

GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, VERIZON "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
 - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
 - B. AC/TELCO INTERFACE BOX (PPC)
 - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
 - D. TOWERS, MONOPOLES
 - E. TOWER LIGHTING
 - F. GENERATORS & LIQUID PROPANE TANK
 - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
 - H. ANTENNAS (INSTALLED BY OTHERS)
 - I. TRANSMISSION LINE
 - J. TRANSMISSION LINE JUMPERS
 - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
 - L. TRANSMISSION LINE GROUND KITS
 - M. HANGERS
 - N. HOISTING GRIPS
 - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF VERIZON TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANS/IEA/ITIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE VERIZON REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE VERIZON REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE VERIZON REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE VERIZON CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE VERIZON REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH VERIZON AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.

22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY VERIZON MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH VERIZON SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO VERIZON FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO VERIZON SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY VERIZON REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. WHEN THE PROJECT SCOPE REQUIRES THE USE OF THE SAFETY CLIMB, THE GENERAL CONTRACTOR SHALL ENSURE THE SAFETY CLIMB IS FREE OF OBSTRUCTIONS, NOT RUBBING ON OR TRAPPED BY ANY INSTALLED CUSTOMER EQUIPMENT, IS VISUALLY TAUT, MEETS MANUFACTURER INSTALLATION SPECIFICATIONS, AND IS FIRMLY SECURED AT ALL CABLE GUIDE LOCATIONS UPON PROJECT COMPLETION.
29. COMPLETION OF PROJECT SHALL NOT OBSTRUCT, TRAP, LOOSEN, OR OTHERWISE CAUSE FAILURE TO MEET MANUFACTURER INSTALLATION REQUIREMENTS FOR THE SAFETY CLIMB.
30. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
31. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
32. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE VERIZON REP. ANY WORK FOUND BY THE VERIZON REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
33. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
34. VERIZON FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE VERIZON WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
35. VERIZON OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO VERIZON OR THEIR ARCHITECT/ENGINEER.

SPECIAL CONSTRUCTION

ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
 - A. ANTENNA AND COAXIAL/HYBRID CABLES ARE FURNISHED BY VERIZON UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.
 - B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND VERIZON SPECIFICATIONS.
 - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
 - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
 - E. INSTALL COAXIAL/HYBRID CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL/HYBRID CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
2. ANTENNA AND COAXIAL/HYBRID CABLE GROUNDING:
 - A. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.

- B. ALL COAXIAL/HYBRID CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL/HYBRID CABLE (NOT WITHIN BENDS)

ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.



1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
www.fullerton-us.com

REV.	DESCRIPTION	BY	DATE
A	PRELIM	MK	10/30/23
B	PRELIM	EC	11/14/23
C	PRELIM	RV	12/01/23
D	FINAL	RV	12/20/23

ATC SITE NUMBER:
419744
ATC SITE NAME:
CSP SCHRIEVER CO
VERIZON SITE NAME:
SCHRIEVER
SITE ADDRESS:
1100 S. ENOCH ROAD
COLORADO SPRINGS, CO 80930-9327



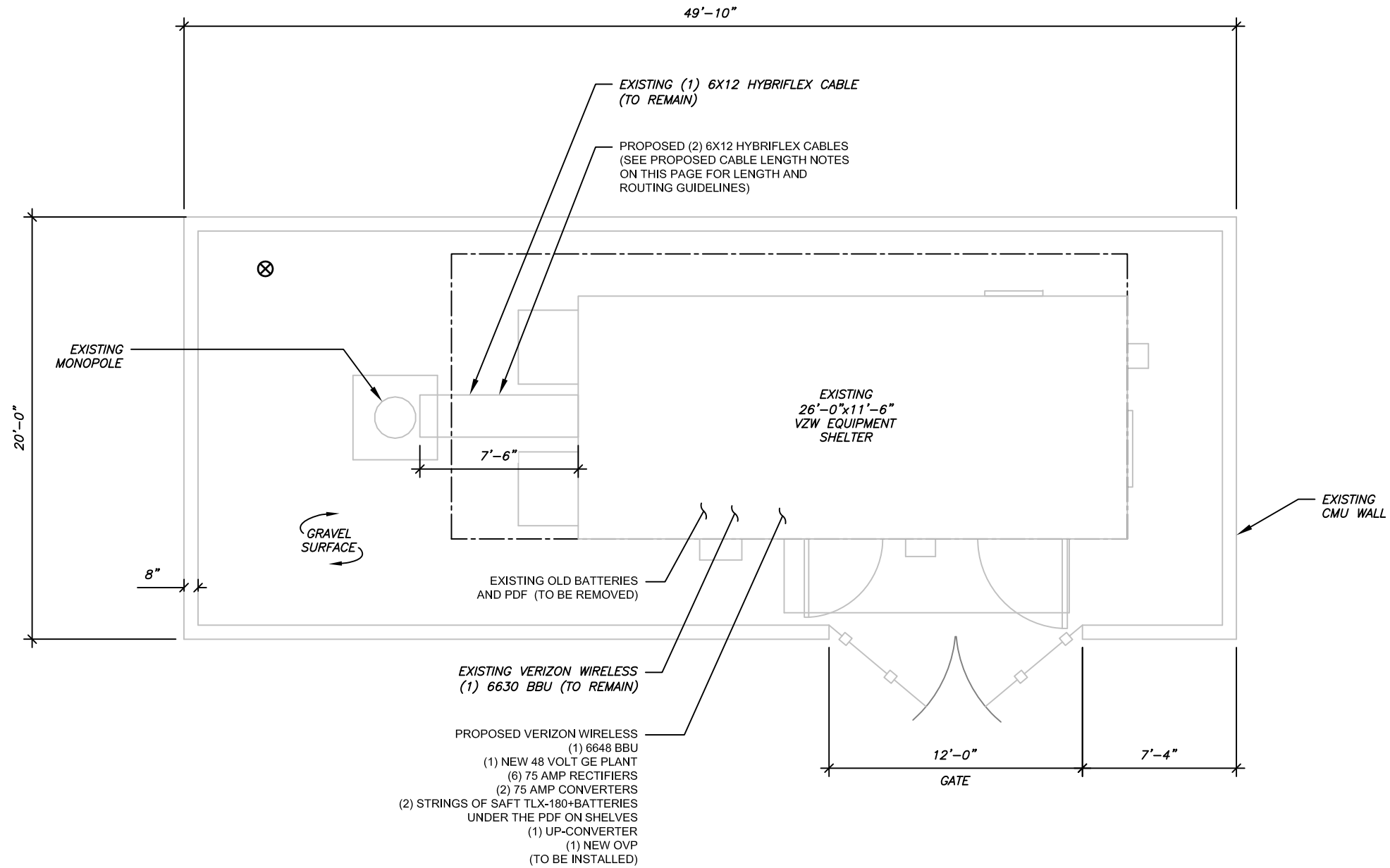
ATC JOB NO:	14424215_G0
CUSTOMER ID:	SCHRIEVER
CUSTOMER #:	5000339793

GENERAL NOTES

SHEET NUMBER: G-002	REVISION: 0
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SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. NO ELECTRICAL SCOPE IS INCLUDED IN THIS PROJECT.



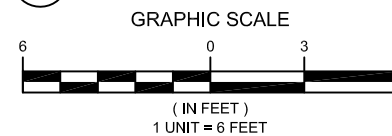
LEGEND

⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACLE
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
—	CHAINLINK FENCE

PROPOSED CABLE NOTES:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS 75'. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.

1 DETAILED SITE PLAN



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ATC SITE NUMBER:
419744
 ATC SITE NAME:
CSP SCHRIEVER CO
 VERIZON SITE NAME:
SCHRIEVER
 SITE ADDRESS:
 1100 S. ENOCH ROAD
 COLORADO SPRINGS, CO 80930-9327

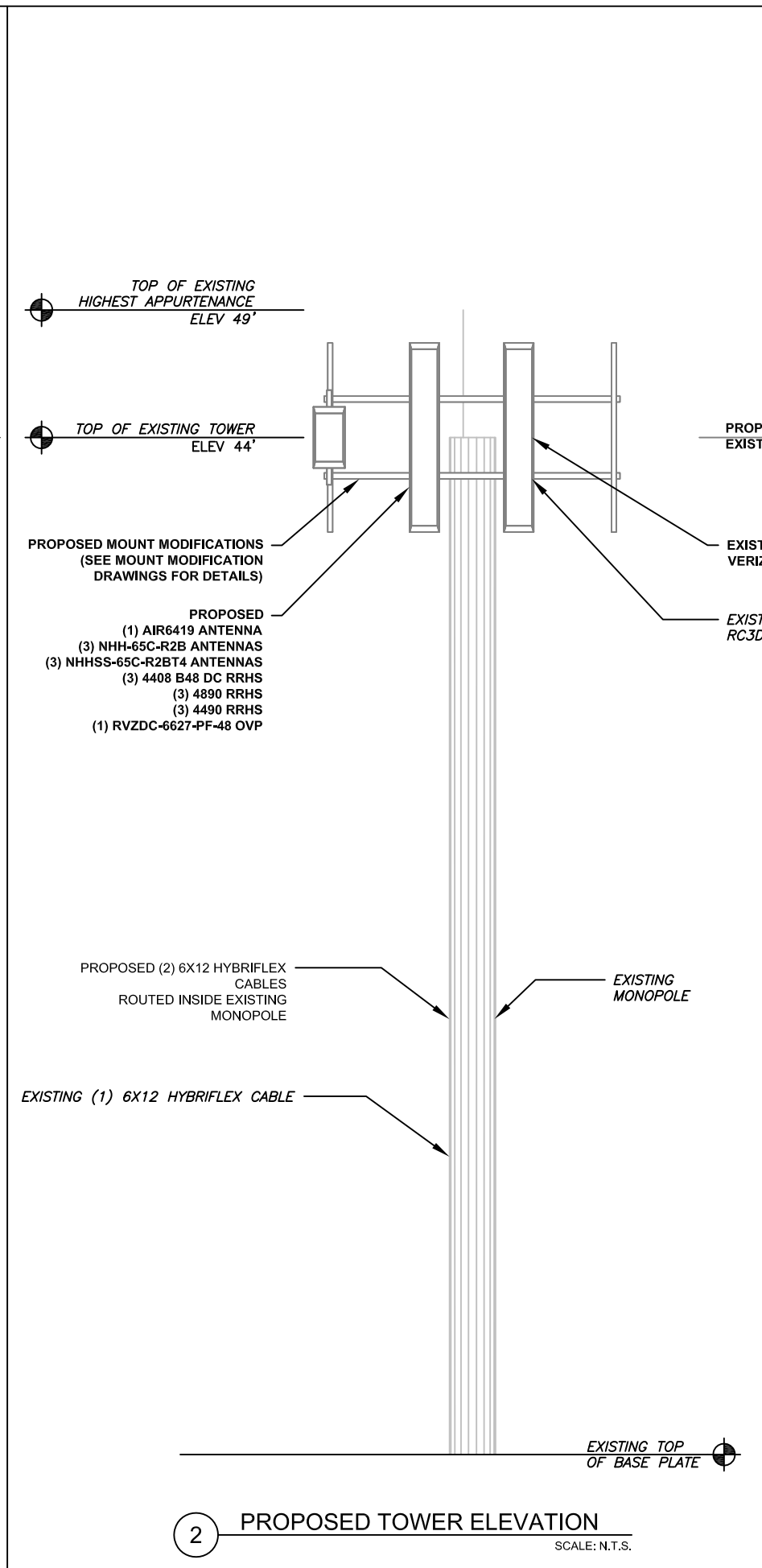
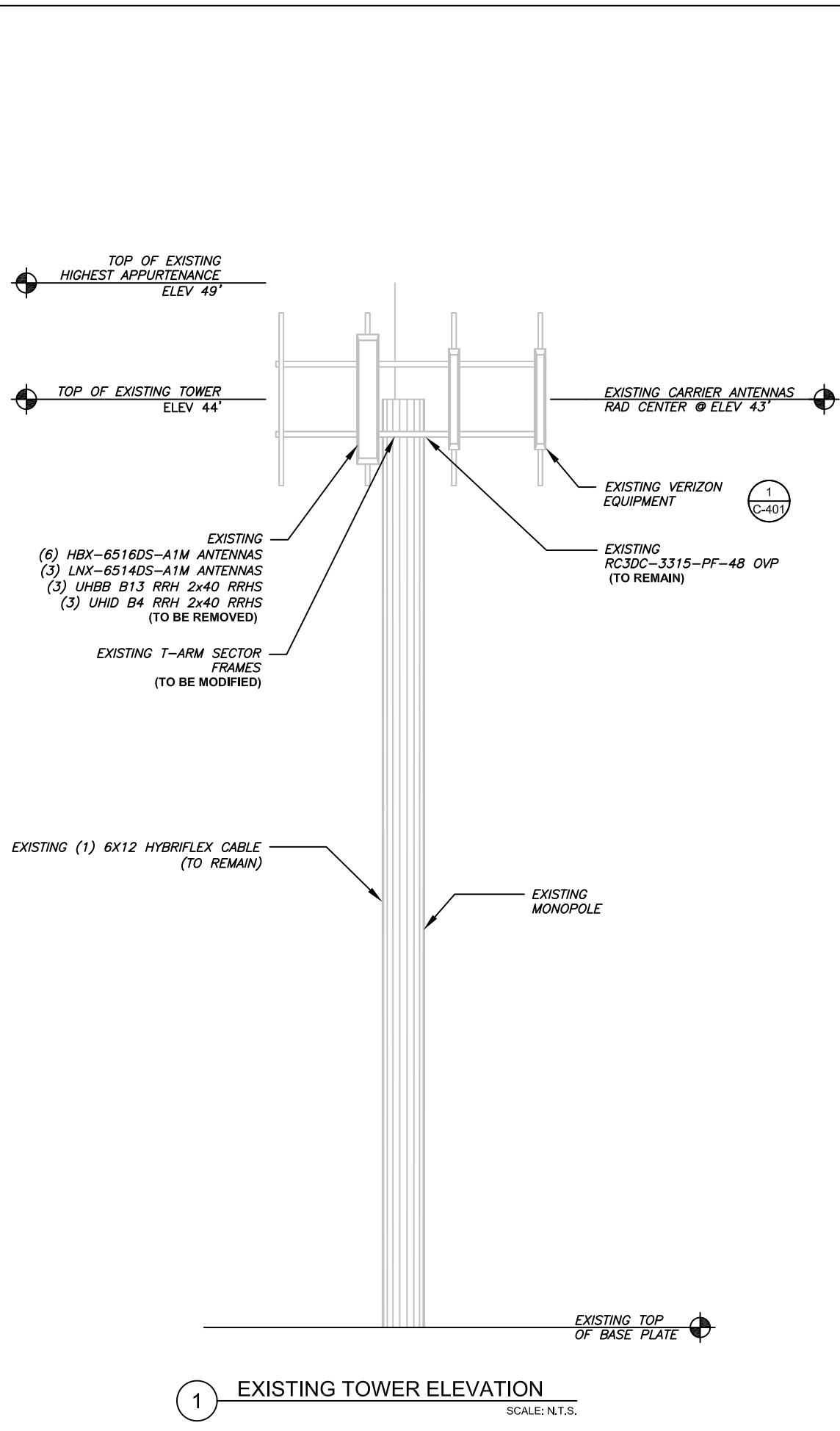
SEAL:



ATC JOB NO:	14424215_G0
CUSTOMER ID:	SCHRIEVER
CUSTOMER #:	5000339793

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0



PER MOUNT ANALYSIS COMPLETED BY COLLIERS, DATED 09/14/23, THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT.

