

**STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION**

**CONTRACT PLANS**

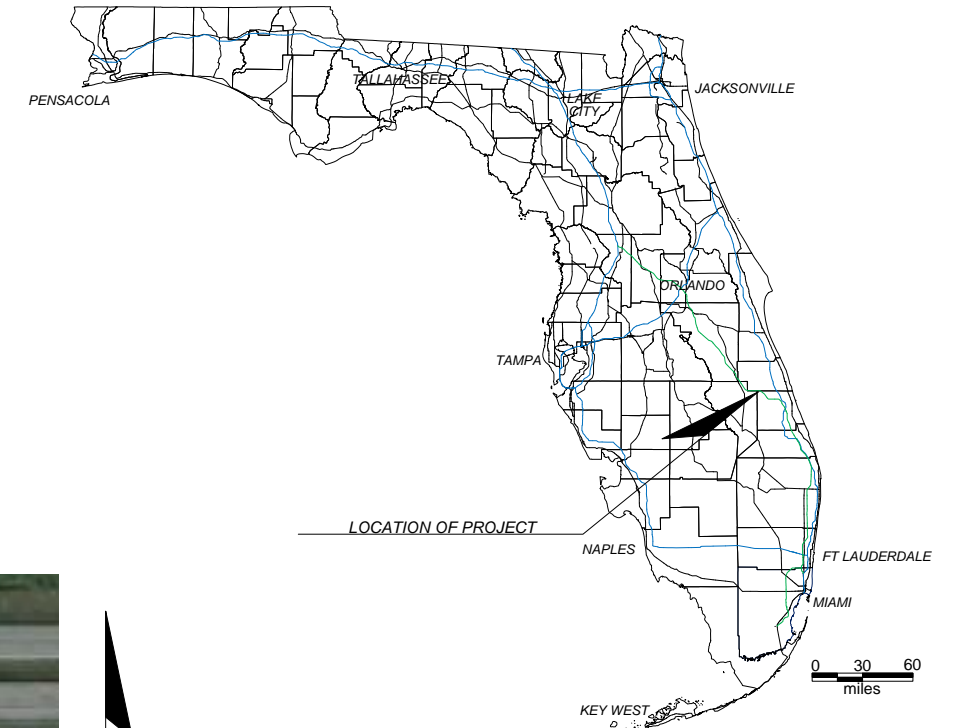
FINANCIAL PROJECT ID 431987-1-52-01  
SAINT LUCIE COUNTY  
FTE SITE X (8-4202) TOWER REPLACEMENT

**INTELLIGENT TRANSPORTATION SYSTEMS PLANS**

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| INDEX NO. 802 | FDOT DESIGN STANDARDS FOR FENCE TYPE B     |

SITE X TOWER SITE



TOWER SITE ADDRESS:  
TURNPIKE MP 173  
173 FLORIDA'S TURNPIKE  
VERO BEACH, FL 33069

GPS COORDINATES:  
LATITUDE: 27-33-30.27 N (NAD 83)  
LONGITUDE: 80-39-36.10 W

NOTE: THE SCALE OF THESE PLANS MAY  
HAVE CHANGED DUE TO REPRODUCTION.

**FLORIDA'S TURNPIKE ENTERPRISE TOWERS  
REFURBISHMENT AND REPAIRS PROJECT**

GOVERNING STANDARDS AND SPECIFICATIONS:  
FLORIDA DEPARTMENT OF TRANSPORTATION,  
DESIGN STANDARDS DATED 2013,  
AND STANDARD SPECIFICATIONS FOR ROAD AND  
BRIDGE CONSTRUCTION DATED 2010,  
AS AMENDED BY CONTRACT DOCUMENTS.

FDOT PROJECT MANAGER: RANDY PIERCE

ENGINEER OF RECORD: DANIELLE S. MORALES, P.E.

P.E. NO.: 68460

| CONTRACT PLANS RECORD |      |             |      |      |             | FDOT<br>FLORIDA DEPARTMENT OF TRANSPORTATION<br>605 SUWANNEE ST. MS 90<br>TALLAHASSEE, FL 32399-0450<br>PH.(850)-410-5600<br>FAX.(850)-410-5501 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |                |                      | SITE X<br>KEY SHEET | SHEET NO.<br>IT-1 |
|-----------------------|------|-------------|------|------|-------------|---|--|----------------|----------------------|---------------------|-------------------|
| DATE                  | REV. | DESCRIPTION | DATE | REV. | DESCRIPTION |   | SITE NAME  | COUNTY         | FINANCIAL PROJECT ID |                     |                   |
|                       |      |             |      |      |             | SITE X  | ST LUCIE   | 431987-1-52-01 |                      |                     |                   |

**GENERAL NOTES:**

1. THE VENDOR SHALL BE RESPONSIBLE FOR VERIFYING ALL CONDITIONS AND MEASUREMENTS RELATING TO THE WORK IN THE FIELD PRIOR TO PROCEEDING WITH INSTALLATION, REMOVAL, AND DISPOSAL ACTIVITIES. THE VENDOR SHALL COORDINATE ANY MODIFICATIONS REQUIRED WITH FDOT.
2. THE VENDOR IS RESPONSIBLE FOR ENSURING THE LAND BRIDGE SUPPORTS CONSTRUCTION VEHICLES FOR THIS PROJECT OR ARRANGING AN ALTERNATE MEANS FOR SITE ACCESS. THE STORM WATER EROSION REPAIR PLANS ARE INCLUDED IN THIS DESIGN PACKAGE. IF ANY MODIFICATIONS OR REINFORCEMENTS ARE NECESSARY, THE VENDOR SHALL SUBMIT THE DESIGN PLANS TO THE FDOT FOR APPROVAL. ALL EXISTING DRIVEWAYS, EASEMENTS, AND GROUNDS SHALL BE PROTECTED OR RESTORED TO INITIAL CONDITION IF DAMAGED OR DISTURBED AS A RESULT OF INSTALLATION.
3. THE VENDOR IS RESPONSIBLE FOR ALL EQUIPMENT, MATERIALS, AND SERVICES REQUIRED TO COMPLETE THIS PROJECT. THE VENDOR IS RESPONSIBLE FOR VERIFYING THE COMPLETENESS OF MATERIALS REQUIRED AND SUITABILITY OF DEVICES TO MEET THESE PLANS. THE VENDOR SHALL PROVIDE AND INSTALL, WITHOUT CLAIM, ANY ADDITIONAL EQUIPMENT AND SERVICES REQUIRED FOR OPERATION PER THESE PLANS.
4. THE VENDOR SHALL BE RESPONSIBLE FOR DETERMINING LOCAL FACILITIES FOR DELIVERING, STORING, AND LEGALLY DISPOSING OF POST-INSTALLATION MATERIALS.
5. THE VENDOR SHALL PROTECT AND PRESERVE ALL EXISTING UTILITIES, EXCLUDING THOSE REQUIRING UPGRADES OR RELOCATION IN THESE PLANS, LOCATED WITHIN THE INSTALLATION LIMITS OF THE PROJECT.
6. THE VENDOR SHALL NOT BRING ANY HAZARDOUS MATERIALS ONTO THE PROJECT SITE. SHOULD THE VENDOR REQUIRE SUCH FOR PERFORMING THE WORK, THE VENDOR SHALL REQUEST, IN WRITING, PERMISSION FROM FDOT. THE VENDOR SHALL PROVIDE THE TURNPIKE CONTAMINATION IMPACT COORDINATOR (CIC) WITH A COPY OF THE MATERIAL SAFETY DATA SHEET (MSDS) FOR EACH HAZARDOUS MATERIAL PROPOSED FOR USE. FDOT SHALL COORDINATE WITH THE TURNPIKE CIC PRIOR TO ISSUING WRITTEN APPROVAL TO THE VENDOR. BECAUSE STATE LAW DOES NOT TREAT PETROLEUM PRODUCTS THAT ARE PROPERLY CONTAINERIZED AND INTENDED FOR EQUIPMENT USE AS HAZARDOUS MATERIAL, SUCH PRODUCTS DO NOT NEED MSDS SUBMITTAL. DISTRICT CONTAMINATION IMPACT COORDINATOR: ED SAINTEN

TEL: 407-264-3408  
 CELL: 407-495-8725  
 EMAIL: ED.SAINTEN@DOT.STATE.FL.US

THE VENDOR IS RESPONSIBLE FOR DETERMINING IF THERE ARE ANY COATINGS/PAINT OR MATERIALS ON THE TOWER THAT WOULD BE CONSIDERED HAZARDOUS WASTE UPON DISPOSAL OF THE STRUCTURE OR ANY STRUCTURAL COMPONENTS. COPIES OF ANY TEST REPORTS ARE TO BE PROVIDED TO FDOT. IF ANY ITEMS ARE FOUND THAT MEET THE DEFINITION OF A HAZARDOUS WASTE UNDER EITHER FLORIDA ENVIRONMENTAL PROTECTION REGULATIONS OR UNITED STATES OF AMERICA ENVIRONMENTAL PROTECTION REGULATIONS, THE MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE MORE STRICT OF THE REGULATIONS AND FDOT SHALL BE PROVIDED WITH DOCUMENTATION OF THE PROPER DISPOSAL TO INCLUDE A SIGNED COPY OF THE MANIFEST WHERE THE WASTE WAS RECEIVED AT THE DISPOSAL SITE WITHIN 10 DAYS OF THE DISPOSAL OF THE MATERIALS.

ANY KNOWN OR SUSPECTED HAZARDOUS MATERIAL FOUND ON THE PROJECT SITE BY THE VENDOR SHALL BE IMMEDIATELY REPORTED TO FDOT, WHO SHALL DIRECT THE VENDOR TO PROTECT THE AREA OF KNOWN OR SUSPECTED CONTAMINATION FROM FURTHER ACCESS. FDOT IS TO NOTIFY THE TURNPIKE CIC OF THE DISCOVERY. THE TURNPIKE CIC WILL ARRANGE FOR INVESTIGATION, IDENTIFICATION, AND REMEDIATION OF THE HAZARDOUS MATERIAL. THE VENDOR SHALL NOT RETURN TO THE AREA OF CONTAMINATION UNTIL APPROVAL IS PROVIDED BY FDOT. THE TURNPIKE CIC WILL ADVISE FDOT.

FDOT HAS DETERMINED THAT LEAD-BASED PAINT IS PRESENT ON THE TOWER. THE REFERENCE TESTING REPORT (LIMITED LEAD-BASED PAINT INSPECTION #12506) IS INCLUDED IN THIS DESIGN PACKAGE.

7. THE VENDOR IS RESPONSIBLE FOR OBTAINING ANY PERMITS (DEP, SOUTH FLORIDA WATER MANAGEMENT DISTRICT, ETC.) AND MEETING BUILDING OFFICIAL REQUIREMENTS, INCLUDING ASSOCIATED FEES. THE VENDOR IS RESPONSIBLE FOR CONTACTING APPLICABLE BUILDING OFFICIALS FOR PERMIT APPLICATIONS AND SUBMITTING TO THE FDOT FOR SIGNATURE.
8. THE VENDOR IS RESPONSIBLE FOR COORDINATING ALL NECESSARY NOTIFICATIONS OF WORK AND CONSTRUCTION WITH THE FEDERAL AVIATION ADMINISTRATION (FAA) AND FEDERAL COMMUNICATIONS COMMISSION (FCC) WITH THE FDOT PROJECT MANAGER. ALL FAA AND FCC FILINGS WILL BE HANDLED BY THE VENDOR BASED ON THIS COORDINATION.
9. THE VENDOR SHALL SUBMIT ALL DETAILED DESIGN PLANS FOR FDOT REVIEW AND APPROVAL PER THESE PLANS AND SPECIFICATIONS. THE VENDOR SHALL NOT BEGIN INSTALLATION WORK UNTIL ALL DESIGN SUBMITTALS ARE APPROVED IN WRITING BY THE FDOT PROJECT MANAGER.
10. THE VENDOR SHALL SUBMIT AN INSTALLATION SCHEDULE TO FDOT FOR REVIEW AND APPROVAL.
11. THE VENDOR MUST COORDINATE ALL SITE WORK WITH FDOT. THE CONTACT PERSON IS RANDY PIERCE, 850-410-5608.
12. ALL TOWER AND ANTENNA INSTALLATION WORK SHALL BE DONE BY TOWER CLIMBERS CERTIFIED BY COMTRAIN, OR APPROVED EQUIVALENT.
13. THE VENDOR SHALL NOTIFY ALL UTILITY OWNERS THROUGH SUNSHINE STATE ONE CALL OF FLORIDA (811) THREE BUSINESS DAYS IN ADVANCE OF BEGINNING INSTALLATION ON THE JOB SITE. NOTE THAT NOT ALL UTILITY COMPANIES ARE MEMBERS OF THE SUNSHINE STATE ONE CALL, AND THEREFORE, THE VENDOR SHALL CONTACT THEM INDIVIDUALLY.

THE VENDOR SHALL COORDINATE WITH TURNPIKE INTELLIGENT TRANSPORTATION DEPARTMENT (ITS) DEPARTMENT FOR LOCATION OF TURNPIKE ITS FIBER IN THE AREA. IF RELOCATION OF FIBER IS NECESSARY, THE VENDOR SHALL COORDINATE THIS EFFORT WITH TURNPIKE ITS DEPARTMENT AS WELL. THE CONTACTS FOR TURNPIKE ITS DEPARTMENT ARE:


JOHN EASTERLING, P.E., PTOE                      ERIC GORDIN, P.E.  
 TEL: 954-934-1620                                      TEL: 407-265-3316  
 JOHN.EASTERLING@DOT.STATE.FL.US              ERIC.GORDIN@DOT.STATE.FL.US

**GENERAL NOTES (CONT'D.):**

14. THE VENDOR SHALL COORDINATE EACH ELEMENT ON THE SCHEDULE WITH OTHER INSTALLATION ACTIVITIES AND SHOW EACH ACTIVITY IN PROPER SEQUENCE.
15. THE VENDOR SHALL FIELD LOCATE ALL BURIED GROUNDING, CONDUITS, STRUCTURES, AND UTILITIES IN AND AROUND THE WORK AREA PRIOR TO COMMENCING ANY EXCAVATIONS. ALL DIGGING AND EXCAVATING INSIDE AND AROUND THE SITE COMPOUND SHALL BE PERFORMED IN A MANNER CONSISTENT WITH GOOD ENGINEERING PRACTICES. THE USE OF HEAVY EXCAVATING MACHINERY IS NOT PERMITTED INSIDE THE FENCED AREA OTHER THAN FOR EXCAVATING THE OLD TOWER FOUNDATION AND FOR DRILLING NEW SHAFTS.
16. THE FDOT SHALL BE NOTIFIED 72 HOURS IN ADVANCE OF ANY SCHEDULED INTERRUPTIONS DURING CUT-OVER FOR SAFETY PRECAUTIONS. IN ADDITION TO THE 72 HOUR ADVANCE NOTIFICATION FOR SCHEDULED INTERRUPTIONS, THE VENDOR SHALL NOTIFY FDOT AT LEAST TWO HOURS IN ADVANCE OF ALL NECESSARY COMMUNICATIONS DISRUPTIONS AND SUCH PLANNED OUTAGES WITH THE ANTICIPATED OUTAGE TIME.
17. THE VENDOR SHALL RESTRICT PERSONNEL, THE USE OF EQUIPMENT, AND THE STORAGE OF MATERIALS TO AREAS WITHIN THE LIMITS OF INSTALLATION. ANY OFF-SITE STORAGE AREA IS THE RESPONSIBILITY OF THE VENDOR.
18. THE VENDOR SHALL PROVIDE SECURITY FOR HIS/HER EQUIPMENT AND SHALL CONDUCT HIS/HER OPERATIONS SO AS TO AVOID INTERFERENCE WITH FDOT'S NORMAL OPERATIONS.
19. THE VENDOR SHALL PROVIDE AND MAINTAIN IN A NEAT AND SANITARY CONDITION SUCH ACCOMMODATIONS FOR THE USE OF HIS/HER EMPLOYEES AS MAY BE NECESSARY TO COMPLY WITH REGULATIONS OF THE COUNTY OR THE DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES. NO NUISANCE WILL BE PERMITTED.
20. THE VENDOR SHALL BE RESPONSIBLE FOR REMOVING AND LEGALLY DISPOSING OF TRASH IN A TIMELY MANNER.
21. ALL EQUIPMENT AND SERVICES FURNISHED BY THE VENDOR AS PART OF THIS PROJECT SHALL BE WARRANTED TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP. IN THE EVENT ANY SUCH DEFECTS IN EQUIPMENT OR SERVICES BECOME EVIDENT WITHIN THE WARRANTY PERIOD, THE VENDOR SHALL CORRECT THE DEFECT BY REPAIRING OR REPLACING THE DEFECTIVE COMPONENT OR EQUIPMENT AT NO COST TO FDOT DURING THE WARRANTY PERIOD. THE WARRANTY PERIOD SHALL BE A MINIMUM OF 12 MONTHS FROM DATE OF FINAL ACCEPTANCE. CLAIMS UNDER ANY OF THE WARRANTIES HEREIN ARE VALID IF MADE WITHIN 30 DAYS AFTER TERMINATION OF THE WARRANTY PERIOD.
22. THE VENDOR SHALL COLLECT PRODUCT DATA INTO A SINGLE SUBMITTAL FOR EACH ELEMENT OF INSTALLATION OR SYSTEM. PRODUCT DATA SHALL INCLUDE PRINTED INFORMATION SUCH AS MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PERFORMANCE SPECIFICATIONS.
23. THE VENDOR SHALL SUBMIT (3) SETS OF AS-BUILT DRAWINGS DEPICTING THE LOCATION OF THE COMPONENTS OF THE COMMUNICATIONS FACILITIES WITH RESPECT TO LOCAL FEATURES AND BENCHMARKS. AS-BUILT DRAWINGS DEPICTING ANY FIELD CHANGES TO THE FACILITIES SHALL ALSO BE SUBMITTED. AS-BUILT DOCUMENTATION SHALL BE SUBMITTED IN ELECTRONIC FORMAT, AS WELL AS PRINTED. ALL ITS FACILITY MANAGEMENT ATTRIBUTE FORMS SHALL BE COMPLETED IN ACCORDANCE WITH THIS TECHNICAL SPECIFICATION.
24. THE VENDOR SHALL BE RESPONSIBLE FOR ALL ELLIPTICAL WAVEGUIDES, FLEXIBLE RECTANGULAR WAVEGUIDE, COAXIAL CABLES, POWER/ DATA CABLES, AND RESPECTIVE HARDWARE AND CONDUITS. ANY BENDS, KINKS, OR DEFORMATION WILL RENDER THE ELLIPTICAL WAVEGUIDES AND COAXIAL CABLES UNUSABLE. SPLICING OF THE WAVEGUIDES, COAXIAL CABLE, OR CAT5 CABLE IS NOT PERMITTED. ANY ELLIPTICAL WAVEGUIDES AND COAXIAL CABLES DAMAGED BY THE VENDOR SHALL BE REPLACED WITH NEW FULL-LENGTH WAVEGUIDES AND COAXIAL CABLES, WITHOUT CLAIM, AND AT THE VENDOR'S COST.
25. THE VENDOR SHALL ENSURE THAT THE FIELD FENCING IS KEPT IN TACT, DUE TO LIVESTOCK IN THE PASTURE LAND.
26. THE VENDOR SHALL BE RESPONSIBLE FOR ENSURING THE SITE IS SECURED BY TEMPORARY FENCING AT THE END OF EACH DAY.

