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1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

9JK1308A

PROPOSED COMMUNICATION FACILITY CO-LOCATE ON AN EXISTING 255' SELF-SUPPORT TOWER + 10' APPURTENANCE

REV	DATE	DESCRIPTION
A	03/25/21	PRELIM PLANS
B	04/06/21	REVISED PER COMMENTS
0	04/06/21	FINAL PLANS ISSUED

PROJECT NO.:	21-5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

LOCAL MAP

VICINITY MAP

PROPERTY SUMMARY

FOLIO
31-3S-17-06226-001

PROPERTY OWNER
JB3 LLC
182 SW GROUSE PLACE
LAKE CITY, FLORIDA 32025

LATITUDE
30.178286 N

LONGITUDE
-82.659708 W

ZONING JURISDICTION
COLUMBIA COUNTY

DESIGN CRITERIA

DESIGN WIND SPEED:	118 MPH (ULTIMATE 3-SEC GUST) 91 MPH (NOMINAL 3-SEC GUST)
EXPOSURE CATEGORY:	C
RISK CATEGORY:	II
OPEN STRUCTURE	

CONTACTS

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

SMW ENGINEERING GROUP, INC. PM:

DARREN REVELS (813) 503-0218

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:

INSTALLATION OF (1) NEW CONCRETE PAD
INSTALLATION OF (1) NEW CANOPY
INSTALLATION OF (1) NEW WAVEGUIDE BRIDGE
INSTALLATION OF (2) NEW EQUIPMENT CABINETS
INSTALLATION OF (1) NEW GENERATOR
INSTALLATION OF (1) NEW ATS ENCLOSURE
INSTALLATION OF (1) NEW UTILITY RACK
INSTALLATION OF (1) NEW METER & SERVICE BREAKER
INSTALLATION OF (1) NEW 200A PPC ENCLOSURE
INSTALLATION OF (4) NEW TECH LIGHTS
INSTALLATION OF (3) NEW SECTOR MOUNTS
INSTALLATION OF (7) NEW ANTENNAS
INSTALLATION OF (8) NEW RRUS
INSTALLATION OF (3) NEW HCS 2.0 TRUNK CABLES

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, 7TH EDITION (2020)
2. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70, NATIONAL ELECTRICAL CODE, 2017 EDITION.
3. TIA-222-H AND APPLICABLE STANDARDS.
4. LIFE SAFETY CODE NFPA-101-2015.
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.

INDEX OF DRAWINGS

SHT. NO.	DESCRIPTION	REV. NO.
T1	TITLE SHEET	0
G1	GENERAL NOTES	0
C1	AERIAL VIEW	0
C2	PROPOSED COMPOUND PLAN	0
C3	TOWER ELEVATION & ANTENNA LAYOUT	0
C4	EQUIPMENT LAYOUT	0
C5	EQUIPMENT PAD & CABINET MOUNTING DETAILS	0
C6	DETAILS (1 OF 2)	0
C7	DETAILS (2 OF 2)	0
C8	CABINET DETAILS (1 OF 2)	0
C9	CABINET DETAILS (2 OF 2)	0
C10	CABLE MOUNTING DETAILS	0
C11	GENERATOR DETAILS	0
RF1	PROPOSED ANTENNA SCHEDULE	0
RF2	PROPOSED ANTENNA PLUMBING DIAGRAM	0
E1	ELECTRICAL NOTES	0
E2	GROUNDING NOTES	0
E3	OVERALL POWER/TELCO ROUTING PLAN	0
E4	T-MOBILE POWER/TELCO ROUTING PLAN	0
E5	RISER DIAGRAMS	0
E6	ONE-LINE DIAGRAM & PANEL SCHEDULE	0
E7	CONDUIT ROUTING PLAN	0
E8	PROPOSED GROUNDING PLAN	0
E9	GROUNDING DETAILS	0

THIS DOCUMENT HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY JEREMY D. SHARIT, PE (#75137) USING A DIGITAL SIGNATURE IN ACCORDANCE WITH F.A.C. 61G15-23.004, WITH A DIGITAL CERTIFICATE ISSUED BY ENTRUST, INC. PLEASE REFERENCE SHEET T1 TO VIEW THE SIGNATURE AND VERIFY ITS PROPERTIES. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

RF DESIGN VERIFICATION

DESIGN BASED ON RFDS VERSION 1, DATED 02/18/21. CONTRACTOR SHALL REQUEST CURRENT RFDS PRIOR TO CONSTRUCTION

SMW ENGINEERING GROUP, INC.
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CERTIFICATE OF AUTHORIZATION 33693

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JACKSONVILLE, FLORIDA 32256

JEREMY D. SHARIT
LICENSE
No. 75137
STATE OF FLORIDA
PROFESSIONAL ENGINEER

JEREMY D. SHARIT PE FL LIC 75137

9JK1308A

9JK1308A

1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME

TITLE SHEET

SHEET NUMBER

T1

1. FOR THE PURPOSES OF THESE CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:

   OWNER – T–MOBILE USA
   ENGINEER – SMW ENGINEERING GROUP, INC.
   CONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)

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.

3. A 20–FOOT HORIZONTAL CLEARANCE DISTANCE SHALL BE MAINTAINED FROM ALL EXISTING POWER LINES.

4. THE CONTRACTOR'S USE OF A CONSTRUCTION STAGING AREA SHALL BE COORDINATED WITH THE OWNER WELL IN ADVANCE OF THE CONSTRUCTION START DATE.

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.

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.

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.

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.

9. THE CONTRACTOR'S OPERATIONS SHALL BE CONFINED TO AREAS OF NEW CONSTRUCTION.

10. ALL NECESSARY PROVISIONS SHALL BE MADE TO PROTECT EXISTING IMPROVEMENTS, 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.

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. (3) UPON COMPLETION, CONSTRUCTION AND CONSTRUCTION STAGING AREA SHALL BE LEFT IN AS GOOD OR BETTER CONDITION THAN PRIOR TO CONSTRUCTION.

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.

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.

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.

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.

GENERAL NOTES | 1

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.

2. THE INSTALLATION OF NEW UTILITIES SHALL BE COORDINATED WITH LOCAL AUTHORITIES.

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.

4. RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

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.

6. DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION SHALL BE MINIMIZED.

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.

8. THE SUB–GRADE SHALL BE COMPACTED AND BROUGHT TO A UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

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.

10. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO EQUAL TO OR BETTER CONDITION THAN ORIGINAL.

11. SITE SIGNAGE SHALL BE PROVIDED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS FOR SUCH SIGNAGE AS MAY BE CONTAINED IN THESE DRAWINGS.

SITE WORK NOTES | 2

1. MATERIAL:
   A. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE LATEST EDITION OF THE AISC "STEEL CONSTRUCTION MANUAL".
   B. ALL STRUCTURAL STEEL WF BEAMS SHALL BE ASTM A992 AND "HOT DIPPED" GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STANDARDS.
   C. ALL STRUCTURAL PLATES, ANGLES, AND CHANNELS SHALL BE ASTM A36 AND "HOT DIPPED" GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STANDARDS.
   D. 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.
   E. 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.
   F. ALL NON_STRUCTURAL PIPE MEMBERS SHALL BE ASTM A53 GRADE B, AND "HOT DIPPED" GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STANDARDS.

2. DESIGN, FABRICATION, AND CONSTRUCTION OF ALL CONNECTIONS SHALL CONFORM TO AISC STEEL CONSTRUCTION MANUAL.

3. WELDING:
   A. ALL WELDS, WELDERS, AND WELD INSPECTIONS SHALL CONFORM TO THE REQUIREMENTS OF AWS D 1.1, LATEST REVISION.
   B. ALL WELDS SHALL BE MADE WITH E70XX LOW HYDROGEN ELECTRODES.
   C. ALL STEEL SHALL BE SPRAY GALVANIZED AFTER WELDING.

4. 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.

5. ANCHOR BOLTS SHALL CONFORM TO ASTM A307, UNLESS NOTED OTHERWISE.

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.

7. THE CONTRACTOR/STEEL FABRICATOR SHALL CONFORM TO THE MINIMUM EDGE DISTANCE REQUIREMENTS IN ACCORDANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION.

8. ALL STRUCTURAL STEEL SHALL BE FABRICATED TO FIT AT BOLTED CONNECTIONS WITHIN $\frac{1}{16}$ INCH TOLERANCE. STRUCTURAL STEEL SHALL NOT BE FLAME CUT UNDER ANY CIRCUMSTANCES WITHOUT APPROVAL OF THE ENGINEER.

9. THE CONTRACTOR/STEEL FABRICATOR SHALL CAP OR SEAL ALL PIPES AS REQUIRED TO PREVENT RAINWATER INTRUSION.

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.

11. AT THE CONTRACTOR'S OPTION, SHOP WELDS MAY BE USED INSTEAD OF FIELD WELDS.

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.

STRUCTURAL STEEL NOTES | 3

REV	DATE	DESCRIPTION
A	03/25/21	PRELIM PLANS
B	04/06/21	REVISED PER COMMENTS
0	04/06/21	FINAL PLANS ISSUED

PROJECT NO.:	21–5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW

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

CERTIFICATE OF AUTHORIZATION 33693

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JACKSONVILLE, FLORIDA 32256

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JEREMY D. SHARIT PE FL LIC 75137

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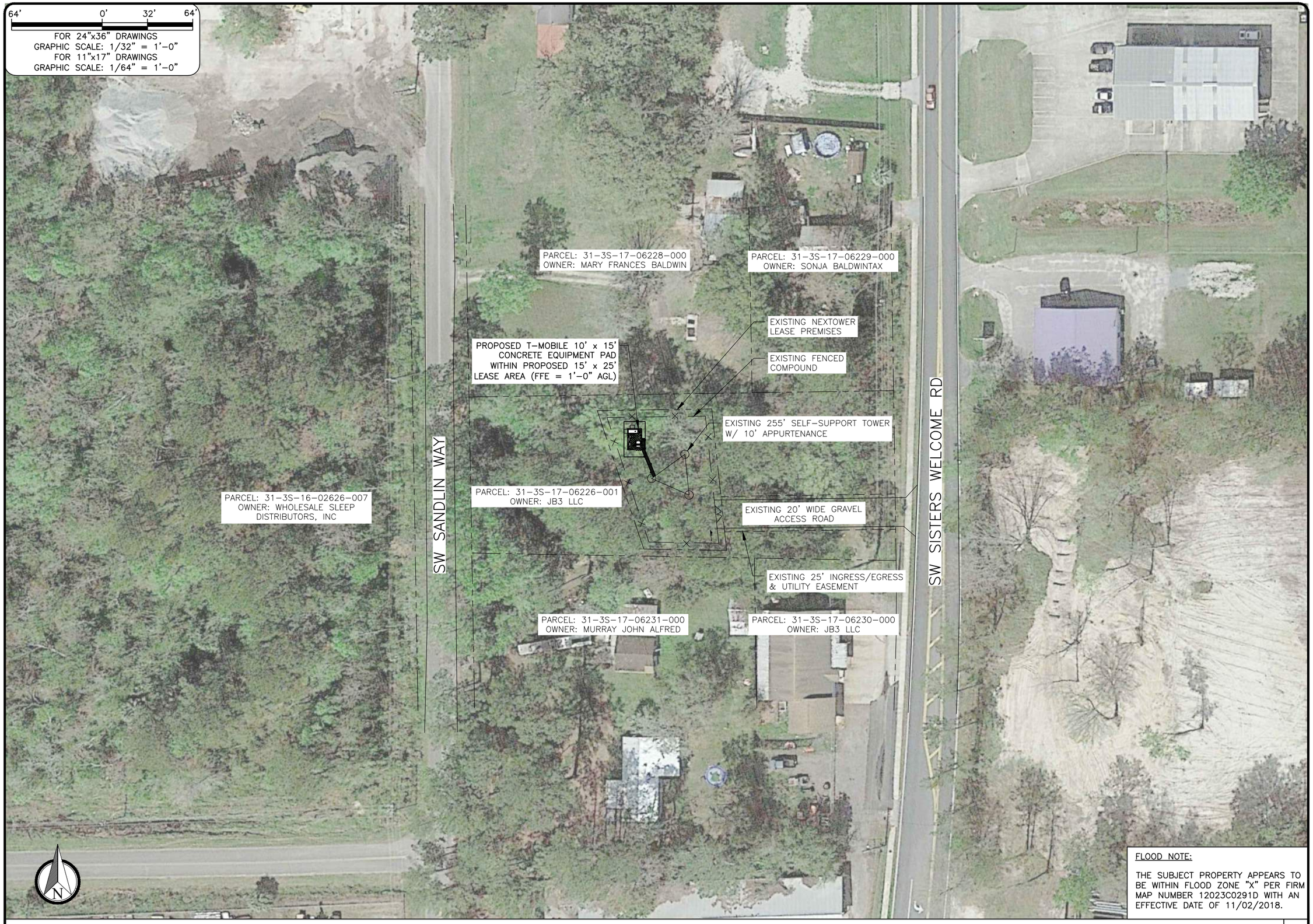
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME

GENERAL NOTES

SHEET NUMBER

G1



AERIAL VIEW

SCALE AS NOTED | 1

FLOOD NOTE:

THE SUBJECT PROPERTY APPEARS TO BE WITHIN FLOOD ZONE "X" PER FIRM MAP NUMBER 12023C0291D WITH AN EFFECTIVE DATE OF 11/02/2018.

REV	DATE	DESCRIPTION
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0	04/06/21	FINAL PLANS ISSUED

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(COLUMBIA COUNTY)

SHEET NAME

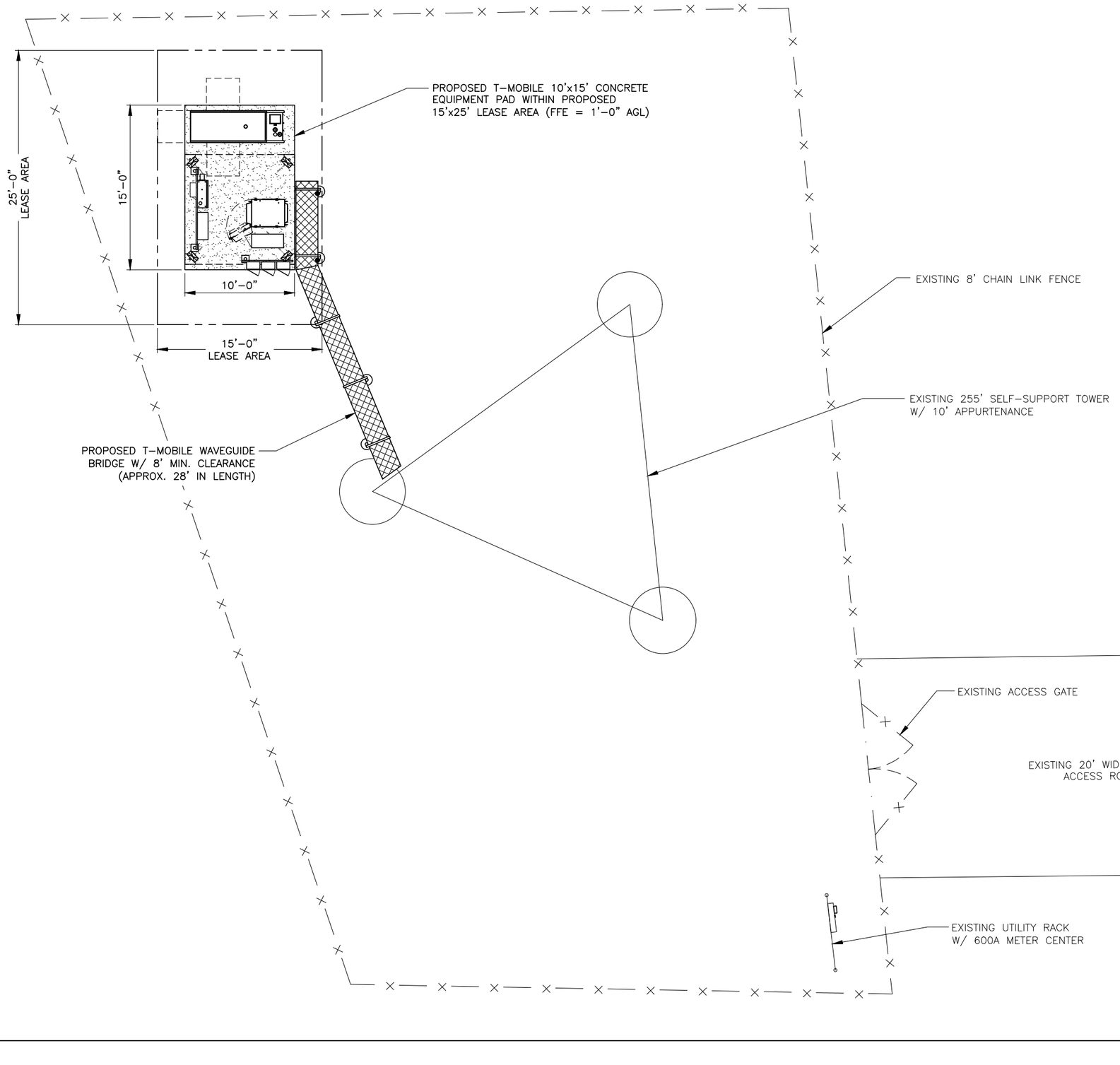
AERIAL VIEW

SHEET NUMBER

C1

10' 0' 5' 10'

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



PROPOSED COMPOUND PLAN

SCALE AS NOTED | 1

REV	DATE	DESCRIPTION
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(COLUMBIA COUNTY)

