



**SITE NAME:** CSP BARRETT  
**PROJECT ID:** 17072981  
**PROJECT:** MW UPGRADE  
**SITE ADDRESS:** 15741 PHANTOM CANYON VIEW  
 COLORADO SPRINGS, CO 80926  
**COUNTY:** EL PASO  
**JURISDICTION:** EL PASO COUNTY



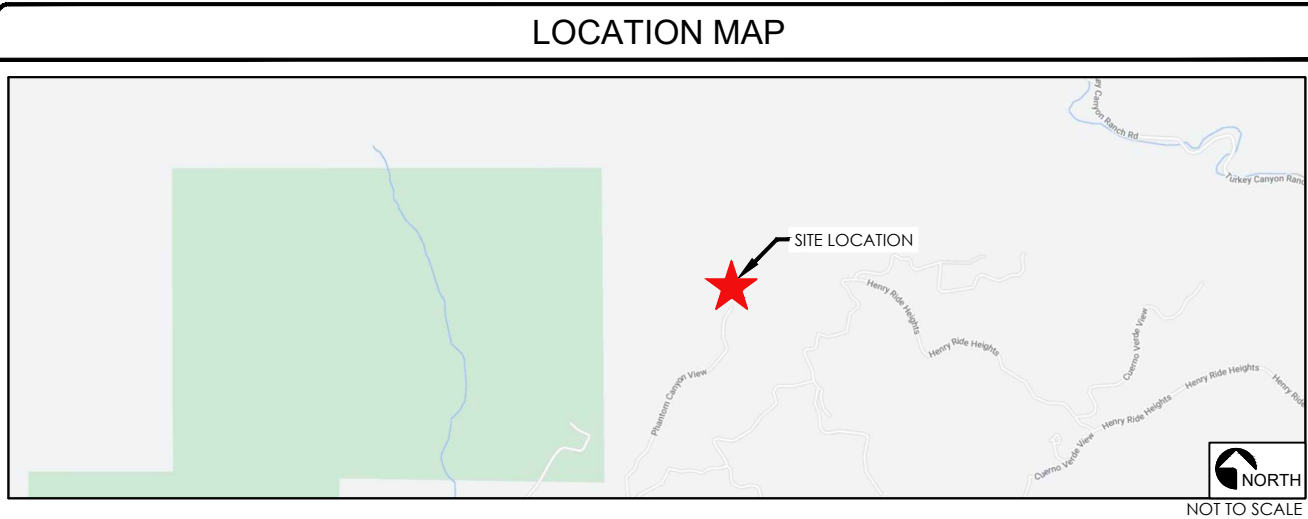
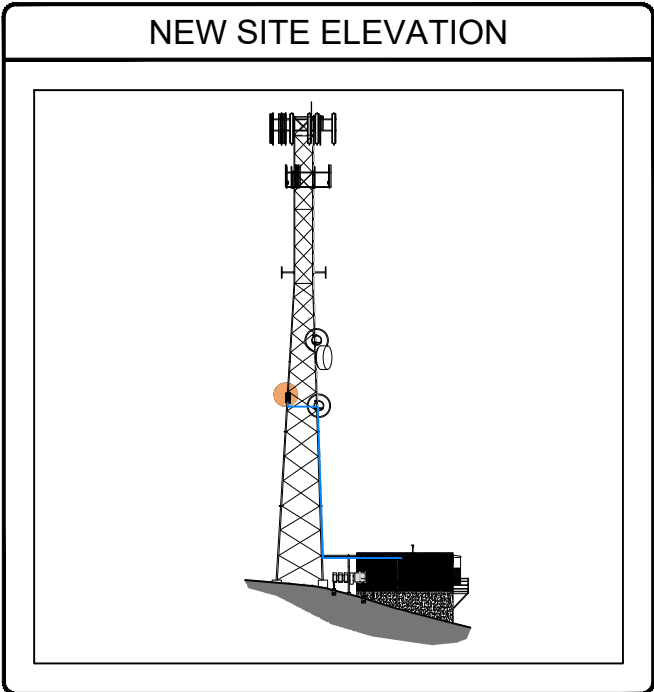
10000 PARK MEADOWS DRIVE, SUITE 300  
 LONE TREE, CO 80124-5453  
 (303) 694-3234



**RETFERDOR ENTERPRISES, INC.**  
 EMPowering CONNECTIONS

7093 SILVERHORN DRIVE  
 EVERGREEN | CO | 80439  
 (720) 261-2064

DRAWING INDEX		
SHEET NO.	SHEET DESCRIPTION	REV
T-1	TITLE SHEET	1
G-1	GENERAL NOTES & SITE IMAGES	1
A-1	EXISTING SITE PLAN	1
A-2	NEW SITE PLAN	1
A-3	ELEVATIONS	1
A-4	EXISTING & NEW MICROWAVE PLANS	1
D-1	DETAILS	1
D-2	MICROWAVE SPECIFICATIONS	1
D-3	HYBRID CABLE SPECIFICATIONS	1





**DRIVING DIRECTIONS:**  
 FROM 10000 PARK MEADOWS DR (VERIZON OFFICE), HEAD NORTHWEST TOWARD PARK MEADOWS DR (128FT) TURN RIGHT TOWARD PARK MEADOWS DR (151FT) TURN RIGHT ONTO PARK MEADOWS DR (1.3MI) USE THE MIDDLE LANE TO TURN LEFT ONTO LINCOLN AVE (0.2MI) USE THE RIGHT LANE TO MERGE ONTO I-25 S VIA THE RAMP TO COLO SPGS (0.6MI) MERGE ONTO I-25 S (52.5MI) USE THE 2ND FROM THE RIGHT LANE TO TAKE EXIT 140 FOR TEJON ST (0.3MI) CONTINUE STRAIGHT (0.1) TURN RIGHT ONTO CO-115 S (15.3MI) TURN RIGHT ONTO TURKEY CANYON RANCH RD (1.4MI) TURN LEFT ONTO HENRY RIDE HEIGHTS/HENRY RIDE HEITH'S RD (0.5MI) TURN RIGHT ONTO HENRY RIDE HEIGHTS (0.7MI) TURN RIGHT TO STAY ON HENRY RIDE HEIGHTS (1.3MI) TURN RIGHT TO STAY ON HENRY RIDE HEIGHTS (0.7MI) TURN RIGHT ONTO PHANTOM CANYON VIEW (0.6MI) DESTINATION WILL BE ON THE RIGHT.

REV	DATE	DESCRIPTION	CHK
1	10/21/24	JURISDICITON COMMENT	AJZ
0	08/26/24	100% FINAL CD	AJZ

**APPROVED FOR CONSTRUCTION**

REFERENCE DOCUMENTS
RFDS DATED: 05/24/2024
STRUCTURAL ANALYSIS DATED: 07/11/2024

SITE INFORMATION	
MAP/PARCEL #:	760000276
AREA OF CONSTRUCTION:	EXISTING 125'-0" SELF SUPPORT TOWER
LATITUDE:	38° 36' 45.11"N
LONGITUDE:	104° 56' 6.38"W
LAT/LONG TYPE:	NAD83
CURRENT ZONING:	RURAL RESIDENTIAL (RR-5)
OCCUPANCY:	U
STRUCTURE HEIGHT:	125'-0"
ADA COMPLIANCE:	THIS FACILITY IS UNMANNED & NOT FOR HUMAN HABITATION.
LEGAL DESCRIPTION:	LOT 16 HIGHLANDS OF TURKEY CANON RANCH FIL NO 2, EX IMPS
LOT/PARCEL SIZE:	35.78 ACRES

APPLICABLE CODES	
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES OF EAGLE COUNTY. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:	
<u>CODE TYPE</u>	<u>CODE</u>
BUILDING	2015 INTERNATIONAL BUILDING CODE (IBC)
MECHANICAL	2015 INTERNATIONAL EXISTING BUILDING CODE(IEBC)
FUEL GAS	2015 INTERNATIONAL MECHANICAL CODE (IMC)
PLUMBING	2015 INTERNATIONAL FUEL GAS CODE (IFGC)
ELECTRICAL	2015 INTERNATIONAL PLUMBING CODE (IPC)
FIRE	2020 NATIONAL ELECTRICAL CODE (NEC)
ENERGY	2015 INTERNATIONAL FIRE CODE (IFC)
STEEL ANTENNA	2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
TOWERS & SUPPORTS	ANSI/TIA/EIA-222 LATEST EDITION
THE UTILITIES SHOWN HEREON ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER/ SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR/REPLACE TO OWNER'S SATISFACTION.	
	

