



SITE NAME:  
**ATC LEWIS ROAD**

SITE NUMBER:  
**BA90476A**  
STREET ADDRESS:  
**6021 LEWIS ROAD  
VACAVILLE, CA 95687**

**FILE COPY**

*mu-16-03*

**DRAWING INDEX**

T-1	TITLE SHEET	C-5.2	ANTENNA DETAILS & SPEC
N-1	GENERAL NOTES	C-6	TOWER ELEVATION AND DETAILS
N-2	GENERAL NOTES	C-7	EQUIPMENT DETAILS
C-1	OVERALL SITE PLAN	C-8	RFDS SHEET
C-1.1	ENLARGED SITE PLAN	E-1	ELECTRICAL PLAN AND NOTES
C-2	EQUIPMENT PLAN	E-2	ELECTRICAL DETAILS
C-3	PLATFORM DETAILS	E-3	GROUNDING DETAILS
C-4	TOWER ELEVATION AND ANTENNA DETAILS	E-4	GROUNDING PLAN AND NOTES
C-5	CABINET DETAILS		
C-5.1	CABLE DETAILS		



1855 GATEWAY BLVD.  
SUITE 900  
CONCORD, CA 94520

**L700  
CONSTRUCTION**

**APPROVALS**

OPERATIONS	DATE
RF ENGINEER	DATE
ZONING ADMINISTRATOR	DATE
SITE ACQUISITION	DATE
T-MOBILE CONSTRUCTION MANAGER	DATE
PROPERTY OWNER	DATE
POWER APPROVAL	DATE
TELCO APPROVAL	DATE

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA

**PROJECT DIRECTORY**

**APPLICANT:**  
T-MOBILE  
1855 GATEWAY BLVD.  
SUITE 900  
CONCORD, CA 94520

**TOWER OWNER:**  
AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612  
TEL: (619) 384-2109

**A&E COMPANY:**  
FULLERTON ENGINEERING  
1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: (847) 908-8400

**PROPERTY SPECIALISTS:**  
THE DERNA GROUP  
22431 ANTONIO PKWY, SUITE B160-234  
RANCHO SANTA MARGARITA, CA 92688  
PHONE: (949) 355-2830  
CONTACT: RICHARD HOFMAN

**PROJECT INFORMATION**

**TYPE OF CONSTRUCTION:**  
PROJECT TYPE: SELF SUPPORT TOWER

**TOWER INFORMATION:**  
(LATITUDE & LONGITUDE BASED ON NAD1983)  
LATITUDE: 38.34705556'  
LONGITUDE: -121.89740000'  
CENTER HEIGHT: 90' AGL

**SQUARE FOOTAGE:**  
LEASE AREA:  
80 SQFT

**TOWER OWNER:**  
AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612  
TEL: (619) 384-2109

**LANDOWNER:**  
RODOLFO & CARMEN LOZANO  
940 W A ST  
DIXON, CA 95620

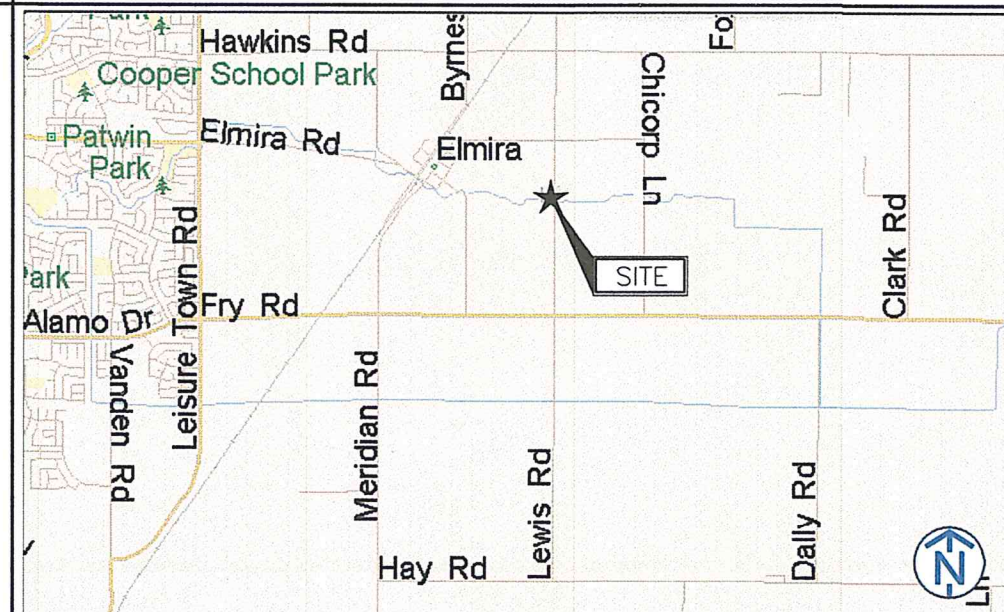
**PARCEL NUMBER (TAX I.D.):**  
0142-110-20

**OCCUPANT LOAD:**  
UNOCCUPIED

**SUBJECT SITE ZONING:**  
AE

**TOWER SETBACKS:**  
FRONT: N/A-EXISTING TOWER  
REAR: N/A-EXISTING TOWER  
SIDES: N/A-EXISTING TOWER

**VICINITY MAP**



**DIRECTIONS TO SITE:**  
DEPART NUT TREE AIRPORT [301 COUNTY AIRPORT RD, VACAVILLE CA 95688, UNITED STATES] ON COUNTY AIRPORT RD (EAST), ROAD NAME CHANGES TO LOCAL ROAD(S), TAKE RAMP (RIGHT) ONTO I-80, AT EXIT 57, TURN RIGHT ONTO RAMP, TURN RIGHT (SOUTH) ONTO LEISURE TOWN RD, TURN LEFT (EAST) ONTO HAWKINS RD, TURN RIGHT (SOUTH) ONTO LEWIS RD, TURN RIGHT (WEST) ONTO LOCAL ROAD(S), Arrive AT SITE.

**SCOPE OF WORK**

- NEW 7'x10' EQUIPMENT CONCRETE PAD WITHIN 8'x10' LEASE AREA
- (1) NEW RBS6131 CABINET
- (1) NEW UTILITY H-FRAME WITH NEW TELCO AND PPC CABINET
- (1) GPS ANTENNA
- (6) NEW ANTENNAS, (3) NEW RRUS11 B12 & (3) NEW RRUS11 B2
- (1) NEW (9x18) HYBRID CABLE
- (3) NEW SECTOR DUAL PIPE MOUNT
- (1) NEW 200 AMP METER

DRAWING SCALE NOTE: THE DRAWING ARE DESIGNED FOR 11"x17" FORMAT

**PROJECT SUMMARY**

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS AT THE PROJECT SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

THE SEAL CERTIFIES ONLY THE CIVIL ENGINEERING DESIGN AND RELATED DETAILS SHOWN ON THESE PLANS. THIS SEAL DOES NOT CERTIFY ANY ARCHITECTURAL, ELECTRICAL, MECHANICAL, STRUCTURAL DESIGN, AND RELATED DETAILS INCLUDED IN THESE PLANS.

FOR SITES WHERE A CRANE IS NECESSARY, THE CONTRACTOR SHALL CONFIRM AN UNOBSTRUCTED ROUTE FOR THE CRANE FROM PUBLIC ROAD TO TOWER SITE PRIOR TO CONSTRUCTION. NO AERIAL OBSTRUCTION UNDER FIFTEEN FEET ABOVE GRADE, INCLUDING AERIAL UTILITY LINES ARE ALLOWED ALONG SIDE OF SAID CRANE ROUTE.

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.

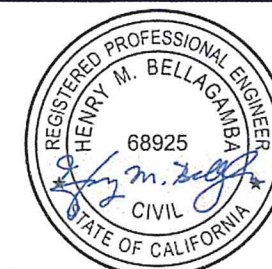


**CODE COMPLIANCE**

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

- 2013 CAC
- 2013 CBC, VOLUME 1 & 2 (2012 EDITION INTERNATIONAL BUILDING CODE WITH 2013 CALIFORNIA AMENDMENTS)
- 2013 CEC (WITH 2015 CALIFORNIA AMENDMENTS)
- 2013 CMC (2012 EDITION IAPMO UNIFORM MECHANICAL CODE WITH 2013 CALIFORNIA AMENDMENTS)
- 2013 CALGREEN, CALIFORNIA CODE OF REGULATIONS, PART 6, TITLE 24)
- 2013 CFC (2012 EDITION OF INTERNATIONAL FIRE CODE WITH 2010 CALIFORNIA AMENDMENTS)
- 2013 CALIFORNIA GREEN CODE, 2013 CALIFORNIA REFERENCES STANDARDS CODE CITY/COUNTY ZONING ORDINANCES

**CERTIFICATION STATEMENT:**  
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION AND TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES



**AMERICAN TOWER**  
AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612

**FULLERTON**  
ENGINEERING DESIGN  
1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: 847-908-8400  
www.FullertonEngineering.com

SITE #:  
**BA90476A**

SITE NAME:  
**ATC LEWIS ROAD**

SITE ADDRESS:  
**6021 LEWIS ROAD  
VACAVILLE, CA 95687**

SHEET NAME:  
**TITLE SHEET**

SHEET NUMBER:  
**T-1**

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



DIVISION 1 - GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 INTENT

A. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR THE CONSTRUCTION OF THIS PROJECT.

1.2 CONFLICTS

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK.

1.3 CONTRACTS AND WARRANTIES

A. EACH CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE BUILDING PERMIT AT THE LOCAL JURISDICTION AS THE CONTRACTOR OF RECORD.

1.4 STORAGE

ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK.

1.5 CLEAN UP

THE CONTRACTOR SHALL AT ALL TIMES KEEP THE SITE FREE FROM ACCUMULATION OF WASTE, MATERIAL OR RUBBISH AT THE WORK SITE AND, AT COMPLETION OF THE WORK, SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA.

1.6 CHANGE ORDER PROCEDURE

CHANGE ORDER MAY BE INITIATED BY THE OWNER AND/OR THE CONTRACTOR INVOLVED. THE CONTRACTOR, UPON VERBAL REQUEST FROM THE OWNER SHALL PREPARE A WRITTEN PROPOSAL DESCRIBING THE CHANGE IN WORK OR MATERIALS AND ANY CHANGES IN THE CONTRACT AMOUNT AND PRESENT TO THE OWNER FOR APPROVAL.

1.7 RELATED DOCUMENTS AND COORDINATION

GENERAL CARPENTRY, ELECTRICAL AND ANTENNA DRAWINGS ARE INTERRELATED. IN PERFORMANCE OF THE WORK, THE CONTRACTOR MUST REFER TO ALL DRAWINGS.

1.8 PRODUCTS AND SUBSTITUTIONS

A. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.

1.9 QUALITY ASSURANCE

ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE BUT NOT BE LIMITED TO THE LATEST VERSION OF THE FOLLOWING:

1.10 ADMINISTRATION

A. PRIOR TO THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT.

F. CONTRACTOR SHALL PROVIDE DAILY UPDATES ON SITE PROGRESS, EITHER VERBAL OR WRITTEN. G. A COMPLETE INVENTORY OF CONSTRUCTION MATERIALS AND EQUIPMENT IS REQUIRED PRIOR TO START OF CONSTRUCTION.

DIVISION 2 - SITE WORK

PART 1 - GENERAL

1.1 WORK INCLUDED

REFER TO THE SURVEY AND ARCHITECTURAL SITE PLAN FOR WORK INCLUDED.

1.2 RELATED WORK

A. INSTALLATION OF ANTENNA SYSTEM
B. ERECTION OF FENCE
C. ACCESS ROAD
D. PARKING AREA

1.3 DESCRIPTIONS

ACCESS ROAD, TURNAROUND AREAS, AND SITES ARE CONSTRUCTED TO PROVIDE A WELL DRAINED, EASILY MAINTAINED, EVEN SURFACE FOR MATERIAL AND EQUIPMENT DELIVERIES AND MAINTENANCE PERSONNEL ACCESS.

1.4 REFERENCES

A. MDOT - MICHIGAN DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS FOR CONSTRUCTION," 2003 EDITION.
B. ASTM - AMERICAN SOCIETY OF TESTING MATERIALS, LATEST EDITION.

1.5 QUALITY ASSURANCES

A. CONTRACTOR SHALL APPLY SOIL STERILIZER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AS NEEDED.
B. VEGETATION AND LANDSCAPING, IF REQUIRED WITHIN THE CONTRACT. SHALL BE PLACED AND MAINTAINED AS RECOMMENDED BY NURSERY INDUSTRY STANDARDS.

1.6 SEQUENCING

A. CONTRACTOR SHALL CONFIRM SURVEY STAKES AND SET ELEVATION STAKES PRIOR TO ANY CONSTRUCTION.
B. THE COMPLETE ROAD AND SITE AREA SHALL BE CLEARED OF HEAVY GROWTH OF GRASS, TREES, SHRUB AND TOPSOIL PRIOR TO FOUNDATION CONSTRUCTION OR PLACEMENT OF BLACKFILL OR SUBBASE MATERIAL.

1.7 SUBMITTALS

A. PRIOR TO CONSTRUCTION
1. IF LANDSCAPING IS APPLICABLE TO THE CONTRACT, SUBMIT TWO COPIES OF THE LANDSCAPING PLAN UNDER NURSERY LETTERHEAD.

1.8 WARRANTY

A. IN ADDITION TO THE WARRANTY ON ALL CONSTRUCTION COVERED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPAIR ANY DAMAGE OF SURROUNDING PROPERTY CAUSED BY CONSTRUCTION.

PART 2 - PRODUCTS

2.1 MATERIAL

A. SUBBASE: GRANULAR MATERIAL MDOT CLASS II OR IIA, MDOT 8.02-3.
B. AGGREGATE BASE COURSE:
1. F OR BASES TO BE SURFACED WITH CONCRETE OR BITUMINOUS MIXTURES, USE AGGREGATE 22A UNLESS OTHERWISE SPECIFIED, MDOT 3.01.02 AND 8.02.04.

2.2 EQUIPMENT

A. COMPACTION SHALL BE ACCOMPLISHED BY MECHANICAL MEANS.
1. LARGER AREAS SHALL BE COMPACTED BY SHEEPS FOOT, VIBRATORY OR RUBBER TIRE ROLLERS WEIGHING AT LEAST FIVE TONS.

PART 3 - EXECUTION

3.1 PREPARATION

A. CLEAR TREES, BRUSH AND DEBRIS FROM SITE AREA AND ACCESS ROAD RIGHT OF WAY (IF REQUIRED).
B. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION EFFORTS CLEAR SITE OF ORGANIC MATERIAL TO A MINIMUM OF SIX INCHES BELOW ORIGINAL GROUND LEVEL.

3.2 INSTALLATION

A. THE SITE AND TURNAROUND AREA SHAH BE AT THE SUBBASE COURSE ELEVATION PRIOR TO FORMING FOUNDATIONS. GRADE OR FILL THE SITE AND ACCESS ROAD AS REQUIRED SUCH THAT THERE IS AN EVEN DISTRIBUTION OF SPOILS RESULTING FROM FOUNDATION EXCAVATIONS. THE RESULTING GRADE SHAH CORRESPOND WITH SAID SUBBASE COURSE; ELEVATIONS SHALL BE CALCULATED FROM FINISHED GRADES OR SLOPES INDICATED.

A. PROVIDE ACCESS TO ALL PORTIONS OF THE WORK AND ANY NECESSARY ASSISTANCE IN OBTAINING AND HANDLING SAMPLES AT THE PROJECT OR OTHER MATERIAL SOURCES. THREE CONCRETE TEST CYLINDERS WILL BE TAKEN FOR EVERY 50 CUBIC YARDS.

DIVISION 3 - CONCRETE

PART 1 : GENERAL

1.1 INSPECTIONS

A. LOCAL BUILDING INSPECTION SHALL RECEIVE ADEQUATE NOTIFICATION IN ADVANCE OF CONCRETE POURS.

1.2 SUMMARY

A. THE WORK INCLUDES ALL CAST-IN-PLACE CONCRETE.

1.3 REFERENCES

ASTM - AMERICAN SOCIETY TESTING MATERIALS, LATEST EDITION. ACI- AMERICAN CONCRETE INSTITUTE, LATEST EDITION.
MDOT - MICHIGAN DEPARTMENT OF TRANSPORTATION, " STANDARD SPECIFICATIONS FOR CONSTRUCTION" 1990 EDITION.

1.4 SUBMITTALS

A. PROPOSED MIX DESIGN PREPARED BY AN APPROVED INDEPENDENT TESTING FIRM FOR EACH CLASS OF CONCRETE. SELECT PROPORTIONS ACCORDING TO ACI301-05, SECTION 3.8, METHOD 1 OR METHOD 2.
B. SHOP DRAWINGS SHOWING FABRICATION DIMENSIONS AND LOCATIONS FOR PLACING THE REINFORCING STEEL AND ACCESSORIES.

PART 2 - PRODUCTS

2.1 MATERIALS

A. CONCRETE:
1. CEMENT: ASTM C150 OR ASTM C595 (MAXIMUM FLY ASH CONTENT SHAH BE 20% BY WEIGHT). ALL CEMENT USED IN EXPOSED CONCRETE SHALL BE OF THE SAME BRAND FROM THE SAME MILL.

2.15 FIELD QUALITY CONTROL

A. COMPACTION SHALL BE AT LEAST 95% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D-1557. AREAS OF SETTLEMENT SHALL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE.
B. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT WILL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE AND SECURED TO 2- INCH X 2-INCH X 4-INCH WOODEN STAKES EXTENDING TWO FEET INTO THE GROUND ON FOUR SIDES OF THE TREE.

2.2 PROPORTIONING CONCRETE

A. PROPORTIONS AND MATERIALS:
PERMISSIBLE CEMENT TYPES: I, IP, I-A, IP-A
MINIMUM CEMENT CONTENT: 5.5 SACKS/CU.YD. FOR 3500 PSI, S.O SACKS/CU.YD. FOR 4000 PSI. COURSE AGGREGATE: MDOT 6A
SAND: MDOT-2NS
MAXIMUM WATER-CEMENT RATIO: 5.0 GAL/SACK

PART 3 - EXECUTION

3.1 PERFORMANCE

IN ACCORDANCE WITH THE REQUIREMENTS OF ACI301, CHAPTERS 4 THROUGH 13, 17 AND 18.

3.2 CONCRETE WORK FOR DRILLED PIERS

ALL CONCRETE PIERS SHALL BE DRILLED AND POURED ON THE SAME DAY TO PREVENT ANY MIGRATION OF WATER INTO THE HOLE AND TO PREVENT DEBRIS FROM COLLECTING IN THE HOLE.

3.3 FIELD QUALITY CONTROL

A. PROVIDE ACCESS TO ALL PORTIONS OF THE WORK AND ANY NECESSARY ASSISTANCE IN OBTAINING AND HANDLING SAMPLES AT THE PROJECT OR OTHER MATERIAL SOURCES. THREE CONCRETE TEST CYLINDERS WILL BE TAKEN FOR EVERY 50 CUBIC YARDS.



1855 GATEWAY BLVD. SUITE 900 CONCORD, CA 94520

L700 CONSTRUCTION

Table with 4 columns: CHECKED BY, APPROVED BY, #, DATE, DESCRIPTION, INT. Rows include dates like 5/25/16, 6/24/16, 8/1/16, 8/11/16.



AMERICAN TOWER CORPORATION 19100 VON KARMAN SUITE 200 IRVINE, CA 92612



1100 E. WOODFIELD ROAD, SUITE 500 SCHAUMBURG, ILLINOIS 60173 TEL: 847-908-8400 www.FullertonEngineering.com

SITE #: BA90476A
SITE NAME: ATC LEWIS ROAD
SITE ADDRESS: 6021 LEWIS ROAD VACAVILLE, CA 95687

GENERAL NOTES

SHEET NAME: SHEET NUMBER: N-1

NOTE: THESE NOTES ARE OF A GENERAL NATURE AND ARE NOT SITE-SPECIFIC. SOME NOTES MAY NOT APPLY TO THIS SITE.