PER STRUCTURAL ANALYSIS COMPLETED BY ATC, DATED 11/01/23, THE EXISTING TOWER CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

TOWER NOTE:

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS. WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
- ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
- TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
- TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.



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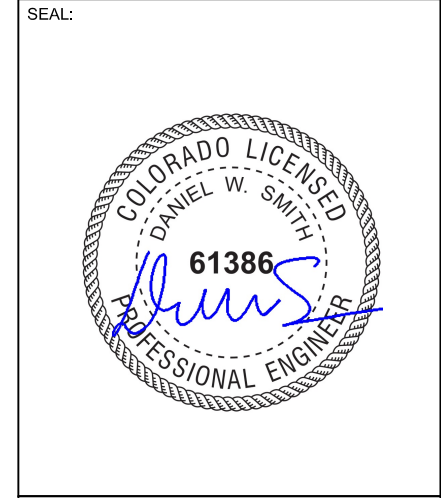
REV.	DESCRIPTION	BY	DATE
A	PRELIM	MK	10/30/23
B	PRELIM	EC	11/14/23
C	PRELIM	RV	12/01/23
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ATC SITE NUMBER:
419744

ATC SITE NAME:
CSP SCHRIEVER CO

VERIZON SITE NAME:
SCHRIEVER

SITE ADDRESS:
1100 S. ENOCH ROAD
COLORADO SPRINGS, CO 80930-9327



ATC JOB NO:	14424215_G0
CUSTOMER ID:	SCHRIEVER
CUSTOMER #:	5000339793

TOWER ELEVATION

SHEET NUMBER: C-201	REVISION: 0
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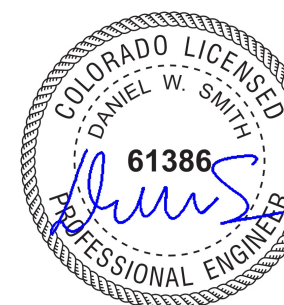
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COLORADO SPRINGS, CO 80930-9327

SEAL:



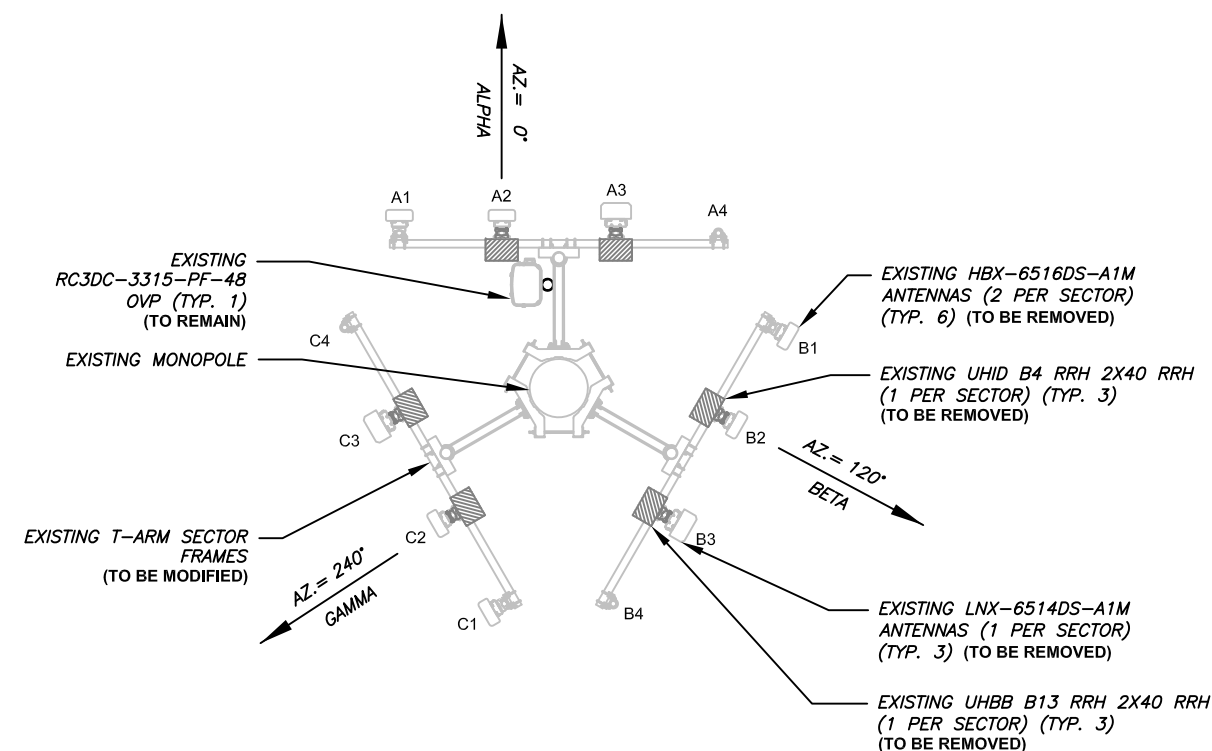
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CUSTOMER ID: SCHRIEVER
CUSTOMER #: 5000339793

ANTENNA INFORMATION & SCHEDULE

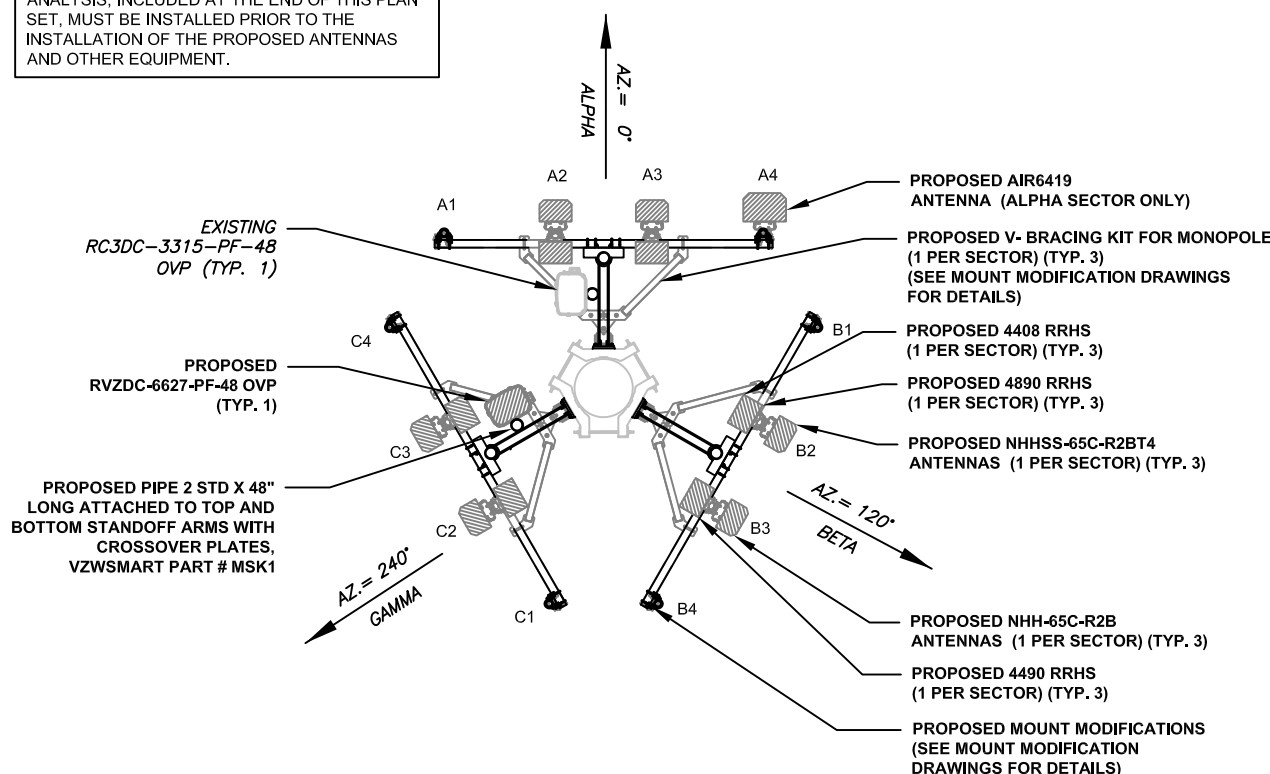
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PER MOUNT ANALYSIS COMPLETED BY COLLIERS, DATED 09/14/23, THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT.

PER STRUCTURAL ANALYSIS COMPLETED BY ATC, DATED 11/01/23, THE EXISTING TOWER CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



1 EXISTING ANTENNA PLAN
SCALE: N.T.S.



2 FINAL ANTENNA PLAN
SCALE: N.T.S.

NOTES

- CONFIRM WITH VERIZON REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
- CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

STATUS ABBREVIATIONS

RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS

JUNCTION BOX TO RRU: 15'
RRU TO ANTENNA: 10'

EXISTING ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	43'	0°	A1	HBX-6516DS-A1M	-	RMV	-	-
			A2	HBX-6516DS-A1M	-	RMV	UHBB B13 RRH 2X40	RMV
			A3	LNX-6514DS-A1M	-	RMV	UHID B4 RRH 2X40	RMV
			A4	-	-	-	-	-
BETA	43'	120°	B1	HBX-6516DS-A1M	-	RMV	-	-
			B2	HBX-6516DS-A1M	-	RMV	UHBB B13 RRH 2X40	RMV
			B3	LNX-6514DS-A1M	-	RMV	UHID B4 RRH 2X40	RMV
			B4	-	-	-	-	-
GAMMA	43'	240°	C1	HBX-6516DS-A1M	-	RMV	-	-
			C2	HBX-6516DS-A1M	-	RMV	UHBB B13 RRH 2X40	RMV
			C3	LNX-6514DS-A1M	-	RMV	UHID B4 RRH 2X40	RMV
			C4	-	-	-	-	-

FINAL ANTENNA SCHEDULE

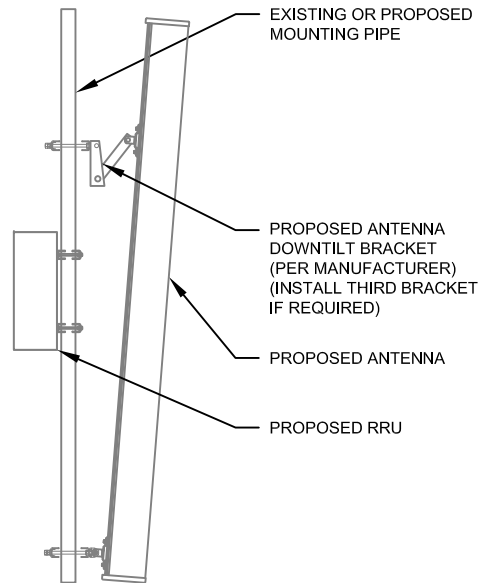
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	43'	0°	A1	-	-	-	-	-
			A2	NHHSS-65C-R2BT4	1900/CBRS	ADD	4408 B48 DC 4890	ADD
			A3	NHH-65C-R2B	700/850/AWS/AWS3	ADD	4490	ADD
			A4	AIR6419	5G	ADD	-	ADD
BETA	43'	120°	B1	-	-	-	-	-
			B2	NHHSS-65C-R2BT4	1900/CBRS	ADD	4408 B48 DC 4890	ADD
			B3	NHH-65C-R2B	700/850/AWS/AWS3	ADD	4490	ADD
			B4	-	-	-	-	-
GAMMA	43'	240°	C1	-	-	-	-	-
			C2	NHHSS-65C-R2BT4	1900/CBRS	ADD	4408 B48 DC 4890	ADD
			C3	NHH-65C-R2B	700/850/AWS/AWS3	ADD	4490	ADD
			C4	-	-	-	-	-

3 EQUIPMENT SCHEDULES

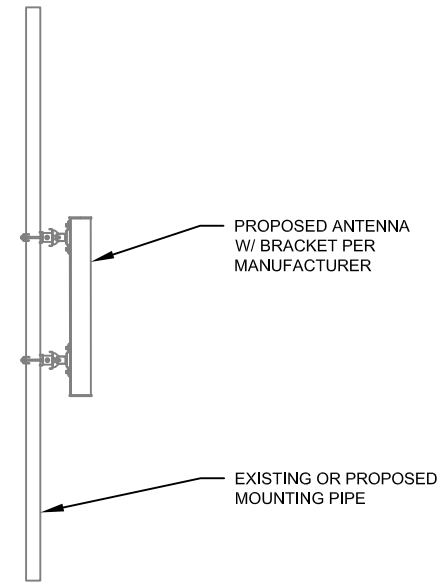
EXISTING FIBER DISTRIBUTION / OVP BOX		EXISTING CABLING SUMMARY	
MODEL NUMBER	STATUS	CABLE QTY, SIZE, TYPE	STATUS
RC3DC-3315-PF-48	RMN	(1) 6X12 HYBRIFLEX CABLE	RMN

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY	
MODEL NUMBER	STATUS	CABLE QTY, SIZE, TYPE	STATUS
RC3DC-3315-PF-48	RMN	(1) 6X12 HYBRIFLEX CABLE	RMN
RVZDC-6627-PF-48	ADD	(2) 6X12 HYBRIFLEX CABLES	ADD

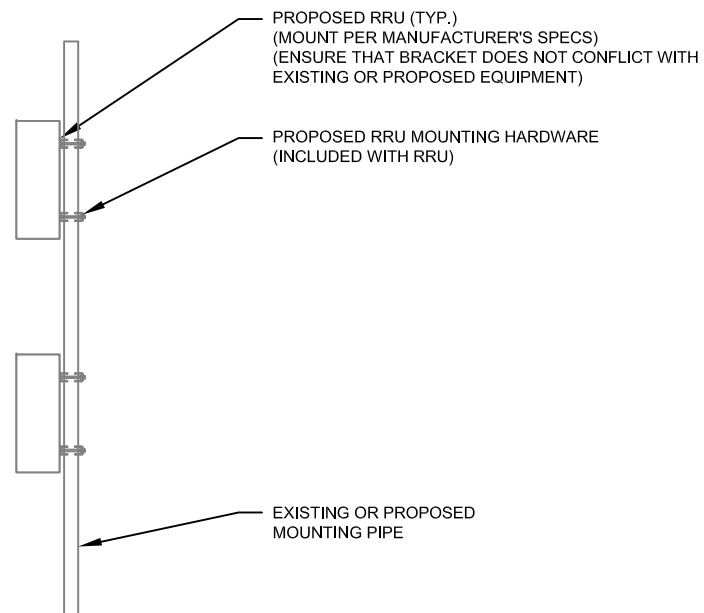
EXISTING/PROPOSED MOUNTS AND/OR MOUNT MODIFICATIONS NOT SHOWN FOR CLARITY. REFER TO ANTENNA PLANS, MOUNT ANALYSES AND/OR MOUNT MODIFICATION DOCUMENTS FOR ADDITIONAL DETAIL.