PROJECT DESCRIPTION
THIS PROJECT CONSISTS OF THE FOLLOWING:
<b>REMOVAL</b>
<ul style="list-style-type: none"> <li>• ONE (1) EXISTING RFS E105 WAVEGUIDE</li> <li>• ONE (1) EXISTING RFS SUX4-107 ANTENNA AND MOUNT</li> <li>• EXISTING IRU600 RADIOS &amp; INUE SHELF</li> </ul>
<b>INSTALLATION</b>
<ul style="list-style-type: none"> <li>• ONE (1) NEW COMMScope 6' USX6-11W MICROWAVE DISH</li> <li>• ONE (1) NEW SITEPRO1 R6 MICROWAVE DISH MOUNT</li> <li>• TWO (2) NEW AVIAT WTM4100 RRH UNITS WITH REMOTE MOUNT BRACKETS</li> <li>• TWO (2) NEW HYBRID FIBER/POWER CABLES FOR WTM4100 RADIOS</li> <li>• ONE (1) NEW CTR-8740 ROUTER</li> </ul>

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

**SITE NAME**  
**CSP BARRETT**  
 15741 PHANTOM CANYON VIEW  
 COLORADO SPRINGS, CO 80926  
 MW UPGRADE  
 (EXISTING COMMUNICATIONS SITE)

PROJECT TEAM				
<b>APPLICANT/CLIENT:</b> VERIZON WIRELESS 10000 PARK MEADOWS DRIVE, SUITE 300 LONE TREE, CO 80124-5453	<b>PROPERTY OWNER:</b> COCONUT TELEGRAPH COMMUNICATIONS MARK MORLEY 20 BOULDER CRESCENT, 2ND FLOOR COLORADO SPRINGS, CO 80903	<b>CONSTRUCTION ENGINEER:</b> VERIZON WIRELESS ROBERT PRINDLE 208-830-9061 10000 PARK MEADOWS DRIVE, SUITE 300 LONE TREE, CO 80124-5453 ROBERT.PRINDLE@VERIZONWIRELESS.COM	<b>ENGINEER/DESIGNER:</b> RETFERDOR ENTERPRISES, INC AARON ZAJICEK 720-371-3327 7093 SILVERHORN DR EVERGREEN, CO 80439 AARON.ZAJICEK@RETFERDORENTERPRISES.COM	<b>SITE ACQUISITION:</b> RETFERDOR ENTERPRISES, INC. RACHEL LONG 720-581-1940 RACHEL.LONG@RETFERDORENTERPRISES.COM

SHEET TITLE  
**TITLE SHEET**  
 SHEET NUMBER  
 T-1

**GENERAL PROJECT NOTES**

1. CONTRACTOR IS RESPONSIBLE FOR ERECTING TEMPORARY BARRICADES AND/OR FENCING TO PROTECT THE SAFETY OF THE PUBLIC DURING CONSTRUCTION. THE CONTRACTOR SHALL REMOVE ALL TEMPORARY BARRIERS AND REPAIR ALL DAMAGE TO PROPERTY ON THE SITE CAUSED BY THIS CONSTRUCTION. THE COST OF REPAIR IS THE CONTRACTOR'S RESPONSIBILITY.
2. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE PRIOR TO ORDERING ANY MATERIALS OR CONDUCTING ANY WORK.
4. EXCESS SOIL MATERIAL AND DEBRIS CAUSED BY THIS CONSTRUCTION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER.
5. CONTRACTOR SHALL MAKE ADJUSTMENTS TO GRADING ELEVATIONS AS NECESSARY TO ENSURE A SITE FREE OF DRAINAGE PROBLEMS.
6. CONTRACTOR SHALL COORDINATE A CONSTRUCTION LAYDOWN AREA WITH THE PROPERTY OWNER. CONSTRUCTION LAYDOWN AREA SHALL BE FENCED-IN WITH TEMPORARY (45 DAY) CONSTRUCTION FENCE. THE TEMPORARY FENCE SHALL BE CONSTRUCTED OF 6' HIGH CHAIN LINK FABRIC AND IS TO BE REMOVED AT THE END OF CONSTRUCTION. LAYDOWN AREA IS TO BE RESTORED TO ITS ORIGINAL CONDITION AFTER FENCE REMOVAL.
7. SURVEY INFORMATION SHOWN WAS CREATED FROM RECORD INFORMATION AND DOES NOT CONSTITUTE A LEGAL BOUNDARY SURVEY.
8. THESE PLANS DO NOT ADDRESS THE SAFETY AND STABILITY OF THE STRUCTURE DURING ASSEMBLY AND ERECTION, WHICH ARE THE RESPONSIBILITY OF THE ERECTOR, BASED ON THE MEANS AND METHODS CHOSEN BY THE ERECTOR.

**GENERAL CONTRACTOR NOTES**

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE PROJECT SCOPE OF WORK DEFINED UNDER THE REQUEST FOR PROPOSAL (RFP) FOR THIS PROJECT AND ALL ASSOCIATED ATTACHMENTS AND DOCUMENTS PROVIDED. THE RFP AND ALL ASSOCIATED DOCUMENTS SHALL DEFINE THE COMPLETE PROJECT SCOPE OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL DOCUMENTS AND IS SOLELY RESPONSIBLE FOR ALL WORK. ALL DOCUMENTS INCLUDED WITHIN THE PROJECT REQUEST FOR PROPOSAL ARE REQUIRED FOR THE COMPLETE PROJECT SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK (EQUIPMENT, MATERIAL, INSTALLATION, TESTING, ETC.) INDICATED IN ALL DOCUMENTS. THE RFP, VERIZON NETWORK STANDARDS AND PROJECT ADDENDUMS AND CLARIFICATIONS ARE COMPLEMENTARY TO EACH OTHER. THE FORMAT OF THE SPECIFICATIONS AND DRAWING NUMBERING PER DISCIPLINE IS NOT INTENDED TO IMPLY SEGREGATION OF SUB CONTRACTOR WORK. CONTRACTOR SHALL ASSIGN ALL SUB CONTRACTOR WORK AND VERIZON WILL NOT ACCEPT ANY CHANGE ORDERS FOR INTERNAL CONTRACTOR WORK ASSIGNMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR DISTRIBUTING ALL RFP DOCUMENTS TO THEIR SUB CONTRACTORS. ALL RFP DOCUMENTS ARE REQUIRED TO INDICATE THE PROJECT SCOPE OF WORK. PARTIAL SUB CONTRACTOR DOCUMENT PACKAGES ARE HIGHLY DISCOURAGED. IN THE EVENT OF A CONFLICT BETWEEN THE DRAWINGS, SPECIFICATIONS, REFERENCED STANDARDS, VERIZON STANDARDS, OR AGREEMENT TERMS AND CONDITIONS THE ARCHITECT/ ENGINEER SHALL BE CONTACTED FOR FORMAL INTERPRETATION OF THE REQUIREMENTS. THE CONTRACTOR SHALL BE DEEMED TO HAVE PROVIDED THE DETAILED AND EXTENSIVE INTERPRETATION. ANY WORK INSTALLED IN CONFLICT WITH THE ARCHITECT/ ENGINEER INTERPRETATIONS SHALL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO VERIZON.
2. ALL ANTENNAS MUST BE PIM TESTED WITHIN 48 HOURS OF THEM BEING RECEIVED BY THE INSTALLATION CONTRACTOR. THOSE RESULTS MUST BE SENT BACK TO THE VERIZON CONSTRUCTION ENGINEER AND EQUIPMENT ENGINEER WITHIN THE SAME 48 HOURS. IF YOU MISS THE 48HR TIMELINE AND THE ANTENNAS DO NOT PASS UPON INSTALLATION, YOUR COMPANY WILL BE CHARGED FOR THE COST OF THE ANTENNAS FOR REPLACEMENT.
3. ALL LOADS MUST BE SECURED PROPERLY TO THE VEHICLE OR TRAILER. VERIZON WILL PASS ALONG THE COST OF ANY REPLACEMENTS DUE TO DAMAGE OR LOSS WHETHER IT IS NEW OR USED.
4. GENERAL CONTRACTORS & SUBCONTRACTORS SHALL VERIFY EXISTING CONDITIONS ON THE JOB SITE ALONG WITH ALL PLANS & DIMENSIONS. NOTIFY THE ENGINEER OF RECORD OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
5. DRAWINGS ARE TO SCALE WHEN PLOTTED ON 11"X17" SHEET. USE DIMENSIONS SHOWN - DO NOT SCALE DRAWING. CONTACT RETHERFORD ENTERPRISES, INC. FOR FURTHER INFORMATION.
6. CALL BEFORE YOU DIG. COLORADO LAW REQUIRES 2 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE. CALL 811 OR COLORADO811.ORG - SEE THE EXCAVATOR HANDBOOK FOR MORE INFORMATION.
7. THESE DRAWINGS MAY NOT SHOW ALL UNDERGROUND/BUILDING PIPING & UTILITIES. THE CONTRACTOR SHALL EXERCISE EXTREME CARE DURING ALL EXCAVATION & OTHER CONSTRUCTION ACTIVITIES.