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



**DIVISION 15 - MECHANICAL**  
**PART 1 - GENERAL**

- INCLUDED - WORK OF THIS SECTION GENERALLY INCLUDES PROVISIONS OF LABOR, MATERIALS, EQUIPMENT, ACCESSORIES, NECESSARY FOR INSTALLATION OF MECHANICAL SYSTEMS SHOWN ON THE CONTRACT DRAWINGS AND SPECIFIED IN THE GENERAL NOTES. INTENT OF CONSTRUCTION DOCUMENTS IS TO PROVIDE THE OWNER WITH A COMPLETE AND OPERATING FACILITY, AND ANY MINOR ITEMS OMITTED BUT OBVIOUSLY NECESSARY TO ACCOMPLISH INTENT SHALL BE PROVIDED WHETHER OR NOT SHOWN OR SPECIFIED.
- RELATED - THE GENERAL REQUIREMENTS DIVISION OF THE GENERAL NOTES IS HEREBY MADE A PART OF THE WORK OF THIS SPECIFICATION. THE REQUIREMENTS OF THIS SPECIFICATION APPLY TO THE WORK OF ALL SECTIONS OF DIVISION 15.
- WORK PERFORMED BY OTHERS INCLUDES INSTALLATION OF ELECTRICAL EQUIPMENT. EXCEPT AS NOTED OTHERWISE ON DRAWINGS OR IN SPECIFICATION.
- ELECTRICAL DIVISION 16
- ORDINANCES AND CODES
  - ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH ALL UNDERWRITER'S, PUBLIC UTILITIES, LOCAL AND STATE CODES AND REGULATIONS APPLICABLE TO THE TRADE AFFECTED. RECOMMENDATIONS OF AFA, NFPA, OSHA AND ASHRAE AND APPLICABLE STATE ENERGY CODE COMPLIANCE SHALL BE RIGIDLY FOLLOWED.
  - SHOULD ANY CHANGE IN THE PLANS AND SPECIFICATIONS BE REQUIRED TO COMPLY WITH THESE REGULATIONS, THE CONTRACTOR SHALL NOTIFY THE OWNER BEFORE SUBMITTING HIS BID. AFTER ENTERING INTO CONTRACT WITH THE OWNER, THE CONTRACTOR WILL BE HELD ACCOUNTABLE TO COMPLETE ALL WORK NECESSARY TO MEET THESE REQUIREMENTS AT HIS OWN EXPENSE.
- WHERE THE WORK REQUIRED BY THE DRAWINGS AND SPECIFICATIONS IS ABOVE THE STANDARD REQUIRED, IT SHALL BE DONE AS SHOWN OR SPECIFIED.
- PERMITS - THE CONTRACTOR SHALL ARRANGE AND PAY FOR ALL PERMITS IN CONNECTION WITH THE WORK HEREINAFTER SPECIFIED AND AT COMPLETION OF THE WORK FURNISH THE OWNER WITH THE FINAL CERTIFICATE OF INSPECTION.
- DRAWINGS - THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF THE PROPOSED WORK. DETAILS OF PROPOSED DEPARTURES DUE TO ACTUAL FIELD CONDITIONS OR OTHER CAUSES SHALL BE PROVIDED FOR. NO EXTRAS WILL BE PAID FOR CORRECTING FAULTY, POORLY ARRANGED, OR POORLY COORDINATED WORK.
- SITE EXAMINATION - THE CONTRACTOR SHALL VISIT THE PREMISES SO AS TO ASCERTAIN THE EXISTING CONDITIONS BEFORE SUBMITTING HIS BID. NO EXTRAS WILL BE ALLOWED FOR HIS LACK OF KNOWLEDGE OF THESE CONDITIONS.
- COMPLETE INSTALLATION - THE CONTRACTOR SHALL FURNISH AND INSTALL ALL INCIDENTAL PARTS, VALVES, FITTINGS, PUMPS, CONTROL VALVES AND CONTROL WIRING REQUIRED FOR THE PROPER FUNCTION OF ALL COMPONENT PARTS. THE COMPLETE INSTALLATION SHALL FUNCTION SMOOTHLY AND NOISELESSLY TO THE FULL EXTENT OF THE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL COMPLETE HIS INSTALLATION AS RAPIDLY AS GENERAL CONSTRUCTION PERMITS. ALL FILTERS, STRAINERS, AND SAFETY DEVICES SHALL BE PROPERLY INSTALLED BEFORE STARTING EQUIPMENT. THE OWNER SHALL BE LEFT WITH A NEW SET OF FILTERS AT FINAL ACCEPTANCE.
- COORDINATION - BEFORE ANY EQUIPMENT IS PURCHASED OR FABRICATED AND BEFORE RUNNING AND/OR FABRICATING ANY LINES OF PIPING OR DUCTWORK, THE MECHANICAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL ASSURE THEMSELVES THAT THEY CAN BE RUN AS CONTEMPLATED. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED. THE MECHANICAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL CAREFULLY INVESTIGATE ALL OTHER MECHANICAL, ELECTRICAL AND STRUCTURAL DRAWINGS AND FINISH CONDITIONS AFFECTING ALL OF THEIR WORK ACCORDINGLY, FURNISHING SUCH FITTINGS, VALVES, DUCT TRANSITIONS, OFFSETS AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS, AT NO ADDITIONAL COST.
- TEMPORARY HEAT - ARRANGEMENTS FOR USAGE OF SYSTEM FOR TEMPORARY HEAT SHALL BE COORDINATED WITH GENERAL CONTRACTOR. SYSTEM SHALL NOT BE USED FOR TEMPORARY HEAT UNLESS ALL TEMPORARY FILTERS ARE INSTALLED. TEMPORARY FILTERS AND OPERATION OF UNITS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
- SUBMITTALS - WITHIN 5 DAYS AFTER PROPOSAL ACCEPTANCE THE CONTRACTOR SHALL SUBMIT TO THE OWNER FOR APPROVAL TWO (2) COPIES OF SHOP DRAWINGS ON EACH ITEM OF EQUIPMENT WHETHER AS SPECIFIED OR SUBSTITUTED. SHOP DRAWINGS SHALL GIVE OVERALL DIMENSIONS, WEIGHTS, METAL GAUGES, MATERIALS, CERTIFIED CAPACITIES, BRAKE HP, MOTOR HP, TUBE DIAMETERS FRICTION DROP AND NAMEPLATE DATA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING SHOP DRAWINGS BEFORE SUBMITTING FOR APPROVAL. THE OWNER'S CHECK SHALL BE GENERAL AND DOES NOT RELIEVE THE CONTRACTOR OF FINAL RESPONSIBILITY FOR A COMPLETE JOB TO THE INTENT OF PLANS AND SPECIFICATIONS. AIR CONTROL DIAGRAMS AND EQUIPMENT SHOULD BE ASSEMBLED IN ONE SUBMITTAL.
- SUBSTITUTION OF EQUIPMENT A. BIDS SHALL BE BASED ON PROVIDING ALL EQUIPMENT MENTIONED BY BRAND NAME IN PLANS AND SPECIFICATIONS. NO SUBSTITUTIONS SHALL BE CONSIDERED BEFORE BIDDING.
- THE CONTRACTOR SHALL ATTACH A LIST OF PROPOSED SUBSTITUTIONS, GIVING THE AMOUNT TO BE ADDED OR DEDUCTED TO CONTRACT PRICE FOR EACH ITEM. COMPLETE ENGINEERING DATA SHALL BE SUBMITTED ON EACH REQUEST FOR SUBSTITUTION ITEM. SUBSTITUTE ITEMS SHALL BE EQUAL OR BETTER THAN ITEMS MENTIONED IN REGARD TO ALL ACCESSORIES, CAPACITIES, DURABILITY AND APPEARANCE. CONTRACTOR SHALL PAY ALL COSTS INCURRED TO MAKE SUBSTITUTE ITEMS FIT REQUIRED SPACE WITH MAINTENANCE CLEARANCES - PIPING, SHEET METAL, ELECTRICAL OR BUILDING ALTERATION SHALL BE INCLUDED IN SAID COSTS.
- ALL STANDARD ACCESSORIES AS WELL AS SPECIFIED EXTRAS SHALL BE PROVIDED WITH EQUIPMENT.
- GUARANTEE - ALL MATERIAL AND WORKMANSHIP INSTALLED AND/OR FURNISHED UNDER THIS SECTION OF WORK SHALL BE GUARANTEED AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE BY OWNER. ANY DEFECTS OR FAULTY WORKMANSHIP SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE CORRECTED ENTIRELY AT HIS EXPENSE.

**PART 2 - PRODUCTS**

- APPROVED MANUFACTURERS - APPROVAL BY NAME LISTED IN THIS SPECIFICATION DOES NOT IMPLY THAT THE MANUFACTURER STANDARD PRODUCT MEETS THE INTENT OF THE DRAWINGS AND SPECIFICATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL NECESSARY ALTERATIONS, MATERIALS, LABOR, ETC., AS APPROVED BY THE OWNER TO MEET THE FULL INTENT OF THE DRAWINGS AND SPECIFICATIONS. THIS IS TO INCLUDE, BUT NOT NECESSARILY BE LIMITED TO ELECTRICAL, STRUCTURAL, MECHANICAL, AND ARCHITECTURAL ALTERATIONS AND REVISIONS NECESSARY TO PROVIDE A COMPLETE AND OPERATING FACILITY AT NO ADDITIONAL COSTS TO THE OWNER.
- MATERIALS - MATERIALS THROUGHOUT SHALL BE NEW AND OF THE BEST GRADES SPECIFIED. THEY SHALL BE STANDARD CATALOG ITEMS AND MANUFACTURED BY NATIONALLY KNOWN MANUFACTURERS OF THE ITEMS SPECIFIED. CONTRACTOR SHALL RECEIVE AND BE RESPONSIBLE FOR ALL OWNER FURNISHED EQUIPMENT AND PROVIDE ROUGH-IN AND FINAL CONNECTIONS FOR ALL MECHANICAL EQUIPMENT FURNISHED UNDER THIS CONTRACT OR BY OTHERS. THE CONTRACTORS SHALL PROVIDE A SUITABLE SHED FOR THE STORAGE OF ALL MATERIALS DURING PROGRESS OF THE JOB.
- SOLDER - ALL SOLDER USED ON SWEAT FITTINGS SHALL BE 95-5 HARD SOLDER UNLESS BRAZING OR SILVER SOLDER IS SPECIFIED. ALL BURIED COPPER PIPING SHALL BE SILVER SOLDERED.
- FLOOR, CEILING PLATES, FLANGES - PROVIDE TIGHT FITTING FLOOR AND CEILING PLATES ON PIPES PASSING THROUGH WALLS, CEILINGS, FLOORS, NICKEL OR CHROME PLATE IN FINISHED AREAS. PROVIDE WALL AND CEILING FLANGES FOR DUCTS IN FINISHED AREAS.
- PIPE HANGERS, SUPPORTS - PROVIDE HANGERS, SUPPORTS, BRACES BY GRINNELL, FEE AND MASON, GRABLER, ELCEM, UNISTRUT, BASIN ENGINEERS, INC. TO PREVENT UNDUE STRAIN, STRESSES, NOISE, VIBRATION.

**PART 3 - EXECUTION**

- WORKMANSHIP
  - WORK THROUGHOUT SHALL BE PERFORMED BY MEN SKILLED IN THE INSTALLATION OF THE VARIOUS TRADES OF THE WORK HEREIN SPECIFIED.
  - AFT PIPING AND DUCTWORK SHALL BE RUN CONCEALED IN FINISHED AREAS EXCEPT WHERE NOTED OTHERWISE OR AS CHROME PLATED PLUMBING FIXTURE CONNECTIONS.
- CURBS, BASES, SUPPORTS - MAJOR CURBS, OPENINGS, AND EQUIPMENT SUPPORTS WILL BE PROVIDED UNDER THE GENERAL SECTION OF THIS CONTRACT ONLY WHERE SHOWN ON ENGINEERING OR STRUCTURAL PLANS. ALL OTHER SUPPORTS, ANCHORS, AND BASES SHALL BE PROVIDED BY MECHANICAL CONTRACTOR FOR ALL MECHANICAL EQUIPMENT SHALL BE SUPPORTED PER MANUFACTURER'S WRITTEN RECOMMENDATIONS FOR NOISE-FREE INSTALLATION.
- REMOVAL OF EXISTING WORK - ALL EXISTING MECHANICAL EQUIPMENT, PIPING, ETC., REMOVED BY THE CONTRACTOR SHALL BE THE PROPERTY OF THE BUILDING. SUCH ITEMS WILL BE DISPOSED OF AT THE BUILDING OWNER'S DIRECTION.
- REMOVAL OF RUBBISH - ON COMPLETION OF HIS WORK, THE CONTRACTOR SHALL REMOVE ALL OF HIS TOOLS, SCAFFOLDING, DEBRIS, ETC., FROM THE GROUNDS AND LEAVE THE PREMISES PERFECTLY CLEAN.
- OPERATING AND MAINTENANCE INSTRUCTIONS - UPON COMPLETION, THE CONTRACTORS SHALL MAKE UP A SET OF OPERATING AND MAINTENANCE INSTRUCTIONS COVERING ALL MECHANICAL EQUIPMENT WITH MOVING OR MOVEABLE PARTS INCLUDING GENERAL OPERATING OR HEATING, PLUMBING AND COOLING SYSTEMS AND SHALL GIVE THE OWNER FOUR (4) COPIES OF THESE INSTRUCTIONS. MANUFACTURER'S PRINTED OPERATIONS AND MAINTENANCE INSTRUCTIONS SHALL ALSO BE PROVIDED FOR EACH PIECE OF EQUIPMENT.
  - NAME, ADDRESS, AND TELEPHONE NUMBER OF PARTY TO BE CONTACTED FOR 24 HOUR SERVICE FOR EACH ITEM OF EQUIPMENT
  - STARTING, STOPPING, LUBRICATION, AND ADJUSTMENT SHALL BE CLEARLY INDICATED FOR EACH PIECE OF EQUIPMENT.
  - PREPARE 8-1/2"x11" BLUEPRINTS WITH BINDING EDGE OF APPROPRIATE SCALE TO INDICATE ALL EQUIPMENT, RESPECTIVE SWITCHES, AND VALVE LOCATIONS. BIND IN INSTRUCTION BOOK.

**DIVISION 5 - FENCE**

**PART 1 - GENERAL**

**3.1 WORK INCLUDED**

- REFER TO THE SITE PLANS FOR SIZE AND LOCATION OF FENCE AND GATES TO BE INSTALLED.

**3.2 RELATED WORK**

- COORDINATE FENCE GROUNDING WITH ELECTRICAL CONTRACTOR.
- REFER TO FENCE DETAIL PLAN - CONCRETE FOR SPECIFICATION OF CONCRETE AND GROUT
- REFER TO FENCE DETAIL PLAN FOR APPLICABLE LOCATIONS OF ACCESS ROAD GATES.

**3.3 DESCRIPTION**

- A SECURITY FENCE IS PROVIDED IN ORDER TO INHIBIT UNAUTHORIZED ACCESS TO THE SITE AREA.

**3.4 QUALITY ASSURANCE**

- REFER TO FENCE DETAIL PLAN.

**3.5 SEQUENCING**

- IF THE SITE AREA HAS BEEN BROUGHT UP TO SURFACE COURSE. ELEVATION PRIOR TO FENCE CONSTRUCTION. FENCE POST EXCAVATION SPOILS MUST BE CONTROLLED TO PRECLUDE CONTAMINATION OF SURFACE COURSE.

**3.6 SUBMITTALS**

- MANUFACTURER'S DESCRIPTIVE LITERATURE.
- CERTIFICATE OF COMPLIANCE THAT SPECIFICATIONS HAVE BEEN MET.

**3.7 FENCE MATERIAL**

- REFER TO FENCE DETAIL PLAN.

**DIVISION 7 - ANTENNA SYSTEM**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- ERECT FURNISHED TOWER AS INDICATED IN THE DRAWINGS.
- INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND OWNER SPECIFICATIONS.
- INSTALL ANTENNA PLATFORM AS INDICATED ON DRAWINGS.
- INSTALL FURNISHED GALVANIZED STEEL WAVEGUIDE LADDER.
- INSTALL WAVEGUIDE BRIDGE AS INDICATED ON DRAWINGS.
- INSTALL COAX CABLE, CONNECTORS, JUMPERS, GROUNDING KITS AS INDICATED IN DRAWINGS.
- SWEEP TEST RESULT.

**1.2 REQUIREMENTS OF REGULATORY AGENCIES**

- FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE, INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.
- INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATION IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES, SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:
  - EIA - ELECTRICAL INDUSTRIES ASSOCIATION RE -222, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
  - FAA - FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70F7460-0B, OBSTRUCTION MARKING AND LIGHTING.
  - FCC - FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715 "OBSTRUCTION MARKING AND LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES", AND FORM 715A, "HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES".
  - DISC - AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASST. A325 OR A490 BOLTS.
  - NECK - NATIONAL ELECTRICAL CODE - ON TOWER LIGHTING KITS.
  - UL - UNDERWRITER'S LABORATORIES APPROVED.
  - IN ALL CASES PART 77 OR THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS. 1990 LIFE SAFETY CODE NAPA - 101.

**DIVISION 16 - GENERAL ELECTRIC**

**PART 1 - GENERAL ELECTRICAL PROVISION**

- SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
- CONTRACTOR SHALL PERFORM ALL VERIFICATION, OBSERVATIONS, TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
- HEIGHTS SHALL BE VERIFIED WITH OWNER PRIOR TO INSTALLATION.
- THESE PLANS ARE DIAGRAMMATIC ONLY.
- ELECTRICAL SERVICE 120/240 V.A.C. SINGLE PHASE 3-WIRE 100 AMP SERVICE.
- CONTRACTOR SHALL PROVIDE ALF LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC. FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- CONTRACTOR SHALL CARRY OUT ALL WORK IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY, AND LOCAL CODES AND O.S.H.A.
- CONTRACTOR SHALL SECURE ALL NECESSARY BUILDING PERMITS AND PAY ALL REQUIRED FEES
- COMPLETE JOB SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL, OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
- PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS AND CIRCUITS.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY AH APPLICABLE CODES.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT AND FALL POTENTIAL GROUND TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OR ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.

**PART 2 - PRODUCTS**

- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT MATERIAL SHALL BE LISTED "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU.
- ALL CONDUIT ONLY (C. 0.) SHALL HAVE A PULL WIRE OR ROPE.
- ALL CONDUCTORS SHALL BE COPPER.
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 1,000 A.I.C.
- WIRE AND CABLE CONDUCTORS SHALL BE COPPER 12 AWG MINIMUM UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS.
- GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2.
- METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS, MANUFACTURED BY SQUARE COMPANY OR APPROVED EQUAL.
- ALL MATERIAL SHALL BE U.L. LISTED.
- ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 (UNLESS NOTED OTHERWISE) AT A MINIMUM DEPTH OF 24" BELOW GRADE.
- CABLES
  - ALL GROUND CABLE SHALL BE STANDARD TND SOLID BARE COPPER PLATE AND OF SIZE INDICATED ON DRAWINGS.
  - WHEN THE DIRECTION OF THE CONDUCTOR MUST CHANGE IT SHALL BE DONE GRADUALLY. THE CURVATURE OF THE TURN SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING TABLE:

**GROUNDING CONDUCTOR SIZE**

MIN BENDING RADIUS TO INSIDE EDGE:	
NO.6 AWG. TO NO. 4 AWG	3"
NO.6 AWG TO NO. 1/0 AWG	6"
NO. 2/0 AWG. TO 750 MCRN	1"
BUS BAR	NO RESTRICTIONS

**PART 3 - UNDERGROUND ELECTRICAL SERVICE**

- COORDINATE THE ELECTRICAL SERVICE WITH THE UTILITY COMPANY.
- CONTRACTOR TO COORDINATE WITH UTILITY COMPANY CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS TO BE PAID BY THE CONTRACTOR.
- THE SERVICE SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS TO BE ACCEPTABLE TO THE GOVERNING AUTHORITIES EXERCISING LEGAL JURISDICTION OVER ELECTRICAL INSTALLATIONS.