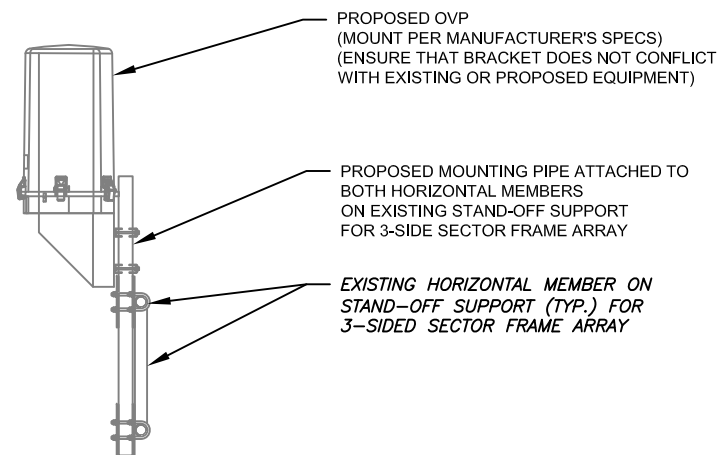
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



4 PROPOSED OVP MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
www.fullerton-us.com

REV.	DESCRIPTION	BY	DATE
A	PRELIM	MK	10/30/23
B	PRELIM	EC	11/14/23
C	PRELIM	RV	12/01/23
D	FINAL	RV	12/20/23

ATC SITE NUMBER:
419744

ATC SITE NAME:
CSP SCHRIEVER CO

VERIZON SITE NAME:
SCHRIEVER

SITE ADDRESS:
1100 S. ENOCH ROAD
COLORADO SPRINGS, CO 80930-9327

SEAL:



ATC JOB NO:	14424215_G0
CUSTOMER ID:	SCHRIEVER
CUSTOMER #:	5000339793

CONSTRUCTION
DETAILS

SHEET NUMBER: REVISION:

C-501 0



1100 E. WOODFIELD ROAD, SUITE 500
 SCHAUMBURG, ILLINOIS 60173
 TEL: 847-908-8400
 www.fullerton-us.com

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REV.	DESCRIPTION	BY	DATE
A	PRELIM	MK	10/30/23
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 SITE ADDRESS:
 1100 S. ENOCH ROAD
 COLORADO SPRINGS, CO 80930-9327

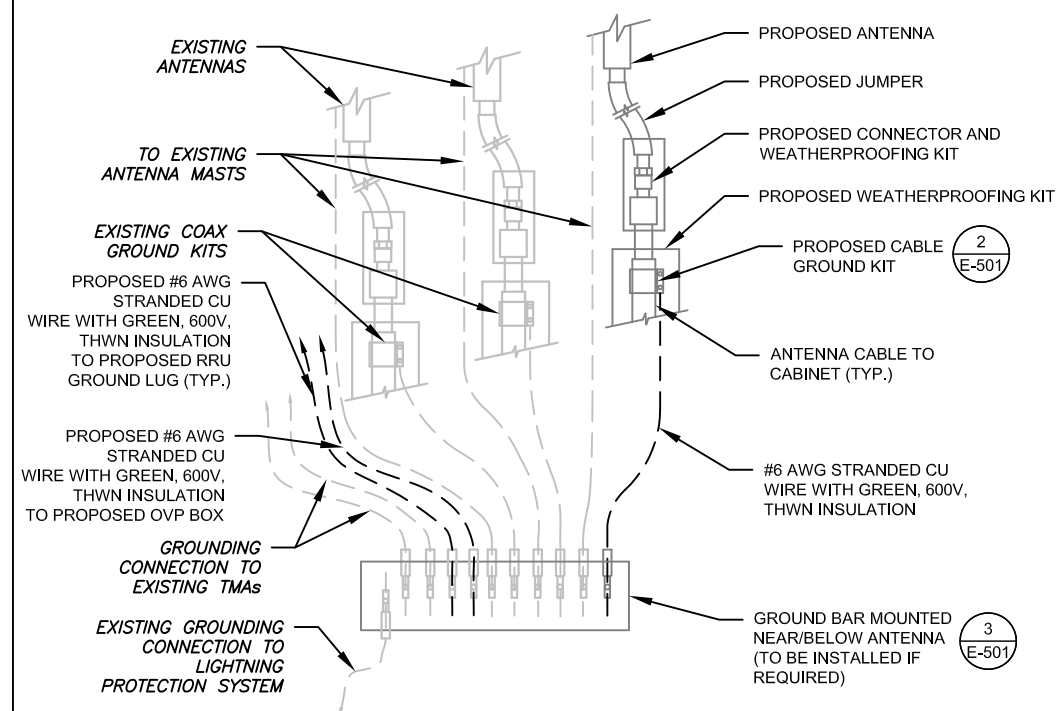
SEAL:



ATC JOB NO:	14424215_G0
CUSTOMER ID:	SCHRIEVER
CUSTOMER #:	5000339793

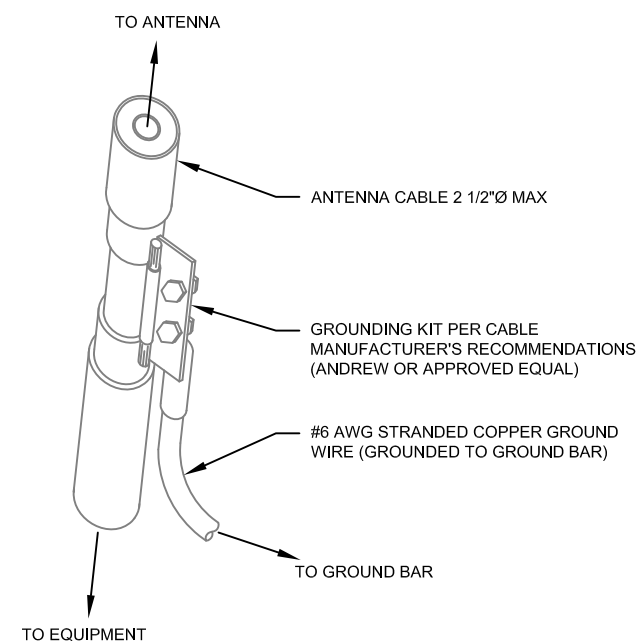
GROUNDING DETAILS

SHEET NUMBER: E-501	REVISION: 0
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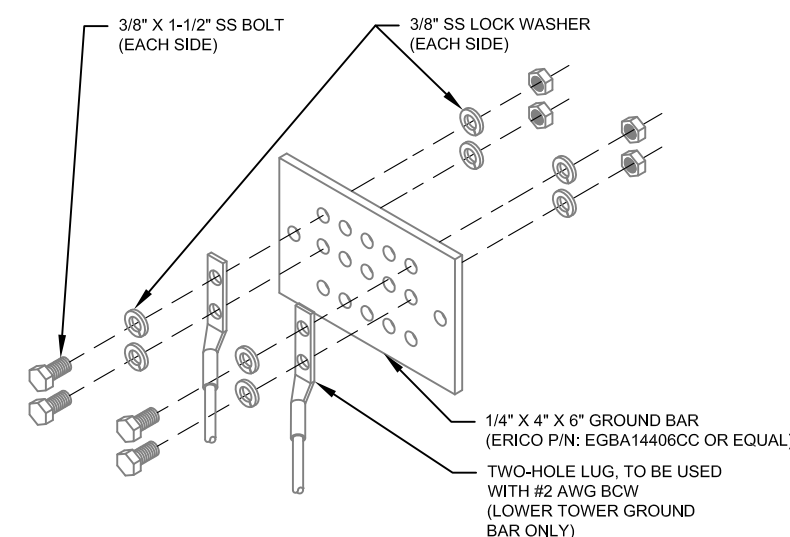
- NOTES:**
- THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
 - SITE GROUNDING SHALL COMPLY WITH VERIZON GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH VERIZON GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM
 SCALE: N.T.S.



- GROUND KIT NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 - CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL
 SCALE: N.T.S.



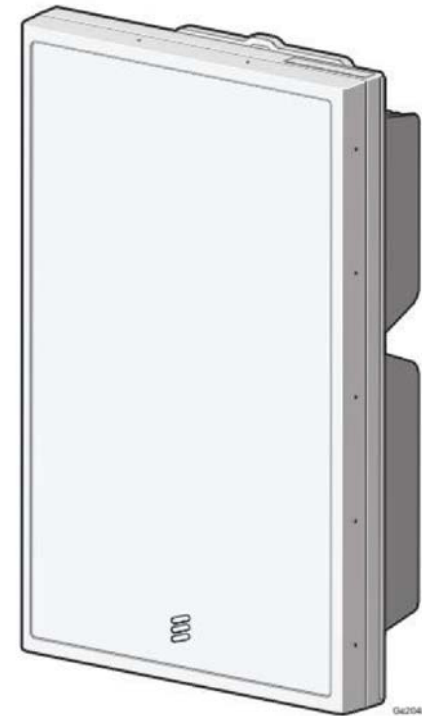
- GROUND BAR NOTES:**
- GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
 - GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL
 SCALE: N.T.S.

ERICSSON AIR 6419 B77G



- › ERICSSON AIR 6419 has a total of **2** ECPRI connections @ 25 Gbps, 1 DC Power cable connection
- › Operates over B77G DOD band (3.4-3.6 GHz)
- › Breaker size = 50A DC, DC Power Consumption = **1280W (for dimensioning)**
- › Dimensions
 - Height: 28.3" (720 mm)
 - Width: 16.1" (410 mm)
 - Depth: 7.9" (200 mm)
- › Weight, excl. mounting hardware = **66.1 lbs (30 kg)**
- › Weight with Mounting Hardware = **77 lbs (35 kg)**
- › Max Frontal Wind Load @ 42m/s = **478 N**
- › Horizontal Separation Required between AIR 6419 = **100mm**
- › Minimum Vertical Space Required below AIR 6419 = **300mm**
- › Minimum Height Above Users = **5m**
- › Outdoor Installation locations to avoid:
 - Hot microclimates caused by, for example, heat radiated or reflected from dark or metallic walls or floors
 - Chimney mouths or ventilation system outlets
 - In front of Large glass surfaces or concrete surfaces
- › Avoid radio interference by keeping the area directly in front of the antenna clear of metal surfaces such as railing, ladders or chains or equipment generating electromagnetic fields, for example, electric motors in air conditioners or diesel generators in front of antenna
- › Do not use metallic paint to cover the AIR 6419 if painting is required. Do not paint underside of AIR 6419.



NHH-65C-R2B



6-port sector antenna, 2x 698-896 and 4x 1695-2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- One RET for low band and one RET for both high bands to ensure same tilt level for 4x RZ or 4x MIMO

Electrical Specifications

Frequency Band, MHz	698-896	806-896	1695-1880	1850-1990	1920-2200	2000-2360
Gain, dBi	16.0	16.1	17.3	17.7	18.3	18.2
Beamwidth, Horizontal, degrees	65	62	74	66	62	59
Beamwidth, Vertical, degrees	9.0	7.9	5.6	5.2	4.9	4.5
Beam Tilt, degrees	0-11	0-11	0-7	0-7	0-7	0-7
USLS First Lobe, dB	21	18	19	20	22	18
Front-to-Back Ratio at 180°, dB	35	31	33	29	29	30
Isolation, dB	25	25	25	25	25	25
Isolation, Inter-system, dB	30	30	30	30	30	30
VSWR Return Loss, dB	1.3/14.0	1.3/14.0	1.3/14.0	1.3/14.0	1.3/14.0	1.3/14.0
PIM, 3rd Order, 2 x 20 W, dlc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	400	400	350	350	350	300
Polarization	+45°	+45°	+45°	+45°	+45°	+45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698-896	806-896	1695-1880	1850-1990	1920-2200	2000-2360
Gain by all Beam Tilts, average, dB	15.8	15.9	16.9	17.5	18.0	17.9
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.4	±0.4	±0.3	±0.6	±0.4
Gain by Beam Tilt, average, dB	15.1 ± 15.9	15.1 ± 16.0	15.1 ± 16.9	15.1 ± 17.4	15.1 ± 17.9	15.1 ± 17.9
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.6	±5.3	±3.4	±6	±3.1
Beamwidth, Vertical Tolerance, degrees	±0.6	±0.4	±0.3	±0.2	±0.2	±0.2
USLS, beampeak to 20° above beampeak, dB	15	14	17	16	17	15
Front-to-Back Total Power at 180° ± 30°, dB	26	24	28	25	25	24
CPR at bore-sight, dB	18	26	20	25	20	17
CPR at Sector, dB	15	9	11	10	8	2

* Commscope® supports NEMA recommendations on Base Station Antenna Standards (BASTA) to learn more about the benefits of BASTA, visit www.commscope.com/basta.

