

CONSTRUCTION DRAWING

☐ LTE 1C

☐ LTE 5C

☐ LTE 2C

☐ LTE 6C

☒ LTE 3C

☐ 4TXRX

☒ LTE 4C

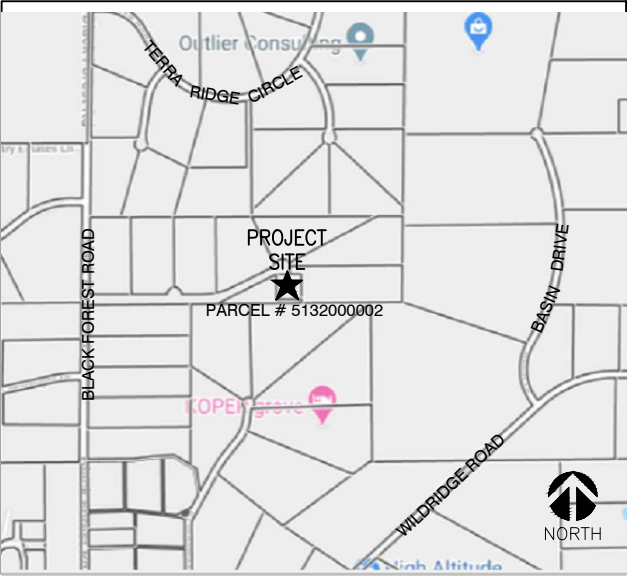
DRIVING DIRECTIONS

- FROM:  
188 INVERNESS DRIVE WEST  
ENGLEWOOD, CO 80122
1. LEAVE INVERNESS DR W
  2. TURN RIGHT ON TO E COUNTY LINE RD
  3. KEEP STRAIGHT ON TO CO-83 N / INTERQUEST PKWY
  4. TURN RIGHT ON TO SHOUP RD
  5. TURN LEFT ON TO BLACK FOREST RD
  6. TURN RIGHT ON TO 21ST AVE
  7. TURN LEFT ON TO WYANDOTT DR
  8. ARRIVE AT 7111 MARSHBERN COURT, BLACK FOREST, CO 80908

DO NOT SCALE DRAWINGS

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

VICINITY MAP



AT&T SITE NAME

BLACK FOREST

AT&T SITE NUMBER

COL02037

AT&T PACE ID

MRUTH024860

MRUTH024957

AT&T FA NUMBER

10093683

SITE ADDRESS

7111 MARSHBERN COURT  
BLACK FOREST, CO 80908

STRUCTURE TYPE

SELF SUPPORT TOWER

PROJECT DESCRIPTION

AT&T PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATION FACILITY BASED ON RFDS 3183484 REV 2.00:

- REMOVE & REPLACE (3) PANEL ANTENNAS
- INSTALL (3) NEW PANEL ANTENNAS
- REMOVE AND REPLACE (3) RRHS
- INSTALL (3) NEW RRHS
- INSTALL (1) COMMSCOPE POWERSHIFT
- INSTALL (1) NEW NOKIA 5GNR (ASIK C-1) FSM4 BBU [CEQ.20975]
- INSTALL (2) 50A BREAKERS FOR FSM4, (5) 50A BREAKERS FOR THE ALHBA & (1) 25A BREAKERS FOR THE AHCA
- INSTALL (1) DC6-48-60-18-8F RAYCAP WITH (1) FIBER LINE AND (2) 6 AWG DC LINES
- INSTALL (2) 1/2" U-BOLTS TO CONNECT MOUNT END PIPE WITH THE CATWALK CHANNEL FOR ALPHA SECTOR
- INSTALL (4) SITE PRO 1 STK-U STIFF-ARM KIT AT THE MID-HEIGHT OF THE END MOUNT PIPES THAT CONNECTS TO THE CATWALK'S VERTICAL ANGLE AT THE SAME ELEVATION FOR BETA AND GAMMA SECTORS

Approved

By: Craig Dossey, Executive Director

Date: 08/11/2020

El Paso County Planning & Community Development



at&t

SITE PHOTO



PROJECT TEAM



10590 W. OCEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

PROJECT MANAGER

INFINIGY8  
ENGINEERING, PLLC

2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
OFFICE # (847) 648-4068

ENGINEER

PROJECT NOTES

- NOTES:
- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED.
  - FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
  - FACILITY HAS NO PLUMBING OR REFRIGERANTS.
  - THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.

MOUNT ANALYSIS BY:  
VENDOR: INFINIGY  
DATE: 11/07/2019  
MOUNT MODIFICATION DESIGN BY:  
VENDOR: INFINIGY  
DATE: 04/21/2020

STRUCTURAL ANALYSIS BY:  
VENDOR: ATC  
DATE: 01/16/2020



PROJECT SUMMARY

AT&T SITE NAME: BLACK FOREST  
AT&T SITE #: COL02037  
AT&T FA SITE #: 10093683  
RFDS ID: 3183484, VERSION 2.00  
SITE ADDRESS: 7111 MARSHBERN COURT  
BLACK FOREST, CO 80908  
COUNTY: EL PASO  
LATITUDE: 39° 2' 46.65984" N (NAD 83)  
LONGITUDE: -104° 41' 40.488" W (NAD 83)  
PROJECT MANAGER: MD7  
10590 W OCEAN AIR DR., STE. 300  
SAN DIEGO, CA 92130  
CONTACT: DAVID BRUINIX  
(858) 964-7459  
APPLICANT: AT&T MOBILITY  
188 INVERNESS DRIVE WEST  
ENGLEWOOD, CO 80112  
ENGINEER: INFINIGY ENGINEERING, PLLC  
2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
CONTACT: NANCY HERNANDEZ  
(847) 648-4068  
SITE ACQUISITION CONTACT: RAYMOND TAYLOR  
(720) 220-8954  
CONSTRUCTION MANAGER: DEREK BONK  
(775) 750-5818  
BUILDING CODE: 1. INTERNATIONAL BUILDING CODE (2018 IBC)  
2. TIA-EIA-222-G OR LATEST EDITION  
3. 2017 NFPA 780 - LIGHTNING PROTECTION CODE  
4. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS  
5. CO BUILDING CODE  
6. LOCAL BUILDING CODE  
7. CITY/COUNTY ORDINANCES  
ELECTRIC CODE: 2017 NATIONAL ELECTRIC CODE OR LATEST EDITION

SHEET INDEX

NO.	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
P-1	PARCEL PLAN
C-1	SITE PLAN
C-1.1	ENLARGED SITE PLAN
C-2	EXISTING EQUIPMENT LAYOUT
C-2.1	PROPOSED EQUIPMENT LAYOUT
C-2.2	EQUIPMENT PHOTOS
C-3	EAST ELEVATION
C-4	SOUTH ELEVATION
C-5	WEST ELEVATION
C-6	ANTENNA LAYOUTS & LOADING CHART
D-1	EQUIPMENT DETAILS
D-2	EQUIPMENT DETAILS
E-1	DC SCHEMATIC DIAGRAM
G-1	GROUNDING SCHEMATIC DIAGRAM
G-2	GROUNDING DETAILS
RF-1	PLUMBING DIAGRAM
S1	TITLE SHEET (ANTENNA MODIFICATION DRAWINGS)
S2	GENERAL NOTES
S3	ALPHA SECTOR MODIFICATIONS
S4	BETA & GAMMA SECTOR MODIFICATIONS

PLANS PREPARED FOR:



PLANS PREPARED BY:

INFINIGY8  
ENGINEERING, PLLC

2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068

JOB NUMBER: 674-003

PROJECT MANAGER:



10590 W. OCEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

ENGINEERING LICENSE:



DRAWING NOTICE:

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REVISIONS:	DESCRIPTION	DATE	BY	REV
1	REVISED PER JURISDICTION COMMENTS	04/20/20	CAP	2
2	REVISED PER JURISDICTION COMMENTS	03/30/20	CAP	1
3	FINAL CD	01/22/20	CAP	0
4	REVISED/ISSUED FOR REVIEW	12/19/19	CAP	B
5	ISSUED FOR REVIEW	10/30/19	RCD	A

AT&T SITE NAME:

BLACK FOREST

AT&T SITE NUMBER:

COL02037

AT&T FA NUMBER:

10093683

SITE ADDRESS:

7111 MARSHBERN COURT  
BLACK FOREST, CO 80908

SHEET DESCRIPTION:

TITLE SHEET

SHEET NUMBER:

T-1



GENERAL CONSTRUCTION NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:  
GENERAL CONTRACTOR  
SUBCONTRACTOR – CONTRACTOR (CONSTRUCTION)  
OWNER – AT&T
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE SPACE FOR APPROVAL BY THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. SUBCONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. SUBCONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEViate FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. SUBCONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND SUBCONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OT 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT/ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, D) TRENCHING & EXCAVATION.

23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ARCHITECT/ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
24. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
25. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. SUBCONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. SUBCONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION OF AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING." IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
35. SUBCONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF SUBCONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
36. SUBCONTRACTOR SHALL REMOVED ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
37. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
38. NO WHITE STROBE LIGHTS ARE PERMITTED. ANY REQUIRED LIGHTING MUST MEET FAA STANDARDS AND REQUIREMENTS.
39. ALL COAXIAL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
40. NO SIGNIFICANT NOISE, SMOKE, DUST OR VIBRATIONS WILL RESULT FROM THIS FACILITY. (DISREGARD THIS NOTE IF THIS SITE HAS A GENERATOR)
41. NO ADDITIONAL PARKING TO BE PROPOSED. EXISTING ACCESS AND PARKING TO REMAIN, UNLESS NOTED OTHERWISE.
42. NO LANDSCAPING IS PROPOSED AT THIS SITE, UNLESS NOTED OTHERWISE.

ELECTRICAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ANY/ALL ELECTRICAL WORK INDICATED. ANY/ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH DRAWINGS AND ANY/ALL APPLICABLE SPECIFICATIONS. IF ANY PROBLEMS ARE ENCOUNTERED BY COMPLYING WITH THESE REQUIREMENTS, CONTRACTOR SHALL NOTIFY 'CONSTRUCTION MANAGER' AS SOON AS POSSIBLE, AFTER THE DISCOVERY OF THE PROBLEMS, AND SHALL NOT PROCEED WITH THAT PORTION OF WORK, UNTIL THE "CONSTRUCTION MANAGER" HAS DIRECTED THE CORRECTIVE ACTIONS TO BE TAKEN.
2. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ANY/ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATION INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. ALL EXISTING CONDITIONS OF ELECTRICAL EQUIP., LIGHT FIXTURES, ETC., THAT ARE PART OF THE FINAL SYSTEM, SHALL BE VERIFIED BY THE CONTRACTOR, PRIOR TO THE SUBMITTING OF HIS BID. FAILURE TO COMPLY WITH THIS PARAGRAPH WILL IN NO WAY RELIEVE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC AND ALL CODES AND LOCAL ORDINANCES OF THE LOCAL POWER & TELEPHONE COMPANIES HAVING JURISDICTION AND SHALL INCLUDE BUT NOT BE LIMITED TO:  
C – NATIONAL FIRE CODES  
A. UL – UNDERWRITERS LABORATORIES  
B. NEC – NATIONAL ELECTRICAL CODE  
C. NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOC.  
D. OSHA – OCCUPATIONAL SAFETY AND HEALTH ACT  
E. SBC – STANDARD BUILDING CODE

4. DO NOT SCALE ELECTRICAL DRAWINGS; REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, AND CONFIRM WITH CONSTRUCTION MANAGER' ANY SIZES AND LOCATIONS WHEN NEEDED.
5. EXISTING SERVICES: CONTRACTOR SHALL NOT INTERRUPT EXISTING SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.
6. CONTRACTOR SHALL PAY FOR ANY/ALL PERMITS, FEES, INSPECTIONS, AND TESTING. CONTRACTOR IS TO OBTAIN PERMITS AND APPROVED SUBMITTALS PRIOR TO THE WORK BEGINNING OR ORDERING EQUIPMENT.
7. THE TERM "PROVIDE" USED IN CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, INDICATES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL.
8. CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS, SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC... ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER, PRIOR TO BEGINNING ANY WORK.
9. MINIMUM WIRE SIZE SHALL BE #12 AWG, NOT INCLUDING CONTROL WIRING, UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION.
10. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.
11. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF THE CONSTRUCTION. CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
12. ELECTRICAL SYSTEM SHALL BE AS COMPLETELY AND EFFECTIVELY GROUNDED, AS REQUIRED BY SPECIFICATIONS, SET FORTY BY AT&T.
13. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND SUBJECT TO REGULATORY INSPECTION & APPROVAL BY CONSTRUCTION MANAGER.
14. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
15. CONTRACTOR SHALL GUARANTEE ANY/ALL MATERIALS AND WORK FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE.
16. THE CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ANY ADDITIONAL CHARGE AND SHALL INCLUDE THE REPLACEMENT OR THE REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREIN.
17. ADEQUATE AND REQUIRED LIABILITY INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF WORK.
18. PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES AND DEVICES FOR ALL OUTLETS AS INDICATED.
19. DITCHING AND BACK FILL: CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION, BACKFILLING AND COMPACTION. REFER TO 'FOUNDATION, EXCAVATION, AND BACKFILLING NOTES.'
20. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SHALL APPEAR ON THE LIST OF U.L. APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NEC, NEMA, AND IECE.
21. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR MANUFACTURERS CATALOG INFORMATION OF ANY/ALL LIGHTING FIXTURES, SWITCHES, AND ALL OTHER ELECTRICAL ITEMS FOR APPROVAL BY THE CONSTRUCTION MANAGER PRIOR TO INSTALLATION.
22. ANY CUTTING OR PATCHING DEEMED NECESSARY FOR ELECTRICAL WORK IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY AND SHALL BE INCLUDED IN THE COST FOR WORK AND PERFORMED TO THE SATISFACTION OF THE 'CONSTRUCTION MANAGER' UPON FINAL ACCEPTANCE.
23. THE ELECTRICAL CONTRACTOR SHALL LABEL AL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
24. DISCONNECT SWITCHES SHALL BE H.P. RATED HEAVY-DUTY, QUICK-MADE AND QUICK-BREAK ENCLOSURES, AS REQUIRED BY EXPOSURE TYPE.
25. ALL CONNECTIONS SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND SUCH AS "NO-OXIDE A" BY DEARBORNE CHEMICAL CO. COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED – NO SUBSTITUTIONS.
26. RACEWAYS: CONDUIT SHALL BE SCHEDULE 40 PVC MEETING OR EXCEEDING NEMA TC2 – 1990. CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS – 200 LBS TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 2 FT. RADIUS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADING RIGID CONDUIT. COAT ALL THREADS WITH 'BRITE ZINC' OR 'GOLD CALV.'
27. SUPPORT OF ALL ELECTRICAL WORK SHALL BE AS REQUIRED BY NEC.
28. CONDUCTORS: CONTRACTOR SHALL USE 98% CONDUCTIVITY COPPER WITH TYPE THWN INSULATION, 800 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG. USE STRANDED CONDUCTORS FOR WIRE ABOVE NO. 8 AWG.
29. CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.
30. SERVICES: 240/120V, SINGLE PHASE, 3 WIRE CONNECTION AVAILABLE FROM UTILITY COMPANY. OWNER OR OWNERS AGENT WILL APPLY FOR POWER.