**ANTENNA, MOUNTS & HARDWARE INSTALLATION NOTES**

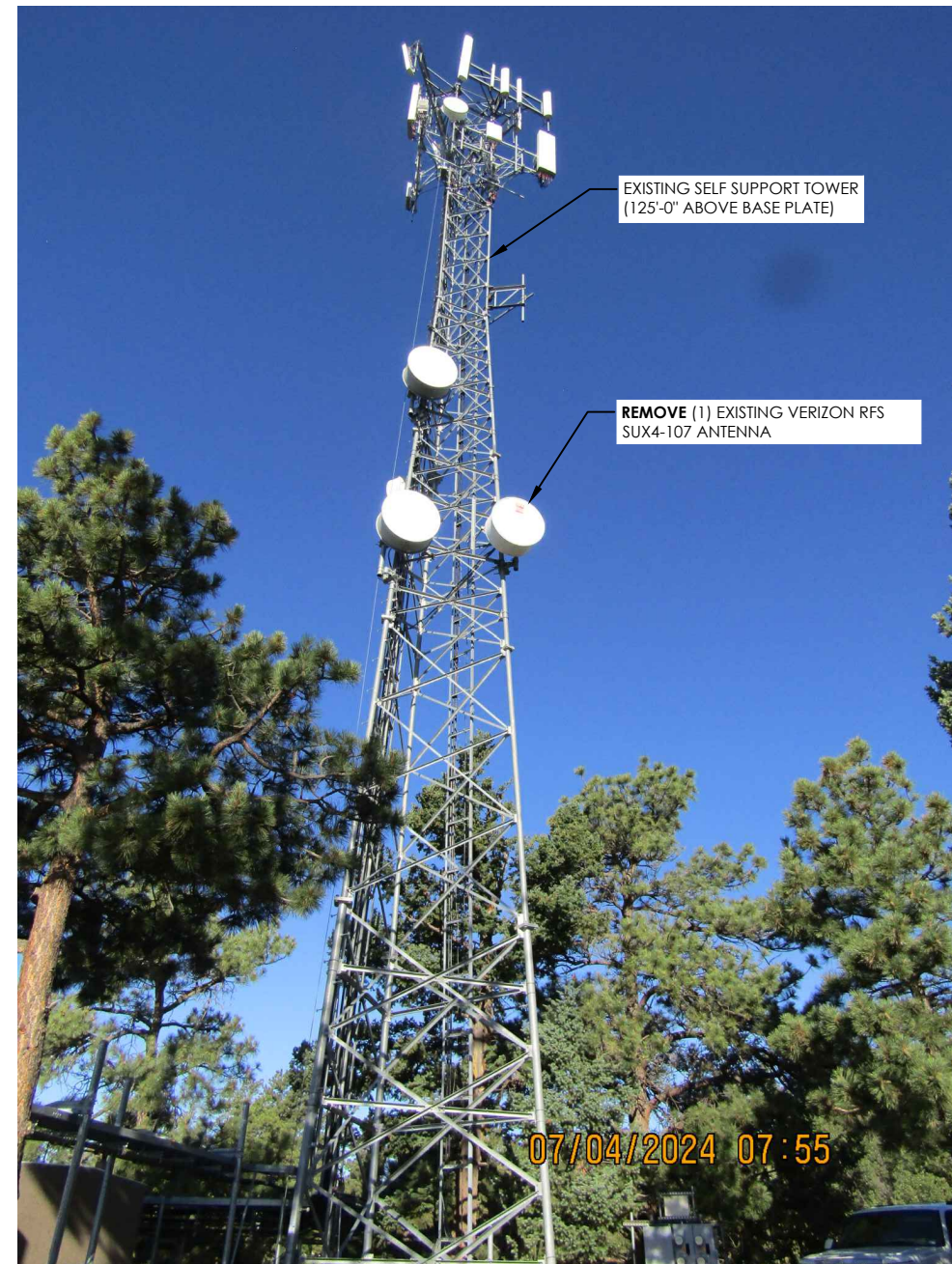
1. CONTRACTOR TO INSTALL ANTENNAS, MOUNTS AND TOWER HARDWARE PER MANUFACTURER'S RECOMMENDATIONS (OR AS REQUIRED BY THE OWNER/PROVIDER).
2. ALL BOLTS SHALL BE TIGHTENED PER AISC REQUIREMENTS.
3. ANY GALVANIZED SURFACES THAT ARE DAMAGED BY ABRASIONS, CUTS, DRILLING OR FIELD WELDING DURING SHIPPING OR ERECTION SHALL BE TOUCHED-UP WITH TWO COATS OF COLD GALVANIZING COMPOUND MEETING THE REQUIREMENTS OF ASTM A780.
4. ANTENNA MOUNTS SHALL NOT BE USED AS A CLIMBING DEVICE. WORKERS SHALL ALWAYS TIE OFF TO AN APPROVED CLIMBING POINT.

**MAIN OVP & RRH INSTALLATION NOTES**

1. CONTRACTOR TO INSTALL MAIN OVP, REMOTE RADIO HEADS, TOWER MOUNTED AMPLIFIERS, AND/OR DIPLEXERS PER MANUFACTURER'S RECOMMENDATIONS.
2. ALL BOLTS SHALL BE TIGHTENED PER AISC REQUIREMENTS.
3. ANY GALVANIZED SURFACES THAT ARE DAMAGED BY ABRASIONS, CUTS, DRILLING OR FIELD WELDING DURING SHIPPING OR ERECTION SHALL BE TOUCHED-UP WITH TWO COATS OF COLD GALVANIZING COMPOUND MEETING THE REQUIREMENTS OF ASTM A780.

**COAX PORT NOTES**

1. REQUIRED ADDITIONAL COAX PORTS TO BE ADDED AS NEEDED BY CONTRACTOR.
2. ANY ADDITIONAL COAX PORTS TO BE INSTALLED BELOW THE EXISTING, WHERE POSSIBLE.
3. CONTRACTOR TO INVESTIGATE INTERIOR OF SHELTER/EQUIPMENT ROOM FOR CLEAREST PENETRATION POINT.
4. ADDITIONAL COAX PORTS TO BE INSTALLED PER INDUSTRY STANDARDS.



1 VIEW OF EXISTING SELF SUPPORT TOWER (LOOKING NORTH)



10000 PARK MEADOWS DRIVE, SUITE 300  
LONE TREE, CO 80124-5453  
(303) 694-3234



**RETFERFORD ENTERPRISES, INC.**  
EMPOWERING CONNECTIONS

7093 SILVERHORN DRIVE  
EVERGREEN | CO | 80439  
(720) 261-2064

REV	DATE	DESCRIPTION	CHK
1	10/21/24	JURISDICITON COMMENT	AJZ
0	08/26/24	100% FINAL CD	AJZ

**APPROVED FOR CONSTRUCTION**

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

**SITE NAME**  
**CSP BARRETT**

15741 PHANTOM CANYON VIEW  
COLORADO SPRINGS, CO 80926

MW UPGRADE  
(EXISTING COMMUNICATIONS SITE)

SHEET TITLE  
**GENERAL NOTES & SITE IMAGES**

SHEET NUMBER

G-1

**GENERAL SITE PLAN NOTES**

1. INFORMATION SHOWN BELOW FOR DEPICTION PURPOSES ONLY. ALL DATA GATHERED FROM PUBLIC RECORDS AND GENERATED FROM AERIAL IMAGES AND SITE VISITS. INFORMATION DOES NOT CONSTITUTE A LEGAL BOUNDARY SURVEY AND SHOULD NOT BE USED FOR SURVEYING OR OTHER RELATED PURPOSES.
2. SITE PLAN DATA AS SHOWN IS BASED UPON A LIMITED SITE MAPPING OF THE SURROUNDING AREA AND ARCHIVED SURVEY DOCUMENTS. DATA AS SHOWN IS FOR REFERENCE ONLY. CONFIRMATION AND PROOF OF LEASE AREA AND/OR EASEMENTS IS BEYOND THE SCOPE OF THIS PROJECT.

