



TRADEWINDS AT&T TOWER

3601 VINKEMULDER ROAD
COCONUT CREEK, FL 33073

FB1007A

SECTOR SPLIT

REV	DATE	DESCRIPTION
A	2/19/14	PRELIMINARY
B	9/15/14	REVISED
O	9/24/14	FOR PERMIT

PROJECT NO.:		130-677.07
DRAWN BY:	CHECKED BY:	
J. FUTCH	M. ABBEY	

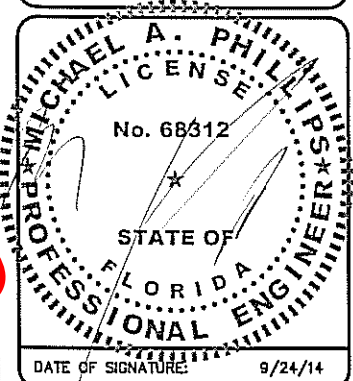
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SUITE 525
MIAMI, FL 33137
CERTIFICATE OF AUTHORIZATION 29214

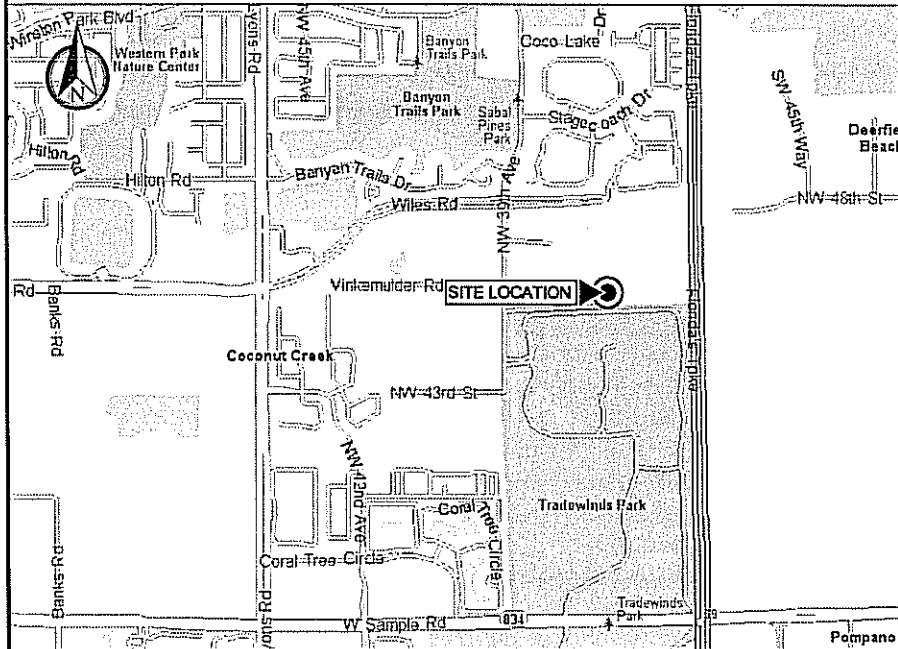
T-Mobile
stick together

1300 CONCORD TERRACE
SUITE 200
SUNRISE, FL 33323



TRADEWINDS AT&T TOWER
FB1007A
3601 VINKEMULDER ROAD COCONUT CREEK, FL 33073
SHEET NAME
TITLE SHEET
SHEET NUMBER
T1

LOCAL MAP



SCOPE OF WORK

INSTALLATION OF NEW AND REPLACEMENT ANTENNAS ON EXISTING TOWER.

PROPERTY SUMMARY

FOLIO #: 4842-17-02-0010
LATITUDE: 26.170711 N
LONGITUDE: 80.102202 W
ZONING JURISDICTION: CITY OF COCONUT CREEK

DESIGN CRITERIA

DESIGN WIND SPEED: 170 MPH (ULTIMATE, 3-SECOND GUST)
132 MPH (NOMINAL, 3-SECOND GUST)
EXPOSURE: C
RISK CATEGORY: II
OPEN STRUCTURE

CONTACTS

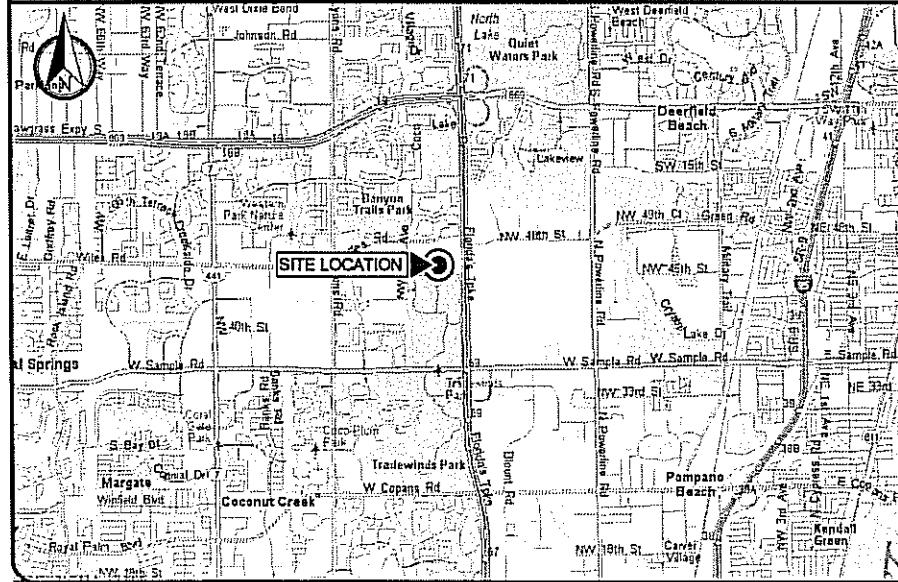
APPLICANT
T-MOBILE USA
1300 CONCORD TERRACE
SUITE 200
SUNRISE, FL 33323

PROPERTY OWNER
FLORIDA CELLULAR PHONE C/O
AT&T WIRELESS
P.O. BOX 97061
REDMOND, WA 98073

INDEX OF DRAWINGS

SHT. NO.	DESCRIPTION	REV. NO.
T1	TITLE SHEET	0
T2	NOTES	0
C1	EQUIPMENT PLANS	0
C2	ELEVATION AND MOUNTING DETAILS	0
C3	DETAILS	0
C4	DETAILS	0
E1	ELECTRICAL AND GROUNDING NOTES	0
E2	CONDUIT ROUTING PLAN	0
E3	ELECTRICAL DETAILS	0
E4	GROUNDING DETAILS AND NOTES	0

VICINITY MAP



APPLICABLE CODES

THE CONTRACTOR WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) OVER THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE: FLORIDA BUILDING CODE (FBC) 2010, WITH 2012 SUPPLEMENT.

ELECTRICAL CODE: NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70, NATIONAL ELECTRICAL CODE, 2008 EDITION.

MECHANICAL CODE: FBC MECHANICAL CODE 2010.

FIRE CODE: 2010 FLORIDA FIRE PREVENTION CODE, LIGHTNING PROTECTION CODE: NFPA 780 EDITION 2004.

THE CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS. AMERICAN CON. INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, LRFD 13th EDITION. TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES: TIA 607, COMMERCIAL BUILDING. GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS.

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM, IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT.

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE").

TELCORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS, TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS, ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION.



DESIGN BASED ON RFDS DATED 2/14/14. CONTRACTOR SHALL REQUEST CURRENT RFDS PRIOR TO CONSTRUCTION

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

OWNER - T-MOBILE USA
 ENGINEER - CALTROP CORPORATION
 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, 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.
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.
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. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE LATEST EDITION OF THE AISC "STEEL CONSTRUCTION MANUAL".
2. MATERIAL:
 - A. ALL STRUCTURAL STEEL WF BEAMS SHALL BE ASTM A992 AND "HOT DIPPED" GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STANDARDS.
 - 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.
 - C. ALL TS MEMBERS SHALL BE ASTM A500 GRADE B (Fy=46ksi), AND "HOT DIPPED" GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STANDARDS.
 - 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.
 - 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.
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 3/4" 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 F1554 GRADE 36, 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 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 WATER 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.

