

T-Mobile®
stick together®

WHITE SPRINGS

26972 NORTH US HIGHWAY 441
WHITE SPRINGS, FLORIDA 32096
(COLUMBIA COUNTY)

9JK1918A

NEXTOWER NAME/SITE#: SW HWY 47 / NXFL-171

MICROWAVE PROJECT

PROPOSED MODIFICATION TO EXISTING T-MOBILE ANTENNAS ON A 250' SELF-SUPPORT TOWER

[illegible]

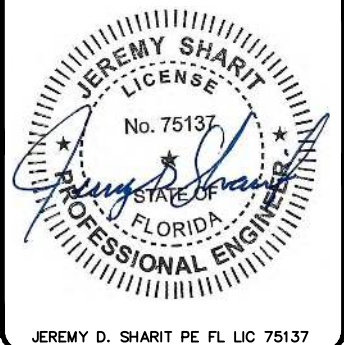
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12979 N TELECOM PARKWAY
TEMPLE TERRACE, FLORIDA 33637
(813) 615-1422
CERTIFICATE OF AUTHORIZATION 33693

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7025 A.C. SKINNER PARKWAY
JACKSONVILLE, FL 32256



WHITE SPRINGS

9JK1918A

26972 NORTH US HIGHWAY 441
WHITE SPRINGS, FLORIDA 32096
(COLUMBIA COUNTY)

SHEET NAME

TITLE SHEET

SHEET NUMBER

T1

LOCAL MAP



PROPERTY SUMMARY

PARCEL NUMBER
23-2N-16-01466-000

PROPERTY OWNER

MILLIGAN PAIGE CARTER
363 SW DEANNA TEP
LAKE CITY, FLORIDA

LATITUDE

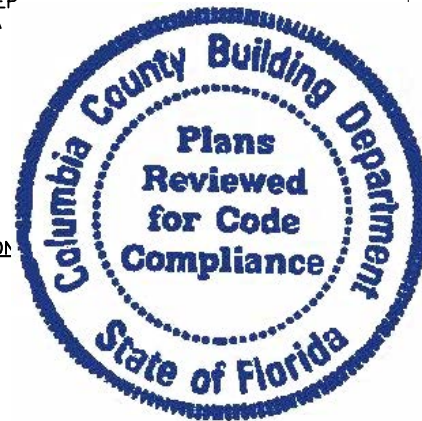
30.56895500° N

LONGITUDE

-82.68100800° W

ZONING JURISDICTION

COLUMBIA COUNTY



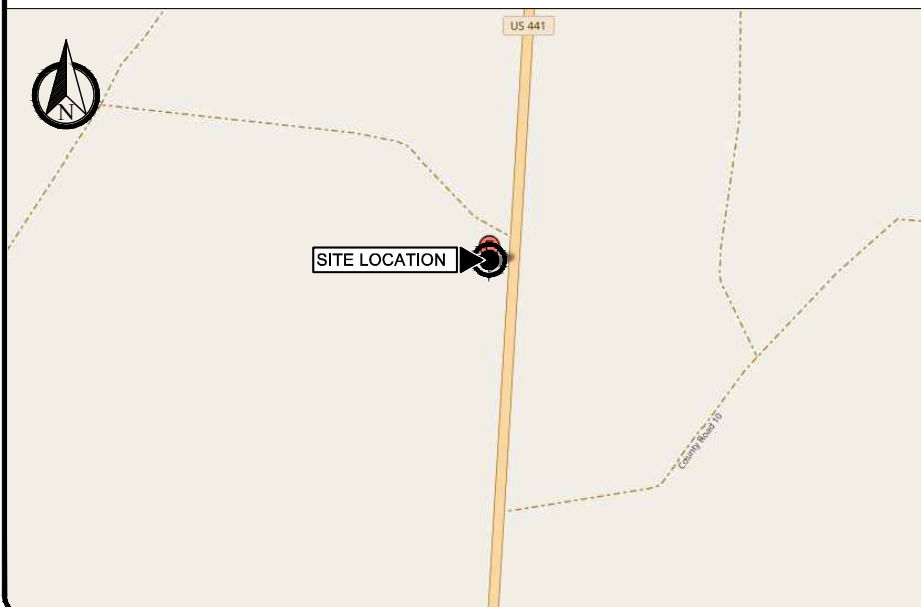
PROJECT DESCRIPTION

1. THE WIRELESS COMMUNICATIONS FACILITY IS NOT INTENDED FOR HUMAN OCCUPANCY.
2. THIS FACILITY DOES NOT REQUIRE POTABLE WATER AND WILL NOT PRODUCE ANY SEWAGE.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. THE SCOPE OF WORK CONSISTS OF MODIFYING THE EXISTING WIRELESS INSTALLATION:
 - REMOVAL OF (1) MW COAX CABLE
 - REMOVAL OF (1) ODU RADIO
 - INSTALLATION OF (2) NEW RADIO
 - INSTALLATION OF (1) NEW 1/2" COAX
 - INSTALLATION OF (1) NEW 55MM FIBER CABLE

INDEX OF DRAWINGS

[illegible]

VICINITY MAP



DESIGN CRITERIA

DESIGN WIND SPEED: 115 MPH (ULTIMATE 3-SEC GUST)
EXPOSURE CATEGORY: C
RISK CATEGORY: II
OPEN STRUCTURE

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. FLORIDA BUILDING CODE, 8TH EDITION (2023)
2. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70, NATIONAL ELECTRICAL CODE, 2017 EDITION.
3. TIA-222-H AND APPLICABLE STANDARDS.
4. LIFE SAFETY CODE NFPA-101-2021.
5. FLORIDA FIRE PREVENTION CODE, 7TH EDITION.
6. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) 360-10 AND 341-10.
7. UNDERWRITERS LABORATORIES (U.L.) APPROVED ELECTRICAL PRODUCTS.
8. LOCAL JURISDICTIONAL REQUIREMENTS.
9. CITY/COUNTY ORDINANCES.

