) EXISTING COMMSCOPE - JAH4-65C-R4 - PANEL ANTENNAS AT $\pm 106'-0"$ ELEV. AND ASSOCIATED EQUIPMENT USING PROVIDED 3-SECTOR CHAIN MOUNT AND MOUNT PIPES (T1805KT & MP-1) BELOW NEW FLANGE AT $\pm 60'-0"$ ELEV. (FINAL LOCATION TO BE DETERMINED BY AT&T)
B. RE-ROUTE EXISTING (12) 1 5/8" & (4) RET COAX LINES FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 1 ON SHEET A-1A FOR AZIMUTHS. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH AT&T.
2. REMOVE EXISTING (3) $\pm 30"$ O.D. X $\pm 10'-0"$ CANISTER SHROUDS, TRANSITION CONE AND SPINE FROM $\pm 80'-0"$ TO $\pm 110'-0"$ ELEV.
3. INSTALL NEW HSS20.000X0.375 X 15'-0" A500 GR-B (42 KSI) POLE SECTION FROM $\pm 80'-0"$ TO $\pm 95'-0"$ ELEV. SEE SHEET A-2 FOR DETAILS.
NOTE: NEW MONOPOLE SECTION COLOR TO MATCH EXISTING TOWER COLOR.
4. INSTALL NEW HSS20.000X0.375 X 15'-0" A500 GR-B (42 KSI) POLE SECTION FROM $\pm 95'-0"$ TO $\pm 110'-0"$ ELEV. SEE SHEET A-3 FOR DETAILS.
NOTE: NEW MONOPOLE SECTION COLOR TO MATCH EXISTING TOWER COLOR.
5. CONTRACTOR TO MOVE EXISTING AT&T ANTENNAS AND ASSOCIATED EQUIPMENT BACK TO THE ORIGINAL ELEVATION AT $\pm 106'-0"$ ELEV. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH AT&T.
6. INSTALL NEW LIGHTNING ROD AT TOP OF THE NEW SECTION AND FIELD CUT IT DOWN IF REQUIRED TO MEET FAA APPROVAL. (SEE DETAIL 2 ON SHEET A-1A).
7. APPLY FOUNDATION COATING, SEE NOTES ON SHEET A-1A.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

INSTALLATION NOTE:

VERTICAL ALIGNMENT IS REQUIRED FOR ALL THE EXTENSION PROJECTS, TOWERS OR POLES



TES
A CONGRUEX COMPANY
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA

8051 CONGRESS AVENUE
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TES JOB NO:
148890

CUSTOMER SITE NO:
MO17428-A-SBA
CUSTOMER SITE NAME:
WEST BROADWAY
1201 WEST BROADWAY
COLUMBIA, MO 65203

STACEY E. HESSELBEIN, PE
CIVIL ENGINEERING LICENSE # 2019015881
TOWER ENGINEERING SOLUTIONS, LLC
PROFESSIONAL ENGINEERING CORPORATION
COA # E-2014025012

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SHEET NUMBER: REV #:

A-1

1

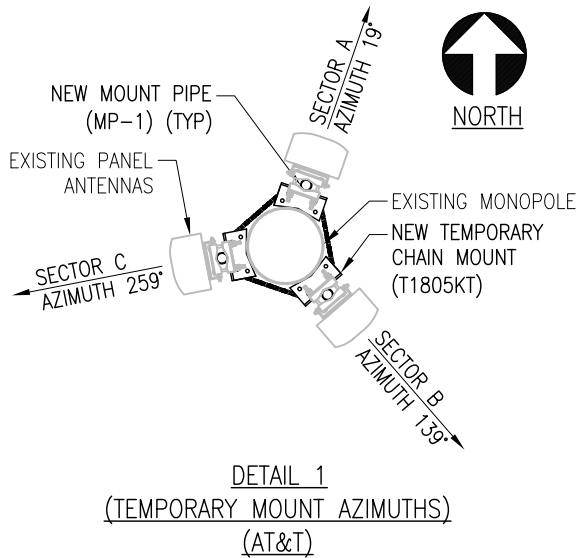
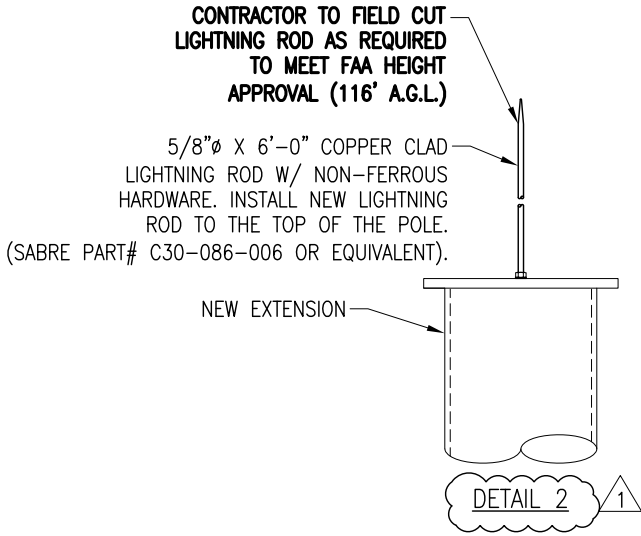


PHOTO 1



PHOTO 2



FOUNDATION COATING NOTES:

1. THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
2. THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
3. THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
4. THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
5. MINIMUM 30 MILS COATING IS REQUIRED.