**PART 4 - GROUNDING CONNECTIONS**

- EXTERNAL CONNECTIONS:
  - ALL EXTERNAL GROUNDING CONNECTIONS SHALL BE MADE BY THE "CADWELD" PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE SPLICES, TEES, XS, ETC. AIL CABLE TO GROUND RODS, GROUND ROD SPLICES AND LIGHTNING PROTECTION SYSTEM AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING, METAL, TOOTS, ETC.) SHALL BE BY "CADWELD" AND INSTALLED PER MANUFACTURER'S RECOMMENDATION AND PROCEDURES.
  - ALL INTERIOR GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLES CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD) MECHANICAL CONNECTIONS, FITTING OR CONNECTIONS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED.
- GROUND RODS:
  - ALL GROUND RODS SHALL BE 5/8" DIAMETER X 10'-0" LONG "COPPERWELD" OR APPROVED EQUAL OF THE NUMBER AND AT LOCATIONS INDICATED. GROUND RODS SHALL BE DRIVEN FULL LENGTH VERTICAL IN UNDISTURBED EARTH. ALL GROUND RODS TO BE 10' APART UNLESS OTHERWISE
- GROUND BARS:
  - ALL GROUND BARS SHALL BE 1/4" THICK BARE COPPER PLATE AND OF SIZE INDICATED ON DRAWINGS.
- GROUND RING:
  - THE GROUND RING ENCIRCLING THE BUILDING SHALL BE MINIMUM SIZE OF NO. 2 AWG BARE COPPER CONDUCTOR IN DIRECT CONTACT WITH THE EARTH AT A DEPTH OF NOT LESS THAN 42 INCHES (MIN) CONDUCTOR BENDS SHALL HAVE A MINIMUM RADIUS OF 8 INCHES.
  - ALL EXTERNAL GROUND RINGS SHALL BE JOINED TOGETHER AND ALL CONNECTIONS SHALL BE "CADWELD". NO LUGS OR CLAMPS WILL BE ACCEPTED.
- FENCE/GATE ALL SECTIONS OF FENCE AND GATE SHALL BE GROUNDED AS INDICATED ON DRAWINGS. GROUND EACH GATE POST AND CORNER POST. ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY THE "CADWELD" PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.
- GROUND TEST PIT A GROUND TEST PIT SHALL CONSIST OF 6" DIAMETER SCH 40 PVC 1" WITH 6" CLEANOUT PLUG & CLEANOUT ADAPTER FITTING. PLUG THREADS SHALL BE COATED WITH ANTI-SEIZE LUBRICANT PRIOR TO INSTALLATION. 6" PVC WILL BE 18" LONG, BURIED 12" UNDERGROUND WITH 61" ABOVE FINISHED GRADE. TOP OF GROUND ROD CADWELDED TO GROUND RING WIN BE 12" FROM TOP OF CLEANOUT ADAPTER.

**PART 5 - ASTM FALL POTENTIAL TESTS**

- GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A BIDDLE GROUND OHM METER OR THE METHOD OF USING TWO AUXILIARY GROUND RODS (AS DESCRIBED IN I.E.E.E. STANDARD NO. 81-1983, PART 1) MAY BE USED. THE I.E.E.E. METHOD REQUIRES THE USE OF AN A.C. TEST CURRENT THE AUXILIARY TEST RODS MUST BE SUFFICIENTLY FAR AWAY FROM THE ROD UNDER TEST SO THAT THE REGIONS IN WHICH THEIR RESISTANCE IS LOCALIZED DO NOT OVERLAP.
- CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:
  - EQUIPMENT BUILDING
    - FIRST TEST - SHALL BE WITH FOUR GROUND RODS INSTALLED, ONE AT EACH CORNER OF THE BUILDING BUT NOT CONNECTED TO THE MAIN GROUNDING BUS. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL FOUR GROUND RODS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL FOUR RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
    - SECOND TEST - SHALL BE WITH THE GROUND RODS CONNECTED WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST TEN DAYS. THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS, THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT EITHER ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.
    - TOWER
      - FIRST TEST - SHALL BE WITH NINE (9) GROUND RODS INSTALLED (MIN.) EQUALLY SPACED AROUND THE TOWER FOUNDATION, BUT NOT CONNECTED TO THE EQUIPMENT BUILDING EXTERNAL GROUND RING. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL THREE GROUND RODS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH ROD IS OHMS OR MORE, THE ELECTRICAL ENGINEER AND THE OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL THREE RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
      - SECOND TEST - SHALL BE WITH THE GROUNDS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST TEN DAYS, THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT EITHER ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.
- EQUIPMENT BUILDING AND TOWER.
  - AFTER THE EQUIPMENT BUILDING AND TOWER GROUND RESISTANCE TEST IS COMPLETED, ELECTRICAL CONTRACTOR SHALL TIE EQUIPMENT BUILDING EXTERNAL GROUND RING TOGETHER. AFTER FIRST AND SECOND TEST, AFT CONNECTIONS SHALL BE "CADWELD". NO LUGS OR CLAMPS WILL BE ACCEPTED.
  - AFTER ALL THE EXTERNAL GROUND RINGS ARE TIED TOGETHER BUT BEFORE THE EQUIPMENT BUILDING IS TIED DOWN, A MEGGER CHECK OF THE GROUND SYSTEM SHOULD BE DONE. THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND.
  - GROUND RESISTANCE TEST REPORT
    - UPON COMPLETION OF THE TESTING FOR EACH SITE, CONTRACTOR SHALL SUBMIT A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5-FOOT AND 10-FOOT INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING; 10-15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL OR PROJECT MANAGER MUST BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF BACKFILL. TESTING SHALL BE COMPLETED BY GENERAL CONTRACTOR AND TWO (2) SETS OF TEST DOCUMENTS ARE TO BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK OF COMPLETION.



1855 GATEWAY BLVD.  
SUITE 900  
CONCORD, CA 94520

**L700**  
**CONSTRUCTION**

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: 847-908-8400  
www.FullertonEngineering.com

SITE #:  
**BA90476A**

SITE NAME:  
**ATC LEWIS ROAD**

SITE ADDRESS:  
**6021 LEWIS ROAD  
VACAVILLE, CA 95687**

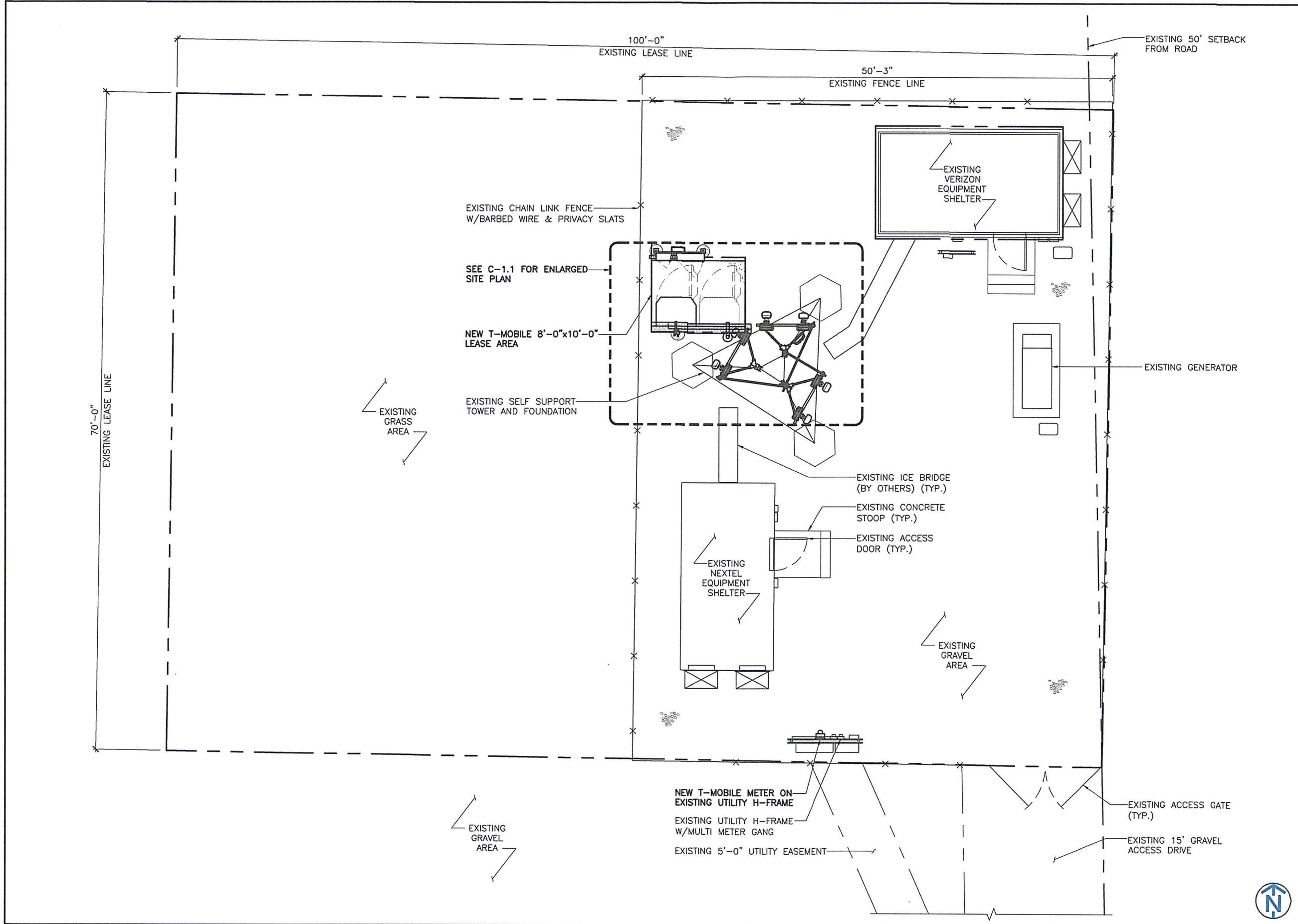
SHEET NAME:  
**GENERAL NOTES**

SHEET NUMBER:  
**N-2**

NOTE: THESE NOTES ARE OF A GENERAL NATURE AND ARE NOT SITE-SPECIFIC. SOME NOTES MAY NOT APPLY TO THIS SITE. CROSS-REFERENCE NOTES WITH OTHER SHEETS AND T-MOBILE SCOPE OF WORK TO VERIFY WORK TO BE COMPLETED.

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.





1855 GATEWAY BLVD.  
SUITE 900  
CONCORD, CA 94520

**L700  
CONSTRUCTION**

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612



1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: 847-908-8400  
www.FullertonEngineering.com

SITE #:  
**BA90476A**

SITE NAME:  
**ATC LEWIS ROAD**

SITE ADDRESS:  
6021 LEWIS ROAD  
VACAVILLE, CA 95687

SHEET NAME:  
**OVERALL  
SITE PLAN**

SHEET NUMBER:  
**C-1**

OVERALL SITE PLAN

SCALE 1" = 10'-0" 1

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



**GENERAL ABBREVIATIONS**

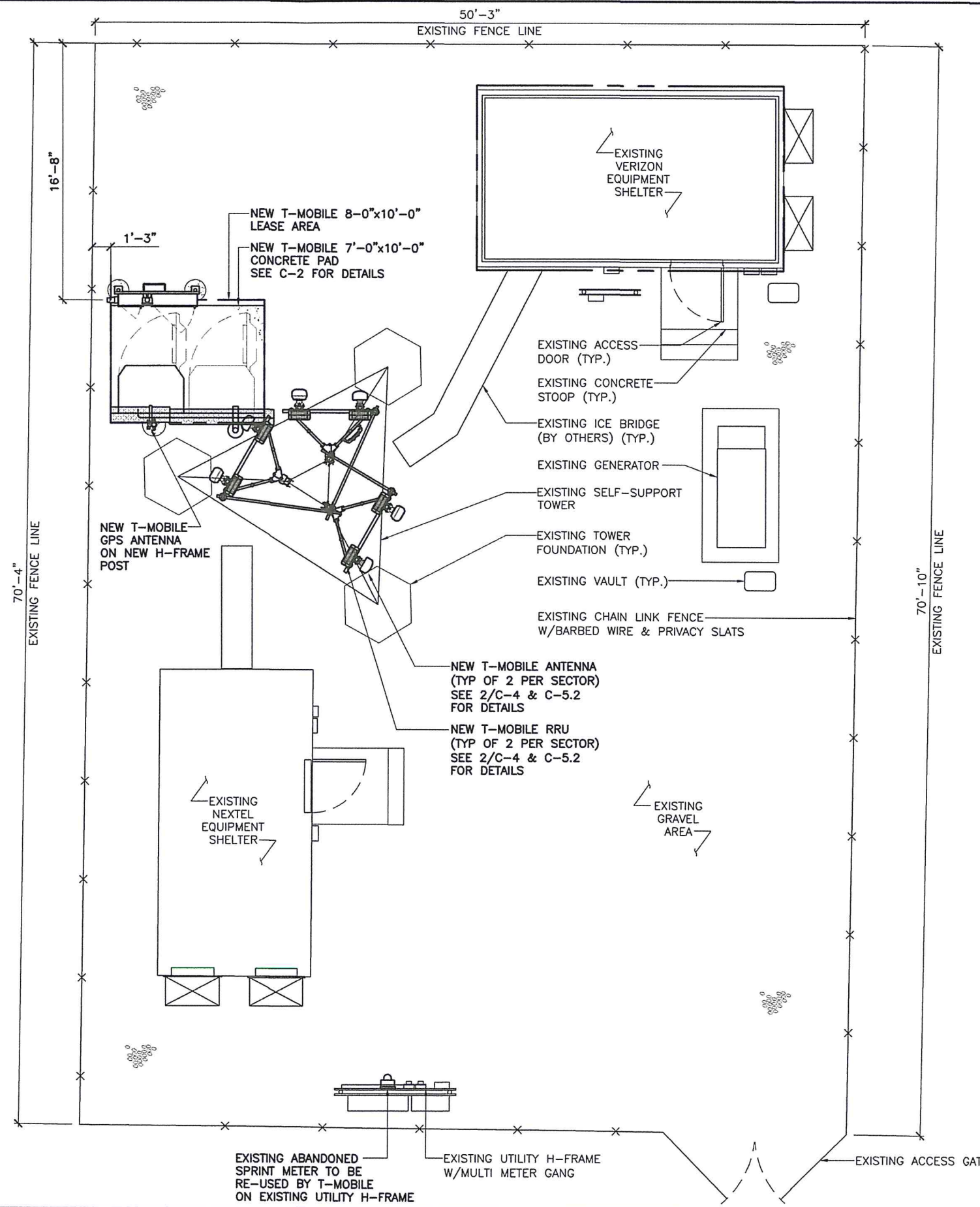
AFF	ABOVE FINISHED FLOOR
AGL	ABOVE GRADE LEVEL
AMSL	ABOVE MEAN SEA LEVEL
APPROX	APPROXIMATE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C	CENTERLINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CND	CONDUIT
DWG	DRAWING
FT	FOOT(FEET)
EGB	EQUIPMENT GROUND BAR
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ELEV	ELEVATION
EQUIP	EQUIPMENT
(E)	EXISTING
EXT	EXTERIOR
FND	FOUNDATION
F	FIBER
GA	GAUGE
GALV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
LP	LIQUID PROPANE
MAX	MAXIMUM
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTS	MANUAL TRANSFER SWITCH
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OE/OT	OVERHEAD ELECTRIC/TELCO
PPC	POWER PROTECTION CABINET
PL	PROPERTY LINE
RGS	RIGID GALVANIZED STEEL
IN	INCH(ES)
INT	INTERIOR
LB(S), #	POUND(S)
SF	SQUARE FOOT
STL	STEEL
TYP	TYPICAL
UE/UT	UNDERGROUND ELECTRIC/TELCO
UNO	UNLESS NOTED OTHERWISE
VIF	VERIFY IN FIELD
W/	WITH
XFMR	TRANSFORMER

**TELECOM ABBREVIATIONS**

CDMA	CODE DIVISION MULTIPLE ACCESS
GSM	GLOBAL SYSTEM FOR MOBILE COMMUNICATION
LTE	LONG TERM EVOLUTION
RET	REMOTE ELECTRIC TILT
RRU	REMOTE RADIO UNIT
SSC	SITE SUPPORT CABINET
UMTS	UNIVERSAL MOBILE TELECOMMUNICATION SYSTEM

**SYMBOLS**

	REVISION
	WORK POINT
	UTILITY POLE
	BRICK
	COMPRESSED STONE
	CONCRETE
	EARTH
	GRAVEL
	CENTERLINE
	PROPERTY LINE
	LEASE LINE
	EASEMENT LINE
	FENCE
	CHAINLINK FENCE
	WOOD
	WROUGHT IRON
	ELECTRIC
	OVERHEAD
	UNDERGROUND
	FIBER
	OVERHEAD
	UNDERGROUND
	TELEPHONE
	OVERHEAD
	UNDERGROUND
	DCPOWER



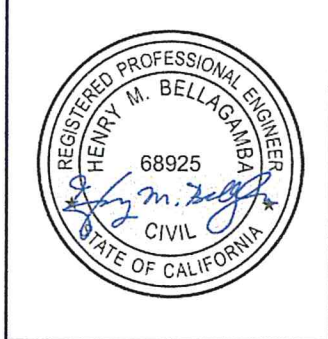
ENLARGED SITE PLAN

SCALE: 1/8" = 1'-0" 1

**T-Mobile**  
 1855 GATEWAY BLVD.  
 SUITE 900  
 CONCORD, CA 94520

**L700 CONSTRUCTION**

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



**AMERICAN TOWER**  
 AMERICAN TOWER CORPORATION  
 19100 VON KARMAN SUITE 200  
 IRVINE, CA 92612

**FULLERTON**  
 ENGINEERING DESIGN  
 1100 E. WOODFIELD ROAD, SUITE 500  
 SCHAUMBURG, ILLINOIS 60173  
 TEL: 847-908-8400  
 www.FullertonEngineering.com

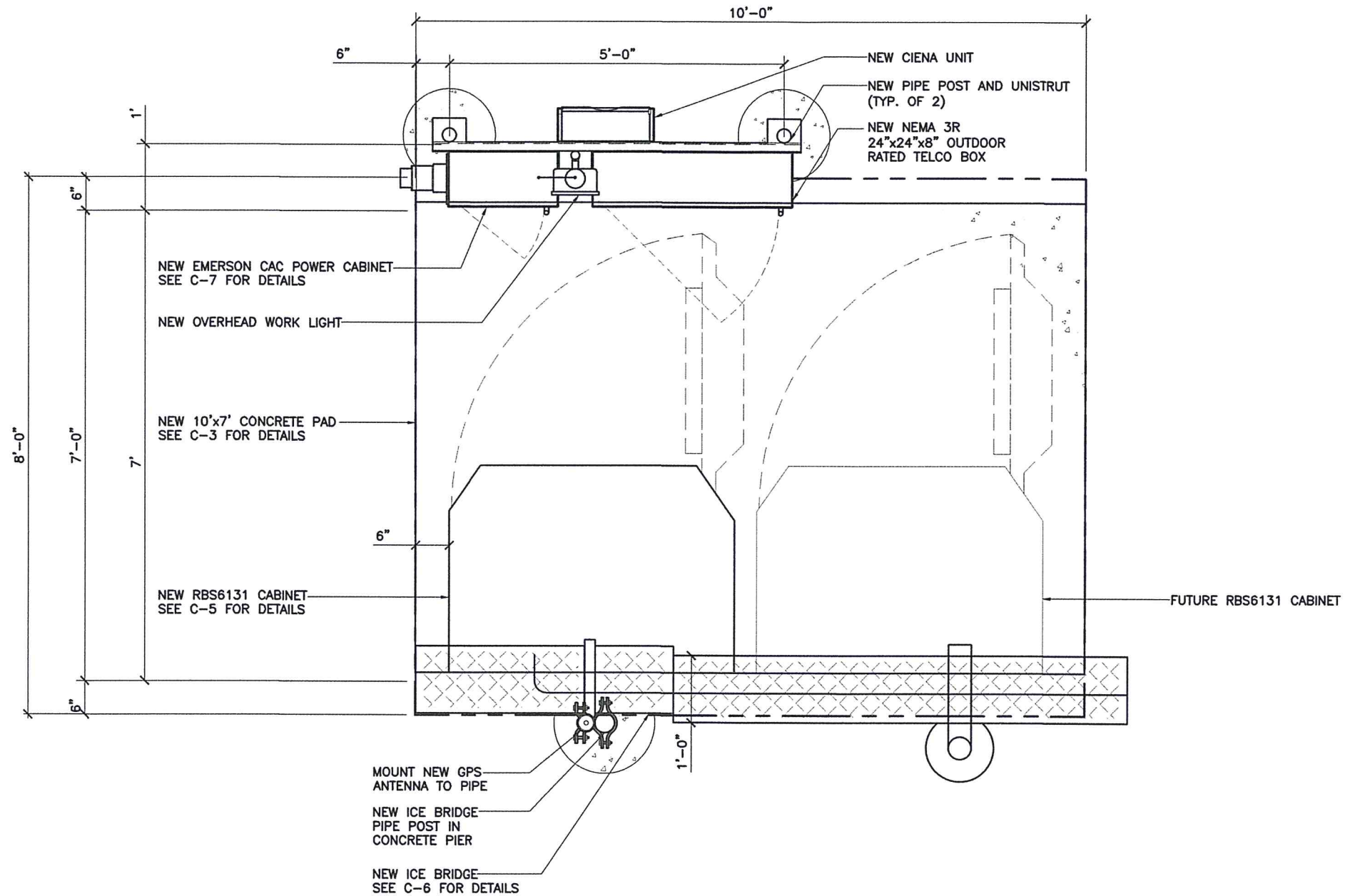
SITE #:  
**BA90476A**  
 SITE NAME:  
**ATC LEWIS ROAD**  
 SITE ADDRESS:  
 6021 LEWIS ROAD  
 VACAVILLE, CA 95687

SHEET NAME:  
**ENLARGED SITE PLAN**

SHEET NUMBER:  
**C-1.1**

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.