CONTACTS

T-MOBILE SOUTH LLC
7025 A.C. SKINNER PARKWAY
JACKSONVILLE, FL 32256

SMW ENGINEERING GROUP, INC. PROJECT MANAGER

DARREN REVELS (813) 503-0218

<div>1. FOR THE PURPOSES OF THESE CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:</div> <div><div>OWNER – T–MOBILE SOUTH LLC</div><div>ENGINEER – SMW ENGINEERING GROUP, INC.</div><div>CONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)</div></div> <div>2. PRIOR TO SUBMITTING HIS BID, THE CONTRACTOR SHALL VISIT THE JOB SITE IN ORDER TO (1) VERIFY ALL EXISTING CONDITIONS, (2) CONFIRM WHETHER ALL DIMENSIONS ARE AS SHOWN ON THE PLANS AND (3) CONFIRM WHETHER THE WORK MAY BE ACCOMPLISHED AS SHOWN. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER.</div> <div>3. A 20–FOOT HORIZONTAL CLEARANCE DISTANCE SHALL BE MAINTAINED FROM ALL EXISTING POWER LINES.</div> <div>4. THE CONTRACTOR’S USE OF A CONSTRUCTION STAGING AREA SHALL BE COORDINATED WITH THE OWNER WELL IN ADVANCE OF THE CONSTRUCTION START DATE.</div> <div>5. LABOR, MATERIAL, TOOLS, EQUIPMENT, TRANSPORTATION AND TEMPORARY POWER SERVICES NECESSARY FOR AND INCIDENTAL TO COMPLETION OF ALL WORK SHALL BE PROVIDED AS INDICATED ON THE DRAWINGS AND/OR AS SPECIFIED HEREIN. LABOR AND MATERIALS SHALL BE FURNISHED AS REQUIRED FOR COMPLETE SYSTEMS, INCLUDING ALL ELEMENTS OBVIOUSLY OR REASONABLY INCIDENTAL TO A COMPLETE INSTALLATION, WHETHER OR NOT SPECIFICALLY INDICATED ON THE PLANS.</div> <div>6. FOR TASKS REQUIRED TO BE PERFORMED BUT NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOT START WORK ON SUCH TASKS WITHOUT HAVING RECEIVED WRITTEN AUTHORIZATION FROM THE CONSTRUCTION MANAGER TO PROCEED.</div> <div>7. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND EQUIPMENT UNLESS OTHERWISE INDICATED BY DIMENSIONS OR DETAILS. EXACT EQUIPMENT LOCATIONS MAY BE MODIFIED AS REQUIRED BY ACTUAL FIELD CONDITIONS. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE ENGINEER AND THE CONSTRUCTION MANAGER.</div> <div>8. THE CONTRACTOR SHALL OBTAIN, PAY FOR AND DELIVER ALL REQUIRED PERMITS, CERTIFICATES OF INSPECTION, INCLUDING UTILITY CONNECTION FEES, ETC., REQUIRED BY THE AUTHORITIES HAVING JURISDICTION AND SHALL DELIVER SUCH DOCUMENTS TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF THE WORK.</div> <div>9. THE CONTRACTOR’S OPERATIONS SHALL BE CONFINED TO AREAS OF NEW CONSTRUCTION.</div> <div>10. ALL NECESSARY PROVISIONS SHALL BE MADE TO PROTECT EXISTING IMPROVEMENTS, LANDSCAPING, PAVING, CURBS, GALVANIZED SURFACES, ETC, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO SAME RESULTING FROM THE CONSTRUCTION WORK. ALL DISTURBED AND DAMAGED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR BETTER UPON COMPLETION OF ALL WORK TO THE SATISFACTION OF THE CONSTRUCTION MANAGER.</div> <div>11. THE FOLLOWING CLEANUP TASKS SHALL BE PERFORMED AS FOLLOWS: (1) ON A DAILY BASIS, KEEP THE GENERAL AREA CLEAN AND HAZARD FREE, REMOVING ALL WASTE, DEBRIS AND TRASH FROM THE SITE AND DISPOSING OF SAME IN A LEGAL MANNER. (2) UPON COMPLETION, LEAVE THE PREMISES IN A CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.</div> <div>12. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER’S RECOMMENDATIONS EXCEPT WHERE IT IS SPECIFICALLY INDICATED OTHERWISE IN THE CONTRACT DOCUMENTS OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.</div> <div>13. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY HAVING JURISDICTION OVER THE PERFORMANCE OF THE WORK. MECHANICAL AND ELECTRICAL SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AS WELL AS LOCAL AND STATE CODES, ORDINANCES AND APPLICABLE REGULATIONS.</div> <div>14. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AT ALL TIMES, USING THE BEST SKILLS AND ATTENTION. HE SHALL BE SOLELY RESPONSIBLE FOR ALL OF THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK, INCLUDING CONTACT AND COORDINATION WITH THE CONSTRUCTION MANAGER AND WITH THE OWNER’S AUTHORIZED REPRESENTATIVE.</div> <div>15. WITHIN TEN (10) WORKING DAYS AFTER PROJECT COMPLETION, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF AS–BUILT DRAWINGS, SWEEP TEST, CYLINDER TESTS, LIEN RELEASES, AND OTHER CLOSEOUT DOCUMENTATION AS REQUIRED BY THE OWNER. ALL SYSTEMS SHALL BE COMPLETELY ASSEMBLED, TESTED, ADJUSTED AND DEMONSTRATED TO BE READY FOR OPERATION PRIOR TO THE OWNER’S ACCEPTANCE.</div>		<div>1. THE APPROPRIATE UTILITY LOCATING SERVICES SHALL BE CONTACTED PRIOR TO THE START OF CONSTRUCTION IN ORDER TO VERIFY THE EXACT LOCATION OF ALL EXISTING UNDERGROUND UTILITIES.</div> <div>2. THE INSTALLATION OF NEW UTILITIES SHALL BE COORDINATED WITH LOCAL AUTHORITIES.</div> <div>3. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SUCH UTILITIES SHALL BE RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER. EXTREME CAUTION SHALL BE USED WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES.</div> <div>4. RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.</div> <div>5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES THAT INTERFERE WITH THE EXECUTION OF THE WORK SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS THAT WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF THE LANDLORD AND/OR LOCAL UTILITIES.</div> <div>6. DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION SHALL BE MINIMIZED.</div> <div>7. ANY AREAS OF THE CONSTRUCTION SITE DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE. SUCH GRADING SHALL CAUSE SURFACE WATER TO FLOW AWAY FROM ANY EQUIPMENT SHELTER AND TOWER AREAS AND THE SOIL SHALL BE STABILIZED TO PREVENT EROSION. EROSION CONTROL MEASURES,IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.</div> <div>8. THE SUB–GRADE SHALL BE COMPACTED AND BROUGHT TO A UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.</div> <div>9. BACKFILL SHALL CONSIST OF CLEAN SAND FILL APPROVED FOR USE BY THE ENGINEER. NO UNAPPROVED MATERIAL WILL BE ALLOWED. CLEAN SAND FILL SHALL BE FREE OF ALL ROOTS, BOULDERS, OR OTHER DELETERIOUS MATERIAL.</div> <div>10. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO EQUAL TO OR BETTER CONDITION THAN ORIGINAL.</div> <div>11. SITE SIGNAGE SHALL BE PROVIDED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS FOR SUCH SIGNAGE AS MAY BE CONTAINED IN THESE DRAWINGS.</div>	
SITE WORK NOTES		2	
<div>1. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE LATEST EDITION OF THE AISC "STEEL CONSTRUCTION MANUAL".</div> <div>2. MATERIAL:<div>A. ALL STRUCTURAL STEEL WF BEAMS SHALL BE ASTM A992 AND "HOT DIPPED" GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STANDARDS.</div><div>B. ALL STRUCTURAL PLATES, ANGLES, AND CHANNELS SHALL BE ASTM A36 AND "HOT DIPPED" GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STANDARDS, UNLESS NOTED OTHERWISE.</div><div>C. ALL HSS/TS MEMBERS SHALL BE ASTM A500 GRADE B (Fy=46ksi), AND "HOT DIPPED" GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STANDARDS.</div><div>D. ALL STRUCTURAL PIPE MEMBERS SHALL BE ASTM A500 GRADE B (Fy=42ksi), AND "HOT DIPPED" GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STANDARDS, UNLESS NOTED OTHERWISE</div><div>E. ALL NON–STRUCTURAL PIPE MEMBERS SHALL BE ASTM A53 GRADE B, AND "HOT DIPPED" GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STANDARDS.</div></div> <div>3. DESIGN, FABRICATION, AND CONSTRUCTION OF ALL CONNECTIONS SHALL CONFORM TO AISC STEEL CONSTRUCTION MANUAL.</div> <div>4. WELDING:<div>A. ALL WELDS, WELDERS, AND WELD INSPECTIONS SHALL CONFORM TO THE REQUIREMENTS OF AWS D 1.1, LATEST REVISION.</div><div>B. ALL WELDS SHALL BE MADE WITH E70XX LOW HYDROGEN ELECTRODES.</div><div>C. ALL STEEL SHALL BE SPRAY GALVANIZED AFTER WELDING.</div></div> <div>5. ALL BOLTS SHALL BE GALVANIZED ¾" DIAMETER, A325–N, UNLESS NOTED OTHERWISE AND TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC. SECURE NUT WITH LOCKING WASHER.</div> <div>6. THE CONTRACTOR/STEEL FABRICATOR SHALL LOCATE ANY REINFORCEMENT IN THE STRUCTURAL MEMBERS IN SUCH A MANNER SO THAT THERE WILL NOT BE CONFLICT WITH THE REINFORCEMENT WHEN INSTALLING ANCHORS. THE ANCHORS SHALL BE INSTALLED PER THE MANUFACTURER’S INSTRUCTION.</div> <div>7. THE CONTRACTOR/STEEL FABRICATOR SHALL CONFORM TO THE MINIMUM EDGE DISTANCE REQUIREMENTS IN ACCORDANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION.</div> <div>8. ALL STRUCTURAL STEEL SHALL BE FABRICATED TO FIT AT BOLTED CONNECTIONS WITHIN 1/16 INCH TOLERANCE. STRUCTURAL STEEL SHALL NOT BE FLAME CUT UNDER ANY CIRCUMSTANCES WITHOUT APPROVAL OF THE ENGINEER.</div> <div>9. THE CONTRACTOR/STEEL FABRICATOR SHALL CAP OR SEAL ALL PIPES AS REQUIRED TO PREVENT WATER INTRUSION.</div> <div>10. THE CONTRACTOR/STEEL FABRICATOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO ANY STEEL FABRICATION. AT THE CONTRACTOR’S OPTION, FIELD SPLICES MAY BE USED FOR ERECTION PURPOSES. IF FIELD SPLICES ARE USED, THE SHOP DRAWINGS SHALL INCLUDE ALL DETAILS FOR THE PROPOSED FIELD SPLICES.</div> <div>11. AT THE CONTRACTOR’S OPTION, SHOP WELDS MAY BE USED INSTEAD OF FIELD WELDS.</div> <div>12. SUBMIT ORIGINAL SHOP DRAWINGS, INCLUDING COMPLETE DETAILS, SCHEDULES OF FABRICATION AND ASSEMBLY, PROCEDURES, AND DIAGRAMS. INCLUDE DETAILS OF CUTS, CONNECTIONS, CAMBER, HOLE, AND OTHER PERTINENT DATA. INDICATE WELDS BY STANDARD AWS A2.1 AND A2.4 SYMBOLS, AND SHOW SIZE, LENGTH, AND TYPE OF WELD. PROVIDE SETTING DRAWINGS, TEMPLATES, AND DIRECTIONS FOR INSTALLATION OF ANCHOR BOLTS AND OTHER ANCHORAGES TO BE INSTALLED AS WORK OF OTHERS’ SECTIONS.</div>			
GENERAL NOTES	1	STRUCTURAL STEEL NOTES	3