TES

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CUSTOMER SITE NO:
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1201 WEST BROADWAY
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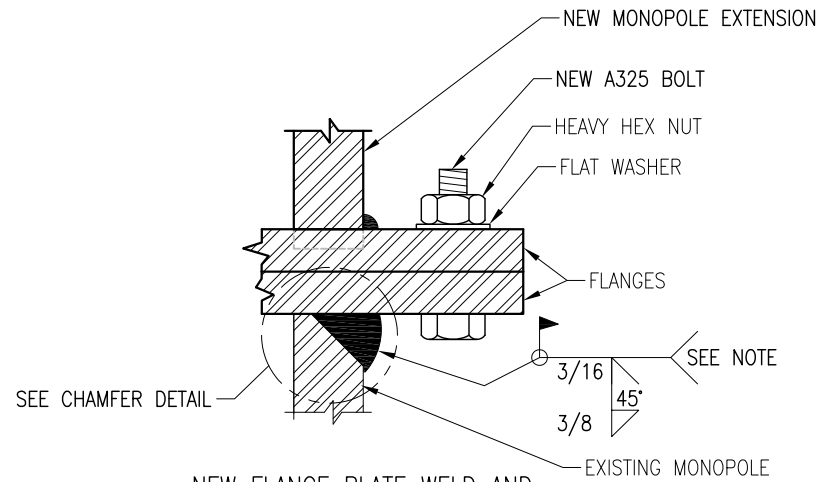
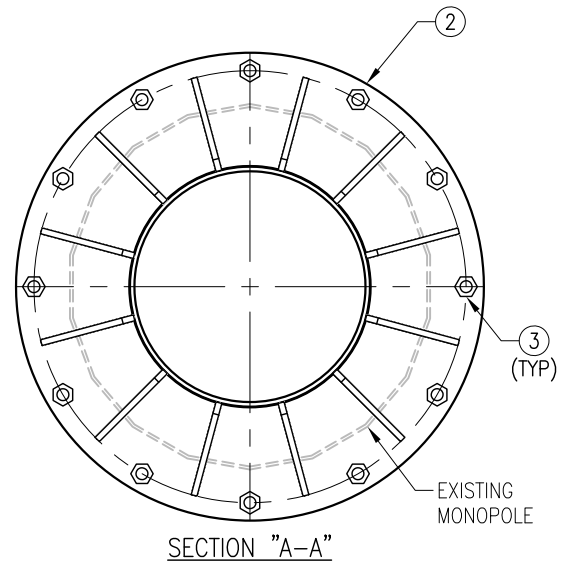
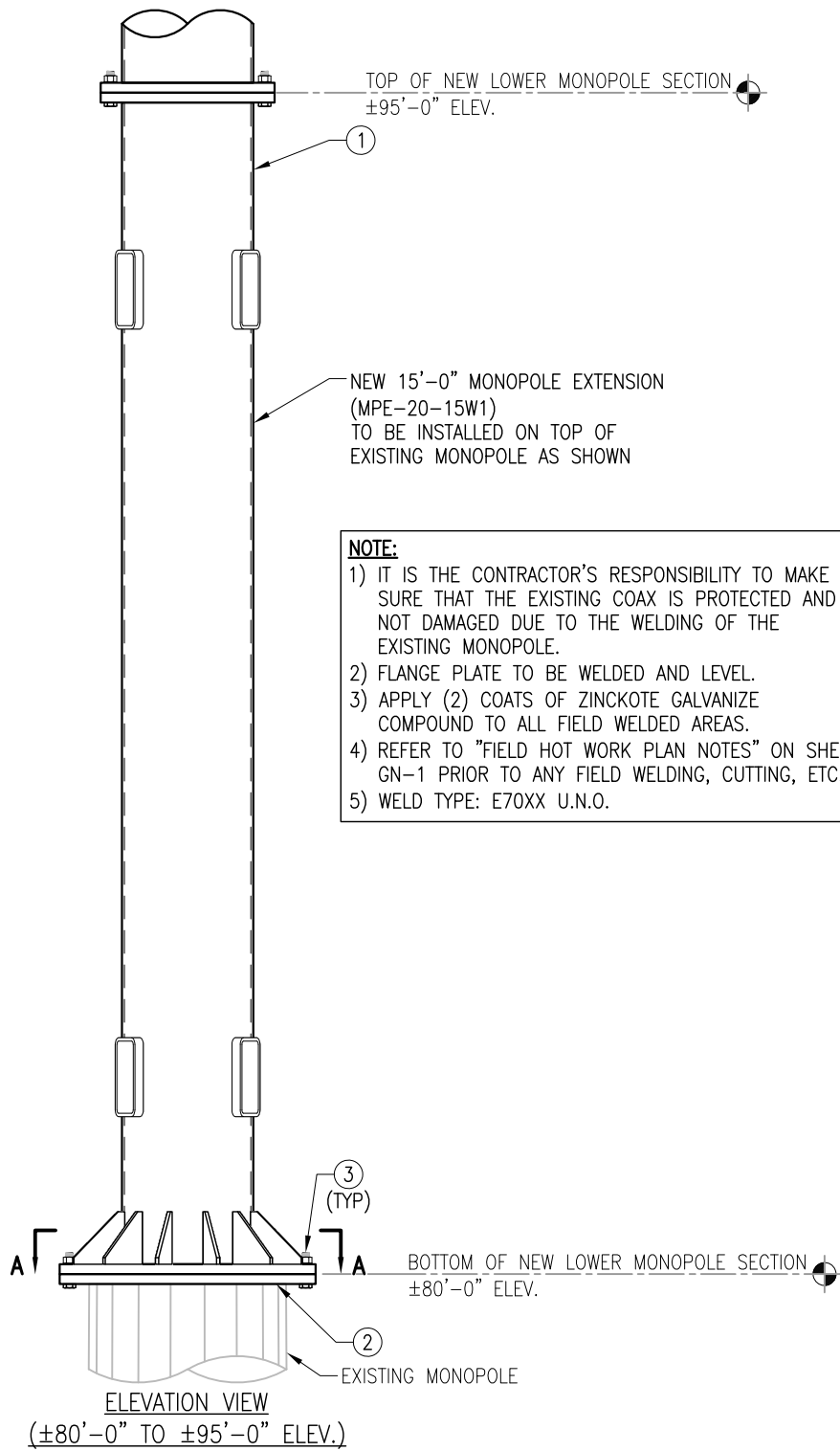
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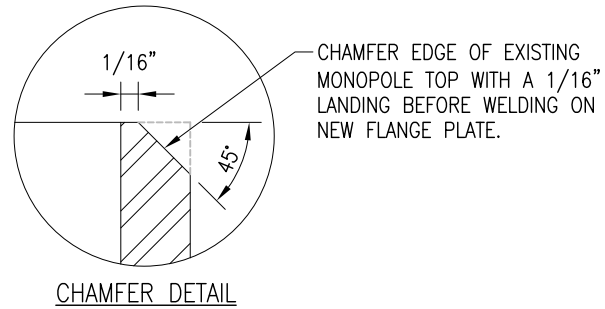
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NEW FLANGE PLATE WELD AND
BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES
ON SHEET GN-1. TABLE 8.2.