1855 GATEWAY BLVD.  
SUITE 900  
CONCORD, CA 94520

L700  
CONSTRUCTION

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612



1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: 847-908-8400  
www.FullertonEngineering.com

SITE #:  
**BA90476A**

SITE NAME:  
**ATC LEWIS ROAD**

SITE ADDRESS:  
6021 LEWIS ROAD  
VACAVILLE, CA 95687

SHEET NAME:  
**EQUIPMENT PLAN**

SHEET NUMBER:  
**C-2**



THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



**L700  
CONSTRUCTION**

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



SITE #:  
**BA90476A**

SITE NAME:  
**ATC LEWIS ROAD**

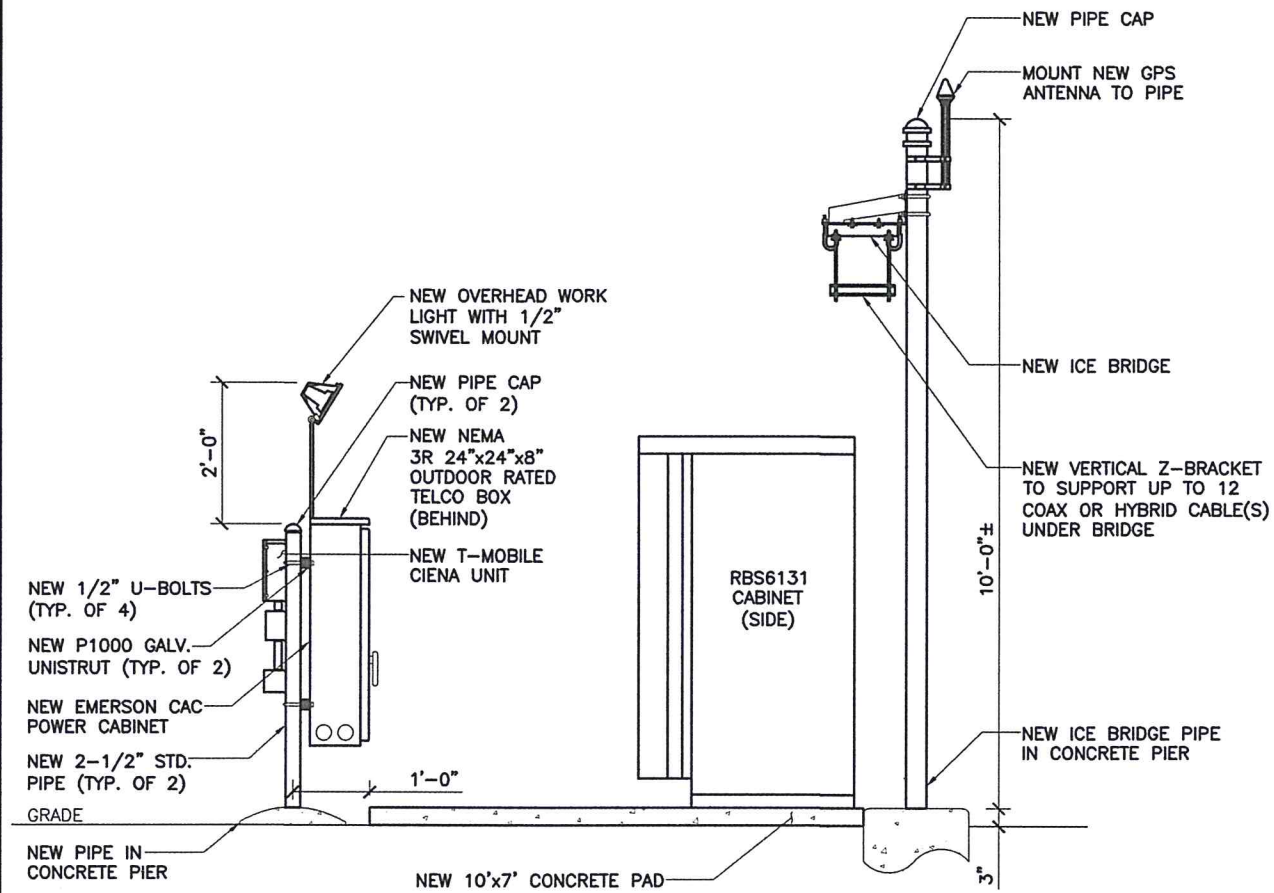
SITE ADDRESS:  
6021 LEWIS ROAD  
VACAVILLE, CA 95687

SHEET NAME:  
**EQUIPMENT AND  
CONCRETE PAD  
DETAILS**

SHEET NUMBER:

**C-3**

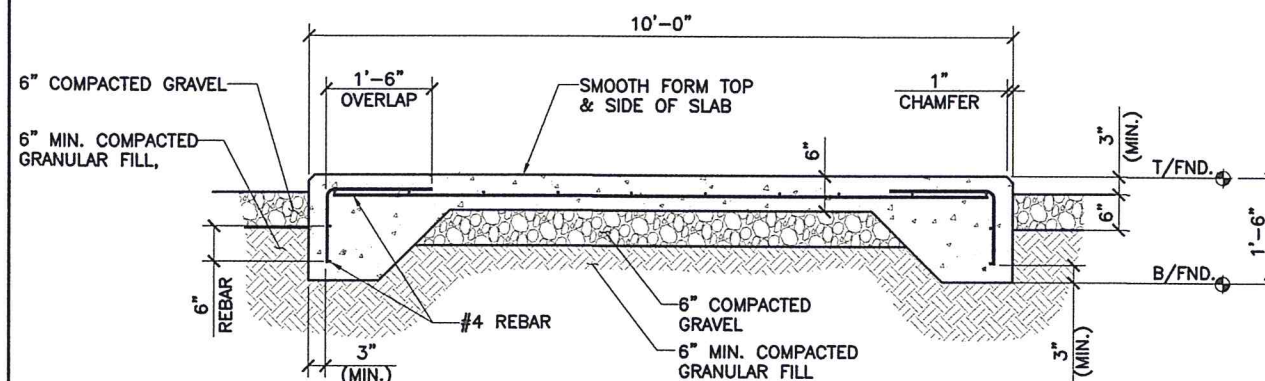
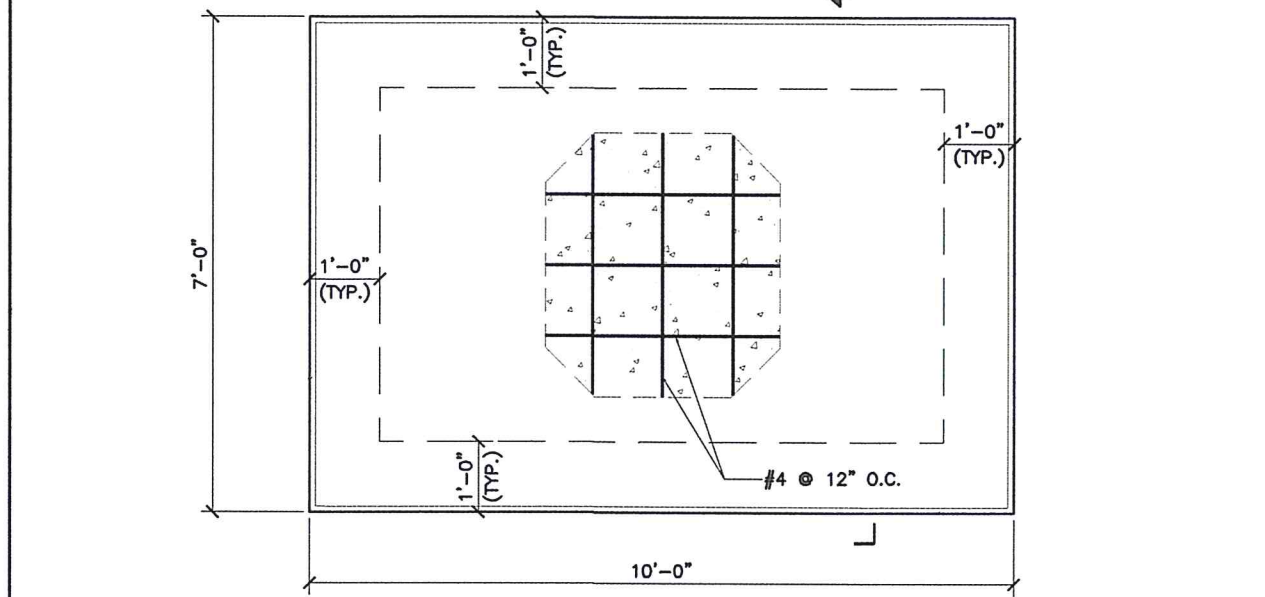
THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



**EQUIPMENT ELEVATION**

SCALE: N.T.S.

1



**SECTION A:**

**CONCRETE NOTES:**

- MEET OR EXCEED THE FOLLOWING CODES AND STANDARDS  
CEMENT.....ASTM C 150 (TYPE I)  
DESIGN.....ACI 318-11  
CONSTRUCTION.....ACI 301-10  
DETAILING.....CRSI MANUAL OF STANDARD PRACTICE  
MIXING.....ASTM C94  
AIR ENTRAINMENT.....ASTM C233  
REINF. STEEL.....ASTM A 615 GRADE 60, DEFORMED
- CONCRETE SHALL BE NORMAL WEIGHT (145 P.C.F.),  $F'_c = 4000$  PSI @ 28 DAYS (5 1/2 BAG MIN. CEMENT CONTENT); W/C RATIO 0.45 MAX AND 4% TO 7% AIR ENTRAINMENT.
- ALL BACKFILL MATERIALS UNDER SLABS SHALL BE FREE DRAINING.
- FILL MATERIALS FOR SLAB AREAS SHALL BE PLACED IN LAYERS NOT EXCEEDING 9" AND COMPACTED TO 95% MINIMUM DENSITY IN ACCORDANCE WITH ASTM D1557 UNTIL FINAL GRADE IS ATTAINED. SLAB AREAS SHALL BE PROOF ROLLED WITH THE HEAVIEST EQUIPMENT AVAILABLE. ALL SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH APPROVED FILL MATERIALS.
- CALCIUM CHLORIDE, OR ADMIXTURES CONTAINING SAME, SHALL NOT BE PERMITTED IN ANY CONCRETE.
- FLY ASH, IF UTILIZED AND APPROVED (TYPE C OR F), SHALL BE LIMITED TO 15% OF THE TOTAL CEMENT CONTENT.
- COLD WEATHER CONCRETING SHALL BE DONE IN ACCORDANCE WITH ACI-306. HOT WEATHER CONCRETING SHALL BE DONE IN ACCORDANCE WITH ACI-305.
- PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT WELDED WIRE FABRIC AT POSITION SHOWN ON THE PLANS AND DETAILS.
- THE MAXIMUM AGGREGATE SIZE THAT SHALL BE USED IS 3/4".

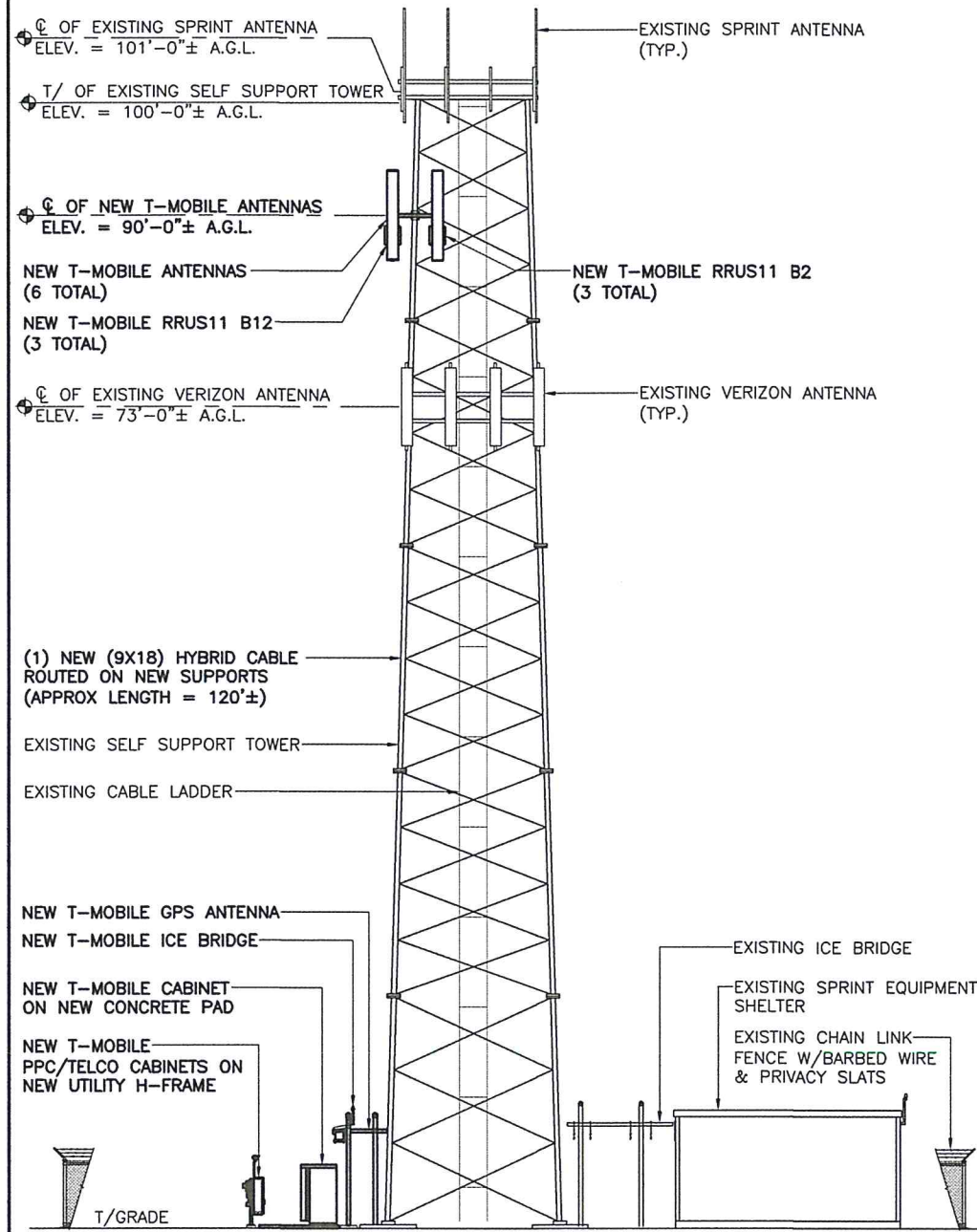
**CONCRETE PAD DETAIL**

SCALE: N.T.S.

