

PROJECT DESCRIPTION

AT&T WIRELESS PROPOSES TO MODIFY AN EXISTING WIRELESS INSTALLATION. THE SCOPE WILL CONSIST OF THE FOLLOWING:

PTN NUMBERS:

- 3461A140MH - 5G NR 1DR 1 (AWS1_3)
- 3461A140VS - 4T4R ANTENNA RETROFIT (700)
- 3461A141DW - LTE 5C (B14)
- 3461A141MA - 5G NR SW UPGRADE (PCS)

TOWER SOW

- REMOVE (6) EXISTING SBNHH-1D65A ANTENNAS
- REMOVE (12) EXISTING 1-5/8" COAX
- REMOVE EXISTING POLE MOUNT
- REMOVE EXISTING PLATFORM MOUNT
- INSTALL (6) PROPOSED NNHH-65B-R4 ANTENNAS
- INSTALL (12) PROPOSED TMAS
- INSTALL (24) PROPOSED 7/8" COAX
- INSTALL PROPOSED PLATFORM MOUNT

GROUND SOW

- REMOVE EXISTING AND DECOMM 502 POWER PLANT
- REMOVE EXISTING 8' FENCE AROUND AT&T EQUIPMENT
- REMOVE (1) EXISTING CABLE/RISER BOX
- INSTALL (1) PROPOSED 512 POWER PLANT LOCATED AT EXISTING UMTS CABINET LOCATION
- INSTALL (4) PROPOSED 170A HR BATTERIES TO NEW POWER
- INSTALL (12) PROPOSED DIPLEXERS
- INSTALL (10) PROPOSED RECTIFIERS
- INSTALL PROPOSED OUTDOOR RAYCAP DC12 FOR 5C
- INSTALL PROPOSED WHITE 8' PVC FENCE
- INSTALL PROPOSED CABLE DOG HOUSE
- INSTALL PROPOSED SABRE POWERMOUNT AND FOUNDATION

SITE# WPAP333 / FA# 10105192
FIRST ENERGY TRANSMISSION POWER
McMURRY



5G NR 1DR 1 (AWS1_3) - PARENT TRANSMISSION TOWER

ENGINEERING

2018 INTERNATIONAL BUILDING CODE OR LATEST EDITION
 2017 NATIONAL ELECTRIC CODE OR LATEST EDITION
 ANSITIA-222 OR LATEST EDITION

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.



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 Jacobs Telecommunications, Inc.
 2 ASH STREET, SUITE #3000
 CONSHOHOCKEN, PA 19428
 610.238.1000



APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

AT&T RF: _____ DATE: _____

AT&T OPERATIONS: _____ DATE: _____

AT&T SITE AQ: _____ DATE: _____

OCI: _____ DATE: _____

TOWER/PROPERTY OWNER: _____ DATE: _____

MUNICIPAL: _____ DATE: _____

DRAWING INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
C-1	OVERALL EXISTING AND PROPOSED SITE PLANS
C-2	ENLARGED EXISTING AND PROPOSED SITE PLANS
C-3	SITE ELEVATION
C-4	EXISTING AND PROPOSED ANTENNA LAYOUT
C-5	SITE DETAILS
C-6	MOUNT DETAILS
C-7	MOUNT DETAILS
RF-1	RF EQUIPMENT SCHEMATIC
E-1	ELECTRICAL DC ONE LINE DIAGRAM
G-1	GROUNDING DETAILS
GN-1	GENERAL NOTES I
GN-2	GENERAL NOTES II
GN-3	GENERAL NOTES III

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME

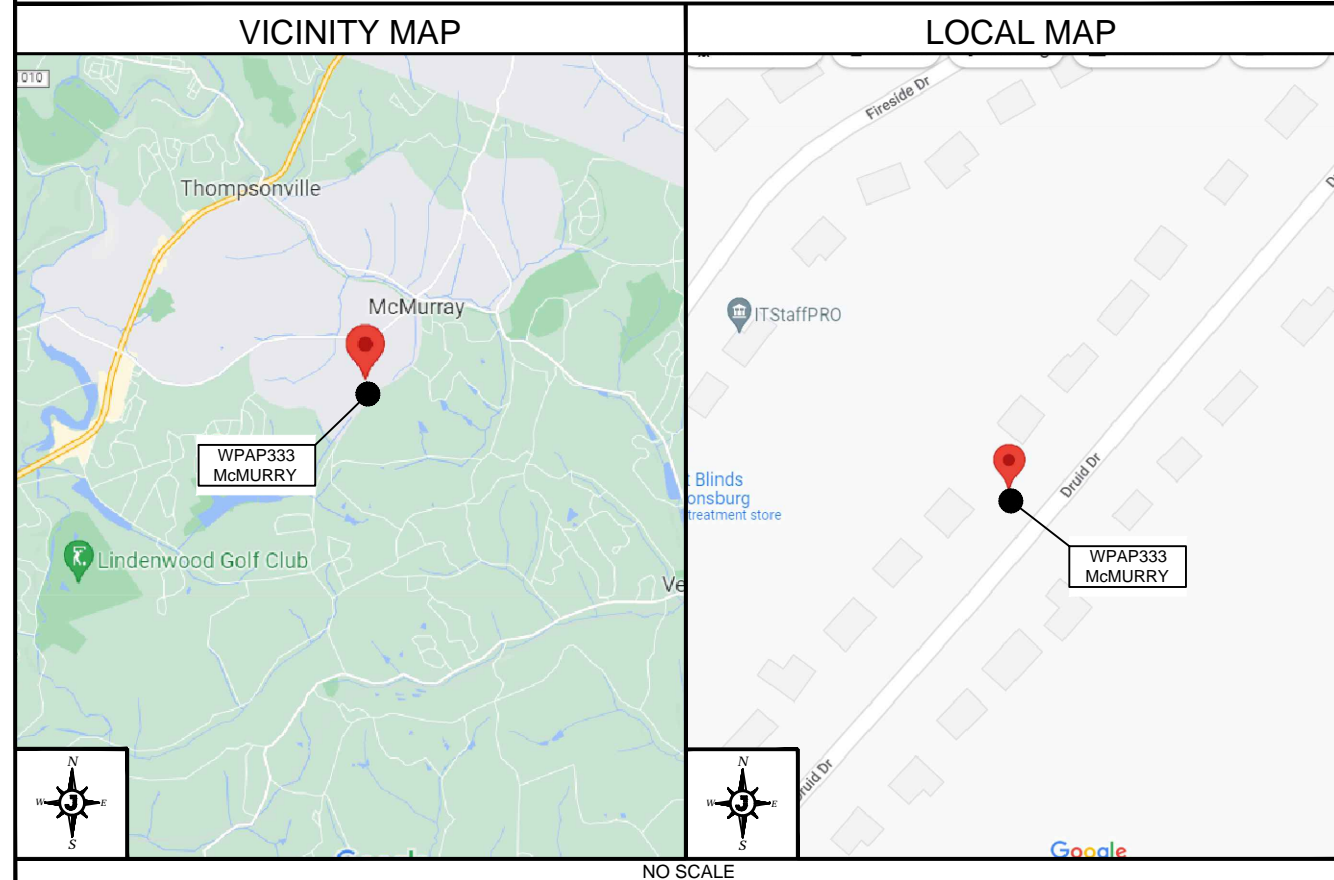


UNDERGROUND SERVICE ALERT
UTILITIES PROTECTION CENTER, INC.
 811
 48 HOURS BEFORE YOU DIG

SITE INFORMATION

LANDLORD: FIRST ENERGY
 Site ID: PA078 McMURRAY / ETT 429-155
 LANDLORD SITE ID: PA078 McMURRAY / ETT 429-155
 SITE NAME: McMURRY
 SITE NUMBER: WPAP333
 FA NUMBER: 10105192
 SITE ADDRESS: 120 DRUID AVE. CANONSBURG, PA 15317
 COUNTY: WASHINGTON
 LATITUDE (NAD 83): 40.269861°
 LONGITUDE (NAD 83): -80.091361°
 RAD CENTER: 79' AGL
 SITE ACQUISITION CONTACT: KIMBERLY COLLAZO
 Kimberly.Collazo@jacobs.com
 RF ENGINEER: RYAN MITCHELL
 rx8852@att.com
 C&E MANAGER: EDWARD RIVERO
 er602r@att.com
 JURISDICTION: PETERS TOWNSHIP
 APPLICANT/LESSEE: NEW CINGULAR WIRELESS PCS, LLC DBA AT&T MOBILITY
 635 GRANT STREET
 7TH FLOOR, 7A08
 PITTSBURGH, PA 15219

LOCATION MAPS



CONTACT INFORMATION

ENGINEER: JACOBS TELECOMMUNICATIONS, INC.
 2 ASH STREET, SUITE #3000
 CONSHOHOCKEN, PA 19428
 CONTACT: PAUL CHAN
 EMAIL: PAUL.CHAN@JACOBS.COM

DRIVING DIRECTIONS

DIRECTIONS FROM AT&T OFFICE: START OUT FROM 635 GRANT ST. TAKE I-376 W AND I-79 S TO CECIL TOWNSHIP. TAKE EXIT 48 FROM I-79 S, 17.0 MI. MERGE ONTO I-376 W. 0.6 MI. KEEP LEFT TO STAY ON I-376 W. 5.4 MI. USE THE RIGHT 2 LANES TO TAKE EXIT 64A TO MERGE ONTO I-79 S TOWARD WASHINGTON, 10.8 MI. TAKE EXIT 48 TOWARD SOUTHPOINTE/HENDERSONVILLE, 0.2 MI. TAKE MORGANZA RD AND W McMURRAY RD TO DRUID DR IN McMURRAY, 6.6 MI. TURN LEFT ONTO SOUTHPOINTE BLVD (SIGNS FOR HENDERSONVILLE), 0.6 MI. TURN RIGHT ONTO MORGANZA RD, 1.7 MI. TURN LEFT ONTO W McMURRAY RD, 2.9 MI. TURN RIGHT ONTO CENTER CHURCH RD, 0.3 MI. CONTINUE STRAIGHT ONTO JOHNSTON RD, 0.3 MI. TURN LEFT ONTO LINTEL DR. 0.2 MI. TURN RIGHT ONTO DRUID DR. 0.6 MI. DESTINATION WILL BE ON THE LEFT.

APPROVALS

LANDLORD: _____

LEASING: _____

R.F.: _____

ZONING: _____

CONSTRUCTION: _____

A & E: _____

PROJECT NO: EUAT0213
 DRAWN BY: MAS
 CHECKED BY: PC

SUBMITTALS

DATE	REVISION
2/05/23/2024	REVISED PER COMMENTS
1/04/10/2023	REVISED PER COMMENTS
0/12/07/2022	REVISED PER LL COMMENTS

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FA# 10105192
 SITE# WPAP333
 McMURRY
 120 DRUID AVE.
 CANONSBURG, PA 15317

TITLE SHEET

T-1



NOTES:

1. PLAN BASED CONSTRUCTION DRAWINGS ISSUED BY OTHERS ON 06/14/17. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.
2. CONTRACTOR TO VERIFY FINAL RF CONFIGURATION AND NOTIFY CARRIER AND ENGINEER W/ ANY DISCREPANCIES PRIOR TO THE INSTALLATION.