**APPLICABLE PUBLICATIONS AND STANDARDS**

1. ACI 336.3R-93: DESIGN AND CONSTRUCTION OF DRILLED PIERS
2. ANSI/TIA-222-G-2, STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, STRUCTURE CLASSIFICATION-III.
3. APPLICABLE MANUFACTURER'S INSTRUCTIONS AND STANDARD PRACTICES.
4. APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.) PRACTICES.
5. ASTM A123: STANDARD SPECIFICATION FOR: ZINC (HOT GALVANIZED) COATINGS ON PRODUCTS FABRICATED FROM ROLLED, PRESSED, AND FORGED STEEL SHAPES, PLATES, BARS, AND STRIP.
6. ASTM A153: STANDARD SPECIFICATION FOR: ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE.
7. EIA-81: MEASURING GROUND RESISTANCE AND POTENTIAL GRADIENTS IN THE EARTH.
8. FHWA-NHI-10-016: DRILLED SHAFTS: CONSTRUCTION PROCEDURES AND LRFD DESIGN METHODS
9. FLORIDA BUILDING CODE, 2014 EDITION.
10. FDOT 2015 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE DESIGN.
11. FDOT 2015 DESIGN STANDARDS.
12. FEDERAL AVIATION ADMINISTRATION REGULATIONS.
13. IEEE 837: STANDARD FOR QUALIFYING PERMANENT CONNECTIONS USED IN SUBSTATION GROUNDING.
14. NATIONAL ELECTRICAL CODE (NEC) (NFPA 70), 2015 EDITION.
15. NEC ARTICLE 250: GROUNDING AND BONDING.
16. NIST: NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY.
17. UL 467: STANDARDS FOR GROUNDING AND BONDING EQUIPMENT.
18. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA 780), 2014 EDITION

| CONTRACT PLANS RECORD |      |             |      |      |             |  FLORIDA DEPARTMENT OF TRANSPORTATION<br>605 SUWANNEE ST. MS 90<br>TALLAHASSEE, FL 32399-0450<br>PH.(850)-410-5600<br>FAX.(850)-410-5501 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |                |                      | SITE X<br>GENERAL NOTES | SHEET NO.<br><br>IT-2 |
|-----------------------|------|-------------|------|------|-------------|---|--|----------------|----------------------|-------------------------|-----------------------|
| DATE                  | REV. | DESCRIPTION | DATE | REV. | DESCRIPTION |   | SITE NAME  | COUNTY         | FINANCIAL PROJECT ID |                         |                       |
|                       |      |             |      |      |             | SITE X  | ST LUCIE   | 431987-1-52-01 |                      |                         |                       |

**TOWER DESIGN CRITERIA NOTES:**

1. THE TOWER MANUFACTURER SHALL BE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) CERTIFIED AND SHALL SUBMIT PROOF OF AISC CERTIFICATION FOR THE MANUFACTURING FACILITY TO THE FDOT.
2. ALL TOWER MEMBERS SHALL BE SOLID STEEL (I.E., NO HOLLOW MEMBERS ARE PERMITTED).
3. ALL TOWER STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED PER ASTM A123.

ALL TOWER HARDWARE, INCLUDING BUT NOT LIMITED TO, BOLTS, NUTS, FASTENERS, RODS, AND OTHER HARDWARE SHALL BE HOT-DIP GALVANIZED PER ASTM A153. MECHANICALLY GALVANIZED HARDWARE (ASTM B695) IS NOT PERMITTED.

4. ANSI/TIA-222-G-2  
 3-SECOND GUST BASIC WIND SPEED: 120 MPH  
 RADIAL ICE: 0"  
 CLASSIFICATION OF STRUCTURE: CLASS III  
 IMPORTANCE FACTOR: 1.15  
 EXPOSURE CATEGORY: C  
 TOPOGRAPHIC FACTOR: 1

FLORIDA BUILDING CODE 2014  
 3-SECOND GUST ULTIMATE WIND SPEED: 160 MPH  
 RISK CATEGORY: III-IV  
 EXPOSURE CATEGORY: C  
 TOPOGRAPHIC CATEGORY: 1

THE TOWER DESIGN SHALL ALSO MEET THE DEFLECTION CRITERIA OUTLINED IN ANSI/TIA-222-G-2 SECTIONS 2.8.2 AND 2.8.3 FOR MICROWAVE DISHES: TOTAL BEAM DEFLECTION (TWIST AND SWAY) FOR PROPOSED MICROWAVE DISHES SHALL NOT EXCEED 0.6 DEGREES (3 DB) AT 60 MPH.

THE TOWER SHALL ALSO MEET THE ADDITIONAL REQUIREMENTS AS DELINEATED ON SHEET IT-3 OF THESE SPECIFICATIONS. THE VENDOR SHALL PROVIDE TOWER MANUFACTURER SHOP/FABRICATION DRAWINGS THAT DEPICT THE SIZE AND SPECIFICATIONS OF ALL SUPPORT GUSSETS AND/OR TABS THAT ARE DESIGNED TO SUPPORT CROSS BRACING/MEMBERS OR ANY OTHER SUPPORT POINTS. THESE DRAWINGS SHALL ALSO DEPICT THE SPECIFICATIONS AND PROCESS USED TO WELD THE SUPPORT GUSSETS AND/OR TABS TO THE TOWER LEG STEEL.

5. THE FOLLOWING TABLE IS A LIST OF THE ANTENNAS, THEIR ELEVATIONS, AND THE TRANSMISSION LINES TO BE USED IN THE DESIGN: (NOTE: THE ELEVATIONS ARE CENTERLINE FOR PANEL ANTENNAS AND DISHES. THEY ARE MOUNTING HEIGHTS FOR OMNI AND WHIP ANTENNAS). ALL OTHER ELEVATIONS ARE REFERENCED TO THE TOWER BASE PLATE. **IF AN (EPA)<sub>A</sub> (PER ANSI/TIA-222-G-2) IS SHOWN AFTER THE DESCRIPTION, THIS IS THE MINIMUM VALUE THAT SHALL BE USED FOR THE TOWER DESIGN. IF A MINIMUM (EPA)<sub>A</sub> IS GIVEN, IT MAY NOT BE REDUCED USING SHIELDING FACTORS (K<sub>a</sub>), OR OTHER FACTORS.**

| ELEVATION | DESCRIPTION                        | MINIMUM (EPA) <sub>A</sub> | LINES           |
|-----------|------------------------------------|----------------------------|-----------------|
|           | <b>DESIGN ANTENNAS</b>             |                            |                 |
| 180'      | LIGHTNING ROD                      | 4 FT <sup>2</sup>          | —               |
| 180'      | (2) ASP705K                        | 12 FT <sup>2</sup>         | (2) 1-1/4" COAX |
| 180'      | (2) 4' SIDE ARM                    | 12 FT <sup>2</sup>         | —               |
| 168'      | *(3) 16' FACE T-BOOM SECTOR MOUNT  | 45 FT <sup>2</sup>         | —               |
| 168'      | *(3) DBXLH-9090C-R2M               | 23.7 FT <sup>2</sup>       | (6) 1-5/8"      |
| 168'      | *(6) DBXLH-6565C-R2M               | 42.5 FT <sup>2</sup>       | (12) 1-5/8"     |
| 153'      | HP8-59W-P3A (8' HP DISH) AZ=122.7E | NOTE 7                     | EWP63-57W       |
| 153'      | DISH MOUNT                         | 10 FT <sup>2</sup>         | —               |
| 151'      | HP8-59W-P3A (8' HP DISH) AZ=303.4E | NOTE 7                     | EWP63-57W       |
| 151'      | DISH MOUNT                         | 10 FT <sup>2</sup>         | —               |
| 140'      | CCTV CAMERA WITH LOWERING DEVICE   | 5 FT <sup>2</sup>          | (2) 1-1/2" COND |
| 140'      | CCTV CAMERA WITH LOWERING DEVICE   | 5 FT <sup>2</sup>          | (2) 1-1/2" COND |
| 122'      | HP8-59W-P3A (8' HP DISH) AZ=303.4E | NOTE 7                     | EWP63-57W       |
| 122'      | DISH MOUNT                         | 10 FT <sup>2</sup>         | —               |
| 120'      | HP8-59W-P3A (8' HP DISH) AZ=122.7E | NOTE 7                     | EWP63-57W       |
| 120'      | DISH MOUNT                         | 10 FT <sup>2</sup>         | —               |
| 100'      | *DB 224                            | 6 FT <sup>2</sup>          | 7/8"            |
| 100'      | *4' SIDE ARM                       | 6 FT <sup>2</sup>          | —               |
| 3'        | CCTV LOWERING DEVICE SECURITY BOX  | 6 FT <sup>2</sup>          | —               |
| 3'        | CCTV LOWERING DEVICE SECURITY BOX  | 6 FT <sup>2</sup>          | —               |

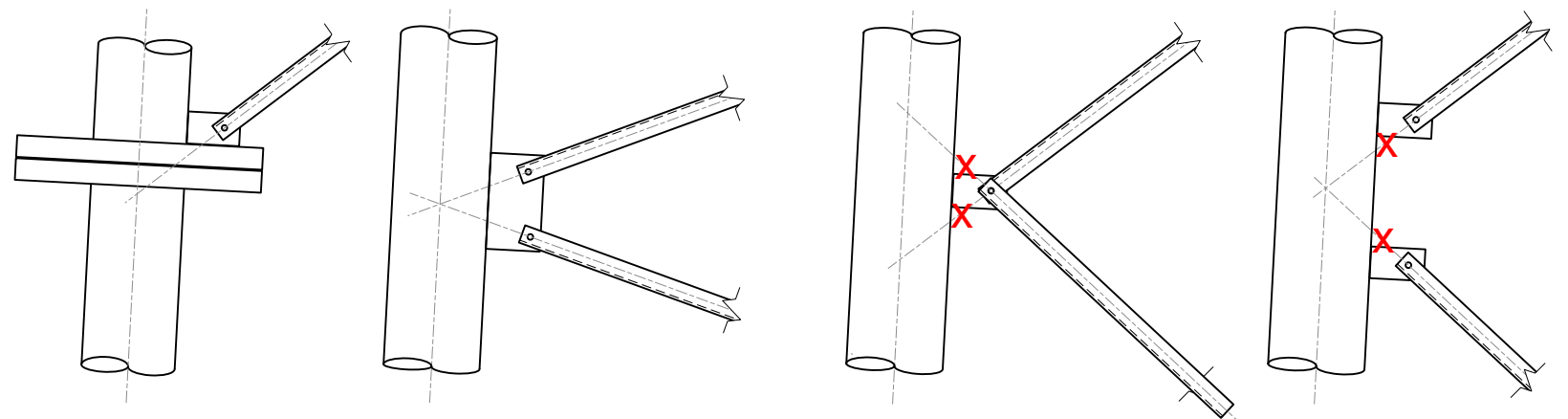
\* THESE ARE FUTURE LOADS TO BE CONSIDERED FOR TOWER CAPACITY DESIGN, NOT TO BE FURNISHED OR INSTALLED AS A PART OF THIS PROJECT.

**TOWER DESIGN CRITERIA NOTES (CONT'D.):**

6. THE WIND FORCE ON ANY ANTENNA SHALL BE COMPUTED USING THE MOST CRITICAL WIND DIRECTION AND ANTENNA AREA. IF A SPECIFIC MINIMUM "WIND AREA - (EPA)<sub>A</sub>" IS SHOWN, THAT VALUE (OR A HIGHER VALUE) SHALL BE USED FOR THE TOWER DESIGN.
7. THE WIND LOADING FOR THE MICROWAVE DISHES SHALL BE CALCULATED FOR EACH WIND DIRECTION USING THE VALUES FROM ANSI/TIA-222-G-2, ANNEX C (C.2 AND TABLE C3) USING A DISH DIAMETER OF 8.4 FT. THE DISH AZIMUTHS RELATIVE TO THE TOWER ORIENTATION SHALL BE IN ACCORDANCE WITH SHEET IT-10, AND INCORPORATED IN THE FINAL TOWER DESIGN.
8. TWO (2) WAVEGUIDE LADDERS MUST BE INCLUDED IN THE WIND LOADING (ONE FOR THE FUTURE CELL CARRIER, THE OTHER FOR ALL OTHER LINES). NO STACKING OF TRANSMISSION LINES SHALL BE CONSIDERED IN THE ORIGINAL DESIGN. ALL LINEAR APPURTENANCES ON ALL FACES ARE TO BE INCLUDED IN THE DESIGN LOADING. NO SHIELDING OF LINEAR APPURTENANCES MAY BE CONSIDERED EXCEPT THAT K<sub>a</sub>, IN ACCORDANCE WITH ANSI/TIA-222-G-2, SECTION 2.6.9.2, MAY BE INCLUDED FOR LINEAR APPURTENANCES ENTIRELY WITHIN THE FACE ZONE.
9. OTHER ANCILLARY ITEMS SUCH AS CLIMBING HARDWARE, SAFETY CLIMB CABLE AND ATTACHMENTS, WAVEGUIDE LADDERS, LIGHTNING PROTECTION, ETC. SHALL BE INCLUDED IN THE WIND LOADING OF THE TOWER.
10. THE ANCHOR BOLTS SHALL BE PROPERLY DESIGNED IN ACCORDANCE WITH ANSI/TIA-222-G-2. FOR THE PURPOSES OF DESIGN, THE ANCHOR BOLTS SHALL BE DESIGNED FOR REACTIONS 10 PERCENT HIGHER THAN CALCULATED FOR THE TOWER DESIGN. FOR THE PURPOSES OF DESIGN, THE ANCHOR BOLTS SHALL BE DESIGNED ASSUMING THAT NO GROUT IS INSTALLED UNDER THE BASE PLATE.  
  
THE ANCHOR BOLT DESIGN TEMPLATE SHALL BE SUBMITTED AS PART OF THE TOWER DESIGN SUBMITTAL.
11. IF USED, **ALL FACE, PLAN AND HIP REDUNDANT BRACING MEMBERS ON THE NEW TOWER MUST BE TRIANGULATED** IN ACCORDANCE WITH THE REQUIREMENTS OF ANSI/TIA-222-G-2, TABLE 4-7. ANY TOWER DESIGN INCLUDING NON-TRIANGULATED BRACING MEMBERS WILL BE CONSIDERED IN NON-COMPLIANCE WITH THESE SPECIFICATIONS.
12. FOR TOWER DESIGNS USING DOUBLE ANGLE MEMBERS, OR OTHER BUILT UP MEMBERS, THESE MEMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ANSI/TIA-222-G-2, SECTION 4.5.3 (I.E. THE SLENDERNESS OF THE MEMBERS MUST BE ADJUSTED IN ACCORDANCE WITH THE APPLICABLE STITCH BOLT MODIFICATION FORMULA).
13. ALL TOWER MEMBERS AND CONNECTIONS SHALL BE DETAILED SO THAT THE WORK LINES OF THE TOWER MEMBERS ARE WITHIN THE "NORMAL FRAMING ECCENTRICITIES" AS DEFINED BY ANSI/TIA-222-G-2, SECTION 4.4.4.
14. ALL GUSSET PLATES, CONNECTION PLATES, BRACING MEMBERS, ETC. SHALL HAVE CONNECTIONS THAT ARE PROPERLY DESIGNED AND DETAILED FOR BOLT HOLE BEARING, BLOCK SHEAR, AND RUPTURE PER THE REQUIREMENTS OF ANSI/TIA-222-G-2 SECTION 4.9.6 AS WELL AS ALL OTHER FORCES APPLIED TO THEM. ALL GUSSET PLATES, CONNECTION PLATES, ETC. SHALL BE DETAILED SO THAT THE WORK LINES HAVE A CONTINUOUS LOAD PATH THROUGH THE GUSSET STEEL OR CONNECTION PLATE STEEL TO THE MEMBERS BEING CONNECTED. DETAILING THAT INDUCES BENDING FORCES INTO THE GUSSETS OR CONNECTION PLATES, OR THAT DO NOT PROVIDE A CONTINUOUS LOAD PATH ALONG THE WORK LINES SHALL BE CONSIDERED IN NONCOMPLIANCE WITH THESE SPECIFICATIONS.
15. THE DRILLED SHAFT PIERS SHALL EXTEND A MINIMUM 12 INCHES ABOVE FINISHED GRADE. CORNERS SHALL HAVE A MINIMUM ONE (1) INCH CHAMFER. THE TOP OF THE PIERS SHALL BE SLOPED TO DRAIN WATER FROM THE CENTER.
16. THE FOUNDATIONS SHALL BE DESIGNED FOR TOWER REACTIONS 10 PERCENT HIGHER THAN CALCULATED FOR TOWER DESIGN.