31. TELEPHONE SERVICE: CONTRACTOR SHALL PROVIDE EMPTY CONDUITS WITH PULL STRINGS AS INDICATED ON DRAWINGS.
32. ELECTRICAL AND TELCO RACEWAYS TO BE BURIED A MINIMUM OF 2' DEPTH.
33. CONTRACTOR SHALL PLACE TWO LENGTHS OF WARNING TAPE AT A DEPTH OF 12" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL AND TELCO SERVICE CONDUITS. CAUTION TAPE TO READ "CAUTION BURIED ELECTRIC" OR "BURIED TELECOMM."
34. ALL BOLTS SHALL BE STAINLESS STEEL

GROUNDING NOTES:

1. COMPRESSION CONNECTIONS (2), 2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUNDING BAR. ROUTE CONDUCTORS TO BURIED GROUNDING RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. EC SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P," "A," "N," "I") WITH 1" LETTERS.
3. ALL HARDWARE 18-8 STAINLESS STEEL, INCLUDING LOCK WASHERS. COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8 INCH DIAMETER OR LARGER.
4. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUNDING BAR AND BOLTED ON THE BACK SIDE.
6. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
7. WHEN THE SCOPE OF WORK REQUIRES THE ADDITION OF A GROUNDING BAR TO AN EXISTING TOWER, THE SUBCONTRACTOR SHALL OBTAIN APPROVAL FROM THE TOWER OWNER PRIOR TO MOUNTING THE GROUNDING BAR TO THE TOWER.
8. ALL ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.

FOUNDATION, EXCAVATION, & BACKFILL NOTES:

1. ALL FINAL GRADED SLOPES SHALL BE A MAXIMUM OF 3 HORIZONTAL TO 1 VERTICAL.
2. ALL EXCAVATIONS PREPARED FOR PLACEMENT OF CONCRETE SHALL BE OF UNDISTURBED SOILS, SUBSTANTIALLY HORIZONTAL, AND FREE FROM ANY LOOSE, UNSUITABLE MATERIAL OR FROZEN SOILS, AND WITHOUT THE PRESENCE OF POUNDING WATER. DEWATERING FOR EXCESS GROUND WATER SHALL BE PROVIDED WHEN REQUIRED. COMPACTION OF SOILS UNDER CONCRETE PAD FOUNDATIONS SHALL NOT BE LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY FOR THE SOIL IN ACCORDANCE WITH ASTM D1557.
3. CONCRETE FOUNDATIONS SHALL NOT BE PLACED ON ORGANIC OR UNSUITABLE MATERIAL. IF INADEQUATE BEARING CAPACITY IS REACHED AT THE DESIGNED EXCAVATION DEPTH, THE UNSATISFACTORY SOIL SHALL BE EXCAVATED TO ITS FULL DEPTH AND EITHER BE REPLACED WITH MECHANICALLY COMPACTED GRANULAR MATERIAL OR THE EXCAVATION SHALL BE FILLED WITH CONCRETE OF THE SAME TYPE SPECIFIED FOR THE FOUNDATION. CRUSHED STONE MAY BE USED TO STABILIZE THE BOTTOM OF THE EXCAVATION. ANY STONE SUB BASE MATERIAL, IF USED, SHALL NOT SUBSTITUTE FOR REQUIRED THICKNESS OF CONCRETE.
4. ALL EXCAVATIONS SHALL BE CLEAN OF UNSUITABLE MATERIAL SUCH AS VEGETATION, TRASH, DEBRIS, AND SO FORTH PRIOR TO BACK FILLING. BACK FILL SHALL CONSIST OF APPROVED MATERIALS SUCH AS EARTH, LOAM, SANDY CLAY, SAND AND GRAVEL, OR SOFT SHALE, FREE FROM CLODS OR LARGE STONES OVER 2 1/2 MAX DIMENSIONS. ALL BACK FILL SHALL BE PLACED IN COMPACTED LAYERS.
5. ALL FILL MATERIALS AND FOUNDATION BACK FILL SHALL BE PLACED IN MAXIMUM 6" THICK LIFTS BEFORE COMPACTION. EACH LIFT SHALL BE WETTED IF REQUIRED AND COMPACTED TO NOT LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY FOR SOIL IN ACCORDANCE WITH ASTM D1557.
6. NEWLY PLACED CONCRETE FOUNDATIONS SHALL CURE A MINIMUM OF 72 HOURS PRIOR TO BACK FILLING.
7. FINISHED GRADING SHALL BE SLOPED TO PROVIDE POSITIVE DRAINAGE AND PREVENT STANDING WATER. THE FINAL (FINISH) ELEVATION OF SLAB FOUNDATIONS SHALL SLOPE AWAY IN ALL DIRECTIONS FROM THE CENTER. FINISH GRADE OF CONCRETE PADS SHALL BE A MAXIMUM OF 4 INCHES ABOVE FINAL FINISH GRADE ELEVATIONS. PROVIDE SURFACE FILL GRAVEL TO ESTABLISH SPECIFIED ELEVATIONS WHERE REQUIRED.
8. NEWLY GRADED SURFACE AREAS TO RECEIVE GRAVEL SHALL BE COVERED WITH GEOTEXTILE FABRIC TYPE: TYPAR-3401 AS MANUFACTURED BY "CONSTRUCTION MATERIAL 1-800-239-3841" OR AN APPROVED EQUIVALENT, SHOWN ON PLANS. THE GEOTEXTILE FABRIC SHALL BE BLACK IN COLOR TO CONTROL THE RECURRENCE OF VEGETATIVE GROWTH AND EXTEND TO WITHIN 1 FOOT OUTSIDE THE SITE FENCING OR ELECTRICAL GROUNDING SYSTEM PERIMETER WHICHEVER IS GREATER. ALL FABRIC SHALL BE COVERED WITH A MINIMUM OF 4" DEEP COMPACTED STONE OR GRAVEL AS SPECIFIED. I.E. FDOT TYPE NO.57 FOR FENCED COMPOUND; FDOT TYPE NO. 67 FOR ACCESS DRIVE AREA.
9. IN ALL AREAS TO RECEIVE FILL, REMOVE ALL VEGETATION, TOPSOIL, DEBRIS, WET AND UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND DELETERIOUS MATERIALS FROM GROUND SURFACE. FLOW STRIP OR BREAK UP SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL SUCH THAT FILL MATERIAL WILL BIND WITH EXISTING/PREPARED SOIL SURFACE.

PLANS PREPARED FOR:



PLANS PREPARED BY:

**INFINIGY8**  
**ENGINEERING, PLLC**

2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068

JOB NUMBER: 674-003

PROJECT MANAGER:



10590 W. OCEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

ENGINEERING LICENSE:



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REVISED PER JURISDICTION COMMENTS	03/30/20	CAP	1
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**BLACK FOREST, CO 80908**

SHEET DESCRIPTION:

**GENERAL NOTES**

SHEET NUMBER:

**GN-1**



10. WHEN SUBGRADE OR PREPARED GROUND SURFACE HAS A DENSITY LESS THAN THAT REQUIRED FOR THE FILL MATERIAL, SCARIFY THE GROUND SURFACE TO DEPTH REQUIRED, PULVERIZE, MOISTURE-CONDITION AND/OR AERATE THE SOILS AND RE-COMPACT TO THE REQUIRED DENSITY PRIOR TO PLACEMENT OR FILLS.
11. IN AREAS WHICH EXISTING GRAVEL SURFACING IS REMOVED OR DISTURBED DURING CONSTRUCTION OPERATIONS, REPLACE GRAVEL SURFACING TO MATCH ADJACENT GRAVEL SURFACING AND RESTORED TO THE SAME THICKNESS AND COMPACTION AS SPECIFIED. ALL RESTORED GRAVEL SURFACING SHALL BE FREE FROM CORRUGATIONS AND WAVES.
12. EXISTING GRAVEL SURFACING MAY BE EXCAVATED SEPARATELY AND REUSED WITH THE CONDITION THAT ANY UNFAVORABLE AMOUNTS OF ORGANIC MATTER, OR OTHER DELETERIOUS MATERIALS ARE REMOVED PRIOR TO REUSE. FURNISH ANY ADDITIONAL GRAVEL RESURFACING MATERIAL AS NEEDED TO PROVIDE A FULL DEPTH COMPACTED SURFACE THROUGHOUT SITE.
13. GRAVEL SUB SURFACE SHALL BE PREPARED TO REQUIRED COMPACTION AND SUBGRADE ELEVATIONS BEFORE GRAVEL SURFACING IS PLACED AND/OR RESTORED. ANY LOOSE OR DISTURBED MATERIALS SHALL BE THOROUGHLY COMPACTED AND ANY DEPRESSIONS IN THE SUBGRADE SHALL BE FILLED AND COMPACTED WITH APPROVED SELECTED MATERIAL. GRAVEL SURFACING MATERIAL SHALL NOT BE USED FOR FILLING DEPRESSIONS IN THE SUBGRADE.
14. PROTECT EXISTING GRAVEL SURFACING AND SUBGRADE IN AREAS WHERE EQUIPMENT LOADS WILL OPERATE. USE PLANKING 'MATT'S' OR OTHER SUITABLE PROTECTION DESIGNED TO SPREAD EQUIPMENT LOADS AS MAY BE NECESSARY. REPAIR ANY DAMAGE TO EXISTING GRAVEL SURFACING OR SUB GRADE WHERE SUCH DAMAGE IS DUE TO THE CONTRACTORS OPERATIONS.
15. DAMAGE TO EXISTING STRUCTURES AND/OR UTILITIES RESULTING FROM CONTRACTORS NEGLIGENCE SHALL BE REPAIRED AND/OR REPLACED TO THE OWNERS SATISFACTION AT NO ADDITIONAL COST TO THE CONTRACT.
16. ALL SUITABLE BORROW MATERIAL FOR BACK FILL OF THE SITE SHALL BE INCLUDED IN THE BID. EXCESS TOPSOIL AND UNSUITABLE MATERIAL SHALL BE DISPOSED OF OFF SITE AT LOCATIONS APPROVED BY GOVERNING AGENCIES AT NO ADDITIONAL COST TO THE CONTRACT.

ENVIRONMENTAL NOTES:

1. ALL WORK PERFORMED SHALL BE DONE IN ACCORDANCE WITH ISSUED PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF FINES AND PROPER CLEAN UP FOR AREAS IN VIOLATION.
2. CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS AND WATERWAYS AND SHALL BE MAINTAINED IN PLACE THROUGH FINAL JURISDICTIONAL INSPECTION & RELEASE OF SITE.
3. CONTRACTOR SHALL INSTALL/CONSTRUCT ALL NECESSARY SEDIMENT/SILT CONTROL FENCING AND PROTECTIVE MEASURES WITHIN THE LIMITS OF SITE DISTURBANCE PRIOR TO CONSTRUCTION.
4. NO SEDIMENT SHALL BE ALLOWED TO EXIT THE PROPERTY. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ADEQUATE MEASURES FOR CONTROLLING EROSION. ADDITIONAL SEDIMENT CONTROL FENCING MAY BE REQUIRED IN ANY AREAS SUBJECT TO EROSION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS AND ANY REPAIRS OF ALL SEDIMENT CONTROL MEASURES INCLUDING SEDIMENT REMOVAL AS NECESSARY.
6. CLEARING OF VEGETATION AND TREE REMOVAL SHALL BE ONLY AS PERMITTED AND BE HELD TO A MINIMUM. ONLY TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED.
7. SEEDING AND MULCHING AND/OR SODDING OF THE SITE WILL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER COMPLETION OF THE PROJECT FACILITIES AFFECTING LAND DISTURBANCE.
8. CONTRACTOR SHALL PROVIDE ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY LOCAL, COUNTY AND STATE CODES AND ORDINANCES TO PROTECT EMBANKMENTS FROM SOIL LOSS AND TO PREVENT ACCUMULATION OF SOIL AND SILT IN STREAMS AND DRAINAGE PATHS LEAVING THE CONSTRUCTION AREA. THIS MAY INCLUDE SUCH MEASURES AS SILT FENCES, STRAW BALE SEDIMENT BARRIERS, AND CHECK DAMS.
9. RIP RAP OF SIZES INDICATED SHALL CONSIST OF CLEAN, HARD, SOUND, DURABLE, UNIFORM IN QUALITY STONE FREE OF ANY DETRIMENTAL QUANTITY OF SOFT, FRIABLE, THIN, ELONGATED OR LAMINATED PIECES, DISINTEGRATED MATERIAL, ORGANIC MATTER, OIL, ALKALI, OR OTHER DELETERIOUS SUBSTANCES.