REV	DATE	DESCRIPTION
A	01/02/24	PRELIM PLANS
0	02/05/24	CONSTRUCTION
PROJECT NO.:		17–5641.1
DRAWN BY:		RA
PROJECT MANAGER:		D. REVELS
CHECKED BY:		D. REVELS

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12979 N. TELECOM PARKWAY
TEMPLE TERRACE, FLORIDA 33637
(813) 615–1422

CERTIFICATE OF AUTHORIZATION 33693



7025 A.C. SKINNER PARKWAY
JACKSONVILLE, FL 32256

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JEREMY D. SHARIT PE FL LIC 75137

WHITE SPRINGS

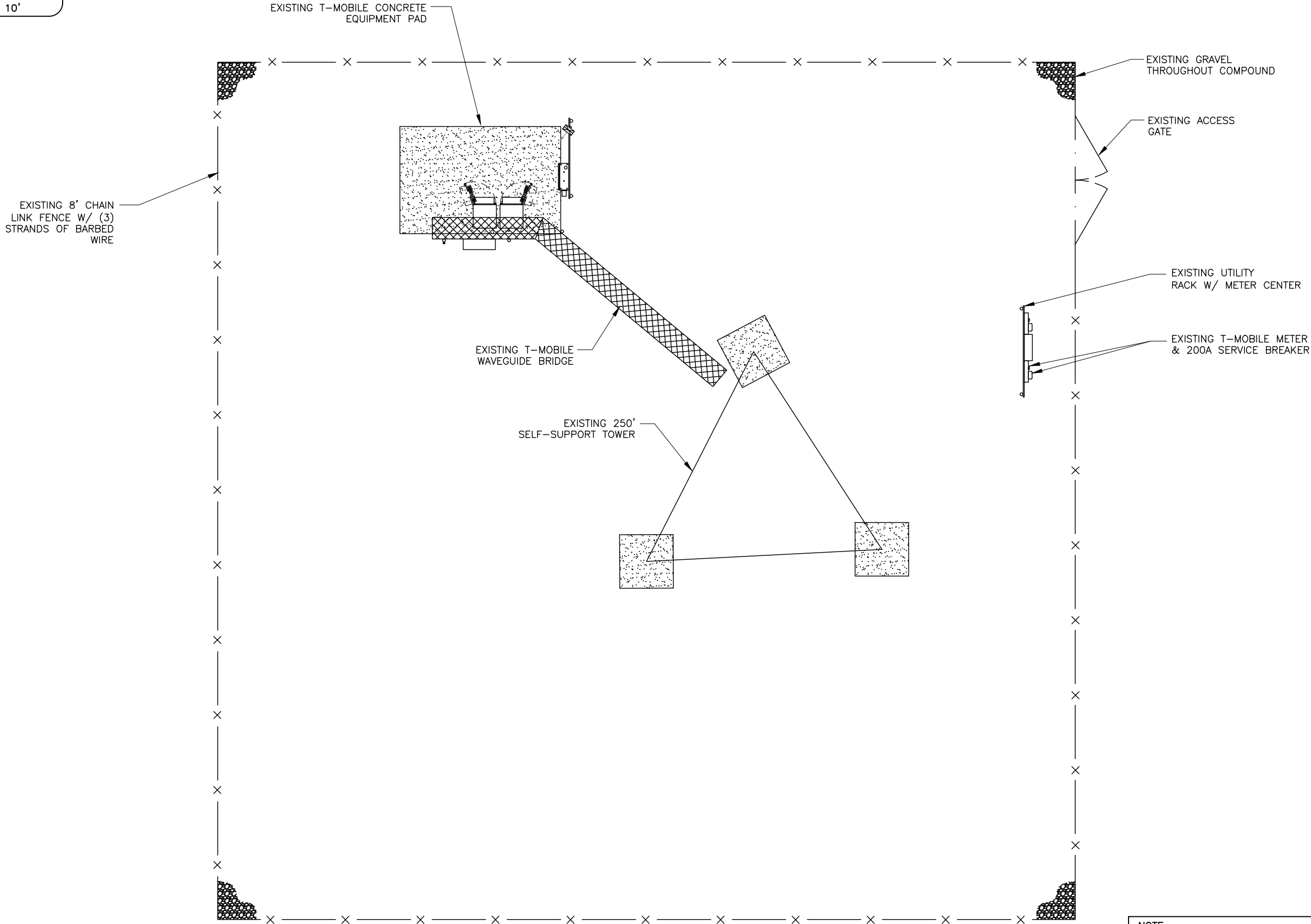
9JK1918A

26972 NORTH US HIGHWAY 441
WHITE SPRINGS, FLORIDA 32096
(COLUMBIA COUNTY)

SHEET NAME
NOTES
SHEET NUMBER
T2

10'0'5'10'

FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 1" = 5'
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 1" = 10'



NOTE:
SITE WAS NOT WALKED BY SMW
ENGINEERING GROUP, INC. ALL
INFORMATION SHOWN ON COMPOUND
DETAIL REFLECTS DATA PROVIDED TO
SMW ENGINEERING GROUP, INC. BY
T-MOBILE.

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SMW

ENGINEERING GROUP, INC.

TOGETHER PLANNING A BETTER TOMORROW

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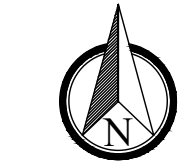
26972 NORTH US HIGHWAY 441
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(COLUMBIA COUNTY)

SHEET NAME

COMPOUND DETAIL

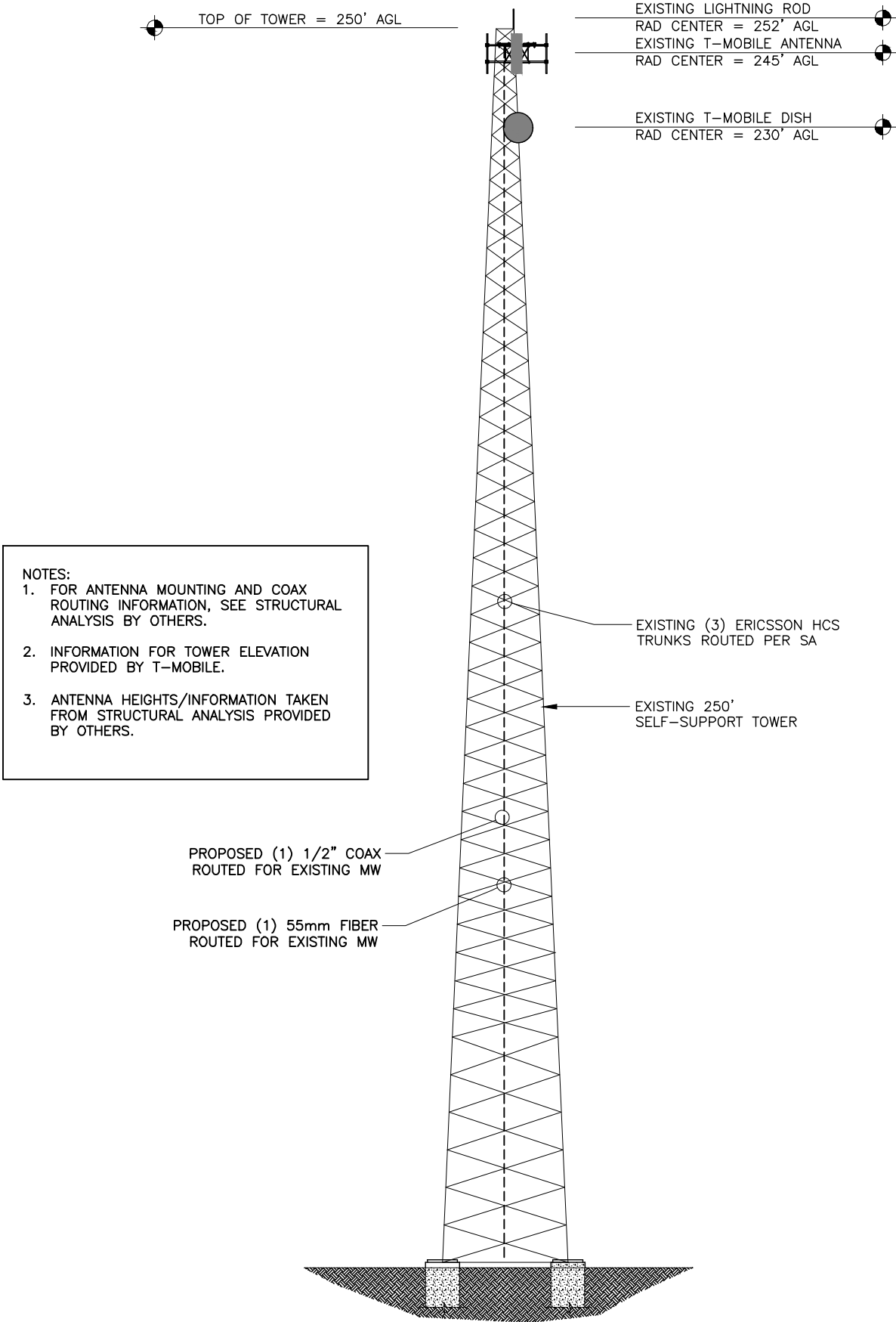
SHEET NUMBER

C1



30'0'15'30'

FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 1" = 15'
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 1" = 30'



- NOTES:
1. FOR ANTENNA MOUNTING AND COAX ROUTING INFORMATION, SEE STRUCTURAL ANALYSIS BY OTHERS.
2. INFORMATION FOR TOWER ELEVATION PROVIDED BY T-MOBILE.
3. ANTENNA HEIGHTS/INFORMATION TAKEN FROM STRUCTURAL ANALYSIS PROVIDED BY OTHERS.

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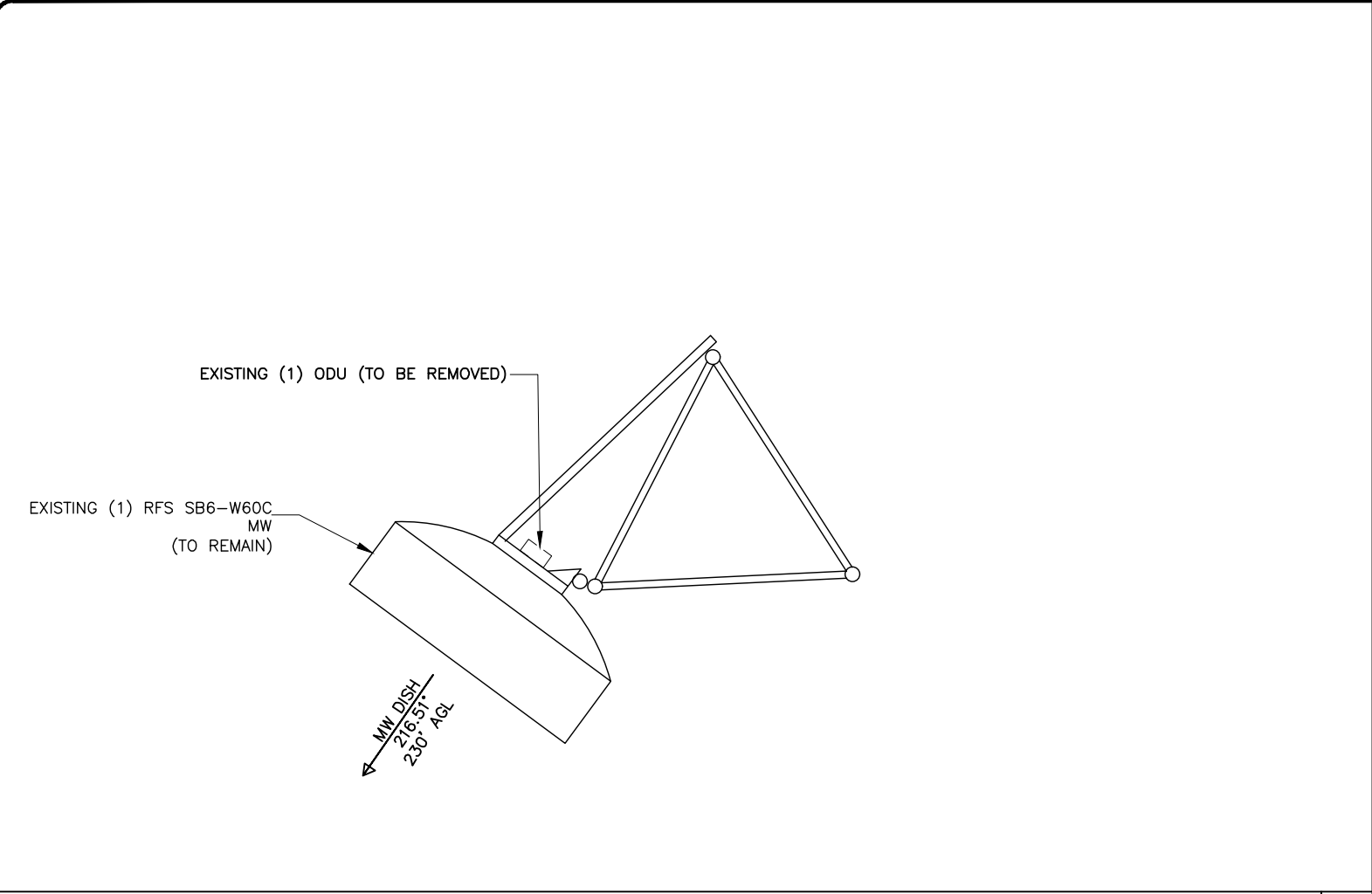
26972 NORTH US HIGHWAY 441
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SHEET NAME