THE FOUNDATION MATERIALS SHALL MEET OR EXCEED THE FOLLOWING CRITERIA: CONCRETE f<sub>c</sub> = 3,000 PSI AT 28 DAYS, REINFORCED STEEL ASTM A-160 GRADE 60, CEMENT ASTM C 150 TYPE 1 LOW-ALKALAI CONTENT WITH A Na<sub>2</sub>O EQUIVALENT LESS THAN 0.5 PERCENT.

CONCRETE DESIGN MIX SHALL BE SUBMITTED TO THE FDOT PROJECT MANAGER FOR REVIEW AND APPROVAL.



**PROPER GUSSET/TAB DESIGN**

**IMPROPER GUSSET/TAB DESIGN**

| CONTRACT PLANS RECORD |      |             |      |      |             |
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| SITE NAME  | COUNTY   | FINANCIAL PROJECT ID |
| SITE X   | ST LUCIE | 431987-1-52-01       |

| SITE X<br>GENERAL NOTES |  |
|-------------------------|--|
| SHEET NO.<br>IT-3       |  |

**INSTALLATION NOTES:**

1. THE VENDOR SHALL SUBMIT A DETAILED INSTALLATION PLAN FOR APPROVAL BY FDOT. THE PLAN SHALL INCLUDE A SCHEDULE OF EVENTS DETAILING EACH PHASE OF INSTALLATION, INCLUDING A PROJECTED TIMELINE.
2. ALL EQUIPMENT AND COMPONENT PARTS FURNISHED SHALL BE NEW, MEET OR EXCEED THE MINIMUM REQUIREMENTS STATED HEREIN, AND PERFORM TO MANUFACTURER'S SPECIFICATIONS. NO PART OR ATTACHMENT SHALL BE SUBSTITUTED OR APPLIED CONTRARY TO THE MANUFACTURER'S RECOMMENDATIONS AND STANDARD PRACTICES.
3. THE VENDOR IS RESPONSIBLE FOR CLEARING OF BRUSH, TREES, OR ANY OTHER OBSTRUCTIONS, INCLUDING THE REMOVAL OF FENCING, ASPHALT OR CONCRETE. ANY TREE STUMPS RESULTING FROM CLEARING SHALL BE GRUBBED. ALL ENVIRONMENTAL PROTECTION REQUIREMENTS SHALL BE COMPLIED WITH.
4. THE VENDOR SHALL BE RESPONSIBLE FOR REMOVING AND LEGALLY DISPOSING OF THE TRASH GENERATED FROM THE INSTALLATION, INCLUDING LUNCH BAGS AND DRINKS, DAILY. THE VENDOR SHALL NOT ALLOW TRASH TO BLOW AROUND OR AWAY FROM ANY CONSTRUCTION SITE.
5. THE VENDOR SHALL PROVIDE AND INSTALL A NEW 180 FT. SOLID ROD MEMBER SELF-SUPPORTING TOWER AND CONCRETE DRILLED SHAFT FOUNDATIONS PER THESE PLANS.
6. THE VENDOR SHALL PROVIDE AND INSTALL A NEW HORIZONTAL TRANSMISSION LINE BRIDGE AND ALL ASSOCIATED SUPPORT AND INSTALLATION HARDWARE. THE TRANSMISSION LINE BRIDGE SHALL INCLUDE TWO LEVELS OF TRAPEZE KITS, INSTALLED WITH MAXIMUM SEPARATION OF 36 IN. ON CENTER. THE TRANSMISSION LINE BRIDGE SHALL BE INSTALLED IN SUCH A MANNER AS TO NOT COMPROMISE THE MINIMUM BEND RADII OF EACH WAVEGUIDE AND TRANSMISSION LINE DURING INSTALLATION AND MOUNTING.  
 THE HORIZONTAL TRANSMISSION LINE LADDER SUPPORT POLES SHALL BE 10 FT. ABOVE FINISHED GRADE, AND THE ASSOCIATED TRAPEZE KITS SHALL BE INSTALLED IN SUCH A MANNER TO PROVIDE SMOOTH TRANSITION AND ENTRANCE OF ALL WAVEGUIDES AND TRANSMISSION LINES INTO THEIR RESPECTIVE BULKHEAD PORTS. THE HORIZONTAL TRANSMISSION LINE BRIDGE SHALL BE SUPPORTED SEPARATE FROM THE TOWER, AND SHALL RUN FROM THE FACE OF THE TOWER TO WITHIN 3 IN. OF THE TRANSMISSION LINE BULKHEAD LOCATED ON THE COMMUNICATIONS BUILDING EXTERIOR WALL.
7. THE VENDOR SHALL PROVIDE AND INSTALL THE TOWER LIGHTNING PROTECTION AND GROUNDING SYSTEM PER THESE PLANS.
8. ALL WAVEGUIDES AND COAXIAL TRANSMISSION LINES SHALL BE HOISTED UP THE TOWER USING APPROPRIATELY SIZED HOISTING GRIPS. USING THE FLANGES AND CONNECTORS TO LIFT THE TRANSMISSION LINES IS PROHIBITED. THE HOISTING GRIPS SHALL BE SECURED TO THE TOWER AND PROVIDE SUPPORT FOR THE WAVEGUIDES AND COAXIAL TRANSMISSION LINES. HOISTING GRIPS SHALL BE INSTALLED AT INTERVALS NOT TO EXCEED 200 FT. FLEXIBLE RECTANGULAR WAVEGUIDE SECTIONS MAY BE INSTALLED ON THE TOP END OF THE ELLIPTICAL WAVEGUIDE RUNS AFTER THE WAVEGUIDES ARE HOISTED UP AND SECURED TO THE TOWER. FLEXIBLE RECTANGULAR WAVEGUIDE SECTIONS SHALL BE INSTALLED AT THE BOTTOM END OF THE ELLIPTICAL WAVEGUIDE RUN TO ATTACH TO THE MICROWAVE RADIOS.
9. ALL WAVEGUIDES AND COAXIAL TRANSMISSION LINES SHALL BE MOUNTED AND SECURED TO THE TOWER, VERTICAL TRANSMISSION LINE LADDER, AND HORIZONTAL TRANSMISSION LINE BRIDGE WITH APPROPRIATELY SIZED STAINLESS STEEL BOLT-ON HANGERS AND HARDWARE. THE HANGERS SHALL BE SPACED WITH A MAXIMUM SEPARATION OF 36 IN. ON CENTER.  
 THE CCTV LOWERING CABLE AND POWER/DATA CABLE SHALL BE INSTALLED IN THE APPROPRIATELY SIZED GALVANIZED CONDUITS. THE CONDUITS SHALL BE SECURED TO THE TOWER WITH STAINLESS STEEL HARDWARE WITH MAXIMUM SEPARATION OF 10 FT ON CENTER.  
 THE VENDOR SHALL PROVIDE AND INSTALL SURGE PROTECTIVE DEVICES FOR THE CAMERA SYSTEM AT BOTH ENDS OF THE POWER/DATA CABLE. THE SURGE PROTECTIVE DEVICES SHALL BE INSTALLED AND GROUNDED INSIDE THE TOWER TOP CONNECTION BOX AND MOUNTED TO THE TRANSMISSION LINE BULKHEAD INSIDE THE SHELTER.  
 THE VENDOR SHALL FURNISH TWO (2) MIDSPAN POE INJECTORS INSIDE THE COMMUNICATIONS BUILDING FOR FUTURE INSTALLATION BY OTHERS.
10. THE WAVEGUIDES AND COAXIAL TRANSMISSION LINES SHALL BE SECURED TO THE OVERHEAD TRAPEZE HANGERS AND CABLE TRAYS INSIDE THE COMMUNICATIONS BUILDING IN ACCORDANCE WITH THE COMMUNICATIONS BUILDING PLAN. SEE SHEET IT-12.
11. THE WAVEGUIDES AND COAXIAL TRANSMISSION LINES SHALL BE GROUNDED TO THE TOWER AND TRANSMISSION LINE BULKHEAD IN ACCORDANCE WITH THE GROUNDING NOTES. SEE SHEET IT-8.
12. THE WAVEGUIDES SHALL BE INSTALLED IN SUCH A MANNER THAT DOES NOT VIOLATE THE MANUFACTURER'S MAXIMUM TWIST, MINIMUM E-BEND RADIUS, AND MINIMUM H-BEND RADIUS SPECIFICATIONS. THE COAXIAL TRANSMISSION LINES SHALL BE INSTALLED IN SUCH A MANNER THAT DOES NOT VIOLATE THE MANUFACTURER'S MINIMUM BEND RADIUS.
13. THE VENDOR IS RESPONSIBLE FOR VERIFYING CORRECT SIZE, GENDER, AND SUITABILITY OF ALL WAVEGUIDE AND COAXIAL TRANSMISSION LINE CONNECTORS AND SURGE PROTECTION DEVICES. THE VENDOR SHALL SUBMIT A DETAILED LIST OF CONNECTORS AND SURGE PROTECTION DEVICES TO THE FDOT PROJECT MANAGER FOR REVIEW AND APPROVAL.
14. ALL WAVEGUIDES (ELLIPTICAL AND FLEXIBLE) AND ANTENNA SYSTEMS SHALL BE FREQUENCY DOMAIN SWEEP TESTED AND TIME DOMAIN SWEEP TESTED PRIOR TO CUT-OVER TO OPERATION.
15. ALL WAVEGUIDES AND COAXIAL TRANSMISSION LINES, AND CCTV POWER/DATA CABLES SHALL BE MARKED WITH COLORED TAPE AT THE TOP AND BOTTOM (NEAR THE ANTENNA/CAMERA AND NEAR THE BULKHEAD). THE COLORED TAPE SHALL BE APPLIED IN RINGS (BANDS) AROUND THE WAVEGUIDES, COAXIAL TRANSMISSION LINES, AND CCTV POWER/DATA CABLES FOR EASY IDENTIFICATION. DUE TO HARSH ENVIRONMENTAL CONDITIONS. EACH WAVEGUIDE, COAXIAL TRANSMISSION LINE, AND CCTV POWER/DATA CABLES SHALL BE MARKED WITH A DIFFERENT NUMBER OF RINGS OF COLORED TAPE:  
 1 THRU 4 RINGS ON THE WAVEGUIDES  
 1 THRU 4 RINGS ON THE COAXIAL TRANSMISSION LINES  
 1 THRU 2 RINGS ON THE CCTV POWER/DATA CABLES

**INSTALLATION NOTES (CONT'D.):**

16. THE VENDOR SHALL CUT-OVER THE FDOT'S EXISTING RADIO SYSTEMS FROM THE OLD TOWER'S ANTENNAS TO THE NEWLY INSTALLED TOWER AND ANTENNA SYSTEMS. THE FDOT'S EXISTING RADIO SYSTEM CARRIES LIVE CRITICAL TRAFFIC. THE CUT-OVER PROCEDURE SHALL BE PERFORMED EFFICIENTLY TO MINIMIZE CRITICAL TRAFFIC INTERRUPTION.
17. UPON SUCCESSFUL OPERATIONAL CUT-OVER TO THE NEW TOWER AND ANTENNA SYSTEMS, THE VENDOR SHALL DISMANTLE AND LEGALLY DISPOSE OF THE OLD 160 FT. GUYED TOWER AND ANTENNA SYSTEMS. ALL TOWER AND GUY ANCHOR FOUNDATIONS SHALL BE REMOVED IN ACCORDANCE WITH THE FACILITIES REMOVAL PLAN. SEE SHEET IT-9.
18. THE VENDOR SHALL PROVIDE AND INSTALL NEW TYPE B (CHAIN LINK) SITE COMPOUND FENCING WITH TOP RAIL PER SECTION 550 OF THE FDOT 2015 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND PER INDEX 802 OF THE FDOT 2014 DESIGN STANDARDS. IN ADDITION, THE FENCE FABRIC SHALL BE FASTENED TO THE TOP RAIL.

**TRAFFIC CONTROL – MAINTENANCE OF TRAFFIC NOTES:**

1. THE VENDOR IS RESPONSIBLE FOR ALL MAINTENANCE OF TRAFFIC, INCLUDING THE TRAFFIC CONTROL PLAN. THE MAINTENANCE OF TRAFFIC FOR THIS PROJECT SHALL BE PER THE FDOT 2014 DESIGN STANDARDS. ALL RELATED ITEMS AS REQUIRED BY THE STANDARD INDEX 600 SERIES. THE VENDOR MAY BE REQUIRED TO PERFORM SOME WORK ACTIVITIES AT NIGHT AND/OR OUTSIDE OF PEEK TRAFFIC HOURS.
2. THE VENDOR SHALL SUBMIT THE MOT PLAN TO THE FDOT FOR REVIEW AND APPROVAL. AFTER APPROVAL OF THE MOT PLAN, THE VENDOR SHALL PROVIDE A TWO-WEEK NOTICE PRIOR TO IMPLEMENTATION TO ALLOW FOR APPROPRIATE NOTIFICATION.
3. THE VENDOR IS RESPONSIBLE FOR ENSURING THAT THE LAND BRIDGE CAN SUPPORT ALL VEHICLES THAT WILL BE ACCESSING THE SITE FROM SR 91 (FLORIDA'S TURNPIKE).
4. ANY ALTERNATIVE TO THIS MOT APPROACH SHALL BE APPROVED BY TURNPIKE TRAFFIC OPERATIONS BEFORE IMPLEMENTATION.
5. THE EXISTING POSTED SPEED IS 70 MPH ON SR 91 (FLORIDA'S TURNPIKE). NO SPEED LIMIT REDUCTION IS REQUIRED FOR THIS PROJECT.
6. INSTALL CONSTRUCTION SIGNS PRIOR TO COMMENCEMENT OF CONSTRUCTION AND MAINTAIN SAME PER THE FDOT 2014 DESIGN STANDARDS AND FDOT INDEXES.
7. THE VENDOR SHALL ADHERE TO STANDARD MOT INDEXES WHEN WORK TAKES PLACE OVER TRAVEL LANES.
8. GROUND MOUNTED SIGNS MAY BE USED IN LIEU OF POST MOUNTED SIGNS ONLY IF INSTALLATION OPERATIONS WILL NOT EXCEED A 12 HOUR PERIOD. SIGNS ARE TO BE PER THE FDOT STANDARD INDEX 600 SERIES AND AS SPECIFIED IN THE MUTCD.
9. ALL SPECIFIC SIGNS SHALL BE COMPLETELY COVERED OR REMOVED WHEN NOT IN USE.
10. INSTALL ADVANCE WARNING SIGNS AND TRAFFIC CONTROL DEVICES UTILIZING FDOT STANDARD INDEX NO. 600 SERIES.
11. IMMEDIATELY INFORM THE ENGINEER WHEN IDENTIFYING ANY ERRORS OR OMISSIONS IN THE TRAFFIC CONTROL PLAN OR MAKING ANY MODIFICATION OR CHANGE TO THE TRAFFIC CONTROL PLAN TO OBTAIN APPROVAL BY THE ENGINEER PRIOR TO WORK COMMENCING OR BEING RESUMED THAT IS AFFECTED BY ERRORS OR OMISSIONS.
12. INFORM THE ENGINEER OF ANY HAZARDS WITHIN THE WORK AREA NOT ADDRESSED BY THE TRAFFIC CONTROL PLAN AND ANY POTENTIAL IMPROVEMENTS TO PROPOSED OR IMPLEMENTED PHASES OF THE TRAFFIC CONTROL PLANS.

**CONTRACT PLANS RECORD**

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| STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |          |                      |
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| SITE NAME  | COUNTY   | FINANCIAL PROJECT ID |
| SITE X   | ST LUCIE | 431987-1-52-01       |

*SITE X*  
**INSTALLATION AND  
 MOT NOTES**

SHEET NO.  
 IT-4

**CUT-OVER REQUIREMENTS:**

**1. GENERAL**

- 1.1 THE VENDOR SHALL SUBMIT A DETAILED COMMUNICATION CUT OVER PLAN FOR APPROVAL BY FDOT. THE PLAN SHALL INCLUDE A DETAILED ORDER OF INSTALLATIONS, REMOVALS, AND TESTING.
- 1.2 THE VENDOR SHALL PROVIDE AND INSTALL ANTENNAS, ELLIPTICAL WAVEGUIDES, FLEXIBLE RECTANGULAR WAVEGUIDES (BETWEEN DISH AND ELLIPTICAL WAVEGUIDE), COAXIAL CABLES, MOUNTING APPARATUS, AND INSTALLATION HARDWARE FOR ALL RADIO SYSTEMS. THE VENDOR SHALL BE RESPONSIBLE FOR FURNISHING ALL OF THE NECESSARY EQUIPMENT, HARDWARE, LABOR, AND INSTALLATION PROCEDURES TO EFFECT PROPER INSTALLATION OF THE RADIO ANTENNA SYSTEMS.
- 1.3 ALL OF THE FDOT RADIO SYSTEMS ARE IN SERVICE AND CARRYING CRITICAL COMMUNICATIONS TRAFFIC. ANY DOWNTIME OF THE EXISTING SYSTEM MUST BE COORDINATED WITH THE FDOT PRIOR TO THE DOWNTIME OCCURRENCE. ALL WORK CLASSIFIED AS CAUSING LESS THAN FIVE MINUTES OF DOWNTIME REQUIRES A MINIMUM OF TWO DAYS PRIOR NOTICE. ALL WORK CLASSIFIED AS CAUSING FIVE MINUTES OR MORE DOWNTIME REQUIRES A MINIMUM OF TEN DAYS PRIOR NOTICE AND MUST BE COORDINATED WITH THE FDOT PRIOR TO OCCURRENCE.