CONCRETE MASONRY NOTES:

1. CONCRETE MASONRY UNITS SHALL BE MEDIUM WEIGHT UNITS CONFORMING TO ASTM C90, GRADE N-1, (F'M=1,500 PSI). MEDIUM WEIGHT (115).
2. MORTAR SHALL BE TYPE "S" (MINIMUM 1,800 PSI AT 28 DAYS).
3. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS.
4. ALL CELLS CONTAINING REINFORCING STEEL OR EMBEDDED ITEMS AND ALL CELLS IN RETAINING WALLS AND WALLS BELOW GRADE SHALL BE SOLID GROUTED.
5. ALL HORIZONTAL REINFORCING STEEL SHALL BE PLACED IN BOND BEAM OR LINTEL BEAM UNITS.
6. WHEN GROUTING IS STOPPED FOR ONE HOUR OR LONGER, HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE GROUT POUR 1-1/2" BELOW TOP OF THE UPPERMOST UNIT.
7. ALL BOND BEAM BLOCK SHALL BE "DEEP CUT" UNITS.
8. PROVIDE INSPECTION AND CLEAN-OUT HOLES AT BASE OF VERTICAL CELLS HAVING GROUT LIFTS IN EXCESS OF 4'-0" OF HEIGHT.
9. ALL GROUT SHALL BE CONSOLIDATED WITH A MECHANICAL VIBRATOR.
10. CEMENT SHALL BE AS SPECIFIED FOR CONCRETE.
11. REINFORCING BARS - SEE NOTES UNDER "REINFORCING STEEL" FOR REQUIREMENTS.

31. PROVIDE ONE BAR DIAMETER (A MINIMUM OF 1/2") GROUT BETWEEN MAIN REINFORCING AND MASONRY UNITS.
32. LOW LIFT CONSTRUCTION, MAXIMUM GROUT POUR HEIGHT IS 4 FEET.
33. LIFT GROUTED CONSTRUCTION MAY BE USED IN CONFORMANCE WITH PROJECT SPECIFICATIONS AND SECTION 2104.6.1 OF CURRENT BUILDING CODE.
34. ALL CELLS IN CONCRETE BLOCKS SHALL BE FILLED SOLID WITH GROUT, EXCEPT AS NOTED IN THE DRAWINGS OR SPECIFICATIONS.
35. CELLS SHALL BE IN VERTICAL ALIGNMENT, DOWELS IN FOOTINGS SHALL BE SET TO ALIGN WITH CORES CONTAINING REINFORCING STEEL.
36. REFER TO ARCHITECTURAL DRAWINGS FOR SURFACE AND HEIGHT OF UNITS, LAYING PATTERN AND JOINT TYPE.
37. SAND SHALL BE CLEAN, SHARP AND WELL GRADED, FREE FROM INJURIOUS AMOUNTS OF DUST, LUMPS, SHALE, ALKAU OR ORGANIC MATERIAL.
38. BRICK SHALL CONFORM TO ASTM C-62 AND SHALL BE GRADE MW OR BETTER.

STRUCTURAL CONCRETE NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI-301-10
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH fc'=2,500 PSI AT 28 DAYS UNLESS NOTED OTHERWISE.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

CONCRETE CAST AGAINST EARTH	3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:	
#6 AND LARGER	2 IN.
#5 AND SMALLER & WWF	1-1/2 IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER, NOR CAST AGAINST THE GROUND:	
SLAB AND WALL	3/4 IN.
BEAMS AND COLUMNS	1-1/2 IN.

5. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE U.N.O. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. HOLES TO RECEIVE EXPANSION/WEDGE ANCHORS SHALL BE 1/8" LARGER IN DIAMETER THAN THE ANCHOR BOLD, DOWEL OR ROD AND SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. LOCATE AND AVOID CUTTING EXISTING REBAR WHEN DRILLING HOLES IN ELEVATED CONCRETE SLABS.
7. USE AND INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER ICBO & MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURES.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION. STEEL SECTIONS SHALL BE IN ACCORDANCE WITH ASTM AS INDICATED BELOW:  
W-SHAPES: ASTM A992, 50 KSI  
ANGLES, BARS CHANNELS: ASTM A36, 36 KSI  
HSS SECTIONS: ASTM 500, 46 KSI  
PIPE SECTIONS: ASTM A53-E, 35 KSI
2. ALL EXTERIOR EXPOSED STEEL AND HARDWARE SHALL BE HOT DIPPED GALVANIZED.
3. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION." PAINTED SURFACES SHALL BE TOUCHED UP.
4. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE 3/4" Ø CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
5. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" Ø ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
6. FIELD MODIFICATIONS ARE TO BE COATED WITH ZINC ENRICHED PAINT.

SITE WORK & DRAINAGE:

PART 1 - GENERAL

CLEARING, GRUBBING, STRIPPING, EROSION CONTROL, SURVEY, LAYOUT, SUBGRADE PREPARATION AND FINISH GRADING AS REQUIRED TO COMPLETE THE PROPOSED WORK SHOWN IN THESE PLANS.

1.1 REFERENCES:

- A. DOT (STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR WAY CONSTRUCTION - CURRENT EDITION)
- B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
- C. OSHA (OCCUPATION SAFETY AND HEALTH ADMINISTRATION)

1.2 INSPECTION AND TESTING:

- A. FIELD TESTING OF EARTHWORK COMPACTION AND CONCRETE CYLINDERS ALL WORK SHALL BE INSPECTED AND RELEASED BY THE GENERAL CONTRACTOR WHO SHALL CARRY OUT THE GENERAL INSPECTION OF THE WORK WITH SPECIFIC CONCERN TO PROPER PERFORMANCE OF THE WORK AS SPECIFIED AND/OR CALLED FOR ON THE DRAWINGS. IT IS THE SUBCONTRACTOR'S RESPONSIBILITY TO REQUEST TIMELY INSPECTIONS PRIOR TO PROCEEDING WITH FURTHER WORK THAT WOULD MAKE PARTS OF WORK INACCESSIBLE OR DIFFICULT TO INSPECT.
- B.

1.3 SITE MAINTENANCE AND PROTECTION:

- A. PROVIDE ALL NECESSARY JOB SITE MAINTENANCE FROM COMMENCEMENT OF WORK UNTIL COMPLETION OF THE SUBCONTRACT.
- B. AVOID DAMAGE TO THE SITE AND TO EXISTING FACILITIES, STRUCTURES, TREES, AND SHRUBS DESIGNATED TO REMAIN. TAKE PROTECTIVE MEASURES TO PREVENT EXISTING FACILITIES THAT ARE NOT DESIGNATED FOR REMOVAL FROM BEING DAMAGED BY THE WORK.
- C. KEEP SITE FREE OF ALL PONDING WATER.
- D. PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH STATE DOT AND EPA REQUIREMENTS.
- E. PROVIDE AND MAINTAIN ALL TEMPORARY FENCING, BARRICADES, WARNING SIGNALS AND SIMILAR DEVICES NECESSARY TO PROTECT AGAINST THEFT FROM PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. REMOVE ALL SUCH DEVICES UPON COMPLETION OF THE WORK.
- F. EXISTING UTILITIES: DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED BY THE OWNER OR OTHERS, EXCEPT WHEN PERMITTED IN WRITING BY THE ENGINEER, AND THEN ONLY AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES HAVE BEEN PROVIDED.

PROVIDE A MINIMUM 48-HOUR NOTICE TO THE ENGINEER AND RECEIVE WRITTEN NOTICE TO PROCEED BEFORE INTERRUPTING ANY UTILITY SERVICE.

PART 2 - PRODUCTS

- 2.1 SUITABLE BACKFILL: ASTM D2321 (CLASS I, II, III, OR IVA) FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.
- 2.2 NON-POROUS GRANULAR EMBANKMENT AND BACKFILL: ASTM D2321 (CLASS III, IVA OR IVB) COARSE AGGREGATE. FREE FROM FROZEN LUMPS, REFUSE, STONES, OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.
- 2.3 POROUS GRANULAR EMBANKMENT AND BACKFILL: ASTM D2321 (CLASS IA, IB, OR II) COARSE AGGREGATE FREE FROM FROZEN LUMPS, REFUSE, STONES, OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.
- 2.4 SELECT STRUCTURAL FILL: GRANULAR FILL MATERIAL MEETING THE REQUIREMENTS OF ASTM E850-95. FOR USE AROUND AND UNDER STRUCTURES WHERE STRUCTURAL FILL MATERIAL ARE REQUIRED.
- 2.5 GRANULAR BEDDING AND TRENCH BACKFILL: WELL-GRADED SAND MEETING THE GRADATION REQUIREMENTS OF ASTM D2487 (SE OR SW-SM).
- 2.6 COARSE AGGREGATE FOR ACCESS ROAD SUB BASE COURSE SHALL CONFORM TO ASTM D2940.
- 2.7 UNSUITABLE MATERIAL: AND MODERATELY PLASTIC SILTS AND CLAYS (LL>45). MATERIAL CONTAINING REFUSE, FROZEN LUMPS, DEMOLISHED BITUMINOUS MATERIAL, VEGETATIVE MATTER, WOOD, STONES IN EXCESS OF 3 INCHES IN ANY DIMENSION, AND DEBRIS AS DETERMINED BY THE CONSTRUCTION MANAGER. TYPICAL THESE WILL BE SOILS CLASSIFIED BY ASTM AS PT. MH, CH, OH, ML, AND OL.
- 2.8 GEOTEXTILE FABRIC: MIRAfi 500X OR APPROVED EQUAL.
- 2.9 PLASTIC MARKING TAPE: SHALL BE ACID AND ALKALI RESISTANT POLYETHYLENE FILM SPECIFICALLY MANUFACTURED FOR MARKING AND LOCATING UNDERGROUND UTILITIES, 6 INCHES WIDE WITH A MINIMUM THICKNESS OF 0.004 INCH. TAPE SHALL HAVE MINIMUM STRENGTH OF 1500 PSI IN BOTH DIRECTIONS AND MANUFACTURED WITH INTEGRAL CONDUCTORS, FOIL BACKING OR OTHER MEANS TO ENABLE DETECTION BY A METAL DETECTOR WHEN BURIED UP TO 3 FEET DEEP. THE METALLIC CORE OF THE TAPE SHALL BE ENCASED IN A PROTECTIVE JACKET OR PROVIDED WITH OTHER MEANS TO PROTECT IT FROM CORROSION. TAPE COLOR SHALL BE RED FOR ELECTRIC UTILITIES AND ORANGE FOR TELECOMMUNICATION UTILITIES.

PART 2 - EXECUTION

- 3.1 GENERAL:
- A. BEFORE STARTING GENERAL SITE PREPARATION ACTIVITIES, INSTALL EROSION AND SEDIMENT CONTROL MEASURES. THE WORK AREA SHALL BE CONSTRUCTED AND MAINTAINED IN SUCH A CONDITION THAT IN THE EVENT OF RAIN THE SITE WILL BE DRAINED AT ANY TIME.
- B. BEFORE ALL SURVEY, LAYOUT, STAKING, AND MARKING, ESTABLISH AND MAINTAIN ALL LINES, GRADES, ELEVATIONS AND BENCHMARKS NEEDED FOR EXECUTION OF THE WORK.
- C. CLEAR AND GRUB THE AREA WITHIN THE LIMITS OF THE SITE. REMOVE TREES, BRUSH, STUMPS, RUBBISH AND OTHER DEBRIS AND VEGETATION RESTING ON OR PROTRUDING THROUGH THE SURFACE OF THE SITE AREA TO BE CLEARED.

1. REMOVE THE FOLLOWING MATERIALS TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE ORIGINAL GROUND SURFACE: ROOTS, STUMPS, AND OTHER DEBRIS, BRUSH, AND REFUSE EMBEDDED IN OR PROTRUDING THROUGH THE GROUND SURFACE, RAKE, DISK OR PLOW THE AREA TO A DEPTH OF NO LESS THAN 6 INCHES, AND REMOVE TO A DEPTH OF 12 INCHES ALL ROOTS AND OTHER DEBRIS THEREBY EXPOSED.
2. REMOVE TOPSOIL MATERIAL COMPLETELY FROM THE SURFACE UNTIL THE SOIL NO LONGER MEETS THE DEFINITION OF TOPSOIL. AVOID MIXING TOPSOIL WITH SUBSOIL OR OTHER UNDESIRABLE MATERIALS.
3. EXCEPT WHERE EXCAVATION TO GREATER DEPTH IS INDICATED, FILL DEPRESSIONS RESULTING FROM CLEARING, GRUBBING, AND DEMOLITION WORK COMPLETELY WITH SUITABLE FILL.
- D. REMOVE FROM THE SITE AND DISPOSE IN AN AUTHORIZED LANDFILL ALL DEBRIS RESULTING FROM CLEARING AND GRUBBING OPERATIONS. BURNING WILL NOT BE PERMITTED.

- E. PRIOR TO EXCAVATING, THOROUGHLY EXAMINE THE AREA TO BE EXCAVATED AND/OR TRENCHED TO VERIFY THE LOCATIONS OF FEATURES INDICATED ON THE DRAWINGS AND TO ASCERTAIN THE EXISTENCE AND LOCATION OF ANY STRUCTURE, UNDERGROUND STRUCTURE, OR OTHER ITEM NOT SHOWN THAT MIGHT INTERFERE WITH THE PROPOSED CONSTRUCTION. NOTIFY THE CONSTRUCTION MANAGER OF ANY OBSTRUCTIONS THAT WILL PREVENT ACCOMPLISHMENT OF THE WORK AS INDICATED ON THE DRAWINGS.
- F. SEPARATE AND STOCK PILE AL EXCAVATED MATERIALS SUITABLE FOR BACKFILL. ALL EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF OFF-SITE IN A LEGAL MANNER.

3.2 BACKFILL:

- A. AS SOON AS PRACTICAL, AFTER COMPLETING CONSTRUCTION OF THE RELATED STRUCTURE, INCLUDING EXPIRATION OF THE SPECIFIED MINIMUM CURING PERIOD FOR CAST-IN-PLACE CONCRETE, BACKFILL THE EXCAVATION WITH APPROVED MATERIAL TO RESTORE THE REQUIRED FINISHED GRADE.
- B. PRIOR TO PLACING BACKFILL AROUND STRUCTURES, ALL FORMS SHALL BE REMOVED AND THE EXCAVATION CLEANED OF ALL TRASH, DEBRIS, AND UNSUITABLE MATERIALS.
- C. BACKFILL BY PLACING AND COMPACTING SUITABLE BACKFILL MATERIAL OR SELECT GRANULAR BACKFILL MATERIAL WHEN REQUIRED IN UNIFORM HORIZONTAL LAYERS OF NO GREATER THAN 8-INCHES LOOSE THICKNESS AND COMPACTED. WHERE HAND OPERATED COMPACTORS ARE USED, THE FILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 4 INCHES IN LOOSE DEPTH AND COMPACTED.
- D. WHENEVER THE DENSITY TESTING INDICATES THAT THE CONTRACTOR HAS NOT OBTAINED THE SPECIFIED DENSITY, THE SUCCEEDING LAYER SHALL NOT BE PLACED UNTIL THE SPECIFICATION REQUIREMENTS ARE MET UNLESS OTHERWISE AUTHORIZED BY THE GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL TAKE WHATEVER APPROPRIATE ACTION IS NECESSARY , SUCH AS DISKING AND DRYING, ADDING WATER, OR INCREASING THE COMPACTIVE EFFORT TO MEET THE MINIMUM COMPACTION REQUIREMENTS.
- E. THOROUGHLY COMPACT EACH LAYER OF BACKFILL TO A MINIMUM 95% OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE STANDARD PROCTOR TEST, ASTM D 698.