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SUBMITTALS

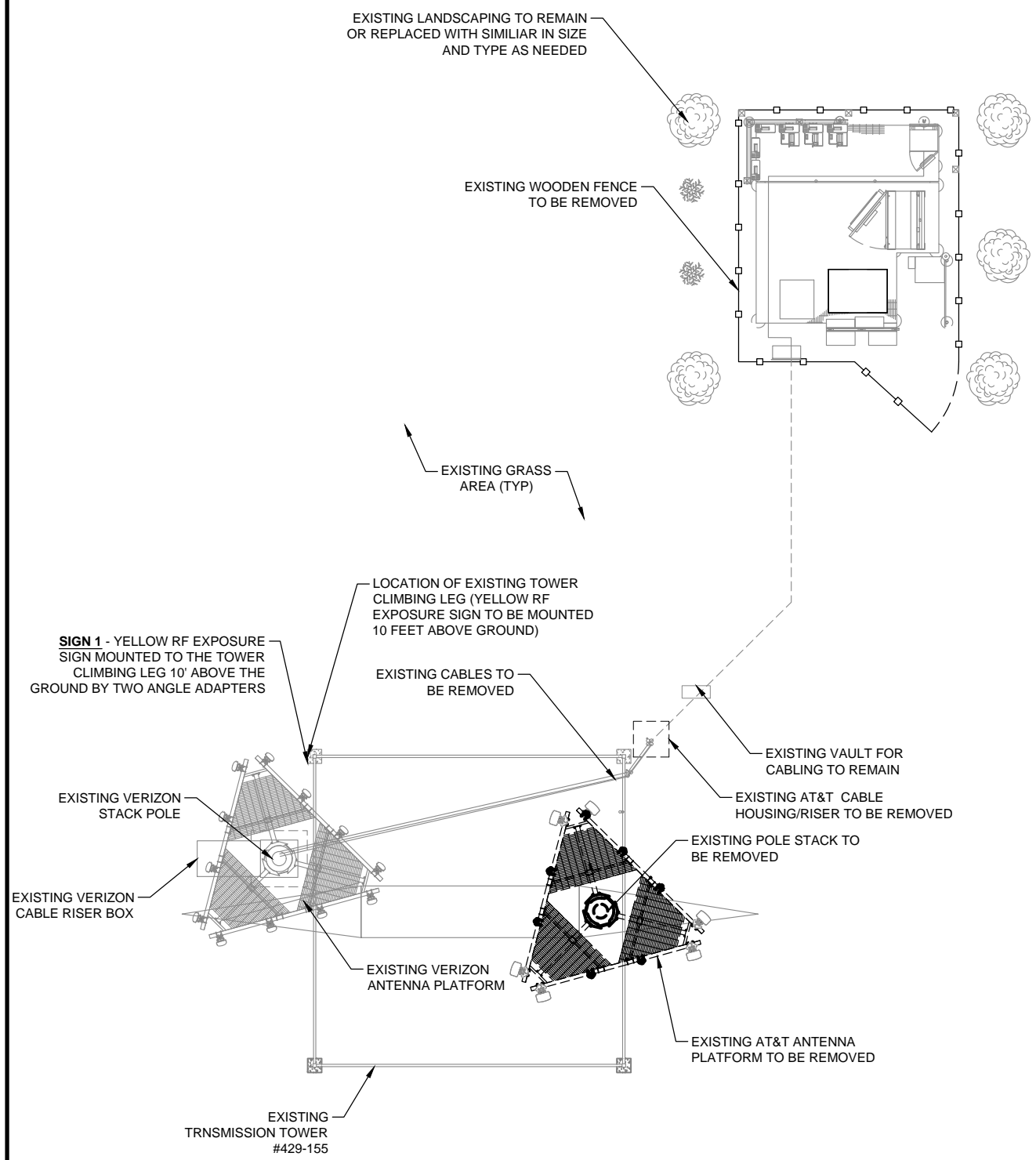
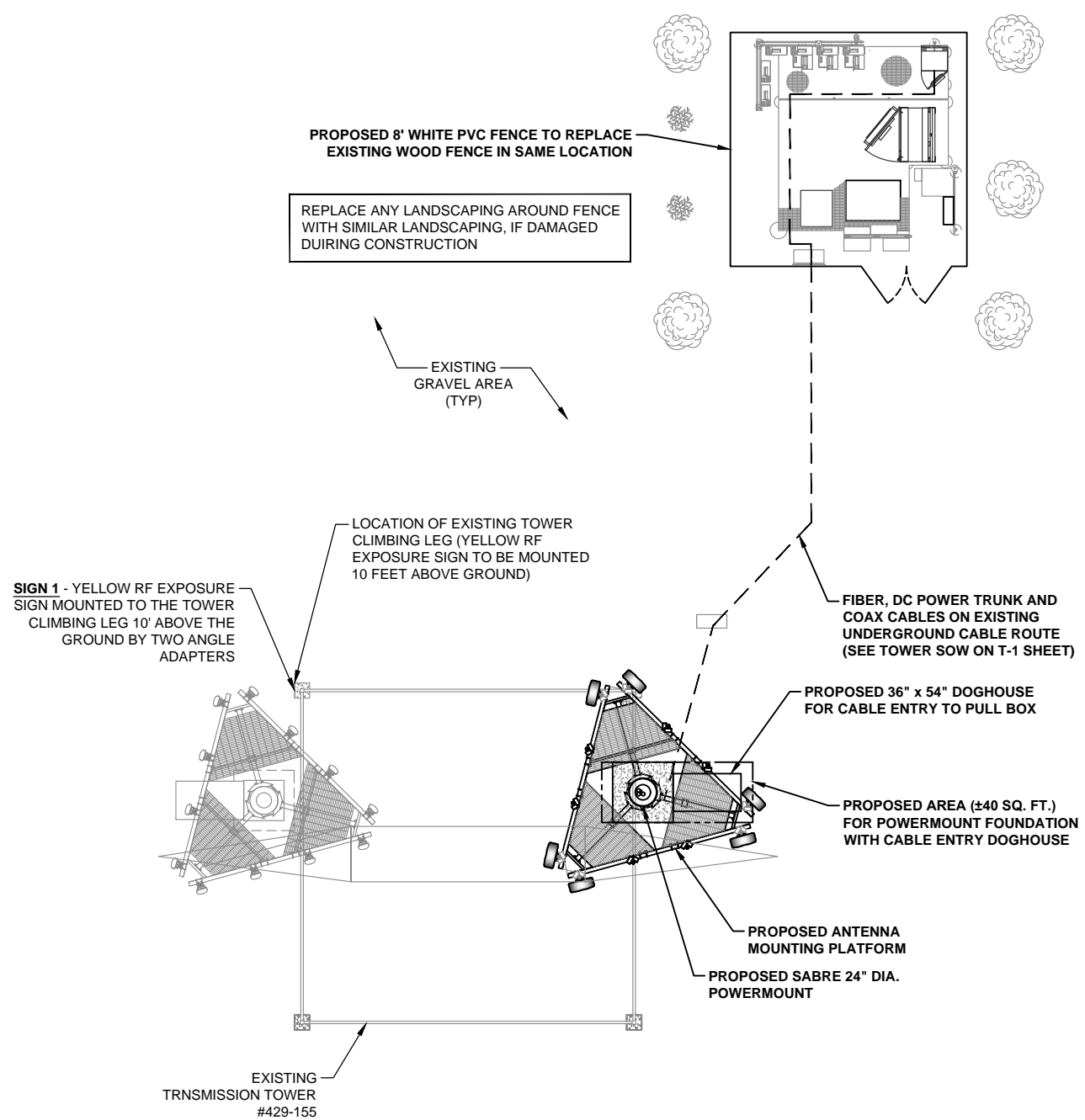
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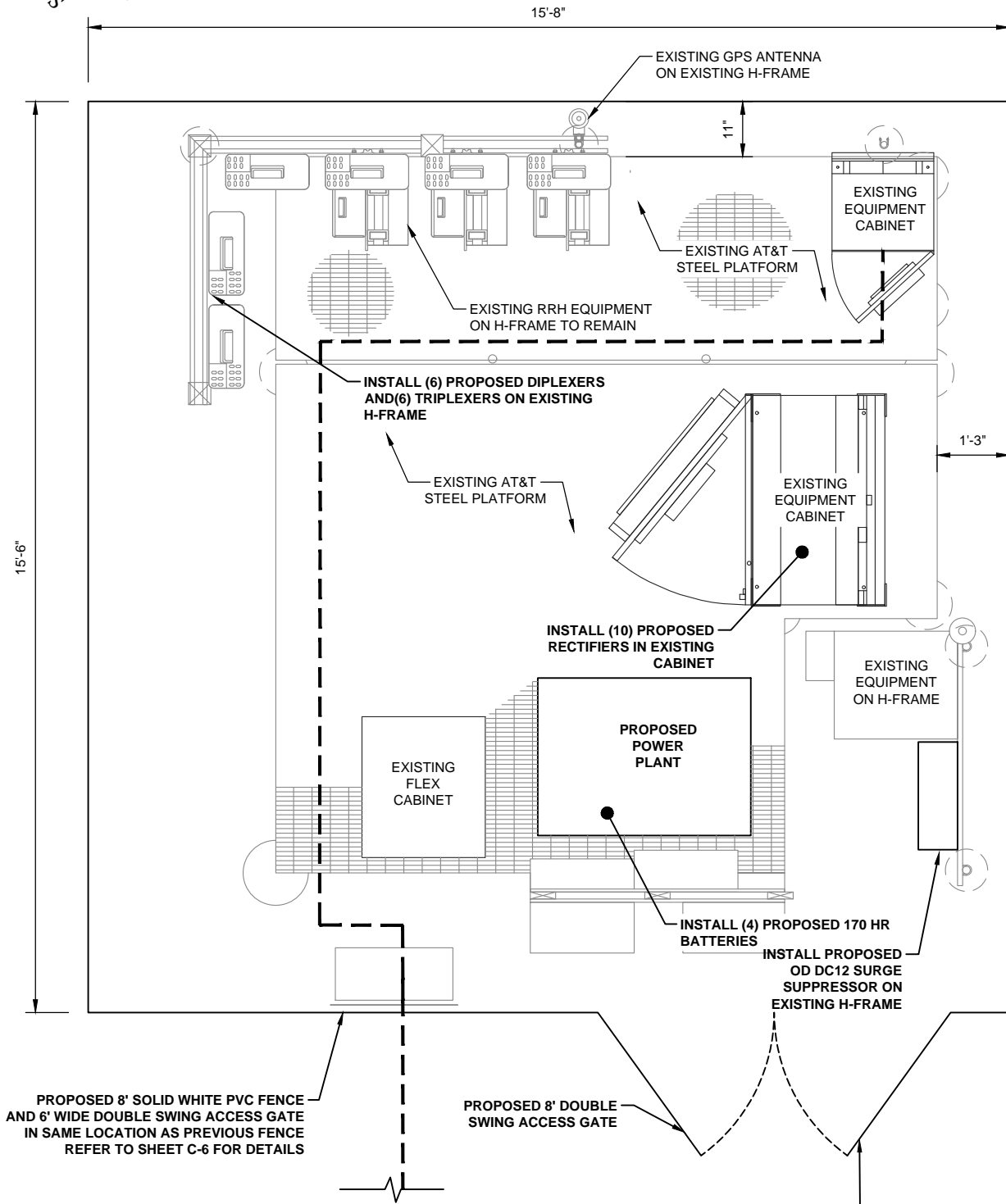
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OVERALL EXISTING AND PROPOSED SITE PLAN

C-1



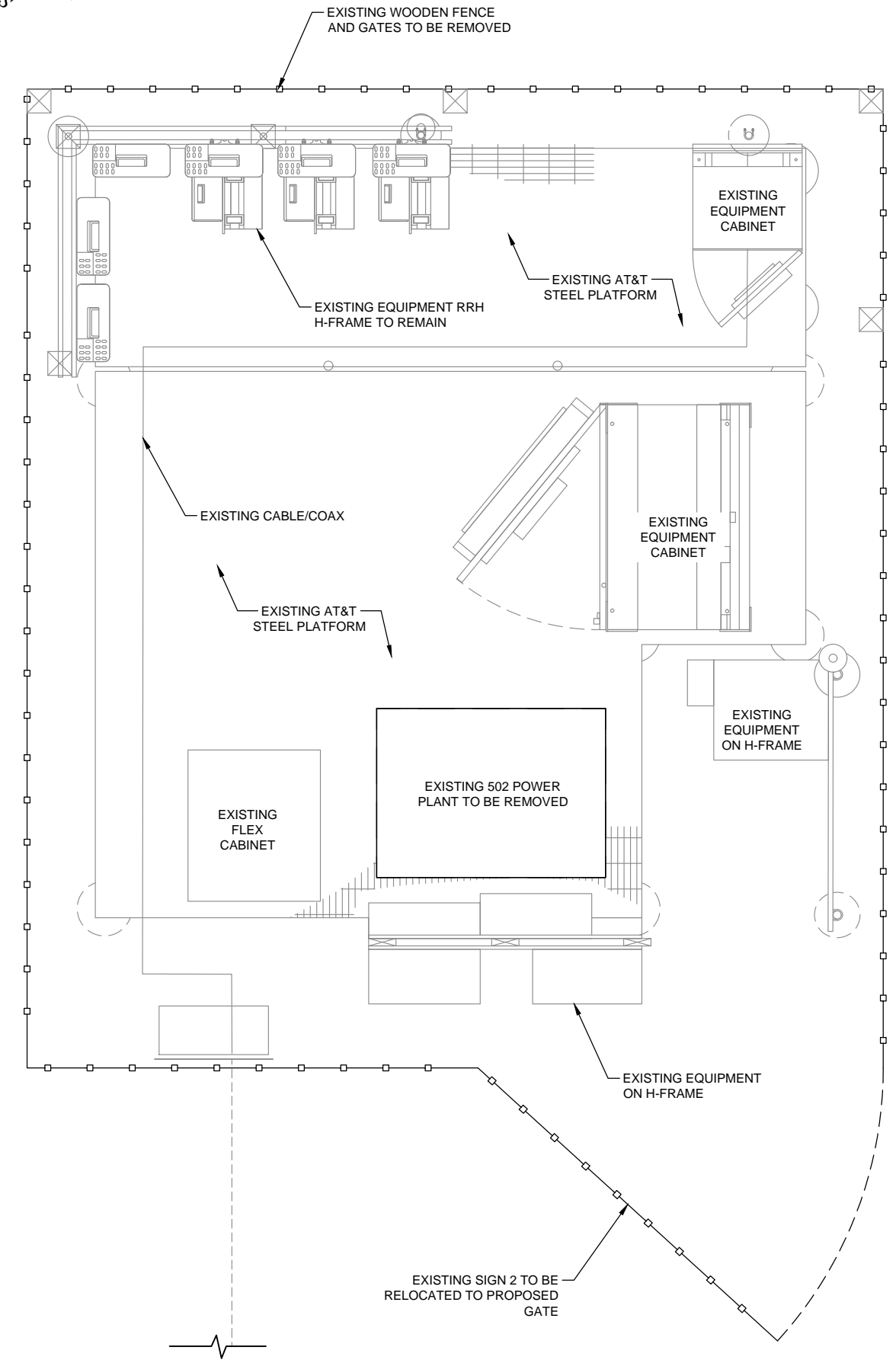
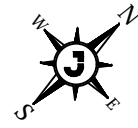


- GROUND SOW:**
- REMOVE EXISTING AND DECOMM 502 POWER PLANT
 - REMOVE EXISTING 8' FENCE AROUND AT&T EQUIPMENT
 - REMOVE (1) EXISTING CABLE/RISER BOX
 - INSTALL (1) PROPOSED 512 POWER PLANT LOCATED AT EXISTING UMTS CABINET LOCATION
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 - INSTALL PROPOSED CABLE DOG HOUSE
 - INSTALL PROPOSED FORT WORTH INSERT

SIGN 2 - BLUE RF EXPOSURE SIGN MOUNTED TO GATE WITH STAINLESS STRAPS OR AS A STICKER ON THE BASE STATION EQUIPMENT CABINET