TOWER ELEVATION

SHEET NUMBER

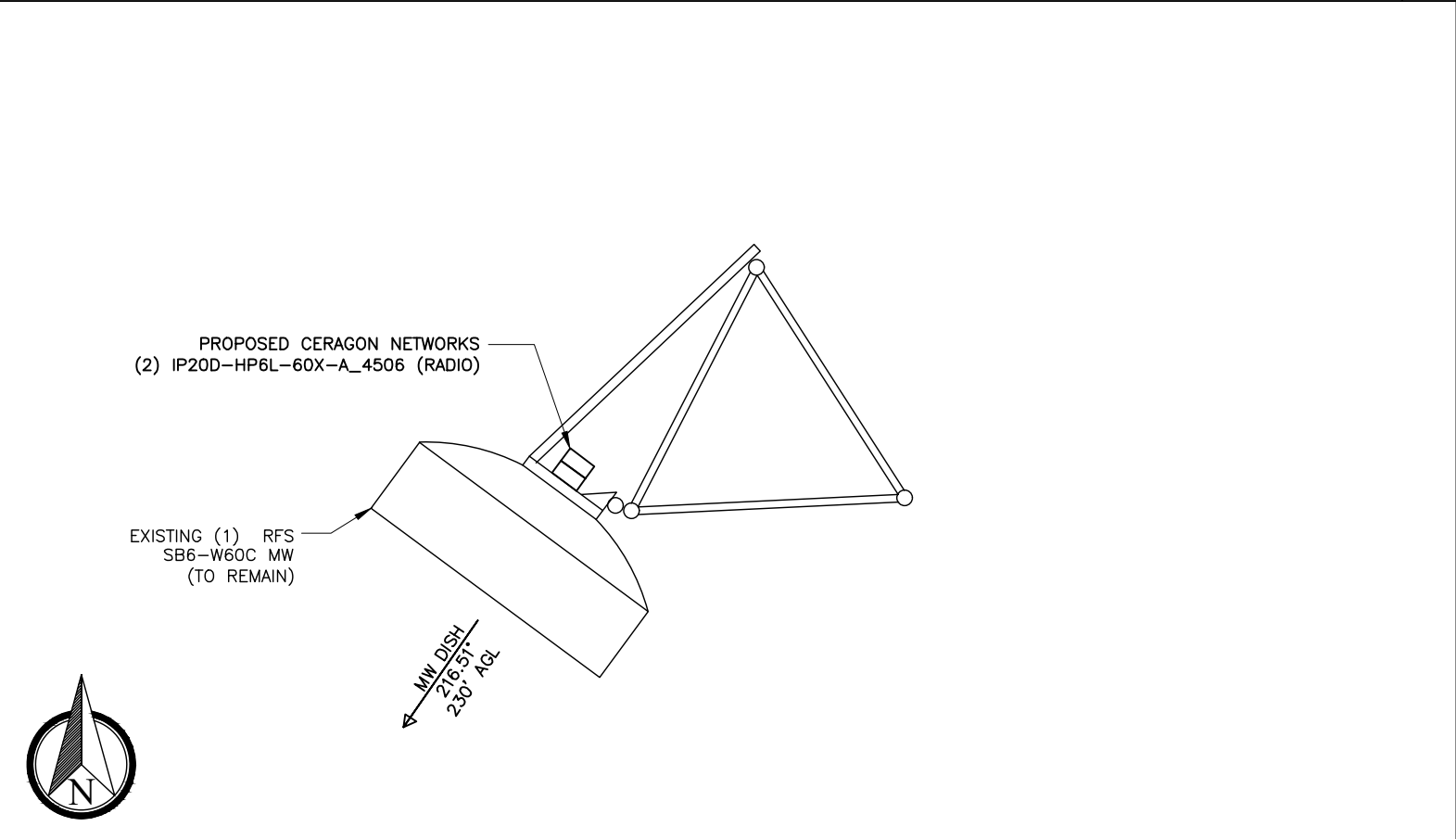
C2



EXISTING MW LAYOUT (RAD 230')

NOT TO SCALE

1



PROPOSED MW LAYOUT (RAD 230')

NOT TO SCALE

2

ANTENNA INFORMATION

EXISTING T-MOBILE TOWER INVENTORY AT 245'	
# OF EXISTING ANTENNAS:	(3) FFVW-65C-R3 V1 (NO CHANGES)
# OF EXISTING RRUS:	(3) 4480 RRUS (NO CHANGES)
# OF EXISTING CABLES:	(3) 1.996" HYBRID CABLE (NO CHANGES)

EXISTING T-MOBILE TOWER INVENTORY AT 230'	
# OF EXISTING ANTENNAS:	RFS SB6-W60C MW (TO REMAIN)
# OF EXISTING RRUS:	(1) ODU (TO BE REMOVED)
# OF EXISTING CABLES:	(1) COAX CABLE (TO BE REMOVED)

PROPOSED T-MOBILE TOWER INVENTORY AT 230'	
# OF ANTENNAS:	RFS SB6-W60C MW (EXISTING)
# OF RRUS:	(2) CERAGON IP20 RADIOS
# OF CABLES:	(1) 1/2" COAX CABLE (1) 55MM FIBER CABLE

REV	DATE	DESCRIPTION
A	01/02/24	PRELIM PLANS
O	02/05/24	CONSTRUCTION
PROJECT NO.:		17-5641.1
DRAWN BY:		RA
PROJECT MANAGER:		D. REVELS
CHECKED BY:		D. REVELS

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(COLUMBIA COUNTY)

SHEET NAME

ANTENNA LAYOUT
& ANTENNA
INFORMATION

SHEET NUMBER

C3

Transmission details		
SITE ID:	9JK0088A	9JK1918A
CLUSTER_ID:	9JK0088A	9JK0088A
CALL_SIGN:	WRAP547	WRAP545
ASR #:	1001548	1301983
AAV_CONTRACT_ID:	WST185-	TMW01
AAV_CONTRACT_STATUS:	Selected	Selected
Ethernet Installed:	Ethernet	Ethernet
Latitude:	30-22- 2.8 N	30-34- 8.2 N
Longitude:	82-51-10.5 W	82-40-51.6 W
Azimuth (deg):	36.42 Deg	216.51 Deg
Vertical angle (deg):	0.10 Down	0.09 Down
Elevation:	122.05 ft	125.00 ft
Antenna model:	SB6-W60C	SB6-W60C
Antenna manufacturer:	RFS	RFS
Antenna Id:	109	109
Antenna gain (dBi):	39.40 dBi	39.40 dBi
Antenna diameter:	5.91 ft	5.91 ft
Antenna CL:	239.99 ft AGL	229.99 ft AGL
Diversity Antenna model:		
Diversity Antenna manufacturer:		
Diversity Antenna Id:		
Diversity Antenna gain (dBi):		
Diversity Antenna diameter:		
Diversity Antenna CL:		
Branch Loss Tx/Rx (dB):	1.60/1.60	1.60/1.60
Attenuator Common/Tx/Rx (dB):	0.00 0.00 0.00	0.00 0.00 0.00
Waveguide #1 Model, Len, Loss(dB):		
Waveguide #2 Model, Len, Loss(dB):		
Waveguide #3 Model, Len, Loss(dB):		
Total Waveguide Loss (dB):		
Other Losses (dB):	0.00	0.00
Frequency (GHz):	6.10 GHz	
Path length:	17.26 mi	
Free space loss (dB):	137.03 dB	
Atmospheric absorption loss (dB):	0.25 dB	
Obstruction Loss (dB):	0.00 dB (oLOS)	
Field margin (dB):	1.00 dB	
Net path loss (dB):	61.08 dB	61.08 dB
Configuration:	2+0/DP/DM/OMT	2+0/DP/DM/OMT
Radio model:	IP20D-HP6L-60X-A_4506	IP20D-HP6L-60X-A_4506
Radio manufacturer:	Ceragon Networks	Ceragon Networks
Radio Id:	756	756
Frequency Plan: Frequency (MHz):	Low: N/A	High: N/A
Polarization:	N/A	N/A
Emission designator:	60M0D7W	60M0D7W
Climatic factor:	1.00	
Terrain roughness factor:	4.00	
Average annual temperature:	68.26 degF	
Design Path Polarity:	Vertical	
Rain region:	Jacksonville, Florida	
0.01% Rain Rate:	72.9 mm/hr	