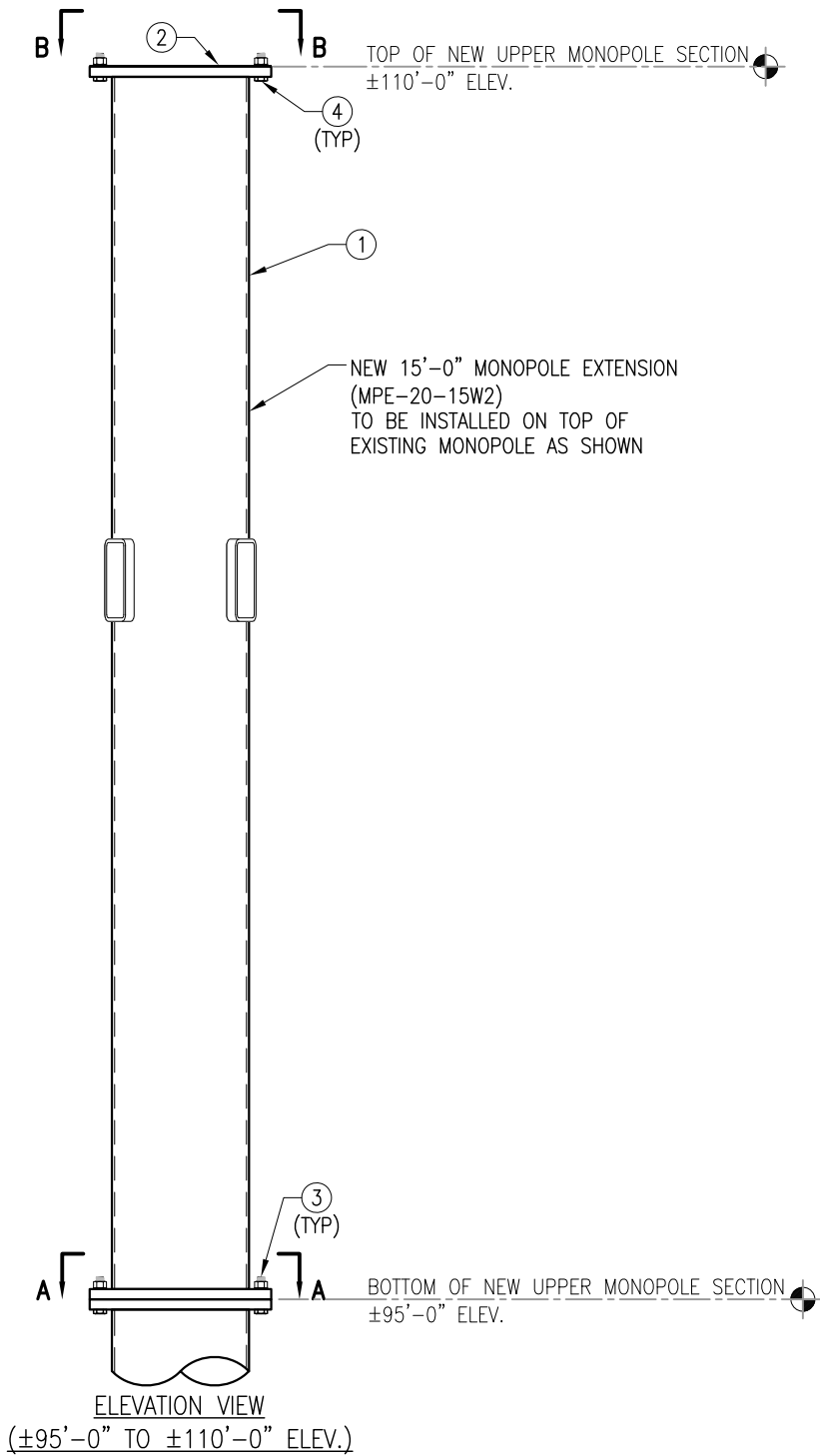
FIELD NOTE:
DO NOT USE A LOCKWASHER WITH
THIS CONNECTION.