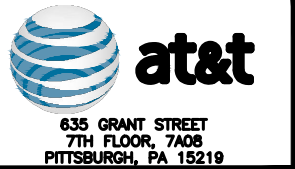
2 ENLARGED PROPOSED SITE PLAN

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



1 ENLARGED EXISTING SITE PLAN

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



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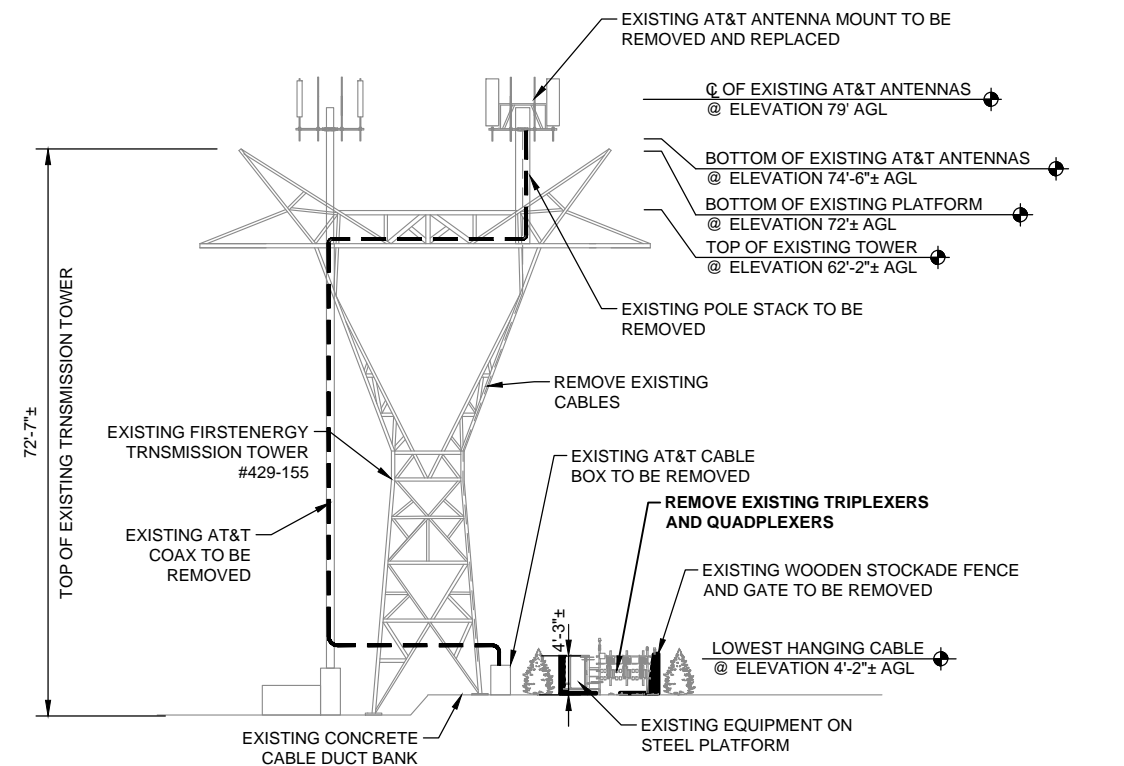
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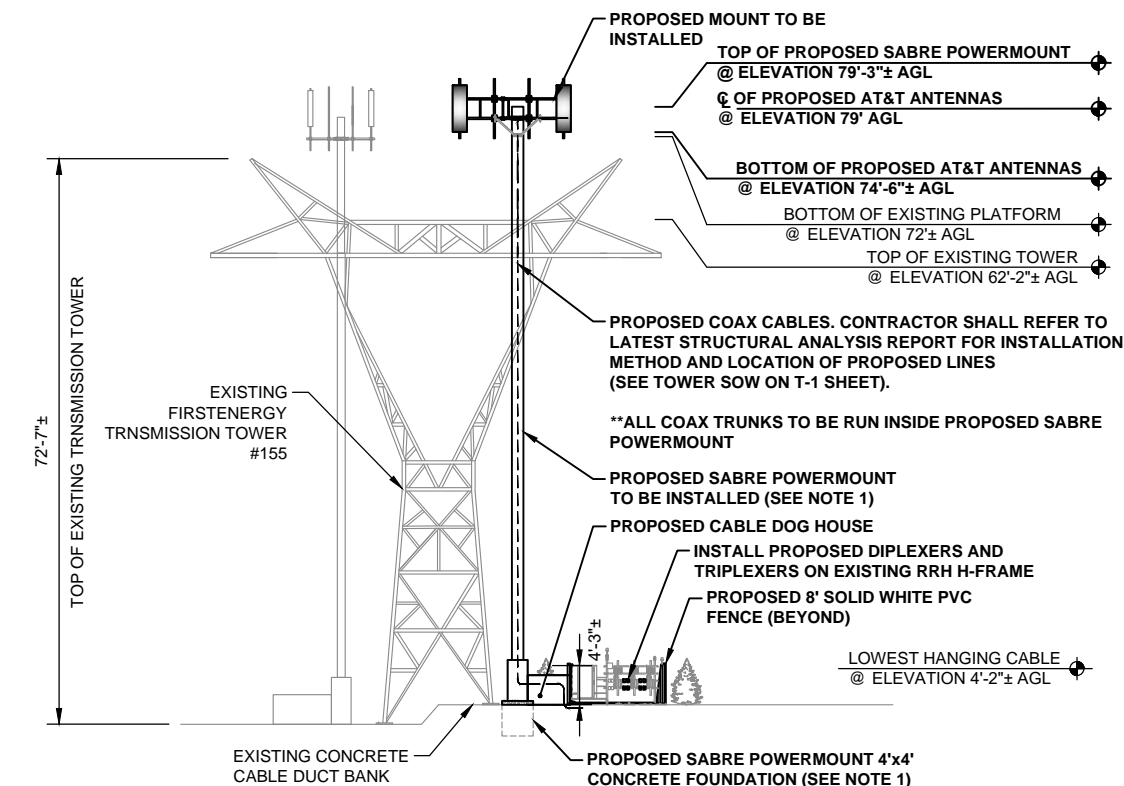
ENLARGED EQUIPMENT AREA

NOTES:

- EXISTING TOWER INFORMATION IS PROVIDED FOR REFERENCE ONLY. JACOBS TELECOMMUNICATIONS, INC. IS NOT RESPONSIBLE FOR THE ANALYSIS/DESIGN OF THE EXISTING TOWER, ITS CONNECTIONS & FOUNDATIONS. A STRUCTURAL ANALYSIS OF THE EXISTING TOWER AND FOUNDATIONS PERFORMED BY OTHERS. CONTRACTOR SHALL REFER TO THE STRUCTURAL ANALYSIS REPORT - SUBMITTED BY FIRST ENERGY ON 02/08/2024 (REV.1) & ERECTION AND FOUNDATION DRAWINGS BY SABRE INDUSTRIES, DATED 04/18/2024 (REV.0) FOR THE PROPOSED POWERMOUNT INSTALLATION.
- CONTRACTOR SHALL VERIFY THE EXISTING ANTENNA CENTERLINE HEIGHT ABOVE GROUND LEVEL. PROPOSED AND EXISTING ANTENNA CENTERLINE SHALL MATCH EXISTING.
- NO ANCILLARY EQUIPMENT, RADIATING OR NON-RADIATING, SHALL BE MOUNTED BELOW THE BOTTOM OF ANY EXISTING OR PROPOSED ANTENNA.



EXISTING ELEVATION



PROPOSED ELEVATION

NOTES

- ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUNDING KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
 - GROUNDED AT THE ANTENNA LEVEL.
 - GROUNDED AT MID LEVEL. TOWERS WHICH ARE OVER 200', ADDITIONAL CABLE GROUNDING REQUIRED.
 - GROUNDED AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
 - GROUNDED OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
 - GROUNDED INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
- ALL PROPOSED GROUNDING BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUNDING BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUNDING BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
- THE CONTRACTORS SHALL BE RESPONSIBLE FOR VERIFYING THE ANTENNA AND THE COAX CONFIGURATION IS THE CORRECT MAKE AND MODELS, PRIOR TO INSTALLATION.
- ANTENNA CONTRACTOR SHALL FURNISH AND INSTALL A SECTOR ANTENNA MOUNT, INCLUDING ALL HARDWARE, WHEN APPLICABLE.
- ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S SPECIFICATION & RECOMMENDATIONS.
- CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.

ANTENNA MOUNTING NOTES

- DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSIEA/TIA-222 "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES" OR APPLICABLE LOCAL CODES. DESIGN WIND LOADING OBTAINED FROM ANSIEA/TIA-222-G, OR THE LATEST VERSION.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
- ANTENNA CONTRACTOR SHALL ENSURE ALL ANTENNA MOUNTING PIPES ARE PLUMB AND LEVEL.
- MULTI PORT ANTENNAS: TERMINATE UNUSED ANTENNA PORTS WITH CONNECTOR CAP & WEATHERPROOF THOROUGHLY. JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATIONS IN EACH SECTOR.
- CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE DOCUMENTATION TO AT&T.
- CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.

COAXIAL ANTENNA CABLE NOTES

- TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
- CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
- CONTRACTOR TO CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND-00027, REFER TO THE LATEST VERSION.
- ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE WILL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".
- ALL COAXIAL CABLE WILL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" O.C.
- CONTRACTOR MUST FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
- WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.
- CONTRACTOR SHALL GROUND ALL EQUIPMENT, INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
- CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS AND CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

FIBER & POWER CABLE MOUNTING NOTES

- CABLE TO BE SUPPORTED USING 1/2" SNAP-INS (TALLEY PART #SSH-12) OR 1/2" BUTTERFLY HANGERS (TALLEY PART #252119) OR ENGINEER APPROVED EQUAL.
- CABLE TO BE SUPPORTED EVERY 3'.
- ALL SNAP-INS, RUBBER CABLE INSERTS, AND MOUNTING HARDWARE FOR FIBER AND DC CABLES SHALL BE SUPPLIED FROM ROSENBERGER.
- RRUS TO BE INSTALLED WITHIN 16.4' (5.0 METERS) OF THE SURGE SUPPRESSOR. (CONTRACTOR TO FIELD VERIFY).

TORQUE REQUIREMENTS

- ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
 - RF CONNECTION BOTH SIDES OF THE CONNECTOR.
- ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
 - GROUNDED AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.
- ALL 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
- ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
- ALL GROUNDING HARDWARE SHALL TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUND IS NO LONGER LOOSE.
- ALL DIN TYPE CONNECTIONS ARE TO BE TORQUED TO 18-22 LB-FT (24.4 - 29.8 NM).
- ALL N TYPE CONNECTIONS ARE TO BE TORQUED TO 15-20 LB-IN (1.7 - 2.3 NM).



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APPROVALS

LANDLORD: _____
LEASING: _____
R.F.: _____
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PROJECT NO: EUAT0213
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FA# 10105192
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CANONSBURG, PA 15317

SITE ELEVATION

C-3



APPROVALS

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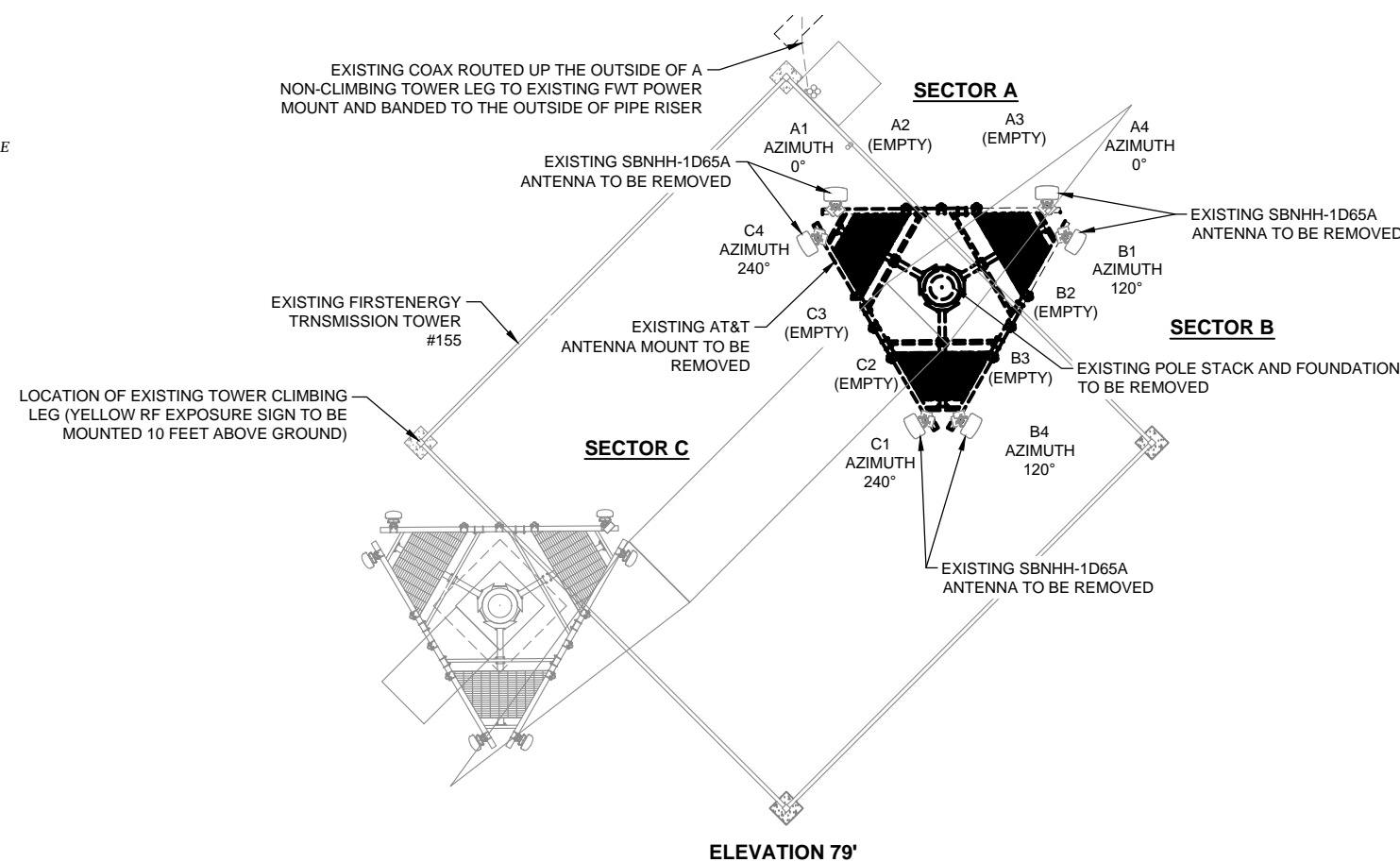
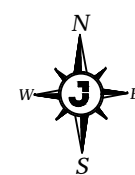
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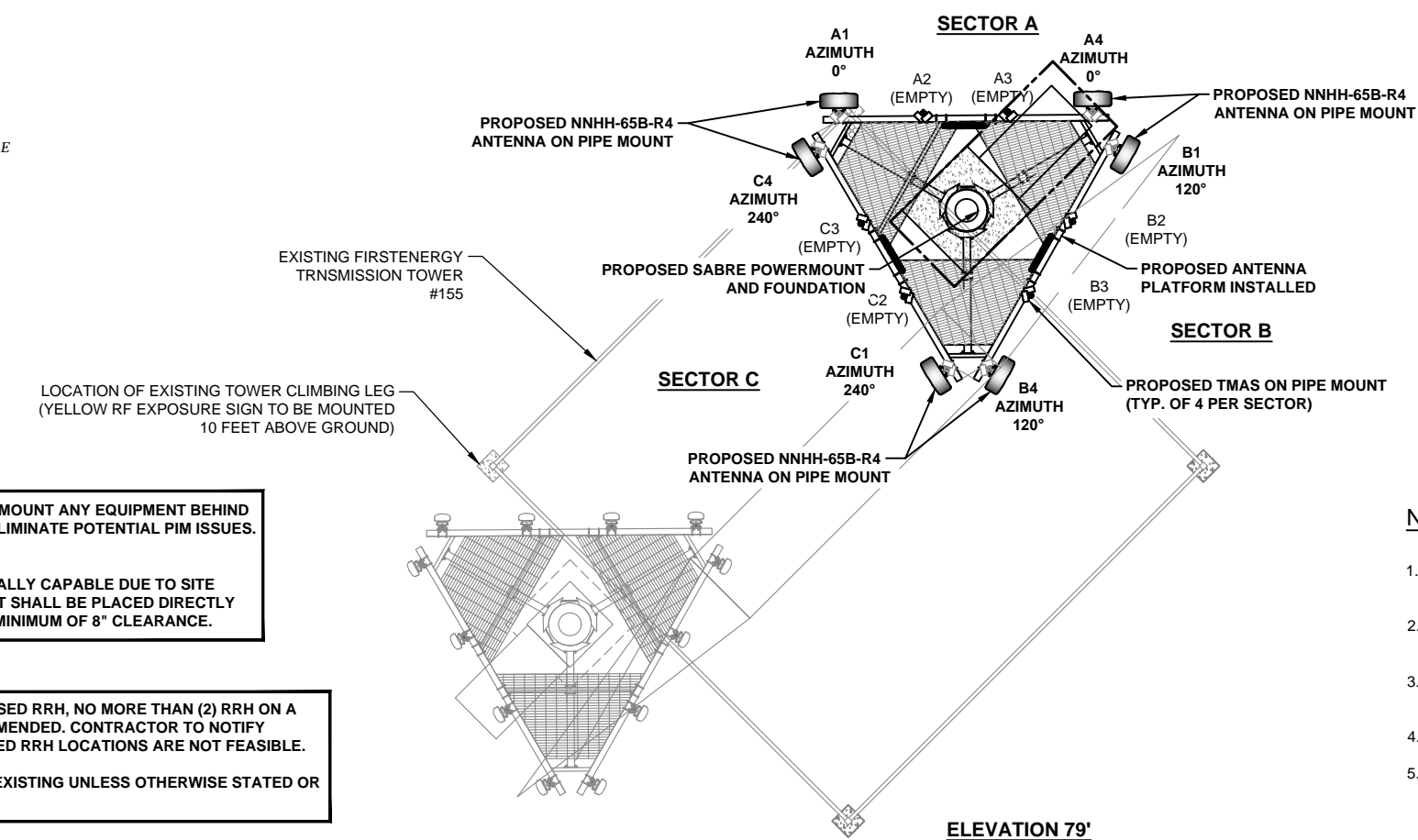
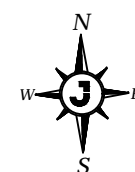
EXISTING & PROPOSED
ANTENNA LAYOUT

C-4



1 EXISTING ANTENNA LAYOUT

SCALE: NTS



2 PROPOSED ANTENNA LAYOUT

SCALE: NTS

CONTRACTOR SHALL NOT MOUNT ANY EQUIPMENT BEHIND FIRSTNET ANTENNAS TO ELIMINATE POTENTIAL PIM ISSUES.