Array Layout

NHH-65C-R2B



View from the front of the antenna (Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band 1695 - 2360 MHz | 698 - 896 MHz
Antenna Type Sector

NHHSS-65C-R2B



10-port sector antenna, 2x 698-896, 4x 1695-2200 and 4x 3100-4200 MHz, 65° HPBW, 2x RETs and 2x SBTs. Both high bands share the same electrical tilt.

- Perfect antenna to add 5.5GHz CBRS to macro sites
- Low band and mid band performance mirrors the performance of existing NHH hex port antennas
- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One LB RET and one HB RET. Both high bands are controlled by one RET to ensure same tilt level for 4x MIMO

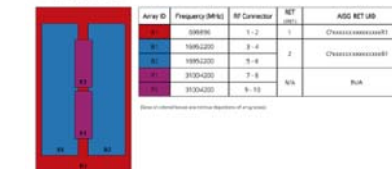
General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Radome Material	Fiberglass, UV resistant
Radiator Material	Aluminum Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	10
Remote Electrical Tilt (RET) Information	
RET Hardware	ComRET v2
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male
Input Voltage	10-30 Vdc
Internal RET	Low band (1)
Power Consumption, active state, maximum	10 W

NHHSS-65C-R2B

Power Consumption, idle state, maximum	2 W
Power Consumption, normal conditions, maximum	10 W
Protocol	3GPP/LTE 2.0
Dimensions	
Width	301 mm 11.85 in
Depth	181 mm 7.126 in
Length	2438 mm 95.984 in
Net Weight, without mounting kit	28 kg 61.720 lb

Array Layout



Port Configuration

Port #	Frequency (MHz)	RF Connector	RET	ASS RET Lbl
1	698-896	1-2	1	CHASSIS GROUND
2	1695-2200	3-4	2	CHASSIS GROUND
3	1695-2200	5-6	2	CHASSIS GROUND
4	3100-4200	7-8	N/A	N/A
5	3100-4200	9-10	N/A	N/A

NHH-65C-R2B

Band	Multiband
Performance Note	Outdoor usage
Total Input Power, maximum	100 W @ 50 °C
Mechanical Specifications	
RF Connector Quantity, total	6
RF Connector Quantity, low band	2
RF Connector Quantity, high band	4
RF Connector Interface	1-16 DIN Female
Color	light gray
Grounding Type	RF connector body grounded to reflector and mounting bracket
Radiator Material	Copper Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	293.0 N @ 150 km/h 88.3 lbf @ 150 km/h
Wind Loading, lateral	200.0 N @ 150 km/h 45.2 lbf @ 150 km/h
Wind Loading, maximum	757.0 N @ 150 km/h 170.2 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph
Dimensions	
Length	2438.0 mm 96.0 in
Width	301.0 mm 11.9 in
Depth	180.0 mm 7.1 in
Net Weight, without mounting kit	23.4 kg 51.6 lb
Remote Electrical Tilt (RET) Information	
Input Voltage	10-30 Vdc
Internal Bias Tee	Port 1 Port 3
Internal RET	High band (1) Low band (1)
Power Consumption, idle state, maximum	2 W
Power Consumption, normal conditions, maximum	13 W
Protocol	3GPP/LTE 2.0 (Single RET)
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male
Packed Dimensions	

page 3 of 4
March 15, 2019

NHH-65C-R2B

Length	2561.0 mm 100.8 in
Width	409.0 mm 16.1 in
Depth	299.0 mm 11.8 in
Shipping Weight	36.1 kg 79.6 lb

Regulatory Compliance/Certifications

Agency	Classification
RW5 201 VDSUJ SO 9001:2015	Compliant by Declaration
China RoHS SMT 11364-2014	Designed, manufactured and/or distributed under this quality management system Above Maximum Concentration Value (MCV)



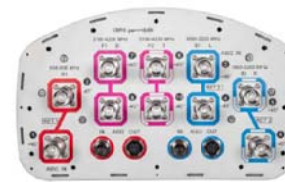
Included Products

BSAMNT-3 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance

NHHSS-65C-R2B



Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 - 2200 MHz 3100 - 4200 MHz 698 - 896 MHz
Polarization	+45°
Total Input Power, maximum	1,000 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	698-896	806-896	1695-1880	1850-1990	1920-2200	3100-3550	3550-3700	3700-4200
Gain, dBi	15.9	16.1	17.4	17.8	18.1	17.8	17.1	17
Beamwidth, Horizontal, degrees	66	62	68	65	64	59	66	65
Beamwidth, Vertical, degrees	8.9	7.9	5.6	5.3	5	5.6	5.1	4.8
Beam Tilt, degrees	0-11	0-11	0-7	0-7	0-7	4	4	4
USLS (First Lobe), dB	19	18	19	20	21	14	16	17
Front-to-Back Ratio at 180°, dB	30	34	30	32	32	30	36	31
Isolation, Cross Polarization, dB	25	25	25	25	25	25	25	25
Isolation, Inter-band, dB	25	25	25	25	25	30	30	30
VSWR Return loss, dB	1.3/14.0	1.3/14.0	1.3/14.0	1.3/14.0	1.3/14.0	1.3/14.0	1.3/14.0	1.3/14.0

NHHSS-65C-R2B

PIM, 3rd Order, 2 x 20 W, dlc	-153	-153	-153	-153	-153	-140	-140
Input Power per Port at 50°C, maximum, watts	300	300	250	250	250	100	100

Electrical Specifications, BASTA

Frequency Band, MHz	698-896	806-896	1695-1880	1850-1990	1920-2200	3100-3550	3550-3700	3700-4200
Gain by all Beam Tilts, average, dB	15.4	15.8	17	17.6	17.8	17	16.8	16.7
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.5	±0.6	±0.2	±0.3	±0.9	±0.7	±0.6
Gain by Beam Tilt, average, dB	15.1 ± 15.9	15.1 ± 16.0	15.1 ± 16.9	15.1 ± 17.3	15.1 ± 17.9	15.1 ± 17.9	15.1 ± 17.9	15.1 ± 17.9
Beamwidth, Horizontal Tolerance, degrees	±3.1	±1	±5.2	±1.6	±2.9	±10.5	±3.8	±3.4
Beamwidth, Vertical Tolerance, degrees	±0.6	±0.5	±0.3	±0.2	±0.3	±0.5	±0.2	±0.4
USLS, beampeak to 20° above beampeak, dB	15	14	14	15	15	14	14	15
Front-to-Back Total Power at 180° ± 30°, dB	23	25	25	27	26	25	27	25
CPR at bore-sight, dB	23	19	18	20	20	19	19	18
CPR at Sector, dB	11	8	10	10	9	8	5	4

Mechanical Specifications

Wind Loading @ Velocity, frontal	393.0 N @ 150 km/h (88.3 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	330.0 N @ 150 km/h (74.2 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	757.0 N @ 150 km/h (170.2 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	398.0 N @ 150 km/h (89.5 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h 149.75 mph

Environmental Specifications

Operating Temperature	-40 °C to +70 °C (-40 °F to +158 °F)
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Packaging and Weights

Width, packed	380 mm 14.96 in
Depth, packed	295 mm 11.614 in
Length, packed	2571 mm 101.221 in
Weight, gross	40.5 kg 89.287 lb

Radio 4408

CBRS - Band B48

Capacity and Specifications

- 4TX/4RX
- Up to 4x5W
- Up to 150MHz IBW
- ENM dependency (full support 6 carriers in ENM 201Q1)
- Up to 6 LTE carriers
- 2x 10.1Gbps CPRI
- Same building practice as Radio 2203/2208

Other Specifications

- AC or -48 VDC single new version compared to 2208, dual SUP support release TBD
- Integrated (Antenna 6524) or external antenna
- RF Connector: NEX10
- 2 external alarm
- IP 65, -40 to +55°C

- GA Target Date: February 28th, 2020
- Fort-Lauderdale, FL

Same building practice as Radio 2203

Now Confirmed
Max Measurements / Will Not Exceed



Size and Weight

Radio 4408	Height	Width	Depth	Weight
w/ integrated antenna	8.4 In	7.9 In	4.2 In	10.2 lbs
w/ integrated antenna	8.4 In	7.9 In	5.0 In	11.1 lbs

Radio 4890HP 48B2 48B66 S

Pending Commercial Agreements

- 8 RF ports, 4T8R per band (S for TX)
- B2: 4x60W
- B66: 4x60W
- Up to 480W in total RF power
- L, NR, NB-IoT
- 2x 2.5/4.9/9.8/10.1/24.3 Gbps CPRI/eCPRI

Radio 4890HP 48B2 48B66 S	Height	Width	Depth	Weight
w/ protruding items	17.5 In (444 mm)	15.2 In (384 mm)	7.0 In (176 mm)	~69.5 lbs (~31.5 Kg)
w/ protruding items	20.6 In (522 mm)	15.7 In (397 mm)	7.2 In (182 mm)	

- 48 VDC 2-wire (single DC-connector),
- AISG v3.0 TMA & RET support via RS-485 or RF connectors
- Type 4.3-10 RF + connectors
- 2 external alarm
- Convectional cooling
 - Optional fan for increased site flexibility
- IP 65, -40 to +55°C



B2/B25 TX: 4 ports
B66 TX: 4 ports
B2/B25 & B66 RX: 8 ports



Same order as Radio 8843

Now confirmed
max measurements/ will not exceed

RADIO 4490HP 44B5 44B13 C

Pending Commercial Agreements

- 4 common RF ports (C)
- B5: 4x60W, B13: 4x60W
- 480W total RF output power
- L, NR, NB-IoT
- 2x 2.5/4.9/9.8/10.1/24.3 Gbps CPRI/eCPRI

Radio 4490HP 44B5 44B13 C	Height	Width	Depth	Weight
w/ protruding items	17.5 In (444 mm)	15.2 In (384 mm)	6.8 In (172 mm)	~68.4 lbs (~31 kg)
w/ protruding items	20.6 In (522 mm)	15.7 In (397 mm)	7.0 In (178 mm)	

- 48 VDC 2-wire (one DC connector input)
- AISG v3.0 TMA & RET support via RS-485 or RF connectors
- Type 4.3-10 RF + connectors
- 2 external alarm
- Convectional cooling
 - Optional fan for increased site flexibility
- IP 65, -40 to +55°C



B5 B13: 4 ports
Common antenna
Common tilt

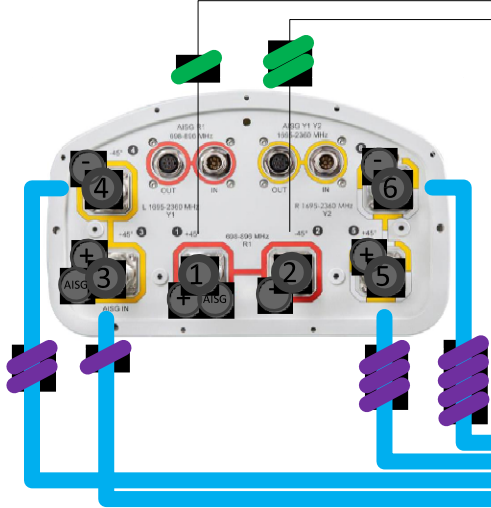
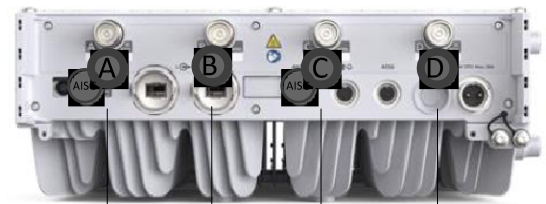


Now confirmed
max measurements/ will not exceed

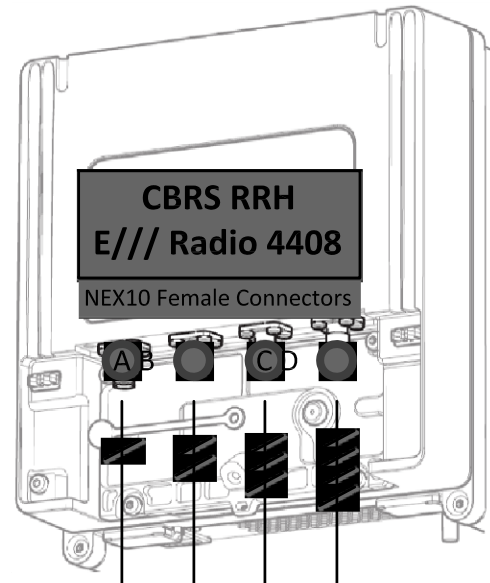
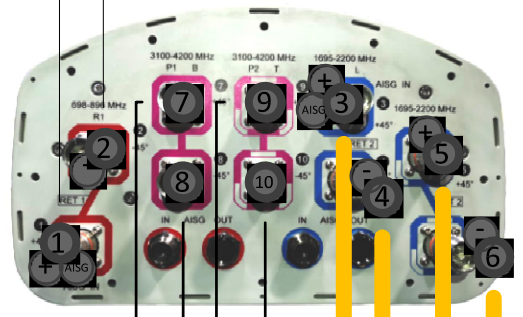
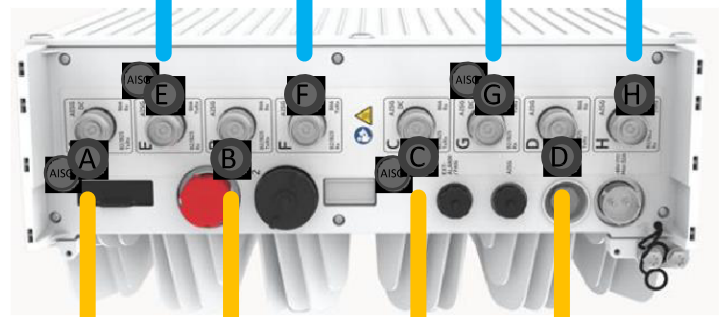
PA3 | 2022-05-14 | Ericsson Confidential | Page 4

Commscope NHH + NHHSS -65A/B/C per sector

700 + 850 RRH
E/// Radio 4490



AWS + PCS RRH
E/// Radio 4890



CBR5 RRH
E/// Radio 4408
NEX10 Female Connectors

1 RFDS PLUMBING DIAGRAM

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. GENERAL CONTRACTOR IS TO CHECK WITH THE VERIZON CM TO ENSURE THIS IS THE MOST RECENT VERSION OF THE RFDS.