**2. PRE CUT-OVER**

- 2.1 INSTALL TOWER, ANTENNAS, ELLIPTICAL AND FLEXIBLE RECTANGULAR WAVEGUIDES, COAXIAL TRANSMISSION LINES.
- 2.2 INSTALL NEW AIR PRESSURIZATION MANIFOLD EQUIPMENT.
- 2.3 INSTALL WAVEGUIDES FROM ANTENNA POSITION TO MICROWAVE RACK POSITION AND IMMEDIATELY PRESSURIZE (DO NOT CONNECT TO ANTENNA). ANY WAVEGUIDES NOT PRESSURIZED WITHIN 12 HOURS (EXCLUDING FLEXIBLE RECTANGULAR WAVEGUIDE SECTIONS) SHALL BE PURGED WITH DRY NITROGEN IN ACCORDANCE WITH TRANSMISSION LINE AND WAVEGUIDE MANUFACTURER'S SPECIFIED PROCEDURES.
- 2.4 EACH NEW PRESSURIZED ANTENNA SYSTEM SHALL BE VERIFIED TO BE FREE OF LEAKS. THE VENDOR SHALL PERFORM A PRESSURE TEST THAT SHALL START AT NOON AND RUN FOR A PERIOD OF 48 HOURS. AT THE START OF THE TEST, THE VENDOR SHALL CLOSE THE VALVE FOR THE PRESSURIZED WAVEGUIDE AND RECORD THE PRESSURE. AT THE END OF THE TEST, THE VENDOR SHALL RECORD THE PRESSURE FOR THE WAVEGUIDE AND COMPARE IT TO THE ORIGINAL PRESSURE. IF THE DIFFERENCE IN PRESSURE IS LESS THAN OR EQUAL TO 1 PSI (0.69 KPA), THEN THE LINE WILL BE CONSIDERED TO BE FREE OF LEAKS. IF THE DIFFERENCE IN PRESSURE OF THE WAVEGUIDE IS GREATER THAN 1 PSI, THEN THE VENDOR SHALL REPAIR THE LINE AND REPEAT THE TEST, WITHOUT CLAIM.
- 2.5 INSTALL NEW COAXIAL TRANSMISSION LINES TO THE SHELTER BULKHEAD MOUNTED SURGE PROTECTIVE DEVICES (DO NOT CONNECT TO ANTENNA).
- 2.6 THE RADIO ANTENNA SYSTEMS' RETURN LOSS SHALL BE COMMENSURATE WITH THE SYSTEM COMPONENT RETURN LOSS SPECIFICATIONS OF THE MANUFACTURER. **THE RADIO ANTENNAS, WAVEGUIDES, AND COAXIAL TRANSMISSION LINES SHALL BE SWEEPED IN BOTH FREQUENCY DOMAIN AND TIME DOMAIN WITH APPROPRIATE LABORATORY-GRADE VECTOR NETWORK ANALYZER TEST EQUIPMENT, AND PRINTED DOCUMENTATION OF THE TEST RESULTS SHALL BE SUBMITTED TO THE FDOT FOR APPROVAL. THE VENDOR SHALL SUBMIT A LIST OF TEST EQUIPMENT, WITH CALIBRATION DATES, TO THE FDOT PROJECT MANAGER FOR REVIEW AND APPROVAL PRIOR TO TESTING.**

**3. CUT-OVER**


- 3.1 PERFORM SITE X COORDINATE SITE RECEIVE SIGNAL LEVEL (RSL) MEASUREMENTS. RECORD EXISTING ANTENNA SYSTEMS RSL MEASUREMENTS ONTO THE FDOT APPROVED FORMS. SEE IT-13 AND IT-14, SITE X RSL MEASUREMENTS FORMS.
- 3.2 **CUT-OVER THE NEW YEEHAW JUNCTION DIVERSITY ANTENNA TO THE SITE X MICROWAVE RADIO. THE OLD WAVEGUIDE SHALL REMAIN PRESSURIZED UNTIL SUCCESSFUL CUTOVER.**
- 3.3 ALIGN THE YEEHAW JUNCTION DIVERSITY ANTENNA FOR PEAK MAIN LOBE RSL. UTILIZATION OF THE LABORATORY-GRADE VECTOR NETWORK ANALYZER FOR ANTENNA ALIGNMENT IS RECOMMENDED.
- 3.4 RECORD THE CUT-OVER YEEHAW JUNCTION DIVERSITY ANTENNA RSL ONTO THE RSL FORM AND VERIFY PROPER RSL PERFORMANCE FOR THE NEW ANTENNA.
- 3.5 **CUT-OVER THE NEW YEEHAW JUNCTION MAIN ANTENNA TO THE SITE X MICROWAVE RADIO. THE OLD WAVEGUIDE SHALL REMAIN PRESSURIZED UNTIL SUCCESSFUL CUTOVER.**
- 3.6 ALIGN THE NEW YEEHAW JUNCTION MAIN ANTENNA FOR PEAK MAIN LOBE RSL. UTILIZATION OF THE LABORATORY-GRADE VECTOR NETWORK ANALYZER FOR ANTENNA ALIGNMENT IS RECOMMENDED.
- 3.7 RECORD THE CUT-OVER YEEHAW JUNCTION MAIN ANTENNA RSL ONTO THE RSL FORM AND VERIFY PROPER RSL PERFORMANCE FOR THE NEW ANTENNA.

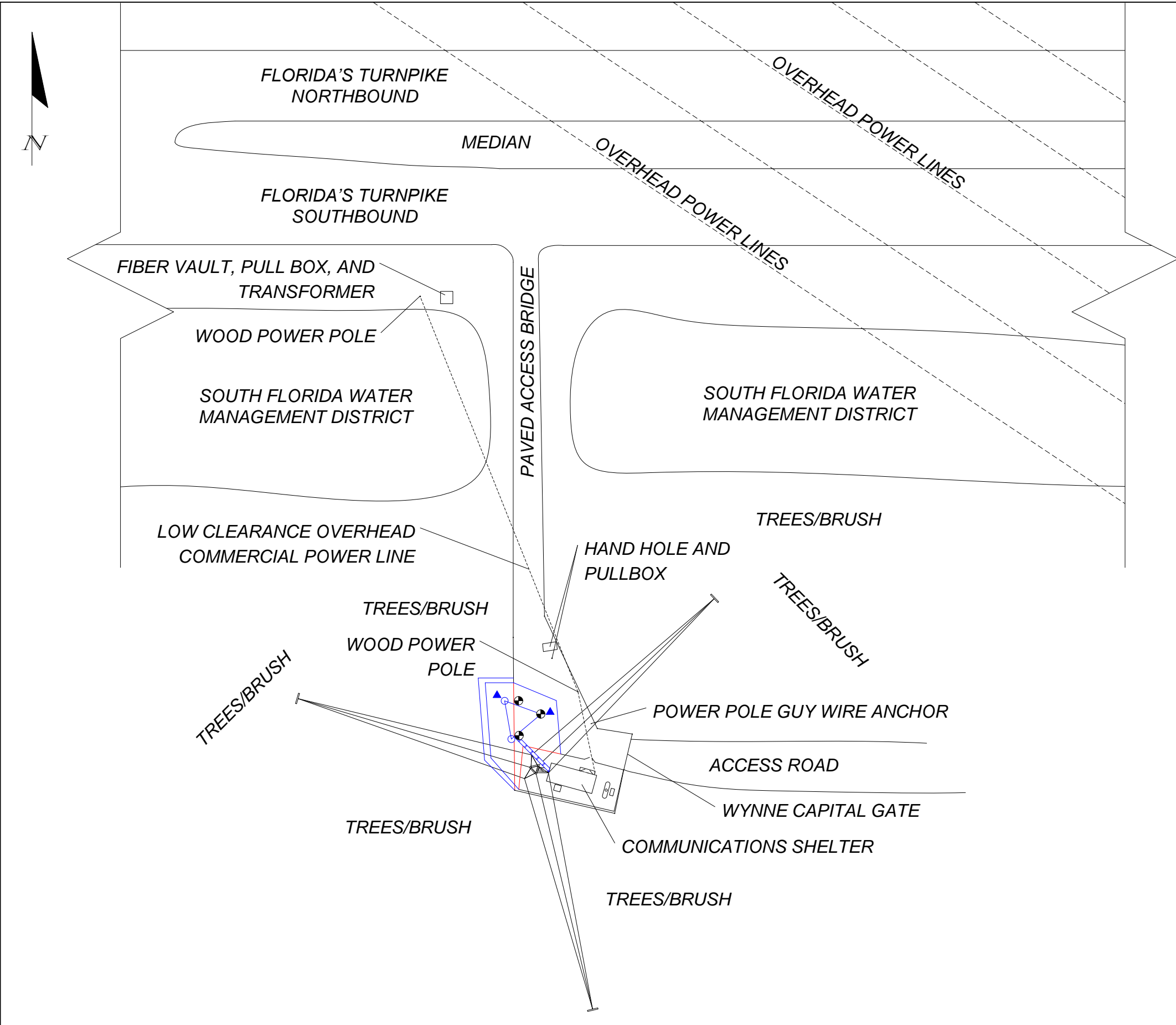
**CUT-OVER REQUIREMENTS (CONT'D.):**

- 3.8 **CUT-OVER THE NEW FORT PIERCE INTERCHANGE DIVERSITY ANTENNA TO THE SITE X MICROWAVE RADIO. THE OLD WAVEGUIDE SHALL REMAIN PRESSURIZED UNTIL SUCCESSFUL CUTOVER.**
- 3.9 ALIGN THE NEW FORT PIERCE INTERCHANGE DIVERSITY ANTENNA FOR PEAK MAIN LOBE RSL. UTILIZATION OF THE LABORATORY-GRADE VECTOR NETWORK ANALYZER FOR ANTENNA ALIGNMENT IS RECOMMENDED.
- 3.10 RECORD THE CUT-OVER FORT PIERCE INTERCHANGE DIVERSITY ANTENNA RSL ONTO THE RSL FORM AND VERIFY PROPER RSL PERFORMANCE FOR THE NEW ANTENNA.
- 3.11 **CUT-OVER THE NEW FORT PIERCE INTERCHANGE MAIN ANTENNA TO THE SITE X MICROWAVE RADIO. THE OLD WAVEGUIDE SHALL REMAIN PRESSURIZED UNTIL SUCCESSFUL CUTOVER.**
- 3.12 ALIGN THE NEW FORT PIERCE INTERCHANGE MAIN ANTENNA FOR PEAK MAIN LOBE RSL. UTILIZATION OF THE LABORATORY-GRADE VECTOR NETWORK ANALYZER FOR ANTENNA ALIGNMENT IS RECOMMENDED.
- 3.13 RECORD THE CUT-OVER FORT PIERCE INTERCHANGE MAIN ANTENNA RSL ONTO THE RSL FORM AND VERIFY PROPER RSL PERFORMANCE FOR THE NEW ANTENNA.
- 3.14 CUT-OVER ALL NEW COAXIAL CABLES TO THE SITE X LAND MOBILE RADIO EQUIPMENT, WHILE MINIMIZING RADIO SYSTEM DOWNTIME.

**INSPECTION NOTES:**

- 1. THE INSPECTION SHALL BE PERFORMED BY THE VENDOR AND WITNESSED BY FDOT. THE VENDOR SHALL NOTIFY FDOT AT LEAST 10 DAYS PRIOR TO COMPLETION OF INSTALLATION. THE VENDOR AND FDOT SHALL VERIFY JOINTLY THAT ALL INSTALLATION WORK IS CORRECTLY INSTALLED AND FUNCTIONAL.
- 2. THE VENDOR SHALL NOTIFY FDOT AT LEAST TWO DAYS PRIOR TO COMPLETION OF GROUNDING INSTALLATION FOR INSPECTION. BELOW GRADE GROUNDING INSTALLATIONS AND GROUND CONNECTIONS SHALL NOT BE BACKFILLED UNTIL INSPECTED AND APPROVED BY THE FDOT.  
  
GROUNDING SHALL BE INSPECTED FOR PROPER CONNECTION TYPES, TIGHTNESS, WORKMANSHIP, AND CONFORMANCE WITH THE APPROVED DESIGN. ANY EXOTHERMIC BONDS THAT ARE DEEMED UNSATISFACTORY SHALL BE REPAIRED BY THE VENDOR WITH NEW BONDS, WITHOUT CLAIM.
- 3. THE INSTALLATION OF DRILLED SHAFT FOUNDATIONS SHALL BE INSPECTED IN ACCORDANCE WITH THE RECOMMENDATIONS OF FHWA-NHI-10-016 "DRILLED SHAFTS: CONSTRUCTION PROCEDURES AND LRFD DESIGN METHODS" AND ACI 336.3R-93 "DESIGN AND CONSTRUCTION OF DRILLED PIERS". NON-DESTRUCTIVE INTEGRITY TESTS ARE NOT REQUIRED FOR THIS TELECOMMUNICATIONS PROJECT.  
  
FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 455 DOES NOT APPLY FOR THIS PROJECT.
- 4. THE SITE SHALL BE INSPECTED TO BE FREE OF DEBRIS AND THAT EXCAVATIONS ARE BACKFILLED AND COMPOUND RESTORED.
- 5. FOLLOWING THE COMPLETION OF INSPECTIONS, THE INSTALLED EQUIPMENT AND FACILITIES SHALL BE SUBJECTED TO A MINIMUM 20-DAY PERFORMANCE PERIOD. FOR THE PURPOSE OF THE SUCCESSFUL PERFORMANCE PERIOD, FAILURE OF OPERATION IS DEFINED AS THE FAILURE OF A MAJOR COMPONENT OF THE SITE (WAVEGUIDES, COAXIAL TRANSMISSION LINES, ANTENNAS, ETC.). DEGRADATION OF MICROWAVE LINK PERFORMANCE IS A FAILURE. THE PERFORMANCE VERIFICATION SHALL BE ACCOMPLISHED WITH THE FDOT. UPON ACCEPTANCE OF THE PERFORMANCE AND TEST CRITERIA BY FDOT, THE 20-DAY PERFORMANCE PERIOD SHALL BEGIN.

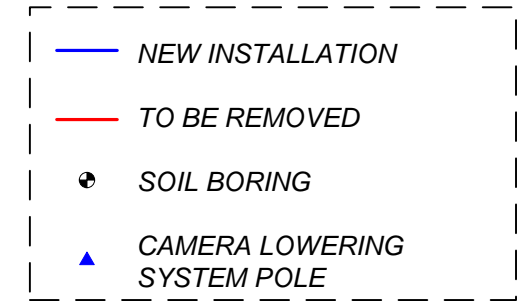
| CONTRACT PLANS RECORD |      |             |      |      |             |  FLORIDA DEPARTMENT OF TRANSPORTATION<br>605 SUWANNEE ST. MS 90<br>TALLAHASSEE, FL 32399-0450<br>PH. (850)-410-5600<br>FAX. (850)-410-5501 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |          |                      | SITE X<br>CUT-OVER REQ. AND<br>INSPECTION NOTES | SHEET NO. |
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| DATE                  | REV. | DESCRIPTION | DATE | REV. | DESCRIPTION |   | SITE NAME  | COUNTY   | FINANCIAL PROJECT ID |   | IT-5      |
|                       |      |             |      |      |             |   | SITE X   | ST LUCIE | 431987-1-52-01       |   |           |



**PROJECT PLAN:**

1. THE VENDOR SHALL SUBMIT TOWER, FOUNDATION, ANTENNA SYSTEMS, SITE LAYOUT, AND CONSTRUCTION STAGING AREA DESIGN PLANS TO THE FDOT PROJECT MANAGER FOR REVIEW AND APPROVAL.  
TOWER AND FOUNDATION DESIGNS MUST INCLUDE A FABRICATION REPORT, ERECTING PLAN, AND ANCHOR BOLT TEMPLATE.
2. THE VENDOR SHALL FURNISH AND INSTALL TOWER FOUNDATIONS PER THESE PLANS.
3. THE VENDOR SHALL FURNISH AND INSTALL A NEW 180 FT. GALVANIZED SOLID ROD MEMBER SELF-SUPPORTING TOWER PER THESE PLANS. THE TOWER SHALL BE DESIGNED TO SUPPORT THE ANTENNAS, LINES, AND APPURTENANCES, AND PER THE DESIGN CRITERIA DELINEATED ON SHEET IT-3.  
THE VENDOR SHALL LOCATE THE TOWER SUCH THAT THE WYNNE CAPITAL ACCESS ROAD REMAINS ACCESSIBLE FROM THE FLORIDA'S TURNPIKE
4. THE VENDOR SHALL SECURE THE TOWER SITE COMPOUND AT ALL TIMES. ADDITIONAL OR TEMPORARY TYPE B FENCING MAY BE REQUIRED. THE VENDOR SHALL BE RESPONSIBLE FOR ALL ADDITIONAL FENCING, AT NO ADDITIONAL COST TO FDOT.
5. THE VENDOR SHALL FURNISH AND INSTALL A TOWER SAFETY CLIMBING ASSEMBLY ON THE NEW 180 FT. SELF-SUPPORTING TOWER. THE CLIMBING ASSEMBLY SHALL BE MANUFACTURED SPECIFICALLY FOR THE TOWER THAT IS INSTALLED. THE CLIMBING ASSEMBLY MAY INCLUDE STEP BOLTS OR A CLIMBING LADDER.
6. THE VENDOR SHALL FURNISH AND INSTALL ANTENNAS, CCTV CAMERAS WITH LOWERING DEVICES AND MESSENGER WIRES, SURGE PROTECTION, ELLIPTICAL AND FLEXIBLE RECTANGULAR WAVEGUIDES, COAXIAL CABLES, AND CCTV LOWERING AND POWER/DATA CABLES PER SHEETS IT-10, IT-11, AND IT-12.  
THE VENDOR SHALL SUBMIT A DETAILED ANTENNA SYSTEM MOUNTING DESIGN TO THE FDOT PROJECT MANAGER FOR REVIEW AND APPROVAL.  
THE VENDOR SHALL SUBMIT A DETAILED INTERIOR AND EXTERIOR CABLE MANAGEMENT DESIGN PLAN TO THE FDOT PROJECT MANAGER FOR REVIEW AND APPROVAL.  
THE VENDOR SHALL SUBMIT A DETAILED CCTV MOUNTING SYSTEM DESIGN PLAN TO THE FDOT PROJECT MANAGER FOR REVIEW AND APPROVAL.
7. THE VENDOR SHALL INSTALL THE GROUNDING SYSTEM PER IT-8.
8. THE FDOT OR APPROVED REPRESENTATIVE SHALL INSPECT TOWER, ANTENNAS, AND GROUNDING SYSTEM INSTALLATIONS.
9. THE VENDOR SHALL TEST ANTENNA SYSTEMS, CUT-OVER RADIO SYSTEMS AND ALIGN ANTENNAS.
10. THE VENDOR SHALL REMOVE GUYED TOWER AND FACILITIES AND INSTALL NEW PERIMETER FENCE PER SHEET IT-9.
11. THE FDOT OR APPROVED REPRESENTATIVE SHALL PERFORM A FINAL INSPECTION OF COMPLETE JOB.