3.3 TRENCH EXCAVATION:

- A. UTILITY TRENCHES SHALL BE EXCAVATED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE GENERAL CONTRACTOR. PROVIDE SHORING, SHEETING AND BRACING AS REQUIRED TO PREVENT CAVING OR SLOUGHING OF THE TRENCH WALLS.
- B. EXTEND THE TRENCH WIDTH A MINIMUM OF 6 INCHES BEYOND THE OUTSIDE EDGE OF THE OUTERMOST CONDUIT.
- C. WHEN SOFT YIELDING, OR OTHERWISE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, BACKFILL AT THE REQUIRED TRENCH TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE REQUIRED ELEVATION AND BACKFILL WITH GRANULAR BEDDING MATERIAL.

3.4 TRENCH BACKFILL:

- A. PROVIDE GRANULAR BEDDING MATERIAL IN ACCORDANCE WITH THE DRAWINGS AND THE UTILITY REQUIREMENTS.
- B. NOTIFY THE GENERAL CONTRACTOR 24 HOURS IN ADVANCE OF BACKFILLING.
- C. CONDUCT UTILITY CHECK TESTS BEFORE BACKFILLING. BACKFILL AND COMPACT TRENCH BEFORE ACCEPTANCE TESTING.
- D. PLACE GRANULAR TRENCH BACKFILL UNIFORMLY ON BOTH SIDES OF THE CONDUITS IN 6-INCH UNCOMPACTED LIFTS UNTIL 12 INCHES OVER THE CONDUITS. SOLIDLY RAM AND TAMP BACKFILL INTO SPACE AROUND CONDUITS.
- E. PROTECT CONDUIT FROM LATERAL MOVEMENT, IMPACT DAMAGE, OR UNBALANCED LOADING.
- F. ABOVE THE CONDUIT EMBEDMENT ZONE, PLACE AND COMPACT SATISFACTORY BACKFILL MATERIAL IN 8-INCH MAXIMUM LOOSE THICKNESS LIFTS TO RESTORE THE REQUIRED FINISHED SURFACE GRADE.
- G. COMPACT FINAL TRENCH BACKFILL TO A DENSITY EQUAL TO OR GREATER THAN THAT OF THE EXISTING UNDISTURBED MATERIAL IMMEDIATELY ADJACENT TO THE TRENCH BUT NO LESS THAN A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE STANDARD PROCTOR TEST, ASTM D 698.

3.5 FINISH GRADING:

- A. PERFORM ALL GRADING TO PROVIDE POSITIVE DRAINAGE AWAY FROM STRUCTURES AND SMOOTH, EVEN SURFACE DRAINAGE OF THE ENTIRE AREA WITHIN THE LIMITS OF CONSTRUCTION. GRADING SHALL BE COMPATIBLE WITH ALL SURROUNDING TOPOGRAPHY AND STRUCTURES.
- B. UTILIZE SATISFACTORY FILL MATERIAL RESULTING FROM THE EXCAVATION WORK IN THE CONSTRUCTION OF FILLS, EMBANKMENTS AND FOR REPLACEMENT OF REMOVED UNSUITABLE MATERIALS.
- C. ACHIEVE FINISHED GRADE BY PLACING A MINIMUM OF 4 INCHES OF 1/2" - 3/4" CRUSHED STONE ON TOP SOIL STABILIZER FABRIC.
- D. REPAIR ALL ACCESS ROADS AND SURROUNDING AREAS USED DURING THE COURSE OF THIS WORK TO THEIR ORIGINAL CONDITION.

PLANS PREPARED FOR:



PLANS PREPARED BY:

**INFINIGY8**  
**ENGINEERING, PLLC**

2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068

JOB NUMBER: 674-003

PROJECT MANAGER:



10590 W. OCEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

ENGINEERING LICENSE:



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REVISED PER JURISDICTION COMMENTS	04/20/20	CAP	2
REVISED PER JURISDICTION COMMENTS	03/30/20	CAP	1
FINAL CD	01/22/20	CAP	0
REVISED/ISSUED FOR REVIEW	12/19/19	CAP	B
ISSUED FOR REVIEW	10/30/19	RCD	A

AT&T SITE NAME:

**BLACK FOREST**

AT&T SITE NUMBER:

**COL02037**

AT&T FA NUMBER:

**10093683**

SITE ADDRESS:

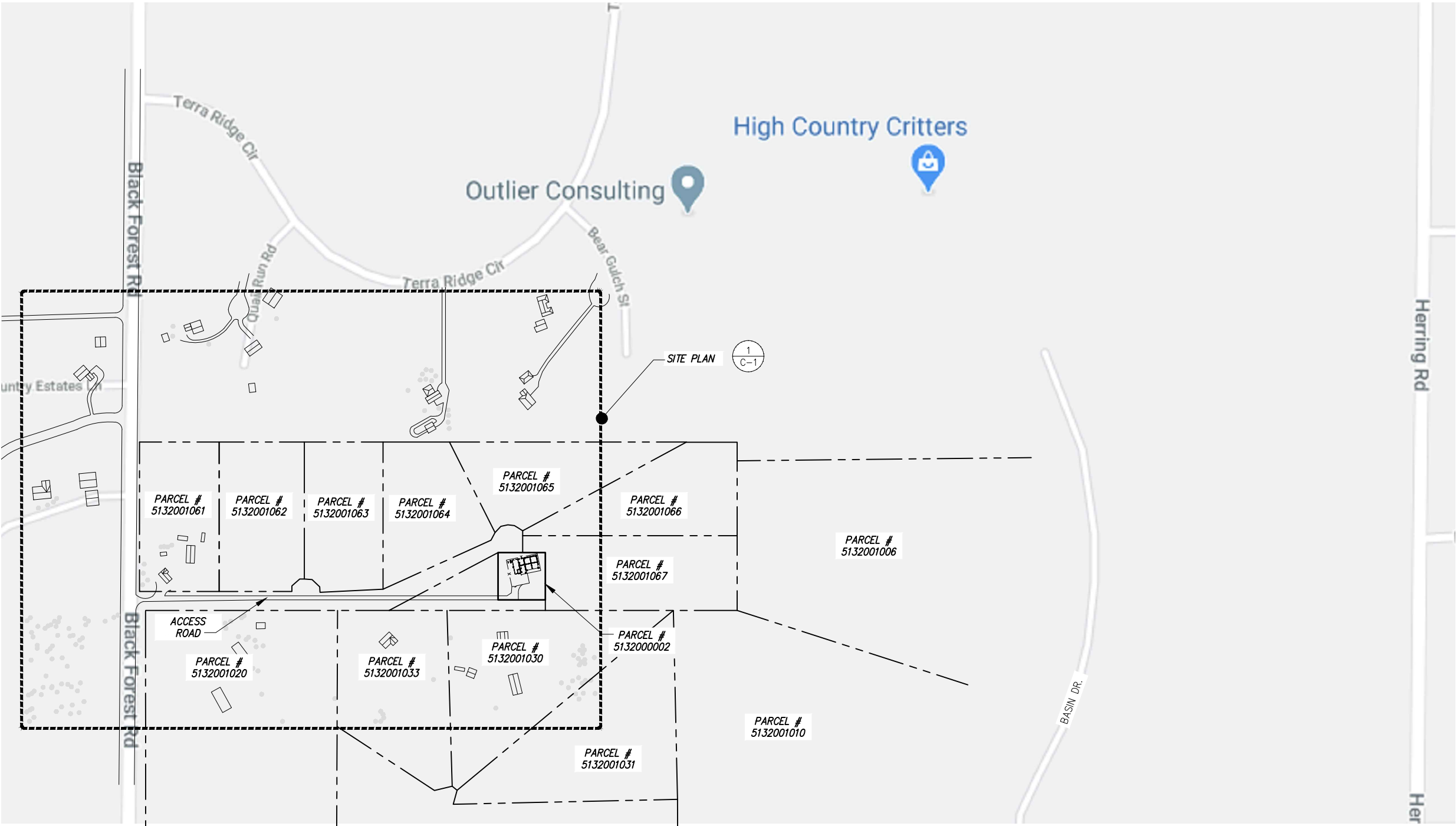
**7111 MARSHBERN COURT**  
**BLACK FOREST, CO 80908**

SHEET DESCRIPTION:

**GENERAL NOTES**

SHEET NUMBER:

**GN-2**



PLANS PREPARED FOR:

PLANS PREPARED BY:

INFINIGY8

ENGINEERING, PLLC

2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
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PROJECT MANAGER:

md7

10590 W. OCEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

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AT&T SITE NAME:

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COL02037

AT&T FA NUMBER:

10093683

SITE ADDRESS:

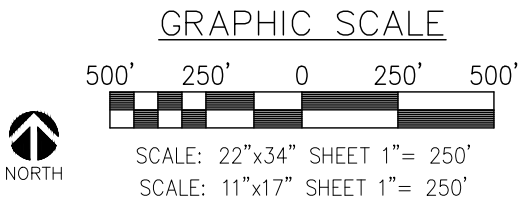
7111 MARSHBERN COURT  
BLACK FOREST, CO 80908

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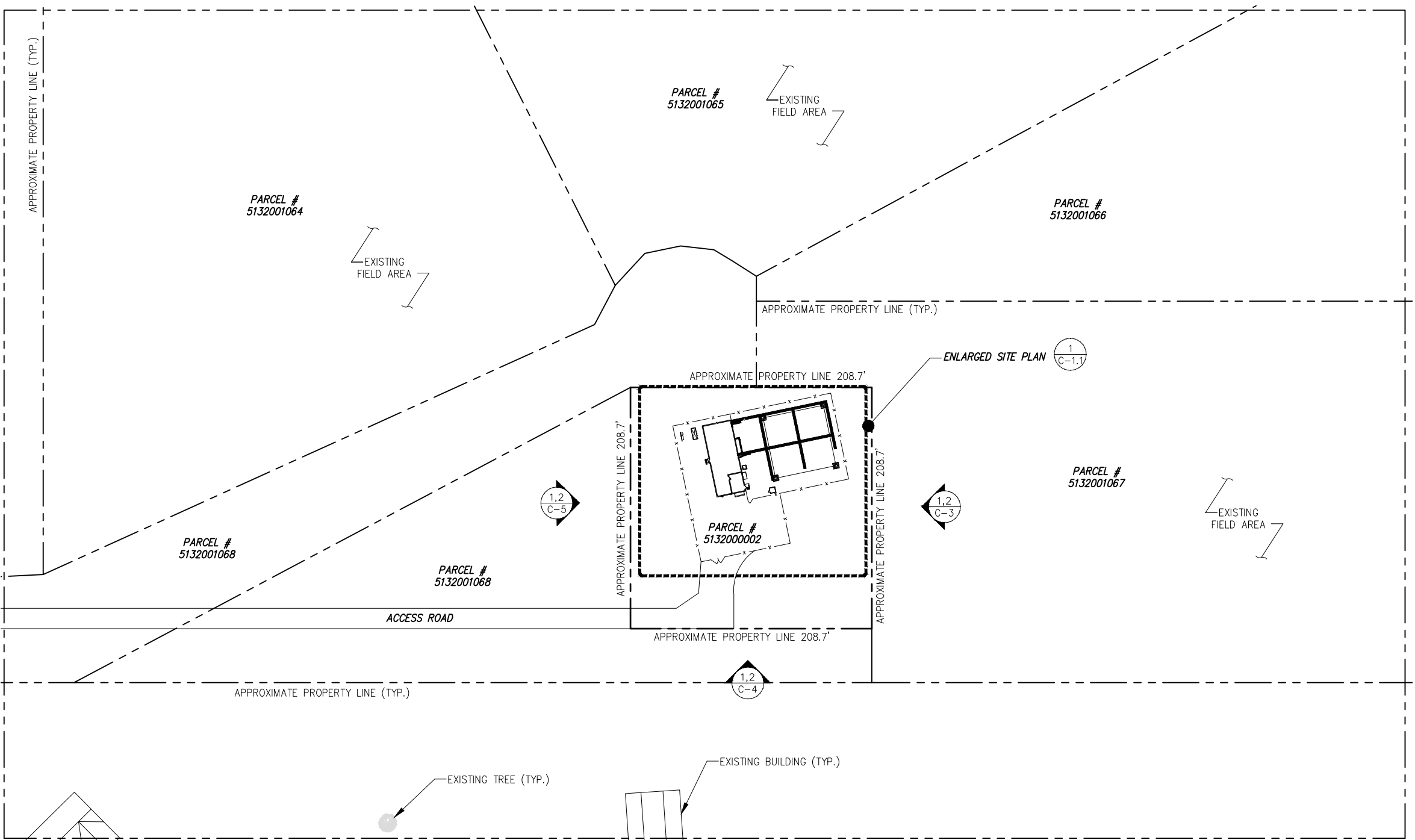
PARCEL PLAN

SHEET NUMBER:

P-1



PARCEL PLAN



PLANS PREPARED FOR:

PLANS PREPARED BY:

**INFINIGY**  
ENGINEERING, PLLC  
2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068  
JOB NUMBER: 674-003

PROJECT MANAGER:

**md7**  
10590 W. OCEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

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BLACK FOREST, CO 80908**

SHEET DESCRIPTION:

**SITE PLAN**

SHEET NUMBER:

**C-1**

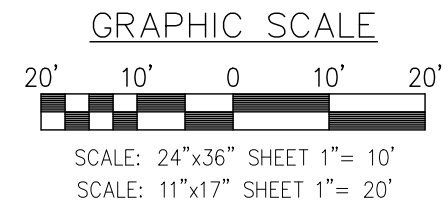
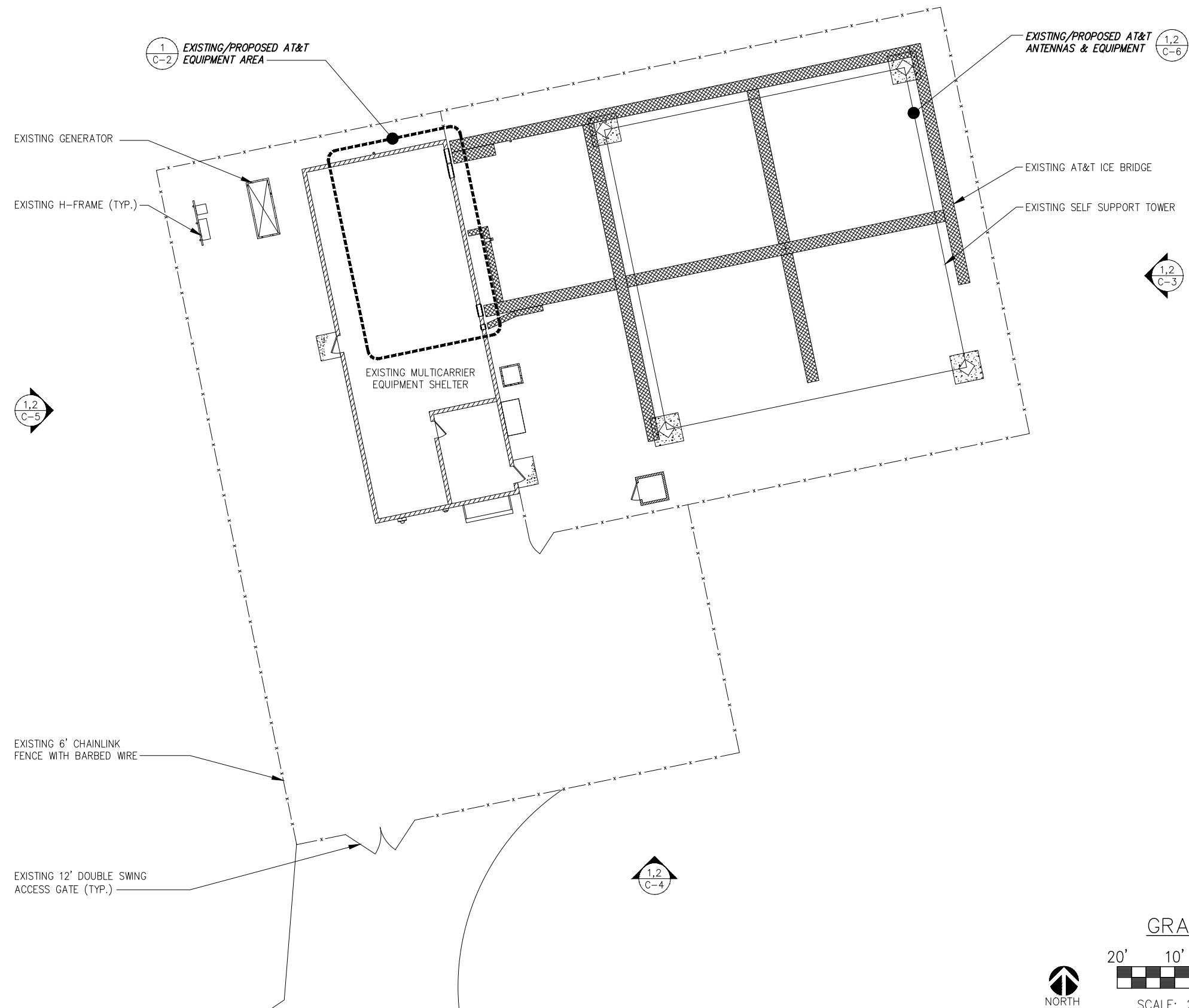
GRAPHIC SCALE

SCALE: 24"x36" SHEET 1"= 50'  
SCALE: 11"x17" SHEET 1"= 100'


NORTH

**SITE PLAN**





PLANS PREPARED FOR:




PLANS PREPARED BY:

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ENGINEERING, PLLC

2500 W. HIGGINS RD, SUITE 500  
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JOB NUMBER: 674-003

PROJECT MANAGER:



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AT&T SITE NAME:

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AT&T FA NUMBER:

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SITE ADDRESS:

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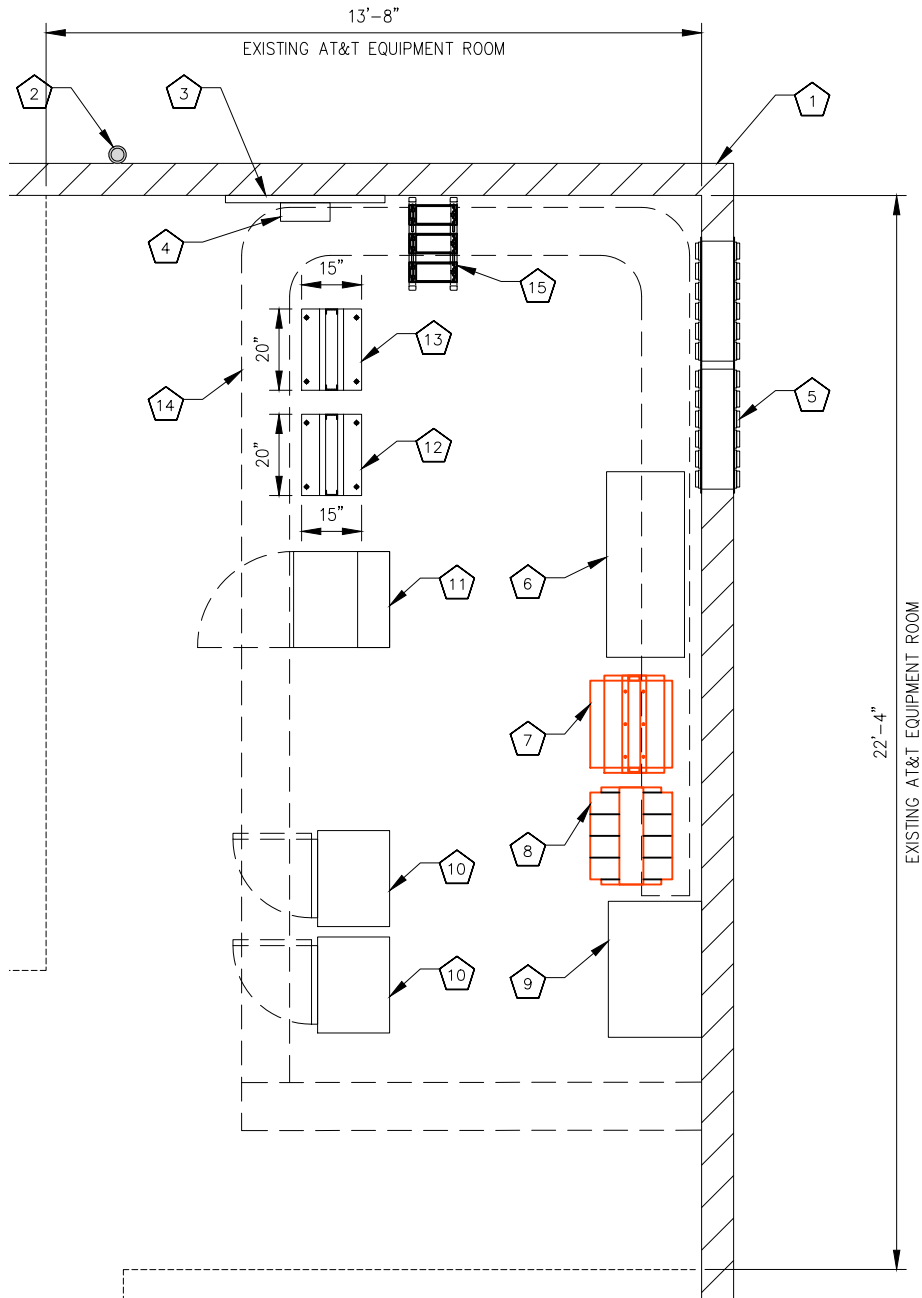
**ENLARGED  
SITE PLAN**

SHEET NUMBER:

**C-1.1**

CODED DRAWING NOTES:

- 1 EXISTING EQUIPMENT ROOM  
2 EXISTING GPS ANTENNA  
3 EXISTING TELCO BOARD  
4 EXISTING CIENNA BOX  
5 EXISTING COAX ENTRY POINT  
6 EXISTING STORAGE CABINET  
7 EXISTING OBSOLETE GE INFINITY NE "M" SERIES +24V DCPD [NEQ.15266] TO BE REMOVED  
8 EXISTING +24VDC BATTERY RACK TO BE REMOVED  
9 EXISTING HVAC UNIT  
10 EXISTING GSM CABINET (RETIRED IN PLACE)  
11 EXISTING UMTS CABINET  
12 EXISTING FIF RACK  
13 EXISTING LTE RACK  
14 EXISTING OVERHEAD CABLE LADDER  
15 EXISTING DIPLEXER (3 TOTAL)



DC POWER PLANT, RECTIFIERS & CONVERTERS:

1. **PASSES RECTIFIER CAPACITY:** EXISTING OBSOLETE GE INFINITY NE "M" SERIES +24V 1200A DCPD [NEQ.15266] IS EQUIPPED WITH (10) +24VDC 100A RECTIFIERS [NEQ.15263]; ONLY (5) REQUIRED FOR N+1.  
2. **PASSES CONVERTER CAPACITY:** EXISTING OBSOLETE GE NE "M" +24V DCPD IS EQUIPPED WITH (5) +24VDC/-48VDC 30A CONVERTER MODULES [NEQ.13100]. ONLY (4) REQUIRED FOR N+1.

GENERATOR:

1. **PERMANENT STANDBY GENERATOR:** (ATC Shared Generator - Assumed)

BATTERIES:

1. **PASSES BATTERY RESERVE CAPACITY @ 7.41 HRS:** SITE IS EQUIPPED WITH (16) EA. POWERSAFE SBS 170F 12VDC MONOBLOCK BATTERIES [NEQ.16622] i.e. (8) 170 Ahr STRINGS EACH CONFIGURED @ +24VDC NOMINAL.

HVAC:

1. **PASSES HVAC TONNAGE CAPACITY:** EQUIPMENT ROOM IS OUTFITTED WITH (2) EA. YORK 5-TON HVAC SPLIT SYSTEMS.

ELECTRICAL SERVICE:

1. **PASSES 120/240VAC 200A (48KW) ELECTRICAL SERVICE:** MAXIMUM TOTAL CONNECTED LOAD ESTIMATED @ 38.21 KVA [159A per phase].

PLANS PREPARED FOR:



PLANS PREPARED BY:

**INFINIGY8**  
ENGINEERING, PLLC

2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068

JOB NUMBER: 674-003

PROJECT MANAGER:



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SITE ADDRESS:

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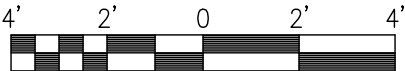
SHEET DESCRIPTION:

EXISTING EQUIPMENT  
LAYOUT

SHEET NUMBER:

C-2

GRAPHIC SCALE



SCALE: 24"x36" SHEET 1"= 2'

SCALE: 11"x17" SHEET 1"= 4'

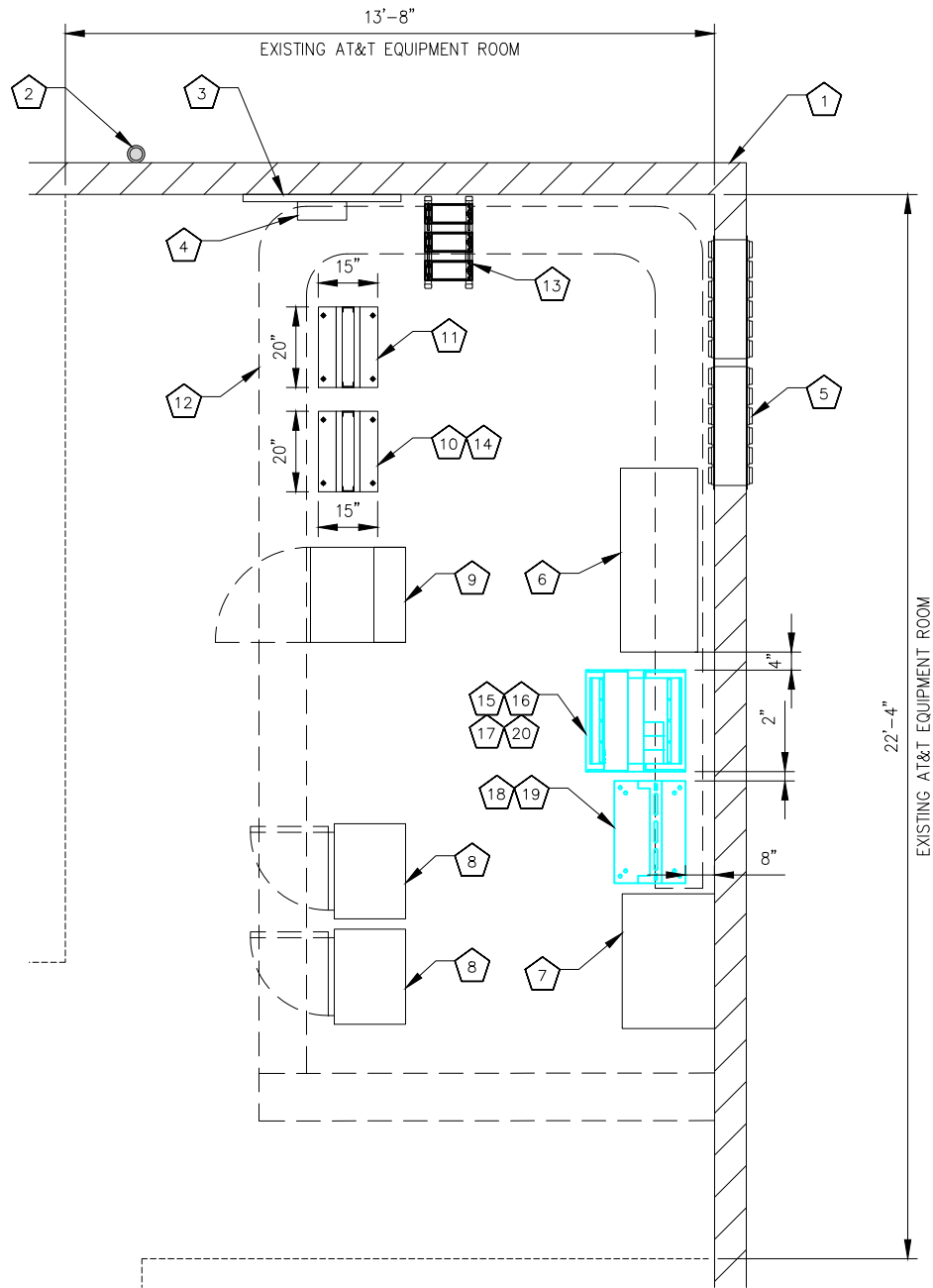
EXISTING EQUIPMENT LAYOUT

SCALE: AS NOTED

1

CODED DRAWING NOTES:

- 1 EXISTING EQUIPMENT ROOM  
2 EXISTING GPS ANTENNA  
3 EXISTING TELCO BOARD  
4 EXISTING CIENNA BOX  
5 EXISTING COAX ENTRY POINT  
6 EXISTING STORAGE CABINET  
7 EXISTING HVAC UNIT  
8 EXISTING GSM CABINET (RETIRED IN PLACE)  
9 EXISTING UMTS CABINET  
10 EXISTING FIF RACK  
11 EXISTING LTE RACK  
12 EXISTING OVERHEAD CABLE LADDER  
13 EXISTING DIPLEXER (3 TOTAL)  
14 **INSTALL (1) NEW NOKIA 5G NR (ASIK C-1) FSM4 BBU [CEQ.20975]** (4,5 D-1)  
15 **INSTALL (2) 50A BREAKERS FOR FSM4, (5) 50A BREAKERS FOR AHLBA & (1) 25A BREAKERS FOR AHCA**  
16 **INSTALL (1) EA. NEW VERTIV INDOOR NETSURE 7100 -48V DCP [NEQ.19735] EQUIPPED** (2 D-2, 4 D-2)  
17 **ADD (9) EA. 2 KW -48VDC RECTIFIERS [NEQ.15930] AND (4) EA. 1.5 KW -48VDC/+24VDC CONVERTER MODULES [NEQ.15929]** (1 D-2)  
18 **INSTALL (1) NEW VERTIV INDOOR SEISMIC RATED -48VDC VRLA BATTERY RACK [NEQ.15312]** (2 D-2, 5 D-2)  
19 **RE-INSTALL (16) EXISTING BATTERIES [NEQ.16622] i.e. (4) EA. 170 Ahr STRINGS EACH CONFIGURED @ -48VDC NOMINAL TO PROVIDE 3.97 HRS OF BATTERY RESERVE CAPACITY**  
20 **INSTALL (1) COMMScope POWERSHIFT**



DC POWER PLANT, RECTIFIERS & CONVERTERS:

1. **REMOVE EXISTING OBSOLETE GE INFINITY NE "M" SERIES +24V DCP [NEQ.15266] FROM SITE.**  
2. **INSTALL (1) EA. NEW VERTIV INDOOR NETSURE 7100 -48V DCP [NEQ.19735] EQUIPPED WITH (9) EA. VERTIV HE 2 KW -48VDC RECTIFIERS [NEQ.15930] AND (4) EA. VERTIV HE 1.5 KW -48VDC/+24VDC CONVERTER MODULES [NEQ.15929] TO SATISFY N+1.**

GENERATOR:

1. **PERMANENT STANDBY GENERATOR;** (ATC Shared Generator- Assumed)

BATTERIES:

1. **REMOVE (1) EA. EXISTING +24VDC BATTERY RACK FROM SITE; RETAIN (16) EXISTING POWERSAFE SBS 170F BATTERIES FOR ON-SITE REUTILIZATION.**  
2. **INSTALL (1) EA. NEW VERTIV NETSURE INDOOR SEISMIC RATED -48VDC VRLA BATTERY RACK [NEQ.15312].**  
3. **RE-INSTALL (16) EXISTING BATTERIES [NEQ.16622] i.e. (4) EA. 170 Ahr STRINGS EACH CONFIGURED @ -48VDC NOMINAL TO PROVIDE 3.97 HRS OF BATTERY RESERVE CAPACITY.**

HVAC:

1. **PASSES HVAC TONNAGE CAPACITY;** EQUIPMENT ROOM IS OUTFITTED WITH (2) EA. YORK **5-TON** HVAC SPLIT SYSTEMS.

ELECTRICAL SERVICE:

1. **PASSES 120/240VAC 200A (48KW) ELECTRICAL SERVICE;** MAXIMUM TOTAL CONNECTED LOAD ESTIMATED @ **43.06 KVA** [179A per phase].

REQUIRED ADDITIONAL EQUIPMENT:

1. **NOKIA 5G NR (ASIK C-1) FSM4 BBU [CEQ.20975].**

PLANS PREPARED FOR:



PLANS PREPARED BY:

**INFINIGY8**  
**ENGINEERING, PLLC**

2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068

JOB NUMBER: 674-003

PROJECT MANAGER:



10590 W. OCEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

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AT&T SITE NAME:

**BLACK FOREST**

AT&T SITE NUMBER:

**COL02037**

AT&T FA NUMBER:

**10093683**

SITE ADDRESS:

**7111 MARSHBERN COURT**  
**BLACK FOREST, CO 80908**

SHEET DESCRIPTION:

**PROPOSED EQUIPMENT**  
**LAYOUT**

SHEET NUMBER:

**C-2.1**

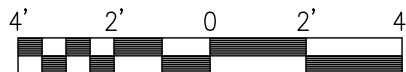
PROPOSED EQUIPMENT LAYOUT

SCALE: AS NOTED

1



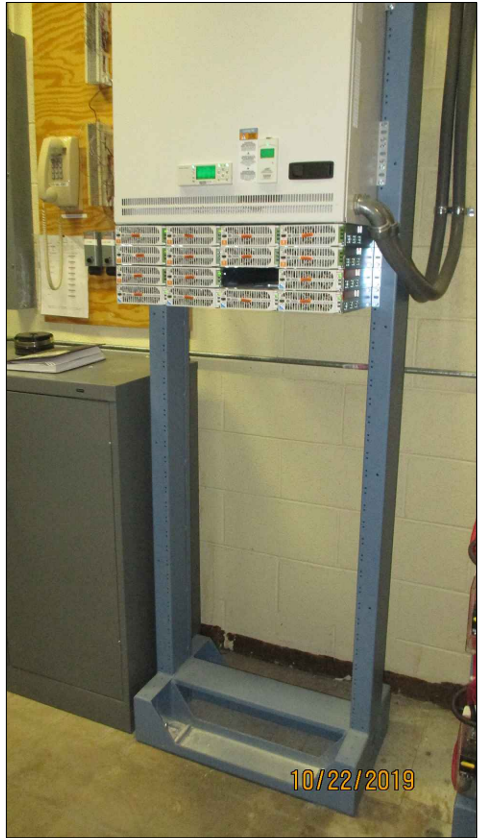
GRAPHIC SCALE



SCALE: 24"x36" SHEET 1"= 2'

SCALE: 11"x17" SHEET 1"= 4'

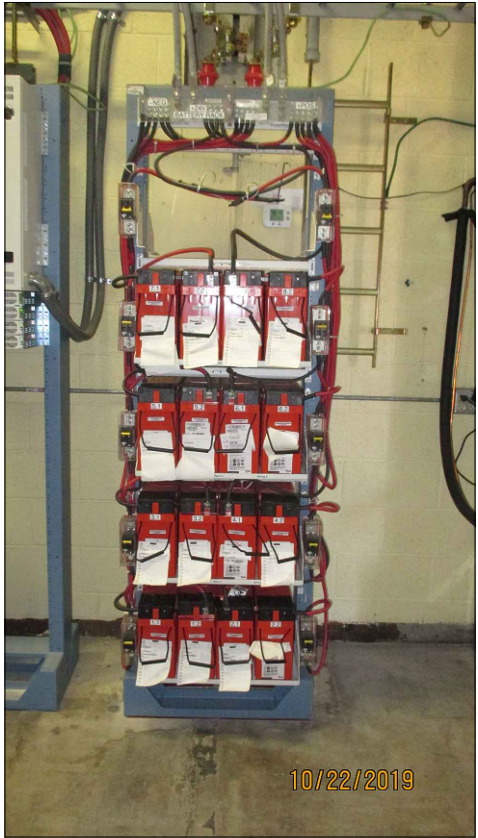




POWER PLANT

NO SCALE

1



BATTERY RACK

NO SCALE

2



GSM CABINETS

NO SCALE

3



UMTS CABINET

NO SCALE

4



FIF RACK

NO SCALE


5




LTE RACK


NO SCALE

6

PLANS PREPARED FOR:  


PLANS PREPARED BY:  
**INFINIGY8**  
ENGINEERING, PLLC  
2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068  
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BLACK FOREST

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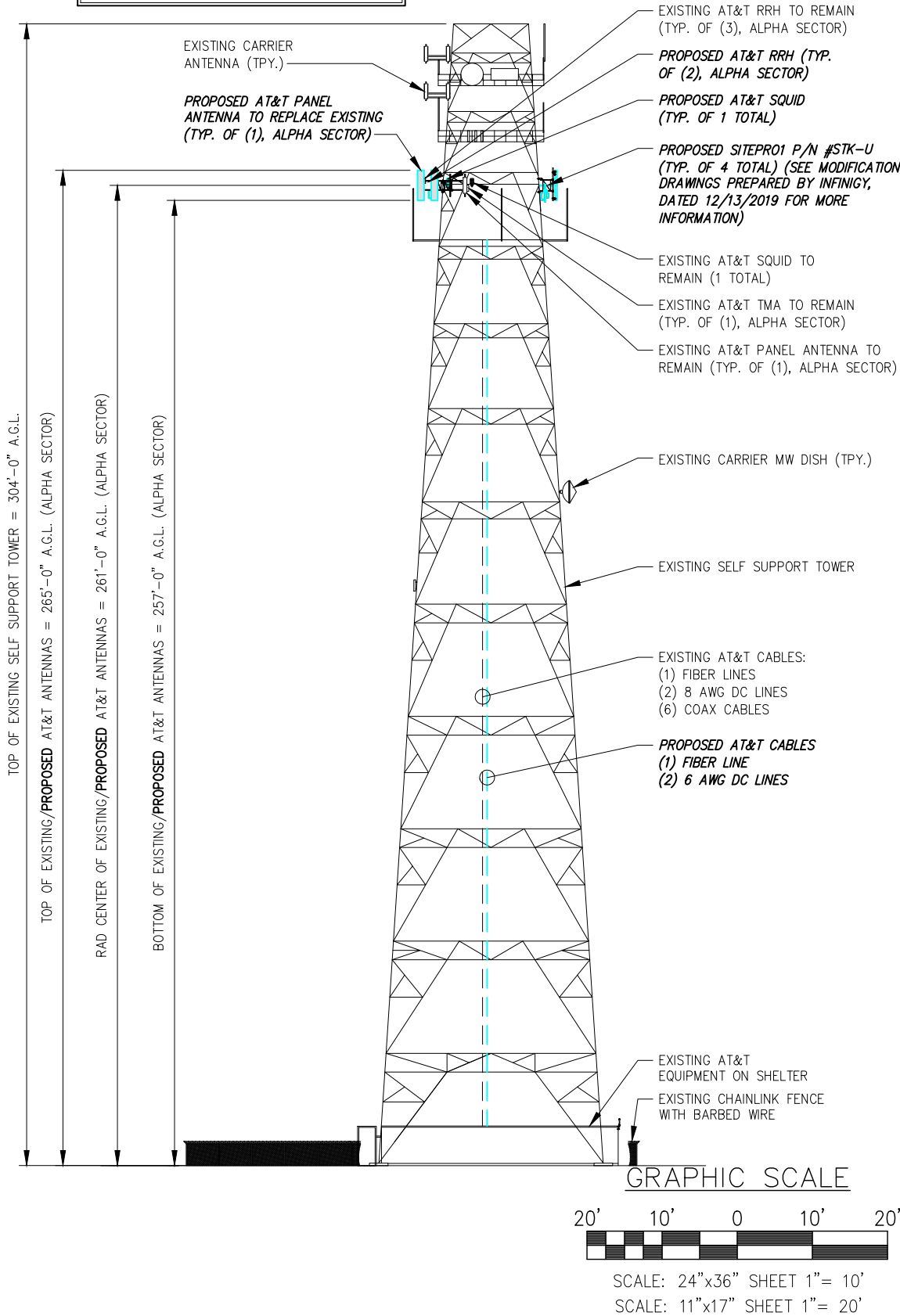
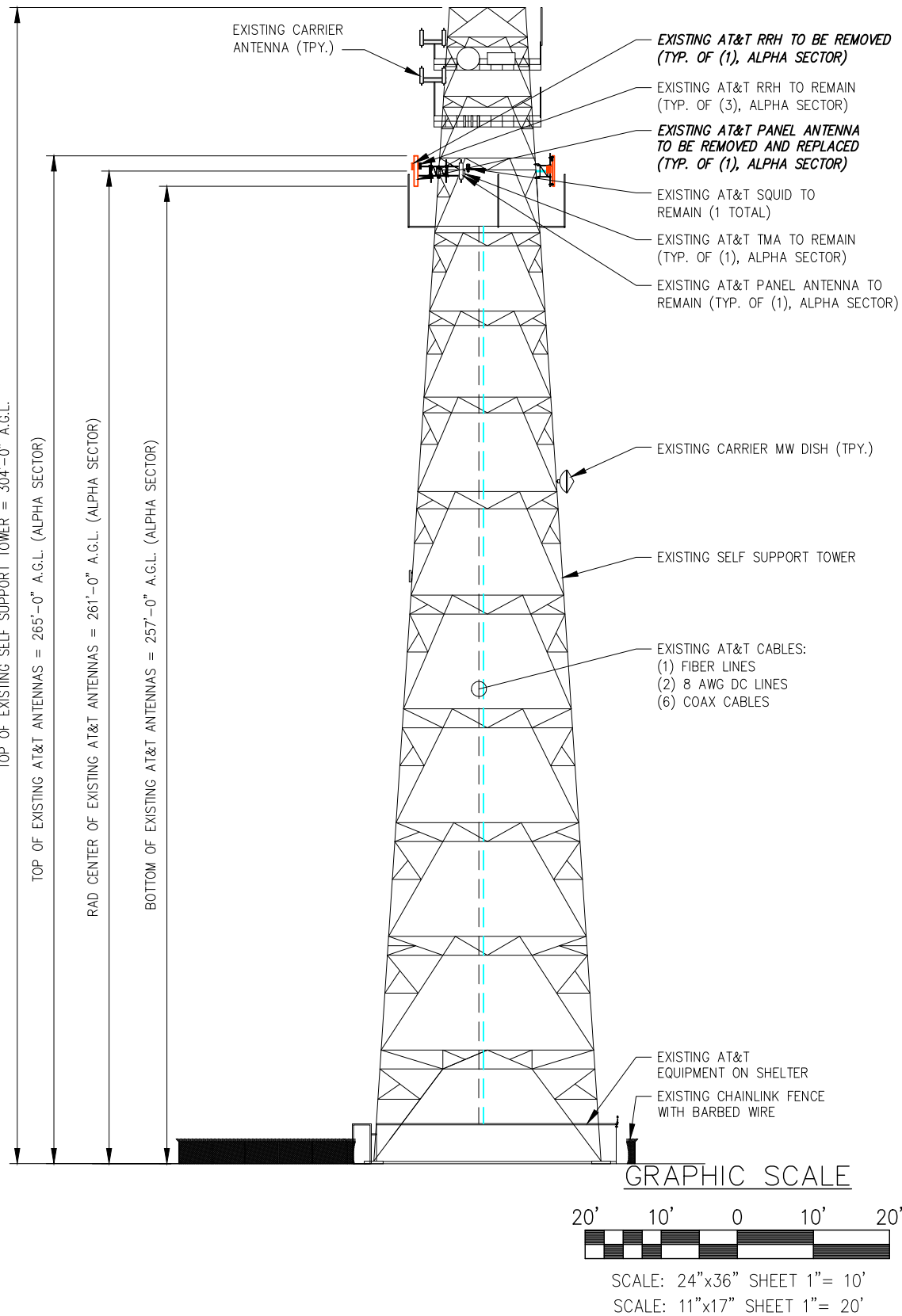
AT&T FA NUMBER:  
10093683