PARENT PARCEL  
 COCONUT TELEGRAPH COMMUNICATIONS  
 APN#: 7600000276  
 ZONED: RURAL RESIDENTIAL (RR-5)



10000 PARK MEADOWS DRIVE, SUITE 300  
 LONE TREE, CO 80124-5453  
 (303) 694-3234



**RETFERD ENTERPRISES, INC.**  
 EMPOWERING CONNECTIONS  
 7093 SILVERHORN DRIVE  
 EVERGREEN | CO | 80439  
 (720) 261-2064

REV	DATE	DESCRIPTION	CHK
1	10/21/24	JURISDICITON COMMENT	AJZ
0	08/26/24	100% FINAL CD	AJZ

**APPROVED  
 FOR  
 CONSTRUCTION**

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

**SITE NAME  
 CSP BARRETT**

15741 PHANTOM CANYON VIEW  
 COLORADO SPRINGS, CO 80926

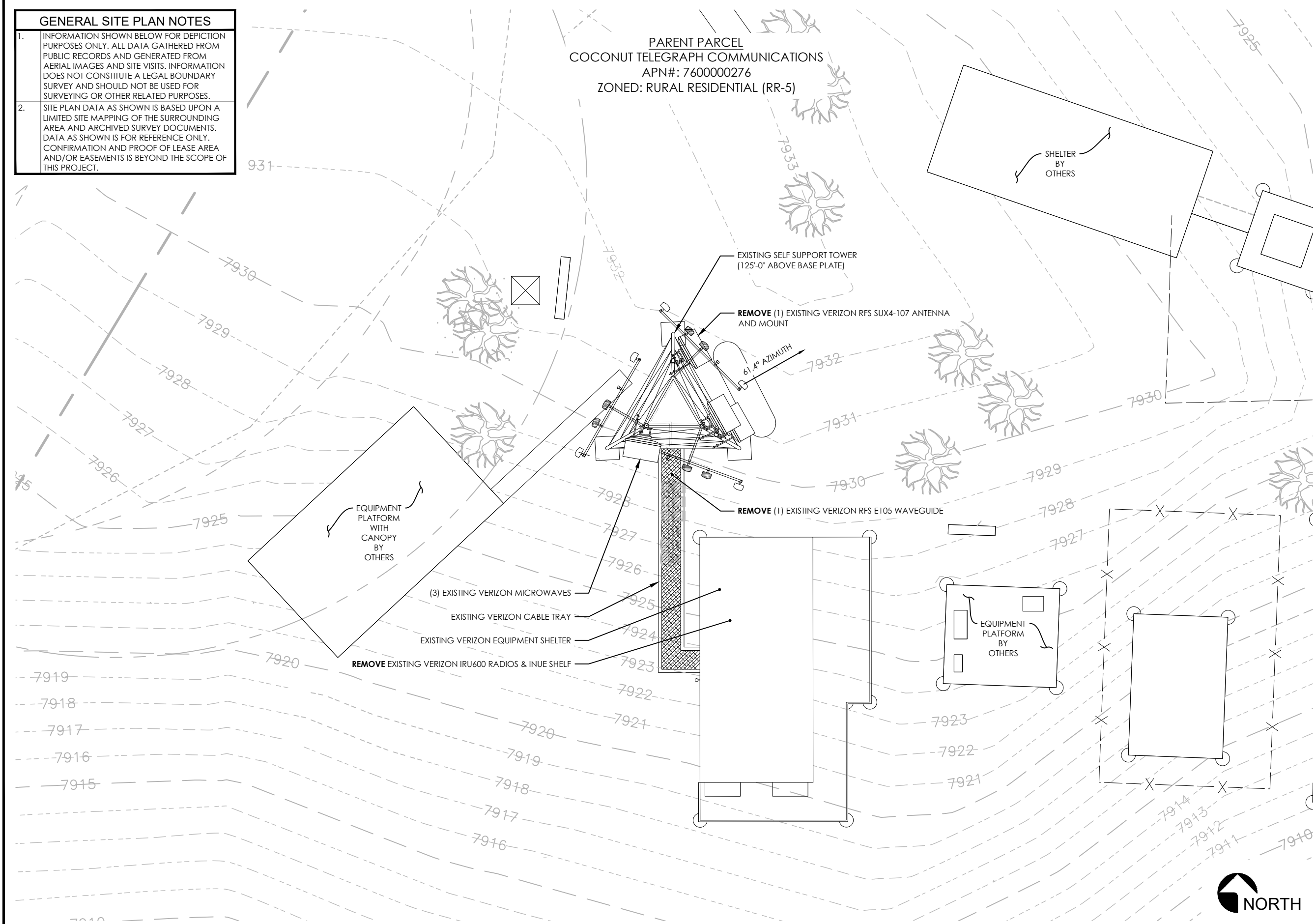
MW UPGRADE  
 (EXISTING COMMUNICATIONS SITE)

SHEET TITLE

**EXISTING SITE PLAN**

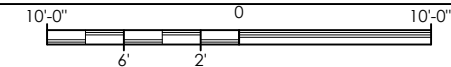
SHEET NUMBER

**A-1**



1 EXISTING SITE PLAN

SCALE: 1"=10'-0"



**GENERAL SITE PLAN NOTES**

1. INFORMATION SHOWN BELOW FOR DEPICTION PURPOSES ONLY. ALL DATA GATHERED FROM PUBLIC RECORDS AND GENERATED FROM AERIAL IMAGES AND SITE VISITS. INFORMATION DOES NOT CONSTITUTE A LEGAL BOUNDARY SURVEY AND SHOULD NOT BE USED FOR SURVEYING OR OTHER RELATED PURPOSES.
2. SITE PLAN DATA AS SHOWN IS BASED UPON A LIMITED SITE MAPPING OF THE SURROUNDING AREA AND ARCHIVED SURVEY DOCUMENTS. DATA AS SHOWN IS FOR REFERENCE ONLY. CONFIRMATION AND PROOF OF LEASE AREA AND/OR EASEMENTS IS BEYOND THE SCOPE OF THIS PROJECT.

PARENT PARCEL  
COCONUT TELEGRAPH COMMUNICATIONS  
APN#: 7600000276  
ZONED: RURAL RESIDENTIAL (RR-5)



10000 PARK MEADOWS DRIVE, SUITE 300  
LONE TREE, CO 80124-5453  
(303) 694-3234



**RETFERD ENTERPRISES, INC.**  
EMPOWERING CONNECTIONS

7093 SILVERHORN DRIVE  
EVERGREEN | CO | 80439  
(720) 261-2064

REV	DATE	DESCRIPTION	CHK
1	10/21/24	JURISDICITON COMMENT	AJZ
0	08/26/24	100% FINAL CD	AJZ

**APPROVED  
FOR  
CONSTRUCTION**

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

**SITE NAME  
CSP BARRETT**

15741 PHANTOM CANYON  
VIEW  
COLORADO SPRINGS, CO 80926

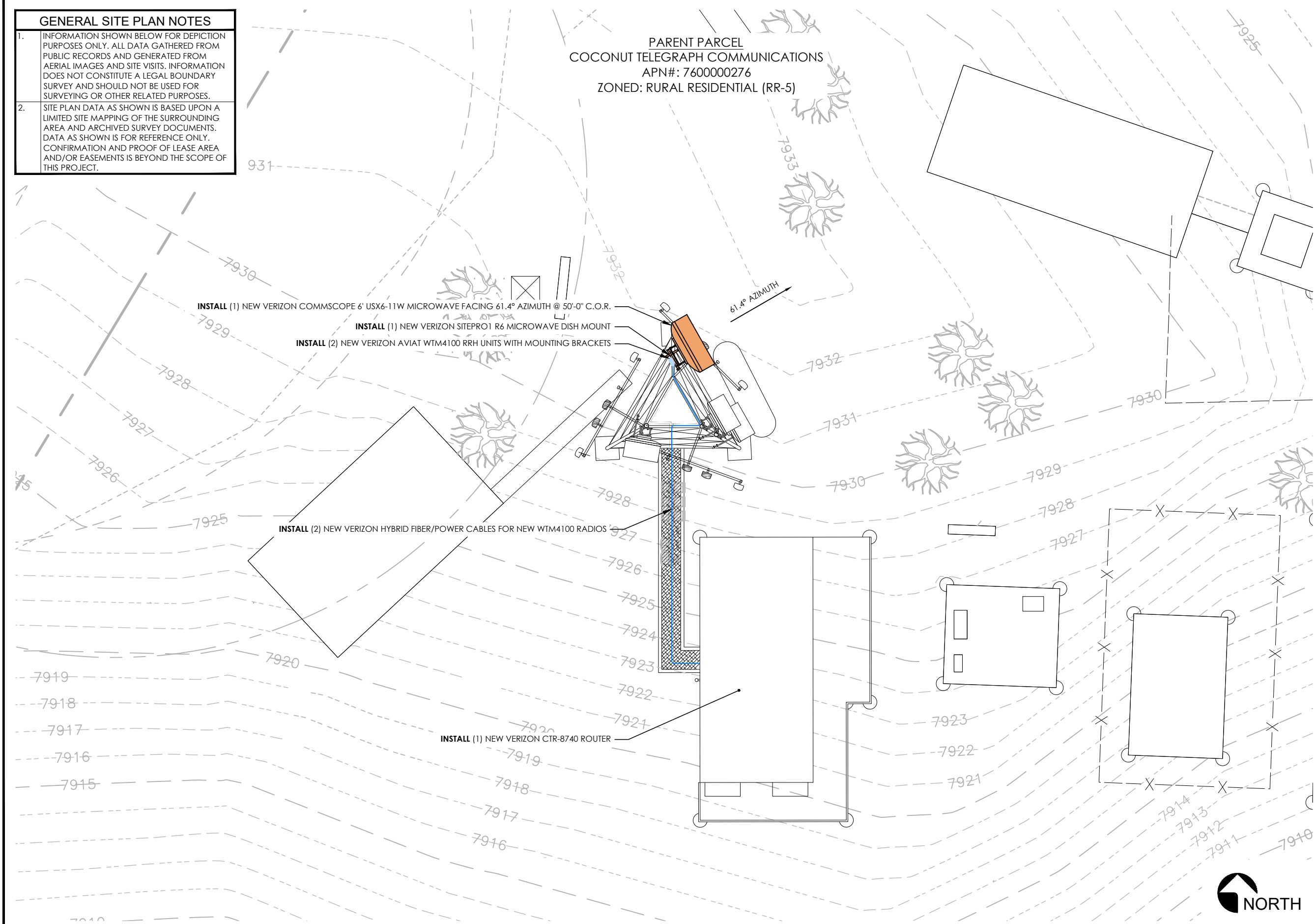
MW UPGRADE  
(EXISTING COMMUNICATIONS SITE)