** EXCEPTIONS
WHEN THIS IS NOT PHYSICALLY CAPABLE DUE TO SITE RESTRICTIONS, EQUIPMENT SHALL BE PLACED DIRECTLY BEHIND ANTENNA WITH A MINIMUM OF 8" CLEARANCE.

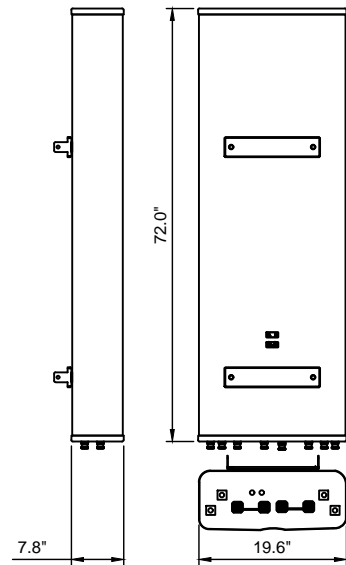
WHEN INSTALLING PROPOSED RRH, NO MORE THAN (2) RRH ON A MOUNTING PIPE IS RECOMMENDED. CONTRACTOR TO NOTIFY ENGINEER IF THE PROPOSED RRH LOCATIONS ARE NOT FEASIBLE.

**DO NOT RELOCATE THE EXISTING UNLESS OTHERWISE STATED OR APPROVED.

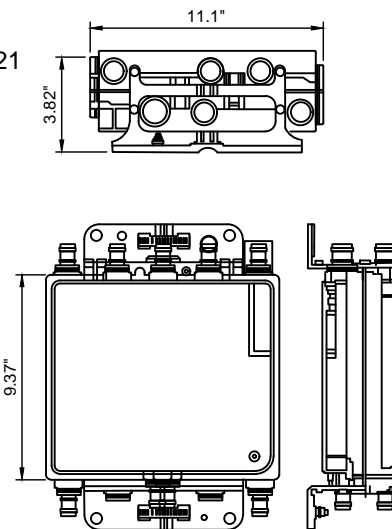
NOTES:

1. CONTRACTOR TO VERIFY FINAL RF CONFIGURATION AND NOTIFY CARRIER AND ENGINEER W/ ANY DISCREPANCIES PRIOR TO THE INSTALLATION.
2. CONTRACTOR SHALL HAVE 2ND FIBER PAIR CONNECTED TO AIRSCALE RRHS AND TAGGED & COILED UP IN SHELTER.
3. CONTRACTOR SHALL INSTALL MECHANICAL DOWNTILT BRACKET(S) ON PROPOSED ANTENNAS IF SPECIFIED ON SHEET T-1.
4. CONTRACTOR TO INSTALL GROUND BARS ON PROPOSED ANTENNA MOUNT PLATFORM.
5. ALL PROPOSED CABLES TO BE ROUTED INSIDE PROPOSED SABRE POWERMOUNT - SEE STRUCTURAL ANALYSIS REPORT.

MANUFACTURER: COMMSCOPE
 MODEL NO.: NNHH-65B-R4
 RADOME MATERIAL: FIBERGLASS, UV RESISTANT
 COLOR: LIGHT GRAY
 DIMENSIONS (LxWxD): 72.0" x 19.6" x 7.8"
 1828mm x 498mm x 197mm
 WEIGHT (lbs): 77.4
 CONNECTOR: 8 x 4.3-10 FEMALE
 FRONT WIND LOAD: 154.0 LBF @ 150 KM/H
 685 N @ 150 KM/H
 SIDE WIND LOAD: 52.2 LBF @ 150 KM/H
 232 N @ 150 KM/H
 WIND SPEED MAX.: >150 MPH (>241 KM/H)
 WIND LOADING, MAX.: 199.9 LBF @ 150 KM/H
 889 N @ 150 KM/H



MANUFACTURER: COMMSCOPE
 MODEL: TMAT192123B68-21
 DIMENSIONS (HxWxD): 11.1" x 9.37" x 3.82"
 TOTAL WEIGHT (lbs): 20.7
 TEMPERATURE: -40 °C TO +65 °C
 POWER CONSUMPTION: 200 W



DIPLEXER CBC426T-DS-43

Specifications

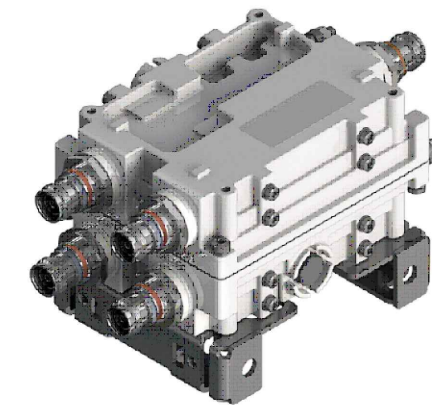
CBC426T-DS-43 | E14F05P31

Product Classification

Product Type	Diplexer
--------------	----------

General Specifications

Product Family	CBC426
Color	Gray
Common Port Label	ANT
Modularity	2-Twin
Mounting	Pole / Wall
Mounting Pipe Hardware	Band clamps (2)
RF Connector Interface	4.3-10 Female



1 ANTENNA SPECIFICATIONS

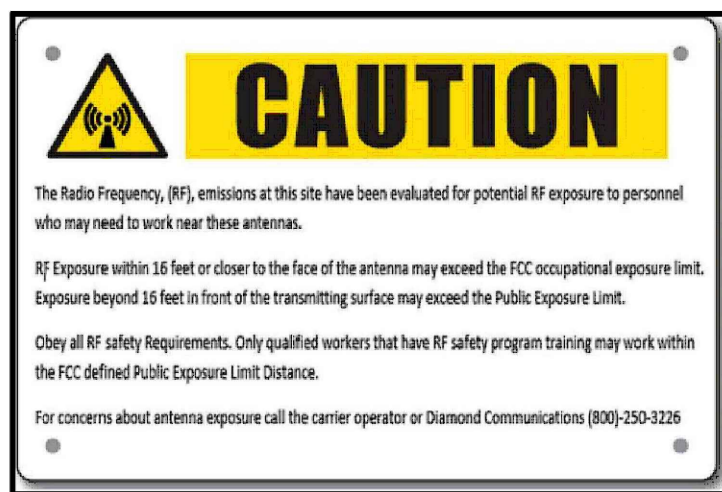
SCALE: NTS

2 TMA SPECIFICATIONS

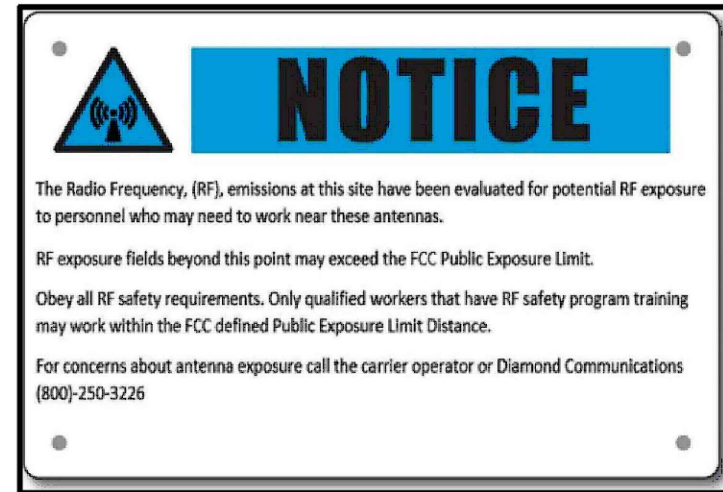
SCALE: NTS

3 DIPLEXER SPECIFICATIONS

SCALE: NTS



SIGN 1 – YELLOW RF EXPOSURE SIGN MOUNTED TO THE TOWER CLIMBING LEG TEN (10) FEET ABOVE



SIGN 2 – BLUE RF EXPOSURE SIGN MOUNTED TO THE COMPOUND FENCE / GATE WITH STAINLESS STRAPS OR AS A STICKER ON THE BASE STATION EQUIPMENT CABINET.

4 SIGN 1 DETAIL

SCALE: NTS

5 SIGN 2 DETAIL

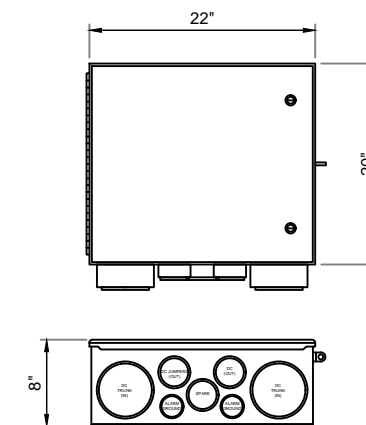
SCALE: NTS

6 DC SURGE PROTECTION

SCALE: NTS

RAYCAP DC12-48-60-0-25E-SS

DIMENSIONS (HxWxD): 22" x 20" x 8"
 TOTAL WEIGHT (lbs): 39



APPROVALS

LANDLORD: _____
 LEASING: _____
 R.F.: _____
 ZONING: _____
 CONSTRUCTION: _____
 A & E: _____

PROJECT NO: EUAT0213
 DRAWN BY: MAS
 CHECKED BY: PC

SUBMITTALS

2	05/23/2024	REVISED PER COMMENTS
1	04/10/2023	REVISED PER COMMENTS
0	12/07/2022	REVISED PER LL COMMENTS

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SITE DETAILS

C-5

7 DETAIL NOT USED

SCALE: NTS

8 DETAIL NOT USED

SCALE: NTS

9 DETAIL NOT USED

SCALE: NTS



APPROVALS

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R.F.: _____
ZONING: _____
CONSTRUCTION: _____
A & E: _____

PROJECT NO: EUAT0213
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CHECKED BY: PC

SUBMITTALS

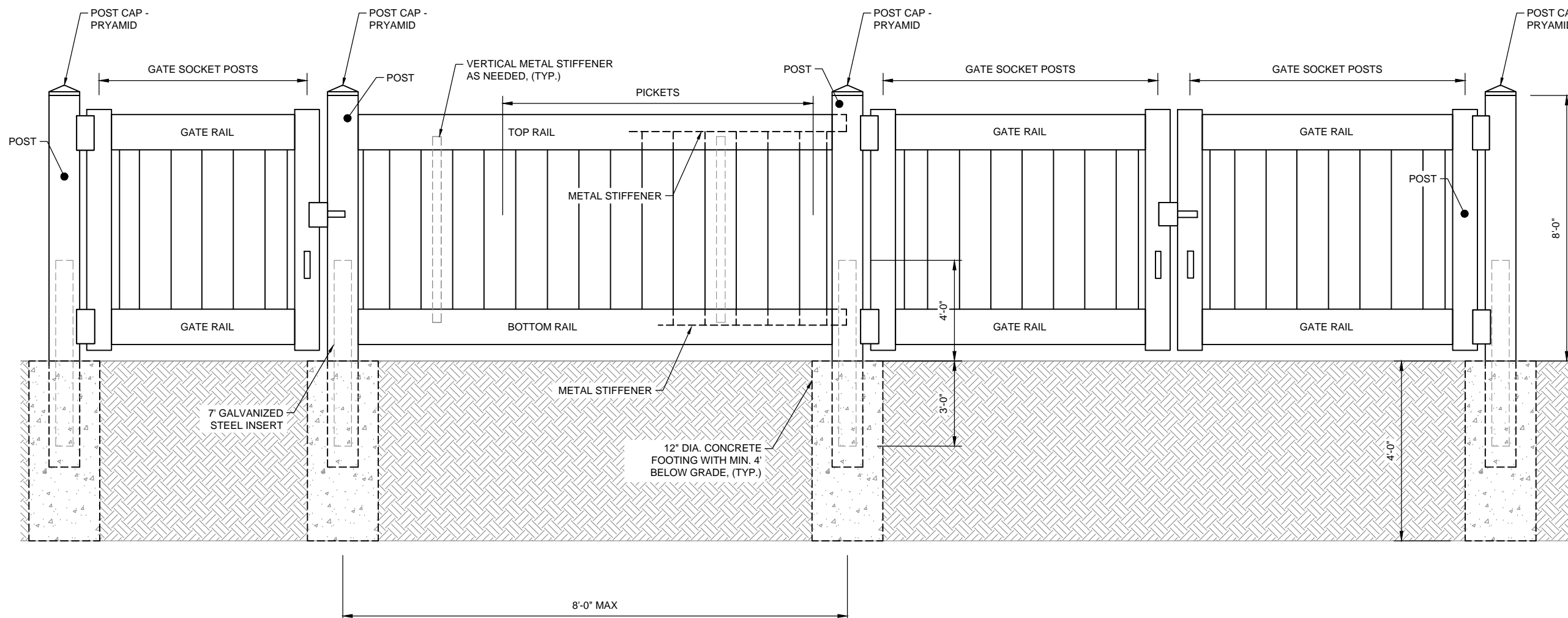
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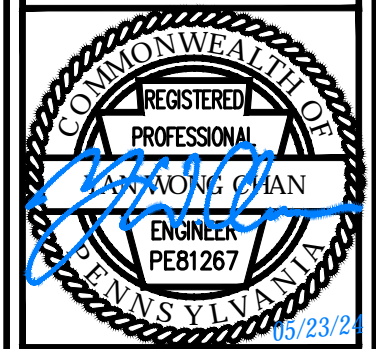
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FENCE DETAILS

C-6





APPROVALS

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ZONING: _____
CONSTRUCTION: _____
A & E: _____

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SUBMITTALS	
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0	12/07/2022 REVISED PER LL COMMENTS