Modulation / Throughput	Tx Power A/B (dBm)		EIRP A/B (dBm)		Receive Signal A/B (dBm)		Composite Fade Margin A/B (dB)		Radio Threshold/ ACM Drop Level A/B (dBm)	
BPSK 49.00 Mbps	38.00	38.00	75.80	75.80	-23.68	-23.68	63.82	63.82	-88.50	-88.50
4QAM 103.00 Mbps	37.00	37.00	74.80	74.80	-24.68	-24.68	56.12	56.12	-81.80	-81.80
8QAM 152.00 Mbps	37.00	37.00	74.80	74.80	-24.68	-24.68	52.32	52.32	-78.00	-78.00
16QAM 212.00 Mbps	37.00	37.00	74.80	74.80	-24.68	-24.68	49.12	49.12	-74.80	-74.80
32QAM 280.00 Mbps	37.00	37.00	74.80	74.80	-24.68	-24.68	45.82	45.82	-71.50	-71.50
64QAM 344.00 Mbps	36.00	36.00	73.80	73.80	-25.68	-25.68	41.72	41.72	-68.40	-68.40
128QAM 417.00 Mbps	36.00	36.00	73.80	73.80	-25.68	-25.68	38.92	38.92	-65.60	-65.60
256QAM 481.00 Mbps	35.00	35.00	72.80	72.80	-26.68	-26.68	34.72	34.72	-62.40	-62.40
512QAM 518.00 Mbps	34.00	34.00	71.80	71.80	-27.68	-27.68	31.22	31.22	-59.90	-59.90
1KLQAM 564.00 Mbps	33.00	33.00	70.80	70.80	-28.68	-28.68	26.92	26.92	-56.60	-56.60
1KHQAM 599.00 Mbps	33.00	33.00	70.80	70.80	-28.68	-28.68	26.12	26.12	-55.80	-55.80
2KQAM 649.00 Mbps	33.00	33.00	70.80	70.80	-28.68	-28.68	23.82	23.82	-53.50	-53.50
4KQAM 668.00 Mbps	31.00	31.00	68.80	68.80	-30.68	-30.68	18.02	18.02	-49.70	-49.70

REV	DATE	DESCRIPTION
A	01/02/24	PRELIM PLANS
0	02/05/24	CONSTRUCTION

PROJECT NO.: 17-5641.1	
DRAWN BY:	RA
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

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12979 N. TELECOM PARKWAY
TEMPLE TERRACE, FLORIDA 33637
(813) 615-1422

CERTIFICATE OF AUTHORIZATION 33693



7025 A.C. SKINNER PARKWAY
JACKSONVILLE, FL 32256

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JEREMY D. SHARIT PE FL LIC 75137

WHITE SPRINGS

9JK1918A

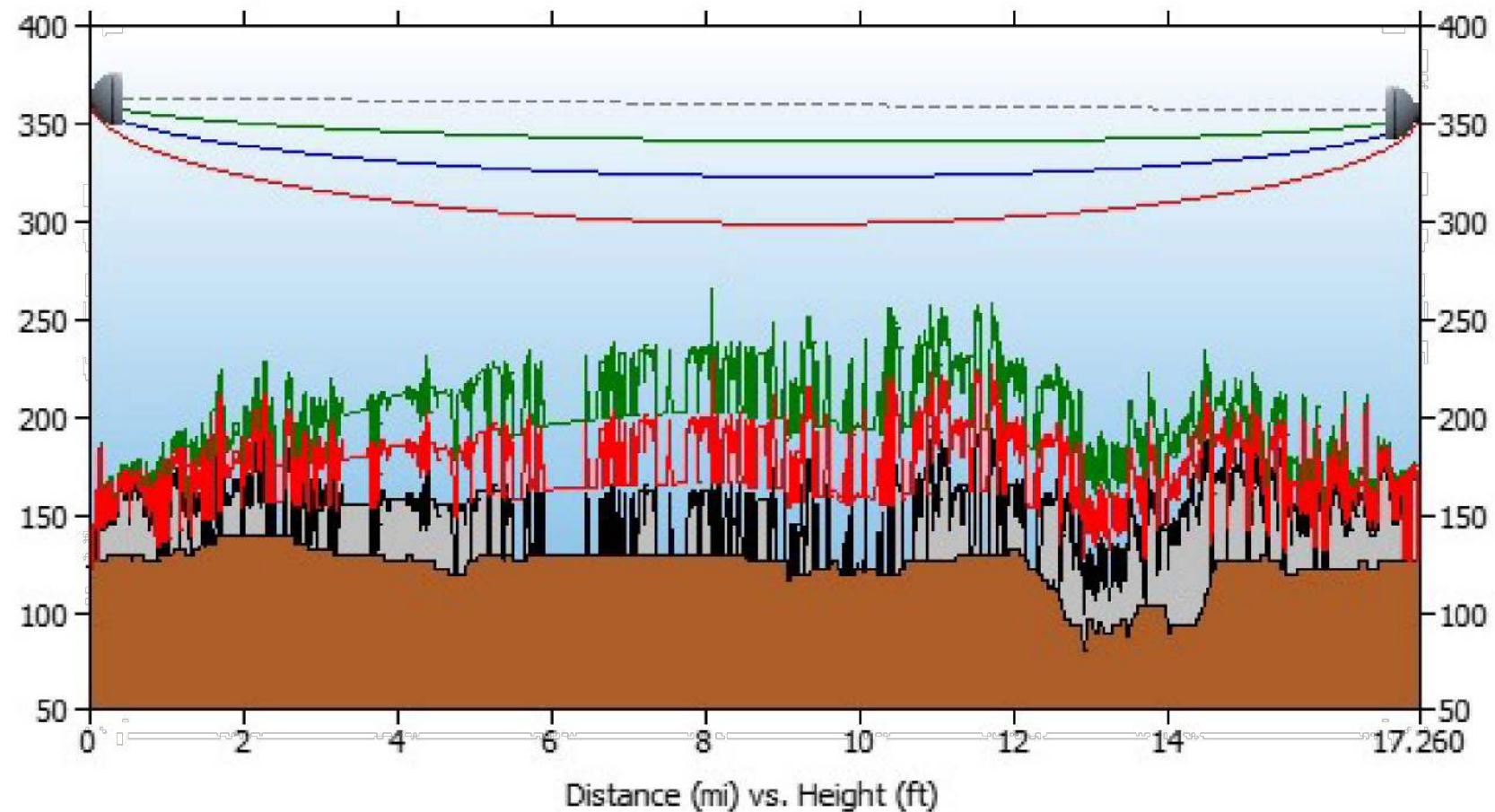
26972 NORTH US HIGHWAY 441
WHITE SPRINGS, FLORIDA 32096
(COLUMBIA COUNTY)