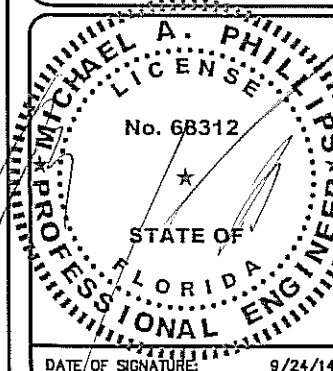
STRUCTURAL STEEL NOTES

3

REV	DATE	DESCRIPTION
A	2/19/14	PRELIMINARY
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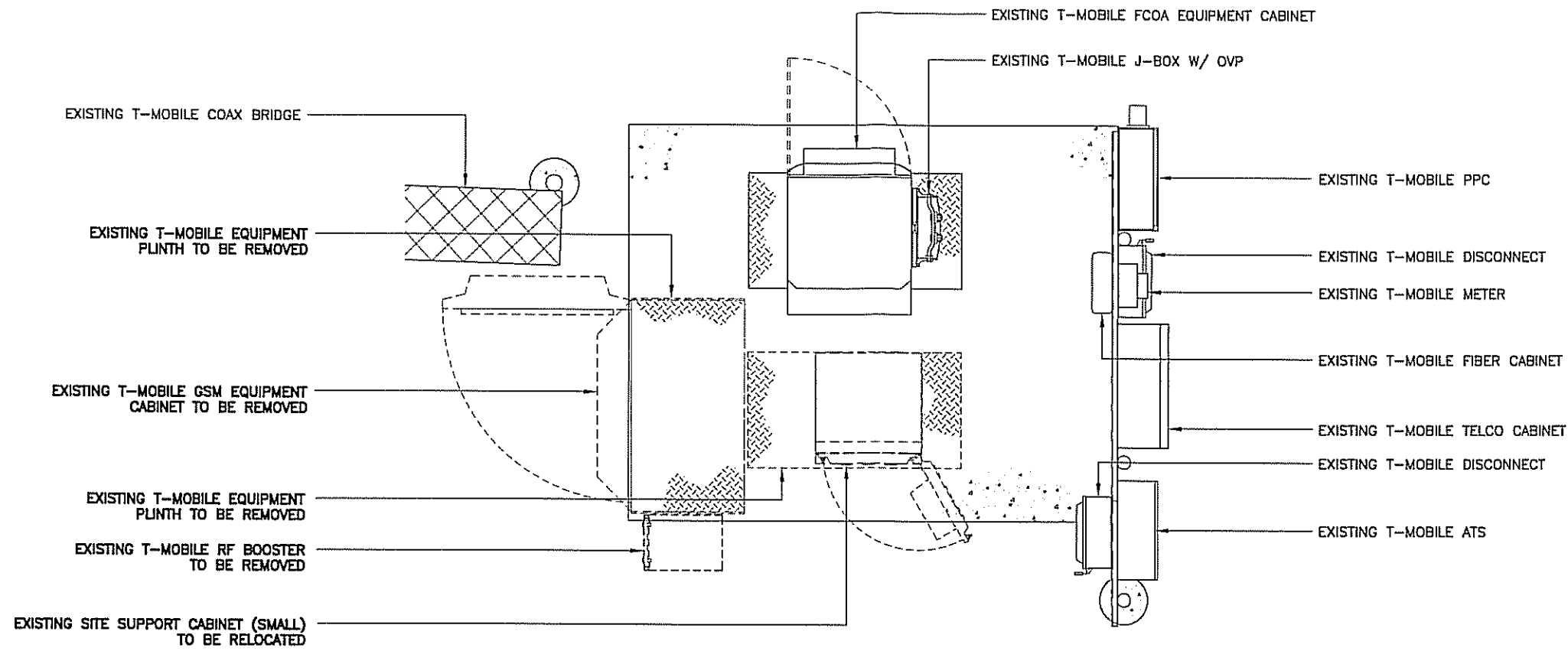
PROJECT NO.:	130-677.07
DRAWN BY:	CHECKED BY:
J. FUTCH	M. ABBEY

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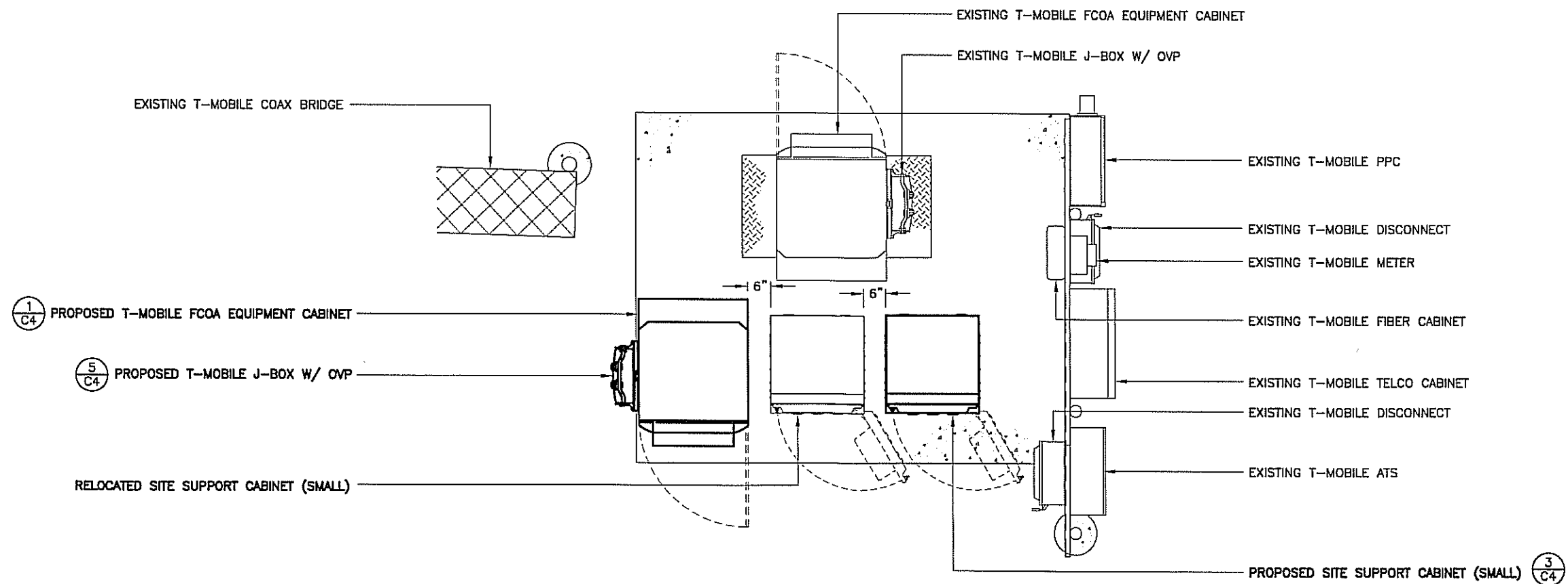
SHEET NAME
NOTES
SHEET NUMBER
T2



EXISTING EQUIPMENT PLAN



1



PROPOSED EQUIPMENT PLAN



2

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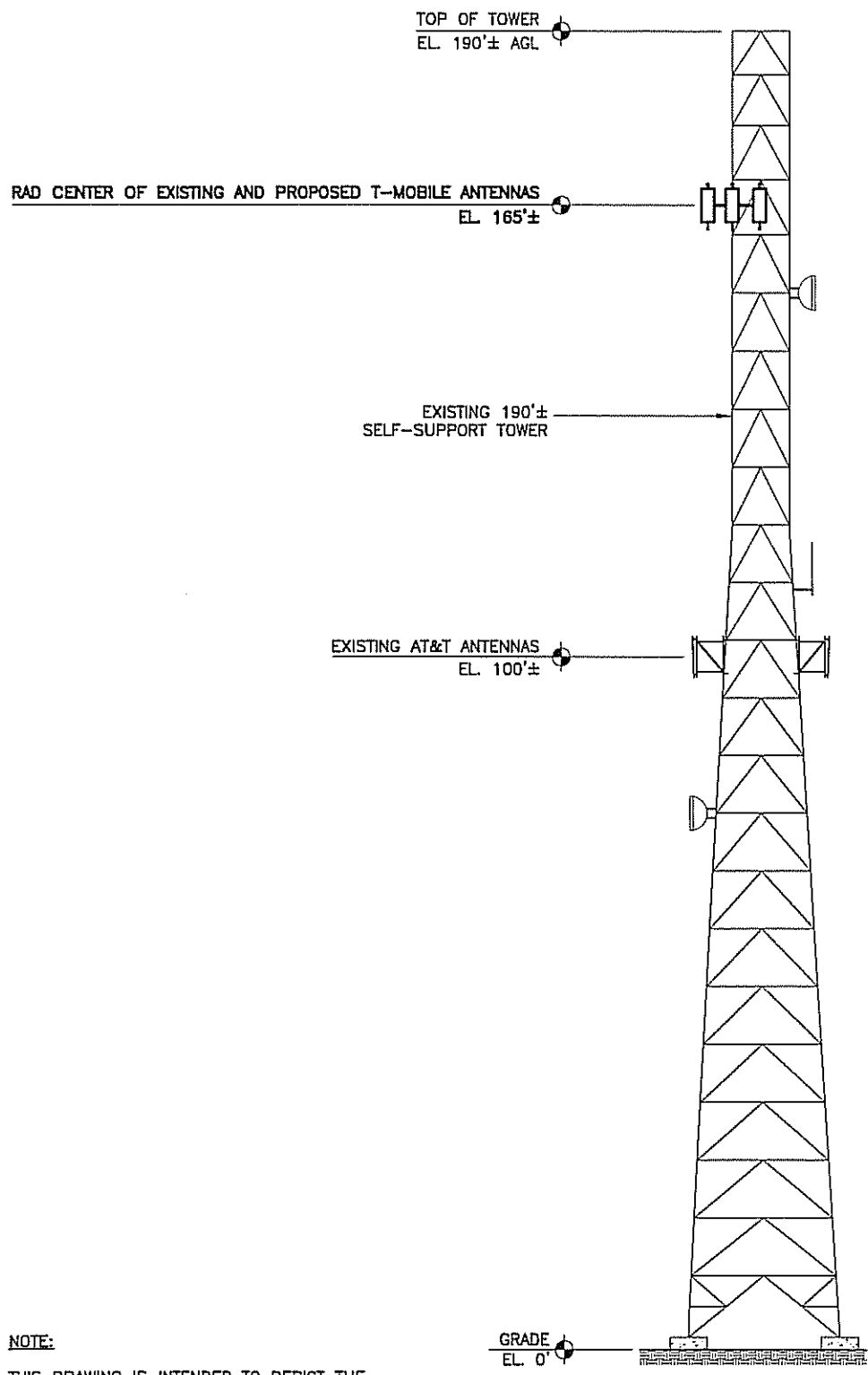
CALTROP
Telecom
 3400 LAKESIDE DRIVE
 SUITE 525
 MIRAMAR, FL 33027
 CERTIFICATE OF AUTHORIZATION 29214