2



**STRUCTURAL NOTE:**  
STRUCTURAL EVALUATION OF THE STRUCTURE AND ANTENNA MOUNTS WERE PREPARED BY OTHERS.



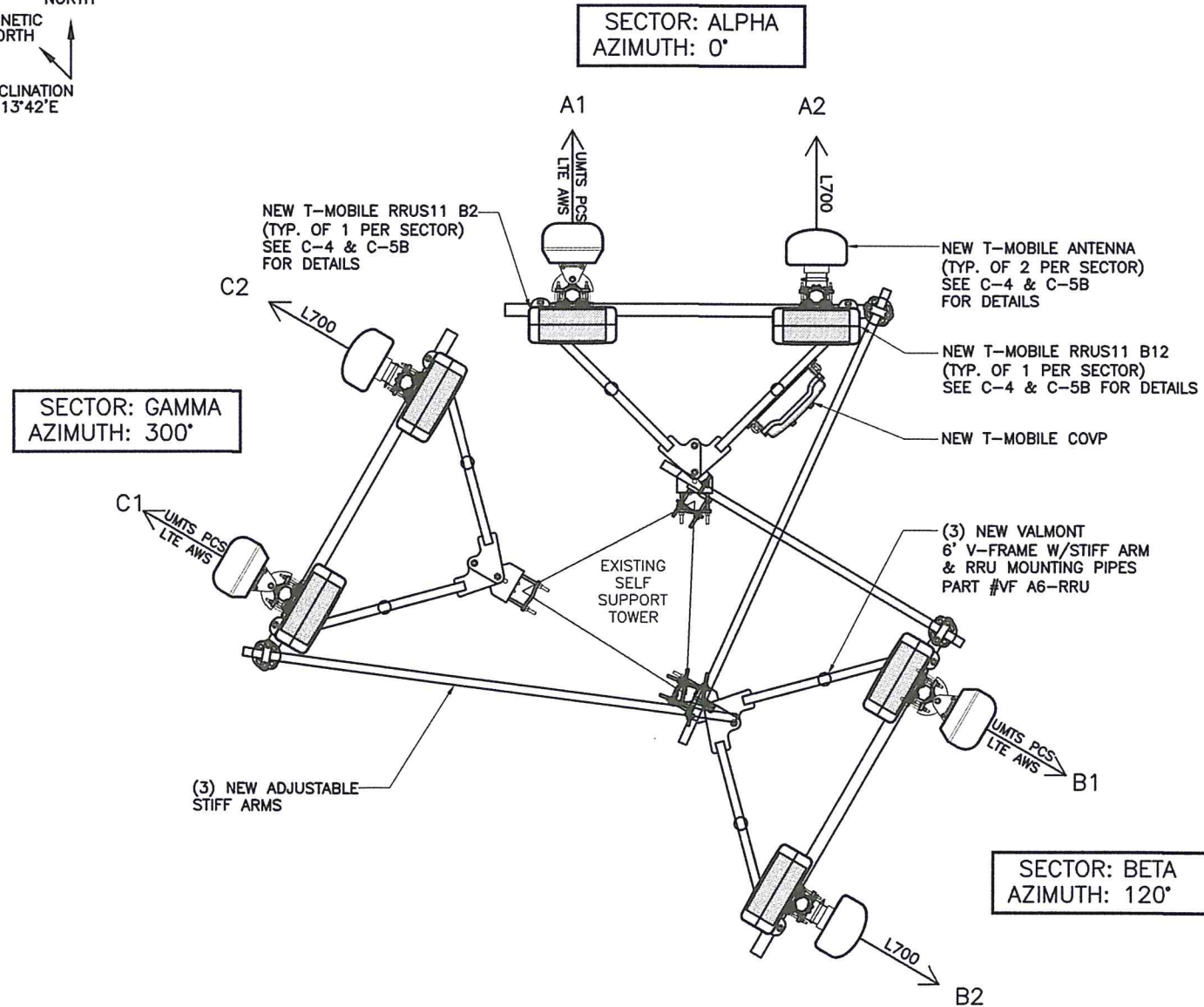
TOWER ELEVATION VIEW

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

1

ANTENNA SCHEDULE						
SECTOR	ALPHA		BETA		GAMMA	
ANTENNA POSITION	A-1	A-2	B-1	B-2	C-1	C-2
ANTENNA TYPE	LTE AWS/UMTS PCS	LTE	LTE AWS/UMTS PCS	LTE	LTE AWS/UMTS PCS	LTE
AZIMUTH	0°	0°	120°	120°	300°	300°
RAD CENTER (AGL)	90'	90'	90'	90'	90'	90'
MODEL	ERICSSON AIR 21 B4A B2P	ANDREW LNX-6515DS-A1M	ERICSSON AIR 21 B4A B2P	ANDREW LNX-6515DS-A1M	ERICSSON AIR 21 B4A B2P	ANDREW LNX-6515DS-A1M
FEEDER LENGTH	±15'-0"	±15'-0"	±15'-0"	±15'-0"	±15'-0"	±15'-0"

TRUE NORTH  
MAGNETIC NORTH  
DECLINATION  
13°42'E



ANTENNA LAYOUT

SCALE: 3/8" = 1'-0"

2



1855 GATEWAY BLVD.  
SUITE 900  
CONCORD, CA 94520

L700  
CONSTRUCTION

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



AMERICAN TOWER  
AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612

FULLERTON  
ENGINEERING DESIGN

1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: 847-908-8400  
www.FullertonEngineering.com

SITE #:  
BA90476A  
SITE NAME:  
ATC LEWIS ROAD  
SITE ADDRESS:  
6021 LEWIS ROAD  
VACAVILLE, CA 95687

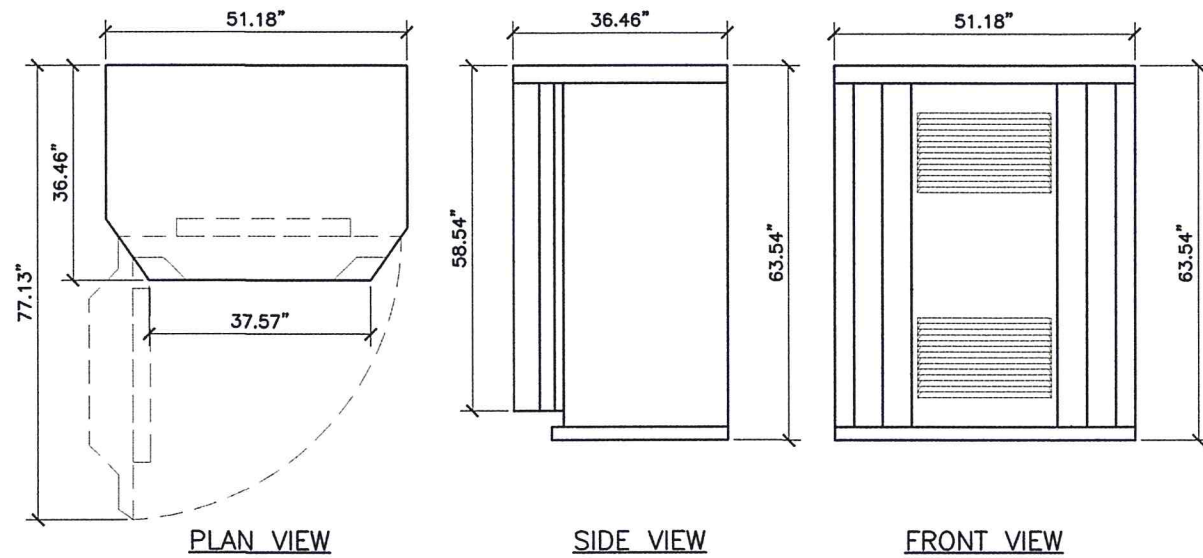
SHEET NAME:  
TOWER ELEVATION  
AND ANTENNA  
DETAILS

SHEET NUMBER:

C-4

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



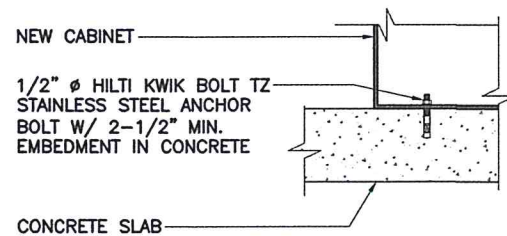


**ERICSSON – RBS 6131**  
 WCDMA MACRO OUTDOOR BASE STATION  
 FULLY EQUIPPED CABINET      1875 LBS

RBS6131 CABINET SPECIFICATIONS

SCALE: N.T.S.

1



**CABINET CONNECTION TO CONCRETE**  
 SCALE: N.T.S.

CABINET CONNECTION DETAIL

SCALE: N.T.S.

2

NOT USED

SCALE: N.T.S.

3



1855 GATEWAY BLVD.  
 SUITE 900  
 CONCORD, CA 94520

**L700  
 CONSTRUCTION**

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



AMERICAN TOWER CORPORATION  
 19100 VON KARMAN SUITE 200  
 IRVINE, CA 92612



1100 E. WOODFIELD ROAD, SUITE 500  
 SCHAUMBURG, ILLINOIS 60173  
 TEL: 847-908-8400  
 www.FullertonEngineering.com

SITE #:  
**BA90476A**  
 SITE NAME:  
**ATC LEWIS ROAD**  
 SITE ADDRESS:  
 6021 LEWIS ROAD  
 VACAVILLE, CA 95687

SHEET NAME:  
**CABINET DETAILS**

SHEET NUMBER:  
**C-5**

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612

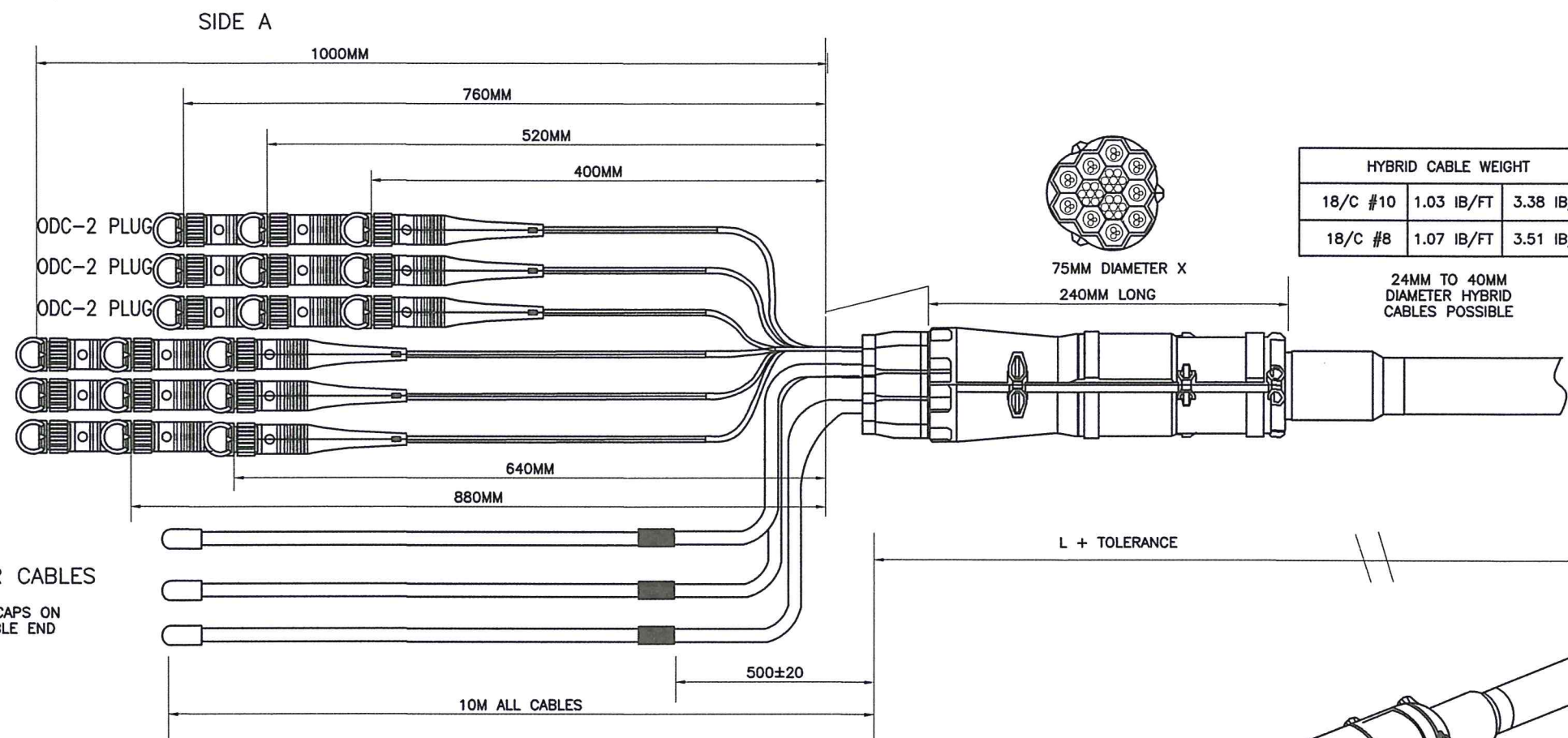
**FULLERTON**  
ENGINEERING DESIGN

1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: 847-908-8400  
www.FullertonEngineering.com

SITE #:  
**BA90476A**  
SITE NAME:  
**ATC LEWIS ROAD**  
SITE ADDRESS:  
6021 LEWIS ROAD  
VACAVILLE, CA 95687

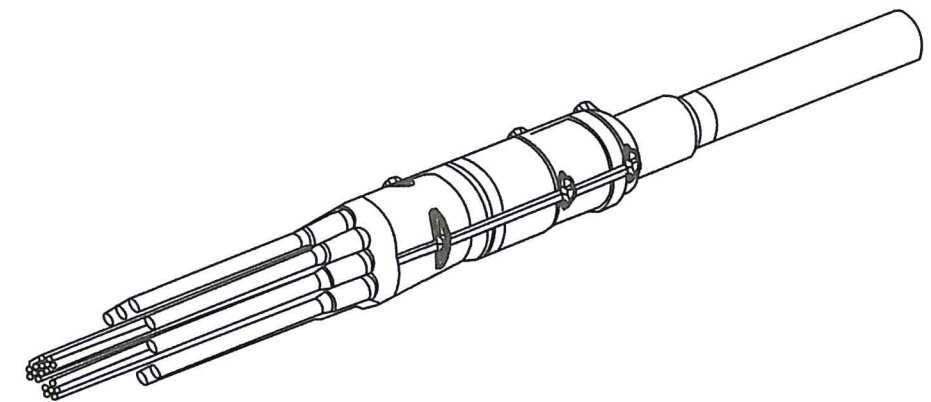
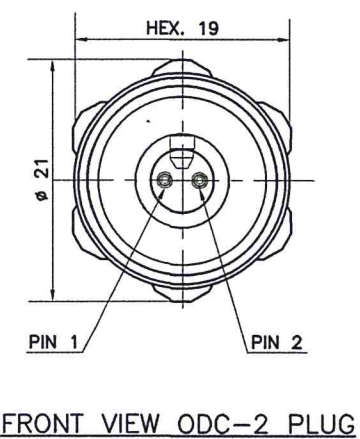
SHEET NAME:  
**CABLE DETAILS**

SHEET NUMBER:  
**C-5.1**



(9) POWER CABLES  
SHRINK CAPS ON THE CABLE END

FIBER OPTIC					
RRH	SIDE A		SIDE B		
#	ODC PLUG	PIN	PIN	COLOR LCD BOOTS	LENGTH SIDE B
1	ODC-2 RED	1	B	RED (SHORT BREAKOUT)	1000±30
		2	A		
2	ODC-2 GREEN	1	B	GREEN	1060±30
		2	A		
3	ODC-2 BLUE	1	B	BLUE	1120±30
		2	A		
4	ODC-2 RED	1	B	RED (SHORT BREAKOUT)	1000±30
		2	A		
5	ODC-2 GREEN	1	B	GREEN	1060±30
		2	A		
6	ODC-2 BLUE	1	B	BLUE	1120±30
		2	A		
7	ODC-2 RED	1	B	RED (SHORT BREAKOUT)	1000±30
		2	A		
8	ODC-2 GREEN	1	B	GREEN	1060±30
		2	A		
9	ODC-2 BLUE	1	B	BLUE	1120±30
		2	A		



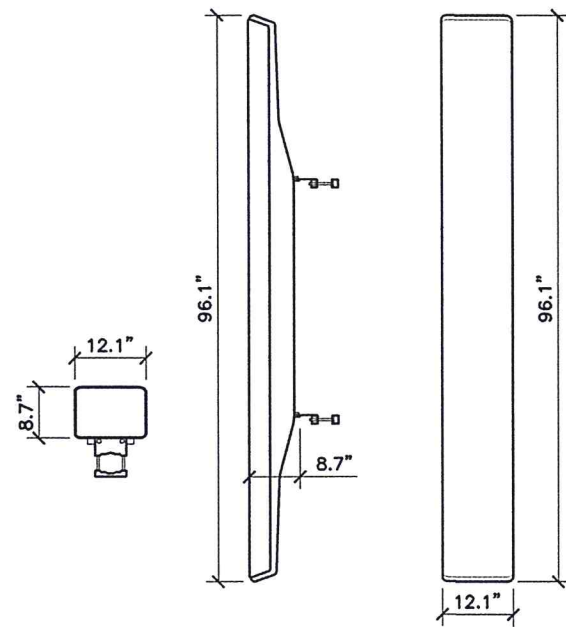
TOLERANCE	ASSEMBLY LENGTH
+80	L<5M
+2%	L≥5M

POWER	
LENGTH	DIAMETER
L≤60M	6MM <sup>2</sup> (10AWG)
L>60M	10MM <sup>2</sup> (8AWG)

**ERICSSON HYBRID CABLE 9x18**

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.

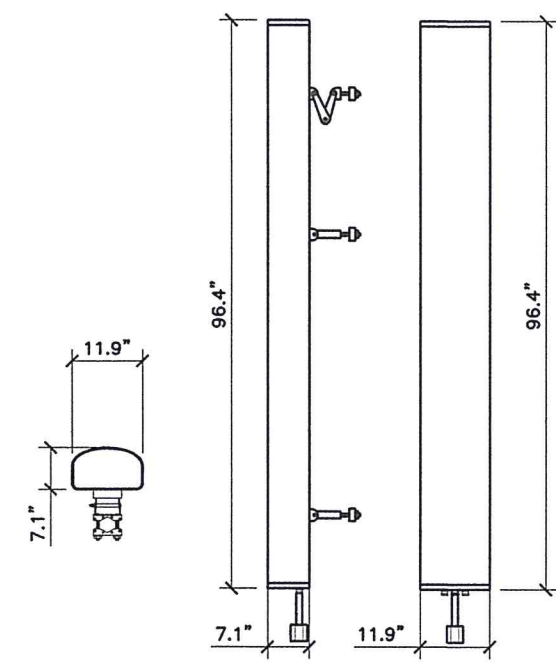




PLAN VIEW SIDE VIEW FRONT VIEW

**ERICSSON - AIR 21 B4A/B2**

FREQUENCY RANGE 2135-2155 MHz  
 1965-1980 MHz  
 1735-1755 MHz  
 1885-1900 MHz  
 ANTENNA 90 LBS



PLAN VIEW SIDE VIEW FRONT VIEW

**COMMSCOPE - LNX-6515DS-A1M**

FREQUENCY RANGE 728-734 MHz  
 398-704 MHz  
 ANTENNA WITH BRACKET 42.07 LBS  
 49.8 LBS



1855 GATEWAY BLVD.  
 SUITE 900  
 CONCORD, CA 94520

**L700  
 CONSTRUCTION**

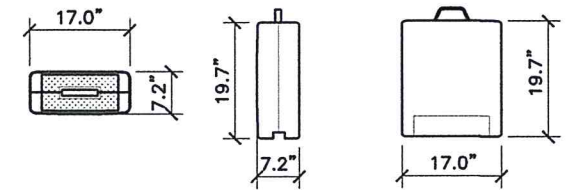
CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



**ANTENNA DETAIL**

SCALE: 3/8" = 1'-0" 1

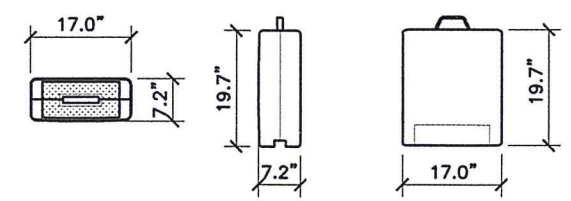
SCALE: 3/8" = 1'-0" 2



PLAN VIEW SIDE VIEW FRONT VIEW

**ERICSSON - RRUS11 B12**

FREQUENCY 699 TO 715 MHz UPLINK  
 729 TO 745 MHz DOWNLINK  
 UNIT WEIGHT 50.6 Lbs



PLAN VIEW SIDE VIEW FRONT VIEW

**ERICSSON - RRUS11 B2**

FREQUENCY 1850 TO 1910 MHz UPLINK  
 1930 TO 1990 MHz DOWNLINK  
 UNIT WEIGHT 50.6 Lbs



SITE #:  
**BA90476A**  
 SITE NAME:  
**ATC LEWIS ROAD**  
 SITE ADDRESS:  
 6021 LEWIS ROAD  
 VACAVILLE, CA 95687

SHEET NAME:  
**ANTENNA  
 DETAILS & SPECS**

SHEET NUMBER:  
**C-5.2**

**RRU'S SPECS**

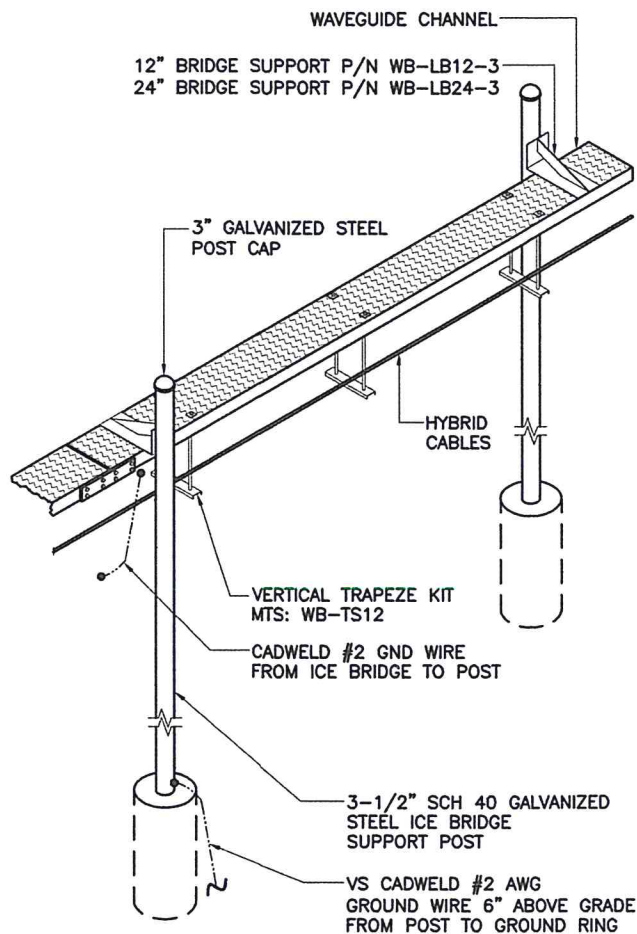
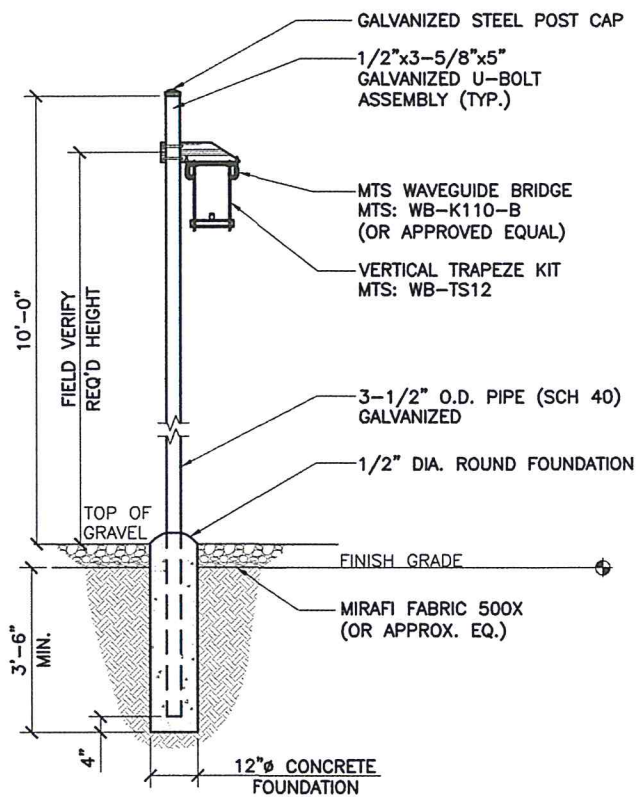
SCALE: 3/8" = 1'-0" 3

**RRU'S SPECS**

SCALE: 3/8" = 1'-0" 4

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.