SHEET NAME

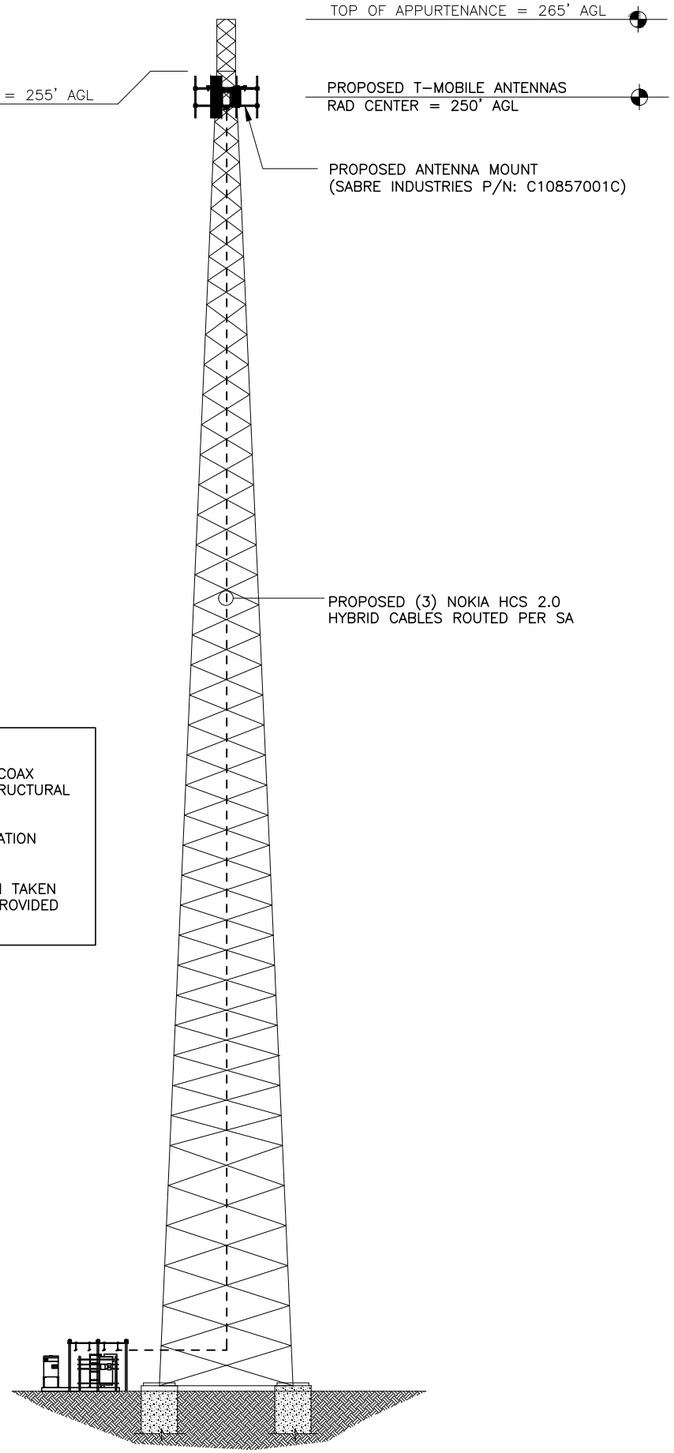
PROPOSED COMPOUND PLAN

SHEET NUMBER

C2

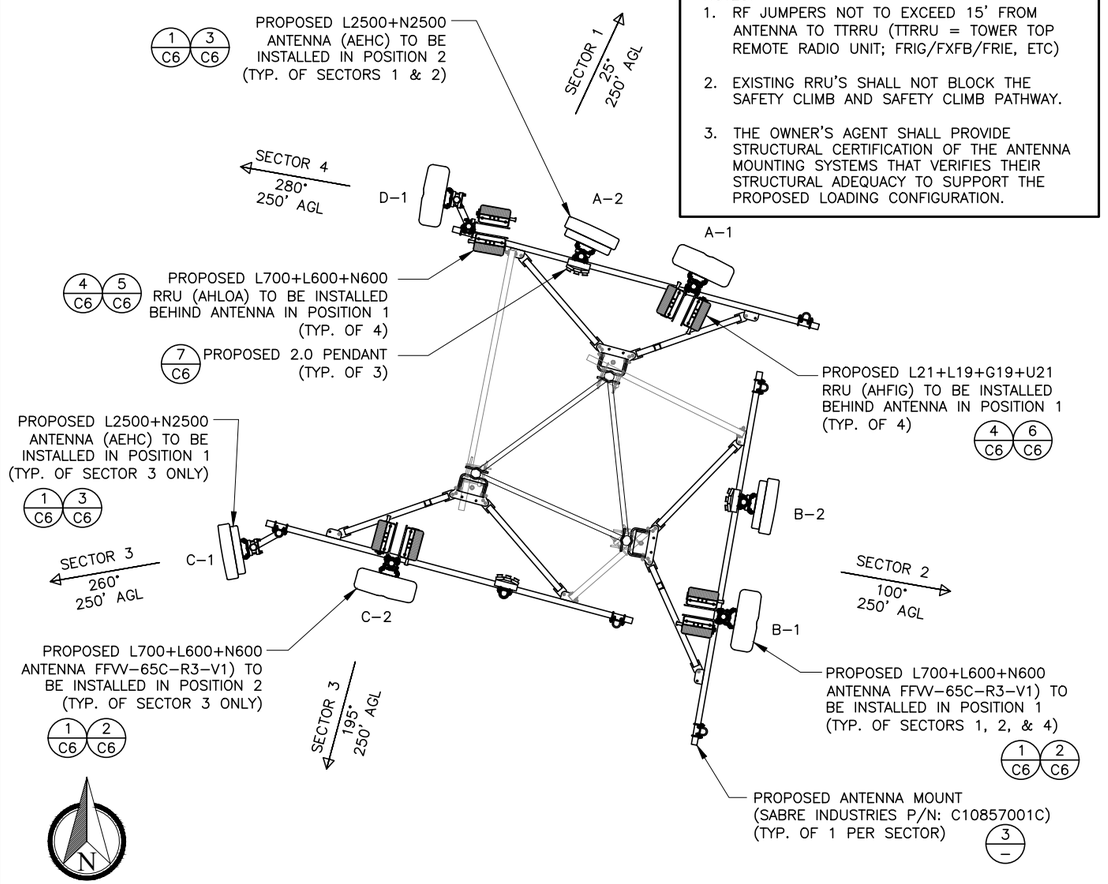
30' 0' 15' 30'

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



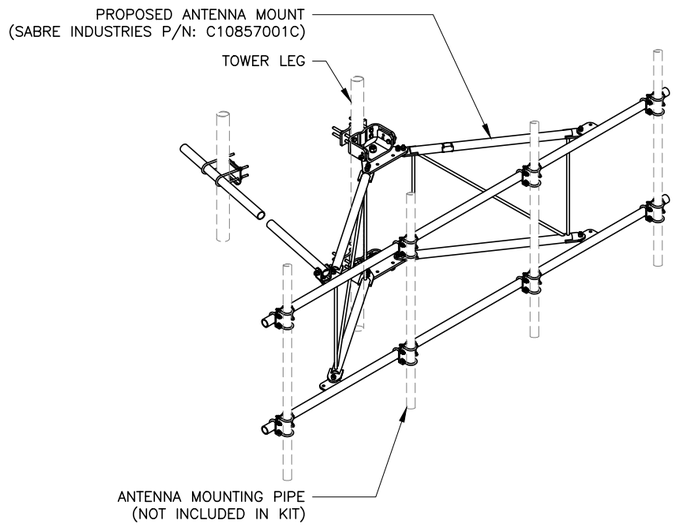
NOTES:
1. FOR ANTENNA MOUNTING AND COAX ROUTING INFORMATION, SEE STRUCTURAL ANALYSIS BY OTHERS.
2. INFORMATION FOR TOWER ELEVATION PROVIDED BY T-MOBILE.
3. ANTENNA HEIGHTS/INFORMATION TAKEN FROM STRUCTURAL ANALYSIS PROVIDED BY OTHERS.

TOWER ELEVATION — SCALE AS NOTED | 1



NOTES:
1. RF JUMPERS NOT TO EXCEED 15' FROM ANTENNA TO TTRRU (TTRRU = TOWER TOP REMOTE RADIO UNIT; FRIG/FXFB/FRIE, ETC)
2. EXISTING RRU'S SHALL NOT BLOCK THE SAFETY CLIMB AND SAFETY CLIMB PATHWAY.
3. THE OWNER'S AGENT SHALL PROVIDE STRUCTURAL CERTIFICATION OF THE ANTENNA MOUNTING SYSTEMS THAT VERIFIES THEIR STRUCTURAL ADEQUACY TO SUPPORT THE PROPOSED LOADING CONFIGURATION.

PROPOSED ANTENNA LAYOUT — NOT TO SCALE | 2



PROPOSED ANTENNA MOUNT — NTS | 3

REV	DATE	DESCRIPTION
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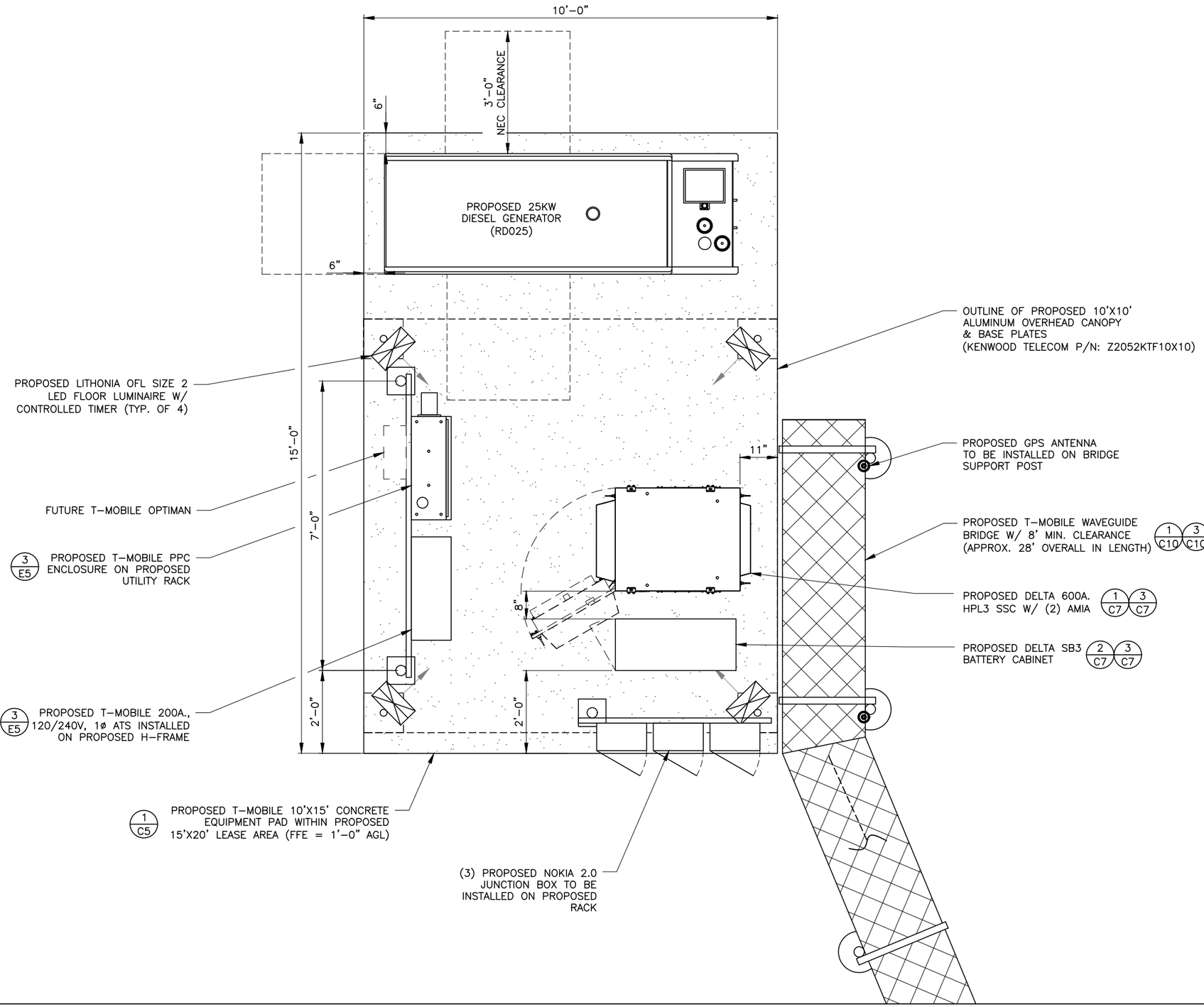
(COLUMBIA COUNTY)

SHEET NAME
TOWER ELEVATION
&
ANTENNA LAYOUT

SHEET NUMBER
C3

2' 0' 1' 2'

FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 3/4" = 1'-0"
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 3/8" = 1'-0"



EQUIPMENT LAYOUT

SCALE AS NOTED | 1

REV	DATE	DESCRIPTION
A	03/25/21	PRELIM PLANS
B	04/06/21	REVISED PER COMMENTS
0	04/06/21	FINAL PLANS ISSUED

PROJECT NO.:	21-5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW
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, FLORIDA 32256

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JEREMY D. SHARIT PE FL LIC 75137

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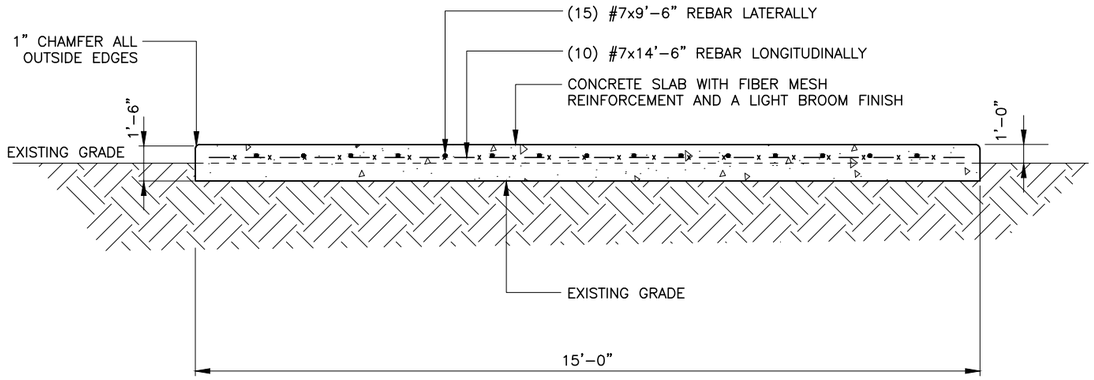
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME

EQUIPMENT LAYOUT

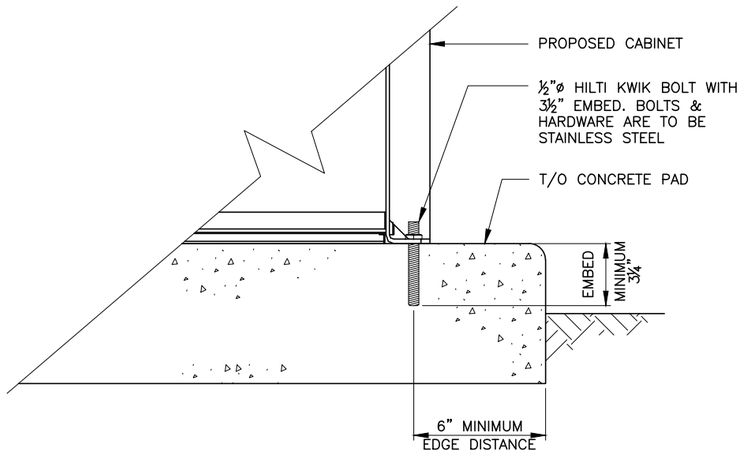
SHEET NUMBER

C4



NOTES:
1. ALL CONCRETE TO HAVE A COMPRESSIVE STRENGTH OF fc'=3000 PSI WITH COMMERCIAL GRADE FIBER MESH REINFORCEMENT 1.5# PER CU. YARD
2. CONCRETE PAD IS DESIGNED TO BEAR ON 2000 PSF SOIL BEARING CAPACITY TO BE VERIFIED AT TIME OF EXCAVATION BY A SOILS ENGINEER REGISTERED IN THE STATE OF GEORGIA.

EQUIPMENT PAD FOUNDATION DETAIL — NTS | 1



CABINET MOUNTING DETAIL — NTS | 2

REV	DATE	DESCRIPTION
A	03/25/21	PRELIM PLANS
B	04/06/21	REVISED PER COMMENTS
0	04/06/21	FINAL PLANS ISSUED

PROJECT NO.:	21-5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
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JEREMY D. SHARIT PE FL LIC 75137

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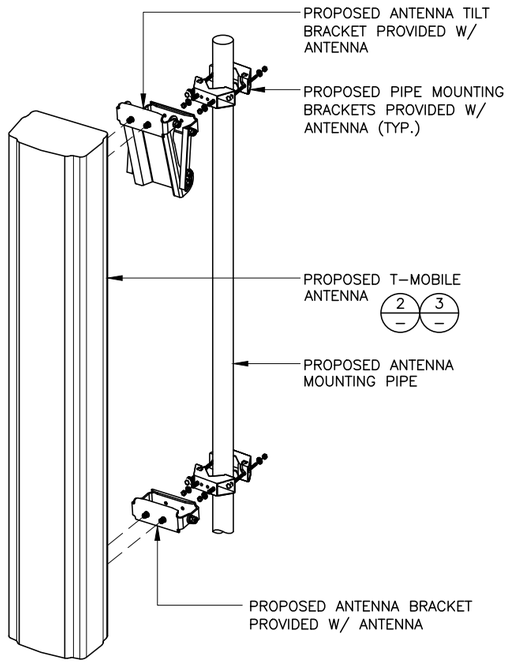
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME

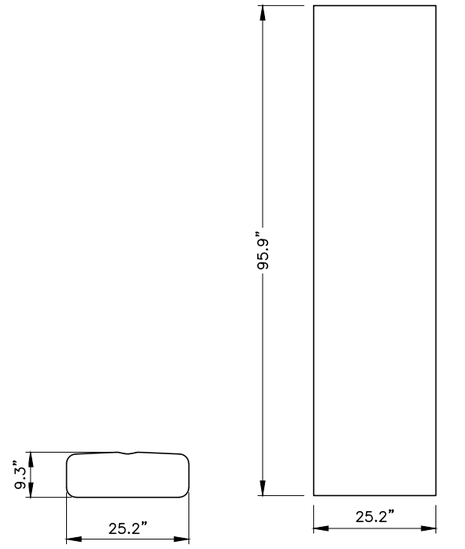
EQUIPMENT PAD & CABINET MOUNTING DETAILS

SHEET NUMBER

C5

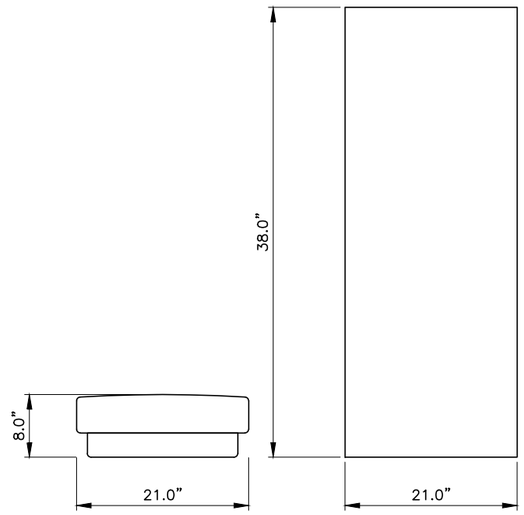


ANTENNA MOUNTING DETAIL NTS 1



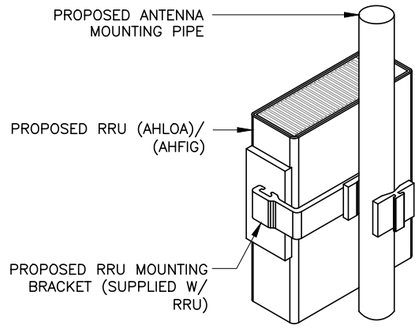
MODEL: COMMSCOPE FFVV-65C-R3
WEIGHT: 127.6 LBS

ANTENNA SPECIFICATIONS NTS 2



MODEL: NOKIA AEHC
WEIGHT: 108 LBS

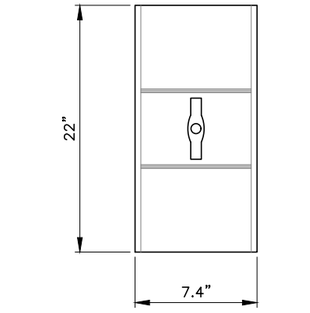
ANTENNA SPECIFICATIONS NTS 3



NOTE:

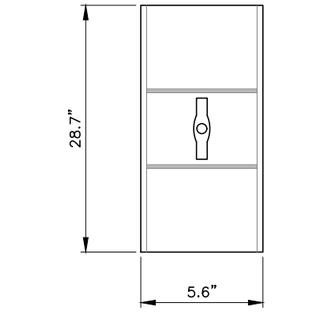
UNIT SHALL BE MOUNTED AS PER MANUFACTURER'S SPECIFICATIONS.