T-Mobile
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 1300 CONCORD TERRACE
 SUITE 200
 SUNRISE, FL 33323

MICHAEL A. PHILLIPS
 LICENSE
 No. 68312
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 DATE OF SIGNATURE: 9/24/14

TRADEWINDS
 AT&T TOWER
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 3601 VINKEMULDER ROAD
 COCONUT CREEK, FL 33073

SHEET NAME
 EQUIPMENT PLANS
 SHEET NUMBER
 C1

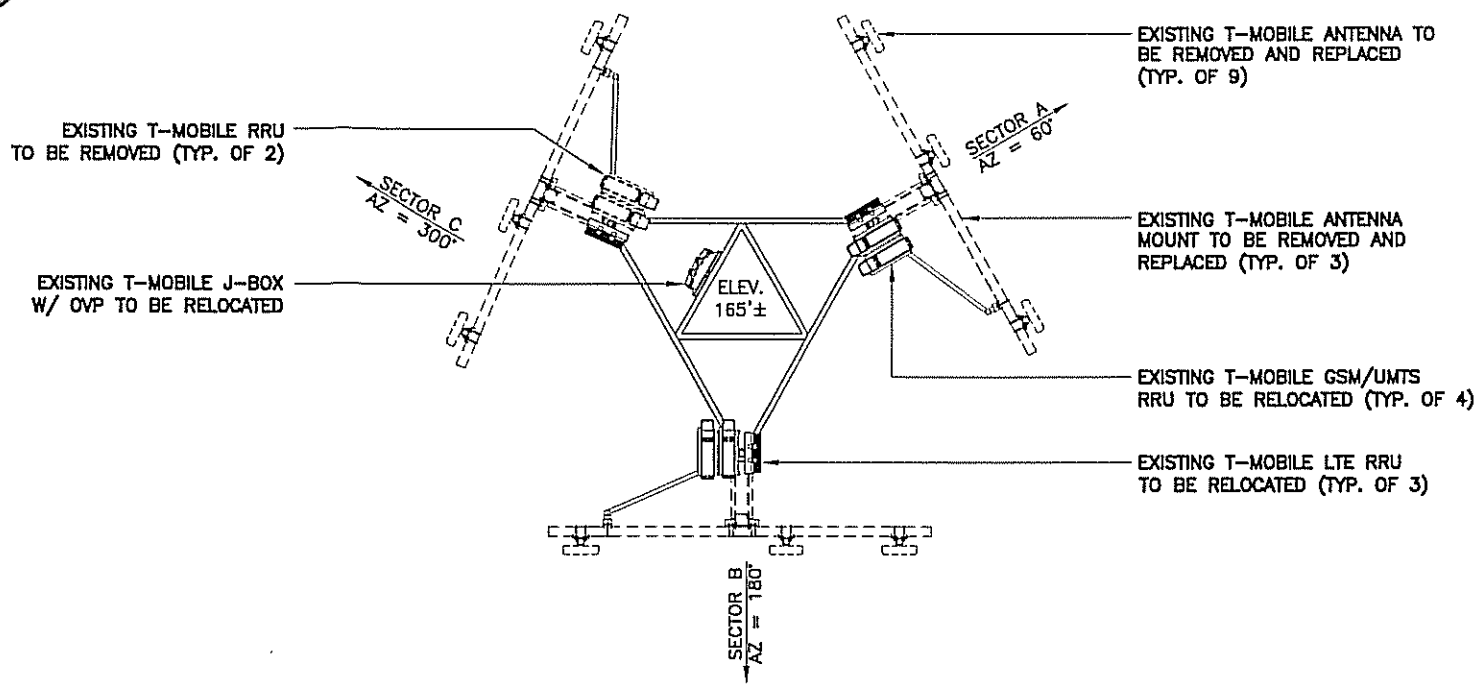


NOTE:

THIS DRAWING IS INTENDED TO DEPICT THE GENERAL LOCATION AND HEIGHT OF THE PROPOSED ANTENNAS ON THE EXISTING TOWER. CONSTRUCTION SHALL NOT PROCEED UNTIL A STRUCTURAL ANALYSIS REPORT HAS BEEN COMPLETED BY A PROFESSIONAL ENGINEER REGISTERED IN THIS STATE, CONCLUDING THAT THE EXISTING TOWER IS STRUCTURALLY ADEQUATE TO RESIST THE EXISTING AND PROPOSED LOADS.

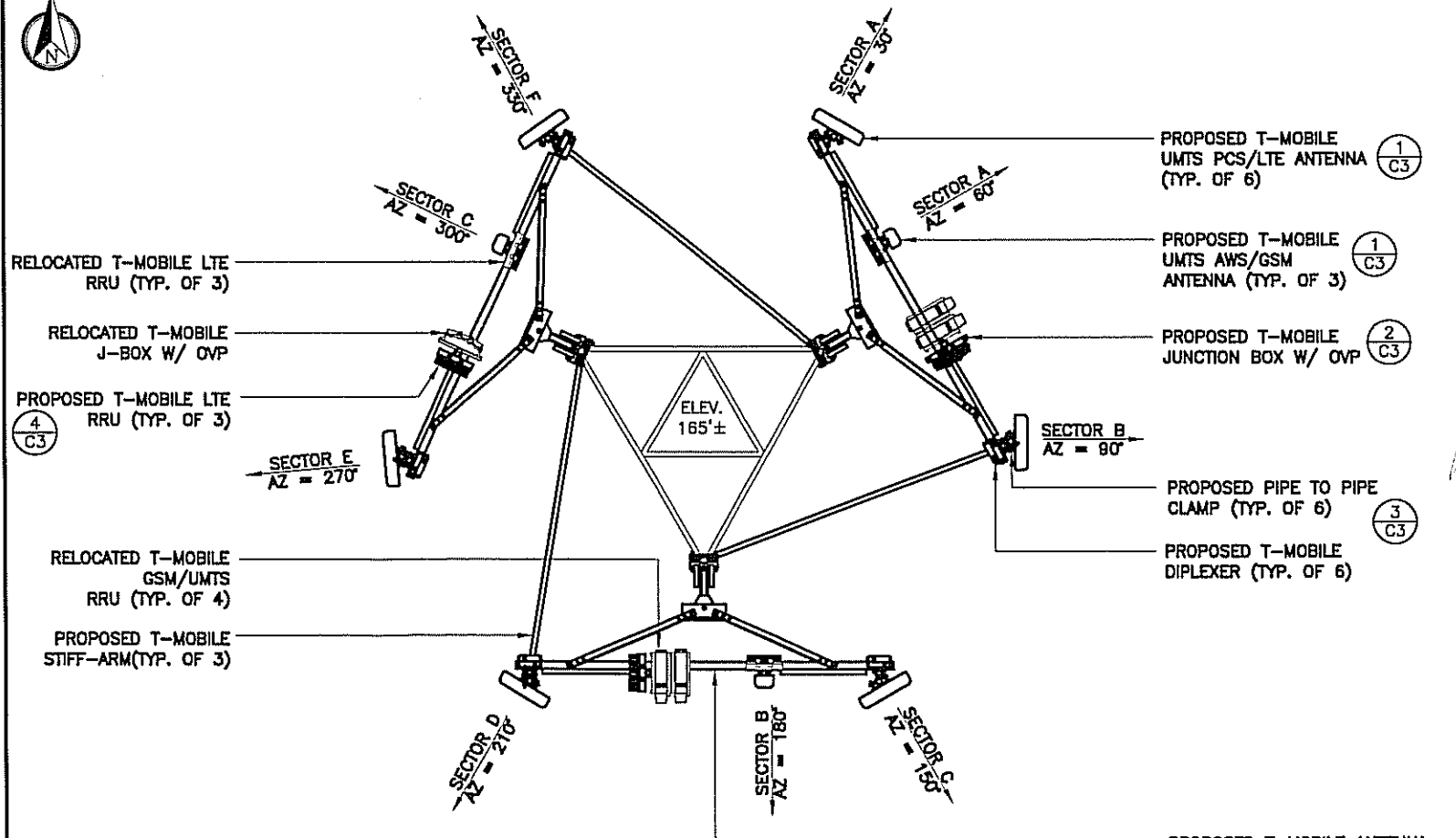


TOWER ELEVATION



EXISTING ANTENNA MOUNT DETAIL

NTS 2



NOTE:

CONTRACTOR TO VERIFY LENGTH OF EXISTING MOUNT PRIOR TO PART SELECTION.