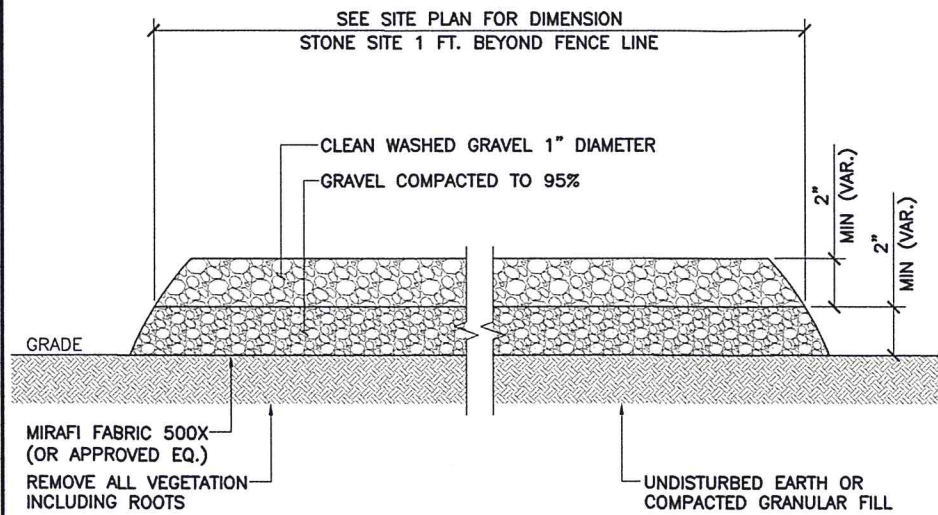




ICE BRIDGE DETAILS

SCALE: N.T.S.

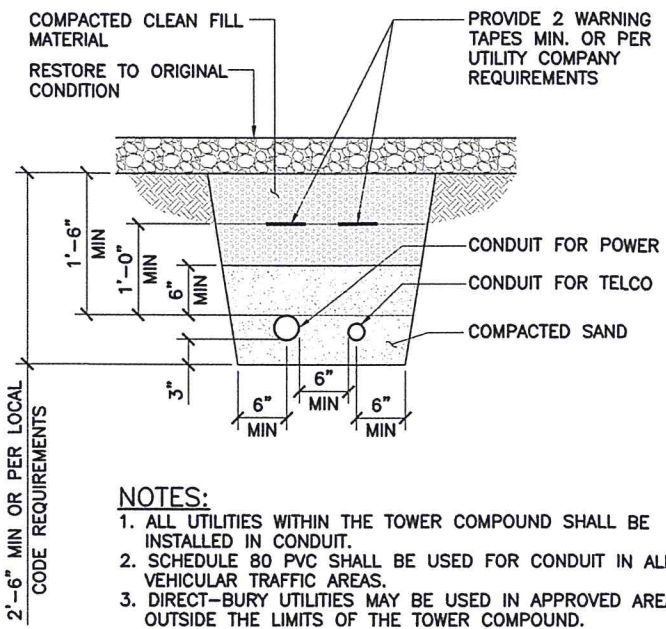
1



SITE COMPOUND DETAIL

SCALE: N.T.S.

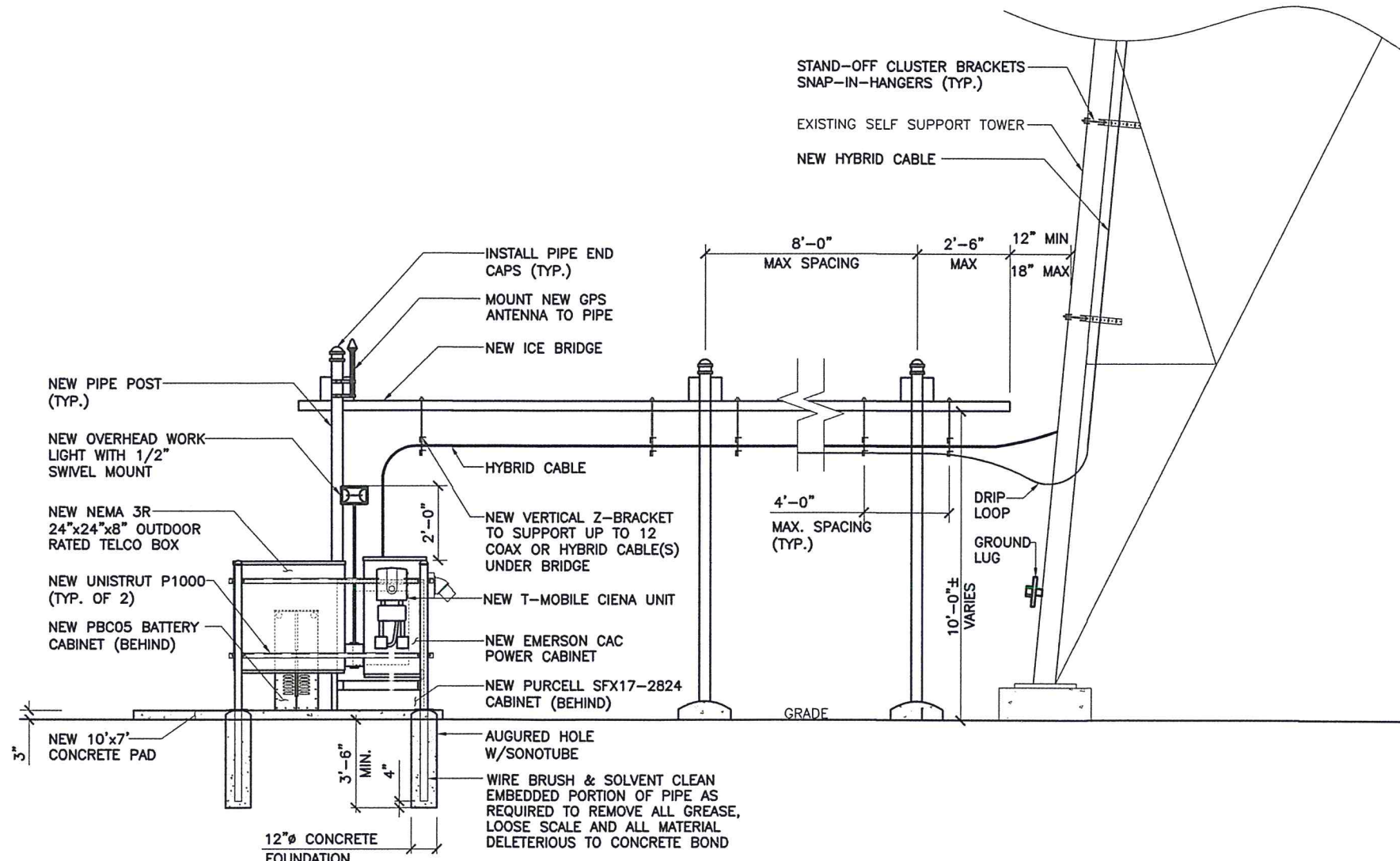
2



TYPICAL ELECTRIC & TELCO TRENCH DETAIL

SCALE: N.T.S.

3



TYPICAL EQUIPMENT ELEVATION

SCALE: N.T.S.

4



1855 GATEWAY BLVD.  
SUITE 900  
CONCORD, CA 94520

L700  
CONSTRUCTION

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612



1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: 847-908-8400  
www.FullertonEngineering.com

SITE #:  
**BA90476A**

SITE NAME:  
**ATC LEWIS ROAD**

SITE ADDRESS:  
6021 LEWIS ROAD  
VACAVILLE, CA 95687

SHEET NAME:  
**TOWER  
ELEVATION  
AND DETAILS**

SHEET NUMBER:

**C-6**

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



# EMERSON CAC POWER CABINET



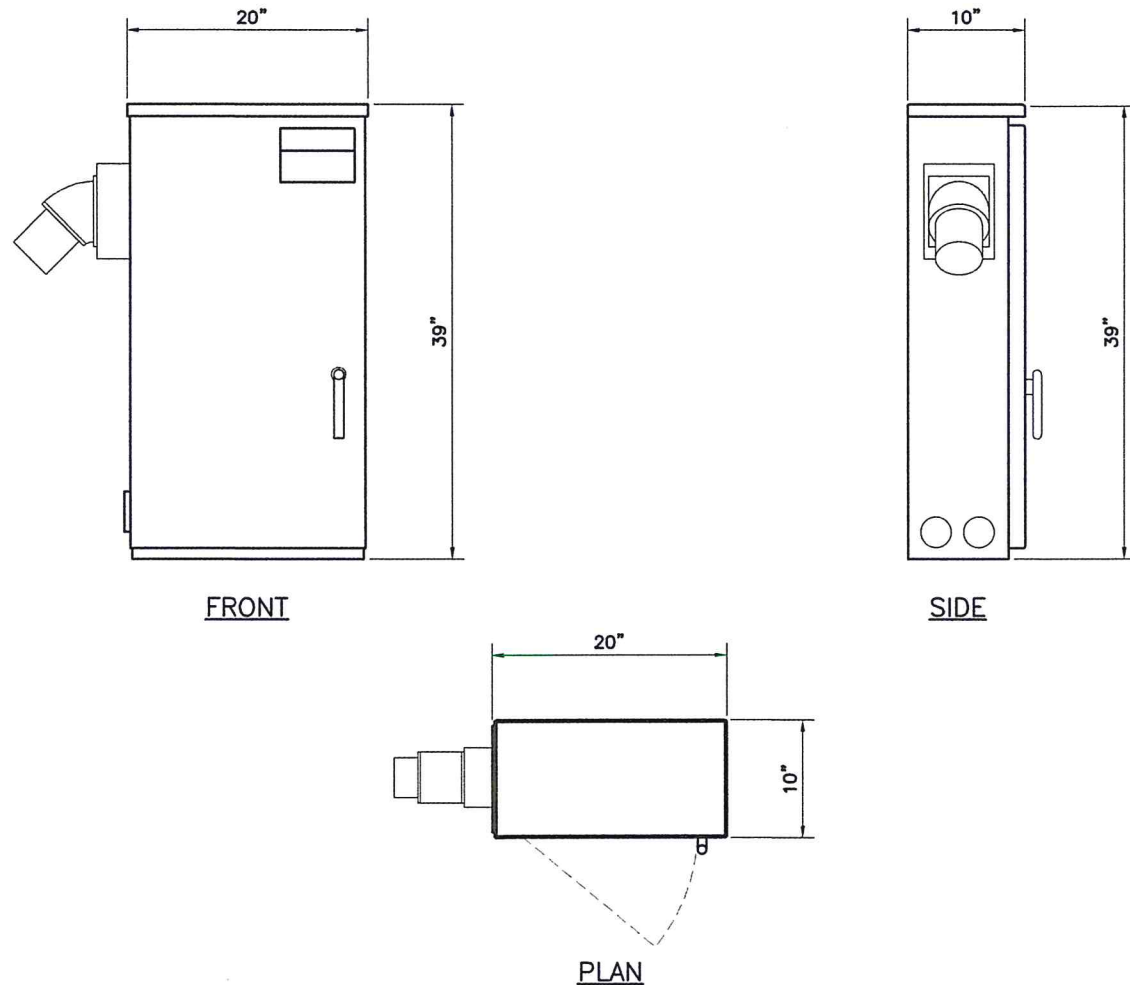
### STANDARD FEATURES:

- NEMA 3R RAINPROOF ENCLOSURE
- 3-POINT DOOR CLOSURE WITH CONTINUOUS HINGE AND HEAVY DUTY DOOR GASKET
- UL891 LISTED RAIN/DRIP HOOD PROVIDES PROTECTION AGAINST THE ELEMENTS
- 0.1" THICK ALUMINUM
- CORROSION RESISTANT POWER COAT PAINT
- WALL/BRACKET OR PAD-MOUNTABLE
- OPTIONAL N-G BONDING JUMPER
- MECHANICAL INTERLOCK PREVENTS SIMULTANEOUS USE OF UTILITY AND GENERATOR POWER
- BRUTE FORCE METAL OXIDE VARISTOR SURGE SUPPRESSION WITH EASY TO READ LED AND REMOTE STATUS INDICATION
- GENERATOR RECEPTACLE OPTIONS INCLUDE: 100A OR 200A, 10KAIC OR 22KAIC, 65KAIC

ENCLOSURE		ELECTRICAL	
EXTERNAL MATERIAL	0.1" THICK ALUMINUM	VOLTAGE	120/240 VAC, SINGLE PHASE, 3 WIRE/GROUND
DIMENSIONS (WxHxD)	20"x39"x10"	SERVICE	100 AMP OR 200 AMP. UTILITY/STANDBY
WEIGHT	75 LBS	DISCONNECT	SLIDE BAR MECHANICAL INTERLOCK
PROTECTION	RAIN/DRIP HOOD, RAIN TESTED PER UL891	LOAD CENTER	200 AMP, 24 POSITION, 1-30 AMP DOUBLE POLE, 1-15 AMP SINGLE POLE
CABINET TYPE	ONE AC POWER TVSS CABINET (NEMA 3R TYPE ENCLOSURE)	BONDING JUMPER	OPTIONAL N-G BONDING JUMPER
		POWER RECEPT.	APPLETON AR20044RS STANDARD
		TVSS	METAL OXIDE VARISTOR/REMOTE ALARM CONTACT

### OTHER OPTIONS

SECURITY	3-POINT DOOR CLOSURE WITH 1/4 TURN HANDLE, SS HINGE
SAFETY	UL891, DEAD FRONT SWITCHBOARDS
OPTIONS	10,000 OR 22,000, 65,000 SERIES RATED, PAD-MOUNTING BASE (8" THICK), VARIOUS GENERATOR RECEPTACLES OFFERED



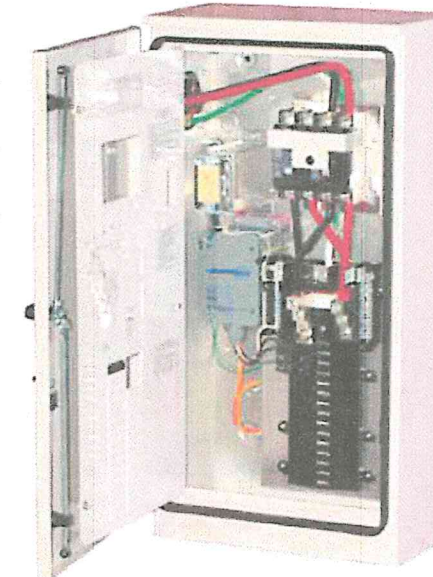
## Ordering Information – CAC Model

A small selection of products is listed below. Please refer to the CAC Model Ordering Matrix for additional configurations.