RRU MOUNTING DETAIL NTS 4



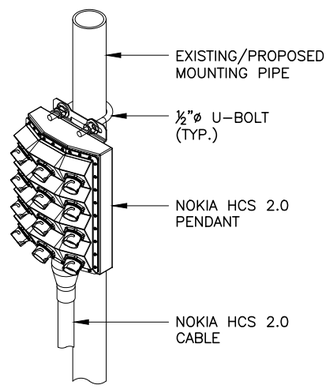
MODEL: NSN AHLOA
WEIGHT: 83.8 LBS

AHLOA RRU SPECS NTS 5



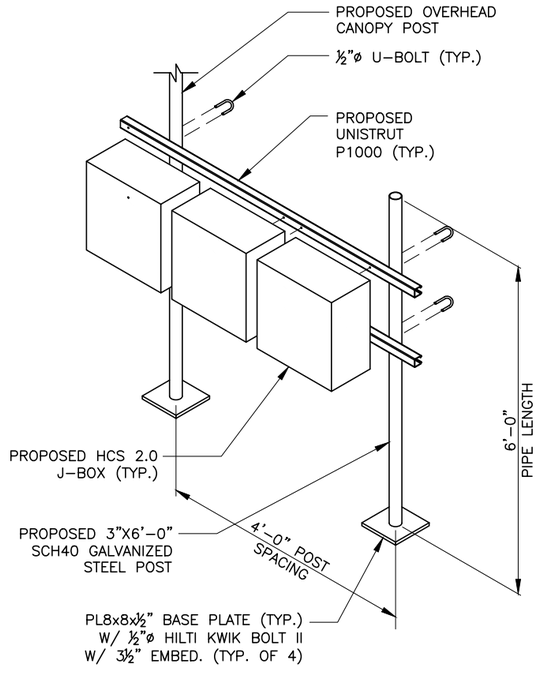
MODEL: NSN AHFIG
WEIGHT: 79.3 LBS

AHFIG RRU SPECS NTS 6



MODEL: HCS 2.0 HICAP PENDANT
WEIGHT: 8.76 LBS

2.0 PENDANT DETAIL NTS 7



2.0 J-BOX MOUNTING DETAIL NTS 8

REV	DATE	DESCRIPTION
A	03/25/21	PRELIM PLANS
B	04/06/21	REVISED PER COMMENTS
0	04/06/21	FINAL PLANS ISSUED

PROJECT NO.:	21-5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

SMW ENGINEERING GROUP, INC.
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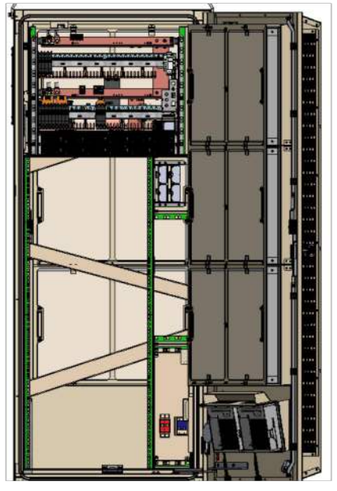
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME
DETAILS
(1 OF 2)

SHEET NUMBER
C6

Specifications

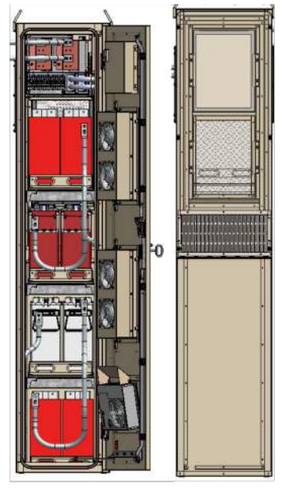
Model	HP-Large 3 Power Cabinet
1. General	
Construction	Aluminum enclosure
Dimensions (W x H x D)	30 x 72 x 35 in.(766x 1829 x 889mm), Depth with Door: 41 in. (1067 mm)
Weight	~551 lbs (~270kg) (withoutcustomer equipment or batteries)
Internal rack dimension	Total Equipment space, 30RU: Horizontal rack: 19" x 27RU Vertical rack: 19" x 3RU Power System space: 23" x 12RU
Mounting options	Pad-mount, plinth option
Finish	Polyester Powder Paint (Tan)
Safety	UL Listed , IEC / EN 60950
2. Environment	
Operating temperature	-40°C to +50°C (-40°F to +122°F) with solar load. IP55
Protection class	designed to GR-487
Acoustics	5°C delta T: 70 dBA @ 6000W, 65dBA @5000W heat load
Humidity (relative)	95%,non-condensing (Max.)
3. Thermal management	
Cooling Equipment:	Direct Air Cooling 6000W, 5°C delta T (6) centrifugal redundant fans, (3) Merv-13 or optional GORE filters front door (3) Merv-13 filters rear hatch
Heating Equipment:	Forced air heating (2) 1000W AC heaters
4. Equipment	
Cable Entry	Knock-out plate on each upper side wall Additional knockouts each side (1) 3" conduit hole with hole plug
Door latch	3 point latching, 5/16 nut driver tool, pad-locking capability
Primary ground	10 double-hole ¼"-20 threaded holes on 5/8" center ground bar
Lifting Ears	4 Lifting Tabs
Standard equipment	AC Load Center: 240V dual feed / (1) 200A + (1)100A 208V single feed / (1) 200A AC Surge Protection for each breaker feed GFCI Receptacle 120V (6 form-C) Alarm Termination block (1) Thermal Probe 605A/ 54V (336kW) redundant Power System with DIN rail distribution: 12 rectifier positions (qty 3x55A DPR3000 rectifiers included) 52 poles for load (qty 1x150A, 3x10A load circuit breakers included) 16 poles for battery (qty 2x200A battery circuit breakers included) (2) SB350 generator connector LVD over-ride switch (2) SB175 Battery connections (2) SB350 Battery connections Front Door: (6) DC powered centrifugal fans with (3) MERV-13 filters, (GORE option) Clogged Filter alarm pressure switch Door intrusion alarm (2) 1000W AC powered heaters LED interior cabinet light Rear Hatch: Exhaust vent with (3) MERV-13 filters



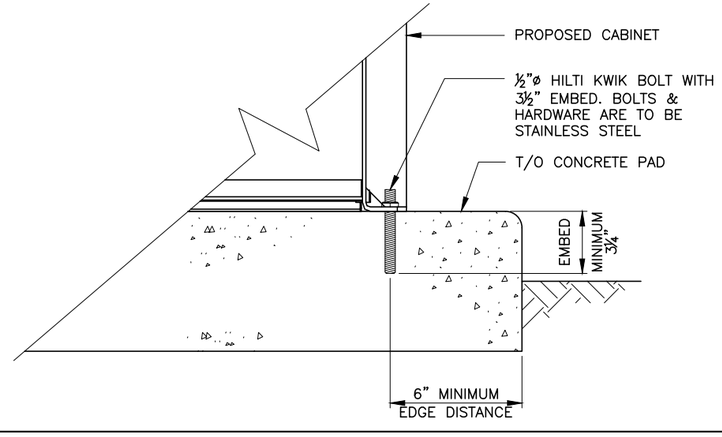
DELTA HP-LT600 DETAILS SPECIFICATIONS NTS 1

Specifications

Model	Small Battery 3 (SB3) Cabinet
1. General	
Construction	Aluminum enclosure
Dimensions (W x H x D)	15 x 72 x 35in. (381 x 1829x 889mm), Depth with door: 37.4 in. (950mm)
Weight	~310lbs 141(kg) (withou: batteries)
Internal rack dimension	4 battery trays to support up to 2 strings 210Ah batteries
Mounting options	Pad-mount, plinth option
Finish	Polyester Powder Paint (Tan)
Safety	UL Listed, IEC / EN 60950
2. Environment	
Operating temperature	-40C to +50C (-40F to +122F) with solar load.
Protection class	IP55 designed to GR-487
Acoustics	65 dBA
Humidity (relative)	95%, non-condensing (Max.)
3. Thermal management	
Cooling	Direct Air Cooling: (4) Axial Fans. Filters: F6 front and rear
Heating	Forced air heating (1) 1000W AC heaters
4. Equipment	
Cable Entry	Knock-out plate on each upper side wall Additional knockouts each side
Door latch	3 point latching, 5/16 Nut driver tool, pad-locking capability
Lifting Ears	4 removable lifting ears
Standard equipment	AC Load Center with AC Surge protection and GFCI outlet Left or Right side AC entry options (1) 1000W AC powered heater DC Load Center 600A bulk feed bus bar (2) 400A bolt in battery breakers (4) 2-hole lug landings (2) Anderson SB350 input connectors to daisy chain 2nd SB3 or LB3 battery cabinet 4/0 battery cables from breakers to trays (4) battery trays, each holds (2) 12V batteries up to 210Ah, two trays required per -48V battery string Door intrusion switch LED interior cabinet light Fan Control Board, factory wired alarms via RJ45 output (fan & breaker alarms) Cabinet Connection kit (2) 4/0 cables with SB350 disconnects to connect to power cabinet (2) 4/0 tray to tray cables supplied (4) High current Cell-Cell straps supplied (16) High current front terminal adapters supplied



DELTA SB3 BATTERY CABINET SPECIFICATIONS NTS 2



CABINET ANCHORING DETAILS NTS 3

REV	DATE	DESCRIPTION
A	03/25/21	PRELIM PLANS
B	04/06/21	REVISED PER COMMENTS
0	04/06/21	FINAL PLANS ISSUED

PROJECT NO.:	21-5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

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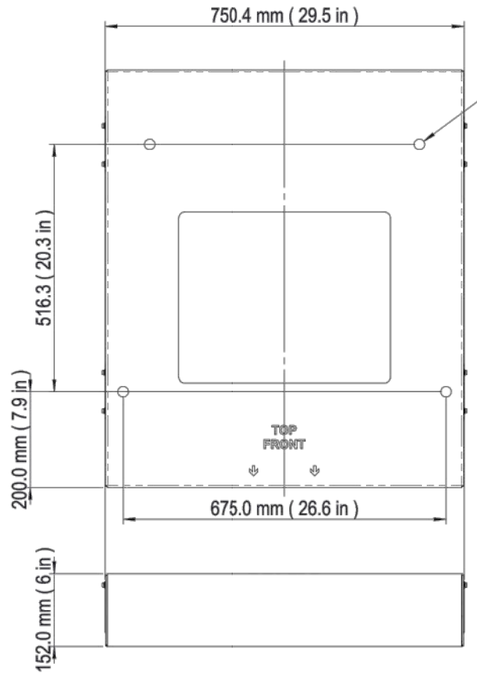
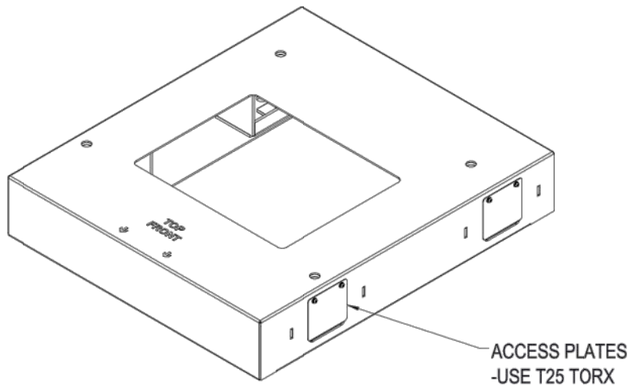
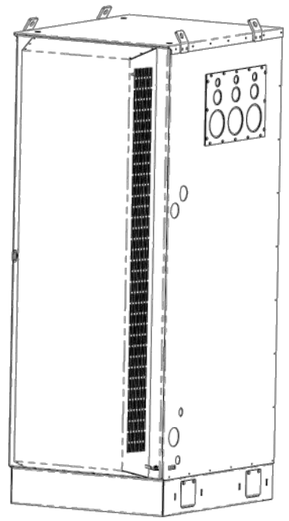
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME
DETAILS
(2 OF 2)

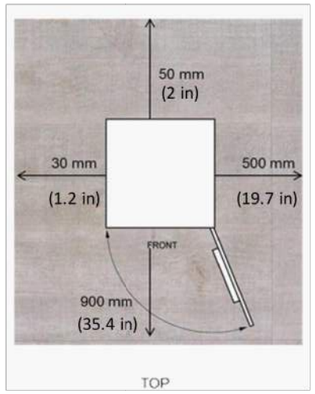
SHEET NUMBER
C7

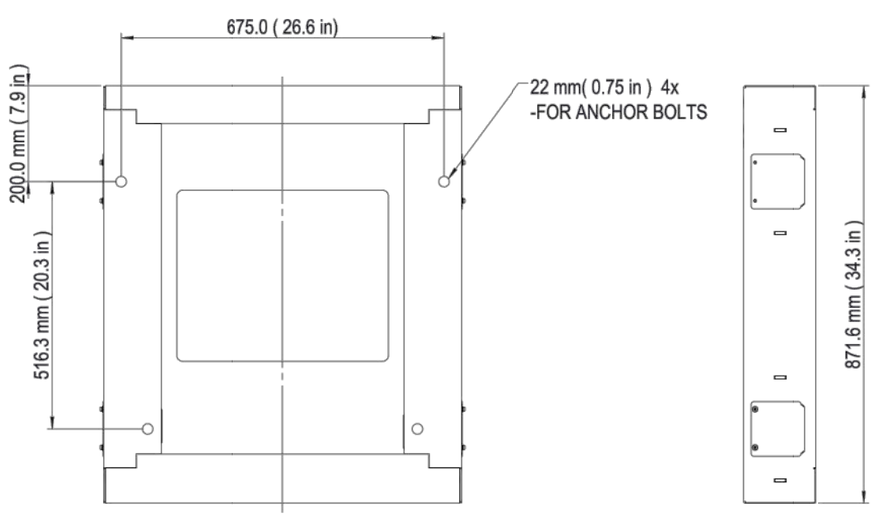






Typical application,
Cabinet not provided





TYPICAL

Item	Part Number	Description	Q'ty (Open-AV)
3	31057189xx	Screw Pan-Trox-SUS316-M5	8
2	33188169xx	ACCESS PLATE	4
1	33188169xx	WELDMENT PLINTH BASE	1

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Drawn: 01/11/2018 Terence.Yang

Design: 01/11/2018 Iven.Chen

THIRD ANGLE PROJECTION

Description: Plinth

DIMENSIONAL TOLERANCES (V) HOLES : ±0.05 ANGLES : ±0.5°

<30	±0.25	DECIMALS		UP~100	±0.2	250~300	±0.4	UP~600	±1.5
>30~100	±0.35	X	±0.3	100~150	±0.25	300~350	±0.45	600~900	±2.4
>100~300	±0.5	X.X	±0.2	150~200	±0.3	350~400	±0.5	900~OVER	±3.1
ABOVE 300	±0.6	X.XX	±0.1	200~250	±0.35				

A3 SIZE

Part No. 37993318816900-S REV. 00

SCALE 1:10 UNIT mm USED ON xxxxxx

SHEET 1 OF 1 ISSUE DATE: xx/xx/xxxx

V:\CAD Vault_PLM Database\3799 Assembly\37993318816900-S(TMO Airscale Plinth)\37993318816900-S (Default)
D:\01_Projects\...\ESOA400-HCU01(T-mobile V1 V2 SSC)\37993318816900-S