PROPOSED ANTENNA MOUNT DETAIL

NTS 3

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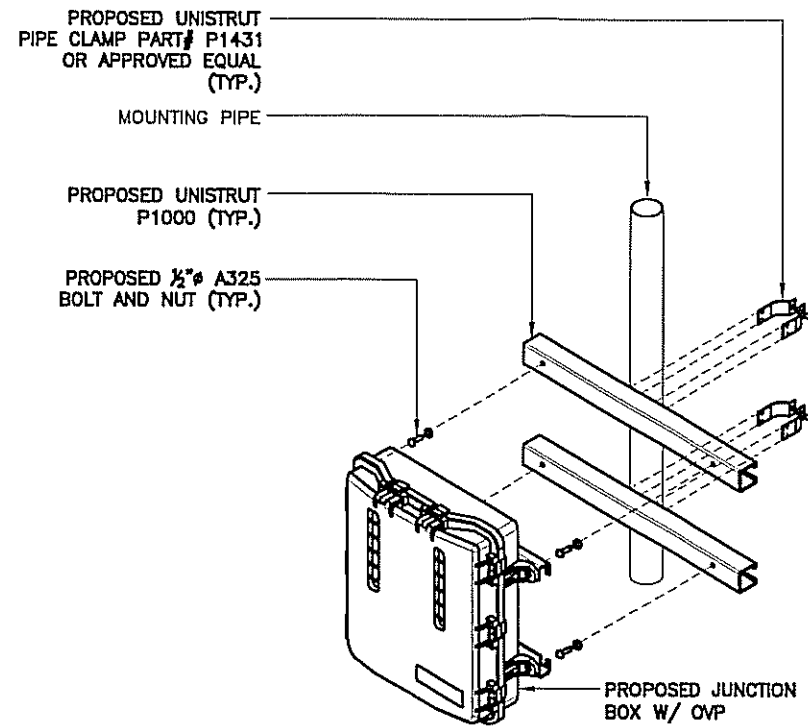
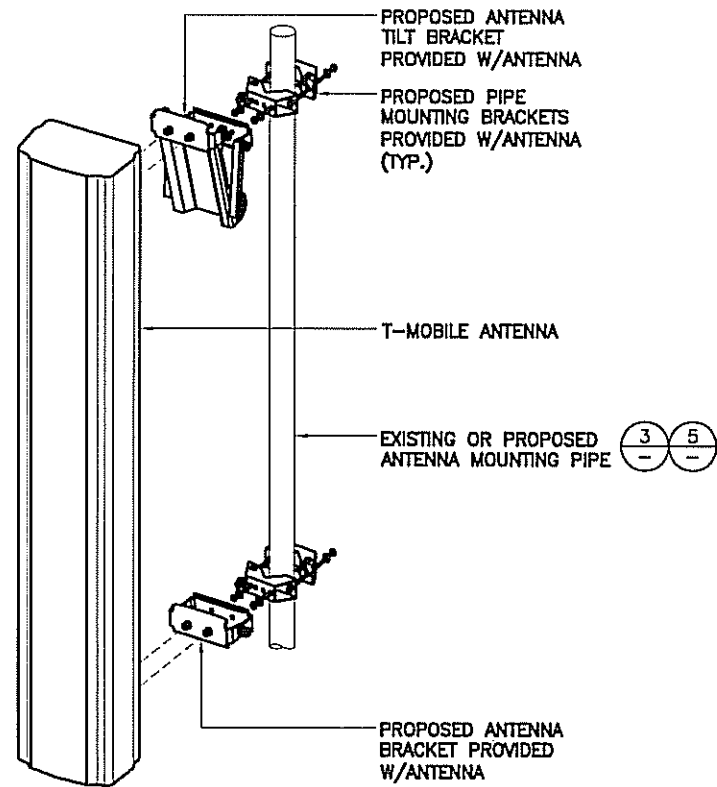
TRADEWINDS AT&T TOWER

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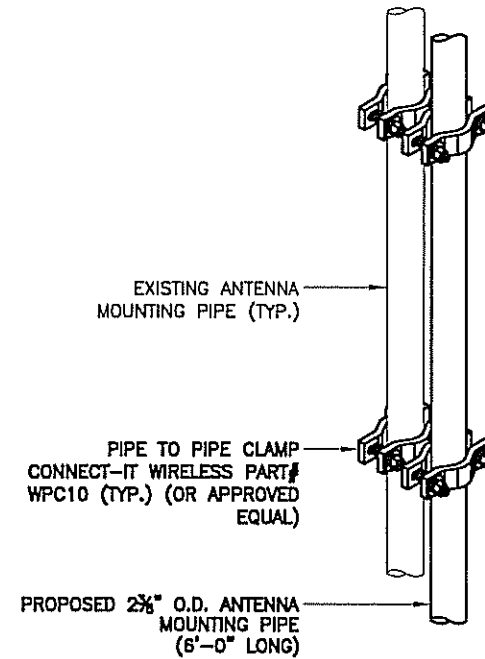
3601 WINKEMULDER ROAD
 COCONUT CREEK, FL 33073

SHEET NAME: ELEVATION AND MOUNTING DETAILS

SHEET NUMBER: C2



NOTE:
UNIT SHALL BE MOUNTED AS PER MANUFACTURER'S SPECIFICATIONS.



ANTENNA MOUNTING DETAIL

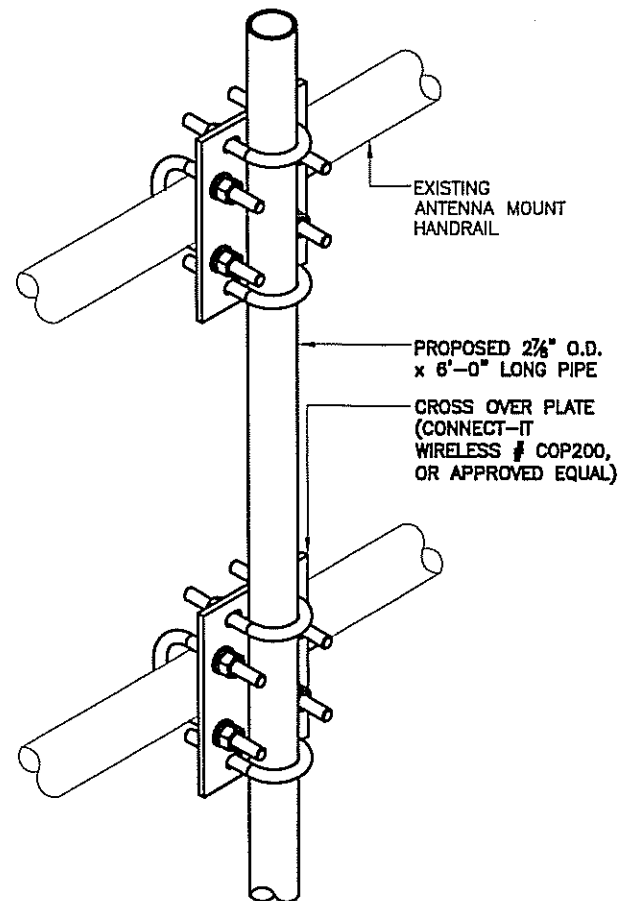
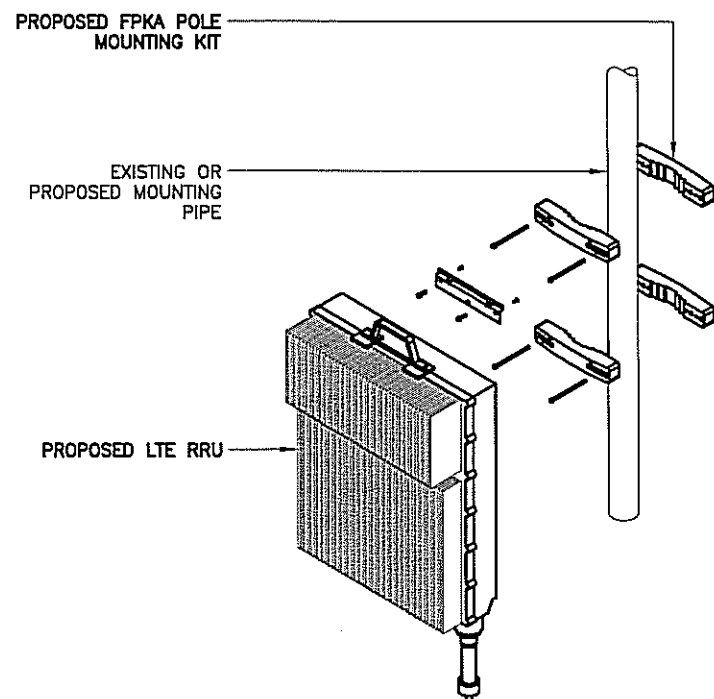
NTS 1