Emerson Catalog Number	Emerson Part Number	Description
CACA22204090		100A slide bar transfer device, 24-position load center, ADR1044RS, MOV
CACA45201090		200A slide bar transfer device, 24-position load center, AR20044RS, MOV
CACA45201190		200A slide bar transfer device, 24-position load center, AR20044RS with 45 degree angle adapter, MOV
CACA75201090		200A slide bar transfer device, 30-position load center, AR20044RS, MOV

## Ordering Matrix – CAC Model

AC Power Configuration	2 = 100A main, 24 pos. LC 4 = 200A main, 24 pos. LC 7 = 200A main, 30 pos. LC
AIC Rating	2 = 10KAIC 5 = 65KAIC Series Rated
Main Breakers (Transfer Device)	1 = Single disconnect 2 = Slide bar mechanical interlock
Generator Inlet	00 = None 01 = AR20044RS (Appleton 200A) 02 = AR20034RS (Appleton 200A) 03 = AR20033RS (Appleton 200A) 04 = AR1044RS (Appleton 100A) 05 = HBL2715SW (Hubbell 30A) 08 = M4100B12W (McGill 100A) 09 = HBL4100RS2WR (Hubbell 100A) 10 = HBL4100RS1WR (Hubbell 100A) 11 = HBL4200RS1WR (Hubbell 200A) 12 = 4100B12W (Hubbell 100A) 13 = ADR1033RS (Appleton 100A) 14 - Custom Option
Generator Inlet Accessories	0 = No angle adapter 1 = 45 degree angle adapter
TVSS Options	0 = None 9 = IG120S200RK-WW
Cabinet Mounting	0 = None



1855 GATEWAY BLVD.  
SUITE 900  
CONCORD, CA 94520

L700  
CONSTRUCTION

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612



1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: 847-908-8400  
www.FullertonEngineering.com

SITE #:  
**BA90476A**

SITE NAME:  
**ATC LEWIS ROAD**

SITE ADDRESS:  
6021 LEWIS ROAD  
VACAVILLE, CA 95687

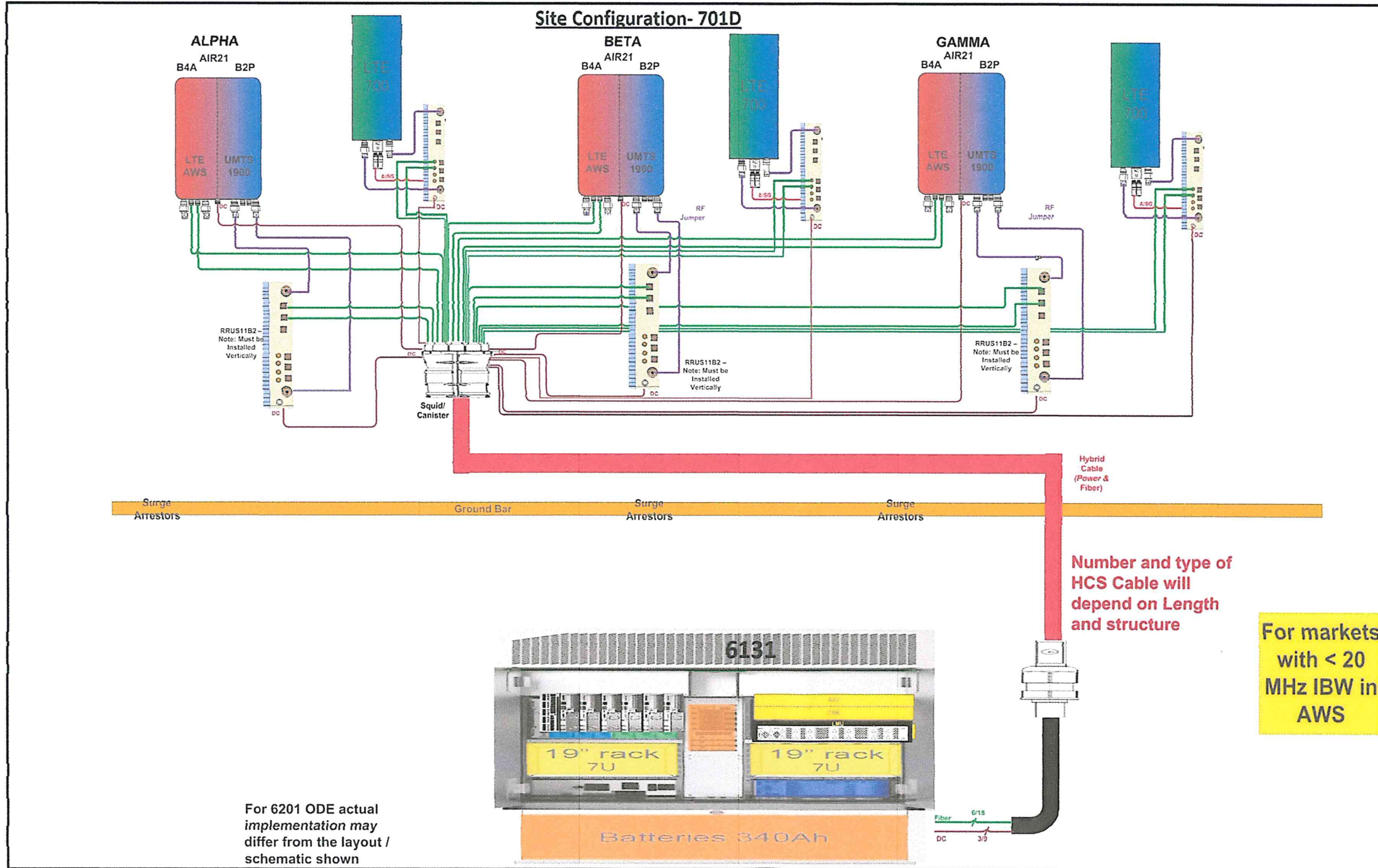
SHEET NAME:  
**EQUIPMENT  
DETAILS**

SHEET NUMBER:  
**C-7**



# Section 3 - Proposed Template Images

E\_701D\_000.jpg



For 6201 ODE actual implementation may differ from the layout / schematic shown

Notes:



1855 GATEWAY BLVD.  
SUITE 900  
CONCORD, CA 94520

L700  
CONSTRUCTION

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/11/16	FINAL	AA



AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612



1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: 847-908-8400  
www.FullertonEngineering.com

SITE #:  
**BA90476A**

SITE NAME:  
**ATC LEWIS ROAD**

SITE ADDRESS:  
6021 LEWIS ROAD  
VACAVILLE, CA 95687

SHEET NAME:  
**RFDS SHEET**

SHEET NUMBER:  
**C-8**

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.





20 AMP OUTDOOR GFCI & SWITCH COMBO  
NOT TO SCALE

MANUFACTURER: GENERAL ELECTRIC (OR EQUIVALENT) U010S010GRP  
 MODEL: U010S010GRP  
 DEPTH: 5.2"  
 HEIGHT: 7.1"  
 WIDTH: 5.8"  
 WEIGHT: 3.92 LBS  
 UL LISTING: 1-UL LISTED  
 MAX. AMPERAGE: 20 A  
 VOLTAGE: 120V

CONTRACTOR IS RESPONSIBLE TO COORDINATE INSTALL OF ELECTRICAL METER WITH UTILITY COMPANY AND VERIFY INSTALLATION WITH T-MOBILE.

ELECTRICAL CONTRACTOR NOTE

THESE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY AND SHOW THE GENERAL INTENT OF THE FINAL ARRANGEMENT OF ELECTRICAL SYSTEMS, EQUIPMENT AND CONNECTIONS. IT IS THE INTENT OF THESE ELECTRICAL DRAWINGS TO REQUIRE APPROPRIATE ELECTRICAL WORK TO COMPLETELY FACILITATE THE ELECTRICAL REQUIREMENTS FOR THE NEW TENANT (T-MOBILE). SOME OF THE ELECTRICAL WORK SHOWN IS EXISTING AND SHALL REMAIN IN PLACE AND NEW WORK ADDED TO ACCOMMODATE T-MOBILE ELECTRICAL REQUIREMENTS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING ELECTRICAL EQUIPMENT AND WIRING AND ADD NEW WORK, AS REQUIRED TO COMPLETE THE T-MOBILE ELECTRICAL REQUIREMENTS. IT IS NOT INTENDED TO SHOW EXISTING ELECTRICAL WORK EXACTLY AS IS, BUT TO SHOW THE INTENT ONLY. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY'S FOR ADDED LOAD (T-MOBILE). VERIFY ELECTRICAL AND TELEPHONE SERVICE SIZE AND CAP.

GENERAL NOTES

1) ALL WORK IS TO COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (N.E.C.) AND ANY LOCAL ORDINANCES, CODES AND ALL OTHER ADMINISTRATIVE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL FURNISH AND PAY FOR ALL PERMITS AND RELATED FEES.

2) ALL EQUIPMENT AND MATERIAL FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE UNDERWRITERS LABORATORIES (U.L.) LISTED, NEW, FREE FROM DEFECTS AND SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER OR HIS REPRESENTATIVE. SHOULD ANY TROUBLE DEVELOP DURING THIS PERIOD DUE TO FAULTY WORKMANSHIP, MATERIAL OR EQUIPMENT, THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS AND LABOR TO CORRECT THE TROUBLE WITHOUT COST TO THE OWNER.

3) ALL WORK SHALL BE EXECUTED IN A WORKMAN LIKE MANNER AND SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED. CONTRACTOR SHOULD AVOID DAMAGE TO EXISTING UTILITIES WHEREVER POSSIBLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING RELATED TO ELECTRICAL WORK, AND SHALL RESTORE ALL EXISTING LANDSCAPING, SPRINKLER SYSTEMS, CONDUITS, WIRING, PIPING, ETC. DAMAGED BY THE ELECTRICAL WORK TO MATCH CONDITIONS.

4) ELECTRICAL WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO COMPLETE ELECTRICAL POWER AND LIGHTING SYSTEMS, TELEPHONE AND COMMUNICATION SYSTEMS, PANEL BOARDS, CONDUIT, CONTROL WIRING, GROUNDING, ETC. AS INDICATED ON ELECTRICAL DRAWINGS AND/OR AS REQUIRED BY GOVERNING CODES.

5) PRIOR TO INSTALLING ANY ELECTRICAL WORK,

THE CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY EXISTING SITE LOCATIONS AND CONDITIONS AND UTILITY SERVICE REQUIREMENTS OF THE JOB, AND BY REFERENCE TO ENGINEERING AND EQUIPMENT SUPPLIERS DRAWINGS. SHOULD THERE BE ANY QUESTION OR PROBLEM CONCERNING THE NECESSARY PROVISIONS TO BE MADE, PROPER DIRECTIONS SHALL BE OBTAINED BEFORE PROCEEDING WITH ANY WORK.

6) PROVIDE POWER AND TELEPHONE TO SERVICE POINTS PER UTILITY COMPANY REQUIREMENTS. CONTRACTOR SHALL CONTACT UTILITY SERVICE PLANNERS AND OBTAIN ALL SERVICE REQUIREMENTS AND INCLUDE COSTS SUCH IN THEIR BID.

7) SERVICE EQUIPMENT SHALL HAVE A SHORT CIRCUIT WITHSTAND RATING EQUAL TO OR EXCEEDING THE MAXIMUM AVAILABLE FAULT CURRENT AT THE SUPPLY TERMINAL ON THE UTILITY TRANSFORMER SECONDARY. THE INSULATION SHALL BE FREE FROM ANY SHORT CIRCUITS AND GROUNDING.

8) WHERE APPLICABLE CONTRACTOR SHALL COORDINATE W/LOCAL UTILITY COMPANY REGARDING REQUIREMENTS & INSTALLATION OF A CT CABINET.

ELECTRICAL NOTES

1) ALL WIRES SHALL BE STRANDED COPPER WITH THHN/THWN AND 600 VOLTS INSULATION. ALL GROUND CONDUCTORS TO BE PROPERLY SIZED COPPER. (STRANDED OR SOLID).

2) IN THE EVENT OF ANY CONFLICT OR

INCONSISTENCY BETWEEN ITEMS SHOWN ON THE PLANS AND/OR SPECIFICATIONS, THE NOTE SPECIFICATION OR CODE WHICH PRESCRIBES AND ESTABLISHES THE HIGHEST STANDARD OF PERFORMANCE SHALL PREVAIL.

3) SERVICE CONDUITS SHALL HAVE NO MORE THAN (4) -90° BENDS IN ANY SINGLE RUN. THE CONTRACTOR SHALL PROVIDE PULL BOXES AS NEEDED WHERE CONDUIT REQUIREMENTS EXCEED THESE CONDITIONS. PULL WIRES AND CAPS SHALL BE PROVIDED AT ALL SPARE CONDUITS FOR FUTURE USE.

4) ALL COAX, POWER AND TELEPHONE SYSTEM CONDUITS SHALL HAVE A MINIMUM 24-SCH. 80 PVC RADIUS SWEEPS TO EQUIPMENT, PULL BOXES, MONOPOLE, ETC., UNLESS OTHERWISE NOTED, OR AS REQUIRED BY UTILITY COMPANIES.

5) ALL CONDUIT AND NIPPLE ENTRIES TO CABINET AND METER BOXES WILL BE MADE WITH WEATHERPROOF HUBS, CONNECTORS OR LOCKNUTS LISTED FOR THE APPLICATIONS. NON-METALLIC BUSHINGS.

6) ONLY ONE SERVICE ALLOWED PER LUG. ALL GROUNDING AND BONDING MUST COMPLY WITH NEC 250 REQUIRED.

7) UPON COMPLETION OF THE JOB, THE CONTRACTOR SHALL FURNISH AS-BUILT DRAWINGS TO THE OWNER.



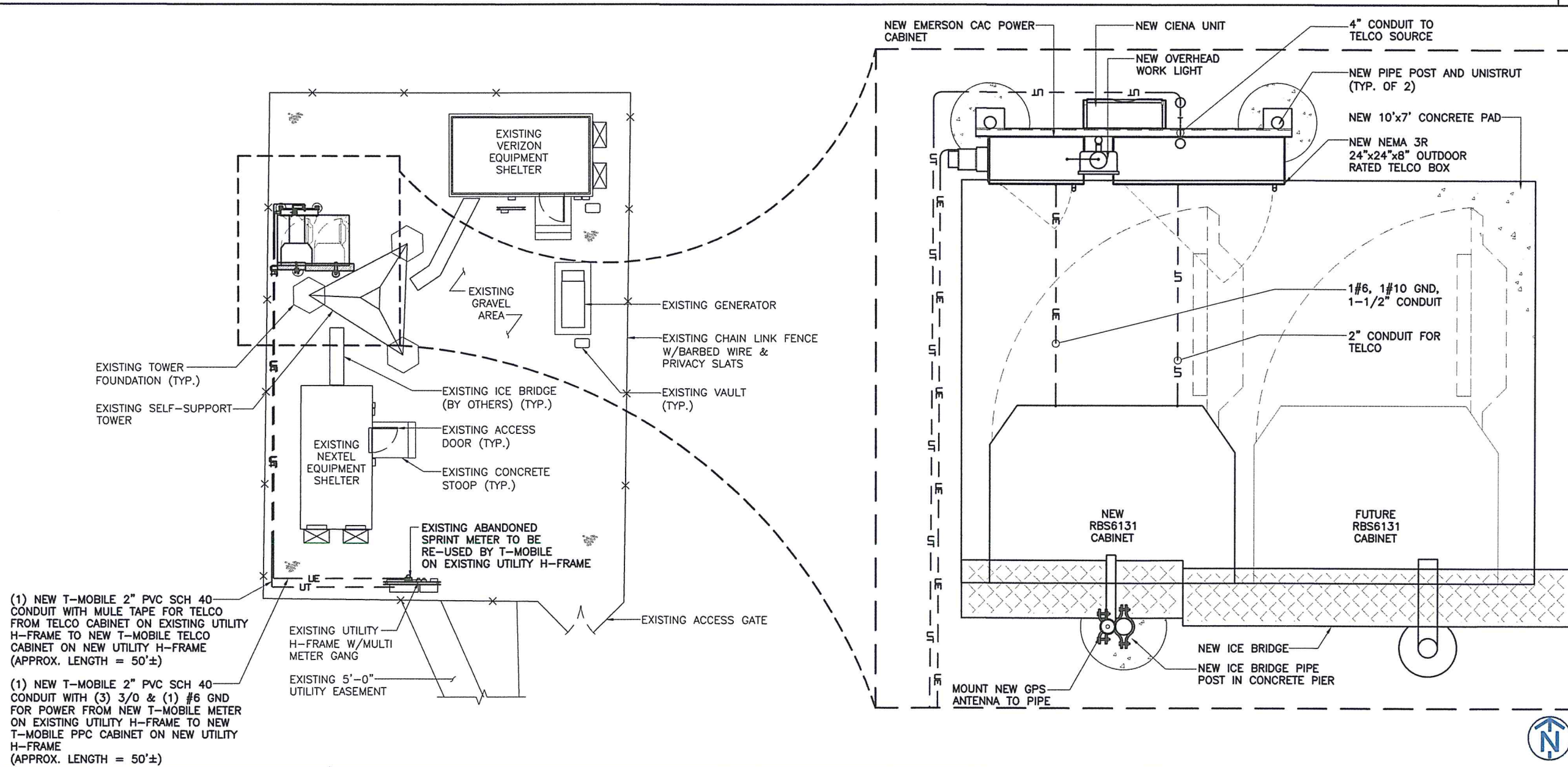
1855 GATEWAY BLVD.  
SUITE 900  
CONCORD, CA 94520

L700  
CONSTRUCTION

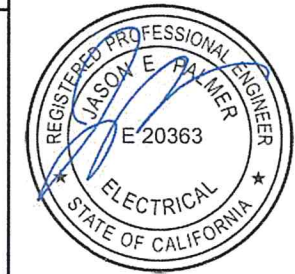
CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/10/16	FINAL	AA

20 AMP OUTDOOR GFCI AND SWITCH COMBO

SCALE: N.T.S. 1



- (1) NEW T-MOBILE 2" PVC SCH 40 CONDUIT WITH MULE TAPE FOR TELCO FROM TELCO CABINET ON EXISTING UTILITY H-FRAME TO NEW T-MOBILE TELCO CABINET ON NEW UTILITY H-FRAME (APPROX. LENGTH = 50'±)
- (1) NEW T-MOBILE 2" PVC SCH 40 CONDUIT WITH (3) 3/0 & (1) #6 GND FOR POWER FROM NEW T-MOBILE METER ON EXISTING UTILITY H-FRAME TO NEW T-MOBILE PPC CABINET ON NEW UTILITY H-FRAME (APPROX. LENGTH = 50'±)



AMERICAN TOWER  
AMERICAN TOWER CORPORATION  
19100 VON KARMAN SUITE 200  
IRVINE, CA 92612

FULLERTON  
ENGINEERING DESIGN  
1100 E. WOODFIELD ROAD, SUITE 500  
SCHAUMBURG, ILLINOIS 60173  
TEL: 847-908-8400  
www.FullertonEngineering.com

SITE #:  
BA90476A  
SITE NAME:  
ATC LEWIS ROAD  
SITE ADDRESS:  
6021 LEWIS ROAD  
VACAVILLE, CA 95687

SHEET NAME:  
ELECTRICAL PLAN AND NOTES

SHEET NUMBER:  
E-1

ELECTRICAL PLAN

SCALE: 1/16" = 1'-0" 2

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



SITE: BA90476A  
 VOLTAGE: 120/240 Vac  
 PHASE: 1  
 WIRE: 3W  
 BUSS RATING: 200  
 MAIN BREAKER: 200

PANEL NAME:  
 PANEL STATUS: NEW  
 ENCLOSURE TYPE: NEMA 1  
 MOUNT: SURFACE  
 AIC: 65ka  
 PANEL POSITIONS: 12

Total kVA	10.10
Total AMPS	42.08

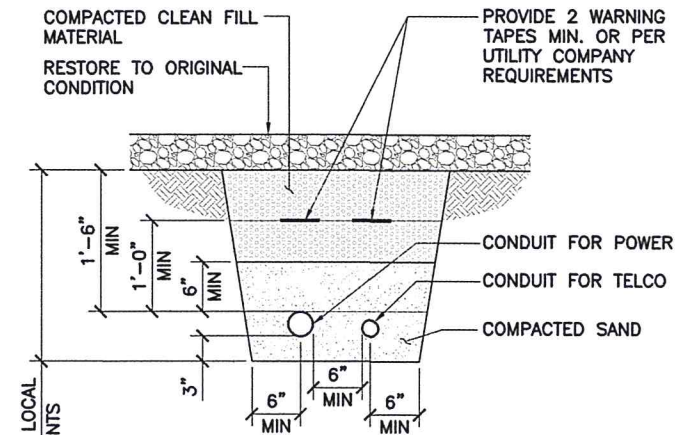
CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD	USAGE FACTOR	Phase A (VA)	Phase B (VA)	USAGE FACTOR	SERVICE LOAD	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	RBS 6131	80	2	ON	5000	1	5000	100	1	100	ON	1	20	LIGHT	2
3					5000	1	0	5000							4
5							0	0							6
7							0	0							8
9							0	0							10
11							0	0							12

PANEL SCHEDULE

SCALE: N.T.S. 1

NOT USED

SCALE: N.T.S. 3



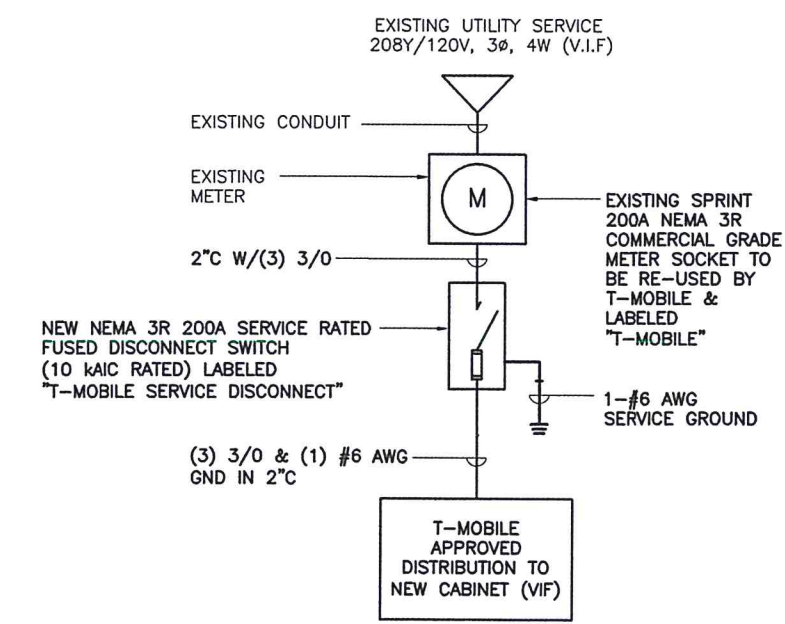
2'-6" MIN OR PER LOCAL CODE REQUIREMENTS

- NOTES:
1. ALL UTILITIES WITHIN THE TOWER COMPOUND SHALL BE INSTALLED IN CONDUIT.
  2. SCHEDULE 80 PVC SHALL BE USED FOR CONDUIT IN ALL VEHICULAR TRAFFIC AREAS.
  3. DIRECT-BURY UTILITIES MAY BE USED IN APPROVED AREAS OUTSIDE THE LIMITS OF THE TOWER COMPOUND.