**LEGEND:**



| CONTRACT PLANS RECORD |      |             |      |      |             |
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| SITE NAME  | COUNTY   | FINANCIAL PROJECT ID |
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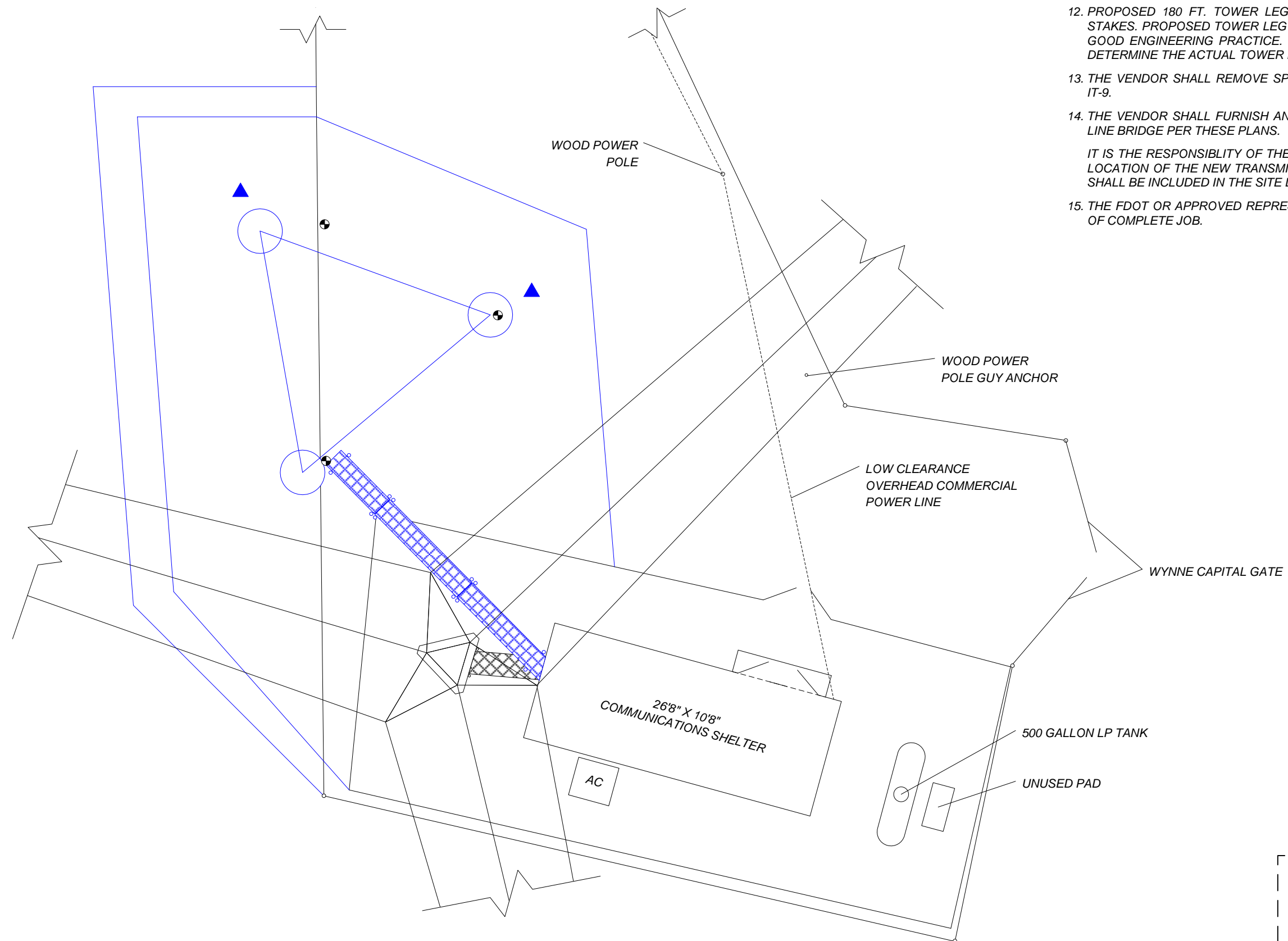
**SITE X  
SITE LAYOUT PLAN**

SHEET NO.  
IT-6

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**PROJECT PLAN (CONT'D.):**

12. PROPOSED 180 FT. TOWER LEG LOCATIONS ARE PRESENTLY MARKED WITH STAKES. PROPOSED TOWER LEG LOCATIONS ARE BASED ON SOIL BORINGS AND GOOD ENGINEERING PRACTICE. IT IS THE RESPONSIBILITY OF THE VENDOR TO DETERMINE THE ACTUAL TOWER FACE DIMENSION.
13. THE VENDOR SHALL REMOVE SPECIFIED EXISTING FENCE SECTION PER SHEET IT-9.
14. THE VENDOR SHALL FURNISH AND INSTALL A NEW HORIZONTAL TRANSMISSION LINE BRIDGE PER THESE PLANS.  
  
IT IS THE RESPONSIBILITY OF THE VENDOR TO DETERMINE THE BEST PRACTICAL LOCATION OF THE NEW TRANSMISSION LINE BRIDGE. THE PROPOSED LOCATION SHALL BE INCLUDED IN THE SITE LAYOUT DESIGN.
15. THE FDOT OR APPROVED REPRESENTATIVE SHALL PERFORM FINAL INSPECTION OF COMPLETE JOB.



**LEGEND:**

- NEW INSTALLATION
- ⊕ SOIL BORING
- ▲ CAMERA LOWERING SYSTEM POLE

**CONTRACT PLANS RECORD**

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| SITE NAME | COUNTY   | FINANCIAL PROJECT ID |
| SITE X    | ST LUCIE | 431987-1-52-01       |

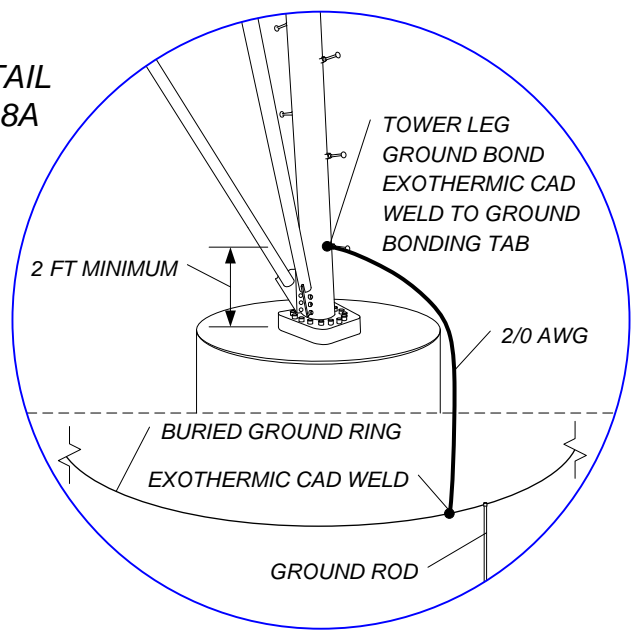
**SITE X  
 PERIMETER LAYOUT  
 PLAN**

SHEET NO.

IT-7

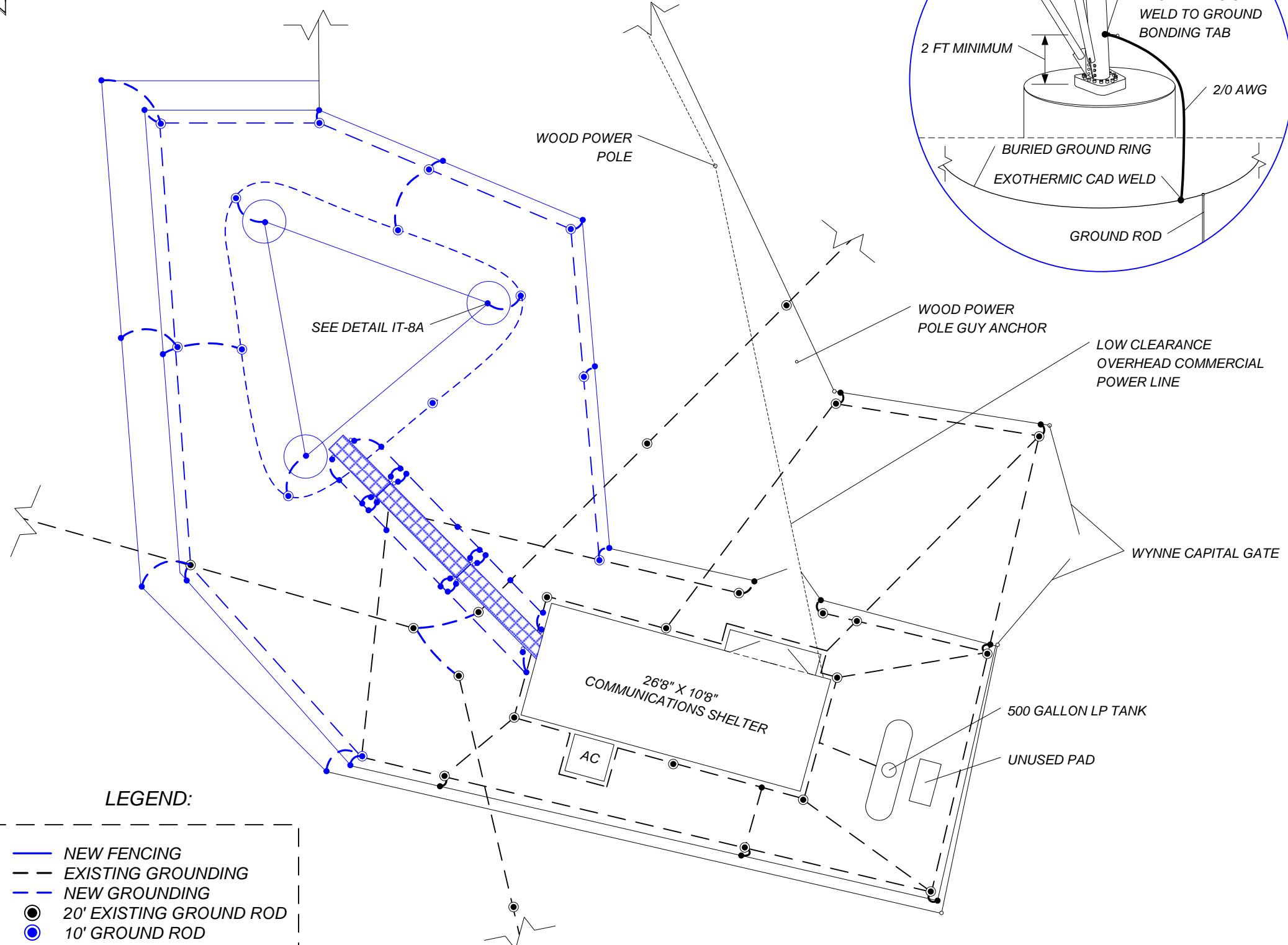


**DETAIL  
IT- 8A**



**GROUNDING NOTES:**

1. THE VENDOR SHALL SUBMIT A DETAILED GROUNDING PLAN TO THE FDOT PROJECT MANAGER FOR REVIEW AND APPROVAL.
2. EXISTING TOWER AND PARTIAL FENCING REMOVED FOR VISUAL CLARITY.
3. ALL GROUND RODS SHALL BE 10 FEET LONG, COPPER-CLAD STEEL WITH A MINIMUM DIAMETER OF 5/8 IN.
4. THE INSTALLATION OF GROUND RODS SHALL BE PER THESE SPECIFICATIONS. SPACING BETWEEN GROUND RODS SHALL BE 20 FT. MAXIMUM.
5. #2 AWG TINNED SOLID COPPER WIRE IS REQUIRED FOR ALL ABOVE GROUND AND BELOW GROUND INSTALLATIONS OF GROUND WIRE. ALL FENCE GATE GROUND CONDUCTORS SHALL BE 2/0 AWG STRANDED WELDING CABLE WITH BLACK INSULATION.  
2/0 AWG IS REQUIRED TO BOND THE GROUND BONDING TAB ON EACH TOWER LEG TO THE BURIED GROUND RING AS SHOWN IN DETAIL IT-8A.
6. GROUND CONDUCTORS (WIRES AND STRAPS) SHALL BE DOWNWARD COURSING AND VERTICAL, AS MUCH AS POSSIBLE, AND BE AS SHORT AND STRAIGHT AS PRACTICAL. SHARP BENDS AND MULTIPLE BENDS IN CONDUCTORS SHALL BE AVOIDED IN ALL CASES. THE MINIMUM BEND RADIUS SHALL BE EIGHT (8) INCHES PER NFPA 780.
7. ALL BELOW GROUND GROUNDING CONNECTIONS SHALL BE EXOTHERMIC BOND CONNECTIONS. ALL BELOW GROUND GROUNDING CONDUCTORS SHALL BE INSTALLED AT A MINIMUM OF 36 IN. BELOW GRADE.
8. ALL ABOVE GROUND GROUNDING CONNECTIONS SHALL BE EXOTHERMIC BOND, MECHANICAL CLAMP, OR IRREVERSIBLE CRIMP CONNECTIONS.
9. THE VENDOR SHALL CLEAN AND PREPARE ALL GROUND CONDUCTORS AND SURFACES PRIOR TO PERFORMING EXOTHERMIC BONDS. ALL NON-CONDUCTING SURFACE COATINGS SHALL BE REMOVED BEFORE EACH CONNECTION IS MADE.
10. THE VENDOR SHALL CONNECT THE NEW TOWER GROUND RING TO THE EXISTING 4-1/2 IN. FLAT COPPER STRAP RADIALS ASSOCIATED WITH THE 160 FT. GUYED TOWER PER THESE SPECIFICATIONS.
11. THE VENDOR SHALL INSTALL A GROUND BUS BAR AT THE BASE OF THE NEW 180 FT. SELF-SUPPORT TOWER PER THESE PLANS. THE GROUND BUS BAR SHALL BE TINNED COPPER, EQUIPPED WITH A #2 AWG TINNED SOLID COPPER WIRE PIGTAIL. THE VENDOR SHALL INSTALL THE GROUND BUS BAR AT A LOWER HEIGHT THAN THE HORIZONTAL TRANSMISSION LINE BRIDGE, BUT NO MORE THAN 2 FT. BELOW THE HEIGHT OF THE HORIZONTAL TRANSMISSION LINE BRIDGE TRAPEZE ASSEMBLIES. THE GROUND BUS BAR SHALL BE INSULATED FROM THE TOWER STEEL. THE VENDOR SHALL EXOTHERMICALLY BOND THE #2 AWG TINNED SOLID COPPER PIGTAIL OF THE GROUND BUS BAR TO THE TOWER GROUND RING.
12. THE VENDOR SHALL EXOTHERMICALLY BOND ALL HORIZONTAL TRANSMISSION LINE BRIDGE SUPPORT POLES TO THE NEW TOWER GROUND RING WITH #2 AWG TINNED SOLID COPPER WIRE.
13. ALL EXOTHERMIC BONDS SHALL BE ONESHOT UNLESS PRE-APPROVED IN WRITING BY THE FDOT PROJECT MANAGER.
14. THE VENDOR SHALL NOT BACKFILL OPENINGS WHERE UNDERGROUND EXOTHERMIC BONDS ARE MADE UNTIL FDOT HAS INSPECTED AND APPROVED THE GROUNDING SYSTEM.
15. ALL RADIO FREQUENCY (RF) WAVEGUIDES AND COAXIAL TRANSMISSION LINES SHALL BE GROUNDED TO THE TOWER AND BULKHEAD AT A MINIMUM OF FOUR (4) LOCATIONS PER THESE SPECIFICATIONS: 1) TOP OF TRANSMISSION LINE SYSTEM, 2) MIDDLE OF THE TRANSMISSION LINE SPAN, 3) BASE OF THE TOWER WHERE TRANSITION IS MADE TO THE HORIZONTAL TRANSMISSION LINE BRIDGE (TOWER BASE GROUND BUS BAR), AND 4) AT THE TRANSMISSION LINE BULKHEAD PRIOR TO ENTERING THE COMMUNICATIONS BUILDING.
16. ALL RF COAXIAL TRANSMISSION LINES SHALL BE EQUIPPED WITH SURGE PROTECTIVE DEVICES (SPD) PER THESE SPECIFICATIONS. ALL SPDs SHALL BE CONNECTED DIRECTLY TO THE BULKHEAD UPON ENTERING THE COMMUNICATIONS BUILDING.
17. NEW FENCING SHALL BE PER FDOT DESIGN STANDARDS FOR FENCE TYPE B, INDEX NO 802.