J-BOX W/ OVP MOUNTING DETAIL

NTS 2

PIPE MOUNTING DETAIL

NTS 3



LTE RRU MOUNTING DETAIL

NTS 4

PIPE MOUNTING DETAIL

NTS 5

(NOT USED)

NTS 6

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T-Mobile stick together

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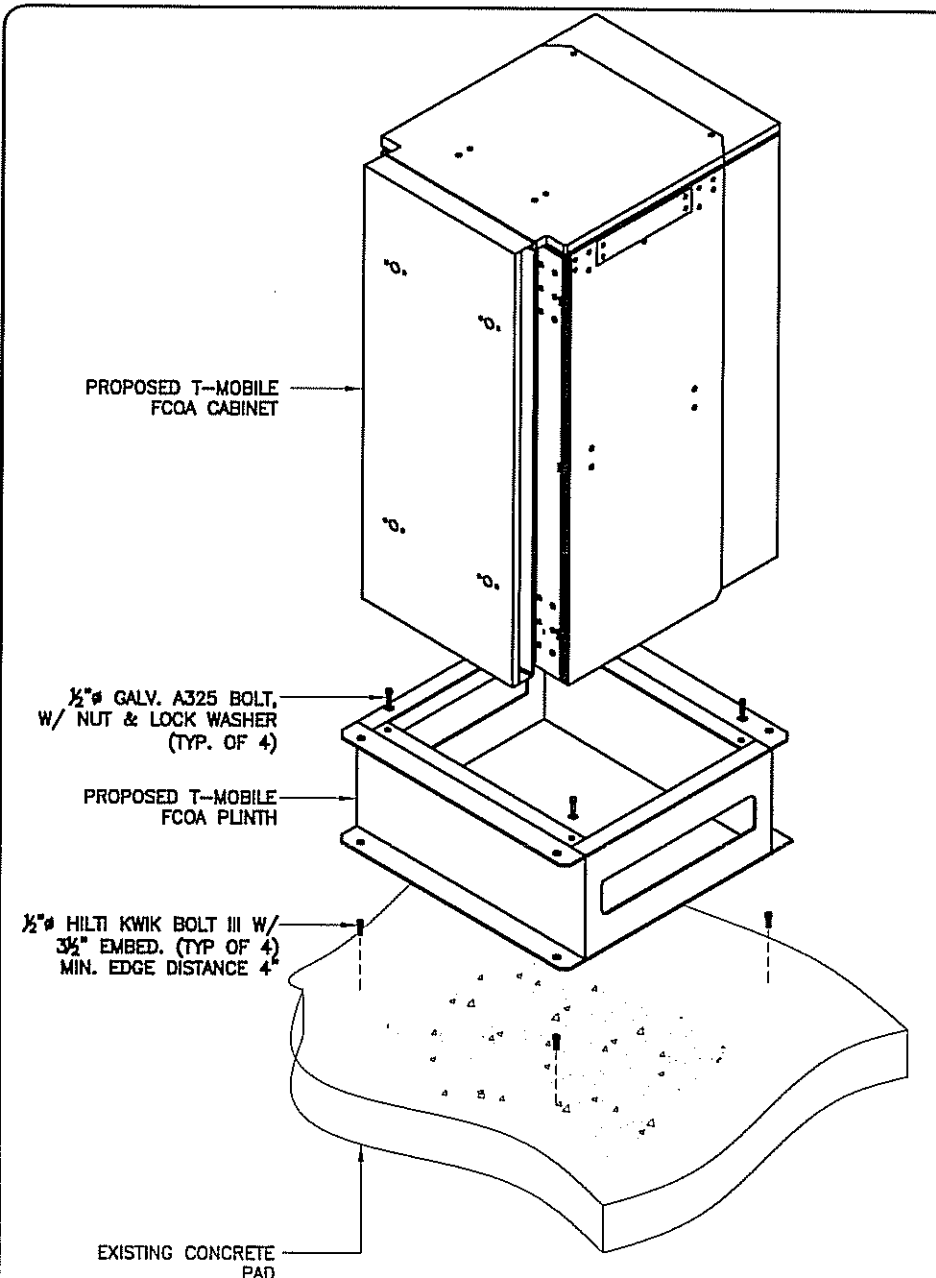
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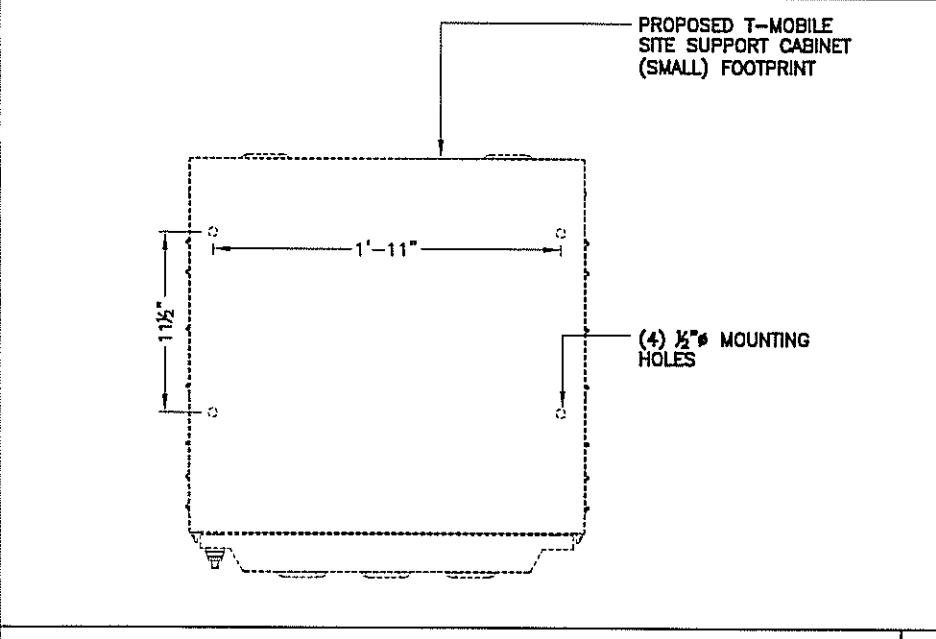
3801 WINKEMULDER ROAD
COCONUT CREEK, FL 33073

SHEET NAME
DETAILS

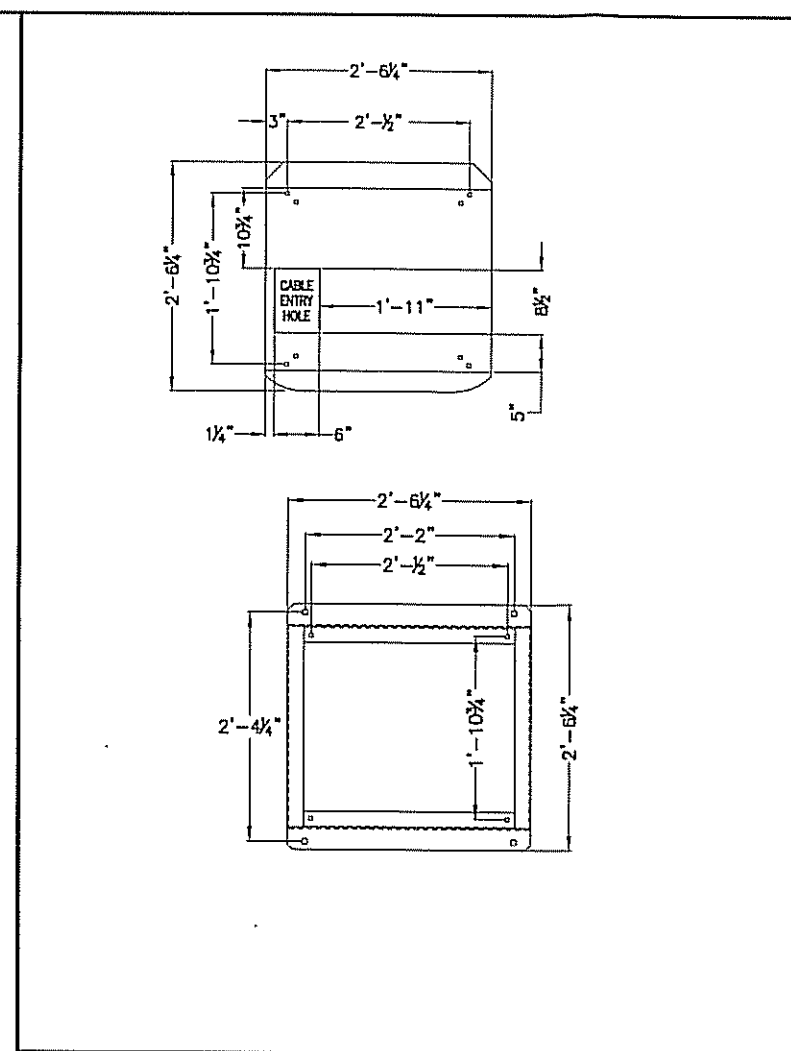
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C3