SHEET NAME

ANTENNA INFORMATION

SHEET NUMBER

C4



Path length (17.26 mi)

9JK0088A	
Latitude:	30-22- 2.8 N
Longitude:	82-51-10.5 W
Azimuth:	36.42 Deg
Elevation:	122.05 ft
Antenna CL:	239.99 ft AGL

Frequency (GHz) = 6.10 GHz	
K1:	1.33
%F1:	0.60
K2:	0.67
%F2:	0.30
K3:	1.33
%F3:	1.00

9JK1918A	
Latitude:	30-34- 8.2 N
Longitude:	82-40-51.6 W
Azimuth:	216.51 Deg
Elevation:	125.00 ft
Antenna CL:	229.99 ft AGL

REV	DATE	DESCRIPTION
A	01/02/24	PRELIM PLANS
0	02/05/24	CONSTRUCTION
PROJECT NO.:		17-5641.1
DRAWN BY:		RA
PROJECT MANAGER:		D. REVELS
CHECKED BY:		D. REVELS

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JEREMY D. SHARIT PE FL LIC 75137

WHITE SPRINGS

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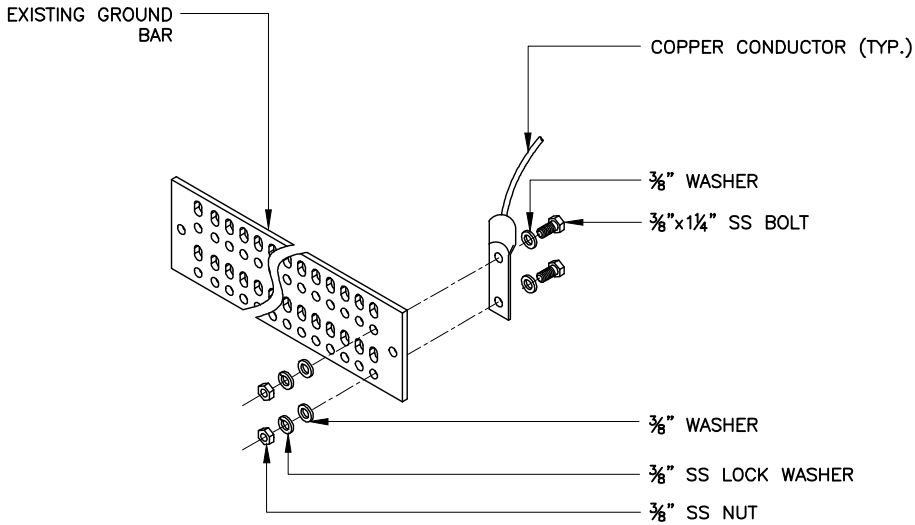
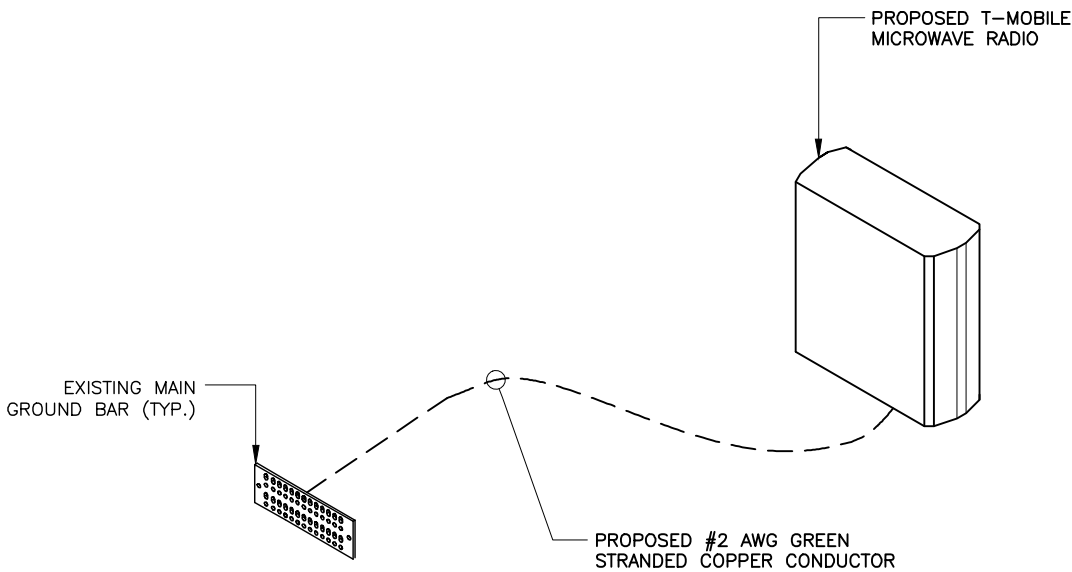
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(COLUMBIA COUNTY)

SHEET NAME

PATH
PROFILE

SHEET NUMBER

C5



TYPICAL GROUND BAR CONNECTION DETAIL

NTS

2

1. RECORD DRAWINGS: MAINTAIN A RECORD OF ALL CHANGES, SUBSTITUTIONS BETWEEN WORK AS SPECIFIED AND INSTALLED. RECORD CHANGES ON A CLEAN SET OF CONTRACT DOCUMENTS WHICH SHALL BE TURNED OVER TO THE CONSTRUCTION MANAGER UPON COMPLETION OF THE PROJECT.
2. GUARANTEE/WARRANTY: GUARANTEE INSTALLATION TO BE FREE OF DEFECTS, SHORTS, GROUNDS, ETC., FOR A PERIOD OF ONE YEAR. FURNISH WARRANTY SO THE DEFECTIVE MATERIAL AND/OR WORKMANSHIP WILL BE REPAIRED/REPLACED IMMEDIATELY UPON NOTIFICATION AT NO COST TO THE OWNER FOR PERIOD OF WARRANTY.
3. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
4. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
5. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
6. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
7. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
8. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
9. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

GROUNDING DIAGRAM (TYP.)

NTS

1

GROUNDING NOTES

3

REV	DATE	DESCRIPTION
A	01/02/24	PRELIM PLANS
0	02/05/24	CONSTRUCTION

PROJECT NO.: 17-5641.1	
DRAWN BY:	RA
PROJECT MANAGER:	D. REVELS
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WHITE SPRINGS

9JK1918A

26972 NORTH US HIGHWAY 441
WHITE SPRINGS, FLORIDA 32096
(COLUMBIA COUNTY)

SHEET NAME

GROUNDING DETAILS
AND NOTES

SHEET NUMBER

E1