**LEGEND:**

- NEW FENCING
- - - EXISTING GROUNDING
- - - NEW GROUNDING
- 20' EXISTING GROUND ROD
- 10' GROUND ROD
- EXOTHERMIC BOND

| CONTRACT PLANS RECORD |      |             |      |      |             |
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**SITE X  
SITE GROUNDING  
DETAIL**

SHEET NO.  
IT-8

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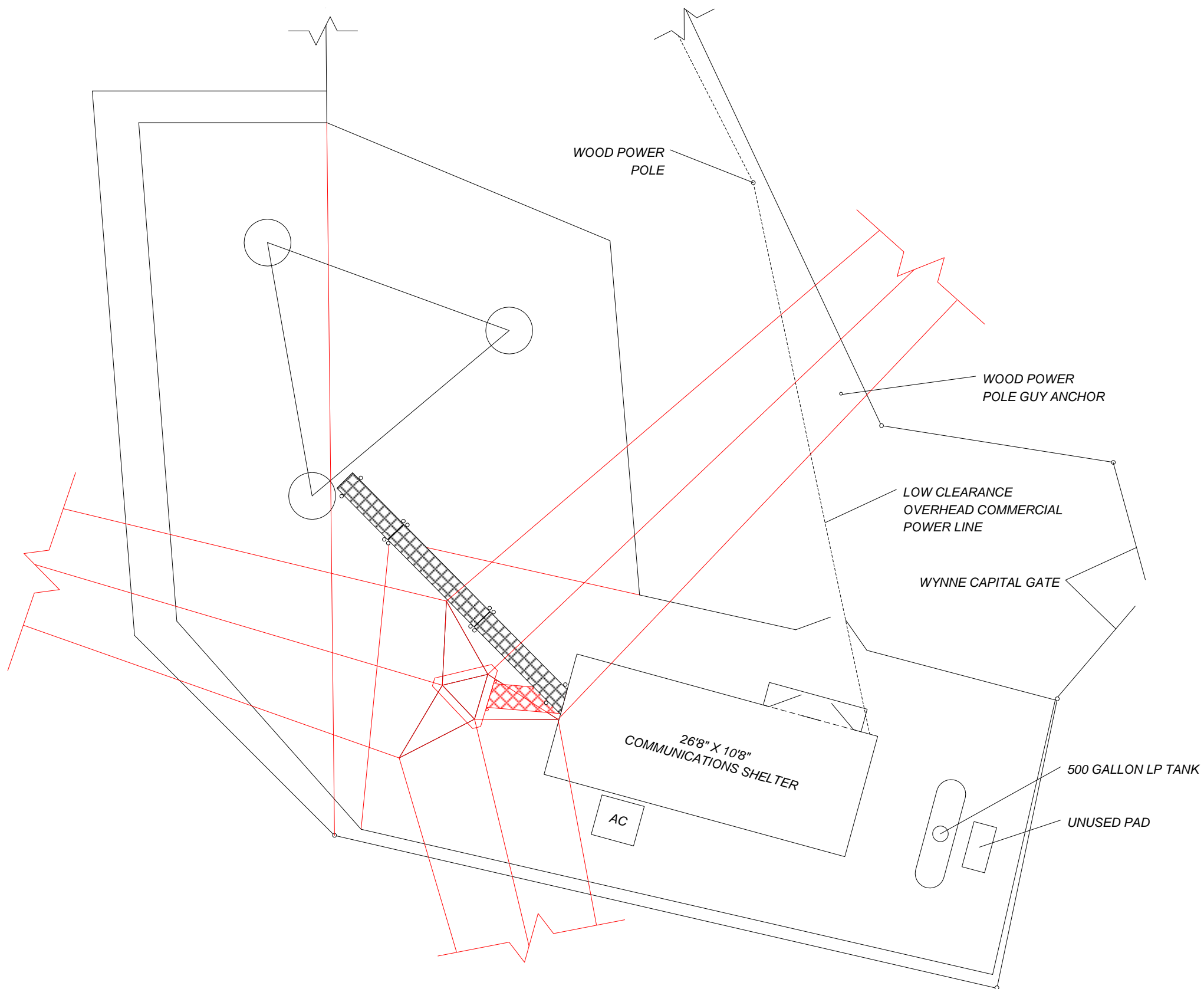




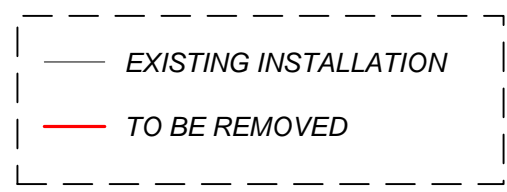
**FACILITIES REMOVAL PLAN:**

1. THE VENDOR SHALL SUBMIT A DETAILED REMOVAL/DEMOLITION PLAN FOR APPROVAL BY FDOT. THE PLAN SHALL INCLUDE A DETAILED SCHEDULE OF EVENTS DETAILING EACH PHASE OF REMOVAL/DEMOLITION; A SAFETY PLAN DETAILING THE ACTIVITIES AND THE ACTIONS TO BE TAKEN TO MITIGATE HAZARDS; AND AN EMERGENCY PLAN.
2. THE VENDOR SHALL REMOVE A PORTION OF THE EXISTING FENCE SYSTEM PER THESE SPECIFICATIONS.
3. THE VENDOR SHALL DISMANTLE AND REMOVE THE 160 FT. GUYED TOWER.
4. THE VENDOR SHALL REMOVE TOWER BASE FOUNDATION AND ALL GUY ANCHOR FOUNDATIONS NO LESS THAN 3 FT. BELOW EXISTING GRADE.
5. THE VENDOR SHALL SUBMIT A DETAILED SITE RESTORATION PLAN TO THE FDOT PROJECT MANAGER FOR REVIEW AND APPROVAL
6. THE VENDOR SHALL INSTALL NEW PERIMETER FENCING PER THESE PLANS AND PER FDOT 2014 DESIGN STANDARDS FOR FENCE TYPE B, INDEX NO 802.  
  
THE VENDOR SHALL MATCH THE EXISTING FENCE AND GATE HEIGHTS TO THEIR RESPECTIVE COMPOUNDS. THE VENDOR HAS FLEXIBILITY AS TO THE ACTUAL LAYOUT OF THE NEW PERIMETER FENCING.
7. THE VENDOR SHALL BACKFILL AND COMPACT ALL EXCAVATIONS, HOLES AND TRENCHES (AFTER INSPECTION AND APPROVAL IS PERFORMED BY FDOT), LEVEL COMPOUND WITH TOP SOIL, AND SOD ALL DISTURBED AREAS TO MATCH SURROUNDING GROUND COVER.
8. THE VENDOR SHALL LEGALLY DISPOSE OF ALL TOWER STEEL, FOUNDATION MATERIAL, FENCING, EXTRACTION MATERIAL, DEBRIS, AND TRASH.

**EXISTING GUYED TOWER PAINT HAS TESTED POSITIVE FOR LEAD BASED PAINT. REFERENCE LIMITED LEAD-BASED PAINT INSPECTION #12506 INCLUDED IN THESE PLANS.**



**LEGEND:**



| CONTRACT PLANS RECORD |      |             |      |      |             |
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*SITE X*  
**FACILITIES REMOVAL  
 PLAN**

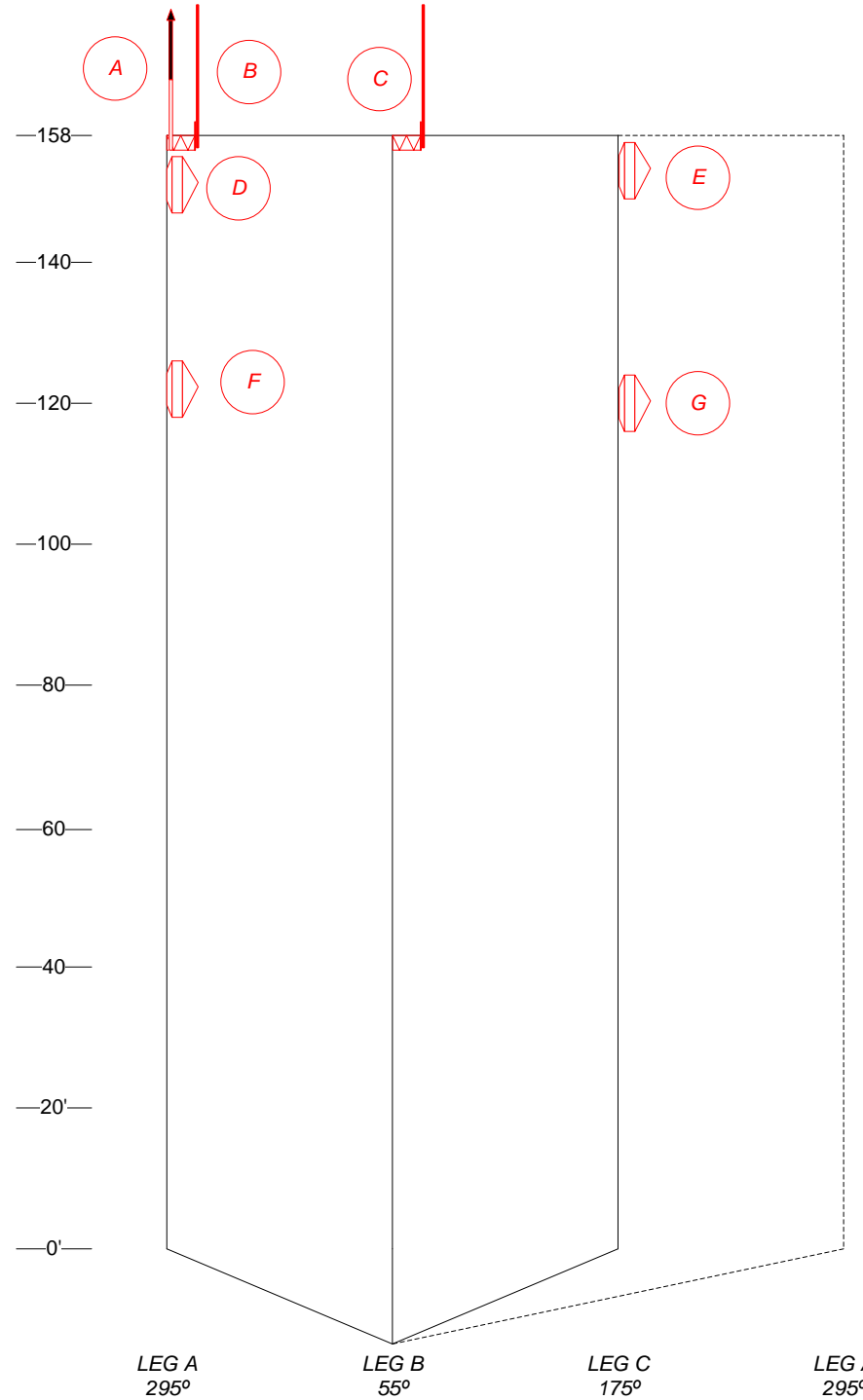
SHEET NO.  
 IT-9

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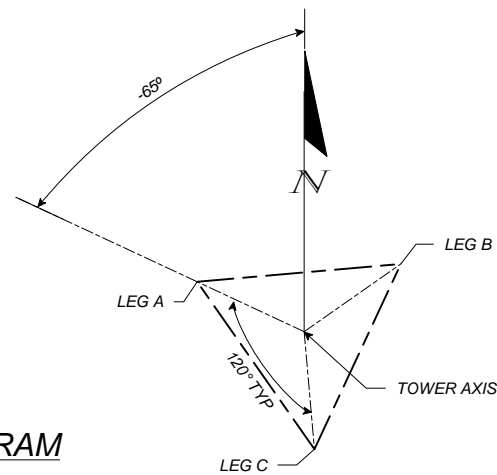
| ID | MODEL        | LEG/FACE | MTG. HGT.   | TX LINE | AZIM.  | NOTES |
|----|--------------|----------|-------------|---------|--------|-------|
| A  | AIR TERMINAL | A        | 158' (BASE) | -       | -      | 4     |
| B  | ASP705K      | A        | 158' (BASE) | 1-1/4"  | -      | 4     |
| C  | ASP705K      | B        | 158' (BASE) | 1-1/4"  | -      | 4     |
| D  | PA8-65       | A        | 151' (C.L.) | EW-63   | 303.4° | 4     |
| E  | PA8-65       | C        | 153' (C.L.) | WE-65   | 122.7° | 4     |
| F  | PA8-65       | A        | 122' (C.L.) | EW-63   | 303.4° | 4     |
| G  | PA8-65       | C        | 120' (C.L.) | WE-65   | 122.7° | 4     |

**NOTES:**

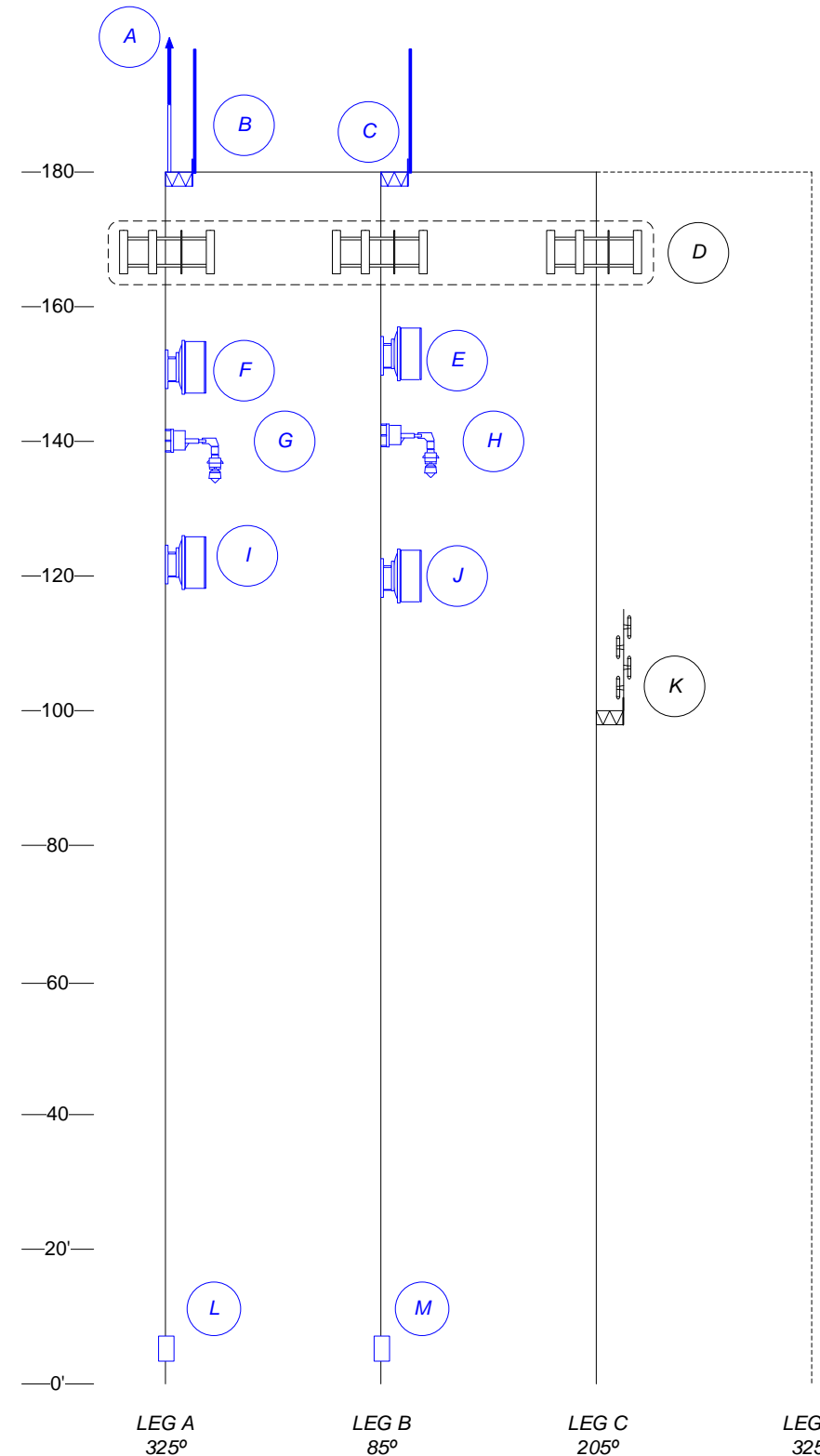
1. REMOVE ALL ANTENNAS, TRANSMISSION LINES, CONDUIT, AND ASSOCIATED MOUNTING HARDWARE PER THESE PLANS.
2. REMOVE ALL TOWER STEEL, GUY WIRES, AND FOUNDATIONS PER THESE PLANS.
3. RESTORE SITE COMPOUND PER THESE PLANS.
4. REMOVE AND PROPERLY DISPOSE OF ITEMS PER THESE PLANS.