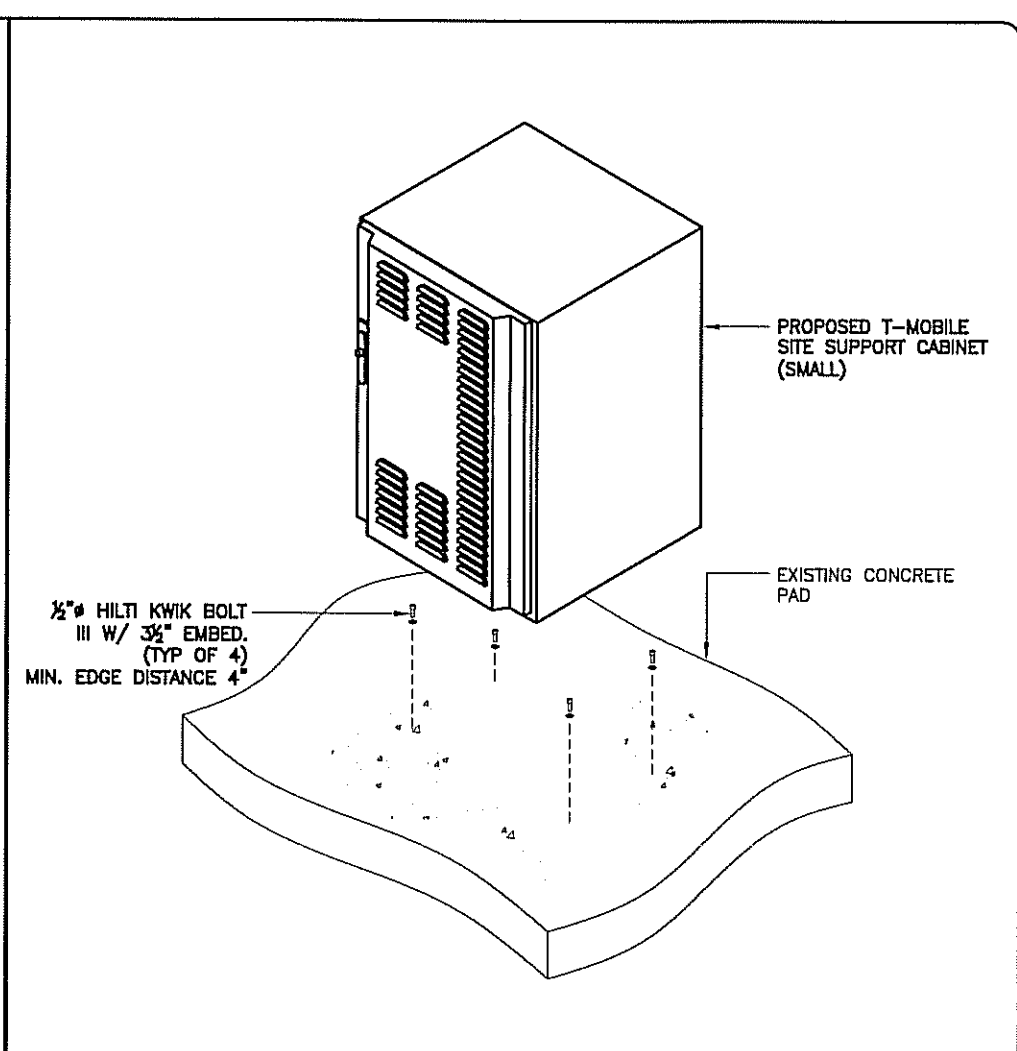
FCOA CABINET CONNECTION DETAIL NTS 1



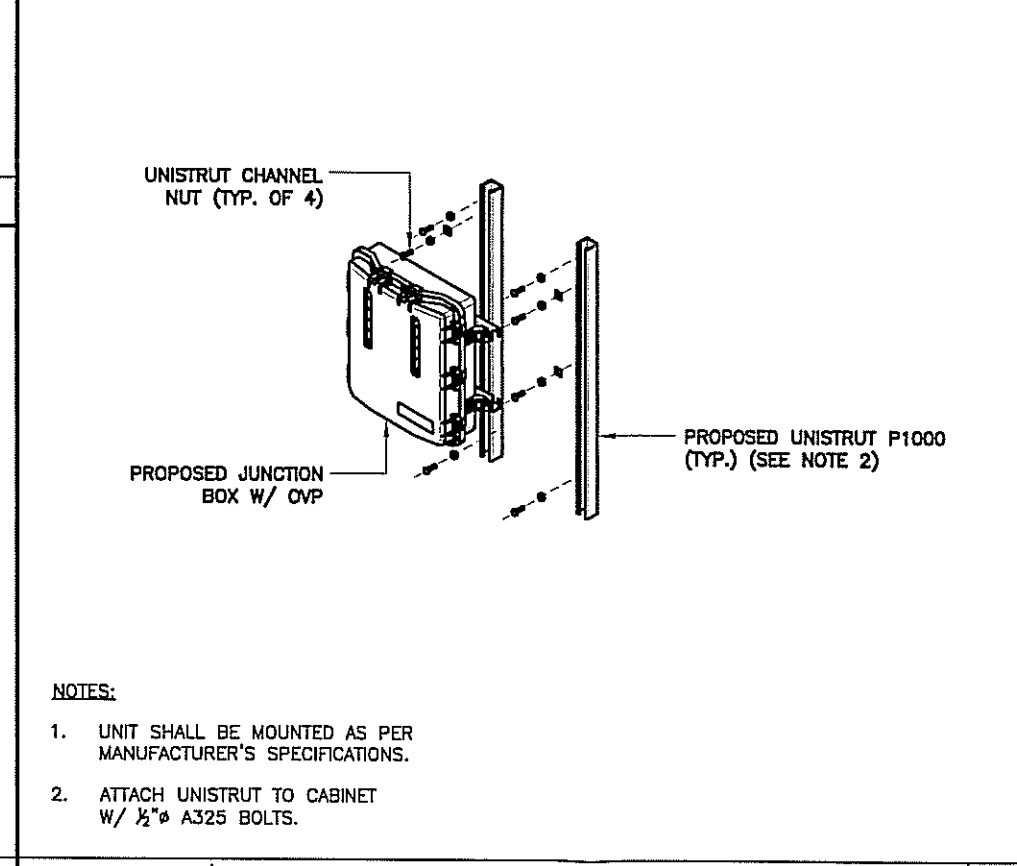
SSC CABINET MOUNTING FOOTPRINT NTS 4



FCOA CABINET MOUNTING FOOTPRINT NTS 2



SSC CABINET CONNECTION DETAIL NTS 3



J-BOX W/ OVP MOUNTING DETAIL NTS 5

(NOT USED) NTS 6

- NOTES:**
- UNIT SHALL BE MOUNTED AS PER MANUFACTURER'S SPECIFICATIONS.
 - ATTACH UNISTRUT TO CABINET W/ 1/2" A325 BOLTS.

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A	2/19/14	PRELIMINARY
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PROJECT NO.: 130-677.07
 DRAWN BY: J. FUTCH
 CHECKED BY: M. ABBEY

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MICHAEL A. PHILLIPS
 LICENSE No. 68312
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 DATE OF SIGNATURE: 9/24/14

TRADEWINDS AT&T TOWER
 FB1007A
 3801 VINKEMULDER ROAD
 COCONUT CREEK, FL 33073

SHEET NAME: DETAILS
 SHEET NUMBER: C4

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. ALL POWER WIRING SHALL BE INSTALLED IN GALVANIZED RIGID STEEL CONDUIT, PVC, OR FLEXIBLE LIQUIDTIGHT CONDUIT, AS INDICATED.
 - A6. CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY PERMIT FEES, AND SCHEDULE INSPECTIONS.
 - A7. CONTRACTOR SHALL APPLY FOR ELECTRICAL SERVICE AS SOON AS POSSIBLE AND COORDINATE REQUIREMENTS, SERVICE ROUTING, AND METER SOCKET TYPE WITH LOCAL POWER COMPANY.
 - A8. CONTRACTOR SHALL APPLY FOR TELEPHONE SERVICE AS SOON AS POSSIBLE AND COORDINATE REQUIREMENTS AND SERVICE ROUTING WITH TELEPHONE COMPANY.
 - A9. PROVIDE ALL LABOR AND MATERIAL DESCRIBED ON THIS DRAWING, AND ALL ITEMS INCIDENTAL TO COMPLETING AND PRESENTING THIS PROJECT AS FULLY OPERATIONAL.
 - A10. WHERE LONG POWER CABLE RUNS PREVAIL, CONTRACTOR SHALL CALCULATE THE VOLTAGE DROP AND SIZE WIRES AND CONDUIT ACCORDINGLY.
 - A11. WHERE TRANSFORMER IS REQUIRED FOR ELECTRICAL SERVICE, TRANSFORMER SECONDARY SHALL BE GROUNDED PER N.E.C., ARTICLE 250-26.
 - A12. ALL ELECTRICAL DEVICES EXPOSED TO WEATHER SHALL BE OF RAINPROOF CONSTRUCTION AND SHALL REQUIRE WATER TIGHT CONDUIT HUBS.
- 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 SLEEPERS.
- 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 220-87.
 - B) CONTRACTOR SHALL VERIFY WHETHER EXISTING FEEDER CAPACITY EXCEEDS VALUE CALCULATED PER N.E.C. ARTICLE 220-87.
 - 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 - IDENTIFICATION

- C1. LOCATE NAMEPLATE, MARKING, OR OTHER IDENTIFICATION MEANS ON OUTSIDE EQUIPMENT OR BOX FRONT COVERS.
- C2. PROVIDE NAMEPLATE ENGRAVED WITH EQUIPMENT DESIGNATION FOR EACH SAFETY SWITCH AND ALL OTHER ELECTRICAL CABINETS, ETC.
- C3. DURING TRENCH BACK-FILLING FOR EACH UNDERGROUND ELECTRICAL, TELEPHONE, SIGNAL AND COMMUNICATIONS LINE, PROVIDE A CONTINUOUS UNDERGROUND WARNING TAPE TWELVE INCHES BELOW FINISHED GRADE.