SHEET TITLE

**NEW SITE PLAN**

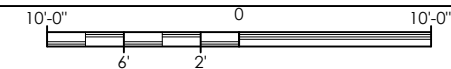
SHEET NUMBER

**A-2**

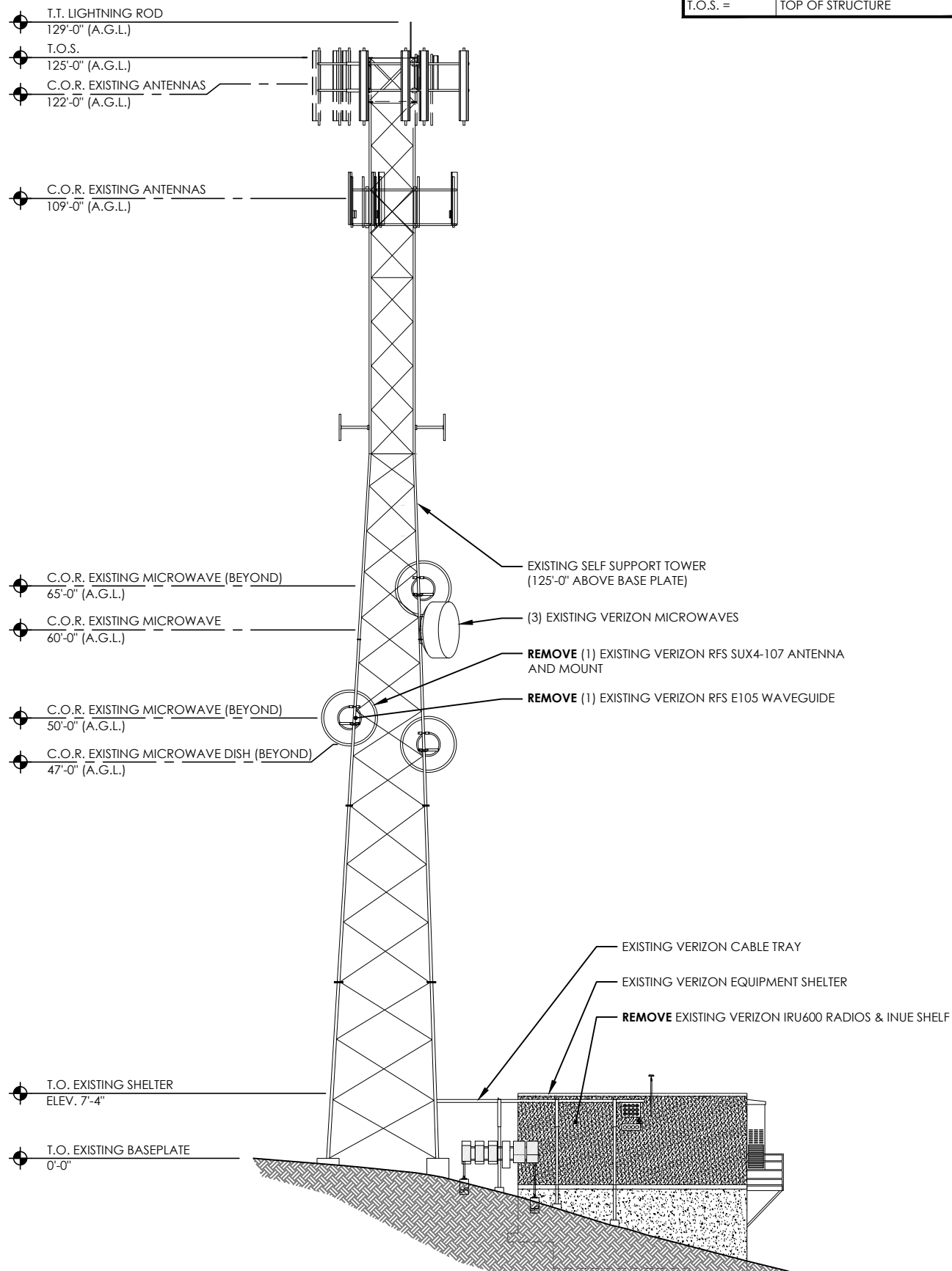


1 NEW SITE PLAN

SCALE: 1"=10'-0"



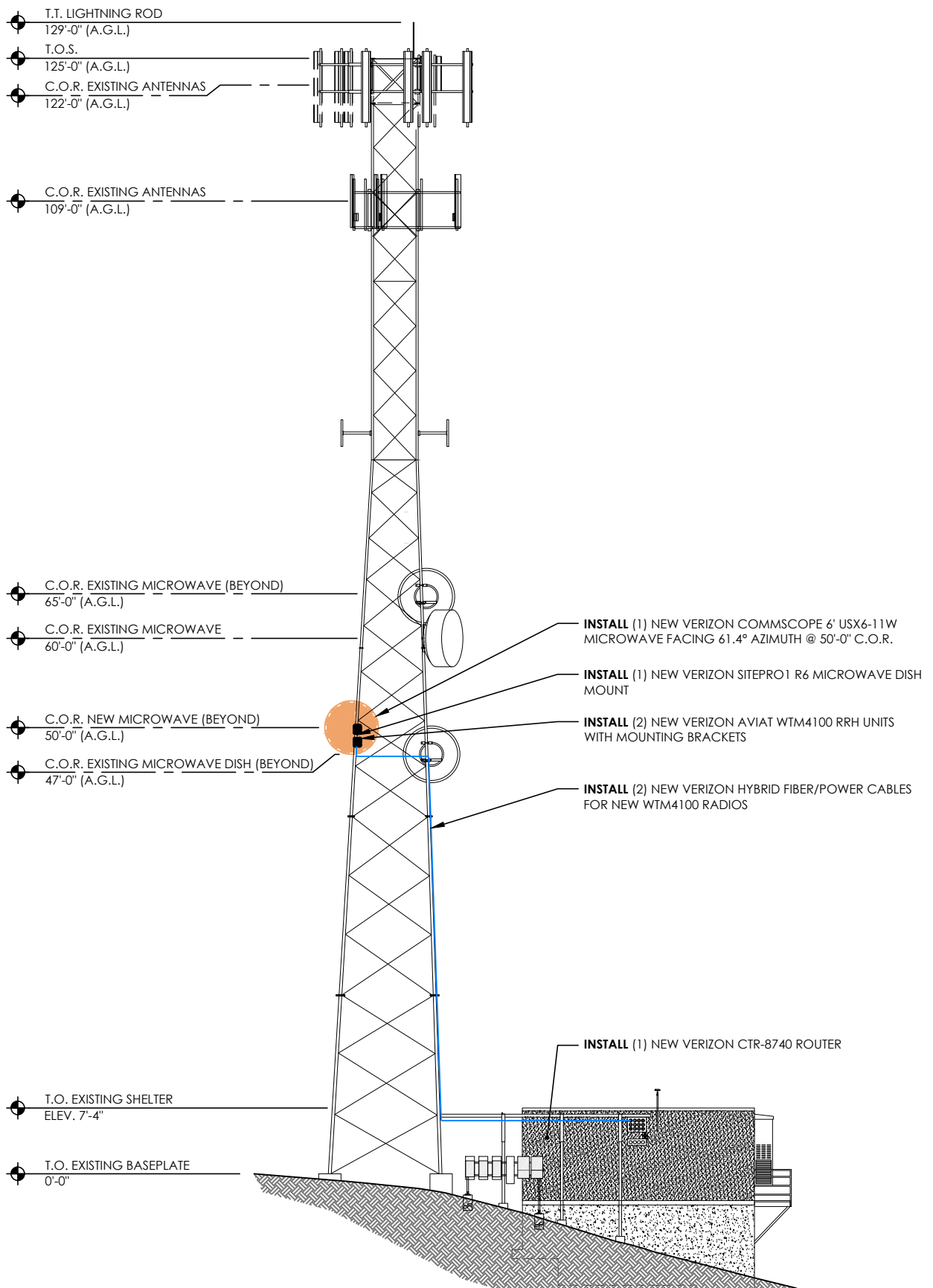
KEY	
C.O.R. =	CENTER OF RADIATION
T.T. =	TOP TIP
T.O. =	TOP OF
T.O.S. =	TOP OF STRUCTURE



1 EXISTING WEST ELEVATION

SCALE: 1/16"=1'-0"

NOTE	
PER SA DATED 7/11/2024, DK24-0178, REPLACE MISSING BOLT AT THE 90' LEVEL OF TOWER. ALSO REFER TO MAPPING REPORT DATED 7/3/2024, DK24-0177.	