SUPPLEMENTAL

SHEET NUMBER:
R-604

REVISION:
0



MOUNT MODIFICATION DRAWINGS
EXISTING 13.00' T-ARM

TOWER OWNER: AMERICAN TOWER CORPORATION
TOWER OWNER SITE NUMBER: 419744

CARRIER SITE NAME: SCHRIEVER
CARRIER SITE NUMBER: 5000339793
FUZE ID: 16583867

1100 S. ENOCH ROAD
COLORADO SPRINGS, CO 80930
EL PASO COUNTY

LATITUDE: 38.81703300° N
LONGITUDE: 104.53793300° W



811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE: AS SHOWN JOB NUMBER: 23995012

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
0	09/14/2023	ISSUED FOR CONSTRUCTION	CMS	GM

COLORADO LICENSE
GILBERT MARTINEZ
56472
PROFESSIONAL ENGINEER
Digitally signed by Gilbert Martinez
Date: 2023.09.14 17:08:20-05'00'

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:
SCHRIEVER
5000339793
1100 S. ENOCH ROAD
COLORADO SPRINGS, CO
80930
EL PASO COUNTY

TITLE SHEET

ST-1

DESIGN CRITERIA
WIND LOADS BASIC WIND SPEED (3 SECOND GUST), V = 130 MPH EXPOSURE CATEGORY C TOPOGRAPHIC CATEGORY: 1 TOPOGRAPHIC CONSIDERED: N/A TOPOGRAPHIC METHOD: N/A MEAN BASE ELEVATION (AMSL) = 6377.4'
ICE LOADS ICE WIND SPEED (3 SECOND GUST), V = 50 MPH ICE THICKNESS = 0.25 IN
SEISMIC LOADS SEISMIC DESIGN CATEGORY B SHORT TERM MCER GROUND MOTION, S _s = .176 LONG TERM MCER GROUND MOTION, S _L = .054

PROJECT INFORMATION
APPLICANT/LESSEE COMPANY: VERIZON WIRELESS
CLIENT REPRESENTATIVE COMPANY: VERIZON WIRELESS
PROJECT MANAGER COMPANY: COLLIERS ENGINEERING & DESIGN CONTACT: MATTHEW GRAUBART PHONE: 856.797.0412 E-MAIL: MATTHEW.GRAUBART@COLLIERSENG.COM

CONTRACTOR PMI REQUIREMENTS
PMI LOCATION: HTTPS://PMI.VZWSMART.COM SMART TOOL PROJECT #: 10209801 VZW MDG #: 5000339793 ANALYSIS DATE: 9/14/2023
PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

SHEET INDEX
SHEET DESCRIPTION
ST-1 TITLE SHEET
SBOM-1 BILL OF MATERIALS
SGN-1 GENERAL NOTES
SCF-1 CLIMBING FACILITY DETAIL
SS-1 MODIFICATION DETAILS
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SPECIFICATION SHEETS

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BILL OF MATERIALS

SECTION 1 - VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
3	VZWSMART	VZWSMART-PLK6	V-BRACING KIT FOR MONOPOLE	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1.	109	327
1		VZWSMART-PLK7	MONOPOLE COLLAR MOUNT ASSEMBLY		150	150
1		VZWSMART-P40-238X048	48" LONG, PIPE 2 SCH40 (2.375"OD X 0.154" THK)		15	15
1		VZWSMART-MSK6	BACK TO BACK CROSSOVER PLATE		34	34
12		VZWSMART-MSK2	CROSSOVER PLATE		15	180

SECTION 2 - OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
3	-	-	PROPOSED 156" LONG, PIPE 3 SCH40	GALVANIZED.	118	354

SECTION 3 - REQUIRED SAFETY CLIMB PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
1	PERFECT VISION	H42-0501-06	STANDOFF CLAMP BRACKET	OR EOR APPROVED EQUIVALENT	-	-
1	PERFECT VISION	PV-CMX-CG-BO	WIRE ROPE GUIDE	OR EOR APPROVED EQUIVALENT	-	-
TOTAL:						1060

NOTES:

- THE MANUFACTURERS LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THEY ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATIONS.
- ALL MATERIALS REQUIRED FOR THE DESIGNED MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

COMMSCOPE	
CONTACT	SALVADOR ANGUIANO
PHONE	(817) 304-7492
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM
WEBSITE	WWW.COMMSCOPE.COM
METROSITE FABRICATORS, LLC	
CONTACT	KENT RAMEY
PHONE	(706) 335-7045 (O), (706) 982-9788 (M)
EMAIL	KENT@METROSITELLC.COM
WEBSITE	METROSITEFABRICATORS.COM

PERFECTVISION	
CONTACT	WIRELESS SALES
PHONE	(844) 887-6723
EMAIL	WWW.PERFECT-VISION.COM
WEBSITE	WIRELESSSALES@PERFECT-VISION.COM
SABRE INDUSTRIES, INC.	
CONTACT	ANGIE WELCH
PHONE	(866) 428-6937
EMAIL	AKWELCH@SABREINDUSTRIES.COM
WEBSITE	WWW.SABRESITESOLUTIONS.COM

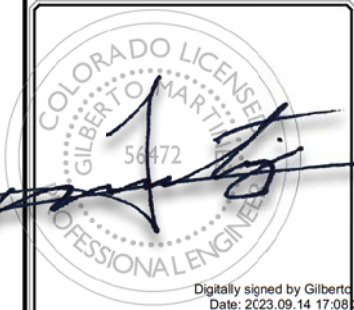
SITE PRO 1	
CONTACT	PAULA BOSWELL
PHONE	(972) 236-9843
EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.SITEPRO1.COM
NEWAVE	
CONTACT	NEWAVE SALES TEAM
PHONE	(971) 239-4762
EMAIL	SALES@NEWAVEVC.COM
WEBSITE	WWW.NEWAVEVC.COM

BETTER METAL, LLC	
CONTACT	DAVID STANSBERRY
PHONE	(615) 535-0990 (O), (615) 631-2520 (M)
EMAIL	DLS@BETTERMETAL.COM
WEBSITE	WWW.BETTERMETAL.COM



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 COLORADO SPRINGS, CO
 80930
 EL PASO COUNTY

GENERAL NOTES

- THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE TELECOMMUNICATIONS INDUSTRY STANDARD TIA-222-H. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES.
- CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE BEGINNING WORK, ORDERING MATERIAL, AND PREPARING OF SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, NOTIFY THE ENGINEER IMMEDIATELY.
- IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
- ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/TIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS IN ACCORDANCE WITH APPLICABLE SAFETY CODES.
- WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH). THE STRUCTURE SHOWN ON THE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING ERECTION. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT, SHORING, BRACING AND ANY OTHER STRUCTURAL SYSTEMS AS REQUIRED TO RESIST ALL FORCES THAT MAY OCCUR DURING HANDLING AND ERECTION UNTIL THE STRUCTURE IS FULLY COMPLETED. TEMPORARY SUPPORTS, BRACING AND OTHER STRUCTURAL SYSTEMS REQUIRED DURING CONSTRUCTION SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THEIR USE.
- ALL INSTALLATIONS PERFORMED ON THIS STRUCTURE SHALL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANSI/TIA-322.
- CONTRACTOR SHALL SECURE SITE BACK TO EXISTING CONDITION UNDER SUPERVISION OF OWNER. ALL FENCE, STONE, GEOFABRIC, GROUNDING, AND SURROUNDING GRADE SHALL BE REPLACED AND REPAIRED AS REQUIRED TO ACHIEVE OWNER APPROVAL. POSITIVE DRAINAGE AWAY FROM TOWER SITE SHALL BE MAINTAINED.
- CONNECTIONS BETWEEN ITEMS SUPPORTED BY THE STRUCTURE AND THE STRUCTURE NOT SPECIFICALLY DETAILED IN THE CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH CONNECTIONS SHALL BE DESIGNED, COORDINATED AND INSPECTED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMIT SIGNED AND SEALED CALCULATIONS DURING SHOP DRAWING REVIEW.
- DO NOT SCALE DRAWINGS.
- DO NOT USE THESE DRAWINGS FOR ANY OTHER SITE.
- ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
- THE MOUNT UNDER NO CIRCUMSTANCES SHOULD BE USED AS A TIE OFF POINT.

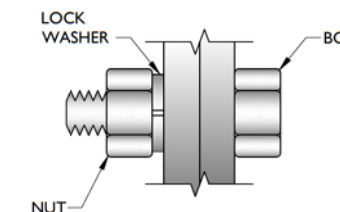
STRUCTURAL STEEL

- DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS.
 - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION (15TH EDITION)
 - SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
 - AISC CODE OF STANDARD PRACTICE
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SHOWN:

CHANNELS, ANGLES, PLATES, ETC.	ASTM A36 (GR 36)
STEEL PIPE	ASTM A53 (GR 35)
BOLTS	ASTM A325
NUTS	ASTM A563
LOCK WASHERS	LOCKING STRUCTURAL GRADE
- ALL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR VERIFYING THE SUBSTITUTE IS SUITABLE FOR USE AND MEETS ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
- PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
 - SUBMIT SHOP DRAWINGS TO
MATTHEW.GRAUBART@COLLIERSENG.COM
 - PROVIDE COLLIERS ENGINEERING & DESIGN PROJECT # AND COLLIERS ENGINEERING & DESIGN PROJECT ENGINEER CONTACT IN THE BODY OF THE EMAIL.
- DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
- GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
- ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
- ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA-222-H SECTION 4.9.2 REQUIREMENTS.
- WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS.
- FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
- ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
- GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
- ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
- ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB INCLUDING AREAS UNDER STIFFENER PLATES SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING (ZINC COTE, OR EOR APPROVED EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
- ALL HOLES IN STEEL MEMBERS SHALL BE SIZED 1/16" LARGER THAN THE BOLT DIAMETER. STANDARD HOLES SHALL BE USED UNLESS NOTED OTHERWISE.

BOLT SCHEDULE (IN.)				
BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 11/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

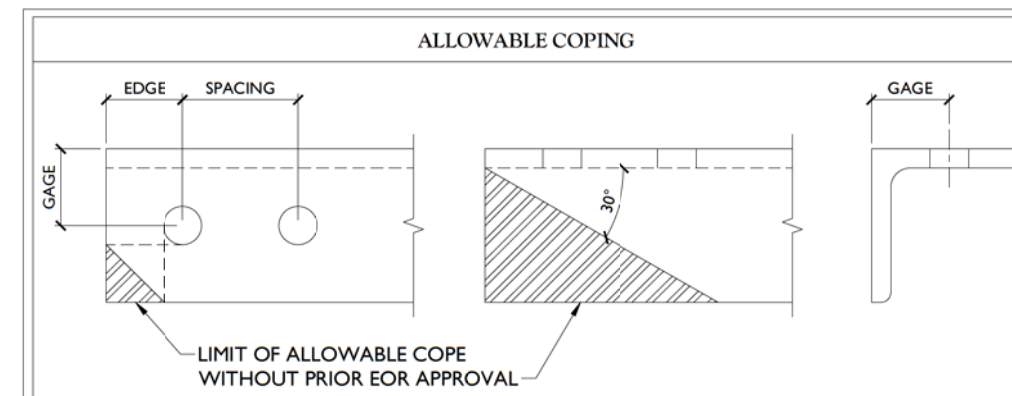
WORKABLE GAGES (IN.)	
LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8



TYP. BOLT ASSEMBLY

NOTES:

- ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
- THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
- SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
- MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.



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5000339793
1100 S. ENOCH ROAD
COLORADO SPRINGS, CO
80930
EL PASO COUNTY

Colliers Engineering & Design
DENVER
7110 West Jefferson Avenue,
Suite 100
Lakewood CO 80235
Phone: 303.731.6216
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTING

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
SGN-1



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COLORADO LICENSE
 GILBERT MARTINEZ
 56472
 PROFESSIONAL ENGINEER
 Digitally signed by Gilberto Martinez
 Date: 2023.09.14 17:08:47-05'00'

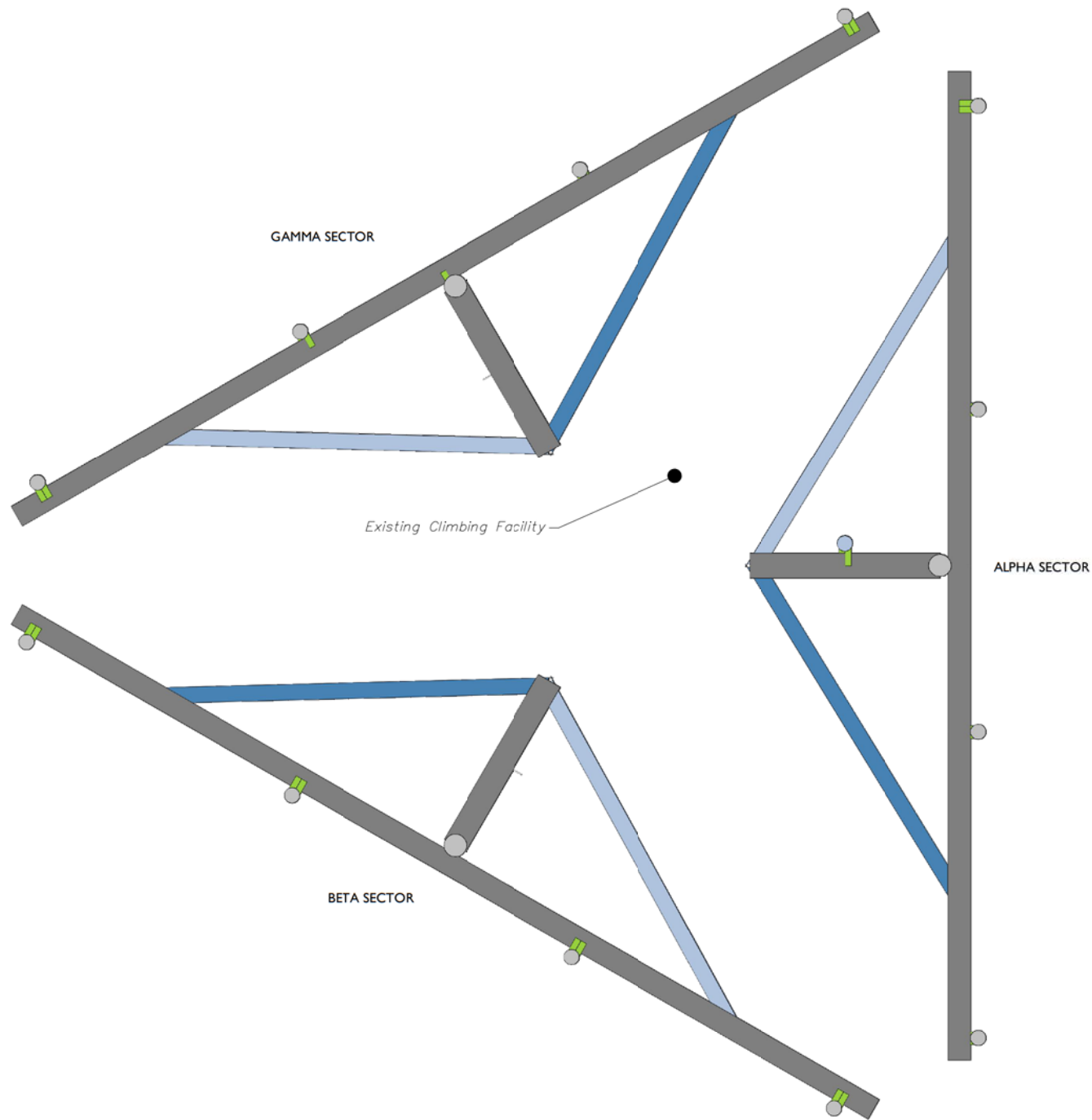
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 Lakewood CO 80235
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 COLLIERS ENGINEERING & DESIGN, INC.
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SHEET TITLE:
 CLIMBING FACILITY DETAIL