TYPICAL ELECTRIC AND TELCO TRENCH DETAIL

SCALE: N.T.S. 2

NOTE TO CONTRACTOR:  
 FINAL LOCATION OF UTILITY SERVICE CONNECTION POINT SHALL BE PROVIDED BY OTHERS



ELECTRICAL SINGLE LINE

SCALE: N.T.S. 4



1855 GATEWAY BLVD.  
 SUITE 900  
 CONCORD, CA 94520

L700 CONSTRUCTION

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/10/16	FINAL	AA



AMERICAN TOWER CORPORATION  
 19100 VON KARMAN SUITE 200  
 IRVINE, CA 92612

FULLERTON ENGINEERING DESIGN

1100 E. WOODFIELD ROAD, SUITE 500  
 SCHAUMBURG, ILLINOIS 60173  
 TEL: 847-908-8400  
 www.FullertonEngineering.com

SITE #:  
 BA90476A

SITE NAME:  
 ATC LEWIS ROAD

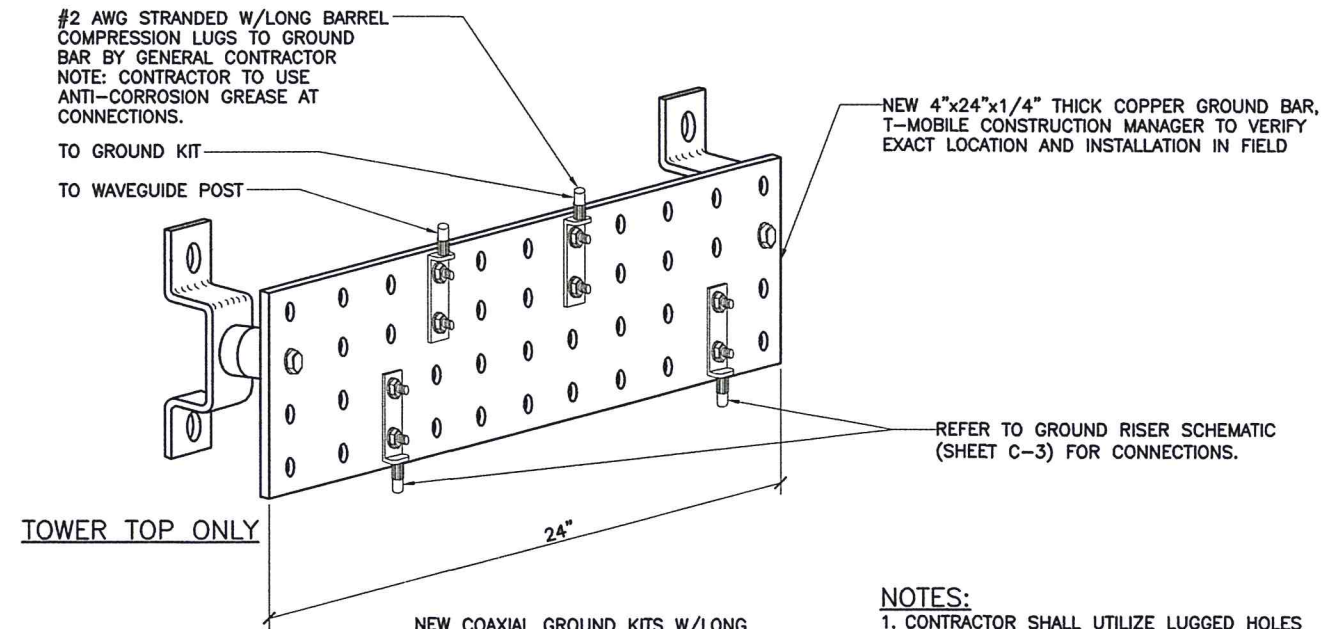
SITE ADDRESS:  
 6021 LEWIS ROAD  
 VACAVILLE, CA 95687

SHEET NAME:  
 ELECTRICAL  
 DETAILS

SHEET NUMBER:  
 E-2

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.





NEW COAXIAL GROUND KITS W/LONG BARREL COMPRESSION LUGS (DOUBLE LUGS) TO BE INSTALLED BY ANTENNA CONTRACTOR.

- NOTES:**
1. CONTRACTOR SHALL UTILIZE LUGGED HOLES PROVIDED. NO DRILLING OF THE BAR WILL BE PERMITTED.
  2. ALL HARDWARE SHALL BE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
  3. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

**T-Mobile**  
 1855 GATEWAY BLVD.  
 SUITE 900  
 CONCORD, CA 94520

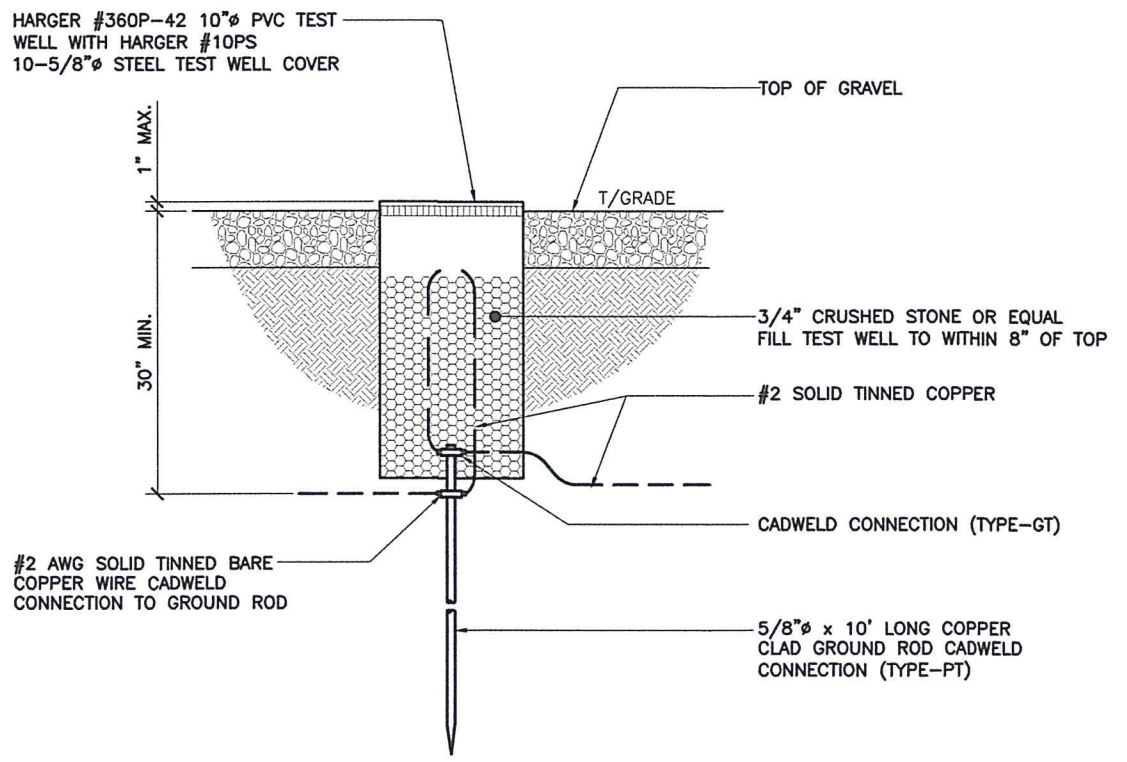
L700  
 CONSTRUCTION

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/10/16	FINAL	AA

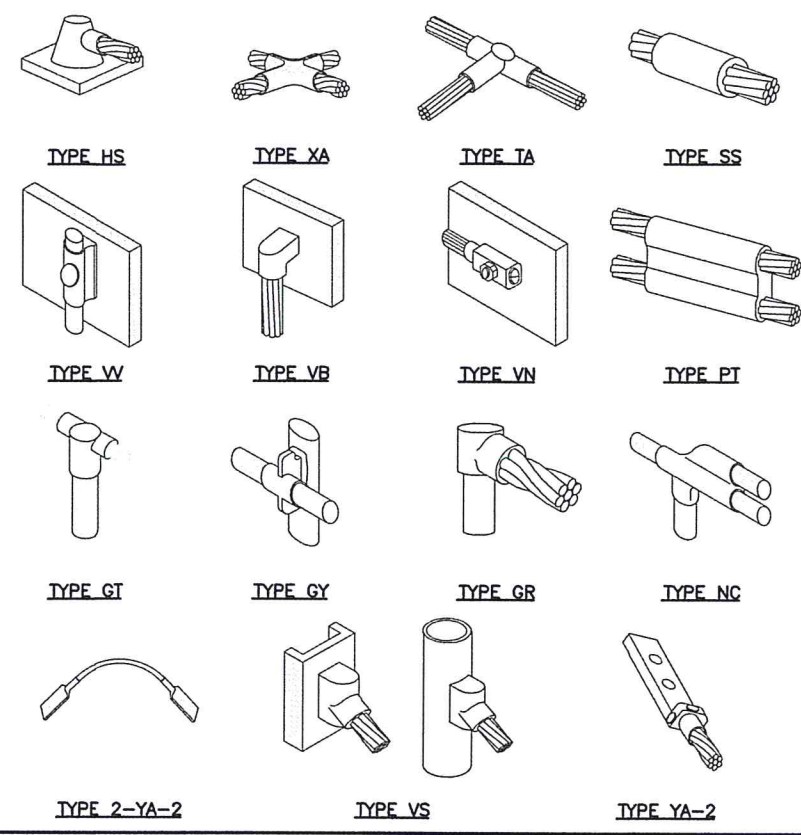


TYPICAL GROUNDING BAR DETAIL

SCALE: N.T.S. 1



**NOTE:**  
 CALDWELD "TYPES" SHOWN ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC TYPES OF CALDWELDS TO BE USED FOR THIS PROJECT.



**AMERICAN TOWER**  
 AMERICAN TOWER CORPORATION  
 19100 VON KARMAN SUITE 200  
 IRVINE, CA 92612

**FULLERTON**  
 ENGINEERING DESIGN  
 1100 E. WOODFIELD ROAD, SUITE 500  
 SCHAMBURG, ILLINOIS 60173  
 TEL: 847-908-8400  
 www.FullertonEngineering.com

SITE #:  
 BA90476A  
 SITE NAME:  
 ATC LEWIS ROAD  
 SITE ADDRESS:  
 6021 LEWIS ROAD  
 VACAVILLE, CA 95687

SHEET NAME:  
**GROUNDING  
 DETAILS**

SHEET NUMBER:  
**E-3**

TEST WELL DETAIL

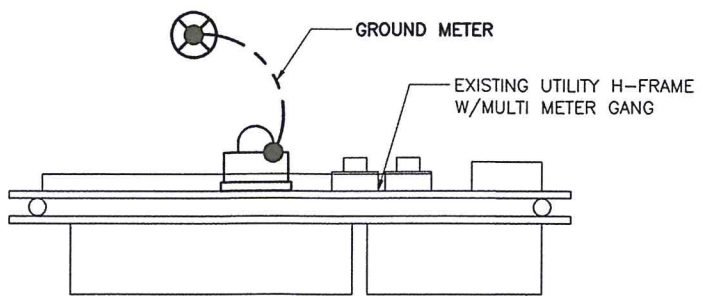
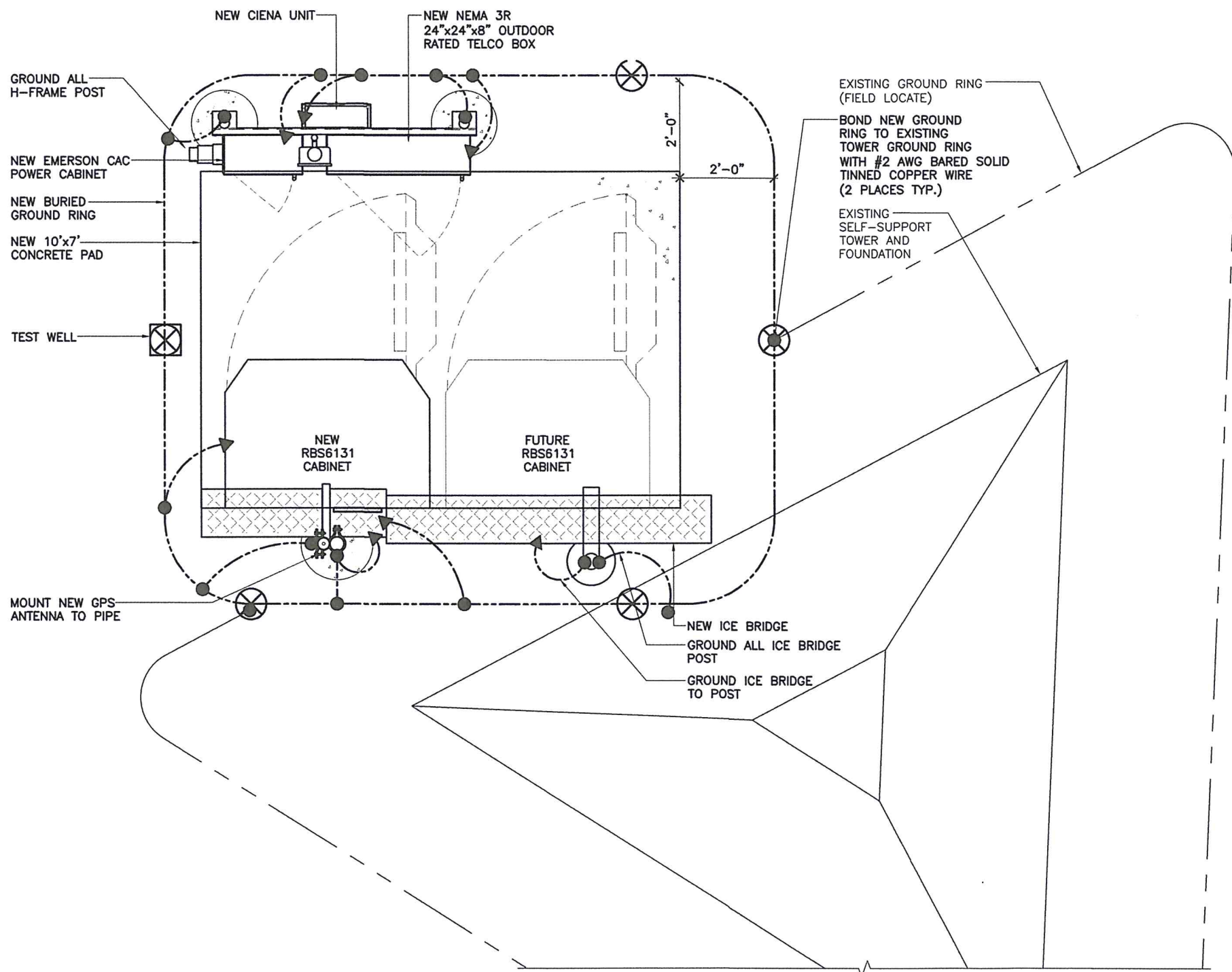
SCALE: N.T.S. 2

CADWELD CONNECTION TYPES

SCALE: N.T.S. 3

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.





**GROUNDING / CABLE NOTES:**

1. INSTALL 2 GROUND BARS AT THE BOTTOM OF THE TOWER (EVEN WITH SHORT ICE BRIDGE RUNS). ONE GROUND BAR AT THE TOWER, AND ON AT THE PLATFORM. IF SITE IS A ROOFTOP AND THE EQUIPMENT IS IN THE PENTHOUSE. T-MOBILE REQUIRES ONE GROUND BAR ON THE OUTSIDE OF THE PORT ENTRY AND ONE ON THE INSIDE NEAR THE CABINET. MONOPOLE JOBS WILL REQUIRE SECTORIZED GROUNDING, WHICH WILL REQUIRE 3 TOP BUSS BARS.
2. T-MOBILE IS ELIMINATING THE HOME RUN GROUND WIRE FROM THE TOP BUSS BAR TO THE BOTTOM BUSS BAR ON TOWER SITES. ROOFTOPS ARE STILL REQUIRED TO HAVE SECTORIZED GROUND AND #2 INSULATED GROUND WIRE. FROM SECTOR GROUNDS TO MAIN BUSS BARS AND BUILDING STEEL.
3. REMOVE INSULATORS (CHERRIES) FROM THE BUSS BARS AND GROUND TO TOWER, TOP AND BOTTOM ON TOWER SITES ONLY.
4. ALL EXPOSED GROUNDS TO BE DRESSED WITH SEAL TIGHT.
5. ALL ICE BRIDGE POST ARE TO BE GROUNDED WITH #2 SOLID AND DRESSED IN SEAL TIGHT.
6. (2) OF THE (4) PLATFORM POST NEED TO BE GROUNDED DIAGONALLY.
7. BOTTOM BUSS BAR TO HAVE TWO #2 GROUND LEADS DRESSED IN WITH SEAL TIGHT.
8. THE DISTANCE BETWEEN TRAPEZE HANGERS ON ICE BRIDGE IS 4'-0".
9. THE DISTANCE BETWEEN BUTTERFLIES AND CABLE STAND OFFS IS 4'-0".
10. THE DISTANCE BETWEEN CONVENTIONAL AND/OR SNAP-HANGERS ON 1/2" JUMPERS SHALL BE NO MORE THAN 3 FEET AT THE TOP AND 2 FEET ON THE BOTTOM JUMPERS PER MANUFACTURER'S RECOMMENDATIONS.
11. NO HYBRID CABLES SHALL TOUCH METAL OR STEEL. THE USE OF STANDOFF BRACKETS ARE REQUIRED.
12. T-MOBILE WOULD LIKE TO SHORTEN THE TOP JUMPER TO 4'-0" SUREFLEZ, INSTEAD OF 6'-0". JUMPERS SHOULD NOT BE CURLED UP OR COILED TO ELIMINATE SLACK.
13. GRAVEL UNDER ALL PLATFORMS IS REQUIRED.
14. HYBRIDS AND JUMPER LINES SHOULD BE DRESSED IN ON THE SIDE OR BOTTOM OF T-BOOMS. NEVER ON TOP WERE SOMEONE WOULD WALK.

**GROUNDING LEGEND**

- INSPECTION WELL VERIFY LOCATION W/CONSTRUCTION MANAGER
- 5/8"x10'-0" COPPER CLAD GROUND ROD, 10' O.C. (TYP.)
- #2 AWG SOLID COPPER TINNED
- GROUND BUS BAR
- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION



**L700 CONSTRUCTION**

CHECKED BY:	RI		
APPROVED BY:	MB		
#	DATE	DESCRIPTION	INT.
0	5/25/16	90% REVIEW	AA
0	6/24/16	95% REVIEW	AA
0	8/1/16	100% REVIEW	AA
1	8/10/16	FINAL	AA



SITE #:  
**BA90476A**

SITE NAME:  
**ATC LEWIS ROAD**

SITE ADDRESS:  
**6021 LEWIS ROAD  
VACAVILLE, CA 95687**

SHEET NAME:  
**GROUNDING PLAN  
AND NOTES**

SHEET NUMBER:  
**E-4**

THIS DRAWING IS THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.