3	12	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
2	1	FP-20	FLANGE PLATE PL 1 1/2" X 3'-3" DIA A572-50
1	1	MPE-20-15W1	MONOPOLE EXTENSION WELDMENT (PIPE HSS20.000X0.375 X 15'-0") (42 KSI) A500 GR-B
ITEM NO.	QTY.	PART NO.	DESCRIPTION

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	DCR	09/03/24
2			
3			
4			
5			

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4	2	---	BOLT 1" X 3 1/2" A325 W/ NUT-FW EA.
3	12	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
2	1	CPL-20	TOP CAP PLATE PL 3/16" X 2'-2 1/2" DIA A36
1	1	MPE-20-15W2	MONOPOLE EXTENSION WELDMENT (PIPE HSS20.000X0.375 X 15'-0") (42 KSI) A500 GR-B
ITEM NO.	QTY.	PART NO.	DESCRIPTION

TES

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IRVING, TX 75038
PHONE: (972) 483-0607

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MONOPOLE SECTION
INSTALLATION DETAILS

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A-3

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SITE NUMBER: MO17428-A-02

SITE NAME: WEST BROADWAY

T-MOBILE SITE NAME: SBA BROADWAY COLUMBIA

T-MOBILE SITE NUMBER: MO08134B

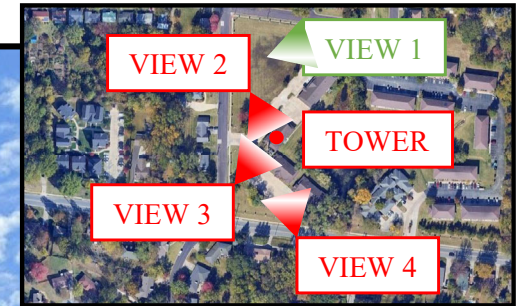
**T-MOBILE COLLOCATION ON A NEW 85'6" MONOPOLE TOWER,
REPLACING THE EXISTING CANISTER STRUCTURE**