2 NEW WEST ELEVATION

SCALE: 1/16"=1'-0"



10000 PARK MEADOWS DRIVE, SUITE 300  
LONE TREE, CO 80124-5453  
(303) 694-3234



**RETHERFORD ENTERPRISES, INC.**  
EMPOWERING CONNECTIONS  
7093 SILVERHORN DRIVE  
EVERGREEN | CO | 80439  
(720) 261-2064

REV	DATE	DESCRIPTION	CHK
1	10/21/24	JURISDICITON COMMENT	AJZ
0	08/26/24	100% FINAL CD	AJZ

**APPROVED  
FOR  
CONSTRUCTION**

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

**SITE NAME  
CSP BARRETT**

15741 PHANTOM CANYON  
VIEW  
COLORADO SPRINGS, CO 80926

MW UPGRADE  
(EXISTING COMMUNICATIONS SITE)

SHEET TITLE  
**ELEVATIONS**

SHEET NUMBER  
**A-3**

EXISTING MICROWAVE SCHEDULE					
C.O.R.	AZIMUTH	QUANTITY	ANTENNA MAKE/MODEL	MOUNT TYPE	NOTES
65'-0"	-	1	ANDREW D4G-2-GR	6' PIPE X 4.5"	REMAIN
60'-0"	-	1	COMMSCOPE VHLPX4-11	6' PIPE X 4.5"	REMAIN
50'-0"	61.4°	1	RFS SUX4-107BC	5' PIPE X 4.5"	REMOVE
47'-0"	-	1	ANDREW D4G-2-GR	6' PIPE X 4.5"	REMAIN

**NOTICE**

1. CONTRACTOR SHALL NOT SUBMIT BIDS OR PERFORM CONSTRUCTION WORK ON THIS PROJECT WITHOUT ACCESS TO THE CURRENT COMPLETE SET OF DRAWINGS LISTED IN THE TITLE-SHEET INDEX.

NEW MICROWAVE SCHEDULE				
C.O.R.	AZIMUTH	QUANTITY	ANTENNA MAKE/MODEL	PART NUMBER(S)
50'-0"	61.4°	1 (NEW)	COMMSCOPE 6 FT SENTINEL® ULTRA HIGH PERFORMANCE, SUPER HIGH XPD ANTENNA, DUAL-POLARIZED, 10.000 – 11.700 GHZ	USX6-11W
50'-0"	-	1 (NEW)	SITEPRO1 HEAVY DUTY UNIVERSAL PIPE MOUNT KIT WITH 4-1/2" PIPE	R6

**NOTICE**

1. CONTRACTOR SHALL NOT SUBMIT BIDS OR PERFORM CONSTRUCTION WORK ON THIS PROJECT WITHOUT ACCESS TO THE CURRENT COMPLETE SET OF DRAWINGS LISTED IN THE TITLE-SHEET INDEX.

**GROUNDING NOTE**

1. ALL NEW EQUIPMENT & COAX TO BE GROUNDED PER VERIZON GROUNDED SPECS

**GENERAL ANTENNA NOTES**

- CONTRACTOR TO VERIFY MECHANICAL DOWNTILT WITH FINAL RFDS/RF ENGINEER.
- DUAL POLAR ANTENNAS REQUIRE TWO RUNS OF COAX PER ANTENNA.
- CONTRACTOR TO VERIFY ALL ACTUAL LENGTHS IN FIELD PRIOR TO INSTALLATION AND NOTIFY THE FIELD ENGINEER FOR VERIFICATION OF SIZES OF CABLES.
- CONTRACTOR TO PROVIDE AS BUILT FOR THE LENGTH OF CABLES UPON COMPLETION OF INSTALLATION.
- CONTRACTOR TO PROVIDE FINAL CABLE LENGTHS AND RETURN LOSSES FOR ALL CABLES.
- ALL AZIMUTHS REFERENCE TRUE NORTH. CONSULT REQUIRED QUADRANGLE MAP FOR NECESSARY MAGNETIC DECLINATION.



10000 PARK MEADOWS DRIVE, SUITE 300  
LONE TREE, CO 80124-5453  
(303) 694-3234



**RETFERD ENTERPRISES, INC.**  
EMPOWERING CONNECTIONS

7093 SILVERHORN DRIVE  
EVERGREEN | CO | 80439  
(720) 261-2064

REV	DATE	DESCRIPTION	CHK
1	10/21/24	JURISDICITON COMMENT	AJZ
0	08/26/24	100% FINAL CD	AJZ

**APPROVED FOR CONSTRUCTION**

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

**SITE NAME**  
**CSP BARRETT**

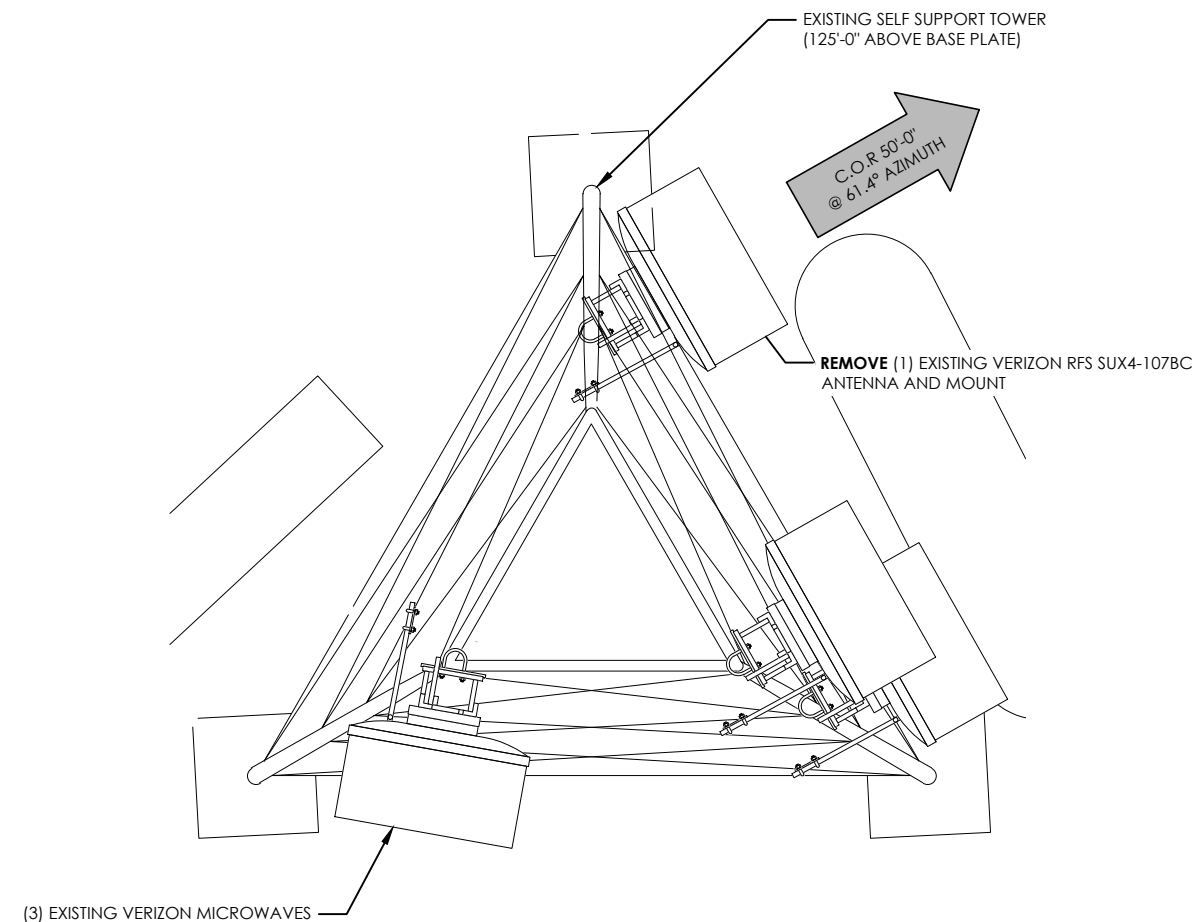
15741 PHANTOM CANYON VIEW  
COLORADO SPRINGS, CO 80926

MW UPGRADE  
(EXISTING COMMUNICATIONS SITE)