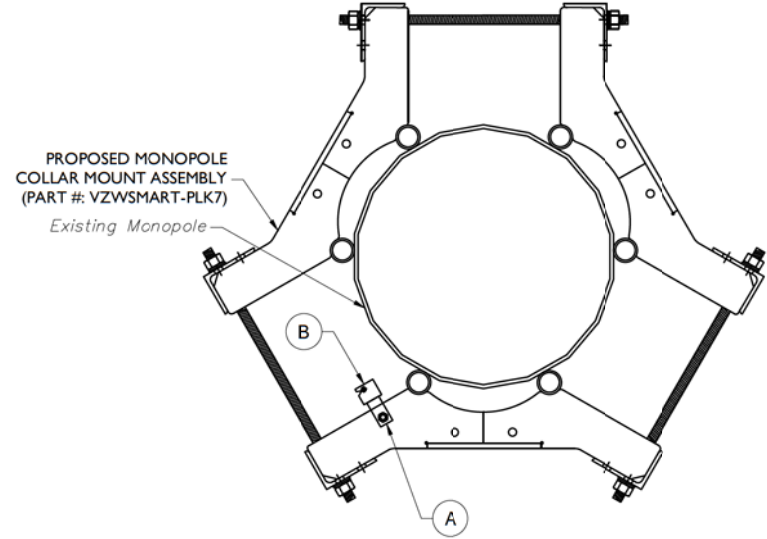
SHEET NUMBER:
 SCF-1



1 CLIMBING FACILITY LOCATION
 SCALE : N.T.S.

STRUCTURAL NOTES:

- PER THE MOUNT MAPPING COMPLETED BY RKS DESIGN & ENGINEERING, LLC. ON 1/17/2023, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (41'-6") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.
- INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB, OR ANY SYSTEM INSTALLED ON THE STRUCTURE. TIMELY NOTICE AND DOCUMENTATION SHALL BE PROVIDED BY CONTRACTORS TO THE EOR (OF STRUCTURAL DESIGN) IF AN OBSTRUCTION WAS REQUIRED TO MEET THE RF SYSTEM DESIGN REQUIREMENTS AND PERFORMANCES.



ITEM #	QTY	PART NUMBER	DESCRIPTIONS
A	1	H42-0501-06	STANDOFF CLAMP BRACKET (PERFECT VISION OR EOR APPROVED EQ.)
B	1	PV-CMX-CG-BO	WIRE ROPE GUIDE (PERFECT VISION OR EOR APPROVED EQ.)

2 PROPOSED WIRE ROPE GUIDE ATTACHMENT - PLAN VIEW
 SCALE : N.T.S.

NOTE: CONTRACTOR SHALL ENSURE THAT WIRE ROPE GUIDE DOES NOT PUSH THE WIRE ROPE OUTSIDE OF THE VERTICAL PLANE OF THE SAFETY CLIMB. CONTRACT EOR WITH PHOTOS OF SAFETY CLIMB AND COLLAR FOR FURTHER DIRECTION IF NEEDED.



CLIMBING FACILITY PHOTO

LEGEND:

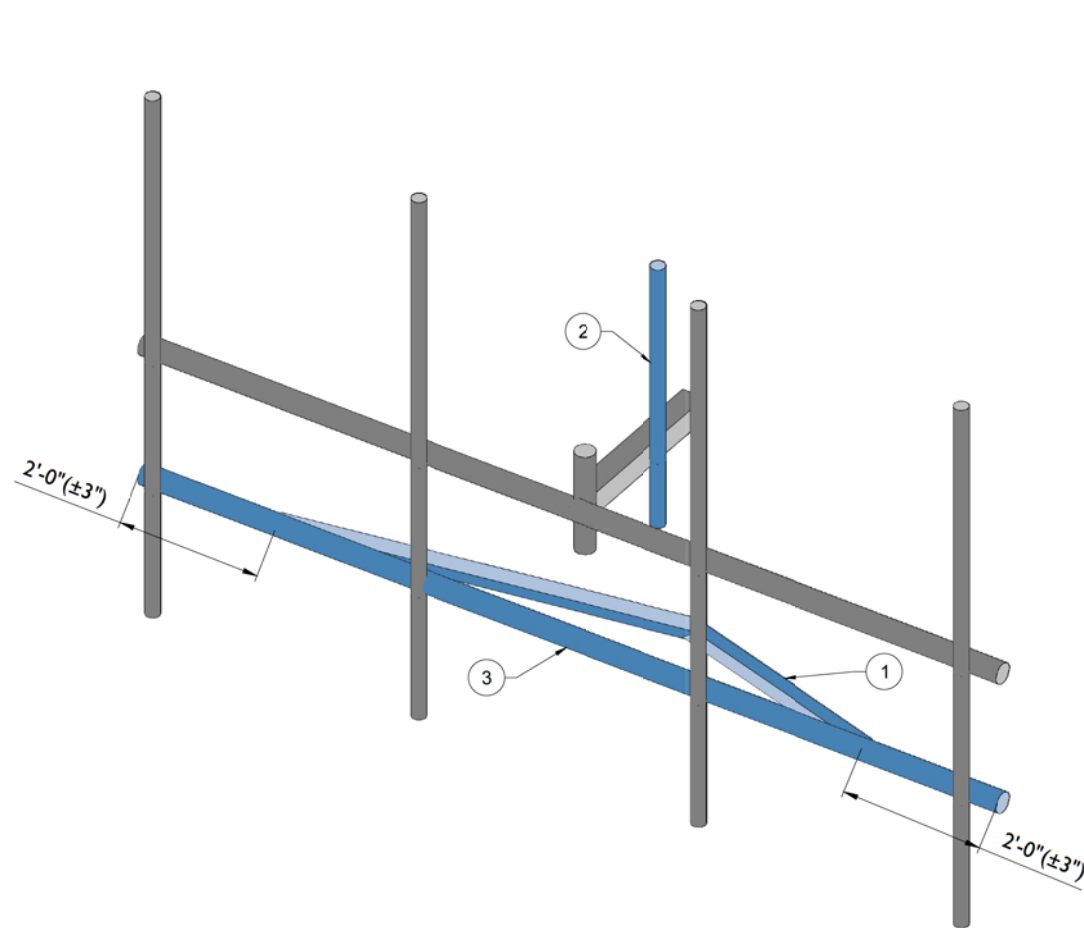
- PROPOSED
- RELOCATED
- EXISTING

MOUNT MODIFICATION SCHEDULE

NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES
1	41'-6"	3	PROPOSED V-BRACING KIT FOR MONOPOLE (PART #: VZWSMART-PLK6)	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1. CONNECT OTHER END OF V-BRACING KIT TO MONOPOLE COLLAR MOUNT ASSEMBLY (PART #: VZWSMART-PLK7). SEE GENERAL NOTE B.
2		1	PROPOSED 48" LONG, PIPE 2 SCH40 (PART #: VZWSMART-P40-238X048)	CONNECT NEW OVP PIPE TO EXISTING STANDOFF HORIZONTAL WITH CROSSOVER PLATES (PART #: VZWSMART-MSK6)
3		3	PROPOSED 156" LONG, PIPE 3 SCH40	CONTRACTOR SHALL NOT SHIFT/ REPLACE MOUNT PIPES WITHOUT EOR APPROVAL. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF HORIZONTAL AS SHOWN. EOR SHALL BE NOTIFIED IF EQUIPMENT NEEDS TO BE RELOCATED TO ANOTHER MOUNT PIPE. CONNECT NEW MOUNT PIPE TO EXISTING HORIZONTAL WITH CROSSOVER PLATES (PART #: VZWSMART-MSK2).
4		-	EXISTING MOUNT CONNECTION HARDWARE	CONTRACTOR SHALL LOOSEN INNER LOCK NUTS ON THE EXISTING MOUNT COLLAR (REFER TO PHOTO 2 ON SHEET SS-2).

GENERAL NOTES:

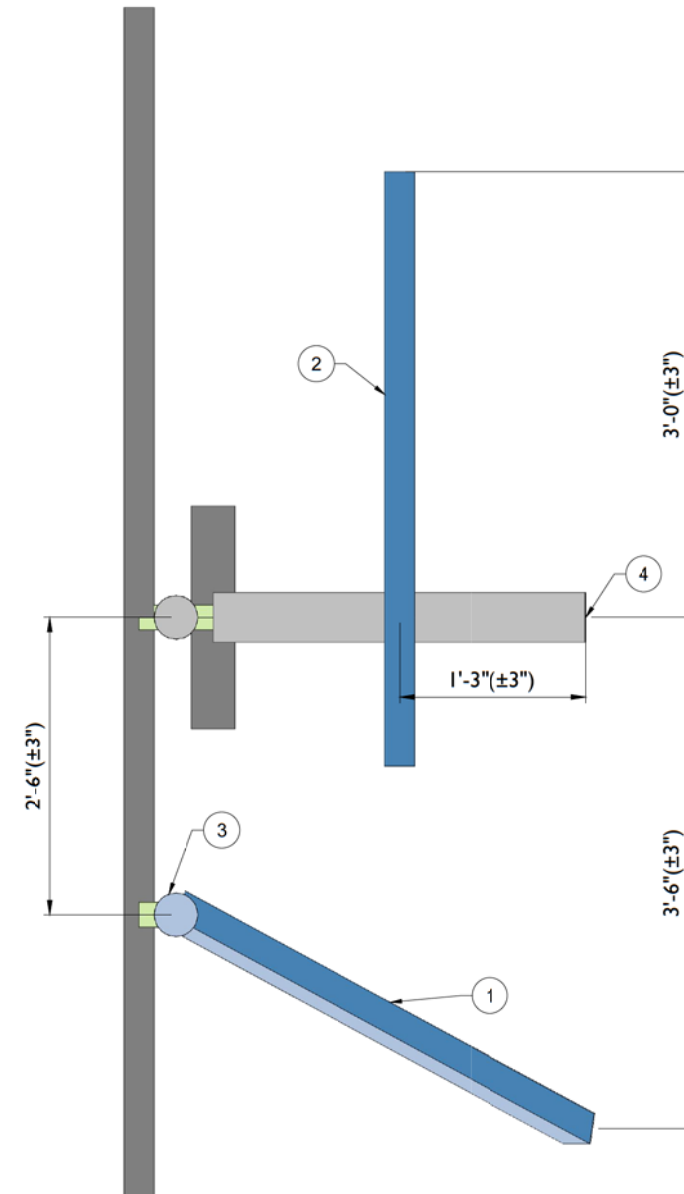
- A. CONTRACTOR SHALL VERIFY THAT NEW & EXISTING STEEL IS FREE OF CORROSION. VISIBLE MINOR CORROSION SHALL BE WIRE BRUSHED CLEAN AND TREATED WITH COLD GALVANIZATION. REPORT ANY SIGNIFICANT CORROSION TO EOR.
- B. THREADED ROD FROM PROPOSED KITS SHALL BE TRIMMED TO EXTEND NO MORE THAN 3" BEYOND THE LOCK NUT. TREAT ALL CUT ENDS WITH (2) COATS OF COLD GALVANIZATION (ZINC KOTE, OR EOR APPROVED EQUAL).
- C. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.



1

PROPOSED ISOMETRIC VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.



2

PROPOSED SIDE ELEVATION VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.