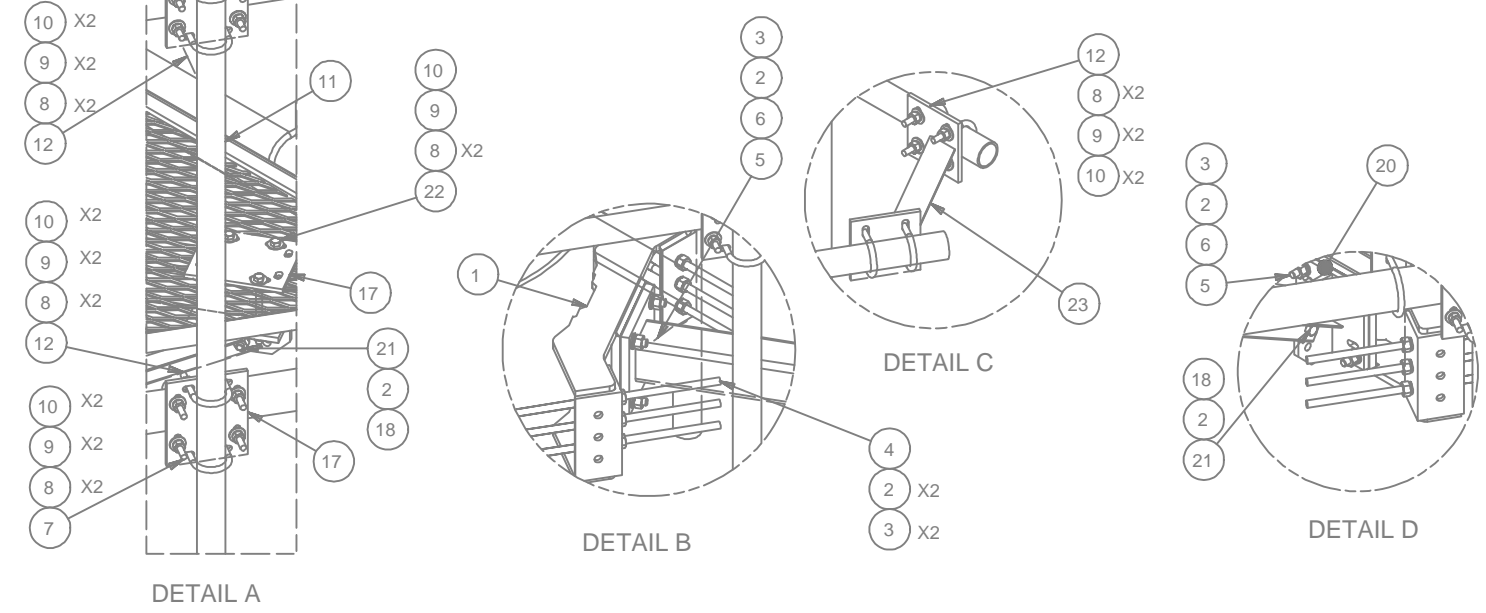
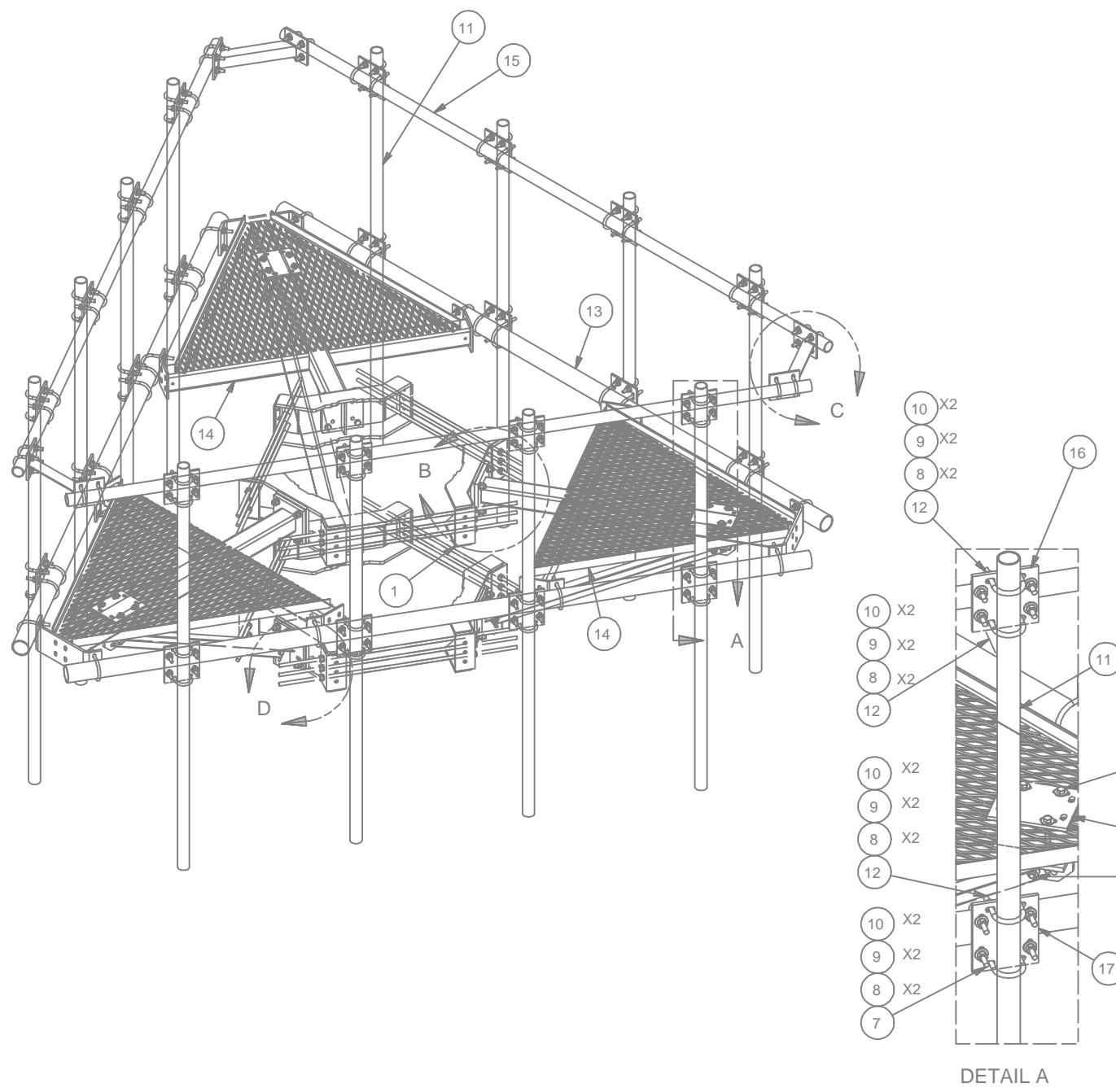
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McMURRY
120 DRUID AVE.
CANONSBURG, PA 15317

MOUNT DETAILS

C-7

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.79
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
4	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
5	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.54
6	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
7	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	29.82
8	264	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.00
9	252	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	3.50
10	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.05
11	12	P296	2-3/8" X 96" SCH. 40 GALVANIZED PIPE	96 in	30.76	369.08
12	84	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	52.51
13	3	P3150	3-1/2" X 150" (3" SCH 40) GALVANIZED PIPE	150 in	94.80	284.40
14	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
15	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
16	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
17	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
18	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
19	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
20	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
21	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
22	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	4.91
23	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2445.81



TOLERANCE NOTES
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
12' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-3/8" ANTENNA MOUNTING
PIPES, AND SUPPORT RAIL

CPD NO. 4488	DRAWN BY CEK 7/14/2014	ENG. APPROVAL
CLASS SUB 81 02	DRAWING USAGE CUSTOMER	CHECKED BY BMC 7/14/2014

SITE PRO
A valmont COMPANY

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

Engineering Support Team:
1-888-753-7446

PART NO. RMQP-496-HK	PAGE 1 OF 3
DWG. NO. RMQP-496-HK	

REV	DESCRIPTION OF REVISIONS	CPD BY	DATE
	B RELOCATED MOUNT PIPE POSITIONS	4488 JET	5/23/2021
	A CHANGED X-253992 TO X-TBW	4488 CEK	9/20/2018
REVISION HISTORY			



APPROVALS

LANDLORD: _____
LEASING: _____
R.F.: _____
ZONING: _____
CONSTRUCTION: _____
A & E: _____

PROJECT NO: EUAT0213
DRAWN BY: MAS
CHECKED BY: PC

SUBMITTALS

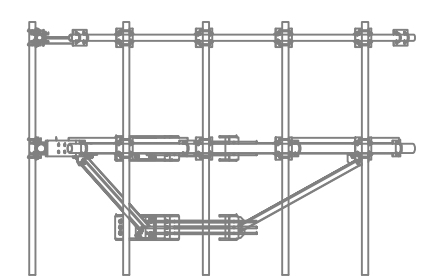
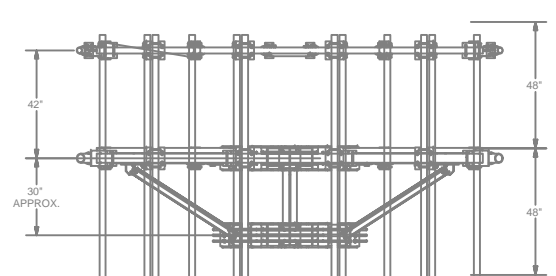
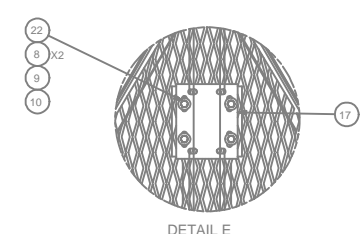
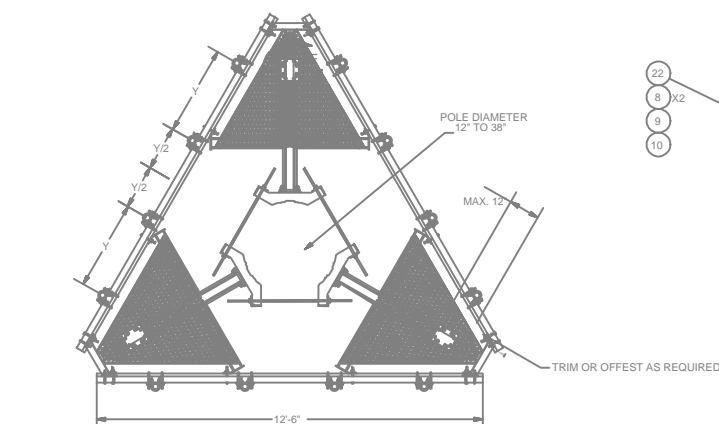
DATE	REVISION
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1/04/10/2023	REVISED PER COMMENTS
0/12/07/2022	REVISED PER LL COMMENTS

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McMURRY
120 DRUID AVE.
CANONSBURG, PA 15317

MOUNT DETAILS

C-8



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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DRILLED AND GAS CUT HOLES ($\pm 0.030''$) - NO CONING OF HOLES
LASER CUT EDGES AND HOLES ($\pm 0.010''$) - NO CONING OF HOLES
BENDS ARE $\pm 1/2$ DEGREE
ALL OTHER MACHINING ($\pm 0.030''$)
ALL OTHER ASSEMBLY ($\pm 0.060''$)

DESCRIPTION
12' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-3/8" ANTENNA MOUNTING
PIPES, AND SUPPORT RAIL



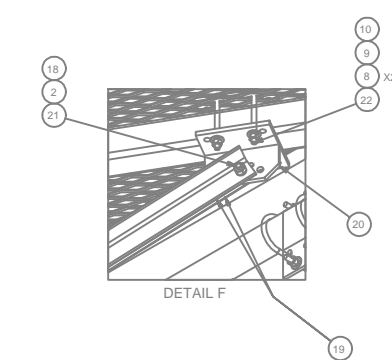
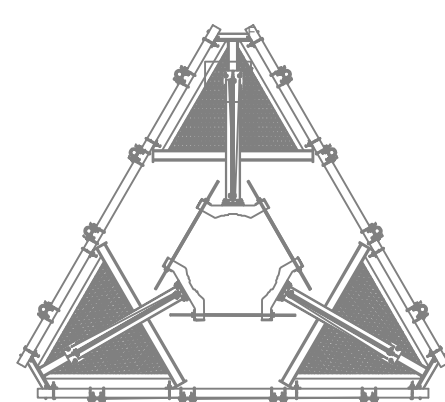
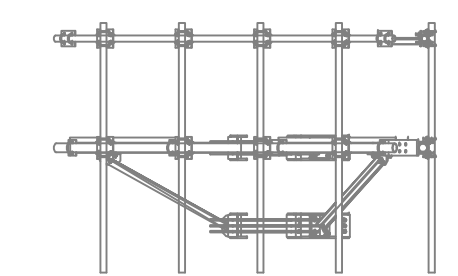
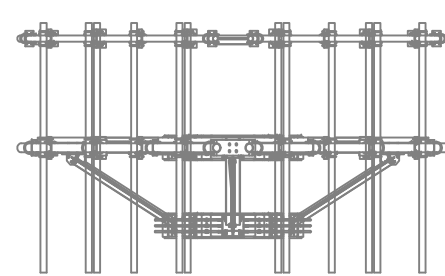
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX
Engineering Support Team:
1-888-753-7446

REV	DESCRIPTION OF REVISIONS	CPD BY	DATE
B	RELOCATED MOUNT PIPE POSITIONS	4488	ET 5/23/2021
A	CHANGED X-253992 TO X-TBW	4488	CEK 9/30/2018

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK	7/14/2014	RMQP-496-HK

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC	7/14/2014

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK	7/14/2014	RMQP-496-HK



TOLERANCE NOTES

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WITH TWELVE 2-3/8" ANTENNA MOUNTING
PIPES, AND SUPPORT RAIL



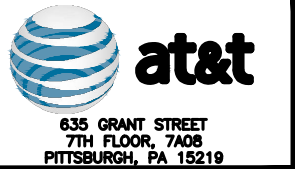
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REV	DESCRIPTION OF REVISIONS	CPD BY	DATE
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CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK	7/14/2014	RMQP-496-HK

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81	02	CUSTOMER	BMC	7/14/2014

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK	7/14/2014	RMQP-496-HK



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 Reinventing tomorrow.
 Jacobs Telecommunications, Inc.
 2 ASH STREET, SUITE #3000
 CONSHOHOCKEN, PA 19428
 610.238.1000