FRAME NAME:DF-MEA3H-1R01.SLDDRT

REV	DATE	DESCRIPTION
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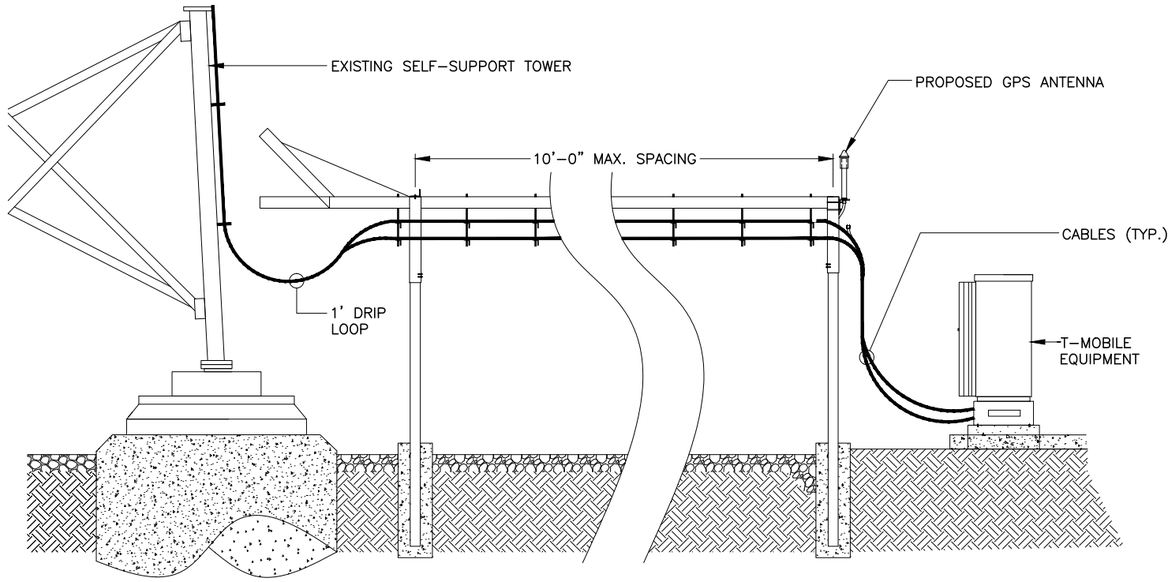
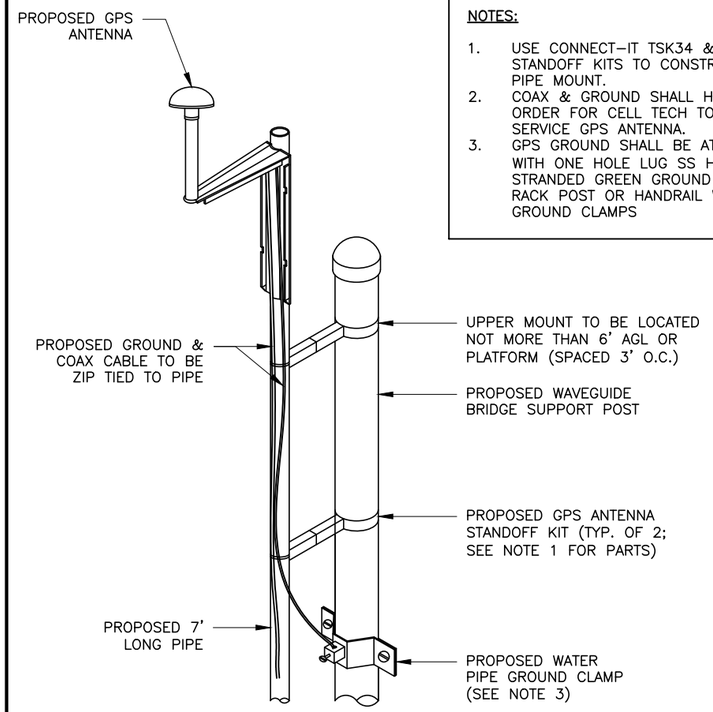
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME
CABINET MOUNTING DETAILS

SHEET NUMBER
C8



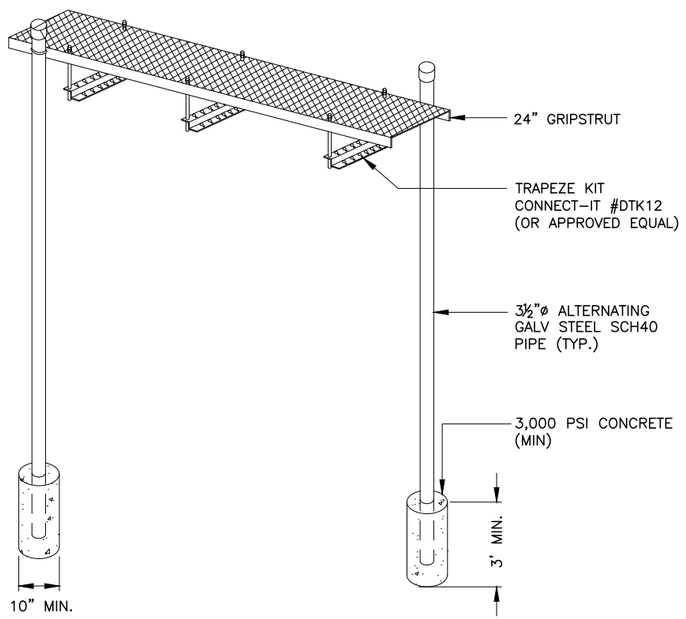
CABLE BRIDGE ELEVATION (SIDE) (TYPICAL) NTS 1



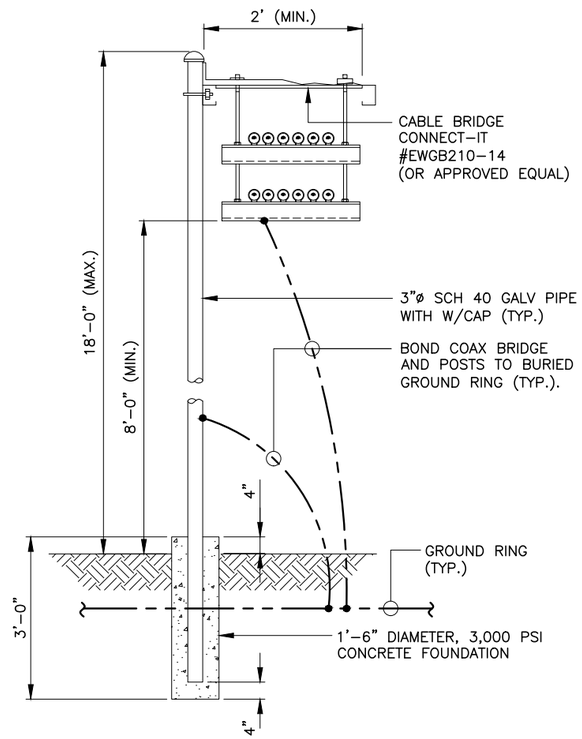
NOTES:

1. USE CONNECT-IT TSK34 & CONNECT-IT TSK01 STANDOFF KITS TO CONSTRUCT STAND FOR GPS PIPE MOUNT.
2. COAX & GROUND SHALL HAVE EXCESS SLACK IN ORDER FOR CELL TECH TO ADJUST HEIGHT TO SERVICE GPS ANTENNA.
3. GPS GROUND SHALL BE ATTACHED TO BRAKCET WITH ONE HOLE LUG SS HARDWARE #6 THHN STRANDED GREEN GROUND ATTACHED TO UTILITY RACK POST OR HANDRAIL WITH WATER PIPE GROUND CLAMPS

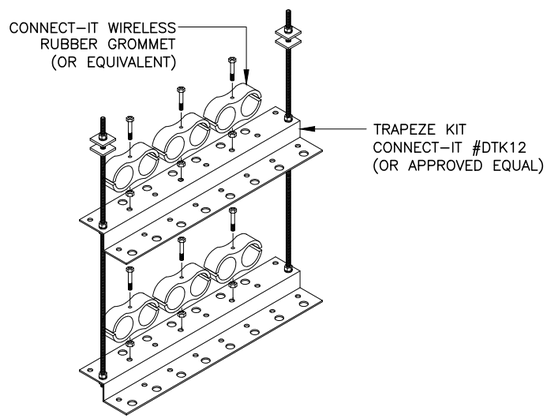
GPS ANTENNA MOUNTING DETAIL NTS 2



CABLE BRIDGE AXONOMETRIC NTS 3



CABLE BRIDGE CROSS-SECTION (TYPICAL) NTS 4



TRAPEZE KIT ISOMETRIC NTS 5

REV	DATE	DESCRIPTION
A	03/25/21	PRELIM PLANS
B	04/06/21	REVISED PER COMMENTS
0	04/06/21	FINAL PLANS ISSUED

PROJECT NO.:	21-5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

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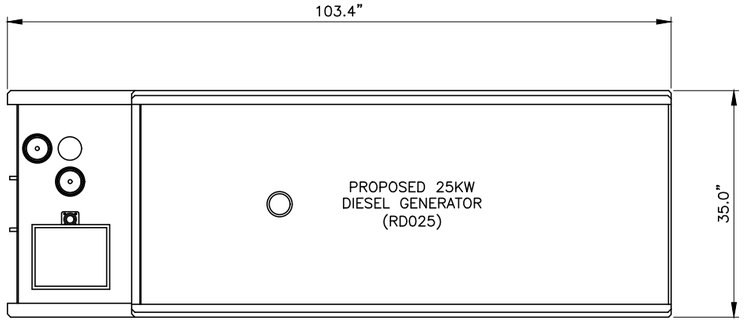
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME
CABLE MOUNTING DETAILS

SHEET NUMBER
C9

NOTES:
1. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 37 AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE, AND LOCAL CODES.
2. BATTERY (12 VOLT NEGATIVE GROUND SYSTEM).
3. CONTROL PANEL / CIRCUIT BREAKER INFORMATION: – MAIN LINE CIRCUIT BREAKER 125 AMPS – SEE SPECIFICATION SHEET OR OWNERS MANUAL – ACCESSIBLE THROUGH CUSTOMER ACCESS ASSEMBLY DOOR ON REAR OF GENERATOR. – CONTROL PANEL INCLUDES INTEGRATED BATTERY CHARGER
4. REMOVE THE REAR STUB–UP AND REAR ENCLOSURE COVER PANEL TO ACCESS THE STUB–UP AREAS AS FOLLOWS: – HIGH VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, AND BATTERY CHARGER 120 VOLT AC (0.5 AMP MAX) CONNECTION. – LOW VOLTAGE CONNECTION INCLUDING TRANSFER SWITCH CONTROL WIRES
5. ENGINE SERVICE CONNECTIONS OIL DRAIN: 1/2" NPT RADIATOR DRAIN : HOSE CLAMPED TO FRAME
6. CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.
7. BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION AND RECIRCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
8. REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
9. MOUNTING BOLTS OR STUDS TO MOUNTING SURFACE SHALL BE 5/8–11 GRADE 5 (USE STANDARD SAE TORQUE SPECS)
10. MUST ALLOW FREE FLOW OF INTAKE AIR, DISCHARGE AIR AND EXHAUST. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
11. GENERATOR MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND THAT DISCHARGE AIR FROM RADIATOR IS NOT RECIRCULATED. RECOMMENDED MINIMUM PERIMETER(3FT) AND VERTICAL OVER EXHAUST (5FT) CLEARANCE FOR SITE LOCATION.
12. GENERATOR MUST BE GROUNDED.

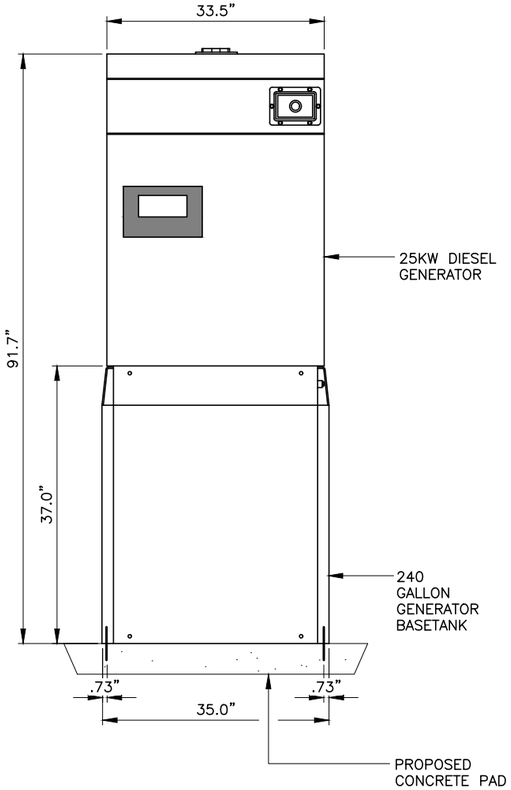
2' 0' 1' 2'
FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 1" = 1'–0"
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 1/2" = 1'–0"



GENERATOR PLAN VIEW

SCALED AS NOTED | 1

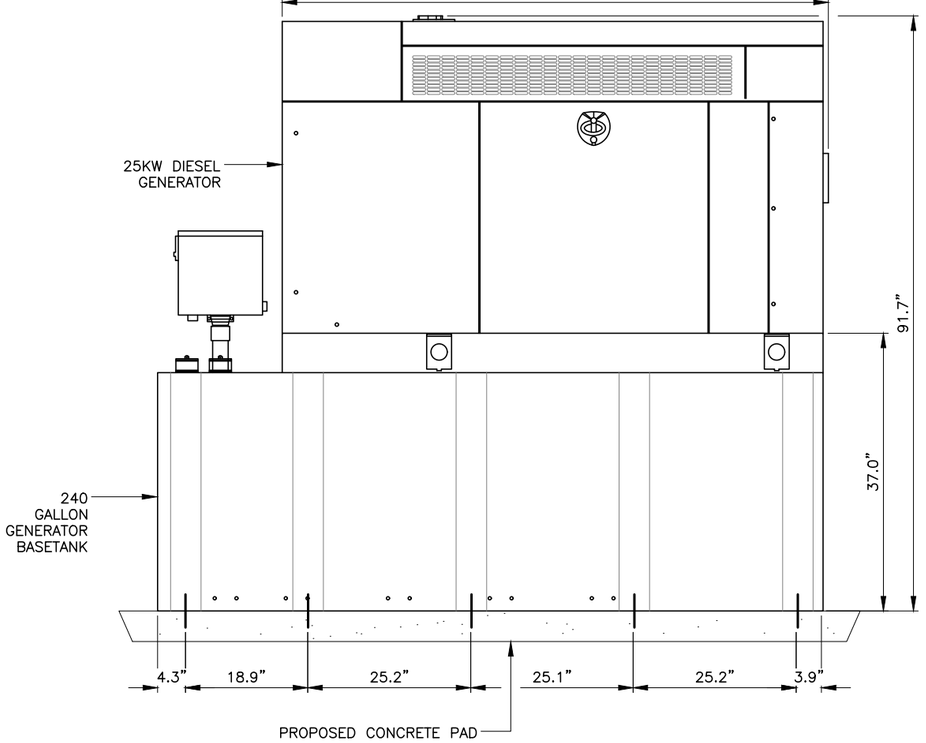
2' 0' 1' 2'
FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 1" = 1'–0"
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 1/2" = 1'–0"



GENERATOR END VIEW

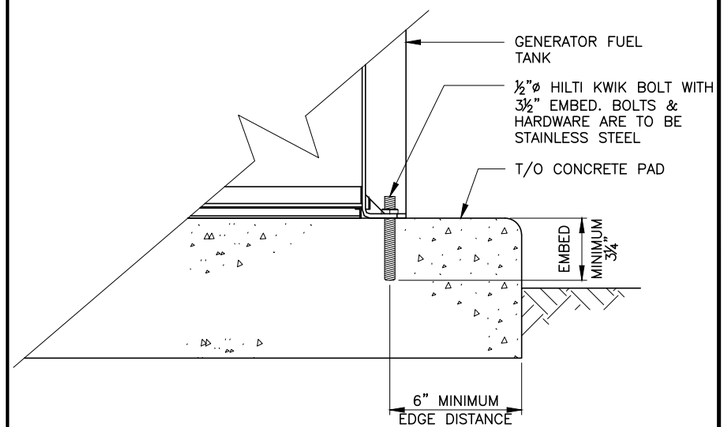
SCALED AS NOTED | 2

2' 0' 1' 2'
FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 1" = 1'–0"
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 1/2" = 1'–0"



GENERATOR SIDE VIEW

SCALED AS NOTED | 3



GENERATOR ANCHORING DETAIL

NTS | 4

REV	DATE	DESCRIPTION
A	03/25/21	PRELIM PLANS
B	04/06/21	REVISED PER COMMENTS
0	04/06/21	FINAL PLANS ISSUED

PROJECT NO.:	21–5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW
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TEMPLE TERRACE, FLORIDA 33637
(813) 615–1422
CERTIFICATE OF AUTHORIZATION 33693

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JACKSONVILLE, FLORIDA 32256

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JEREMY D. SHARIT PE FL LIC 75137

9JK1308A

9JK1308A
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME
GENERATOR DETAILS

SHEET NUMBER
C10

Section 1 - Site Information

Site ID: 9JK1308A
Status: Held
Version: 1
Project Type: Replacement
Approved: 4/5/2021 11:57:23 AM
Approved By: Jonathan.Crimmel@T-Mobile.com
Last Modified: 4/5/2021 11:57:23 AM
Last Modified By: Jonathan.Crimmel@T-Mobile.com

Site Name: 9JK1308A
Site Class: Self Support Tower
Site Type: Structure Non Building
Plan Year: 2020
Market: JACKSONVILLE FL
Vendor: Nokia
Landlord: Nextower

Latitude: 30.16026100
Longitude: -82.68645000
Address: 1720 W Us Highway 90
City, State: Lake City, FL
Region: SOUTH

RAN Template: 56784EZ_SR_U21		AL Template: 56784EZ_SR_U21		
Sector Count: 4	**Antenna Count:** 7	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Proposed RAN Equipment

Template: 56784EZ_SR_U21

Enclosure	1	2	3	4
Enclosure Type	Delta HPLS 800A DC plant	Tower Top Mount (Nokia)	Ancillary Equipment (Nokia)	Delta LB3 Battery Cabinet (4 strings)
Baseband	ASIB (L700, L800, L2100, L1900); ASIK (N2500); ASIK (N600); ASIB (L2500); FSMF (G1900, U2100)			
Baseband Submodule	ABIA (x 2) (L2100, L1900); ABIA (L700, L800, L2100, L1900); ASIL (x 3) (N2500); ASIL (N600); AsIC (x 3) (L2500); FBBC (U2100); ABIA			
Baseband Subrack	AMIA (x 2)			
Hybrid Cable System	Voltage Booster PowerPlus w/ 2 Amplifier Raycap; Extra Amplifier for PowerPlus Voltage Booster		Nokia HCS 2.0 Trunk "Select Length" (x 3)	
Junction Box			Nokia HCS 2.0 Tower Junction Box (x 3)	
Power subsystem	Rectifier Shelf "Select size"; Breakers "Select size"			Batteries "Select size"
Radio		AHLOA (x 4) (L700, L900, N600); AHFIG (x 4) (L2100, L1900, G1900, U2100)		
Transport System	CSR IXRe V1 (Gen1)			

RAN Scope of Work:

Sector 1 (Proposed) view from front (Note: the images show view from behind)

Coverage Type	A - Outdoor Macro				
Antenna	1				2
Antenna Model	Commscope - FFVV-65C-R3-V1 (Octo)				AEHC (Active Antenna - Massive MIMO)
Azimuth	25				25
M. Tilt	0				0
Height	250				250
Ports	P1	P2	P3	P4	P5
Active Tech.	L700, L800, N600	L700, L800, N600	L2100, L1900, G1900, U2100	L2100, L1900, G1900, U2100	L2500, N2500
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	4	4	2	2	2
Cables					
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment					

Unconnected Equipment:

Scope of Work:

Sector 2 (Proposed) view from front (Note: the images show view from behind)

Coverage Type	A - Outdoor Macro				
Antenna	1				2
Antenna Model	Commscope - FFVV-65C-R3-V1 (Octo)				AEHC (Active Antenna - Massive MIMO)
Azimuth	100				100
M. Tilt	0				0
Height	250				250
Ports	P1	P2	P3	P4	P5
Active Tech.	L700, L800, N600	L700, L800, N600	L2100, L1900, G1900, U2100	L2100, L1900, G1900, U2100	L2500, N2500
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	4	4	2	2	2
Cables					
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment					

Unconnected Equipment:

Scope of Work:

Sector 3 (Proposed) view from front (Note: the images show view from behind)

Coverage Type	A - Outdoor Macro				
Antenna	1				2
Antenna Model	Commscope - FFVV-65C-R3-V1 (Octo)				AEHC (Active Antenna - Massive MIMO)
Azimuth	195				200
M. Tilt	0				0
Height	250				250
Ports	P1	P2	P3	P4	P5
Active Tech.	L700, L800, N600	L700, L800, N600	L2100, L1900, G1900, U2100	L2100, L1900, G1900, U2100	L2500, N2500
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	4	4	2	2	2
Cables					
TMAs					
Diplexers / Combiners					
Radio					
Sector Equipment					

Unconnected Equipment:

Scope of Work:

Sector 4 (Proposed) view from front (Note: the images show view from behind)

Coverage Type	A - Outdoor Macro			
Antenna	1			
Antenna Model	Commscope - FFVV-65C-R3-V1 (Octo)			
Azimuth	280			
M. Tilt	0			
Height	250			
Ports	P1	P2	P3	P4
Active Tech.	L700, L800, N600	L700, L800, N600	L2100, L1900, G1900, U2100	L2100, L1900, G1900, U2100
Dark Tech.				
Restricted Tech.				
Decomm. Tech.				
E. Tilt	4	4	2	2
Cables				
TMAs				
Diplexers / Combiners				
Radio				
Sector Equipment				

Unconnected Equipment:

Scope of Work:

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PROJECT NO.:	21-5084
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PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

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CERTIFICATE OF AUTHORIZATION 33693

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JEREMY D. SHARIT PE FL LIC 75137

9JK1308A

9JK1308A

1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME

PROPOSED ANTENNA SCHEDULE

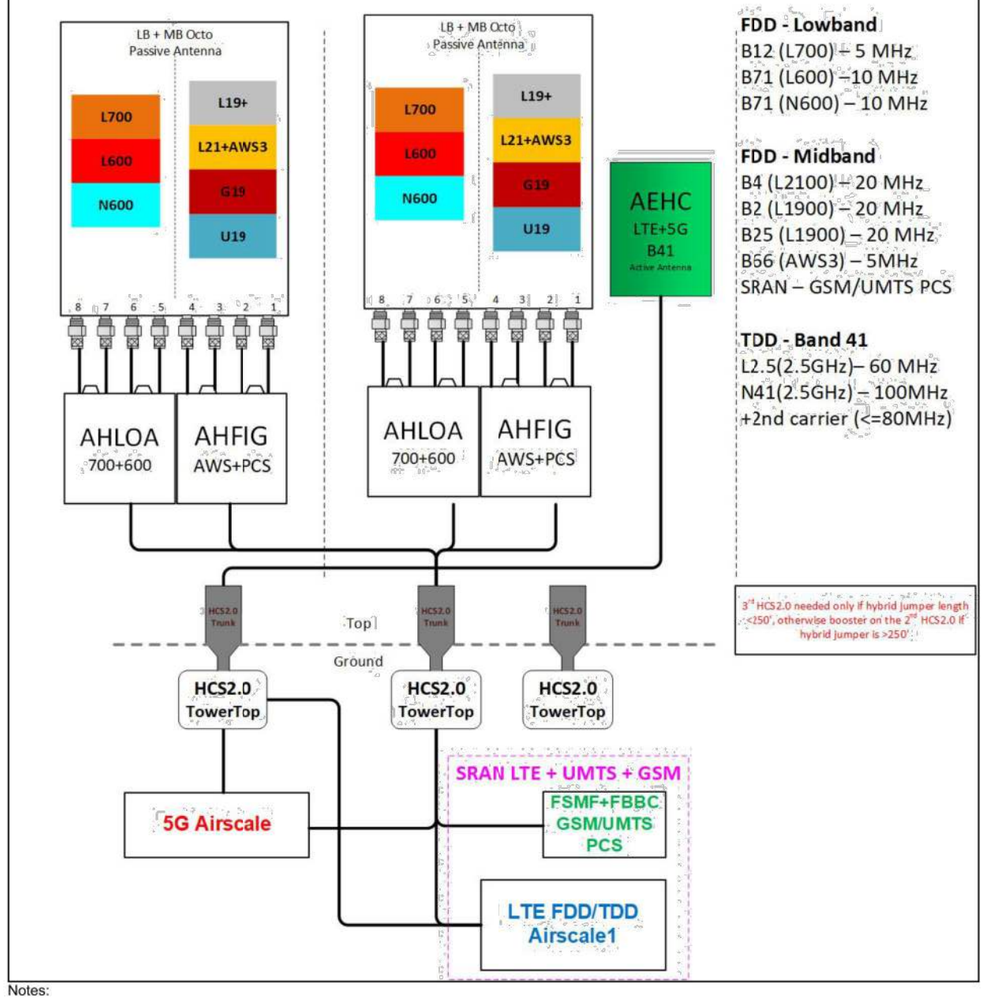
SHEET NUMBER

RF1

56794EZ_4Octo_3HCS2.0.jpg

Configuration 56794EZ_SR

* For 5G and LTE Airscale BB dimensioning refer to Fiber Port matrices.

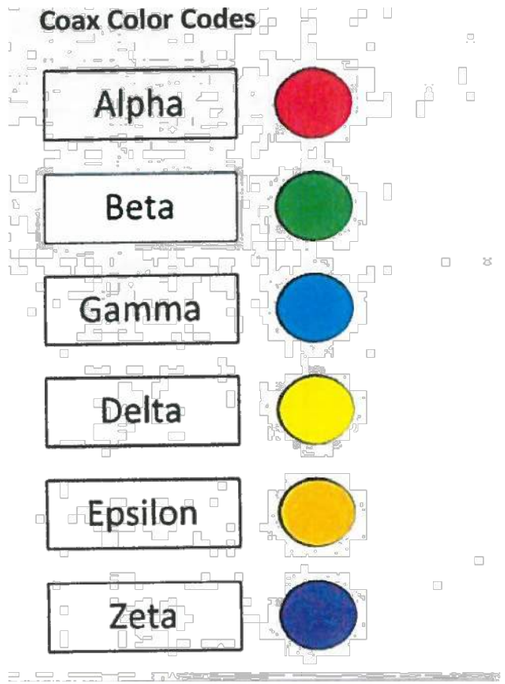


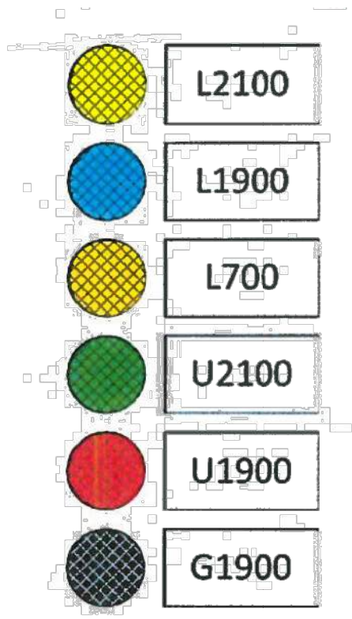
FDD - Lowband
B12 (L700) – 5 MHz
B71 (L600) –10 MHz
B71 (N600) – 10 MHz

FDD - Midband
B4 (L2100) – 20 MHz
B2 (L1900) – 20 MHz
B25 (L1900) – 20 MHz
B66 (AWS3) – 5MHz
SRAN – GSM/UMTS PCS

TDD - Band 41
L2.5(2.5GHz)– 60 MHz
N41(2.5GHz) – 100MHz
+2nd carrier (<=80MHz)

Notes:





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PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

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9JK1308A

9JK1308A
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME
PROPOSED ANTENNA PLUMBING DIAGRAM

SHEET NUMBER
RF2

A – GENERAL

A1. ALL ELECTRICAL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (EDITION ADOPTED BY LOCAL JURISDICTION) AND APPLICABLE LOCAL CODES.

A2. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRIC CODE.

A3. ALL ELECTRICAL EQUIPMENT AND ACCESSORIES SHALL BE U.L. APPROVED OR LISTED.

A4. ALL POWER WIRING SHALL BE STRANDED COPPER, TYPE THHN/THHW, AND 90 DEGREES C RATED.

A5. GROUNDING ELECTRODE CONDUCTORS SHALL BE BARE, TIN COATED COPPER AND EQUIPMENT GROUND CONDUCTORS SHALL BE GREEN INSULATED, UNLESS OTHERWISE NOTED.

A6. ALL POWER WIRING SHALL BE INSTALLED IN GALVANIZED RIGID STEEL CONDUIT, PVC, OR FLEXIBLE LIQUIDTIGHT CONDUIT, AS INDICATED.

A7. CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY PERMIT FEES, AND SCHEDULE INSPECTIONS.

A8. CONTRACTOR SHALL APPLY FOR ELECTRICAL SERVICE AS SOON AS POSSIBLE AND COORDINATE REQUIREMENTS, SERVICE ROUTING, AND METER SOCKET TYPE WITH LOCAL POWER COMPANY.

A9. CONTRACTOR SHALL APPLY FOR TELEPHONE SERVICE AS SOON AS POSSIBLE AND COORDINATE REQUIREMENTS AND SERVICE ROUTING WITH TELEPHONE COMPANY.

A10. PROVIDE ALL LABOR AND MATERIAL DESCRIBED ON THIS DRAWING, AND ALL ITEMS INCIDENTAL TO COMPLETING AND PRESENTING THIS PROJECT AS FULLY OPERATIONAL.

A11. WHERE LONG POWER CABLE RUNS PREVAIL, CONTRACTOR SHALL CALCULATE THE VOLTAGE DROP AND SIZE WIRES AND CONDUIT ACCORDINGLY.

A12. WHERE TRANSFORMER IS REQUIRED FOR ELECTRICAL SERVICE, TRANSFORMER SECONDARY SHALL BE GROUNDED PER N.E.C., ARTICLE 250–26.

A13. REFER TO SITE SPECIFIC DWGS FOR ELEVATIONS.

A14. ALL ELECTRICAL DEVICES EXPOSED TO WEATHER SHALL BE OF RAINPROOF CONSTRUCTION AND SHALL REQUIRE WATER TIGHT CONDUIT HUBS. NEMA 3R TYPICAL

A15. CONTRACTOR SHALL COIL CABLES AT HANDHOLE WITH LENGTHS AS REQUIRED BY ELECTRICAL UTILITY FOR CONNECTION BY UTILITY.

A16. ALL UNDERGROUND SERVICE ENTRANCE POWER CABLES SHALL BE TYPE FOR SUCH USE. CONTRACTOR SHALL CALCULATE VOLTAGE DROP AND RE–SIZE CABLES PER NEC REQUIREMENTS FOR CABLE RUNS EXCEEDING 250 FEET.

B – POWER CABLE AND SERVICE

B1. CONTRACTOR SHALL PROVIDE CONDUIT AND WIRING TO BTS AND VERIFY EXACT CONDUIT ROUTING. RACEWAY SYSTEM MATERIALS AND DEVICES FURNISHED SHALL BE IN ACCORDANCE WITH APPLICABLE STANDARDS OF ANSI, NEMA, AND UL. RACEWAY SYSTEM COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE N.E.C.

B2. CONTRACTOR SHALL SEAL AROUND ALL CONDUIT PENETRATIONS THROUGH WALLS, FLOORS AND ROOFS TO PREVENT MOISTURE PENETRATION OR VERMIN INFESTATION.

B3. CONDUCTORS RUNNING ALONG HORIZONTAL SURFACES (ROOF TOP OR SLAB) SHALL BE INSTALLED IN RIGID CONDUIT SUPPORTED ON ELECTRICAL CONDUIT SUPPORT.

B4. ALL VERTICAL RUNS OF POWER CABLE EXCEEDING 80 FEET IN LENGTH SHALL BE SUPPORTED PER N.E.C. ARTICLE 300 USING KELLEMS GRIPS OR ACCEPTABLE EQUAL CABLE SUPPORT SYSTEM.

B5. WHERE A SEPARATE ELECTRICAL SERVICE DROP IS ADDED, CONTRACTOR SHALL INSTALL PERMANENT SERVICE DISCONNECT OR GROUPING THEREOF, DENOTING ALL OTHER SERVICE ENTRANCES, LOCATION OF EACH AND THE AREAS SERVED BY EACH.

B6. WHERE ELECTRICAL POWER IS TO BE SUB–FED FROM AN EXISTING DISTRIBUTION SYSTEM, THE FOLLOWING SHALL APPLY:

A) CONTRACTOR SHALL PERFORM LOAD TESTING TO DETERMINE MAXIMUM FEEDER DEMAND PER N.E.C. ARTICLE 220–35.

B) CONTRACTOR SHALL VERIFY WHETHER EXISTING FEEDER CAPACITY EXCEEDS VALUE CALCULATED PER N.E.C. ARTICLE 220–35

C) EACH BRANCH CIRCUIT PROTECTIVE DEVICE SHALL HAVE SAME INTERRUPTING RATING AS EQUIPMENT SUPPLYING IT.

D) PREFERRED MEANS OF SUPPLY SHALL BE A BRANCH CIRCUIT PROTECTIVE DEVICE LOCATED IN EXISTING PANEL.

E) IF A BRANCH CIRCUIT PROTECTIVE DEVICE CANNOT BE OBTAINED OR SPACE IS NOT AVAILABLE, A BRANCH CIRCUIT MAY BE TAPPED FROM EXISTING FEEDER CONDUCTORS USING AN INSTALLED 2–POLE FUSED DISCONNECT AND METER BASE PER N.E.C. ARTICLE 240–21 WITH TEN FOOT (10) MAXIMUM TAP CONDUCTORS. FUSED DISCONNECT SHALL BE LISTED SAME OR BETTER INTERRUPTING RATING AS EXISTING SOURCE OF SUPPLY.

C – RF (COAX) AND LOW VOLTAGE CABLE

C1. RF CABLES AND LOW VOLTAGE CABLING BETWEEN BTS, LNA OR TMA AND ANTENNA SHALL BE SUPPORTED USING ANDREW "SNAP–IN" HANGERS OR ACCEPTABLE EQUAL.

C2. RF CABLES AND LOW VOLTAGE CABLING BETWEEN BTS, LNA OR TMA AND ANTENNA SHALL BE ROUTED AS FOLLOWS:

A) RUNNING ALONG HORIZONTAL SURFACES: USE WAVEGUIDE SUPPORTS OR BRIDGE KIT MOUNTED ON CONCRETE SLEEPERS.

B) RUNNING ALONG VERTICAL TOWER FACE: WAVEGUIDE LADDER W/HANGERS OR KELLEMS GRIPS.

C) RUNNING ALONG OR ADJACENT TO BTS PLATFORM: USE 12 X 3 OPEN OR COVERED ELECTRICAL LADDER TRAY.

D – IDENTIFICATION

D1. LOCATE NAMEPLATE, MARKING, OR OTHER IDENTIFICATION MEANS ON OUTSIDE EQUIPMENT OR BOX FRONT COVERS.

D2. PROVIDE NAMEPLATE ENGRAVED WITH EQUIPMENT DESIGNATION FOR EACH SAFETY SWITCH AND ALL OTHER ELECTRICAL CABINETS, ETC.

D3. DURING TRENCH BACK–FILLING FOR EACH UNDERGROUND ELECTRICAL, TELEPHONE, SIGNAL AND COMMUNICATIONS LINE, PROVIDE A CONTINUOUS UNDERGROUND WARNING TAPE TWELVE INCHES BELOW FINISHED GRADE.

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PROJECT MANAGER:	D. REVELS
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JEREMY D. SHARIT PE FL LIC 75137

9JK1308A

9JK1308A

1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME

ELECTRICAL NOTES

SHEET NUMBER

E1

A – GENERAL

A1. INSTALLATION OF GROUNDING ELECTRODE SYSTEM SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRIC CODE AND WITH ALL BUILDING CODES OF AUTHORITIES HAVING JURISDICTION.

A2. GROUNDING CONDUCTORS SHALL BE #2 AWG TINNED SOLID BARE COPPER BELOW AND ABOVE GRADE, UNLESS OTHERWISE NOTED AND SHALL BE ROUTED IN A DOWNWARD PATH TOWARDS GROUND BARS.

A3. GROUNDING CONDUCTORS SHALL BE KEPT AS SHORT AND DIRECT AS POSSIBLE WITH MINIMUM BEND RADIUS OF 12 INCHES.

A4. ALL BELOW GRADE CONNECTIONS SHALL BE CADWELD TYPE CONNECTIONS AND ALL CONNECTIONS TO EQUIPMENT AND GROUND BARS SHALL BE 2–HOLE BRONZE COMPRESSION CONNECTORS UNLESS OTHERWISE NOTED.

A5. CONTRACTOR SHALL INSTALL NEW PCS GROUNDING SYSTEM PER SPECIFICATIONS AND INTERCONNECT NEW SYSTEMS TO ANY EXISTING GROUNDING SYSTEMS AS REQUIRED BY NFPA 70 AND 780 (THIS APPLIES TO ELECTRICAL POWER DISTRIBUTION GROUNDING SYSTEM, LIGHTNING PROTECTION GROUNDING SYSTEM, COAX CABLE GROUNDING SYSTEM AND ANY OTHER EXISTING GROUNDING SYSTEMS).

A6. GROUNDING CONDUCTORS SHALL BE BONDED TO CABLE SUPPORTS, ANTENNA FRAMES, AND ANY SUPPORT FRAMES OR RACKS USING CADWELD OR MECHANICAL CONNECTIONS.

A7. CONTRACTOR SHALL PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS, STAINLESS STEEL HARDWARE SHALL BE USED THROUGHOUT.

A8. GROUNDING CONDUCTORS EMBEDDED IN CONCRETE OR PENETRATING WALLS AND FLOORS SHALL BE ENCASED IN PVC CONDUIT. NO METALLIC CONDUIT SHALL BE USED FOR GROUNDING CONDUCTORS UNLESS REQUIRED BY LOCAL CODES OR OTHERWISE INDICATED ON DRAWINGS. CONTRACTOR SHALL SEAL AROUND ALL CONDUIT PENETRATIONS TO PREVENT MOISTURE PENETRATION AND VERMIN INFESTATION.