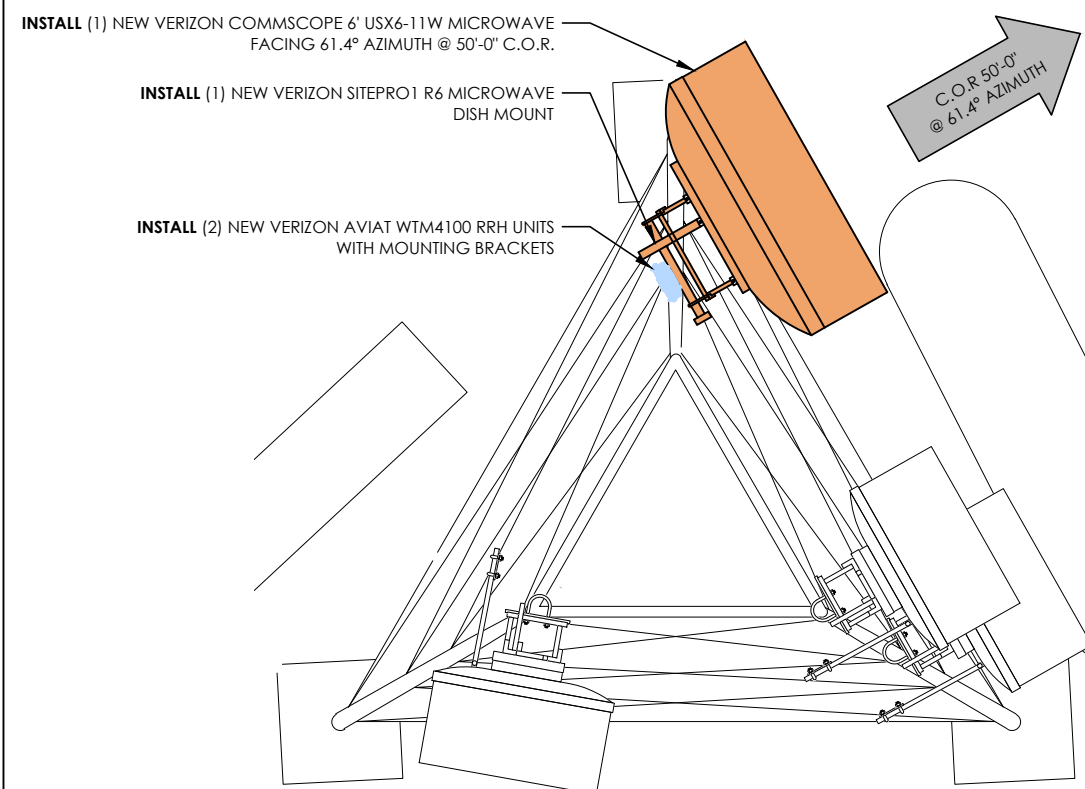
SHEET TITLE  
**EXISTING & NEW MICROWAVE PLANS**

SHEET NUMBER

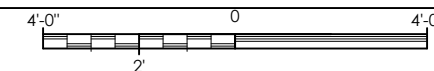
A-4

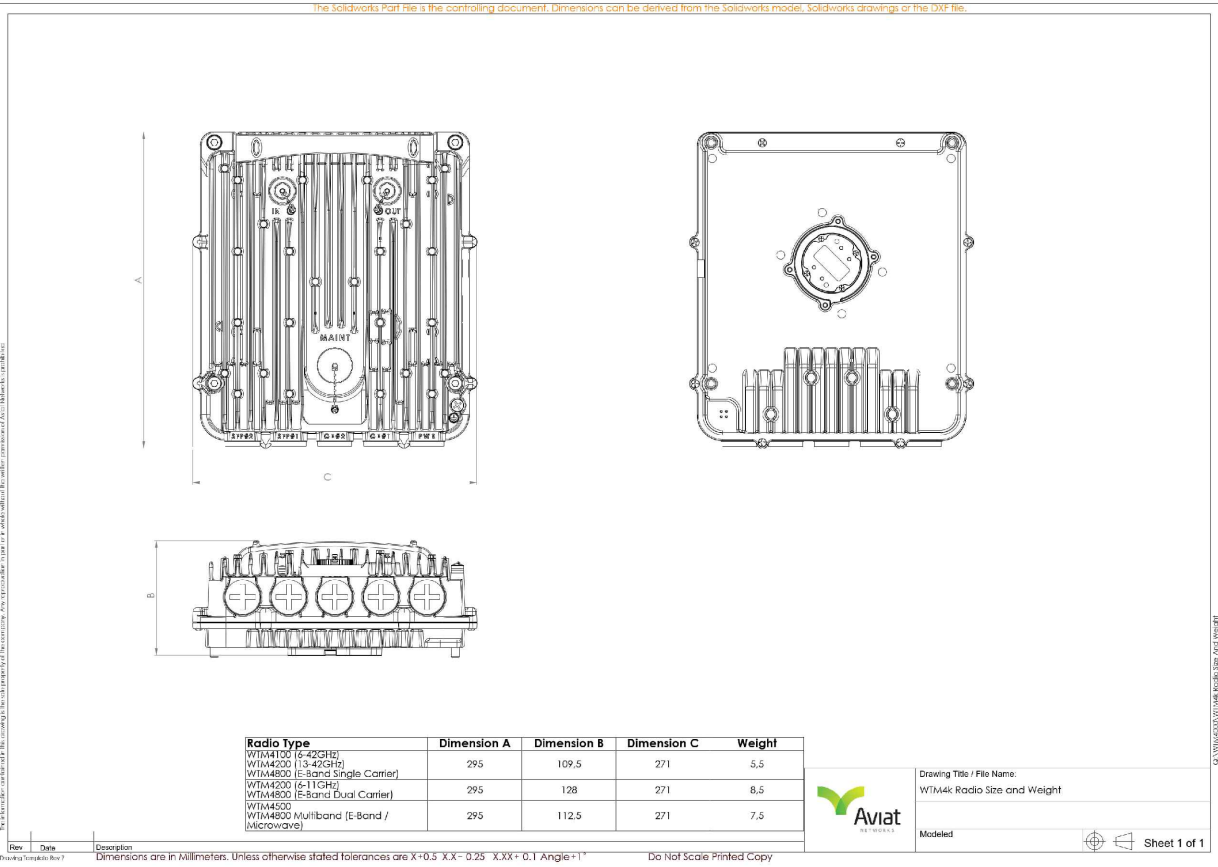


EXISTING MICROWAVE @ 50'-0"



NEW MICROWAVE @ 50'-0"

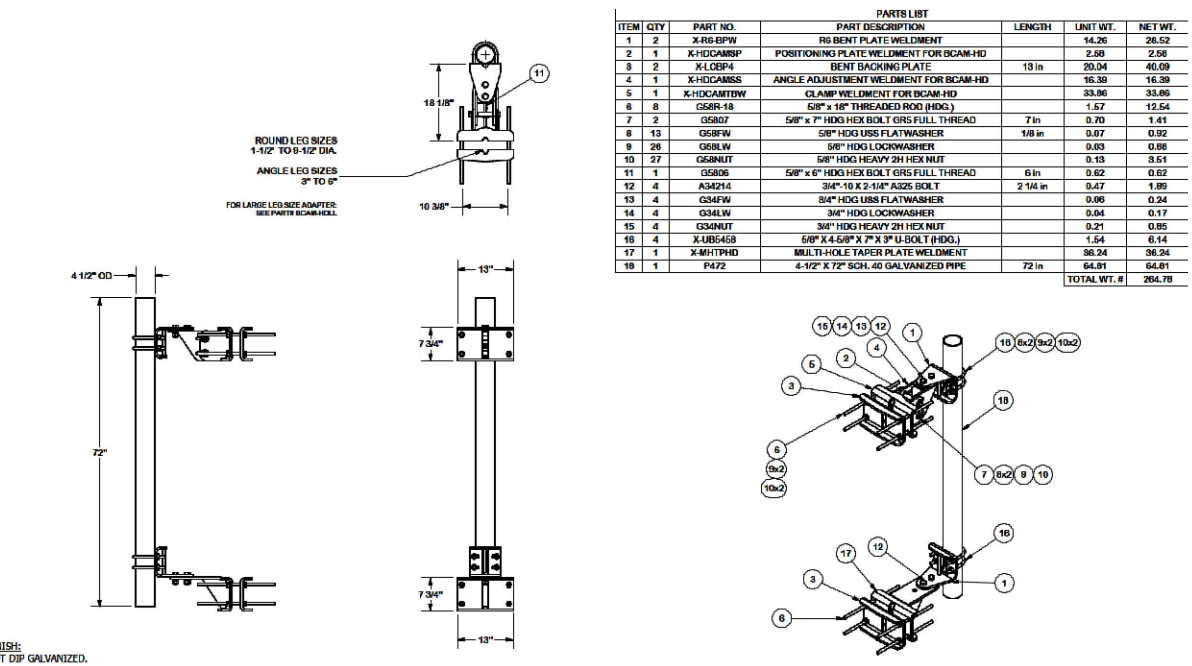




1 AVIAT RWTM4100 RADIO SPECIFICATION  
SCALE: N.T.S.

2 NOT USED  
SCALE: N.T.S.

**NOTE:**  
1. NEW LOADING MEETS REQUIREMENTS IN SITEPRO1 ENGINEERING LETTER FOR R6 MOUNT DATED 07/14/2021 AND IS THEREFORE APPROVED BY THE MANUFACTURER.