APPROVALS

LANDLORD: _____
 LEASING: _____
 R.F.: _____
 ZONING: _____
 CONSTRUCTION: _____
 A & E: _____

PROJECT NO: EUAT0213
 DRAWN BY: MAS
 CHECKED BY: PC

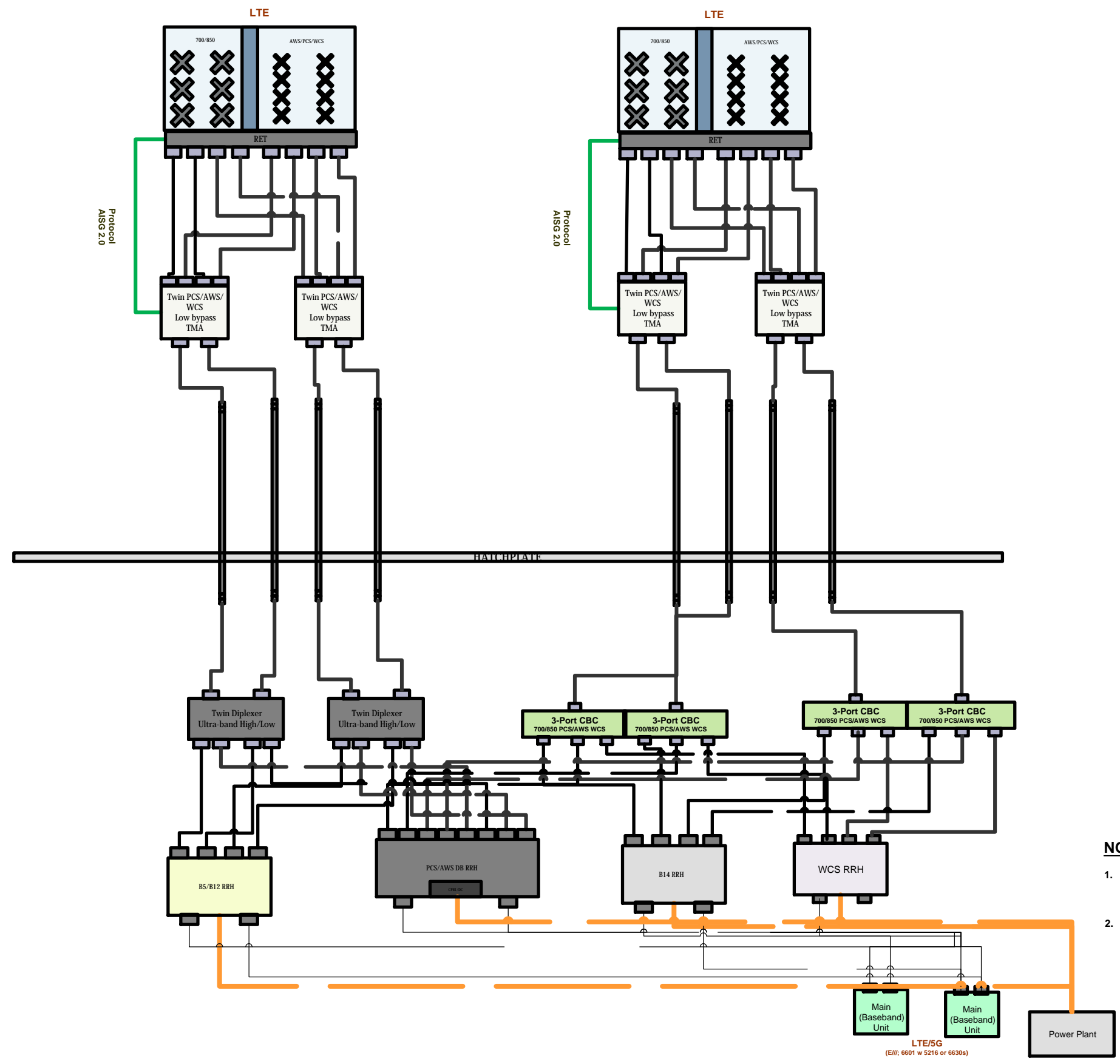
SUBMITTALS	
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 SITE# WPAP333
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RF EQUIPMENT SCHEMATIC

RF-1

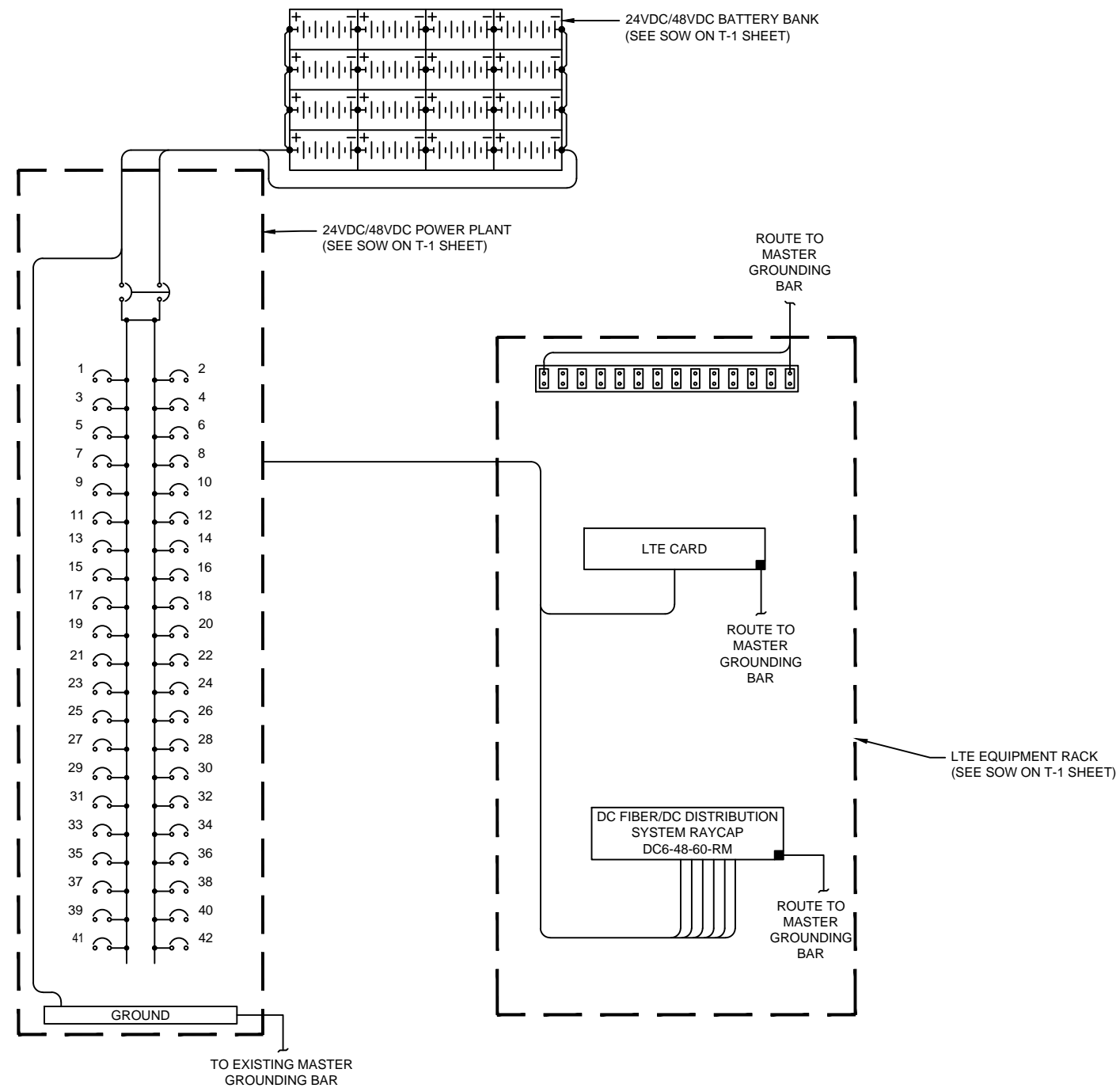


NOTES:

- CONTRACTOR TO VERIFY FINAL RF CONFIGURATION AND NOTIFY CARRIER AND ENGINEER WITH ANY DISCREPANCIES PRIOR TO THE INSTALLATION.
- PLUMBING DIAGRAM SHOWN IS BASED ON RFDS NAME: PWL00333, RFDS STATE/STATUS: FINAL/APPROVED, RFDS VERSION 1.0 DATED ON 06/09/2022.

NOTES:

1. INSTALL ADDITIONAL CIRCUITS TO RECTIFIERS AS REQUIRED, TO PROVIDE ADDITIONAL -48VDC POWER FOR LTE SYSTEM.
2. DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V. REFER TO ATT-002-290-701.
3. LTE POWER WIRING SHALL BE IN ACCORDANCE WITH ATT-002-290-531.



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APPROVALS

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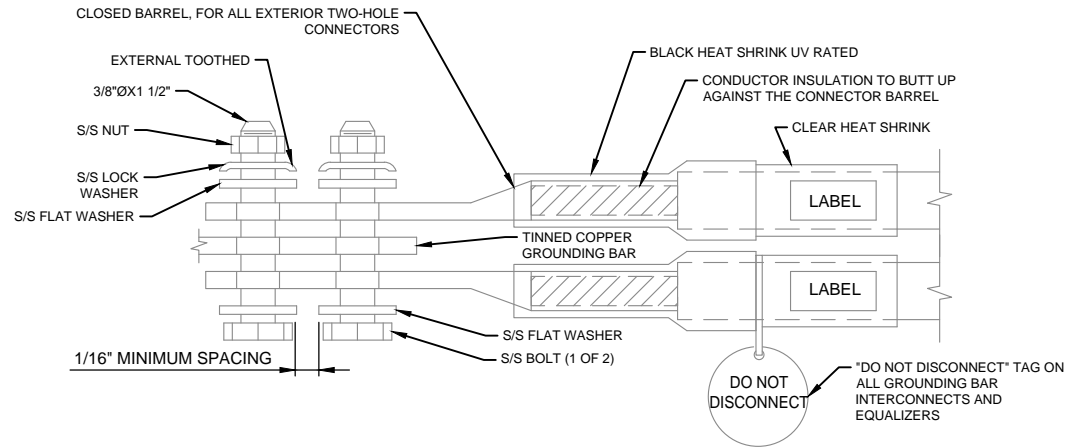
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SITE# WPAP333
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CANONSBURG, PA 15317

ELECTRICAL DC ONE LINE DIAGRAM

E-1

NOTES:

- EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUNDING BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
- ALL GROUNDING BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS.
- ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUNDING CONDUCTOR DOWN TO GROUNDING BUS.
- NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUNDING BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION, ON ALL GROUNDING TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
- SUPPLIED AND INSTALLED BY CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUNDING BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
- ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).



1 EXTERIOR TWO HOLE LUG DETAIL

SCALE: NTS

GENERAL NOTES:

- CONTRACTOR SHALL HAVE A COMPLETE UNDERSTANDING OF THE CONTENTS OF AT&T STANDARD TP-76416.
- ALL INSTALLATIONS SHALL BE FIELD VERIFIED.
- ALL GROUND CONNECTIONS FOR ALL RELOCATED EQUIPMENT SHALL BE RE-ESTABLISHED BY THE CONTRACTOR. CONTRACTOR SHALL FURNISH ALL MATERIALS AS REQUIRED.

GROUNDING NOTES:

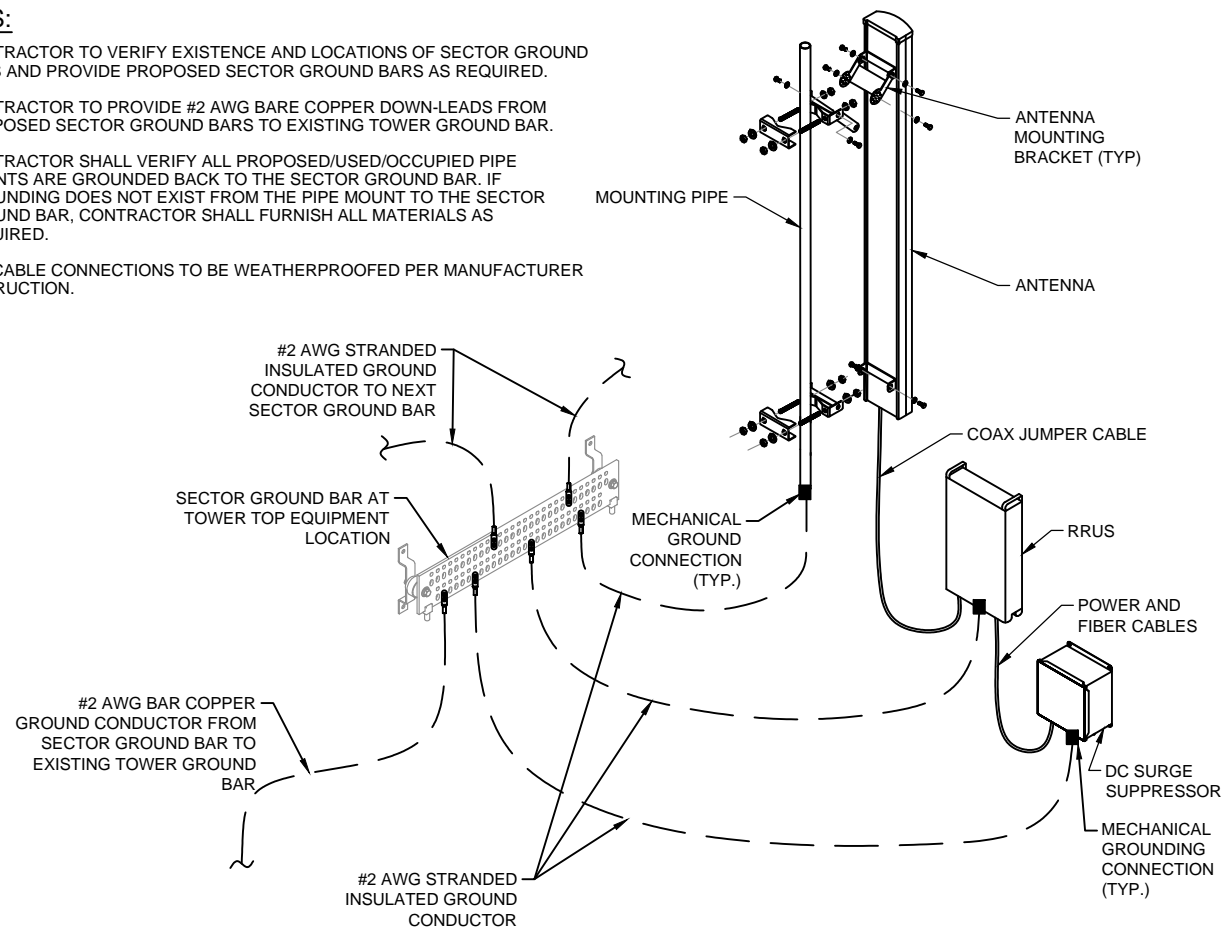
- TOWER GROUNDING BAR: EXTEND (2) #2 AWG TINNED CU WIRE FROM BURIED GROUND RING UP TO THE TOWER GROUND BAR AND MAKE A MECHANICAL CONNECTION. SECURE GROUND BAR DIRECTLY TO TOWER WITH STAINLESS STEEL MOUNTING MATERIAL.
- ANTENNA GROUNDING BAR: ANDREW CORPORATION PART #UGBKIT-0424-T MOUNT GROUND BAR DIRECTLY TO TOWER. SECURE TO TOWER WITH STAINLESS STEEL MOUNTING MATERIAL.
- GROUNDING BAR: LOCATED CLOSE TO GRADE LOCK BOX TESSCO PART #351546; INSTALL PER MANUFACTURER GUIDELINES.
- EXOTHERMIC OR COMPRESSION CONNECTION FOR PIPE MOUNT TO ANTENNA ROUTE CONDUCTOR TO NEAREST GROUNDING BAR SO THE GROUNDING CONDUCTORS PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND. USE #2 AWG SOLID TINNED COPPER CONDUCTOR. GROUNDING CONNECTION SHALL BE LOCATED AT THE TOP 2" OF PIPE.
- ALL GROUNDING CONDUCTORS SHALL BE #2 AWG COPPER TINNED UNLESS NOTED OTHERWISE.
- ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
- KOPR-SHIELD ANTI-OXIDATION COMPOUND SHALL BE USED ON ALL COMPRESSION GROUNDING CONNECTIONS.
- ALL EXOTHERMIC CONNECTIONS SHALL BE INSTALLED UTILIZING THE PROPER CONNECTION/MOLD AND MATERIALS FOR THE PARTICULAR APPLICATION.
- ALL BOLTED GROUNDING CONNECTIONS SHALL BE INSTALLED WITH AN EXTERNAL TOOTHED LOCK WASHER. GROUNDING BUS BARS MAY HAVE PRE-PUNCHED HOLES OR TAPPED HOLES. ALL HARDWARE SHALL BE SECURITY TORQUE HARDWARE 3/8" STAINLESS STEEL.
- EXTERNAL GROUNDING CONDUCTOR SHALL NOT BE INSTALLED OR ROUTED THROUGH HOLES IN ANY METAL OBJECTS, CONDUITS, OR SUPPORTS TO PRECLUDE ESTABLISHING A MAGNETIC CHOKE POINT.
- PLASTIC CLIPS SHALL BE USED TO FASTEN AND SUPPORT GROUNDING CONDUCTORS. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED.
- IF COAX ON ICE BRIDGE IS MORE THAT 6' FROM THE GROUND BAR AT THE BASE OF THE TOWER, A SECOND GROUND BAR WILL BE NEEDED AT THE END OF THE ICE BRIDGE RUN TO GROUND THE COAX GROUND KIT AND THE IN-LINE SURGE ARRESTORS (SURGE ARRESTORS INSTALLED BY LUCENT ONLY HAVE 6' GROUND TAILS).
- CONTRACTOR SHALL REPAIR/PLACE EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTORS EXPENSE.
- DO NOT ALLOW THE COPPER CONDUCTOR TO TOUCH THE GALVANIZED GUY WIRE AT THE CONNECTION POINT OR AT ANY OTHER POINT. NO EXOTHERMICALLY WELDED CONNECTION SHALL BE MADE TO THE GUY WIRE.
- CONTRACTOR SHALL VERIFY EXISTING SECTOR GROUNDING CONDITION AND GROUND THE PROPOSED EQUIPMENT IN THE SAME MANNER. A PROPOSED SECTOR GROUND BAR SHALL BE INSTALLED IF REQUIRED.