201 WEST BROADWAY
COLUMBIA, MO 65203
(BOONE COUNTY)

EXISTING VIEW: LOCATION 1



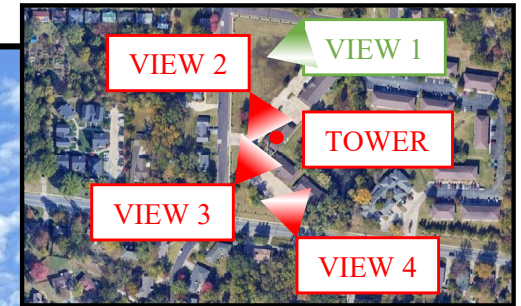
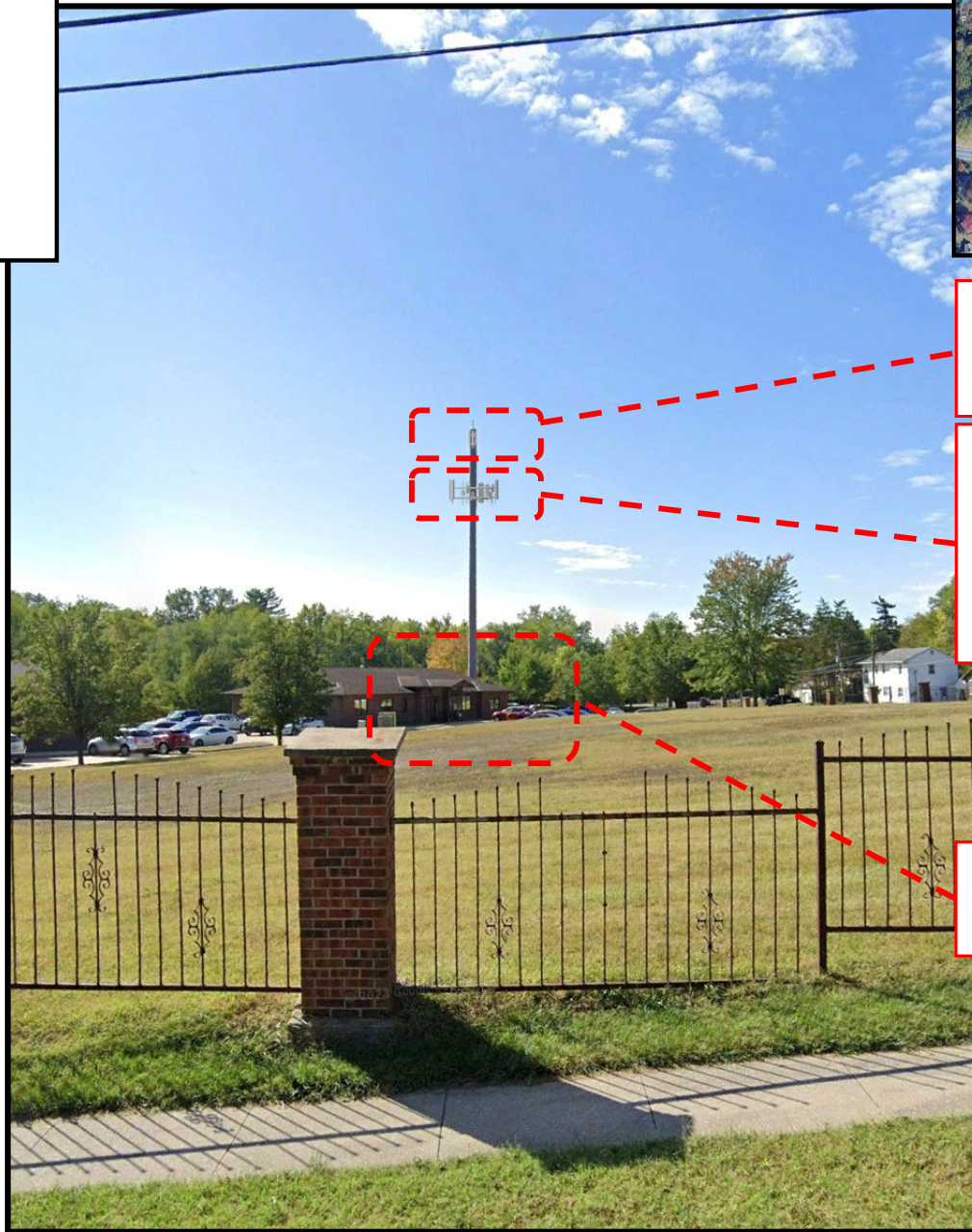
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SITE NAME: WEST BROADWAY
ADDRESS: 201 WEST BROADWAY
COLUMBIA, MO 65203
COUNTY: BOONE



PROPOSED VIEW: LOCATION 1



SITE #: MO17428-A-02
SITE NAME: WEST BROADWAY
ADDRESS: 201 WEST BROADWAY
COLUMBIA, MO 65203
COUNTY: BOONE



OTHER's EQUIPMENT ON MOUNT
AT ELEVATION 96'-0"

- (3) ANTENNAS
- (6) TMAs

PROPOSED TMO EQUIPMENT ON
PV-LPPGS-12M-HR25-AP4 MOUNT
AT ELEVATION 85'-0"

- (3) ANTENNAS
- (6) RRUs
- ELEVATION 87'-6"
- (3) ANTENNAS

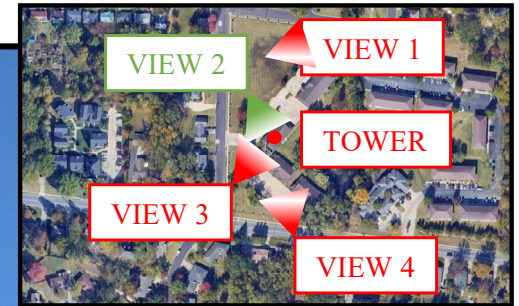
PROPOSED GROUND EQUIPMENT:

- (2) CABINET (NOT VISIBLE)
- ICE BRIDGE (NOT VISIBLE)