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REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY

Gilberto Martinez
 COLORADO LICENSED PROFESSIONAL ENGINEER
 GILBERTO MARTINEZ
 56472
 Digitally signed by Gilberto Martinez
 Date: 2023.09.14 17:09:00-05'00'

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SHEET TITLE:
MODIFICATION DETAILS

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MOUNT PHOTO 1



MOUNT PHOTO 2



MOUNT PHOTO 3



MOUNT PHOTO 4



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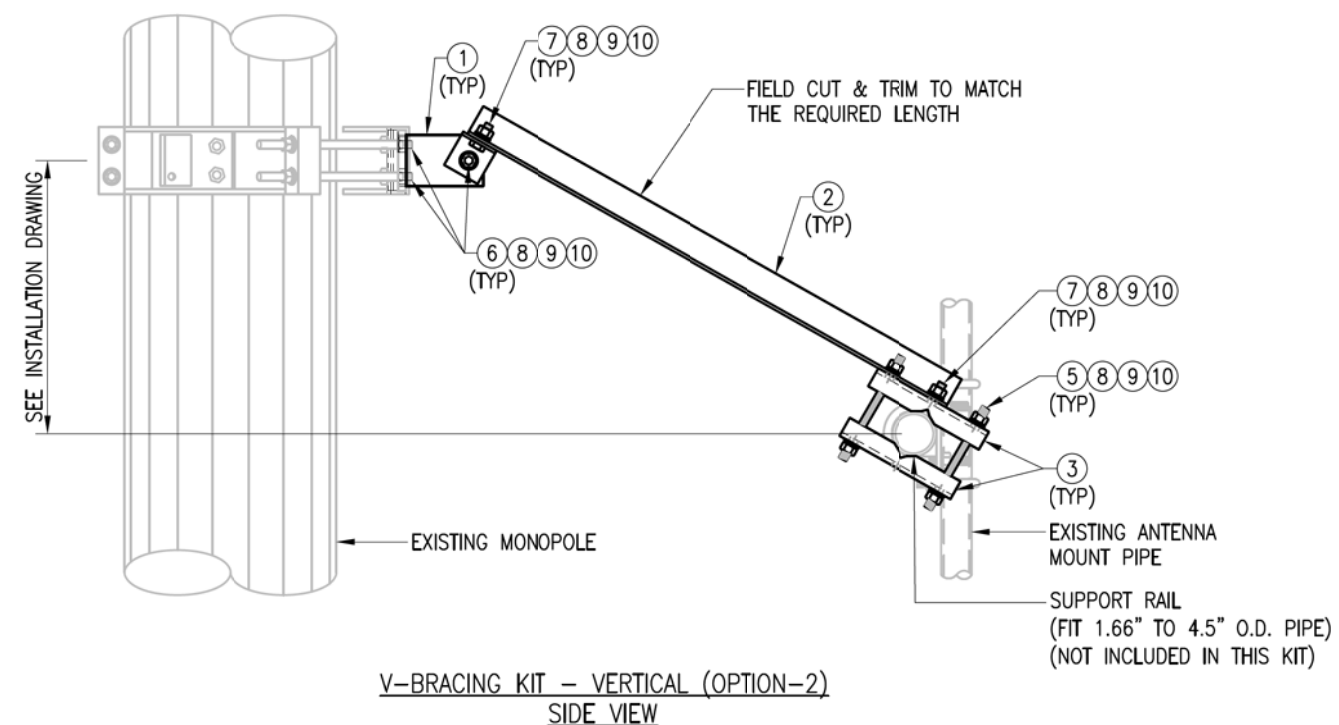
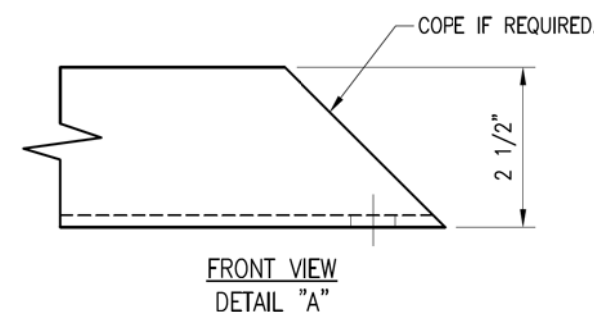
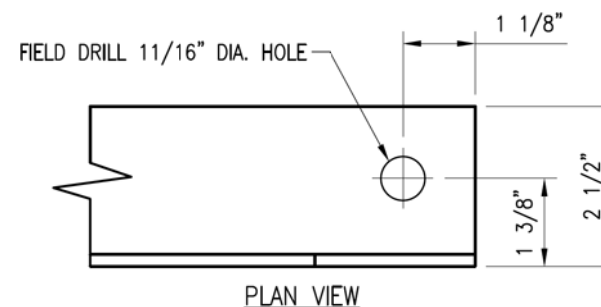
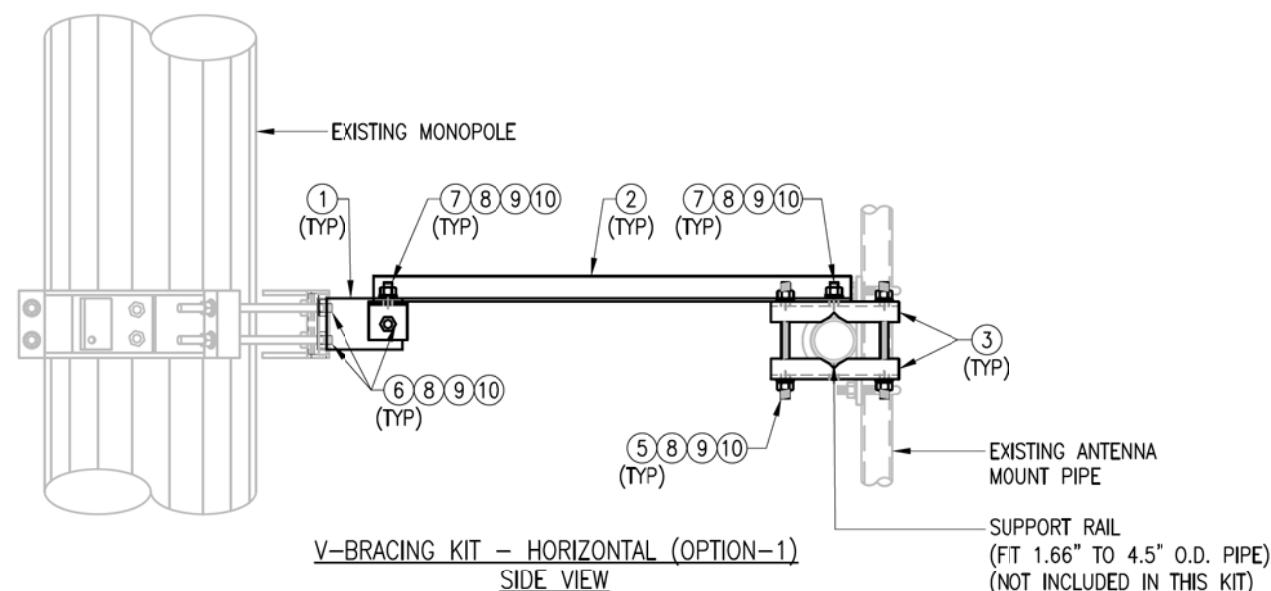
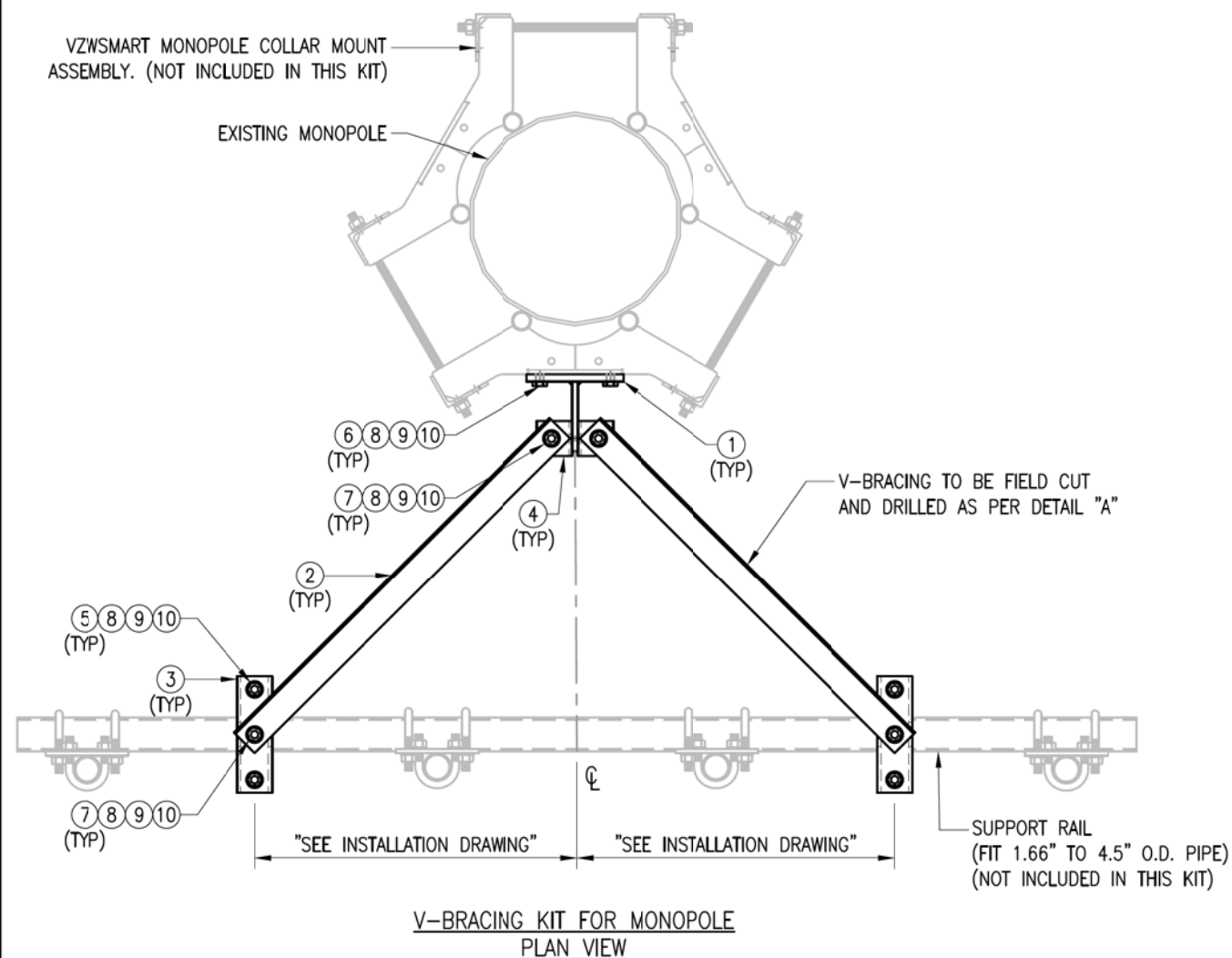
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 COLLIER ENGINEERING & DESIGN, INC.
 DOING BUSINESS AS MASER CONSULTING

SHEET TITLE:
 MOUNT PHOTOS

SHEET NUMBER:
 SS-2



VZSMART-PLK6 (V-BRACING KIT FOR MONOPOLE)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	BRKW-6A	WELDMENT BRACKET	PLK6-F1	16
2	2	L252525-8	L 2 1/2" X 2 1/2" X 1/4" X 8'-0" A36	PLK6-F2	67
3	4	BP6875-10	PL 3/8" X 6 7/8" X 10" A36 BENT PLATE	PLK6-F2	20
4	2	AL-333	L 3" X 3" X 1/4" X 3" A36	PLK6-F2	3
5	4	---	THREADED ROD 5/8" DIA. X 10" F1554-36 HDG	---	---
6	5	---	BOLT 5/8" X 2 1/4" A325	---	---
7	4	---	BOLT 5/8" X 1 3/4" A325	---	---
8	17	FW-625	5/8" HDG USS FLAT WASHER	---	2
9	17	LW-625	5/8" HDG LOCK WASHER	---	0
10	17	NUT-625	5/8" HDG HEX NUT	---	2
GALVANIZED WT					109

NOTES:
 1. HOT-DIPPED GALVANIZED PER ASTM A123.