2 GROUNDING NOTES

SCALE: NTS

NOTES:

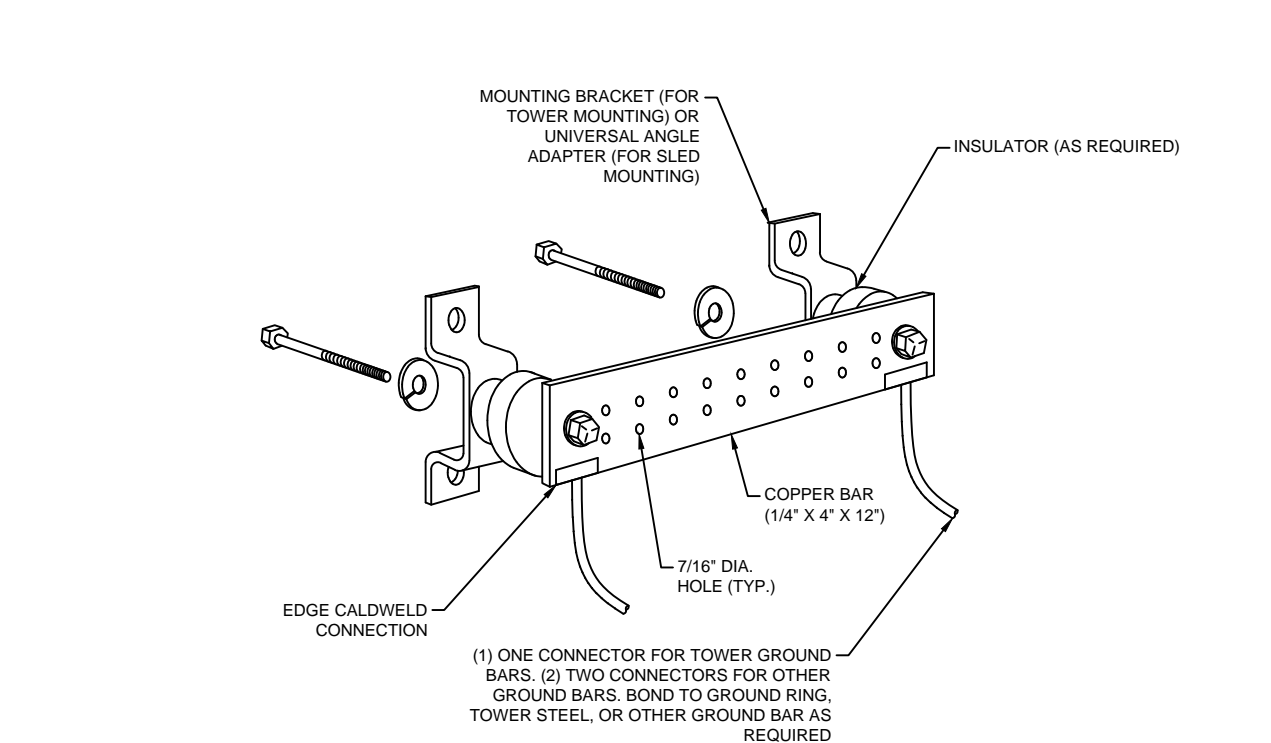
- CONTRACTOR TO VERIFY EXISTENCE AND LOCATIONS OF SECTOR GROUND BARS AND PROVIDE PROPOSED SECTOR GROUND BARS AS REQUIRED.
- CONTRACTOR TO PROVIDE #2 AWG BARE COPPER DOWN-LEADS FROM PROPOSED SECTOR GROUND BARS TO EXISTING TOWER GROUND BAR.
- CONTRACTOR SHALL VERIFY ALL PROPOSED/USED/OCCUPIED PIPE MOUNTS ARE GROUNDED BACK TO THE SECTOR GROUND BAR. IF GROUNDING DOES NOT EXIST FROM THE PIPE MOUNT TO THE SECTOR GROUND BAR, CONTRACTOR SHALL FURNISH ALL MATERIALS AS REQUIRED.
- ALL CABLE CONNECTIONS TO BE WEATHERPROOFED PER MANUFACTURER INSTRUCTION.



3 TYPICAL ANTENNA GROUNDING SCHEMATIC

SCALE: NTS

GROUNDING NOTES:



4 GROUND BAR DETAIL

SCALE: NTS



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APPROVALS

LANDLORD: _____
LEASING: _____
R.F.: _____
ZONING: _____
CONSTRUCTION: _____
A & E: _____

PROJECT NO: EUAT0213
DRAWN BY: MAS
CHECKED BY: PC

SUBMITTALS

NO.	DATE	REVISION
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GROUNDING DETAILS

GENERAL CONSTRUCTION

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
GENERAL CONTRACTOR - (CONSTRUCTION)
OWNER - AT&T
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OT 2-A; 10-B; C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
24. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.

25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
31. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
32. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
33. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
34. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
35. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
36. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
37. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
38. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.
39. ALL COAXIAL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
40. CONTRACTOR WILL REFER TO LATEST RFDS SHEET PRIOR TO CONSTRUCTION COMMENCING.

PART 1 - GENERAL

- 1.1 SCOPE:
A. PROVIDE FABRICATION AND ERECTION OF STRUCTURAL STEEL AND OTHER ITEMS AS SHOWN ON THE DRAWINGS OR REQUIRED BY OTHER SECTIONS OF THESE SPECIFICATIONS.
- 1.2 REFERENCES:
A. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION (13TH EDITION), ALLOWABLE STRESS DESIGN (ASD), P
B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM),
ASTM A36: STRUCTURAL STEEL
ASTM A53: PIPE, STEEL BLACK AND HOT DIPPED, ZINC-COATED WELDED AND SEAMLESS.
ASTM A108: STEEL BARS, CARBON, COLD FINISHED, STANDARD QUALITY.
ASTM A123: ZINC (HOT-DIPPED GALVANIZED) COATING ON IRON AND STEEL PRODUCTS.
ASTM A307: CARBON STEEL BOLTS AND STUDS, 60,000 PSI TENSILE STRENGTH.
ASTM A325: HIGH-STRENGTH BOLT FOR STRUCTURAL STEEL JOINTS.
ASTM A490: HEAT-TREATED, STRUCTURAL STEEL BOLTS, 150 (KSI) (1035MPA) TENSILE STRENGTH.
ASTM A500: COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES.
ASTM A563: ARCBON AND ALLOY STEEL NUTS.
ASTM B695: COATINGS OF ZINC MECHANICALLY DEPOSITED ON IRON AND STEEL.
ASTM F436: HARDENED STEEL WASHERS.
ASTM F959: COMPRESSIBLE-WASHER-TYPE DIRECT TENSION INDICATOR FOR USE WITH STRUCTURAL FASTENERS.
C. AMERICAN WELDING SOCIETY (AWS):
AWS A5.1: COVERED CARBON STEEL ARC WELDING ELECTRODES.
AWS A5.5: LOW ALLOY STEEL COVERED ARC WELDING ELECTRODES.
AWS D1.1: STRUCTURAL WELDING CODE - STEEL
D. RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC): "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS OR ASTM A490 BOLTS" AS ENDORSED BY AISC.
E. STEEL STRUCTURES PAINTING COUNCIL (SSPC):
SSPC-SP3: POWER TOOL CLEANING.
SSPC-PAINT 11: RED IRON OXIDE, ZINC CHROME, RAW LINSEED OIL OR ALKYD PAINT.

- 1.3 SUBMITTALS:
A. SUBMIT THE FOLLOWING FOR APPROVAL:

1. FABRICATION AND ERECTION DRAWINGS SHOWING ALL DETAILS, CONNECTIONS, MATERIAL DESIGNATIONS, AND ALL TOP STEEL ELEVATIONS.
2. WELDERS SHALL BE QUALIFIED AS PRESCRIBED IN AWS D1.1.

PART 2 - PRODUCTS

- 2.1 STRUCTURAL STEEL:
A. SHAPES, PLATES AND BARS SHALL CONFORM TO ASTM A36 AND ASTM A992.
B. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B. STEEL PIPE SHALL CONFORM TO ASTM A53, TYPE E OR S, GRADE B.
- 2.2 ANCHOR BOLTS:
A. ANCHOR BOLTS SHALL CONFORM TO ASTM A307 WITH HEAVY HEXAGONAL NUTS.

- 2.3 BOLTS:
A. COMMON (MACHINE) BOLTS SHALL CONFORM TO ASTM A307 GRADE A AND NUTS TO ASTM A563. ONE COMMON BOLT ASSEMBLY SHALL CONSIST OF A BOLT, A HEAVY HEX NUT, AND A HARDENED WASHER.
B. HIGH STRENGTH BOLT SHALL CONFORM TO ASTM A325, ONE HIGH STRENGTH BOLT ASSEMBLY SHALL CONSIST OF A HEAVY HEX STRUCTURAL BOLT, A HEAVY HEX NUT, A HARDENED WASHER CONFIRMING WITH ASTM F436 AND A DIRECT TENSION INDICATOR CONFIRMING WITH STM F959. THE HARDENED WASHER SHALL BE INSTALLED AGAINST THE ELEMENT TURNED IN TIGHTENING UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL CONNECTIONS SHALL BE BEARING TYPE CONNECTIONS.
- 2.4 WELDING ELECTRODES:
A. WELDING ELECTRODES SHALL COMPLY WITH AWS D1.1 USING A5.1 OR A5.5 E70XX AND SHALL BE COMPATIBLE WITH THE WELDING PROCESS SELECTED.

- 2.5 PRIMER:
A. PRIMER SHALL BE RED OXIDE-CHROMATE PRIMER COMPLYING WITH SSPC PAINT SPECIFICATION NO. 11.

PART 3 - EXECUTION

- 3.1 FABRICATION:
A. SHOP FABRICATE AND ASSEMBLY MATERIALS AS SPECIFIED HEREIN.
1. FABRICATE ITEMS OF STRUCTURAL STEEL IN ACCORDANCE WITH THE AISC-ASD SPECIFICATION, AND AS INDICATED ON THE APPROVED SHOP DRAWINGS.
2. ALL EXPOSED STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED PER ASTM.
3. PROPERLY MARK AND MATCH-MARK MATERIALS FOR FIELD ASSEMBLY AND FOR IDENTIFICATION AS TO LOCATION FOR WHICH INTENDED.
4. FABRICATE AND DELIVER IN A SEQUENCE WHICH WILL EXPEDITE ERECTION AND MINIMIZE FIELD HANDLING OF MATERIALS.
5. WHERE FINISHING IS REQUIRED, COMPLETE THE ASSEMBLY, INCLUDING THE WELDING OF UNITS, BEFORE START OF FINISHING OPERATIONS.
6. PROVIDE FINISH SURFACE OF MEMBERS EXPOSED IN THE FINAL STRUCTURE FREE FROM MARKINGS, BURNS, AND OTHER DEFECTS.
B. PROVIDE CONNECTIONS AS SPECIFIED HEREIN:
1. PROVIDE BOLTS AND WASHERS OF TYPES AND SIZE REQUIRED FOR COMPLETION OF FIELD ERECTION. USE 3/4 INCH DIAMETER A325 BOLTS UNLESS NOTED OTHERWISE.
2. INSTALL HIGH STRENGTH THREADED FASTENERS IN ACCORDANCE WITH RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR ASTM A490 BOLTS."
3. WELDED CONSTRUCTION SHALL COMPLY WITH AWS D1.1 FOR PROCEDURES, APPEARANCE, QUALITY OF WELD, AND METHODS USED IN CORRECTING WELDED WORK.
4. THE FABRICATOR SHALL FURNISH AND INSTALL ERECTION CLIPS FOR FIT-UP OF WELDED CONNECTIONS.
5. DOUBLE ANGLE MEMBERS SHALL HAVE WELDED FILLERS SPACED IN ACCORDANCE WITH CHAPTER E4 OF THE AISC-ASD SPECIFICATION.
6. GUSSET AND STIFFENER PLATES SHALL BE 3/8 INCH THICK MINIMUM.

- 3.2 PRIMING:
A. STRUCTURAL STEEL SHALL BE PRIMED AS SPECIFIED HEREIN, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
B. STRUCTURAL STEEL SURFACE PREPARATION SHALL CONFORM TO SSPC-SP3, "POWER TOOL CLEANING."
C. SURFACE PREPARATION AND PRIMER SHALL BE IN ACCORDANCE WITH AISC CODE OF STANDARD PRACTICE AS INCLUDED IN THE ASD MANUAL OF STEEL CONSTRUCTION.
D. MATERIALS SHALL REMAIN CLOSED UNTIL REQUIRED FOR USE, MANUFACTURER'S POT-LIFE REQUIREMENTS SHALL BE STRICTLY ADHERED TO.
E. PRIMER SHALL BE APPLIED TO DRY, CLEAN, PREPARED SURFACE AND UNDER FAVORABLE CONDITIONS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. UNLESS OTHERWISE RECOMMENDED BY THE MANUFACTURER PRIMING SHALL NOT BE DONE WHEN AMBIENT TEMPERATURE IS LESS THAN 50 DEGREE F. THE RELATIVE HUMIDITY IS MORE THAN 90 PERCENT, OR THE SURFACE TEMPERATURE IS LESS THAN 5 DEGREE F ABOVE THE DEW POINT.
F. GENERALLY ALL PRIMER SHALL BE SPRAY APPLIED. BRUSH OR ROLLER APPLICATION SHALL BE RESTRICTED TO TOUCHUP AND TO AREAS NOT ACCESSIBLE BY SPRAY GUN.
G. PRIMER SHALL BE UNIFORMLY APPLIED WITHOUT RUNS, SAGS, SOLVENT BLISTERS, DRY SPRAY OR OTHER BLEMISHES. ALL BLEMISHES AND OTHER IRREGULARITIES SHALL BE REPAIRED OR REMOVED AND THE AREA RE-COATED. SPECIAL ATTENTION SHALL BE PAID TO CREVICES, WELD LINES, BOLT HEADS, CORNERS, EDGES, ETC., TO OBTAIN THE REQUIRED NOMINAL FILM THICKNESS.
H. THE DRY FILM THICKNESS OF THE PRIMER SHALL BE 2.0 MILS.
I. IF THE PRIMER IS DAMAGED BY WELDING OR PHYSICAL ABUSE, THE AREA SHALL BE TOUCHED-UP AND REPAIRED. THE TOUCHUP PAINT SHALL BE COMPATIBLE WITH THE APPLIED PRIMER WITH MINIMUM DRY FILM THICKNESS OF 1.5 MILS.