3 SITEPRO1 PIPE MOUNT DETAIL  
SCALE: N.T.S.

4 NOT USED  
SCALE: N.T.S.



10000 PARK MEADOWS DRIVE, SUITE 300  
LONE TREE, CO 80124-5453  
(303) 694-3234



**RETFERD ENTERPRISES, INC.**  
EMPOWERING CONNECTIONS  
7093 SILVERHORN DRIVE  
EVERGREEN | CO | 80439  
(720) 261-2064

REV	DATE	DESCRIPTION	CHK
1	10/21/24	JURISDICITON COMMENT	AJZ
0	08/26/24	100% FINAL CD	AJZ

**APPROVED FOR CONSTRUCTION**

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

**SITE NAME**  
**CSP BARRETT**

15741 PHANTOM CANYON VIEW  
COLORADO SPRINGS, CO 80926

MW UPGRADE  
(EXISTING COMMUNICATIONS SITE)

SHEET TITLE

**DETAILS**

SHEET NUMBER

D-1

## USX6-11W

### Base Product



1.8m | 6ft Sentinel® Ultra High Performance, Super High XPD Antenna, dual-polarized, 10.000 – 11.700 GHz

### Product Classification

**Product Type** Microwave antenna  
**Product Brand** Sentinel®

### General Specifications

**Antenna Type** USX - Sentinel® Ultra High Performance, Super High XPD Antenna, dual-polarized  
**Polarization** Dual  
**Side Struts, Included** 1  
**Side Struts, Optional** 1

### Dimensions

**Diameter, nominal** 1.8 m | 6 ft

### Electrical Specifications

**Operating Frequency Band** 10.000 – 11.700 GHz  
**Gain, Low Band** 42.9 dBi  
**Gain, Mid Band** 43.6 dBi  
**Gain, Top Band** 44.3 dBi  
**Bore-site Cross Polarization Discrimination (XPD)** 40 dB  
**Front-to-Back Ratio** 85 dB  
**Beamwidth, Horizontal** 1.1°  
**Beamwidth, Vertical** 1.1°  
**Return Loss** 26 dB  
**VSWR** 1.1  
**Radiation Pattern Envelope Reference (RPE)** 7375 | 7402  
**Electrical Compliance** ACMA FX03\_10a | ACMA FX03\_11a | Canada SRSP 310.5 | Canada SRSP 310.7 Part

## USX6-11W

### Cross Polarization Discrimination (XPD) Electrical Compliance

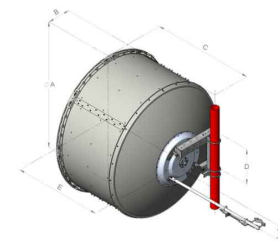
### Mechanical Specifications

**Compatible Mounting Pipe Diameter** 115 mm–120 mm | 4.5 in–4.7 in  
**Fine Azimuth Adjustment Range** ±15°  
**Fine Elevation Adjustment Range** ±5°  
**Wind Speed, operational** 201 km/h | 124.896 mph  
**Wind Speed, survival** 200 km/h | 124.274 mph

A | Canada SRSP 310.7 Part B | ETSI 302.217 Class 4 | US FCC Part 101A  
ETSI EN 302217 XPD Category 3

## USX6-11W

### Antenna Dimensions and Mounting Information



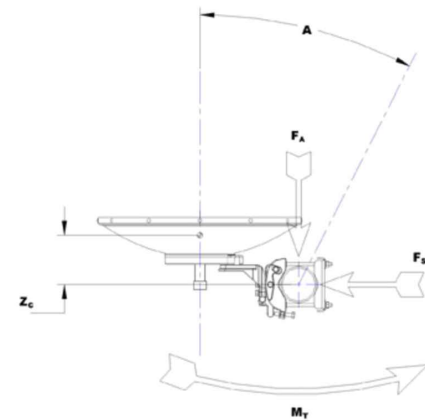
Antenna size ft. (m)	A	B	C	D	E	F
6 (1.8)	24.8 (628)	15.4 (391)	58.8 (1500)	20.3 (516)	11.8 (300)	6.4 (163)

### Wind Forces at Wind Velocity Survival Rating

**Axial Force (FA)** 6960 N | 1,564.671 lbf  
**Angle α for MT Max** -130°  
**Side Force (FS)** 2049 N | 460.634 lbf  
**Twisting Moment (MT)** 4948 N·m | 43,793.488 in·lb  
**Force on Inboard Strut Side** 6187 N | 1,390.893 lbf  
**Zcg without Ice** 498 mm | 19.606 in  
**Zcg with 1/2 in (12 mm) Radial Ice** 689 mm | 27.126 in  
**Weight with 1/2 in (12 mm) Radial Ice** 291 kg | 641.544 lb

## USX6-11W

### Wind Forces at Wind Velocity Survival Rating Image



### Packaging and Weights

**Weight, net** 90 kg | 198.416 lb

### Regulatory Compliance/Certifications

**Agency** ISO 9001:2015  
**Classification** Designed, manufactured and/or distributed under this quality management system

### \* Footnotes

**Operating Frequency Band** Bands correspond with CCIR recommendations or common allocations used throughout the world. Other ranges can be accommodated on special order.

## USX6-11W

### Gain, Mid Band

For a given frequency band, gain is primarily a function of antenna size. The gain of Andrew antennas is determined by either gain by comparison or by computer integration of the measured antenna patterns.

### Bore-site Cross Polarization Discrimination (XPD)

The difference between the peak of the co-polarized main beam and the maximum cross-polarized signal over an angle twice the 3 dB beamwidth of the co-polarized main beam.

### Front-to-Back Ratio

Denotes highest radiation relative to the main beam, at 180° ±40°, across the band. Production antennas do not exceed rated values by more than 2 dB unless stated otherwise.

### Return Loss

The figure that indicates the proportion of radio waves incident upon the antenna that are rejected as a ratio of those that are accepted.

### VSWR

Maximum, is the guaranteed Peak Voltage-Standing-Wave-Ratio within the operating band.

### Radiation Pattern Envelope Reference (RPE)

Radiation patterns define an antenna's ability to discriminate against unwanted signals. Under still dry conditions, production antennas will not have any peak exceeding the current RPE by more than 3dB, maintaining an angular accuracy of +/-1° throughout.

### Cross Polarization Discrimination (XPD) Electrical Compliance

The difference between the peak of the co-polarized main beam and the maximum cross-polarized signal over an angle twice the 3 dB beamwidth of the co-polarized main beam.

### Wind Speed, operational

For VHL P(X), SHP(X), HX and USX antennas, the wind speed where the maximum antenna deflection is 0.3 x the 3 dB beam width of the antenna. For other antennas, it is defined as a deflection is equal to or less than 0.1 degrees.

### Wind Speed, survival

The maximum wind speed the antenna, including mounts and radomes, where applicable, will withstand without permanent deformation. Realignment may be required. This wind speed is applicable to antenna with the specified amount of radial ice.

### Axial Force (FA)

Maximum forces exerted on a supporting structure as a result of wind from the most critical direction for this parameter. The individual maximums specified may not occur simultaneously. All forces are referenced to the mounting pipe.

### Side Force (FS)

Maximum side force exerted on the mounting pipe as a result of wind from the most critical direction for this

## USX6-11W

### Twisting Moment (MT)

parameter. The individual maximums specified may not occur simultaneously. All forces are referenced to the mounting pipe.

Maximum forces exerted on a supporting structure as a result of wind from the most critical direction for this parameter. The individual maximums specified may not occur simultaneously. All forces are referenced to the mounting pipe.



10000 PARK MEADOWS DRIVE, SUITE 300  
LONE TREE, CO 80124-5453  
(303) 694-3234



**RETFERFORD ENTERPRISES, INC.**  
EMPOWERING CONNECTIONS

7093 SILVERHORN DRIVE  
EVERGREEN | CO | 80439  
(720) 261-2064

REV	DATE	DESCRIPTION	CHK
1	10/21/24	JURISDICITON COMMENT	AJZ
0	08/26/24	100% FINAL CD	AJZ

**FOR INFORMATION ONLY**

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

**SITE NAME**  
**CSP BARRETT**

15741 PHANTOM CANYON VIEW  
COLORADO SPRINGS, CO 80926

MW UPGRADE  
(EXISTING COMMUNICATIONS SITE)

SHEET TITLE  
**MICROWAVE SPECIFICATIONS**

SHEET NUMBER

D-2





10000 PARK MEADOWS DRIVE, SUITE 300  
LONE TREE, CO 80124-5453  
(303) 694-3234



**RETFERFORD ENTERPRISES, INC.**  
EMPOWERING CONNECTIONS  
7093 SILVERHORN DRIVE  
EVERGREEN | CO | 80439  
(720) 261-2064

REV	DATE	DESCRIPTION	CHK
1	10/21/24	JURISDICITON COMMENT	AJZ
0	08/26/24	100% FINAL CD	AJZ

**FOR INFORMATION ONLY**

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

**SITE NAME  
CSP BARRETT**

15741 PHANTOM CANYON VIEW  
COLORADO SPRINGS, CO 80926

MW UPGRADE  
(EXISTING COMMUNICATIONS SITE)

SHEET TITLE  
**HYBRID CABLE SPECIFICATIONS**

SHEET NUMBER

D-3