A9. CONTRACTOR SHALL BOND PCS GROUNDING SYSTEM VIA THE MASTER GROUND BAR TO ALL METAL OBJECTS WITHIN 12 FEET OF EQUIPMENT, CONDUIT AND CABLES.

A10. BONDING OF GROUNDED CONDUCTOR (NEUTRAL) AND GROUNDING CONDUCTOR SHALL BE AT SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250–28.

A11. CONTRACTOR SHALL VERIFY EXACT CONDUIT ROUTING FOR GROUNDING CONDUCTORS WHERE APPLICABLE.

A12. A GROUND LEAD IS REQUIRED ONLY FOR BTS SUPPORTED ON STEEL FRAME. AN ADDITIONAL GROUND LEAD IS REQUIRED IF CABLE TRAY IS USED.

A13. CONNECTIONS TO CGB SHALL BE ARRANGED IN THE FOLLOWING THREE GROUPS:

* SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO CABINET AND POWER PEDESTAL GROUND).
* SURGE ABSORBERS (GROUNDING ELECTRODE RING OR BUILDING STEEL).
* NON–SURGING OBJECTS (EGB GROUND IN BTS).

A14. DOUBLING OR STACKING OF ANY GROUNDING CONNECTIONS IS NOT ACCEPTABLE.

A15. ALL GROUND BARS SHALL BE INSTALLED WITH STAND OFF INSULATORS.

B – PREPARATION

B1. SURFACES: ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED TO ENSURE PROPER CONTACT. ALL GALVANIZED SURFACES ON WHICH GALVANIZING HAS BEEN REMOVED BY CUTTING, DRILLING, OR ANY OTHER OPERATION SHALL BE RE–GALVANIZED IN ACCORDANCE WITH ASTM A780 USING "ZINC RICH" COATING AS MANUFACTURED BY ZRC CHEMICAL PRODUCTS COMPANY (LOCATED IN QUINCY, MASSACHUSETTS), OR ACCEPTABLE EQUAL. NO WASHERS ARE ALLOWED BETWEEN ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON–OXIDIZING AGENT ("COPPER SHIELD") APPLIED PRIOR TO INSTALLATION.

B2. GROUND BAR: ALL COPPER GROUND BARS SHALL BE CLEANED, POLISHED AND A NON–OXIDIZING AGENT ("COPPER SHIELD") APPLIED. NO FINGER PRINTS OR DISCOLORED COPPER SHALL BE PERMITTED.

C – BUILDINGS

C1. ELECTRICAL CONTRACTOR SHALL PERFORM REQUIRED TESTING ON GROUNDING SYSTEM ONCE GROUNDING SYSTEM IS COMPLETELY CONSTRUCTED AND BEFORE SERVICE POWER AND GROUND IS CONNECTED (SEE NOTE T1 FOR TEST DESCRIPTION).

C2. A #4/0 AWG COPPER CONDUCTOR SHALL BE ROUTED FROM MASTER GROUND BAR AT BTS SITE TO MAIN METAL COLD WATER PIPE AND BONDED TO PIPE WITH BRONZE 2–HOLE PIPE CLAMP. CLAMP SHALL BE CONNECTED TO WATER PIPE WITHIN 5 FEET OF ENTRY OF PIPE INTO BUILDING WITH NO DEVICES BETWEEN ENTRY POINT AND CONNECTION AND SHALL COME IN CONTACT WITH PIPE FOR A MINIMUM DISTANCE OF 4 INCHES.

C3. METAL RACEWAYS, ENCLOSURES, FRAMES AND OTHER NON–CURRENT CARRYING PARTS OF ELECTRICAL EQUIPMENT SHALL BE KEPT AT LEAST 6 FEET AWAY FROM LIGHTNING ROD CONDUCTORS OR THEY MUST BE BONDED TO LIGHTING ROD CONDUCTORS AT THE LOCATION WHERE SEPARATION DISTANCE IS LESS THAN 6 FEET.

C4. A MASTER GROUND BAR (MGB) SHALL BE INSTALLED NEAR BTS WITH BUILDING PRINCIPAL GROUND BAR (BPG) INSTALLED NEAR ENTRANCE OF MAIN METAL COLD WATER PIPE INTO BUILDING. A #4/0 AWG STRANDED COPPER DOWN CONDUCTOR (VERTICAL GROUND RISER) SHALL BE USED TO INTERCONNECT GROUND BARS.

C5. VERTICAL RISER SHALL CONSIST OF A #4/0 AWG (THWN) STRANDED COPPER CONDUCTOR INSIDE ¾" CONDUIT.

C6. CONTRACTOR SHALL BOND BUILDING PRINCIPAL GROUND BAR (BPG) NEAR MAIN METAL COLD WATER PIPE TO EXISTING BUILDING GROUND RING AS WELL AS TO MAIN METAL COLD WATER PIPE WITH #4/0 AWG (THWN) STRANDED COPPER CONDUCTOR.

C7. ANTENNA GROUND BARS (AGB) SHALL BE INSTALLED NEAR ANTENNAS AND SHALL BE BONDED TO MASTER GROUND BAR (MGB) WITH #2 AWG TINNED SOLID BARE COPPER CONDUCTOR.

C8. IF CODES REQUIRE VERTICAL RISER TO BE ISOLATED IN CONDUIT, PVC CONDUIT IS PREFERRED. IF METALLIC CONDUIT IS USED, GROUNDING BUSHINGS SHALL BE INSTALLED ON EACH END OF THE CONDUIT AND BONDED TO GROUND BARS USING #2 AWG (THWN) STRANDED COPPER CONDUCTORS WITH GREEN INSULATION.

D – LAND BUILDS AND CO–LOCATES

D1. THE GROUND ELECTRODE SYSTEM SHALL CONSIST OF DRIVEN GROUND RODS UNIFORMLY SPACED AROUND THE EQUIPMENT FOUNDATION AND AROUND THE PERIMETER OF THE TOWER FOUNDATION. THE GROUND RODS SHALL BE ⅝" X 10'–0" COPPER CLAD STEEL INTERCONNECTED WITH #2 SOLID TINNED BARE COPPER GROUND CONDUCTOR TO FORM A GROUND RING AT A DEPTH OF 30 INCHES BELOW THE SURFACE OF THE SOIL. A MINIMUM OF 1 FOOT AND A MAXIMUM OF 3 FEET CLEARANCES SHALL BE MAINTAINED FROM FOUNDATIONS. TOWER AND EQUIPMENT GROUND RINGS SHALL BE INTERCONNECTED WITH TWO GROUNDING CONDUCTORS OF EQUAL LENGTH AND MATERIALS.

D2. GROUND RODS SHALL BE BONDED TO GROUND RINGS AND INTERCONNECTING CONDUCTORS AT EQUAL INTERVALS OF APPROXIMATELY 10 FEET.

D3. WAVEGUIDE BRIDGE SHALL BE BONDED TO GROUND RINGS OR INTERCONNECTING CONDUCTORS WITH GROUNDING CONDUCTORS BONDED TO DIAGONALLY OPPOSED SUPPORT POSTS.

D4. GROUND BARS SHALL BE BONDED TO GROUND RING WITH SINGLE GROUNDING CONDUCTOR.

D5. BONDS TO ANTENNA MASTS, FENCE POSTS, WAVEGUIDE BRIDGE, TOWER STEEL (UNLESS PROHIBITED BY TOWER MANUFACTURER) AND THOSE BELOW GRADE SHALL BE EXOTHERMIC TYPE (CADWELD). ALL OTHER BONDS SHALL BE BRONZE 2–HOLE COMPRESSION FITTINGS UNLESS OTHERWISE NOTED.

D6. GROUNDING CONDUCTORS MAKING A TRANSITION FROM ABOVE TO BELOW GRADE SHALL BE INSULATED FROM EARTH CONTACT BY PASSING THROUGH PVC CONDUIT. THE CONDUIT SHALL EXTEND AT LEAST 6 INCHES ABOVE AND 12 INCHES BELOW GRADE LEVEL.

E – LIGHTNING PROTECTION

E1. IF EXISTING BUILDING HAS AN NFPA 780 AIR TERMINAL SYSTEM, EXISTING SYSTEM SHALL BE BONDED TO A GROUND BAR TO BOND THE EXISTING SYSTEM TO THE NEW SYSTEM. SHOULD THE EXISTING SYSTEM COME WITHIN 8 FEET OF ANTENNA STRUCTURES, EXISTING SYSTEM SHALL ALSO BE BONDED TO COAX GROUND BARS.

E2. IF SITE IS IN A HIGH RISK AREA AND ANTENNAS DO NOT FALL WITHIN EXISTING CONE OF PROTECTION FOR BUILDING, AIR TERMINALS SHALL BE INSTALLED AT ANTENNAS. A SINGLE AIR TERMINAL MAY BE USED WHEN TWO ANTENNAS ARE MOUNTED ON SAME STRUCTURE AND IT HAS BEEN DETERMINED THAT BOTH ANTENNAS WILL FALL WITHIN LIGHTNING CONE OF PROTECTION FOR SINGLE AIR TERMINAL.

T – GROUNDING REQUIREMENTS

T1. CONTRACTOR SHALL INSPECT AND TEST ANY NEW OR EXISTING T–MOBILE GROUNDING SYSTEM WITH A BIDDLE–MEGGER TESTER UTILIZING THE FALL OF POTENTIAL METHOD AND CONTACT CONSTRUCTION MANAGER IF RESISTANCE EXCEEDS 5 OHMS AND SHALL FIELD MODIFY GROUNDING SYSTEM AS NECESSARY TO ACHIEVE COMPLIANCE. TEST RESULTS AND CONCLUSIONS SHALL BE RECORDED FOR PROJECT CLOSE–OUT DOCUMENTATION.

T2. COAX CABLE OUTER CONDUCTORS (SHIELDS) SHALL BE GROUNDED USING COAX GROUNDING KITS AT A MINIMUM OF TWO POINTS, INCLUDING AT ANTENNA AND AT MASTER GROUND BAR. THE COAXIAL CABLE SHALL NOT EXCEED 100 FEET BETWEEN GROUNDING KITS.

T3. GROUNDING CONDUCTOR CONSISTING OF 2–#2 AWG TINNED SOLID BARE COPPER WIRE SHALL BE BONDED TO WAVEGUIDE ENTRY GROUND BAR USING CADWELD CONNECTIONS.

T4. COAX CABLE ENTERING A BUILDING SHALL BE GROUNDED WITH COAX GROUNDING KITS TO AN INSULATED COAX GROUND BAR WHICH SHALL BE INSTALLED ON THE OUTSIDE FACE OF THE BUILDING, BELOW THE CABLE ENTRY PORTS.

T5. WHEN COAX CABLES ENTER A BUILDING FROM A TOWER, THE COAX GROUND BAR AT THE BUILDING SHALL BE CONNECTED TO THE EXTERNAL GROUND RING USING 2–#2 AWG BARE TINNED SOLID COPPER ISOLATED IN PVC CONDUIT.

T6. WHEN COAX CABLES ENTER A BUILDING FROM A ROOF TOP, THE COAX GROUND BAR AT THE BUILDING SHALL BE CONNECTED TO THE MASTER GROUND BAR NEAR THE BTS USING #2 AWG STRANDED INSULATED COPPER CONDUCTOR (SEE BUILDINGS NOTES ON THIS DRAWING FOR CONNECTION TO PRINCIPLE GROUND BAR AND BUILDING GROUND).

REV	DATE	DESCRIPTION
A	03/25/21	PRELIM PLANS
B	04/06/21	REVISED PER COMMENTS
0	04/06/21	FINAL PLANS ISSUED

PROJECT NO.:	21–5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW

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

CERTIFICATE OF AUTHORIZATION 33693

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JACKSONVILLE, FLORIDA 32256

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JEREMY D. SHARIT PE FL LIC 75137

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9JK1308A

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LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME

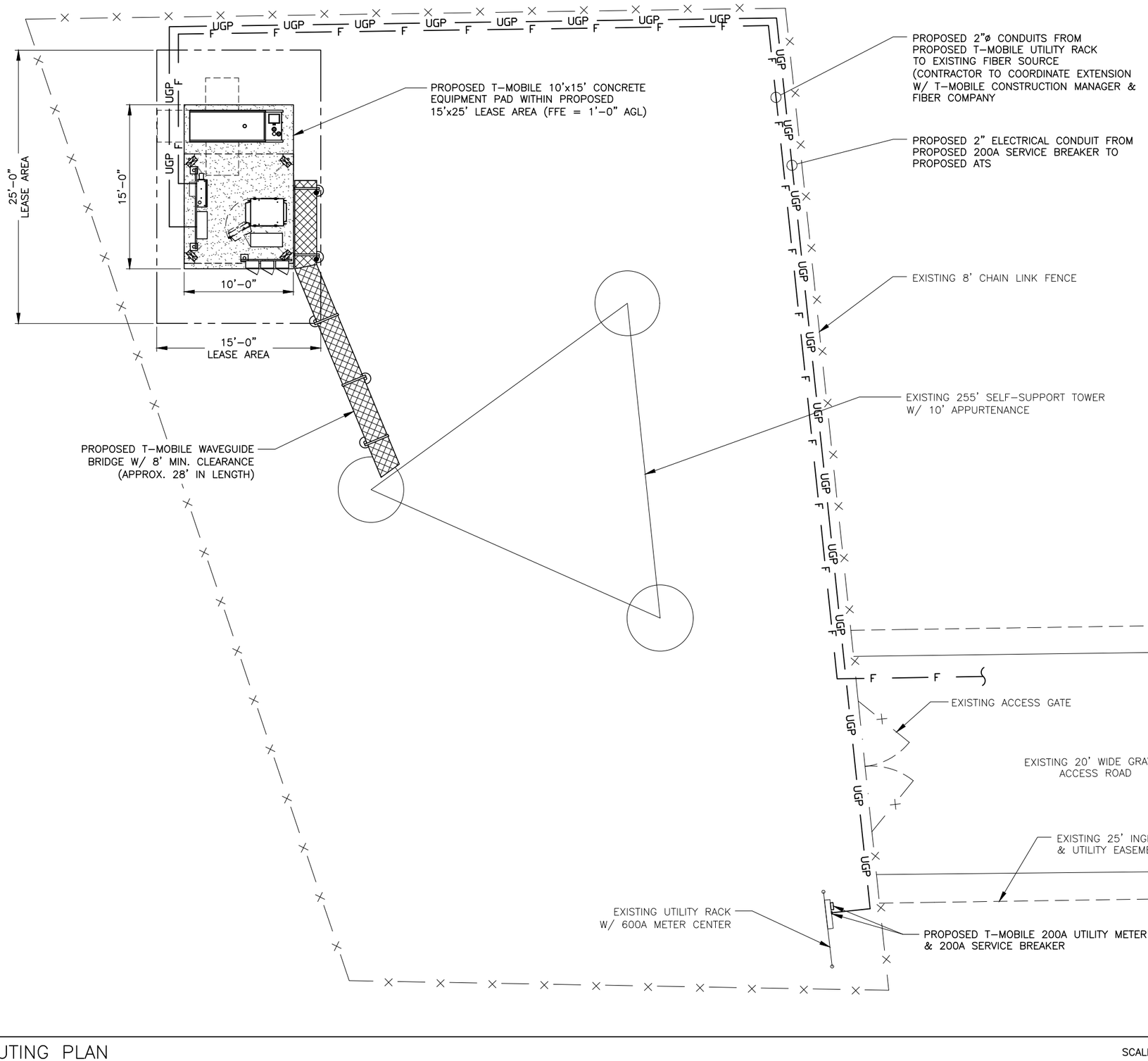
GROUNDING NOTES

SHEET NUMBER

E2

10' 0' 5' 10'

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



OVERALL POWER & TELCO ROUTING PLAN

SCALE AS NOTED | 1

REV	DATE	DESCRIPTION
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PROJECT NO.:	21-5084
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PROJECT MANAGER:	D. REVELS
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JEREMY D. SHARIT PE FL LIC 75137

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(COLUMBIA COUNTY)

SHEET NAME

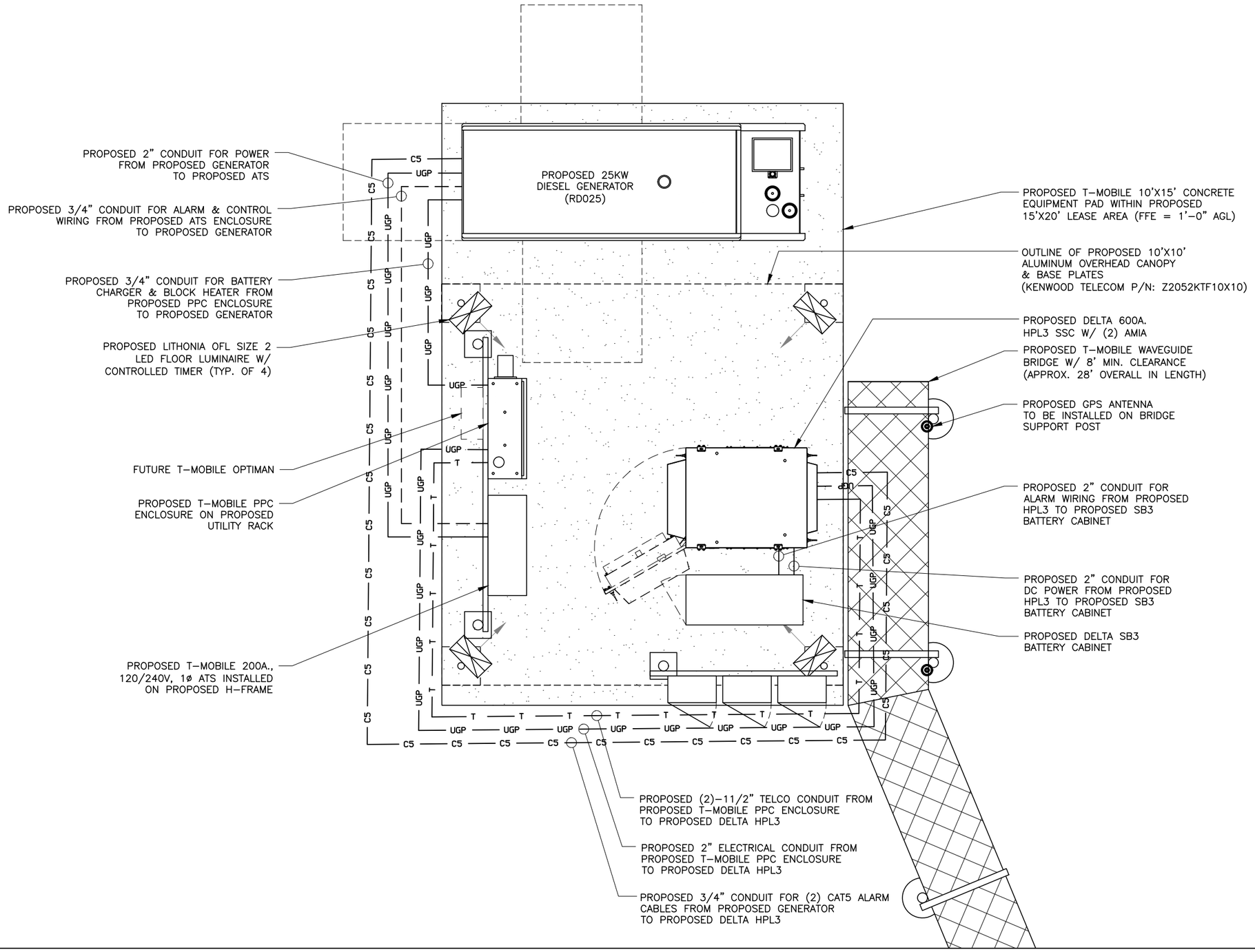
OVERALL POWER/TELCO ROUTING PLAN

SHEET NUMBER

E3

2' 0' 1' 2'

FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 3/4" = 1'-0"
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 3/8" = 1'-0"



T-MOBILE POWER & TELCO ROUTING PLAN

SCALE AS NOTED | 1

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PROJECT NO.:	21-5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

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9JK1308A

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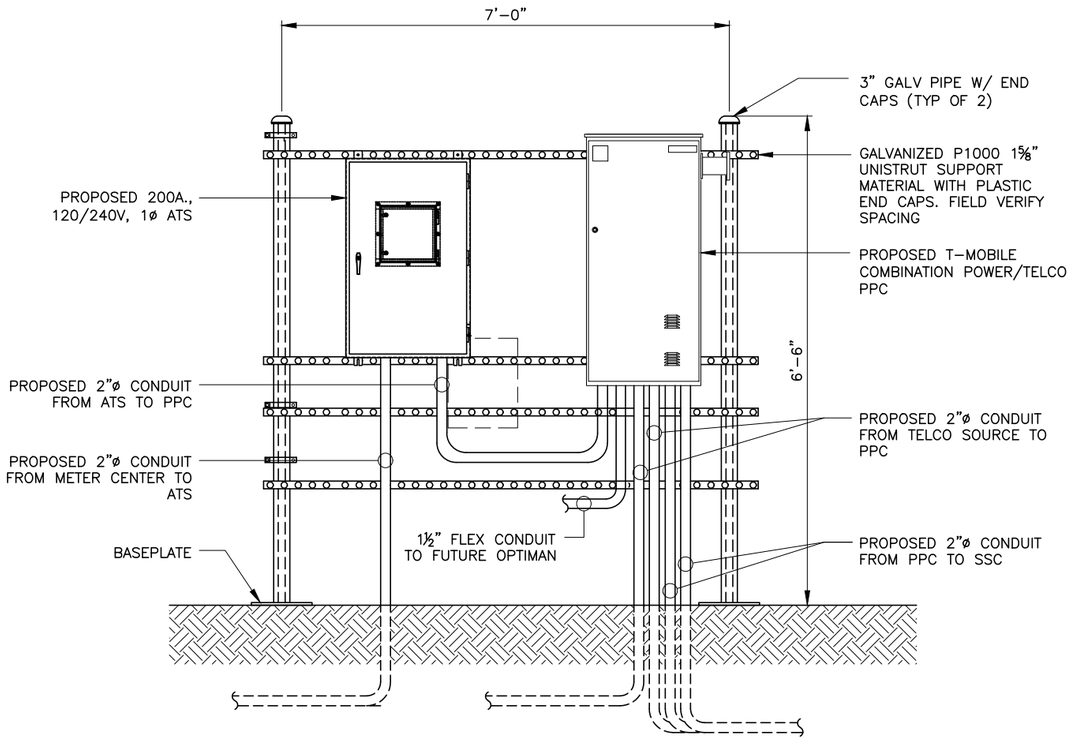
(COLUMBIA COUNTY)

SHEET NAME

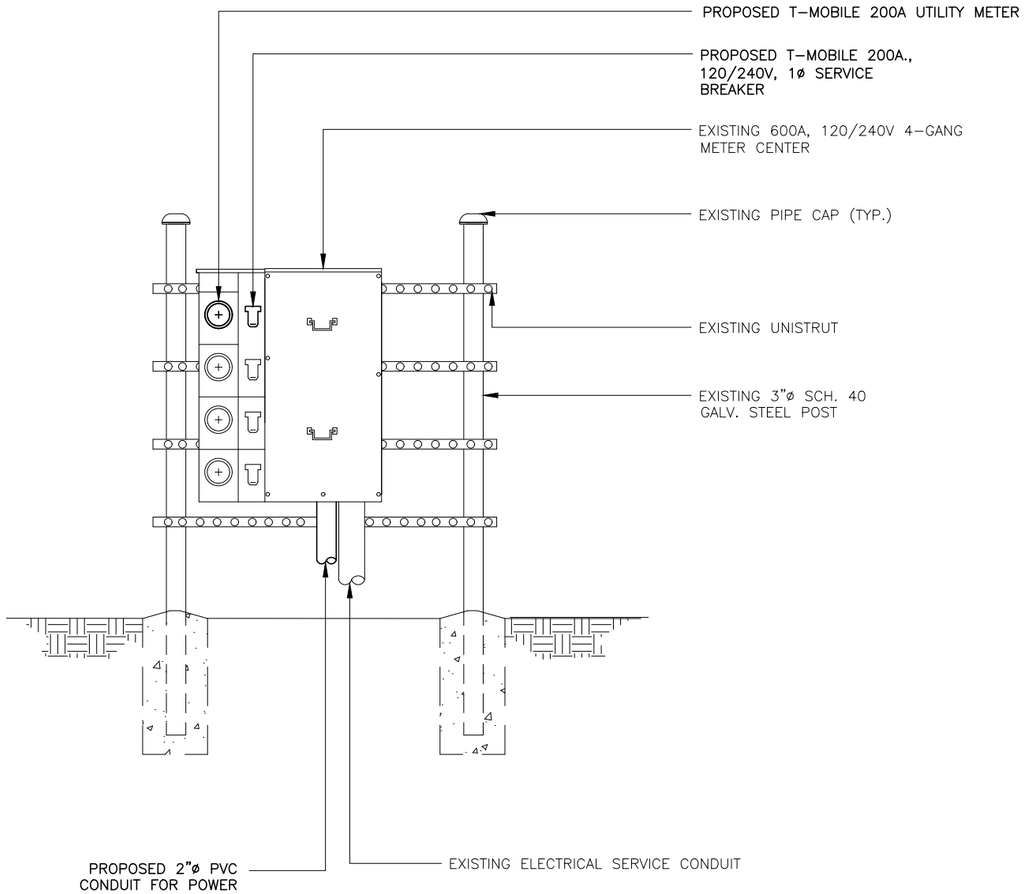
T-MOBILE POWER/TELCO ROUTING PLAN

SHEET NUMBER

E4



FRONT OF RISER DIAGRAM NTS 1



FRONT OF RISER DIAGRAM NTS 2

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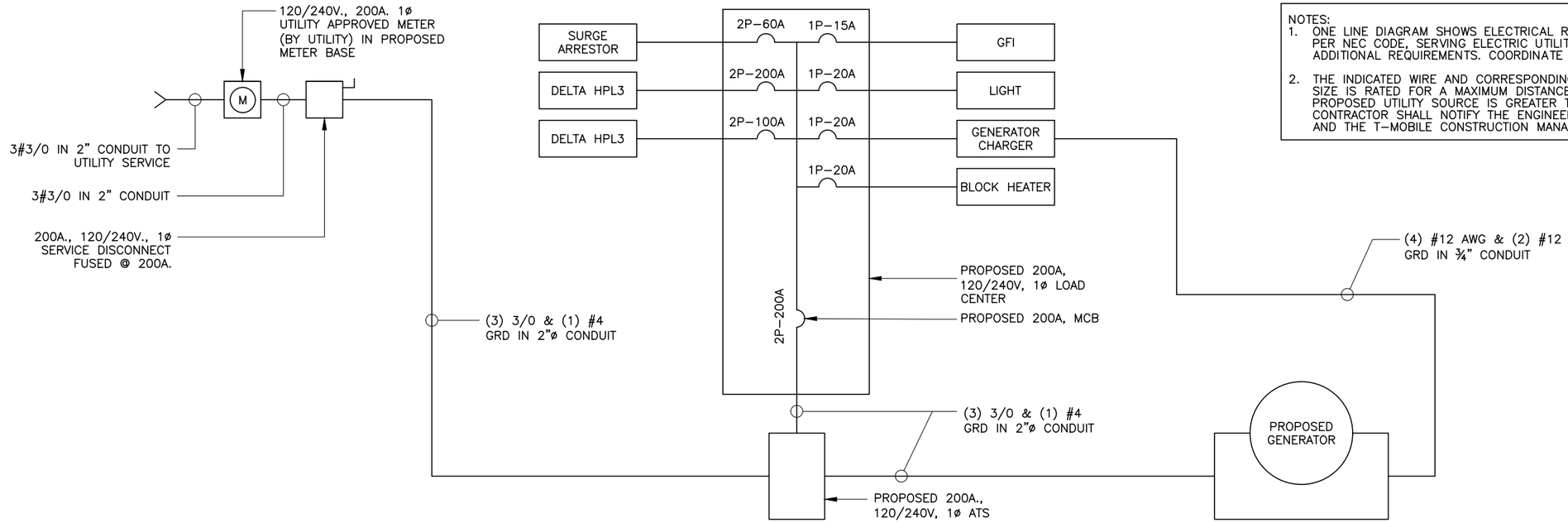
(COLUMBIA COUNTY)

SHEET NAME
RISER DIAGRAMS

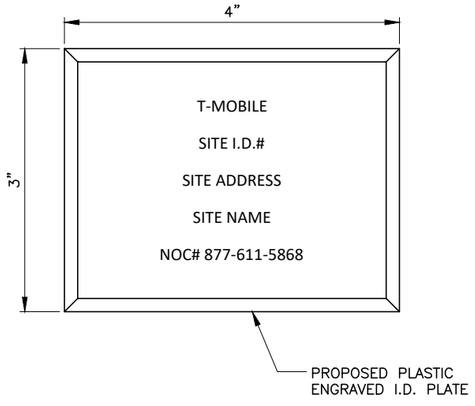
SHEET NUMBER
E5



NOTES:
1. ONE LINE DIAGRAM SHOWS ELECTRICAL REQUIREMENTS PER NEC CODE, SERVING ELECTRIC UTILITY MAY IMPOSE ADDITIONAL REQUIREMENTS. COORDINATE WITH UTILITY.
2. THE INDICATED WIRE AND CORRESPONDING CONDUIT SIZE IS RATED FOR A MAXIMUM DISTANCE OF 160'. IF PROPOSED UTILITY SOURCE IS GREATER THAN 160', THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND THE T-MOBILE CONSTRUCTION MANAGER.

AC ONE-LINE DIAGRAM

NOT TO SCALE | 1



SITE ID PLATE (PROPOSED METER & PPC)

NTS | 2

PANEL NAME: T-MOBILE LOCATION: H-FRAME		PANEL RATING 200 AMPS 120/240 VOLTS						PHASE 1 WIRE 3						200 MCB RATING 200 AMP MAIN LUG ONLY 65K AIC	
CKT NO.	DESCRIPTION	KVA A	KVA B	AMP POLE	WIRE	GND	COND	COND	GND	WIRE	AMP POLE	KVA A	KVA B	DESCRIPTION	CKT NO.
1	**SURGE ARRESTOR**	**0**	-	**60/2**	**(I)**	**(I)**	**(I)**	**(I)**	**#12**	**#12**	**15/1**	**0.18**	-	**GFI**	2
3		-	**0**					**3/4"**	**#12**	**#12**	**20/1**	-	**1.0**	**LIGHTS 1 & 2**	4
5	**SITE SUPPORT CABINET**	**11.5**	-	**200/2**	**(2) #3/0 & (1) #6**	**#4**	**2"**	**3/4"**	**#12**	**#12**	**20/1**	**0.7**		**BLOCK HEATER**	6
7									**#12**	**#12**	**20/1**	-	**0.74**	**GEN CHARGER**	8
9		-	**11.5**						-	-	-	-	-	SPACE	10
11								-	-	-	-	-	-	SPACE	12
13	**SITE SUPPORT CABINET**	**4.8**	-	**100/2**	**(3) #1**	**(1) #6**	**2"**	-	-	-	-	-	-	SPACE	14
15		-	**4.8**					-	-	-	-	-	-	SPACE	16
17	SPACE	-	-	-	-	-	-	-	-	-	-	-	-	SPACE	18
19	SPACE	-	-	-	-	-	-	-	-	-	-	-	-	SPACE	20
21	SPACE	-	-	-	-	-	-	-	-	-	-	-	-	SPACE	22
23	SPACE	-	-	-	-	-	-	-	-	-	-	-	-	SPACE	24
SUB TOTAL KVA (CONT)		0	0									0	0	SUB TOTAL KVA (CONT)	
SUB TOTAL KVA (NON-CONT)		16.3	16.3									0.92	0.74	SUB TOTAL KVA (NON-CONT)	
TOTAL KVA		34.3						142.8						TOTAL AMPS	
NON-CONT + 125% CONT.															

(E) EXISTING
(I) PREWIRED FROM MANUFACTURER

PANEL SCHEDULE

3

REV	DATE	DESCRIPTION
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DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

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JACKSONVILLE, FLORIDA 32256

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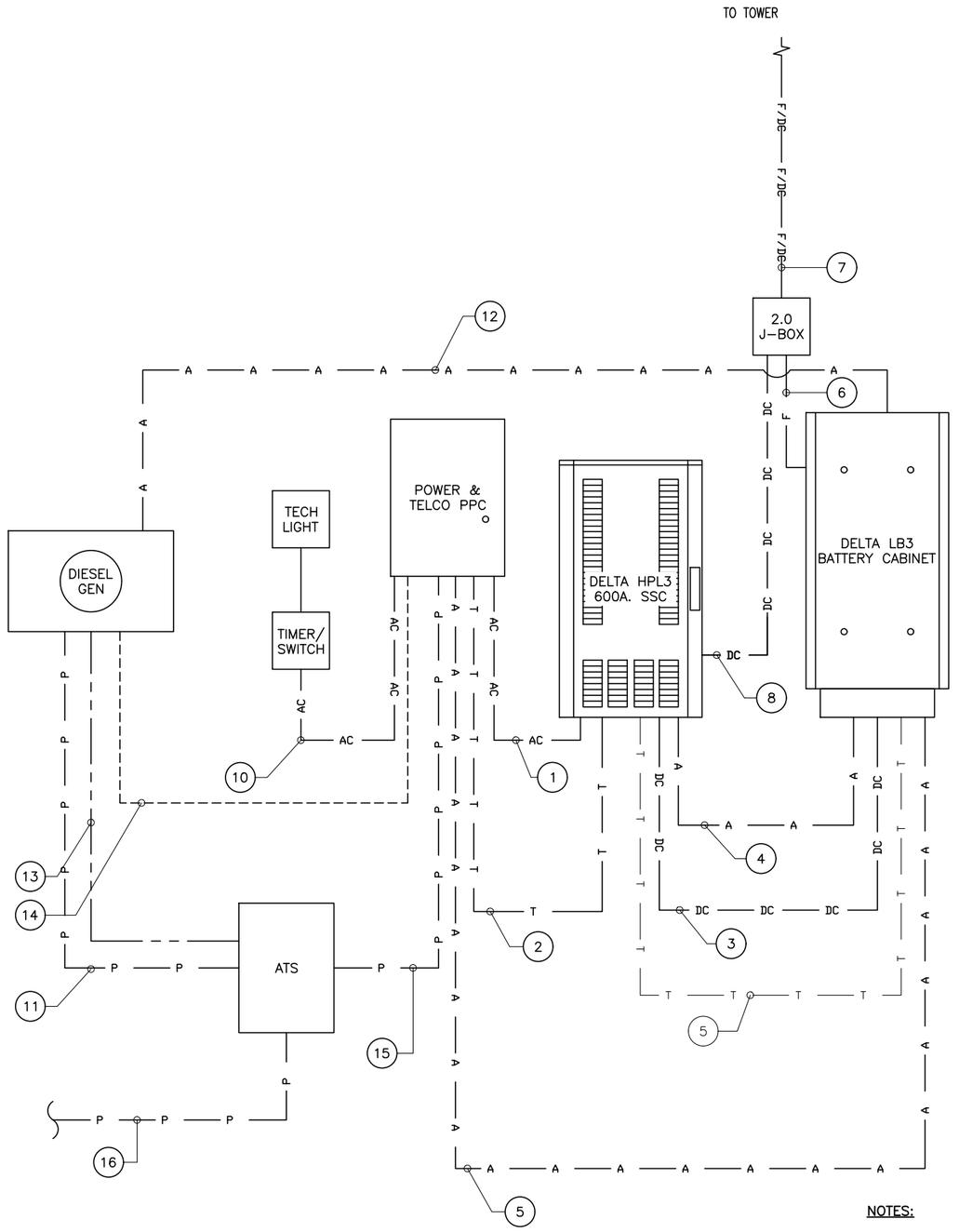
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME
ONE-LINE DIAGRAM
&
PANEL SCHEDULE