- 3.3 INSTALLATION:
A. INSTALLATION OF STRUCTURAL STEEL SHALL COMPLY WITH AISC "CODE OF STANDARD PRACTICE."
B. STRUCTURAL FIELD WELDING SHALL BE DONE BY THE ELECTRIC SUBMERGED OR SHIELDED METAL ARC PROCESS. WELDED CONSTRUCTION SHALL COMPLY WITH AWS D1.1.
C. PROVIDE ANCHOR BOLTS AND OTHER CONNECTORS REQUIRED FOR SECURING STRUCTURAL STEEL TO ELEVATOR SHAFT WALLS AND OTHER IN-PLACE WORK. PROVIDE TEMPLATES AND OTHER DEVICES NECESSARY FOR PRESETTING BOLTS AND ANCHORS TO ACCURATE LOCATIONS.
D. SPLICE MEMBERS ONLY WHERE INDICATED ON THE DRAWINGS.
E. ANY GAS CUTTING TORCHES HAVE TO BE APPROVED IN WRITING BY THE PROJECT STRUCTURAL ENGINEER.
F. PROVIDE TEMPORARY SHORING BRACING WITH CONNECTIONS OF SUFFICIENT STRENGTH TO BEAR IMPOSED LOADS. REMOVE TEMPORARY CONNECTIONS AND MEMBERS WHEN PERMANENT MEMBERS ARE IN PLACE AND THE FINAL CONNECTIONS HAVE BEEN MADE.
G. ALIGN AND ADJUST MEMBERS, AND OTHER SURFACES WHICH WILL BE IN PERMANENT CONTACT, BEFORE ASSEMBLY.
H. HIGH-STRENGTH BOLTS AS A MINIMUM, SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED IN THE LATEST AISC SPECIFICATION. ALL HIGH-STRENGTH BOLTS SPECIFIED ON THE DESIGN DRAWINGS TO BE USED IN PRETENSIONED OR SLIP-CRITICAL JOINTS SHALL BE TIGHTENED TO A BOLT TENSION NOT LESS THAN THAT GIVEN IN AISC TABLE J3.1. INSTALLATION SHALL BE BY ANY OF THE FOLLOWING METHODS: TURN-OF NUT METHOD, A DIRECT-TENSION-INDICATOR, TWIST-OFF-TYPE TENSION-CONTROL BOLT, CALIBRATED WRENCH, OR ALTERNATIVE DESIGN BOLT.



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APPROVALS

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GENERAL NOTES I

GN-1

ANTENNA MOUNTING

- DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
- DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
- ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
- PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS. REFER TO ND-00246.
- JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
- CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
- TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.

TORQUE REQUIREMENTS

- ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
- ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
 - RF CONNECTION BOTH SIDES OF THE CONNECTOR.
 - GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.
 - ALL 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
- ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
- ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
- ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4 - 29.8 NM).
- ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).

FIBER & POWER CABLE MOUNTING

- THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
- THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION: WHERE TYPE TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
- WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

COAXIAL CABLE NOTES

- TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
- CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
- CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND-00027 LATEST VERSION.
- ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".
- ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" O.C.
- CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
- CONTRACTOR SHALL WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.
- CONTRACTOR SHALL GROUND ALL EQUIPMENT, INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
- CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS AND CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- CONTRACTOR TO VERIFY THAT EXISTING COAX HANGERS ARE STACKABLE SNAP IN HANGERS. IF EXISTING HANGERS ARE NOT STACKABLE SNAP IN HANGERS THE CONTRACTOR SHALL REPLACE EXISTING HANGERS WITH NEW SNAP IN HANGERS IF APPLICABLE.

GENERAL CABLE AND EQUIPMENT NOTES

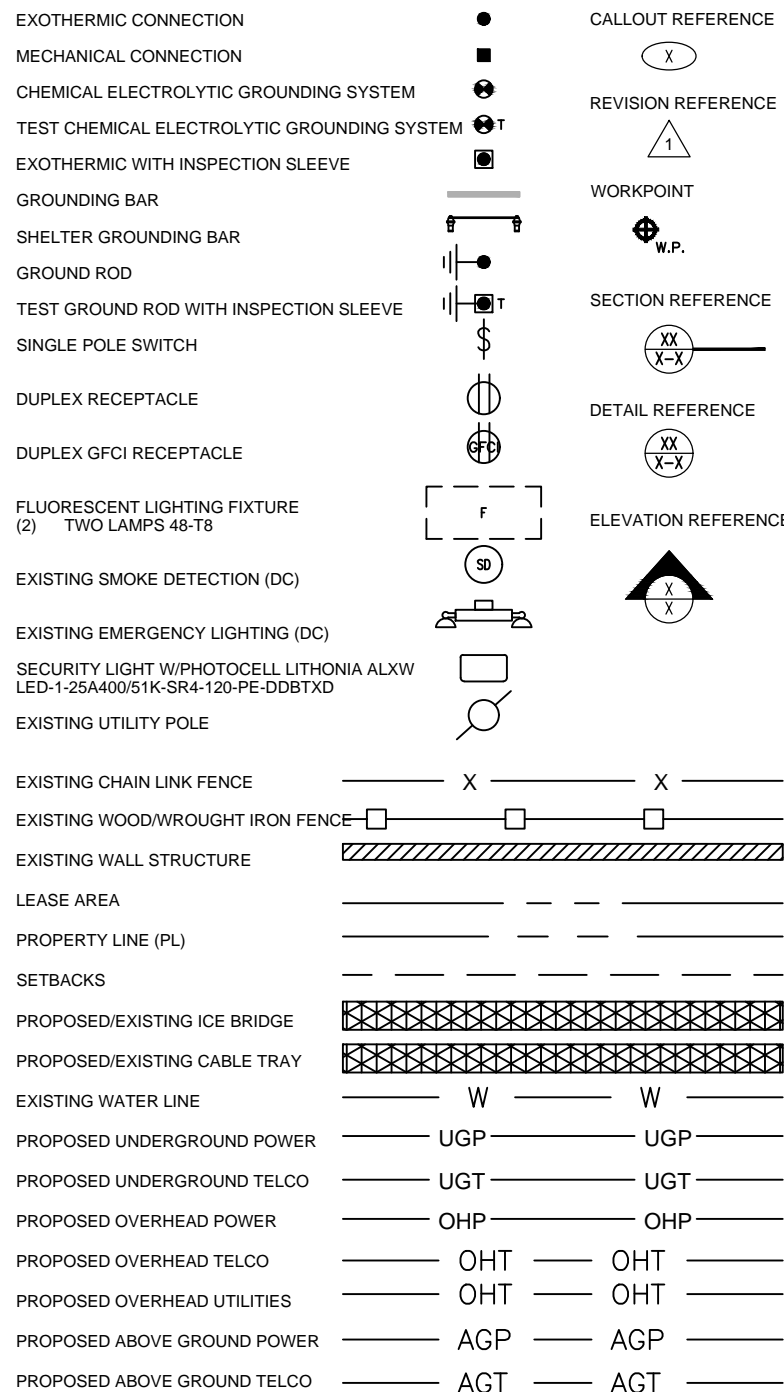
- CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMA'S, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
- ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
- ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
- IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
 - TEMPERATURE SHALL BE ABOVE 50° F.
 - PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
 - FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.
 - DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS.
- ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUND KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
 - GROUNDING AT THE ANTENNA LEVEL.
 - GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200'-0", ADDITIONAL CABLE GROUNDING REQUIRED.
 - GROUNDING AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
 - GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
 - GROUNDING INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.

- ALL PROPOSED GROUND BAR DOWNLOADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND
- BAR DOWNLOADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ANTENNA AND THE COAX CONFIGURATION IS THE CORRECT MAKE AND MODELS, PRIOR TO INSTALLATION.
- ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S SPECIFICATION & RECOMMENDATIONS.
- ANTENNA CONTRACTOR SHALL FURNISH AND INSTALL A 12'-0" T-BOOM SECTOR ANTENNA MOUNT, IF APPLICABLE, INCLUDING ALL HARDWARE.

GROUNDING NOTES

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND AT&T GROUNDING AND BONDING REQUIREMENTS (ATT-TP-76416) AND MANUFACTURER'S SPECIFICATIONS.
- ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.
- ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUNDING KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
 - GROUNDING AT THE ANTENNA LEVEL.
 - GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200', ADDITIONAL CABLE GROUNDING REQUIRED.
 - GROUNDING AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
 - GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
 - GROUNDING INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
- ALL PROPOSED GROUNDING BAR DOWNLOADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUNDING BAR DOWNLOADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUNDING BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.

AB	ANCHOR BOLT	DBL	DOUBLE	FOW	FACE OF WALL	MGB	MASTER GROUND BAR	RECT	RECTIFIER	TOS	TOP OF STEEL
AC	ALTERNATING CURRENT	DC	DIRECT CURRENT	FS	FINISH SURFACE	MIN	MINIMUM	REF	REFERENCE	TOW	TOP OF WALL
ADDL	ADDITIONAL	DEPT	DEPARTMENT	FT	FOOT	MISC	MISCELLANEOUS	REIN	REINFORCEMENT	TVSS	TRANSIENT VOLTAGE SUPPRESSION SYSTEM
AIC	AMPERAGE INTERRUPTION CAPACITY	DF	DOUGLAS FIR	FTG	FOOTING	MTL	METAL	REQ'D	REQUIRED	TYP	TYPICAL
ALUM	ALUMINUM	DIA	DIAMETER	GA	GAUGE	MTS	MANUAL TRANSFER	RET	REMOTE ELECTRIC TILT	UG	UNDERGROUND CONDUIT
ALT	ALTERNATE	DIAG	DIAGONAL	GEN	GENERATOR	MW	MICROWAVE	RMC	RIGID METALLIC CONDUIT	UNO	UNDERWRITERS LABORATORY UNLESS NOTED OTHERWISE
ANT	ANTENNA	DIM	DIMENSION	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	NEC	NATIONAL ELECTRIC CODE	RRH	REMOTE RADIO HEAD	UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
APPROX	APPROXIMATE	DWG	DRAWING	GLB	GLUE LAMINATED	NO.(#)	NUMBER	RRT	REMOTE RADIO UNIT	UPS	UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
ARCH	ARCHITECTURAL	DWL	DOWEL	(E)	EXISTING	NTS	NOT TO SCALE	RRT	REMOTE RADIO UNIT	VIF	VERIFIED IN FIELD
ATS	AUTOMATIC TRANSFER SWITCH	EA	EACH	EL	ELEVATION	OC	ON CENTER	SCH	SCHEDULE	W	WIDE
AWG	AMERICAN WIRE GAUGE	EC	ELECTRICAL CONDUCTOR	ELEC	ELECTRICAL	OPNG	OPENING	SHT	SHEET	WD	WOOD
BATT	BATTERY	EL	ELEVATION	EMT	ELECTRICAL METALLIC TUBING	(N)	PROPOSED	SIAD	SMART INTEGRATED DEVICE	WP	WORK POINT
BLDG	BUILDING	ELEC	ELECTRICAL	ENG	ENGINEER	GSM	GLOBAL SYSTEM FOR MOBILE	SIM	SIMILAR SPECIFICATION	WT	WEATHERPROOF WEIGHT
BLK	BLOCK	EMT	ELECTRICAL METALLIC TUBING	ENG	ENGINEER	HDR	HEADER	SIM	SIMILAR SPECIFICATION		
BLKG	BLOCKING	EQ	EQUAL	ENG	ENGINEER	HGR	HANGER	SQ	SQUARE		
BM	BEAM	EXP	EXPANSION	EQ	EQUAL	HVAC	HVAC	SS	STAINLESS STEEL		
BTC	BARE TINNED COPPER	EXT	EXTERIOR	EXP	EXPANSION	HEAT/VENTILATION/AIR CONDITIONING	HEAT/VENTILATION/AIR CONDITIONING	STD	STANDARD		
CONDUCTOR	CONDUCTOR	FAB	FABRICATION	EXT	EXTERIOR	CONDITONING	CONDITONING	STL	STEEL		
CAB	CABINET	FF	FINISH FLOOR	HT	HEIGHT	HT	HEIGHT	STRUCT	STRUCTURAL		
CANT	CANTILEVERED	FG	FINISH GRADE	IGR	INTERIOR GROUND	PP	POLARIZING	TEMP	TEMPORARY		
CHG	CHARGING	FIF	FACILITY INTERFACE	INT	INTERIOR	RING	RING	THK	THICKNESS		
CLG	CEILING	IN	INCH	INT	INTERIOR	IN	INCH	TMA	TOWER MOUNTED AMPLIFIER		
CLR	CLEAR	IN	INCH	INT	INTERIOR	IN	INCH	TN	TOE NAIL		
COL	COLUMN	INT	INTERIOR	INT	INTERIOR	INT	INTERIOR	TOA	TOP OF ANTENNA		
COMM	COMMON	LB(S)	POUND(S)	LF	LINEAR FEET	PT	PRESSURE TREATED	TOC	TOP OF CURB		
CONC	CONCRETE	LF	LINEAR FEET	LF	LINEAR FEET	PWR	POWER CABINET	TOF	TOP OF FOUNDATION		
CONSTR	CONSTRUCTION	FDN	FOUNDATION	LF	LINEAR FEET	QTY	QUANTITY	TOP	TOP OF PLATE (PARAPET)		
		FOC	FACE OF CONCRETE	MAS	MASONRY	RAD	RADIUS				
		FOM	FACE OF MASONRY	MECH	MECHANICAL						
		FOS	FACE OF STUD	MFR	MANUFACTURER						



APPROVALS

LANDLORD: _____

LEASING: _____

R.F.: _____

ZONING: _____

CONSTRUCTION: _____

A & E: _____

PROJECT NO:	EUAT0213
DRAWN BY:	MAS
CHECKED BY:	PC

SUBMITTALS

2	05/23/2024	REVISED PER COMMENTS
1	04/10/2023	REVISED PER COMMENTS
0	12/07/2022	REVISED PER LL COMMENTS

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GENERAL NOTES III

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