EXISTING VIEW: LOCATION 2



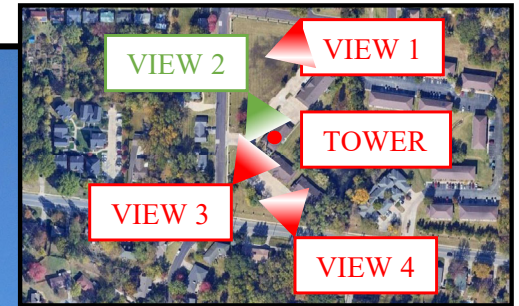
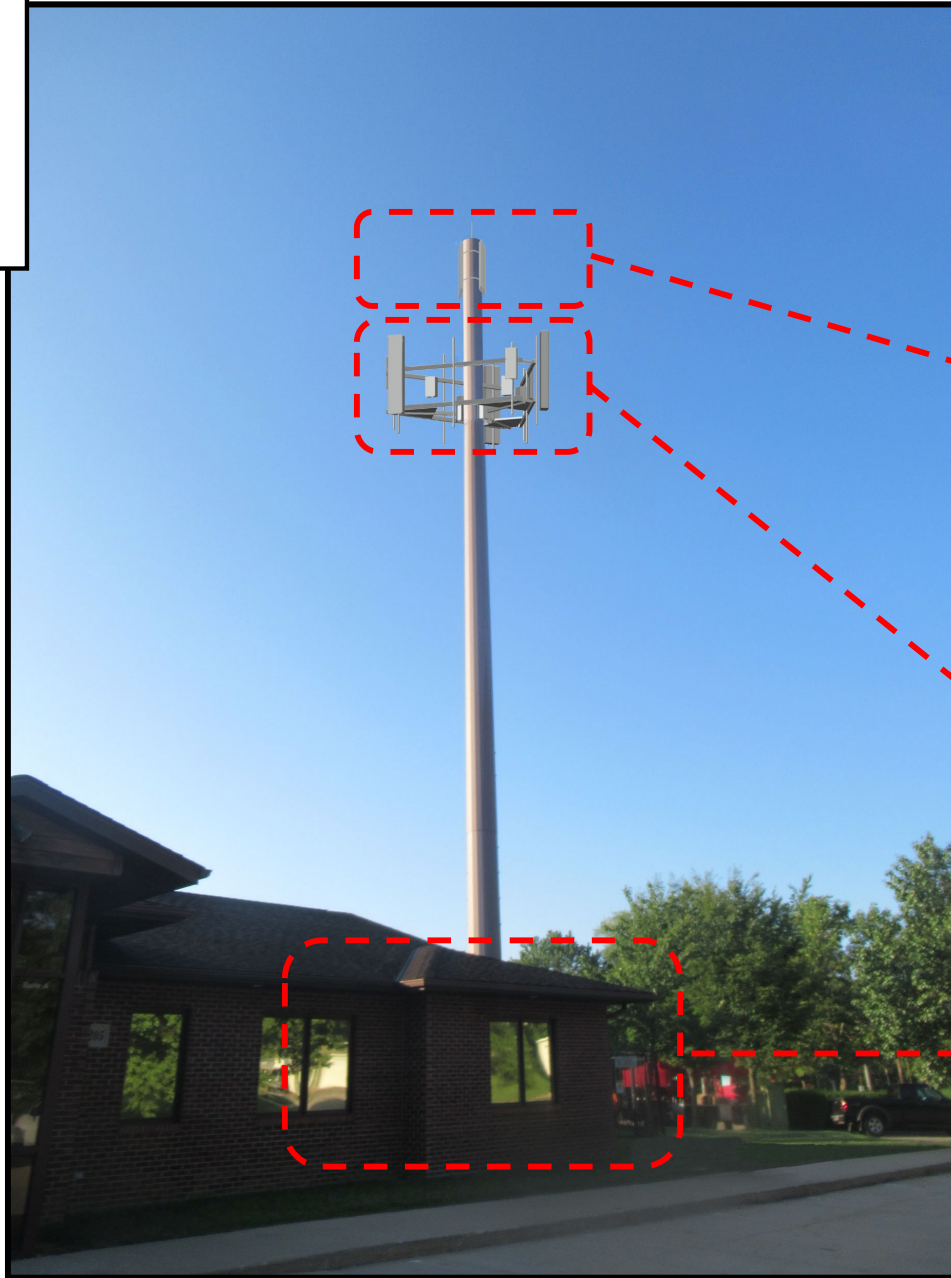
SITE #: MO17428-A-02
SITE NAME: WEST BROADWAY
ADDRESS: 201 WEST BROADWAY
COLUMBIA, MO 65203
COUNTY: BOONE



PROPOSED VIEW: LOCATION 2



SITE #: MO17428-A-02
SITE NAME: WEST BROADWAY
ADDRESS: 201 WEST BROADWAY
COLUMBIA, MO 65203
COUNTY: BOONE



OTHER'S EQUIPMENT ON MOUNT
AT ELEVATION 96'-0"

- (3) ANTENNAS
- (6) TMAs

PROPOSED TMO EQUIPMENT ON
PV-LPPGS-12M-HR25-AP4 MOUNT
AT ELEVATION 85'-0"

- (3) ANTENNAS
- (6) RRUs
- ELEVATION 87'-6"
- (3) ANTENNAS

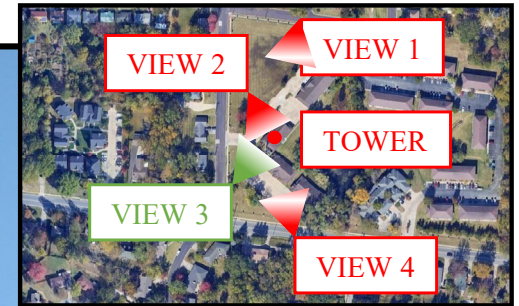
PROPOSED GROUND EQUIPMENT:

- (2) CABINET (NOT VISIBLE)
- ICE BRIDGE (NOT VISIBLE)