**EXISTING TOWER LOADING DIAGRAM**



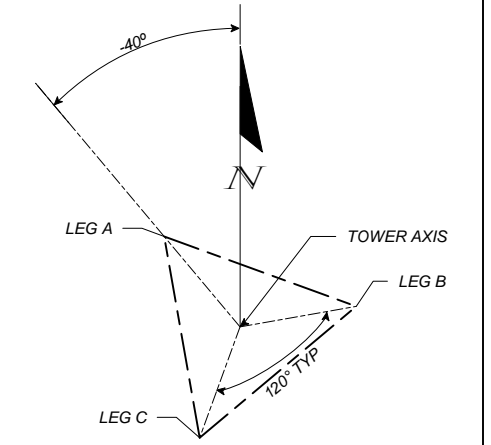
**NEW TOWER LOADING DIAGRAM**



| ID | MODEL  | LEG/FACE | MTG. HGT.   | TX LINE           | AZIM.  | NOTES |
|----|--|----------|-------------|-------------------|--------|-------|
| A  | COPPER CLAD AIR TERMINAL   | A        | 180' (BASE) | -                 | -      | -     |
| B  | ASP705K W/ 4 FT. SIDE ARM  | A        | 180' (BASE) | 1-1/4"            | -      | -     |
| C  | ASP705K W/ 4 FT. SIDE ARM  | B        | 180' (BASE) | 1-1/4"            | -      | -     |
| D  | (3) 16' FACE T-BOOM SECTOR MOUNT<br>(3) ANDREW DBXLH-9090C-R2M<br>(6) ANDREW DBXLH-6565C-R2M | A,B,C    | 168' (C.L.) | (18) 1-5/8"       | -      | 4     |
| E  | HP8-59W-P3A  | B        | 153' (C.L.) | EWP63-57W         | 122.7° | 5, 6  |
| F  | HP8-59W-P3A  | A        | 151' (C.L.) | EWP63-57W         | 303.4° | 5, 6  |
| G  | AXIS CCTV PTZ CAMERA WITH LOWERING DEVICE  | A        | 140' (BASE) | (2) 1-1/2" W/CAT6 | -      | 3     |
| H  | AXIS CCTV PTZ CAMERA WITH LOWERING DEVICE  | B        | 140' (BASE) | (2) 1-1/2" W/CAT6 | -      | 3     |
| I  | HP8-59W-P3A  | A        | 122' (C.L.) | EWP63-57W         | 303.4° | 5, 6  |
| J  | HP8-59W-P3A  | B        | 120' (C.L.) | EWP63-57W         | 122.7° | 5, 6  |
| K  | DB-224 W/ 4 FT. SIDE ARM   | C        | 100' (BASE) | 7/8"              | -      | 4     |
| L  | LOWERING DEVICE SECURITY BOX   | A        | 3' (BASE)   | -                 | -      | 3     |
| M  | LOWERING DEVICE SECURITY BOX   | B        | 3' (BASE)   | -                 | -      | 3     |

**NOTES:**

1. INSTALL TOWER FOUNDATIONS AND STEEL PER THESE PLANS.
2. INSTALL ALL ANTENNAS, CCTV CAMERA AND LOWERING DEVICE WITH MESSENGER WIRES, TRANSMISSION LINES, CCTV POWER/ DATA CABLES, CONDUITS, SURGE PROTECTION, AND ASSOCIATED MOUNTING AND GROUNDING HARDWARE PER THESE PLANS. THE TOP OF THE AIR TERMINAL MUST BE THE HIGHEST POINT ON THE TOWER.
3. INSTALL CCTV LOWERING DEVICE SECURITY BOX, AND ASSOCIATED MOUNTING HARDWARE, AT THE BASE OF THE TOWER.  
  
THE CCTV CAMERA SHALL BE AXIS Q6045-E MK II CAMERAS WITH CLS CTMT-16HDD-XXX-PMT LOWERING DEVICE. THE CAMERA SHALL BE POWERED AND CONTROLLED BY AXIS T8124 DC MIDSPAN POE INJECTOR. THE SURGE PROTECTIVE DEVICES SHALL BE CITEL MJ8-POE-A.
4. ITEMS "D" AND "K" ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. ITEM "D" IS A FUTURE LOAD CELLULAR ANTENNA SYSTEM, TO BE CONSIDERED FOR TOWER CAPACITY DESIGN, NOT TO BE FURNISHED OR INSTALLED AS A PART OF THIS PROJECT.
5. VERTICAL POLARIZATION.
6. FCC LICENSES: KGQ72 & KYN999



| CONTRACT PLANS RECORD |      |             |      |      |             |
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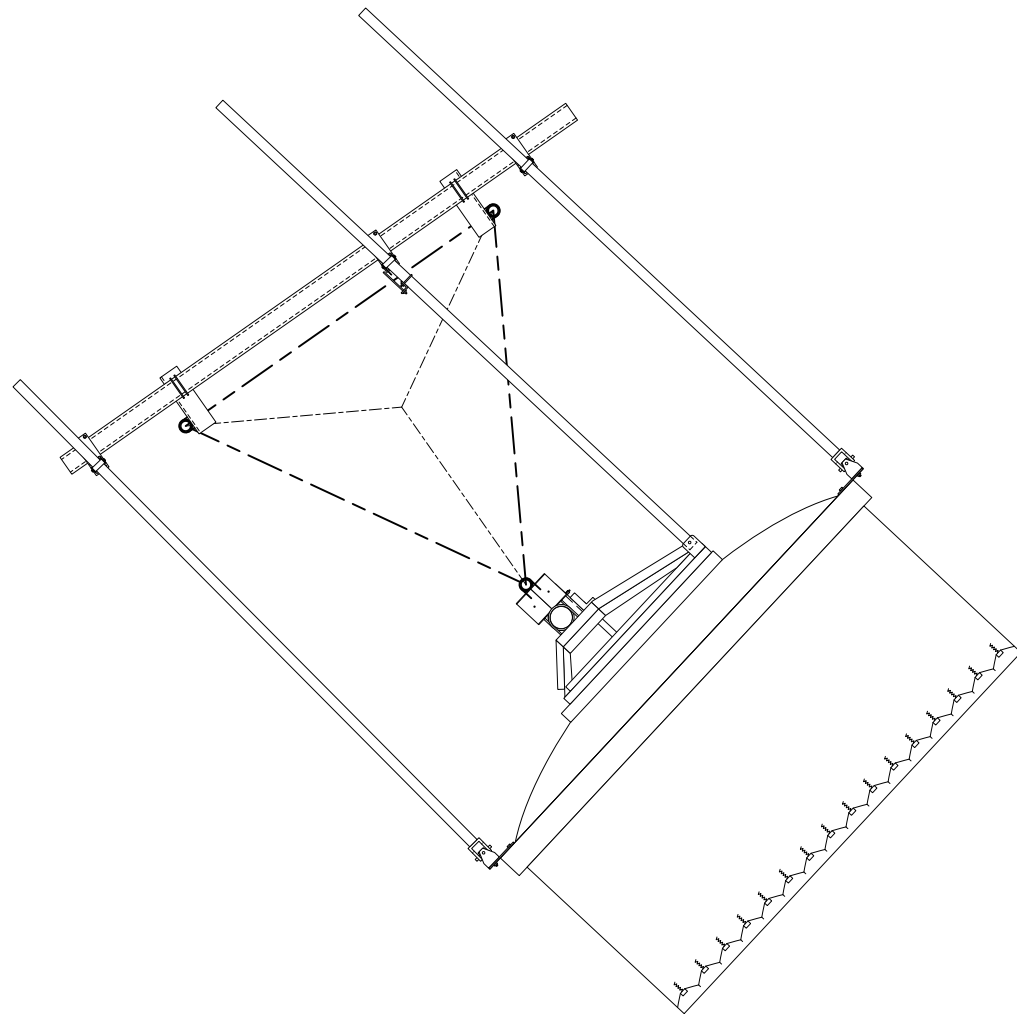
**SITE X  
TOWER LOADING  
DIAGRAMS**

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IT-10

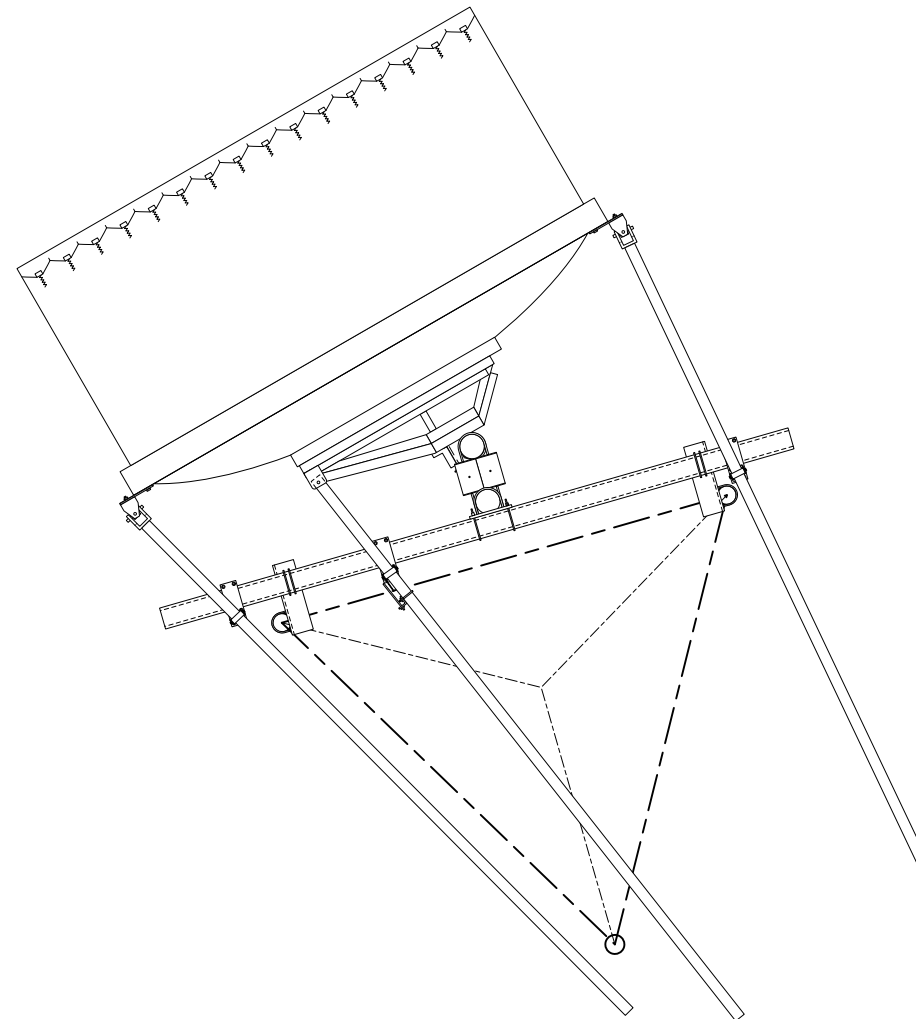
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**ORIENTATION NOTES:**

1. THE VENDOR SHALL SECURE EACH MICROWAVE DISH TO THE TOWER USING THE APPROPRIATE HARDWARE AS SHOWN IN THE TYPICAL DISH MOUNT DETAILS ON THIS SHEET.  
  
THE VENDOR SHALL SUBMIT A COMPLETE LIST OF PROPOSED MICROWAVE DISH MOUNTING HARDWARE TO THE FDOT PROJECT MANAGER FOR REVIEW AND APPROVAL.
2. THE VENDOR SHALL INSTALL, AT A MINIMUM, (1) INBOARD SIDE STRUT WITH AZIMUTH ADJUSTMENT KIT AND (2) OUTBOARD SIDE STRUTS FOR EACH MICROWAVE DISH. IT IS THE VENDOR'S RESPONSIBILITY TO VERIFY PROPER PARTS AND QUANTITIES FOR MOUNTING AND SECURING EACH MICROWAVE DISH TO THE TOWER.
3. THE VENDOR SHALL ORIENT EACH MICROWAVE DISH PER THESE PLANS. SEE SHEET IT-10.
4. THE VENDOR SHALL ORIENT THE POLARIZATION OF EACH MICROWAVE DISH PER THESE PLANS. SEE SHEET IT-10.



**TYPICAL LEG MOUNT MICROWAVE DISH – TOP VIEW**



**TYPICAL FACE MOUNT MICROWAVE DISH – TOP VIEW**

| CONTRACT PLANS RECORD |      |             |      |      |             |
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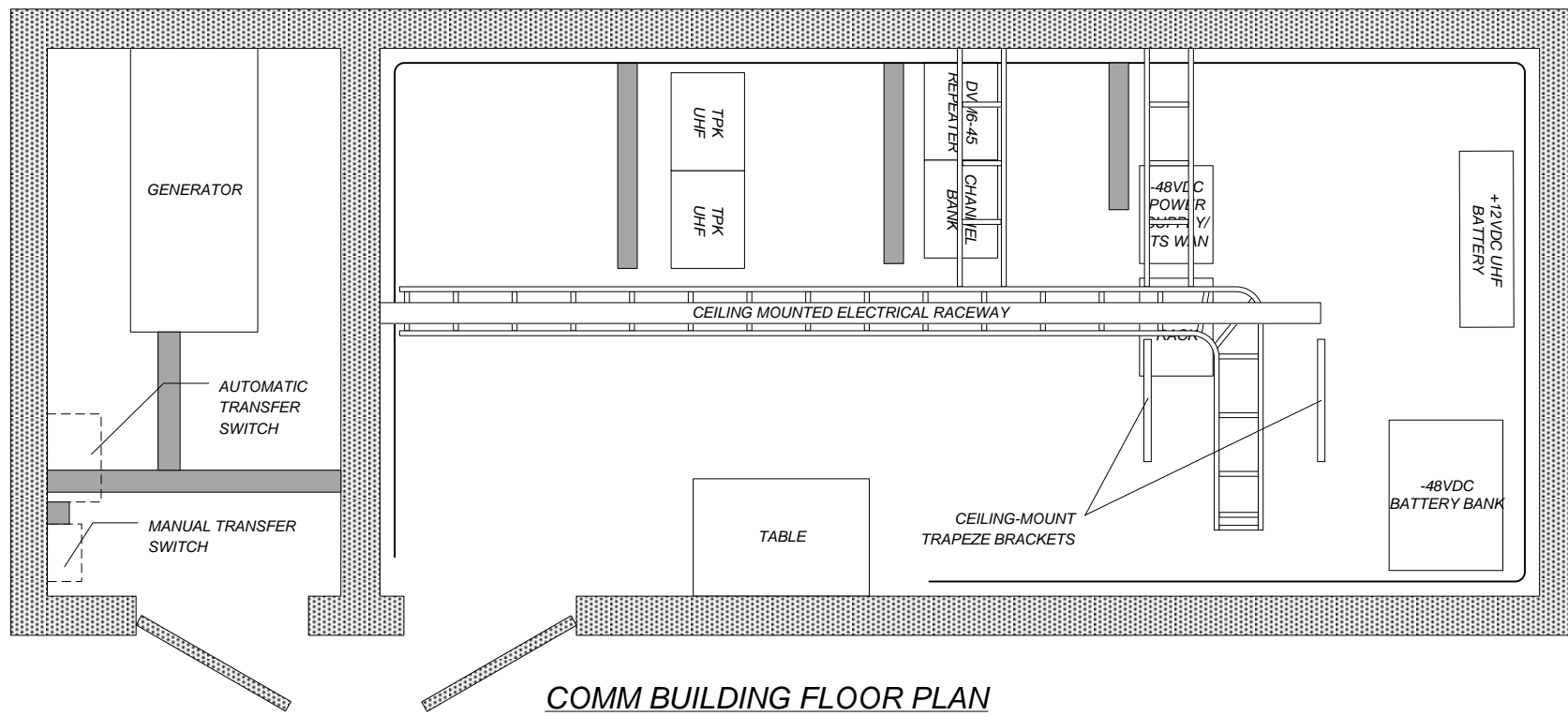
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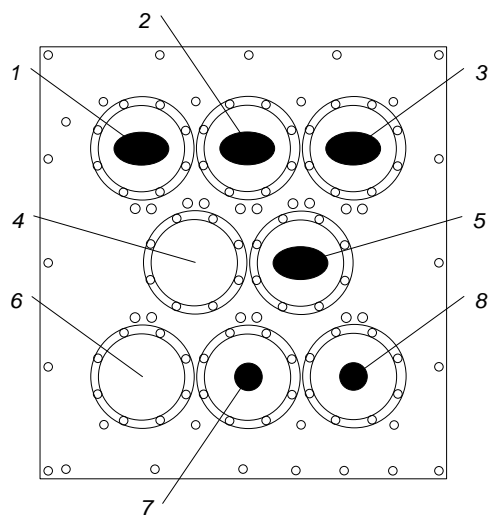
*SITE X*  
**DISH ORIENTATION  
 DETAILS**

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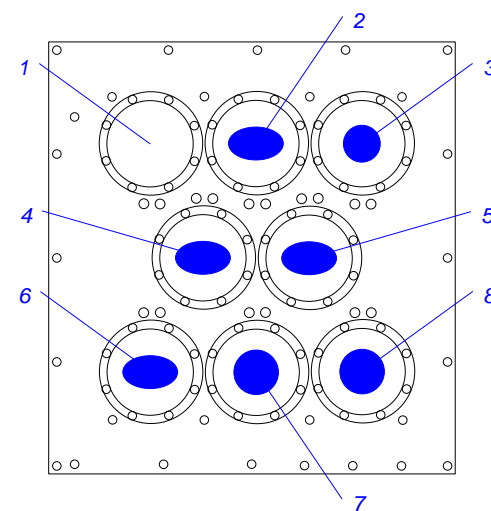