ELECTRICAL NOTES

1

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. GROUNDING CONDUCTORS SHALL BE BONDED TO CABLE SUPPORTS, ANTENNA FRAMES, AND ANY SUPPORT FRAMES OR RACKS USING EXOTHERMIC WELDS OR MECHANICAL CONNECTIONS.
- A6. CONTRACTOR SHALL PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS, STAINLESS STEEL HARDWARE SHALL BE USED THROUGHOUT.
- A7. 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.
- A8. BONDING OF GROUNDED CONDUCTOR (NEUTRAL) AND GROUNDING CONDUCTOR SHALL BE AT SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250-26.
- A9. CONTRACTOR SHALL VERIFY EXACT CONDUIT ROUTING FOR GROUNDING CONDUCTORS WHERE APPLICABLE.
- A10. DOUBLING OR STACKING OF ANY GROUNDING CONNECTIONS IS NOT ACCEPTABLE.

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 - LAND BUILDS AND CO-LOCATES

- C1. WAVEGUIDE BRIDGE SHALL BE BONDED TO GROUND RINGS OR INTERCONNECTING CONDUCTORS WITH GROUNDING CONDUCTORS BONDED TO DIAGONALLY OPPOSED SUPPORT POSTS.
- C2. GROUND BARS SHALL BE BONDED TO GROUND RING WITH SINGLE GROUNDING CONDUCTOR.
- C3. 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.

T-MOBILE GROUNDING REQUIREMENTS

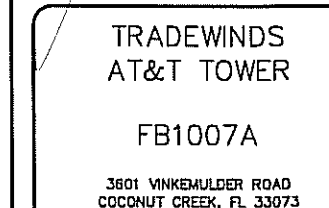
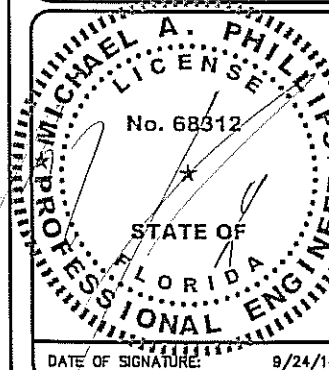
- T1. COAX CABLE OUTER CONDUCTORS (SHIELDS) SHALL BE GROUNDED USING COAX GROUNDING KITS AT A MINIMUM OF TWO POINTS, INCLUDING AT ANTENNA AND AT MASTER GROUND BAR. THE COAXIAL CABLE SHALL NOT EXCEED 100 FEET BETWEEN GROUNDING KITS.
- T2. COAX CABLE ENTERING A BUILDING SHALL BE GROUNDED WITH COAX GROUNDING KITS TO AN INSULATED COAX GROUND BAR WHICH SHALL BE INSTALLED ON THE OUTSIDE FACE OF THE BUILDING, BELOW THE CABLE ENTRY PORTS.
- T3. 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 AWG BARE TINNED SOLID COPPER ISOLATED IN PVC CONDUIT.

GROUNDING NOTES

2

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SHEET NAME
ELECTRICAL AND GROUNDING NOTES

SHEET NUMBER
E1



CALL 48 HOURS BEFORE YOU DIG
 IT'S THE LAW!
 1-800-432-4770
 SUNSHINE STATE ONE CALL OF FLORIDA, INC.



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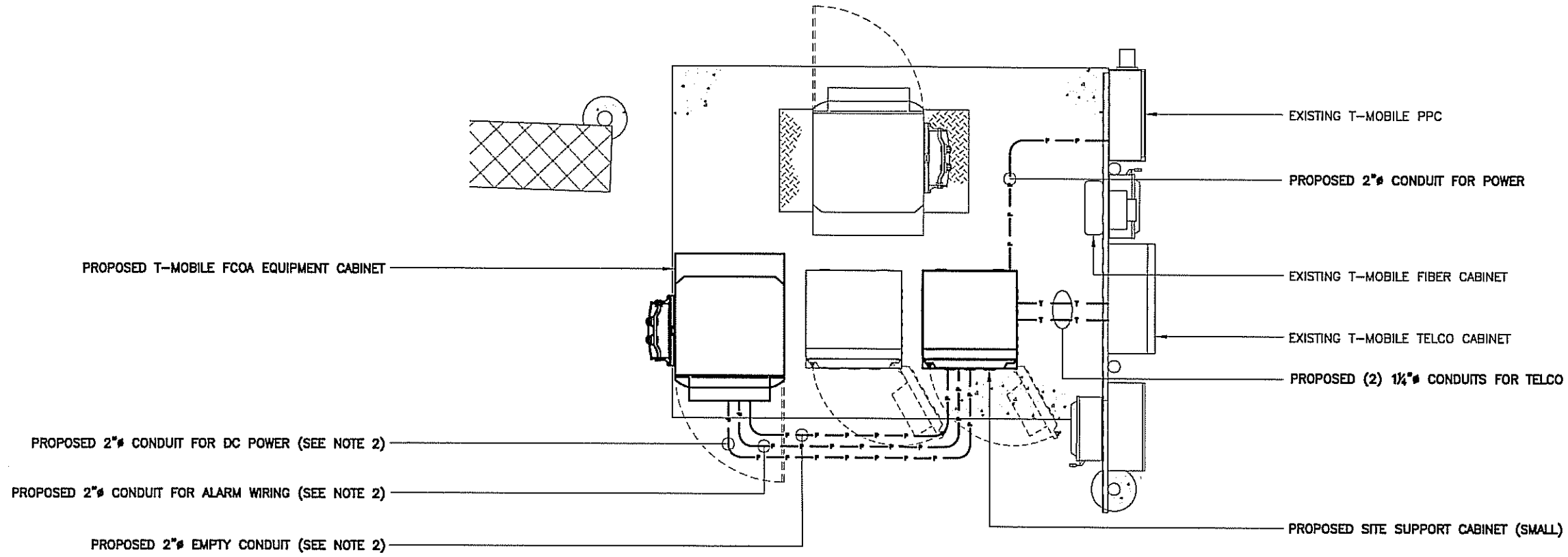
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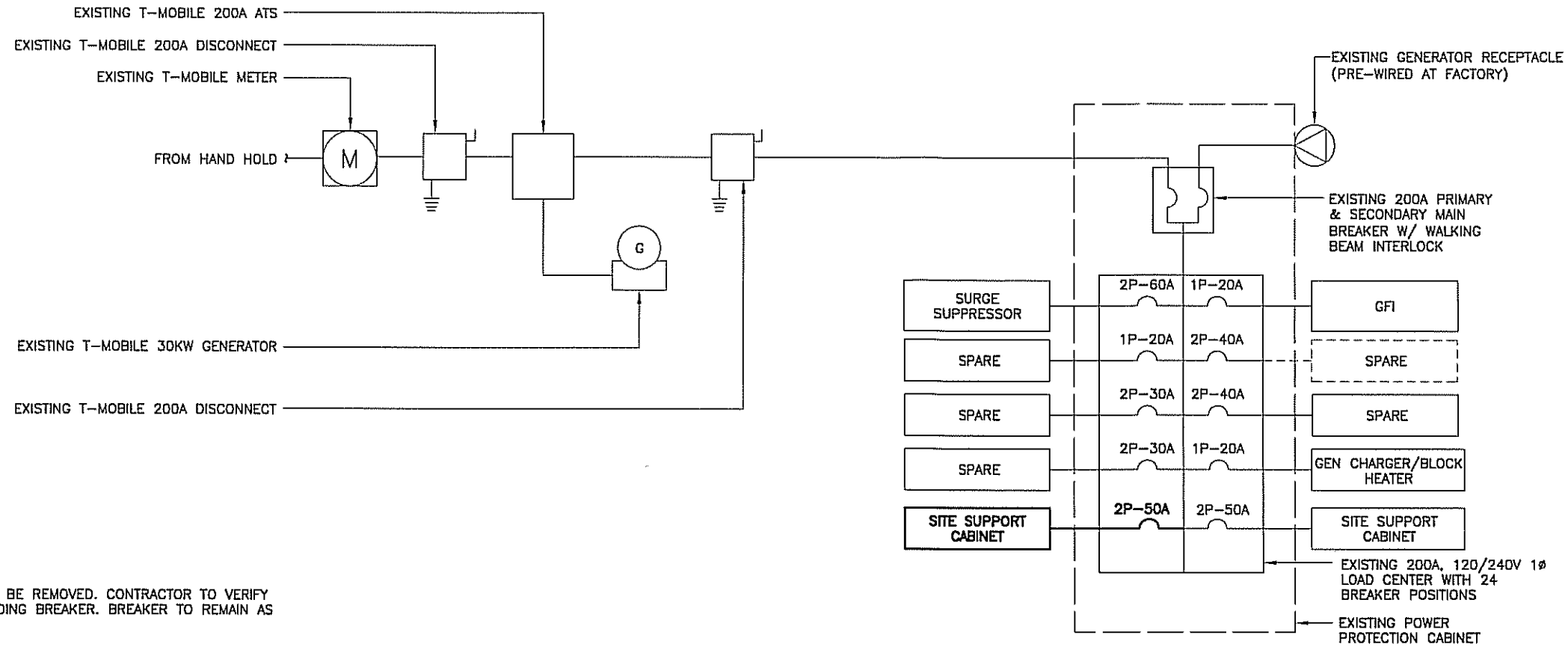
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SHEET NAME
CONDUIT ROUTING PLAN