EXISTING VIEW: LOCATION 3



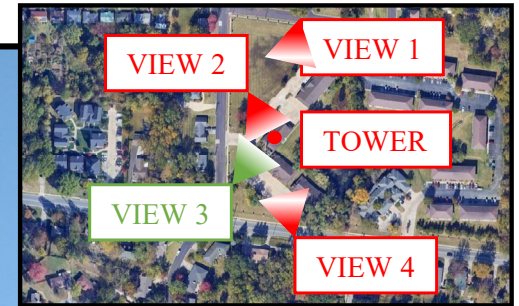
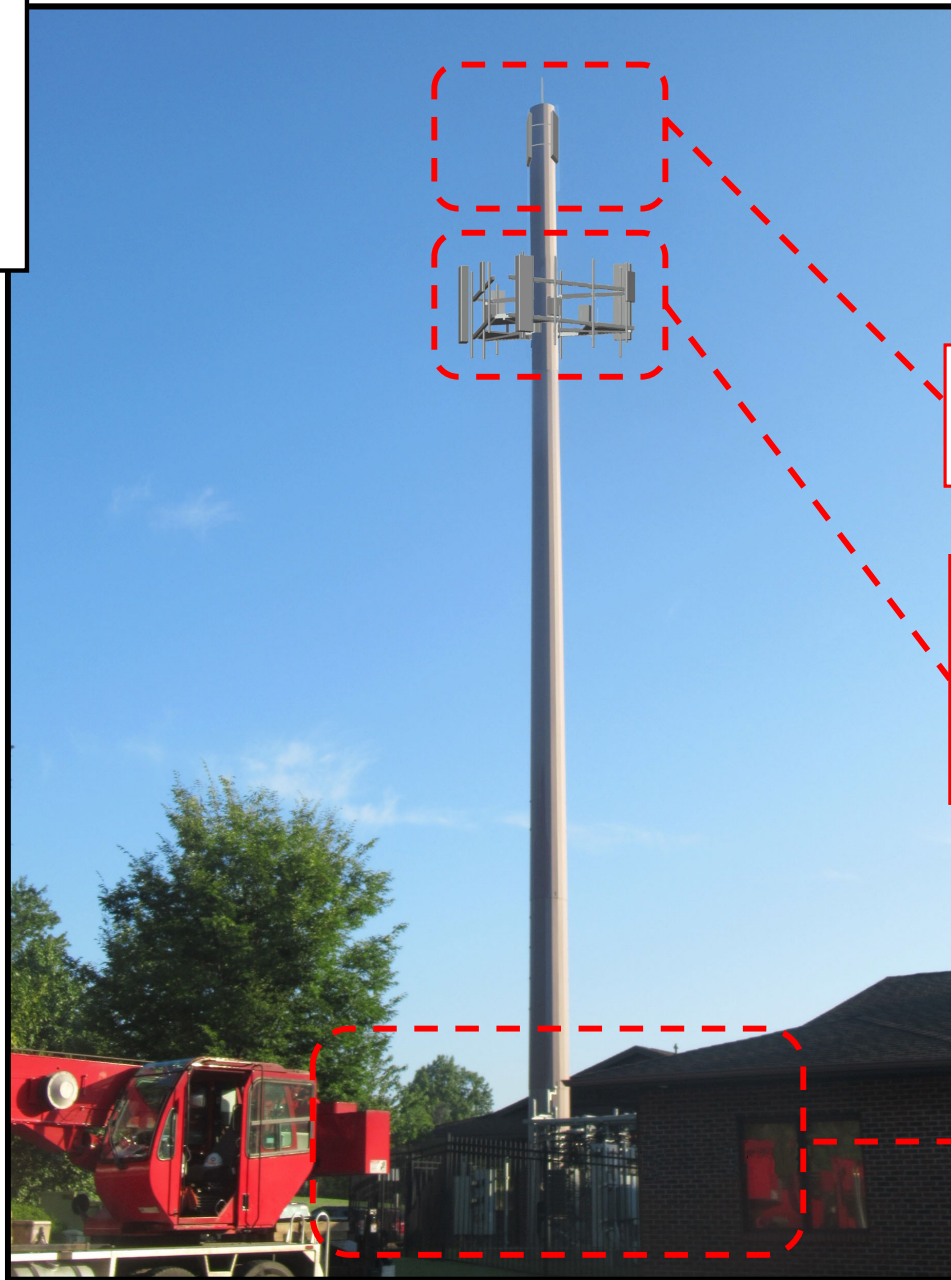
SITE #: MO17428-A-02
SITE NAME: WEST BROADWAY
ADDRESS: 201 WEST BROADWAY
COLUMBIA, MO 65203
COUNTY: BOONE



PROPOSED VIEW: LOCATION 3



SITE #: MO17428-A-02
SITE NAME: WEST BROADWAY
ADDRESS: 201 WEST BROADWAY
COLUMBIA, MO 65203
COUNTY: BOONE



OTHER'S EQUIPMENT ON MOUNT
AT ELEVATION 96'-0"

- (3) ANTENNAS
- (6) TMAs

PROPOSED TMO EQUIPMENT ON
PV-LPPGS-12M-HR25-AP4 MOUNT
AT ELEVATION 85'-0"

- (3) ANTENNAS
- (6) RRUs
- ELEVATION 87'-6"
- (3) ANTENNAS

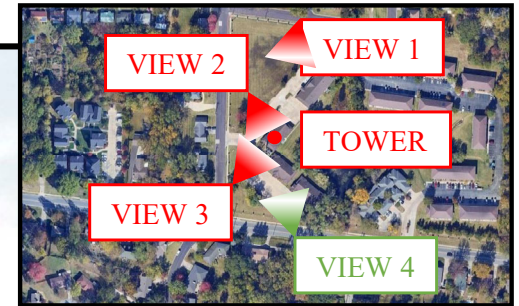
PROPOSED GROUND EQUIPMENT:

- (2) CABINET (NOT VISIBLE)
- ICE BRIDGE (NOT VISIBLE)

EXISTING VIEW: LOCATION 4



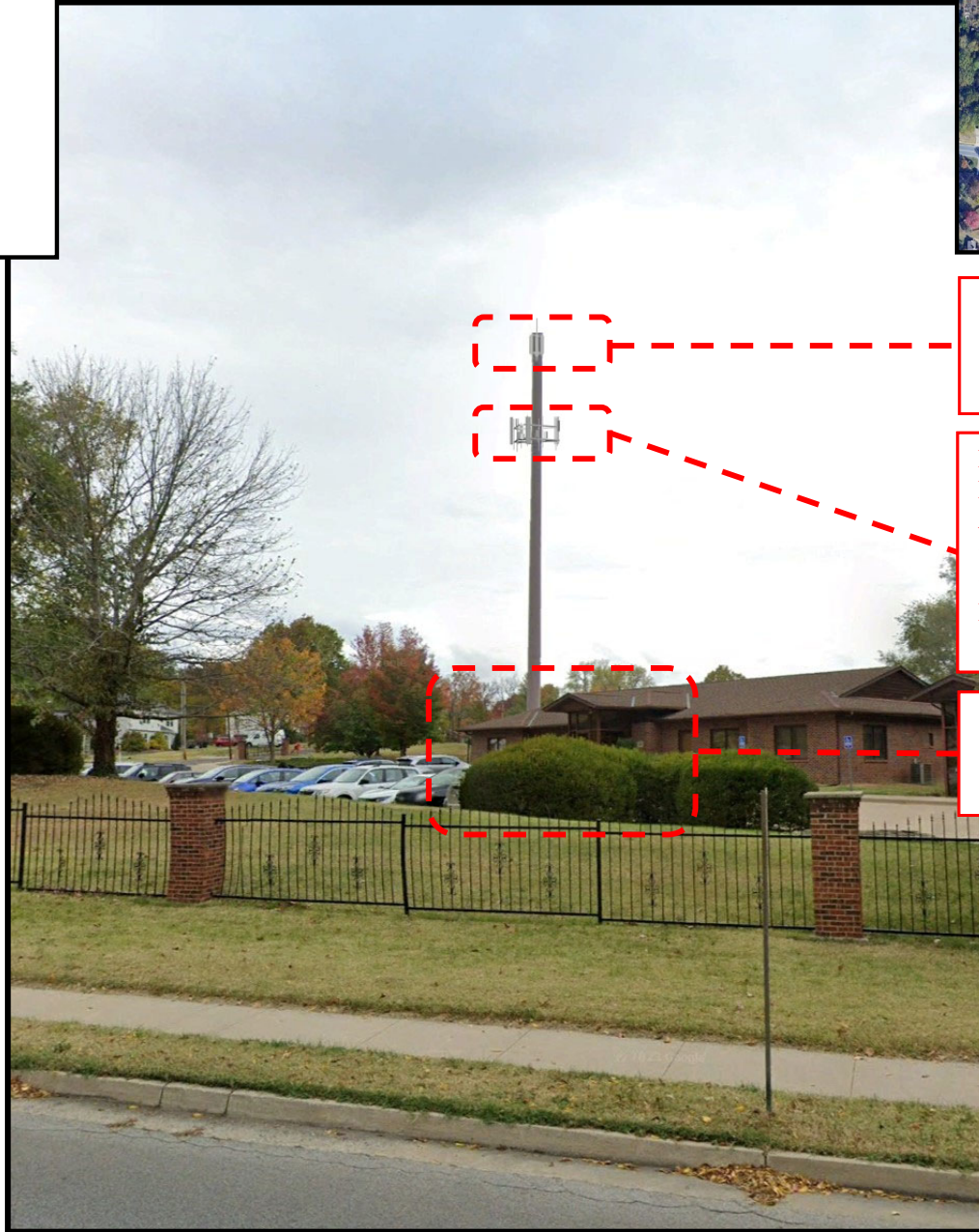
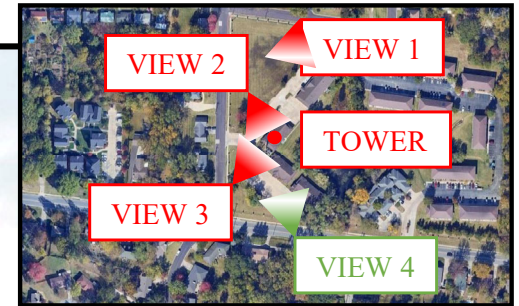
SITE #: MO17428-A-02
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COLUMBIA, MO 65203
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PROPOSED VIEW: LOCATION 4



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OTHER's EQUIPMENT ON MOUNT
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AT ELEVATION 85'-0"

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- (6) RRUs
- ELEVATION 87'-6"
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PROPOSED GROUND EQUIPMENT:

- (2) CABINET (NOT VISIBLE)
- ICE BRIDGE (NOT VISIBLE)