**COMM BUILDING FLOOR PLAN**



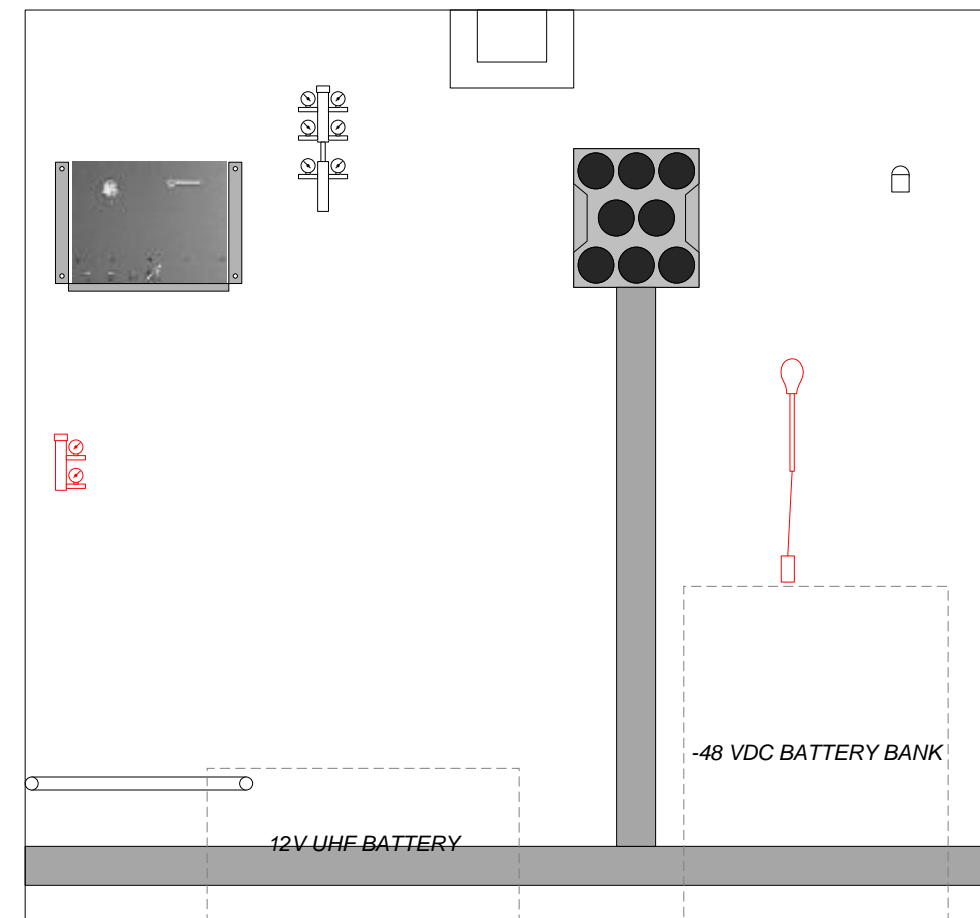
1. (1) WE65 ELLIPTICAL WAVEGUIDE: PA8-65 (COORDINATE FORT PIERCE INTERCHANGE - DIVERSITY)
2. (1) WE65 ELLIPTICAL WAVEGUIDE: PA8-65 (COORDINATE FORT PIERCE INTERCHANGE - MAIN)
3. (1) ANDREW HELIAX EW-63 ELLIPTICAL WAVEGUIDE: PA8-65 (COORDINATE YEEHAW JUNCTION - MAIN)
4. EMPTY
5. (1) ANDREW HELIAX EW-63 ELLIPTICAL WAVEGUIDE: PA8-65 (COORDINATE YEEHAW JUNCTION - MAIN)
6. EMPTY
7. (1) ANDREW LDF6-50 1-1/4" COAXIAL: ASP705K (UHF)
8. (1) ANDREW LDF6-50 1-1/4" COAXIAL: ASP705K (UHF)

**BULKHEAD DETAIL – EXISTING EXTERIOR VIEW**



1. EMPTY
2. (1) EWP63-57W ELLIPTICAL WAVEGUIDE (COORDINATE FORT PIERCE INTERCHANGE - DIVERSITY)
3. (1) 3/4" RGS CONDUIT W/CAT 6 POE CABLES (POWER/DATA FOR CCTV CAMERAS)
4. (1) EWP63-57W ELLIPTICAL WAVEGUIDE (COORDINATE YEEHAW JUNCTION - DIVERSITY)
5. (1) EWP63-57W ELLIPTICAL WAVEGUIDE (COORDINATE FORT PIERCE INTERCHANGE - MAIN)
6. (1) EWP63-57W ELLIPTICAL WAVEGUIDE (COORDINATE YEEHAW JUNCTION - MAIN)
7. (1) ANDREW LDF6-50 1-1/4" COAXIAL: ASP705K (UHF)
8. (1) ANDREW LDF6-50 1-1/4" COAXIAL: ASP705K (UHF)

**BULKHEAD DETAIL – PROPOSED EXTERIOR VIEW**



**INTERIOR WEST WALL**

**NOTES:**

1. THE APPROXIMATE LOCATION OF THE EQUIPMENT IS FOR DIAGRAMMATICAL PURPOSES ONLY. THE VENDOR IS RESPONSIBLE FOR DETERMINING THE BEST LOCATIONS FOR EQUIPMENT AND ALL ASSOCIATED CONDUITS AND MOUNTING AND GROUNDING HARDWARE. THE VENDOR SHALL SUBMIT DETAILED PLANS FOR APPROVAL BY THE FDOT.
2. THE VENDOR SHALL ROUTE THE NEW WAVEGUIDES ALONG THE EXISTING CEILING-MOUNT TRAPEZE ASSEMBLIES, AND EXISTING CEILING-MOUNT THREADED RODS, TO THE MICROWAVE RADIO RACKS. THE VENDOR SHALL SECURE THE WAVEGUIDES TO THE TRAPEZE ASSEMBLIES USING STAINLESS STEEL BOLT-ON WAVEGUIDE HANGER KITS.
3. THE VENDOR SHALL ROUTE THE NEW COAXIAL TRANSMISSION LINES ALONG THE OVERHEAD CABLE TRAYS, PARALLEL TO THE EXISTING UHF COAXIAL TRANSMISSION LINES TO THE APPROPRIATE UHF RADIO RACKS. THE VENDOR SHALL SECURE THE TRANSMISSION LINES TO THE OVERHEAD CABLE TRAYS WITH ZIP TIES, AT 36 IN. INTERVALS, MAXIMUM.
4. THE VENDOR SHALL INSTALL THE NEW CCTV POWER/DATA CABLES IN THE TRANSMISSION LINE BULKHEAD, AND NEATLY COIL ALL EXCESS CABLE FOR FUTURE TERMINATION. EXCESS CABLE LENGTHS SHALL BE MINIMUM 15 FT. THE VENDOR SHALL ALSO PROVIDE THE MIDSPAN POE INJECTORS INSIDE THE COMMUNICATIONS BUILDING FOR FUTURE INSTALLATION BY OTHERS.
5. THE VENDOR SHALL INSTALL THE NEW SURGE PROTECTIVE DEVICES DIRECTLY ON THE TRANSMISSION LINE BULKHEAD.
6. THE VENDOR SHALL REMOVE THE EXISTING 2 PORT GAS DISTRIBUTION MANIFOLD BEFORE INSTALLING THE NEW 4 PORT MANIFOLD KIT. THE VENDOR SHALL INSTALL A NEW 4 PORT GAS DISTRIBUTION MANIFOLD KIT AND ASSOCIATED GAUGES AND PLASTIC TUBING FOR THE NEW WAVEGUIDES. THE VENDOR SHALL INTEGRATE THIS EQUIPMENT WITH THE EXISTING PRESSURIZATION EQUIPMENT.
7. THE VENDOR SHALL REMOVE THE OLD WAVEGUIDES AND ASSOCIATED PRESSURIZATION TUBING AFTER SUCCESSFUL CUTOVER OF THE MICROWAVE ANTENNA SYSTEMS. THE VENDOR SHALL CAP AND CLOSE OFF ALL UNUSED GAUGES TO PREVENT AIR LEAKS.
8. AFTER SUCCESSFUL TESTING OF ALL ANTENNAS AND CAMERAS, THE VENDOR SHALL REMOVE ALL LINES AND CONDUITS FROM THE BULKHEAD. THE VENDOR SHALL INSTALL NEW BOOT COVERS ON ALL USED AND UNUSED BULKHEAD PORTS.

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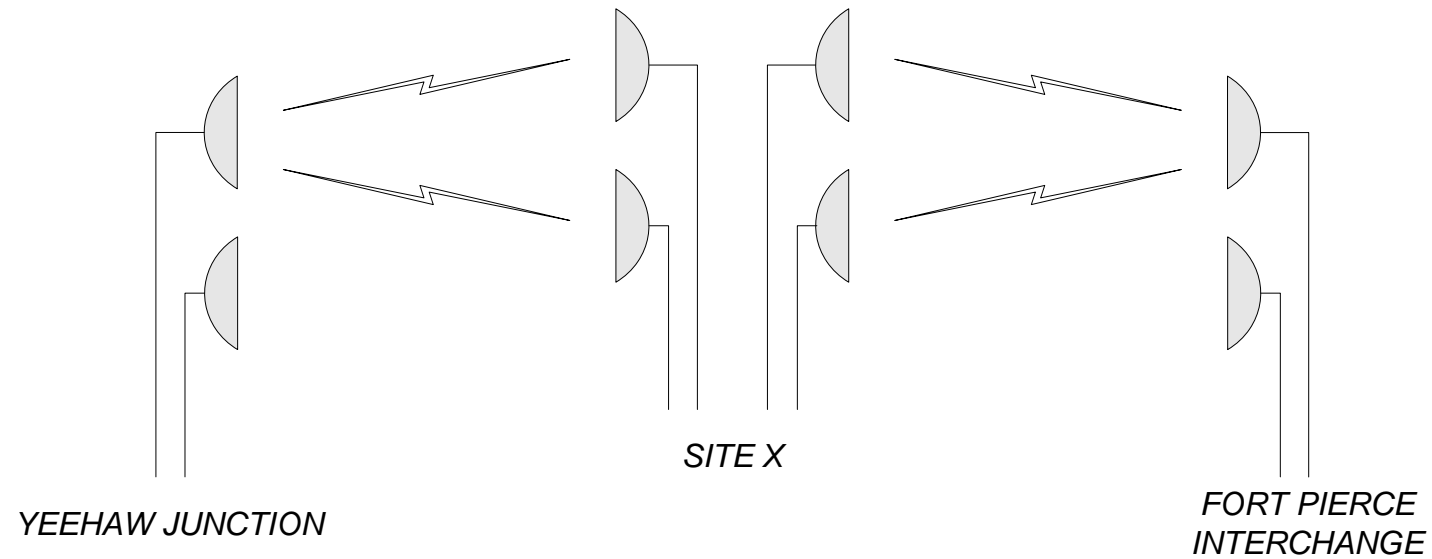
FLORIDA DEPARTMENT OF TRANSPORTATION  
 605 SUWANNEE ST. MS 90  
 TALLAHASSEE, FL 32399-0450  
 PH. (850)-410-5600  
 FAX. (850)-410-5501

| STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |          |                      |
|--|----------|----------------------|
| SITE NAME  | COUNTY   | FINANCIAL PROJECT ID |
| SITE X   | ST LUCIE | 431987-1-52-01       |

*SITE X*  
**COMM BLDG PLANS**

|           |
|-----------|
| SHEET NO. |
| IT-12     |

**EXISTING ANTENNAS**



**SITE X SITE RSL MEASUREMENTS**

**RX FROM FORT PIERCE INTERCHANGE SITE\***

**MAIN ANTENNA**

|           |           |
|-----------|-----------|
| EXISTING  | CUT-OVER  |
| RSL (dBm) | RSL (dBm) |
|           |           |

**DIVERSITY ANTENNA**

|           |           |
|-----------|-----------|
| EXISTING  | CUT-OVER  |
| RSL (dBm) | RSL (dBm) |
|           |           |

**RX FROM YEEHAW JUNCTION SITE\***

**MAIN ANTENNA**

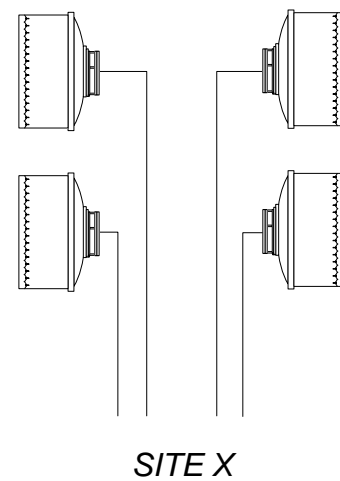
|           |           |
|-----------|-----------|
| EXISTING  | CUT-OVER  |
| RSL (dBm) | RSL (dBm) |
|           |           |

**DIVERSITY ANTENNA**

|           |           |
|-----------|-----------|
| EXISTING  | CUT-OVER  |
| RSL (dBm) | RSL (dBm) |
|           |           |

\*RSL MEASUREMENT TAKEN AT SITE X INTERCHANGE

**NEW CUT-OVER ANTENNAS**



VENDOR: \_\_\_\_\_ DATE: \_\_\_\_\_

FDOT REP: \_\_\_\_\_ DATE: \_\_\_\_\_

| CONTRACT PLANS RECORD |      |             |      |      |             |
|-----------------------|------|-------------|------|------|-------------|
| DATE                  | REV. | DESCRIPTION | DATE | REV. | DESCRIPTION |
|                       |      |             |      |      |             |
|                       |      |             |      |      |             |



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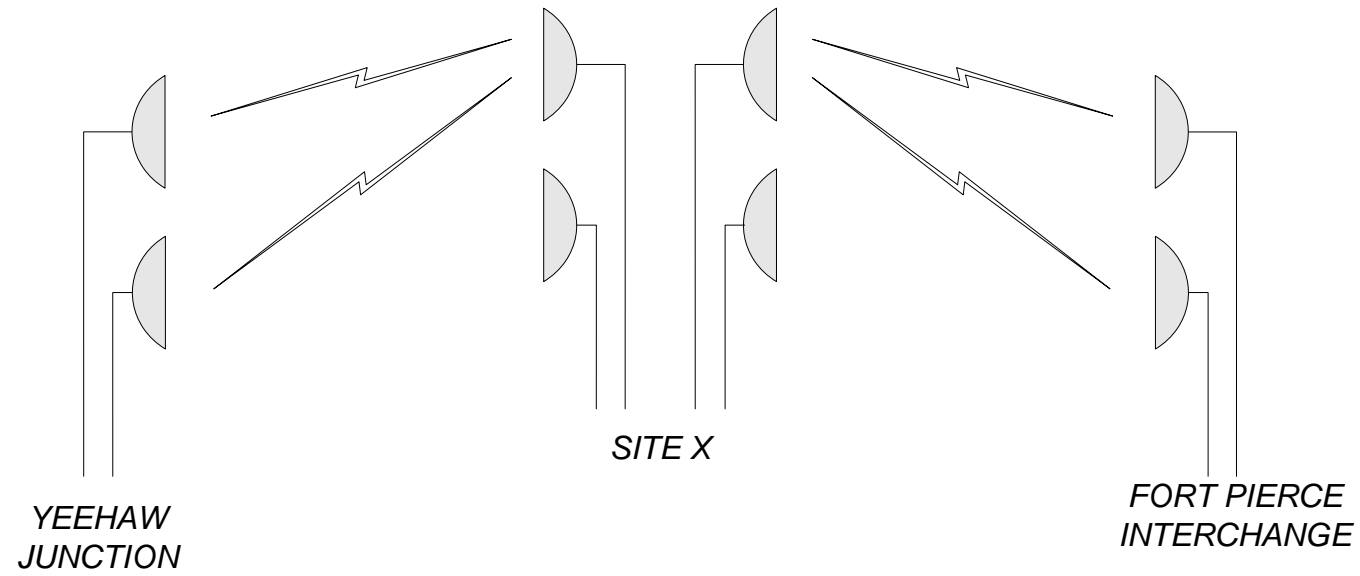
| STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |          |                      |
|--|----------|----------------------|
| SITE NAME  | COUNTY   | FINANCIAL PROJECT ID |
| SITE X   | ST LUCIE | 431987-1-52-01       |

*SITE X*  
*RSL MEASUREMENTS*  
*FORM*

SHEET NO.

IT-13

**EXISTING ANTENNAS**



**SITE X COORDINATE SITES RSL MEASUREMENTS**

**TX TO FORT PIERCE INTERCHANGE SITE\***

**MAIN ANTENNA**

|           |           |
|-----------|-----------|
| EXISTING  | CUT-OVER  |
| RSL (dBm) | RSL (dBm) |
|           |           |

**DIVERSITY ANTENNA**

|           |           |
|-----------|-----------|
| EXISTING  | CUT-OVER  |
| RSL (dBm) | RSL (dBm) |
|           |           |

\*RSL MEASUREMENT TAKEN AT FORT PIERCE INTERCHANGE

**TX TO YEEHAW JUNCTION SITE\*\***

**MAIN ANTENNA**

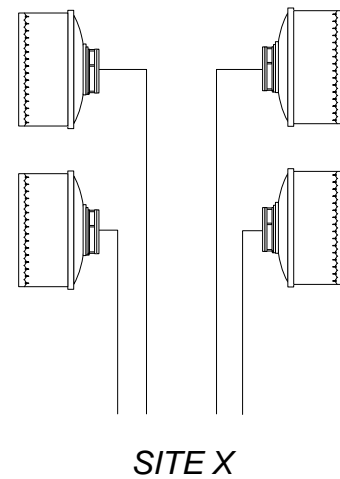
|           |           |
|-----------|-----------|
| EXISTING  | CUT-OVER  |
| RSL (dBm) | RSL (dBm) |
|           |           |

**DIVERSITY ANTENNA**

|           |           |
|-----------|-----------|
| EXISTING  | CUT-OVER  |
| RSL (dBm) | RSL (dBm) |
|           |           |

\*\*RSL MEASUREMENT TAKEN AT YEEHAW JUNCTION

**NEW CUT-OVER ANTENNAS**



VENDOR: \_\_\_\_\_ DATE: \_\_\_\_\_

FDOT REP: \_\_\_\_\_ DATE: \_\_\_\_\_

| CONTRACT PLANS RECORD |      |             |      |      |             |
|-----------------------|------|-------------|------|------|-------------|
| DATE                  | REV. | DESCRIPTION | DATE | REV. | DESCRIPTION |
|                       |      |             |      |      |             |
|                       |      |             |      |      |             |



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|--|----------|----------------------|
| SITE NAME  | COUNTY   | FINANCIAL PROJECT ID |
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*SITE X*  
*RSL MEASUREMENTS*  
*FORM*

SHEET NO.  
IT-14