SHEET NUMBER
E2



- NOTES:
1. PROPOSED CONDUIT ROUTING IS SCHEMATIC ONLY, CONTRACTOR SHALL DETERMINE SUITABLE ROUTING IN THE FIELD.
 2. PROPOSED CONDUIT SHALL BE GALVANIZED RIGID STEEL APART FROM PORTION ENTERING EQUIPMENT CABINET, WHICH SHALL BE FLEXIBLE LIQUID TIGHT CONDUIT.



NOTE:
 * EXISTING CABINET TO BE REMOVED. CONTRACTOR TO VERIFY CABINET CORRESPONDING BREAKER. BREAKER TO REMAIN AS SPARE.

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AC ONE-LINE DIAGRAM

PANEL NAME: T-MOBILE LOCATION: H-FRAME		PANEL RATING 200 AMPS 120/240 VOLTS							PHASE 1 WIRE 3			X MCB RATING 200 AMP MAIN LUG ONLY			
CKT NO.	DESCRIPTION	KVA		AMP POLE	WIRE	GND	COND	COND	GND	WIRE	AMP POLE	KVA		DESCRIPTION	CKT NO.
		A	B									A	B		
1	SURGE SUPPRESSOR	0	-	60/2	(E)	(E)	(E)	(E)	(E)	(E)	20/1	0.18	-	GFI	2
3		-	0								40/2	-	-	SPARE*	4
5	SPARE			20/1											6
7	SPARE			30/2							40/2	-	-	SPARE	8
9															10
11	SPARE			30/2				(E)	(E)	(E)	20/1	-	0.74	GEN CHARGER/BLK HEATER	12
13								(E)	(E)	(E)	50/2	4.8	-	SITE SUPPORT CABINET	14
15	SITE SUPPORT CABINET	-	4.8	50/2	#8	#8	2"					-	4.8		16
17		4.8	-										-	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)		4.8	4.8									4.98	5.54	SUB TOTAL KVA (NON-CONT)	
TOTAL KVA NON-CONT + 125% CONT.		20.1							83.8					TOTAL AMPS	

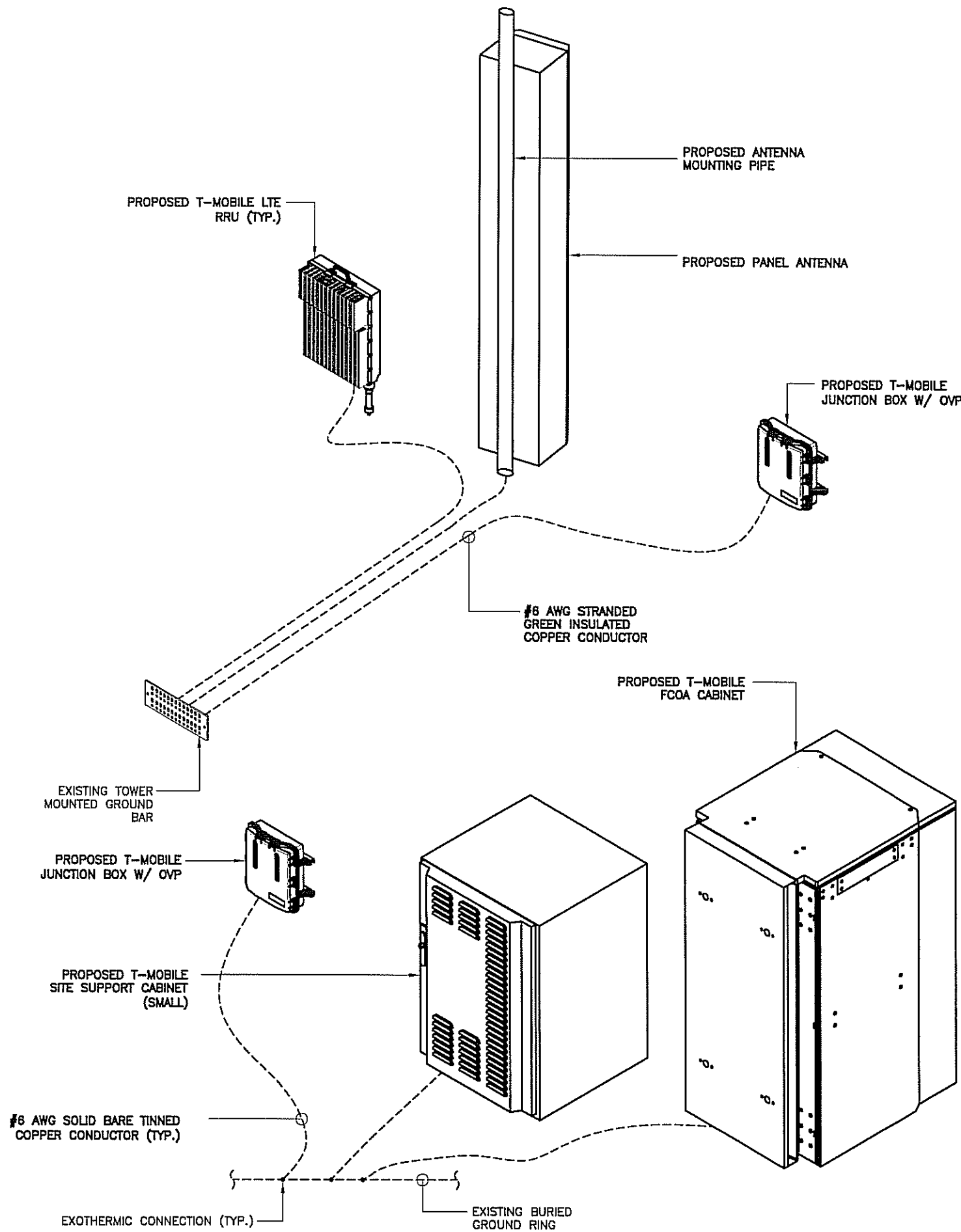
* EXISTING CABINET TO BE REMOVED. CONTRACTOR TO VERIFY CABINET CORRESPONDING BREAKER.
 (E) EXISTING

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 ELECTRICAL
 DETAILS
 SHEET NUMBER
 E3

PANEL SCHEDULE



GROUNDING DIAGRAM (TYP.)

NTS

1

GROUNDING NOTES

NTS

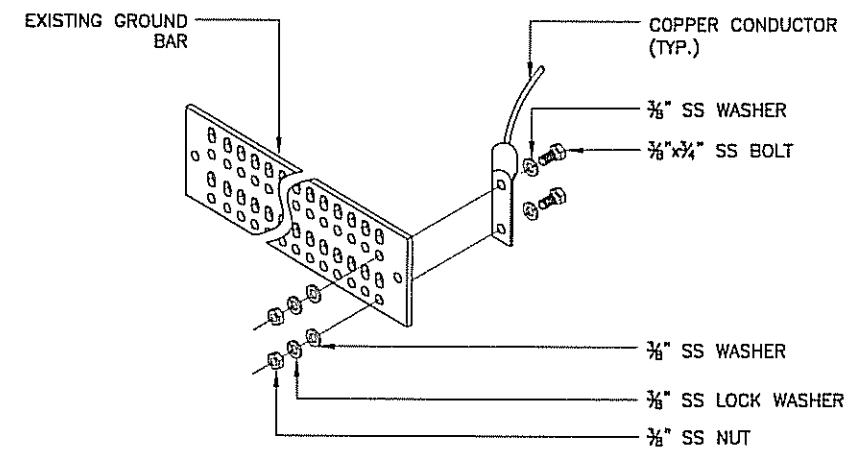
3

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.



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