FOR REFERENCE ONLY

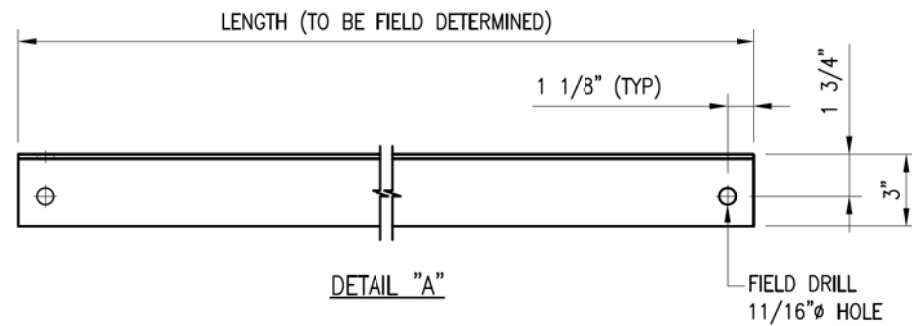
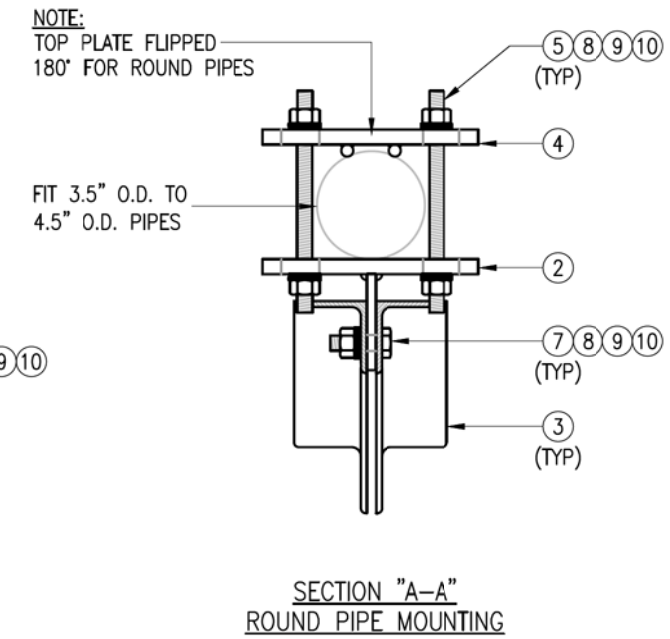
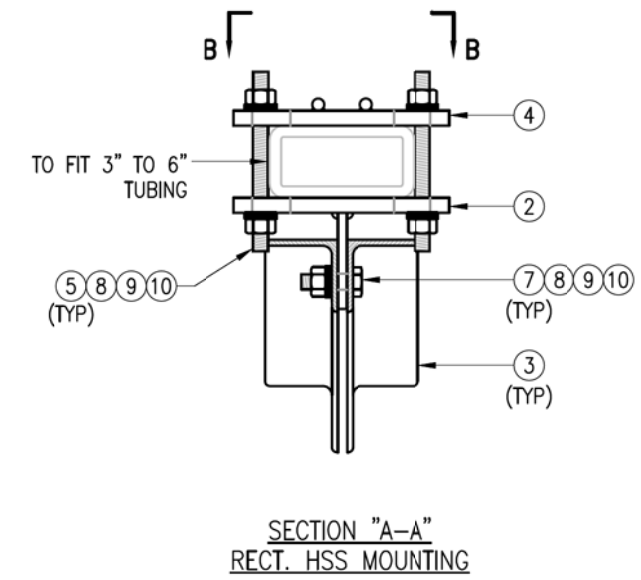
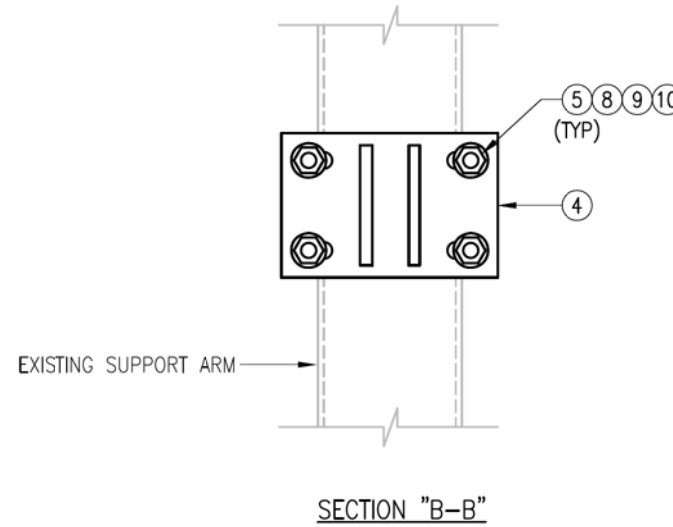
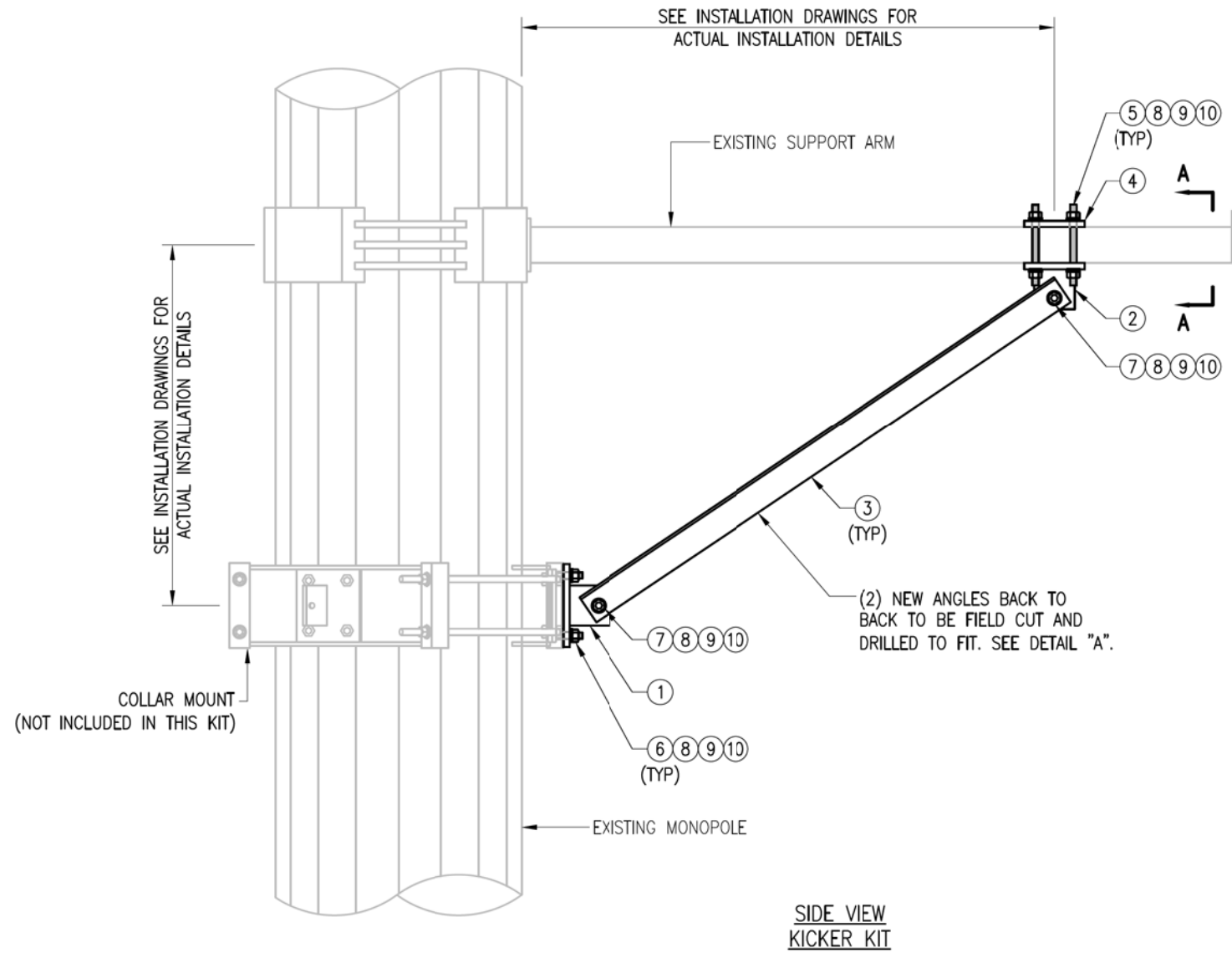
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REV.	DESCRIPTION	BY	DATE
△	FIRST ISSUE	FL	04/13/21
△			
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SHEET TITLE:
 VZSMART-PLK6
 V-BRACING KIT FOR
 MONOPOLE

SHEET NUMBER: VZSMART-PLK6
 REV #: 0

NOTE:
THE LOCATION OF KICKER AND EXISTING ANTENNA MOUNT SHOWN ON THE DRAWING IS FOR REPRESENTATION PURPOSE ONLY. SEE INSTALLATION DRAWINGS FOR ACTUAL INSTALLATION OF DETAILS.



VZSMART-PLK5 (KICKER KIT)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	3	BRKW-XXX	BRACKET WELDMENT A36	PLK5-F3	43.8
2	3	BRKW-XXXX	BRACKET WELDMENT A36	PLK5-F2	35.7
3	6	L331875-8	L 3" X 3" X 3/16" X 8'-0" A36	PLK5-F4	182.9
4	3	PL-KI	PL 5/8" X 6" X 9" A36	PLK5-F1	29.0
5	12	---	THREADED ROD 5/8" DIA. X 1'-0" F1554-36 HDG	---	---
6	6	---	BOLT 5/8" X 2" A325	---	---
7	12	---	BOLT 5/8" X 2 1/2" A325	---	---
8	42	FW-625	5/8" HDG USS FLAT WASHER	---	3
9	42	LW-625	5/8" HDG LOCK WASHER	---	1
10	42	NUT-625	5/8" HDG HEX NUT	---	5
GALVANIZED WT					291

NOTES:
1. ALL HOLES ARE 11/16" DIA. U.N.O
2. HOT-DIPPED GALVANIZED PER ASTM A123.
3. FIT UP TO 6" SQ. TUBING OR 4 1/2" O.D. PIPE

VzW
SMART Tool[®]
Vendor

verizon[✓]

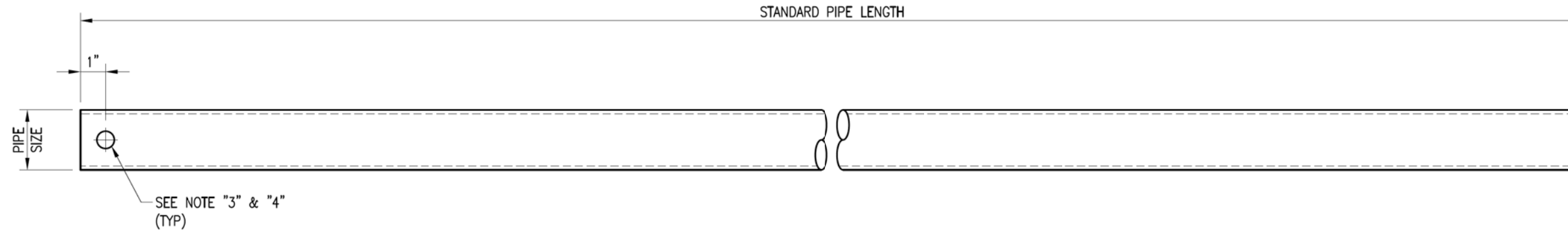
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DRAWN BY: MN CHECKED BY: HMA/KW

REV.	DESCRIPTION	BY	DATE
△	FIRST ISSUE	MN	05/08/20
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SHEET TITLE:
**VZSMART-PLK5
KICKER KIT**

SHEET NUMBER: **VZSMART-PLK5** REV #: **0**



VZWSMART Standard Pipe		
VZWSMART Number	Size	Length
P40-238X048	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	48"
P40-238X072	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	72"
P40-238X096	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	96"
P40-238X120	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	120"
P40-238X126	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	126"
P40-238X150	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	150"
P40-238X174	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	174"
P40-278X048	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	48"
P40-278X072	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	72"
P40-278X096	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	96"
P40-278X120	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	120"
P40-278X126	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	126"
P40-278X150	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	150"
P40-278X174	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	174"
P40-312X048	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	48"
P40-312X072	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	72"
P40-312X126	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	126"
P40-312X150	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	150"
P40-312X174	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	174"

NOTE:
 APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION
 PIPES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE.
 SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

- NOTES:**
1. ALL PIPE GRADE A53-B OR BETTER.
 2. HOT-DIPPED GALVANIZED PER ASTM A123.
 3. ALL HOLES ARE 11/16" DIA. U.N.O
 4. HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
 5. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

FOR REFERENCE
 ONLY

DRAWN BY: BT CHECKED BY: HMA/KW

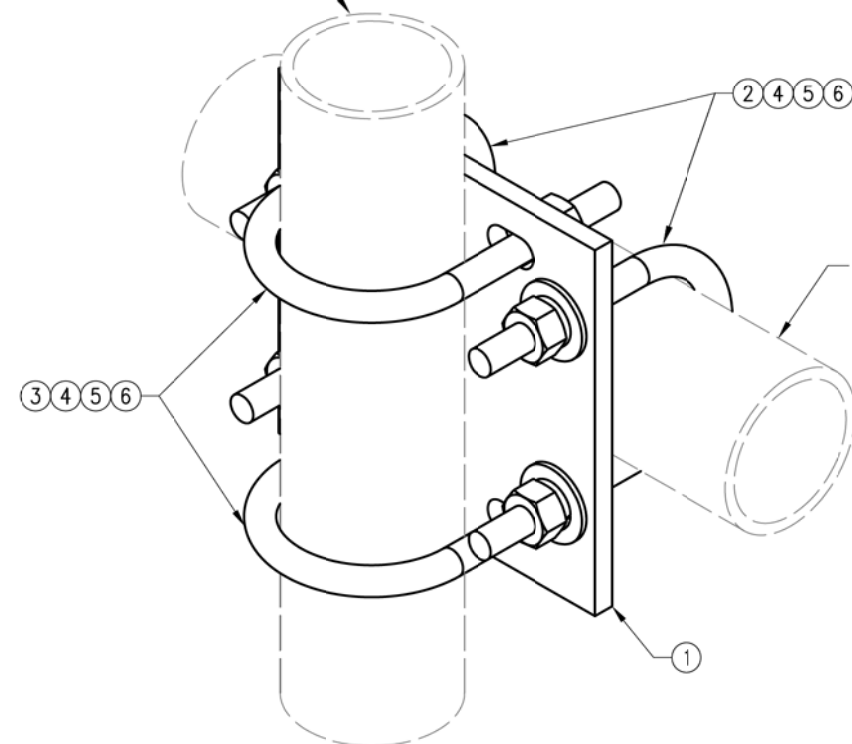
REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	BT	08/04/21

SHEET TITLE:
 VZWSMART
 STANDARD PIPE

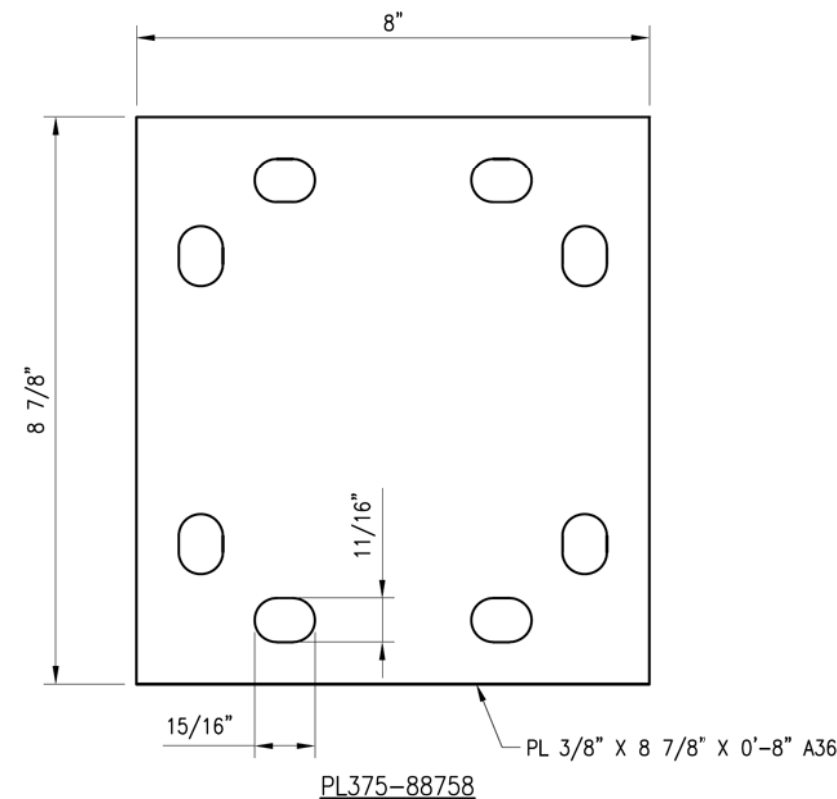
SHEET NUMBER: VZWSMART-PIPE REV #: 0



FITS 2.375" O.D. AND 2.875" O.D.
 VERTICAL PIPE.
 (NOT INCLUDED IN THIS KIT)



FITS 3.5" O.D. AND 4" O.D.
 HORIZONTAL PIPE.
 (NOT INCLUDED IN THIS KIT)



FOR REFERENCE
 ONLY

DRAWN BY: H.R. CHECKED BY: HMA

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	H.R.	05/08/20

SHEET TITLE:

VZSMART-MSK2
 CROSSOVER PLATE

SHEET NUMBER: REV #:

VZSMART-MSK2 0

NOTES:
 1. HOT-DIPPED GALVANIZED PER ASTM A123.

VZSMART-MSK2 (CROSSOVER PLATE)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	PL375-88758	PL 3/8" X 8 3/4" X 0'-8" A36	MSK2-F1	8
2	2	MS02-625-4125-600	RU-BOLT 5/8" X 4 1/8" I.W. X 6" I.L. A36 (OR EQUIV.)	RBC-1	3
3	2	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC-1	3
4	8	FW-625	5/8" HDG USS FLAT WASHER	---	1
5	8	LW-625	5/8" HDG LOCK WASHER	---	0
6	8	NUT-625	5/8" HDG HEX NUT	---	1
GALVANIZED WT					15