SHEET NUMBER
E6

SYM	TYPE	FROM	TO
1	2"ø CONDUIT W (2) #3/0 & (1) #6 & (1) #4 GROUND	AC PANEL	HPL3 SSC
2	(2)–1½"ø CONDUIT W/ TELCO CABLE	TELCO ENC.	HPL3 SSC
3	1½"ø CONDUIT W/ DC CONDUCTORS	HPL3 SSC	BATTERY CABINET
4	1"ø CONDUIT W/ (15) PAIR ALARM CABLE	BATTERY CABINET	HPL3 SSC
5	1"ø CONDUIT W/ (15) PAIR ALARM CABLE	BATTERY CABINET	TELCO ENC.
6	FIBER OPTIC CABLE	BATTERY CABINET	2.0 J–BOX
7	HYBRID TRUNK CABLE	2.0 J–BOX	TOWER TOP
8	NOT USED	N/A	N/A
9	1½"ø CONDUIT W/ DC CONDUCTORS	HPL3 SSC	2.0 J–BOX
10	¾"ø CONDUIT W/ (2) #12 (1) #12 GROUND	AC PANEL	TECH LIGHT
11	2"ø PVC CONDUIT FOR POWER	GENERATOR	ATS
12	3/4"ø PVC CONDUIT FOR CAT6 ALARM WIRING	GENERATOR	BATTERY CABINET
13	3/4"ø PVC CONDUIT FOR ALARM & CONTROL WIRING	GENERATOR	ATS
14	3/4"ø PVC CONDUIT W/ (4) #12 & (2) #12 GRD FOR BATTERY & BLOCK HEATER	GENERATOR	AC PANEL
15	2"ø PVC CONDUIT FOR POWER	ATS	AC PANEL
16	2"ø PVC CONDUIT FOR POWER	SOURCE	ATS



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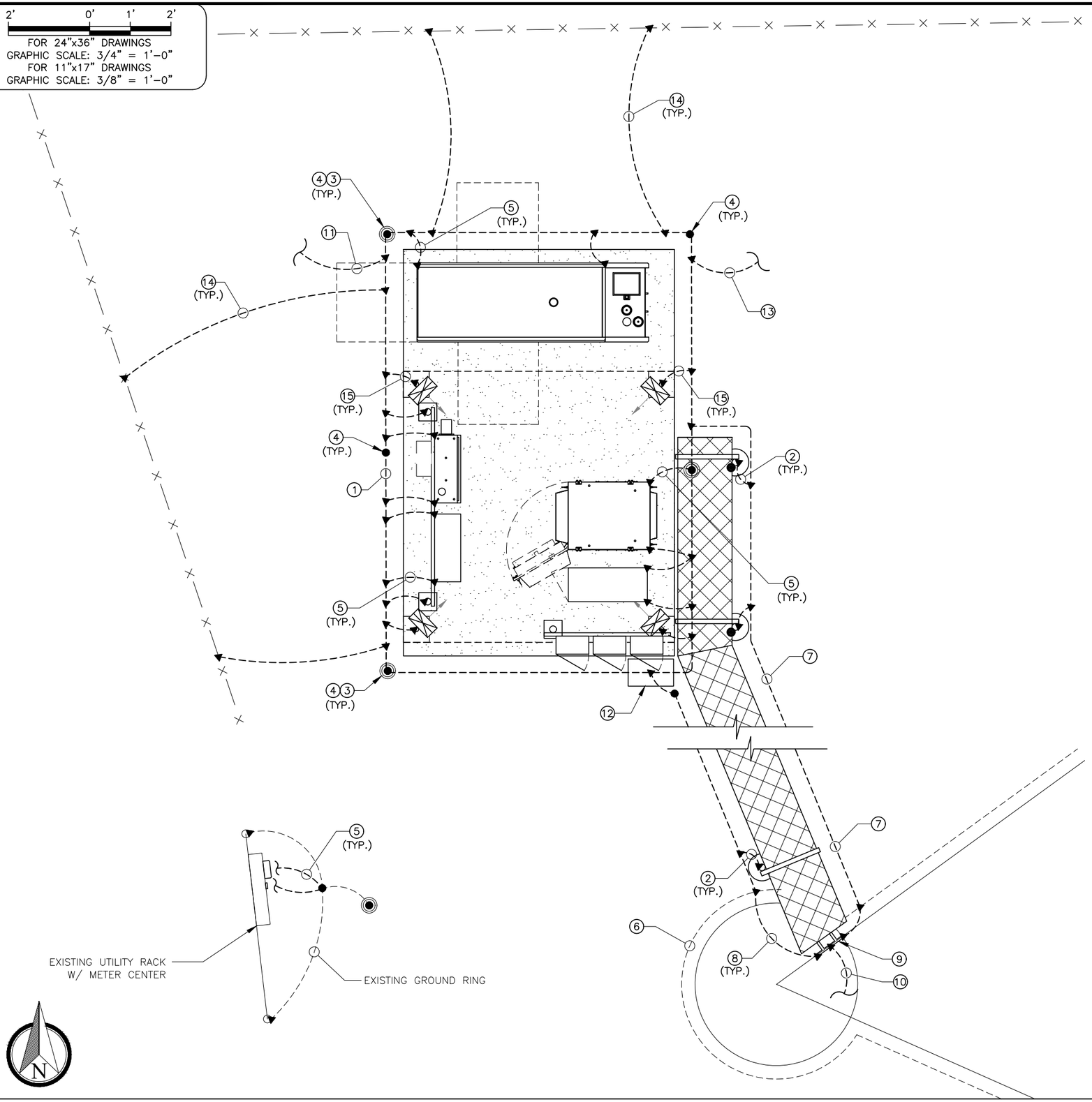
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME
CONDUIT ROUTING PLAN

SHEET NUMBER
E7

2' 0' 1' 2'

FOR 24"x36" DRAWINGS
GRAPHIC SCALE: 3/4" = 1'-0"
FOR 11"x17" DRAWINGS
GRAPHIC SCALE: 3/8" = 1'-0"



GROUNDING KEY NOTES:

1. PROVIDE A #2 AWG SOLID BARE TINNED COPPER GROUND RING AROUND THE EQUIPMENT PAD. ALL EXTERIOR GROUNDING CONDUCTORS SHALL BE BURIED A MINIMUM OF 18" BELOW GRADE. THE GROUND RING SHALL BE INSTALLED 1'-0" AWAY FROM FOUNDATIONS (MINIMUM UNLESS SHOWN OTHERWISE ON DRAWINGS). WHERE REQUIRED DUE TO SOIL CONDITIONS AND THE PRESENCE OF ROCK, THE ROUTING OF THE GROUND RING MAY BE ADJUSTED (WITH APPROVAL FROM T-MOBILE). ALL BONDS TO THE BURIED GROUND RING SHALL BE WITH EXOTHERMIC WELDS.
2. BOND COAX BRIDGE AND UTILITY RACK POSTS TO BURIED GROUND RING. EXOTHERMICALLY WELD A #2 AWG SOLID BARE TINNED COPPER CONDUCTOR TO EACH POST AT 12" ABOVE GRADE AND CONNECT TO THE BURIED GROUND RING. PROVIDE CONDUCTOR LENGTH AS REQUIRED TO MAKE CONNECTION.
3. PROVIDE 6" DIAMETER PVC INSPECTION SLEEVE WITH REMOVABLE COVER IN LOCATION SHOWN. SEE GROUND ROD INSPECTION WELL DETAIL, SHEET E9, FOR TYPICAL GROUND RING INSPECTION SLEEVE. NOTE: INSPECTION SLEEVE CAN BE USED AS A TEST WELL FOR GROUND WATER LEVEL INSPECTION AND GROUND RESISTANCE TESTING.
4. INSTALL ⅝" x 10' LONG COPPERCLAD STEEL GROUND RODS. SPACING BETWEEN RODS NOT TO EXCEED 16' (NONLINEAR). TYPICAL FOR ALL GROUND RODS SHOWN, UNLESS NOTED OTHERWISE. SEE GROUND ROD INSPECTION WELL DETAIL, SHEET E9. IF ROCK IS ENCOUNTERED, GROUND ROD MAY BE INSTALLED WITH A MAXIMUM VARIATION OF 30° FROM VERTICAL AND CONTRACTOR SHALL BE PREPARED TO CORE DRILL TO INSTALL GROUND RODS AND BACKFILL WITH GROUND ENHANCEMENT MATERIAL.
5. #2 AWG BARE, TINNED, SOLID COPPER CASE BOND. EACH PIECE OF EQUIPMENT TO HAVE A MINIMUM OF 2 GROUND LEADS.
6. EXISTING TOWER GROUND RING
7. #2 AWG SOLID BARE TINNED COPPER FROM T-MOBILE GROUND RING TO TOWER GROUND RING. ALL EXTERIOR GROUNDING CONDUCTORS SHALL BE BURIED A MINIMUM OF 18" BELOW GRADE. THE GROUND RING SHALL BE INSTALLED 1'-0" AWAY FROM FOUNDATIONS (MINIMUM UNLESS SHOWN OTHERWISE ON DRAWINGS). ALL BONDS TO THE BURIED GROUND RING SHALL BE WITH EXOTHERMIC WELDS.
8. INSTALL GROUNDING CONDUCTOR(S) FROM THE BURIED GROUND RING FOR CONNECTION TO THE GROUND BAR AT BOTTOM OF TOWER. VERIFY EXACT LOCATION OF GROUNDING BAR AND PROPER CONDUCTOR LENGTH. EXOTHERMICALLY WELD (2) #2 AWG SOLID BARE TINNED COPPER GROUNDING CONDUCTOR (LENGTH AS REQUIRED) TO THE GROUND BAR. GROUNDING CONDUCTORS MUST BE HELD AWAY FROM TOWER BY USING STANDOFFS OR ROUTING THE CONDUCTORS IN FLEXIBLE PVC CONDUIT. COORDINATE LOCATION WITH T-MOBILE CONSTRUCTION MANAGER.
9. INSTALL GROUND BAR TO TOWER/WAVEGUIDE BRIDGE. EXOTHERMICALLY WELD (2) #2 AWG SOLID BARE TINNED COPPER GROUNDING CONDUCTORS BETWEEN MGB AND GROUND RING. SEE E8 FOR DETAILS.
10. #2 INSULATED/STRANDED ANTENNA AND COAX BOND
11. PROVIDE #2 AWG SOLID BARE TINNED COPPER WIRE TO ANY METAL WITHIN 6' OF PROPOSED GROUND RING.
12. BELOW GRADE GROUND WINDOW. SEE SHEET E8 FOR DETAILS
13. #2 AWG BOND TO FENCE GROUND RING (IF AVAILABLE) OR NEAREST FENCE POST
14. #2 AWG FENCE BOND TO PROPOSED GROUND RING
15. #2 AWG GROUND FROM CANOPY LEG TO PROPOSED T-MOBILE COPPER GROUND RING

KEY
- ▼ BOND
- ● GROUND ROD
- ◉ INSPECTION WELL

PROPOSED GROUNDING PLAN

SCALE AS NOTED | 1

REV	DATE	DESCRIPTION
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PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

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TOGETHER PLANNING A BETTER TOMORROW
12979 N TELECOM PARKWAY
TEMPLE TERRACE, FLORIDA 33637
(813) 615-1422
CERTIFICATE OF AUTHORIZATION 33693

T-Mobile
stick together

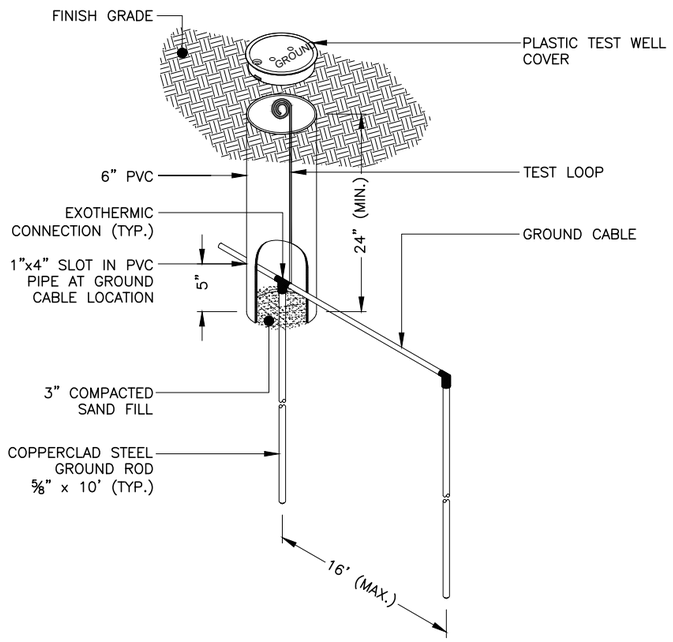
7025 A.C. SKINNER PARKWAY
JACKSONVILLE, FLORIDA 32256

9JK1308A

9JK1308A
1720 W US HIGHWAY 90
LAKE CITY, FLORIDA 32055
(COLUMBIA COUNTY)

SHEET NAME
PROPOSED GROUNDING PLAN

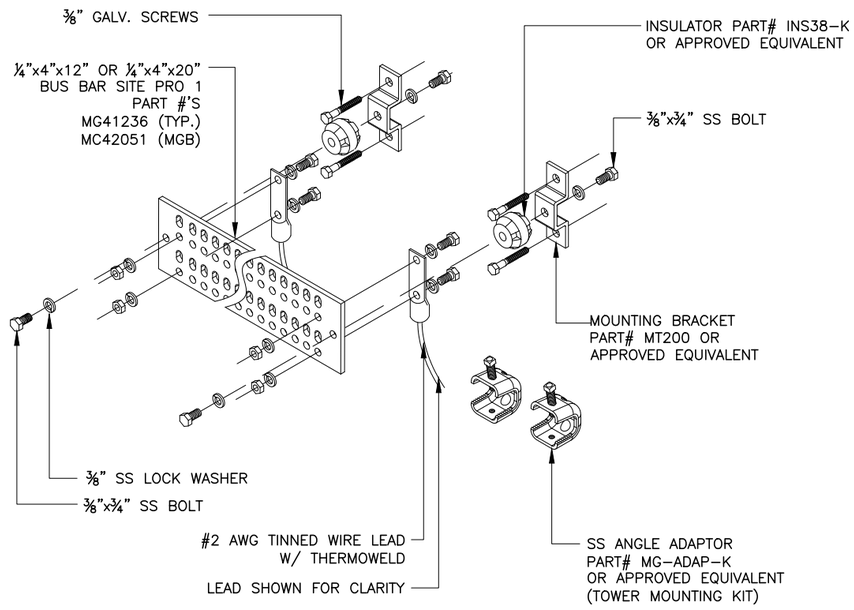
SHEET NUMBER
E8



NOTE:

ALL WORK SHALL CONFORM TO THE LOCAL BUILDING CODES. DEPTH MAY VARY.

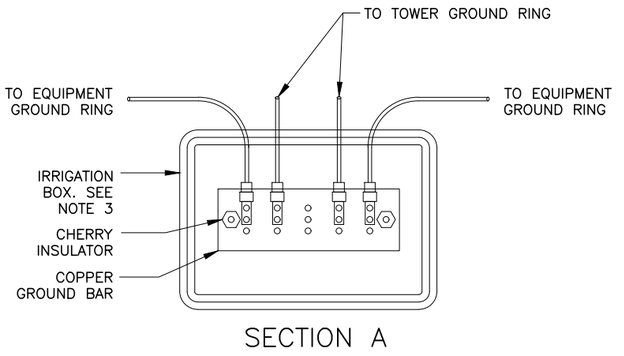
GROUND ROD INSPECTION WELL DETAIL NTS 1



NOTE:

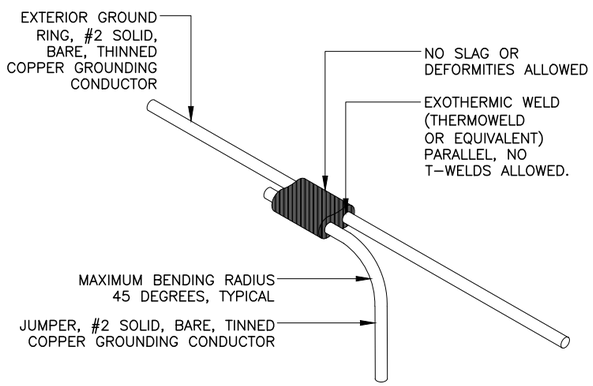
CONTRACTOR TO APPLY COPPERSHIELD OR NO-OX

TYPICAL GROUND BAR NTS 2

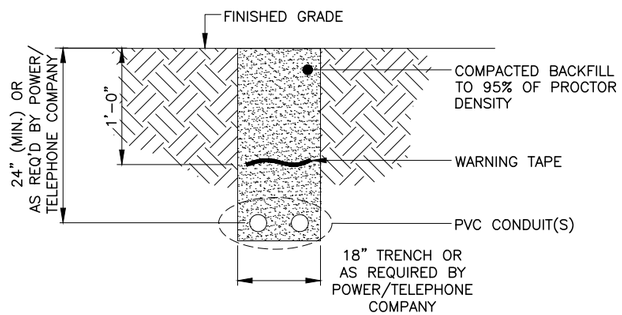


NOTES:
1. 4"X12"¼" SOLID COPPER BAR
2. (2) ⅜" CHERRY ISOLATORS SUPPORT BY 12"X14" MOUNTING BLOCK
3. PROVIDE IRRIGATION VALVE CONTROL BOX, WINDOW TO BE 17"X12"X9"
4. EXOTHERMIC WELDS
5. ALL COPPER BARS TO BE TINNED
6. ADD GRAVEL AROUND BLOCK

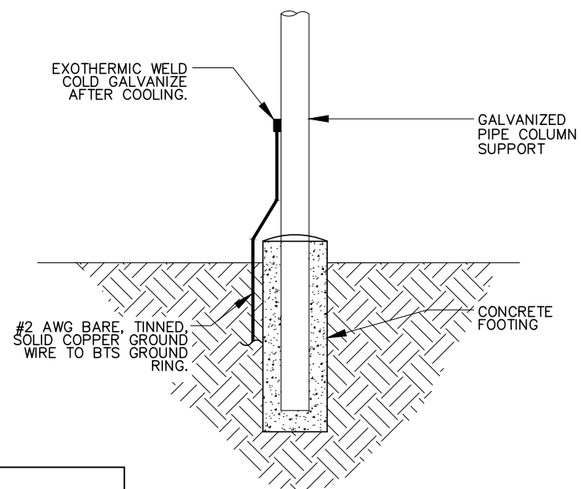
BELOW GRADE WINDOW NTS 3



EXOTHERMIC WELD DETAIL NTS 4



UTILITY TRENCH DETAIL NTS 5



NOTE:

FENCE POST SIMILAR

WAVEGUIDE POST BONDING DETAIL NTS 6

REV	DATE	DESCRIPTION
A	03/25/21	PRELIM PLANS
B	04/06/21	REVISED PER COMMENTS
0	04/06/21	FINAL PLANS ISSUED

PROJECT NO.:	21-5084
DRAWN BY:	J. MALLISON
PROJECT MANAGER:	D. REVELS
CHECKED BY:	D. REVELS

SMW ENGINEERING GROUP, INC.
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GROUNDING DETAILS

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E9