SITE ADDRESS:  
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BLACK FOREST, CO 80908

SHEET DESCRIPTION:  
EQUIPMENT PHOTOS


SHEET NUMBER:  
C-2.2





A MOUNT ANALYSIS HAS BEEN PERFORMED BY INFINIGY DATED 11/07/19 AND FAILED. REFER TO STRUCTURAL MOUNT MODIFICATION PERFORMED BY INFINIGY DATED 12/09/2019. NO WORK IS TO BE DONE WITHOUT AN APPROVED STRUCTURAL ANALYSIS PROVIDED BY INFINIGY OR OTHERS

PLANS PREPARED FOR:

 **at&t**


PLANS PREPARED BY:

**INFINIGY**  
ENGINEERING, PLLC  
2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068  
JOB NUMBER: 674-003

PROJECT MANAGER:

**md7**  
10590 W. OCEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

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AT&T SITE NAME:

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AT&T SITE NUMBER:

**COL02037**

AT&T FA NUMBER:

**10093683**

SITE ADDRESS:

**7111 MARSHBERN COURT  
BLACK FOREST, CO 80908**

SHEET DESCRIPTION:

**EAST  
ELEVATION**

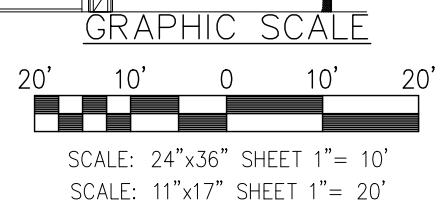
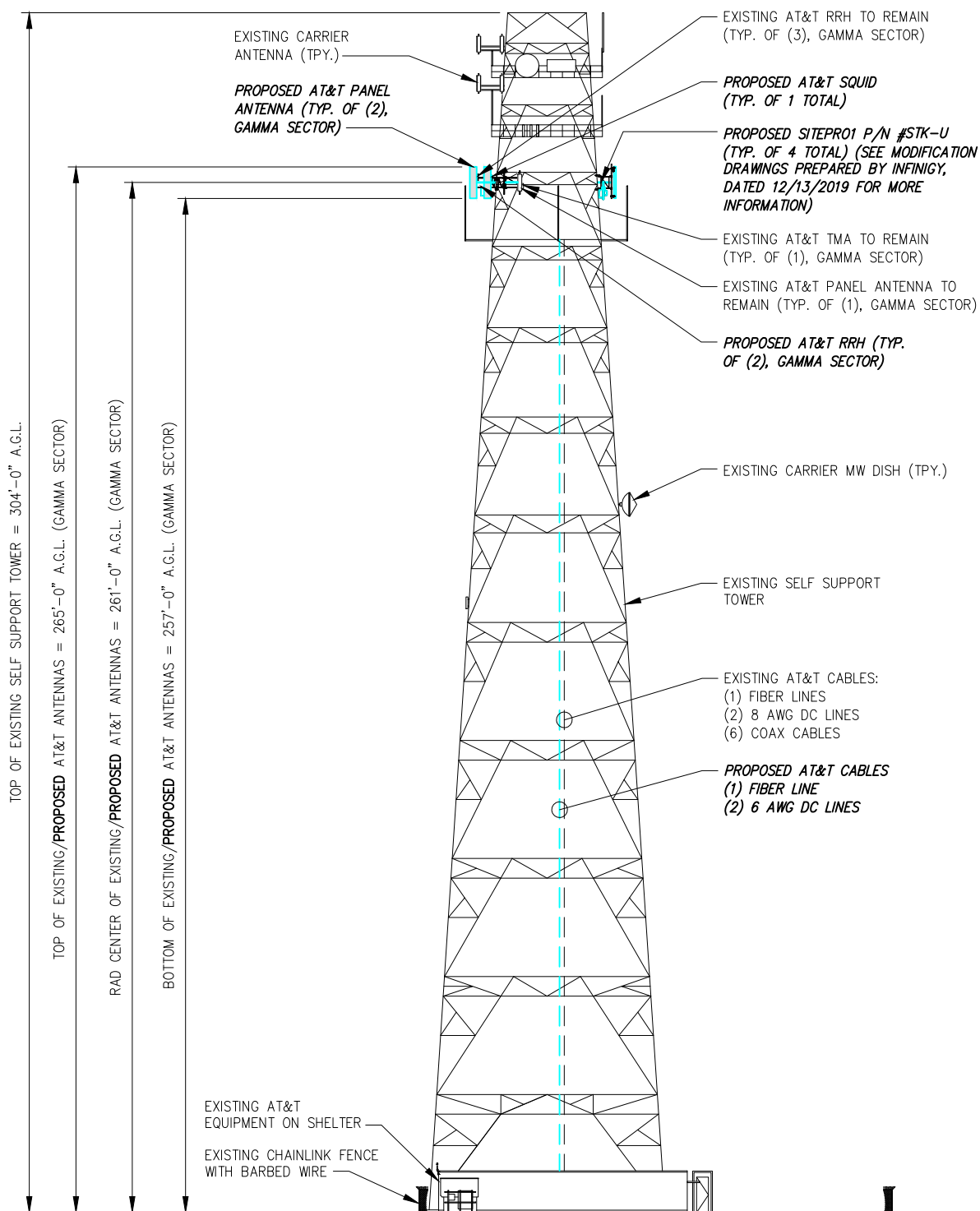
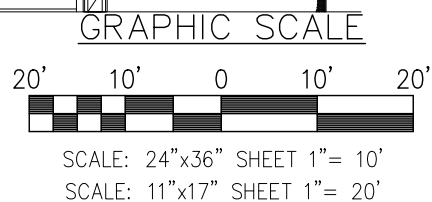
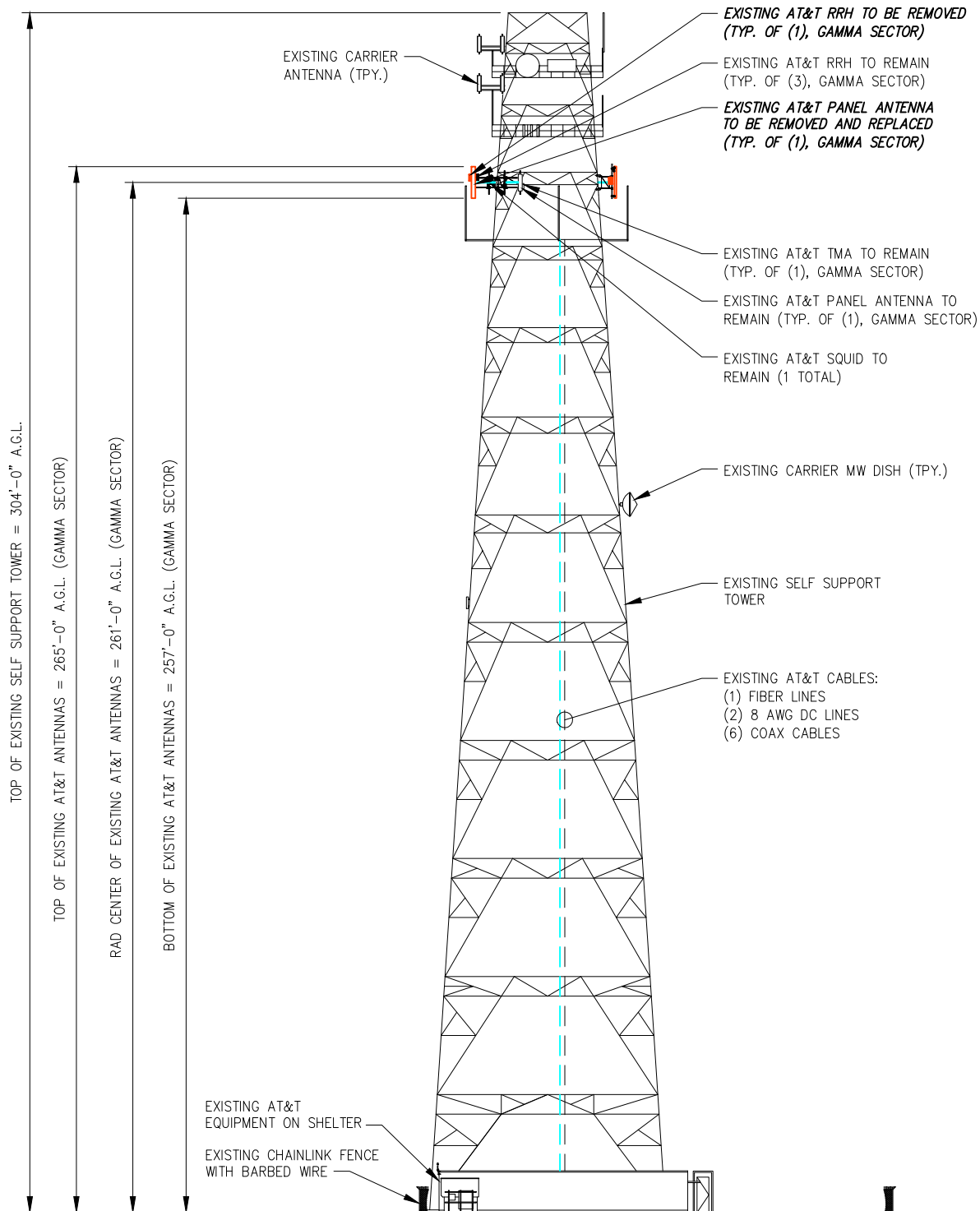
SHEET NUMBER:

**C-3**





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PLANS PREPARED FOR:



PLANS PREPARED BY:

**INFINIGY**  
ENGINEERING, PLLC  
2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068  
JOB NUMBER: 674-003

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AT&T FA NUMBER:

**10093683**

SITE ADDRESS:

**7111 MARSHBERN COURT  
BLACK FOREST, CO 80908**

SHEET DESCRIPTION:

**WEST  
ELEVATION**

SHEET NUMBER:

**C-5**

EXISTING WEST ELEVATION

SCALE: AS NOTED

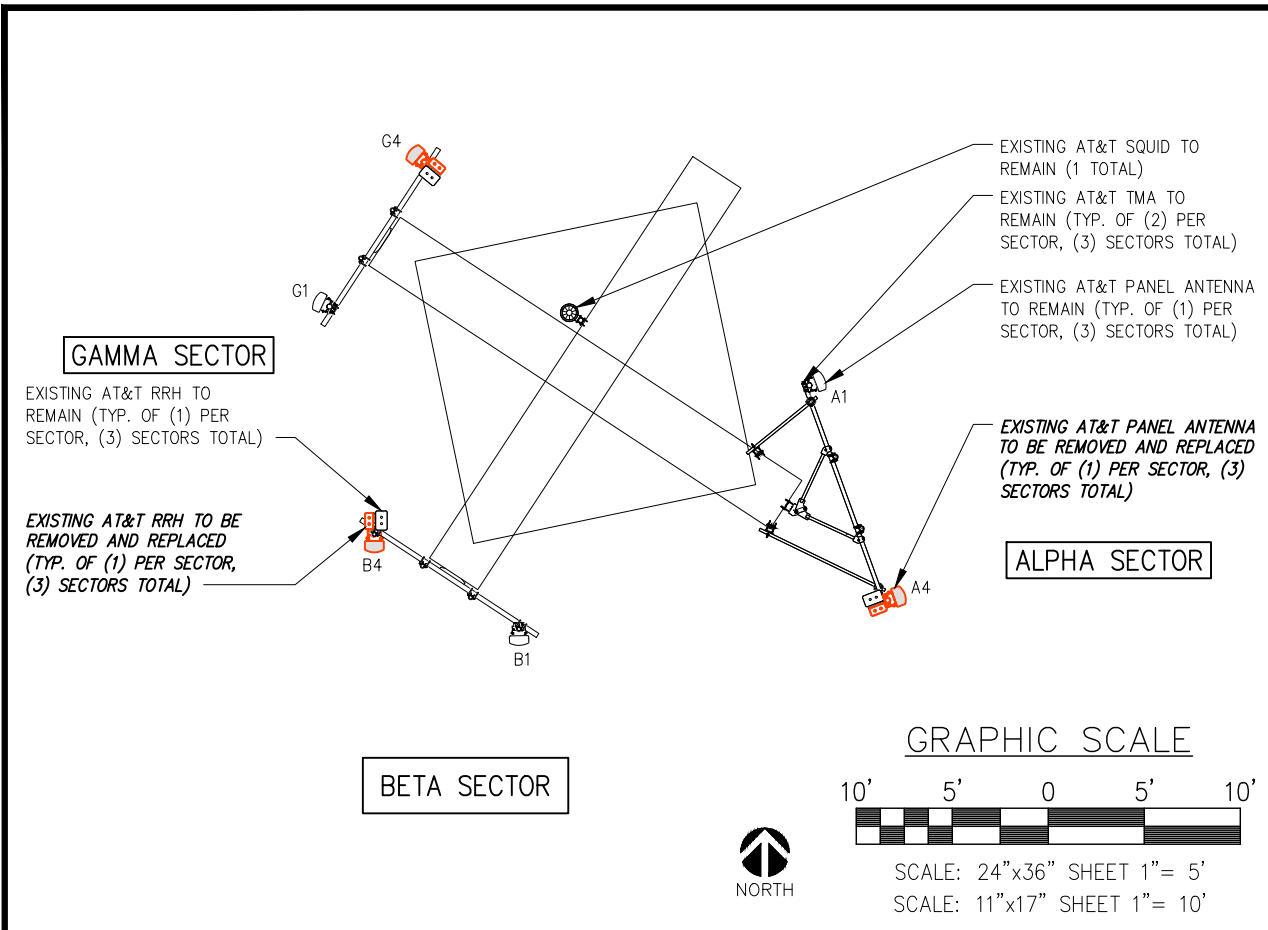
1

PROPOSED WEST ELEVATION

SCALE: AS NOTED

2

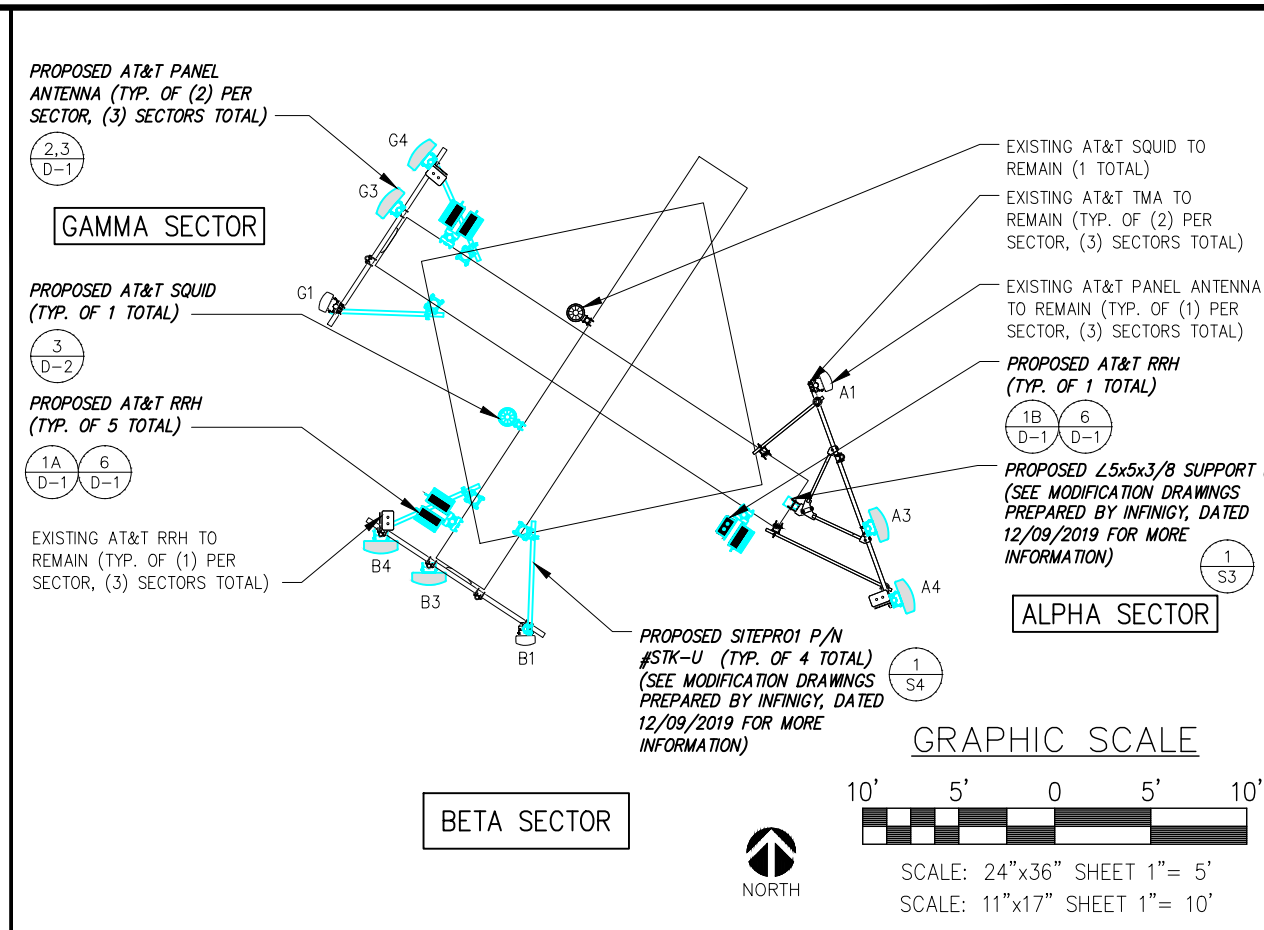




EXISTING ANTENNA LAYOUT

SCALE: AS NOTED

1



PROPOSED ANTENNA LAYOUT

SCALE: AS NOTED

2

ANTENNA SCHEDULE						
SECTOR	POSITION	ANTENNA	TECHNOLOGY	RAD CENTER	RRH (QTY/TYP)	TMA/SQUID/DIPLEXER/FILTER (QTY/TYP)
ALPHA	1	(E) POWERWAVE P65-15-XLH-RR	UMTS 850	261'-0"	--	(E) 1/CM1007-DBPXC-003 (AT EQUIPMENT) (E) 2/LGP21401 (AT ANTENNA)
ALPHA	2	--	--	--	--	--
ALPHA	3	(P) CCI TPA65R-BU8DA-K	LTE 850, 5G 850	261'-0"	(P) 1/AHCA (AT ANTENNA)	--
ALPHA	4	(P) CCI TPA65R-BU8DA-K	LTE 700/1900	261'-0"	(P) 1/AHLBA (AT ANTENNA) (E) 1/B25 RRH4X30-4R (AT ANTENNA)	(E) 1/DC6-48-60-18-8F (AT ANTENNA) (P) 1/DC6-48-60-18-8F (AT ANTENNA)
BETA	1	(E) POWERWAVE P65-15-XLH-RR	UMTS 850	261'-0"	--	(E) 1/CM1007-DBPXC-003 (AT EQUIPMENT) (E) 2/LGP21401 (AT ANTENNA)
BETA	2	--	--	--	--	--
BETA	3	(P) CCI TPA65R-BU8DA-K	LTE 850, 5G 850	261'-0"	(P) 1/AHLBA (AT ANTENNA)	--
BETA	4	(P) CCI TPA65R-BU8DA-K	LTE 700/1900	261'-0"	(P) 1/AHLBA (AT ANTENNA) (E) 1/B25 RRH4X30-4R (AT ANTENNA)	--
GAMMA	1	(E) POWERWAVE P65-15-XLH-RR	UMTS 850	261'-0"	--	(E) 1/CM1007-DBPXC-003 (AT EQUIPMENT) (E) 2/LGP21401 (AT ANTENNA)
GAMMA	2	--	--	--	--	--
GAMMA	3	(P) CCI TPA65R-BU8DA-K	LTE 850, 5G 850	261'-0"	(P) 1/AHLBA (AT ANTENNA)	--
GAMMA	4	(P) CCI TPA65R-BU8DA-K	LTE 700/1900	261'-0"	(P) 1/AHLBA (AT ANTENNA) (E) 1/B25 RRH4X30-4R (AT ANTENNA)	--

CABLE INVENTORY		
CABLE TYPE	CABLE AMOUNT	CABLE LENGTH
1 (E)	FIBER	±320'
1 (P)	FIBER	±320'
2 (E)	8 AWG DC CABLES	±320'
2 (P)	6 AWG DC CABLES	±320'
6 (E)	AVA5-50A	±320'


- NOTES:**
- INFORMATION BASED ON PROVIDED RFDS CURRENT AT THE TIME DRAWINGS WERE ISSUED. CONTRACTOR SHALL BASE CONSTRUCTION ON FINAL APPROVED RFDS. IN CASE OF CONFLICT, FINAL APPROVED RFDS SUPERSEDES THIS INFORMATION.
  - SEE RFDS FOR EXISTING AND PROPOSED ANTENNA MODEL/DIMENSIONS/AZIMUTHS/RAD CENTERS/TILTS.
  - CONTRACTOR TO VERIFY REQUIRED CABLE LENGTHS PRIOR TO CONSTRUCTION.
  - CONTRACTOR TO REMOVE UNUSED GSM COAX CABLES AS NECESSARY TO ACCOMMODATE PROPOSED DC & FIBER TRUNKS

LOADING CHART

NO SCALE

3

PLANS PREPARED FOR:




PLANS PREPARED BY:

**INFINIGY ENGINEERING, PLLC**

2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068


JOB NUMBER: 674-003

PROJECT MANAGER:



CEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

ENGINEERING LICENSE:



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AT&T SITE NUMBER:

**COL02037**

AT&T FA NUMBER:

**10093683**

SITE ADDRESS:

**7111 MARSHBERN COURT  
BLACK FOREST, CO 80908**

SHEET DESCRIPTION:

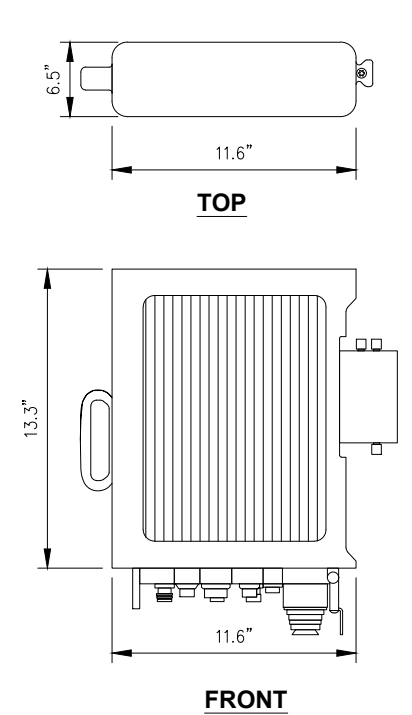
**ANTENNA LAYOUTS  
& LOADING CHART**

SHEET NUMBER:

**C-6**

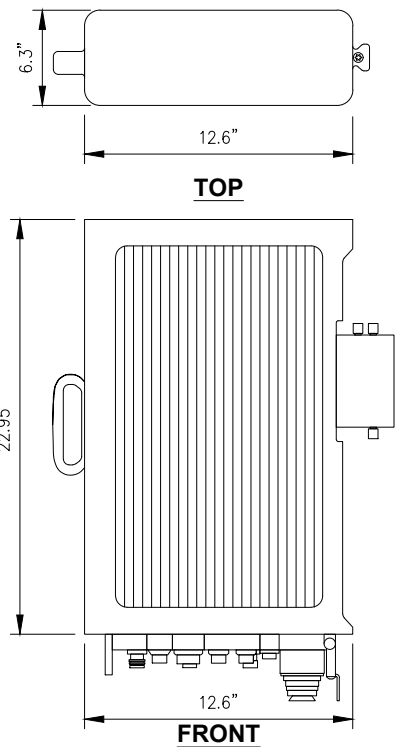
AIRSCALE RADIO MODULE (AHCA)

DIMENSIONS (WxDxH): 11.6"x6.5"x13.3"  
WEIGHT, WITHOUT BRACKETS: 36.8 lbs.



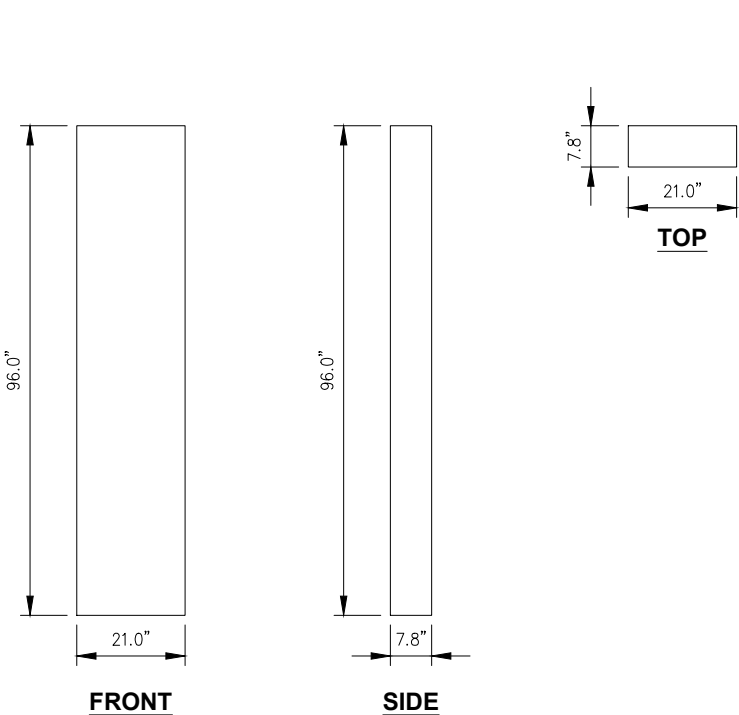
AIRSCALE RADIO MODULE (AHLBA)

DIMENSIONS (WxDxH): 12.6"x6.3"x23.0"  
WEIGHT, WITHOUT BRACKETS: 53.0 lbs.



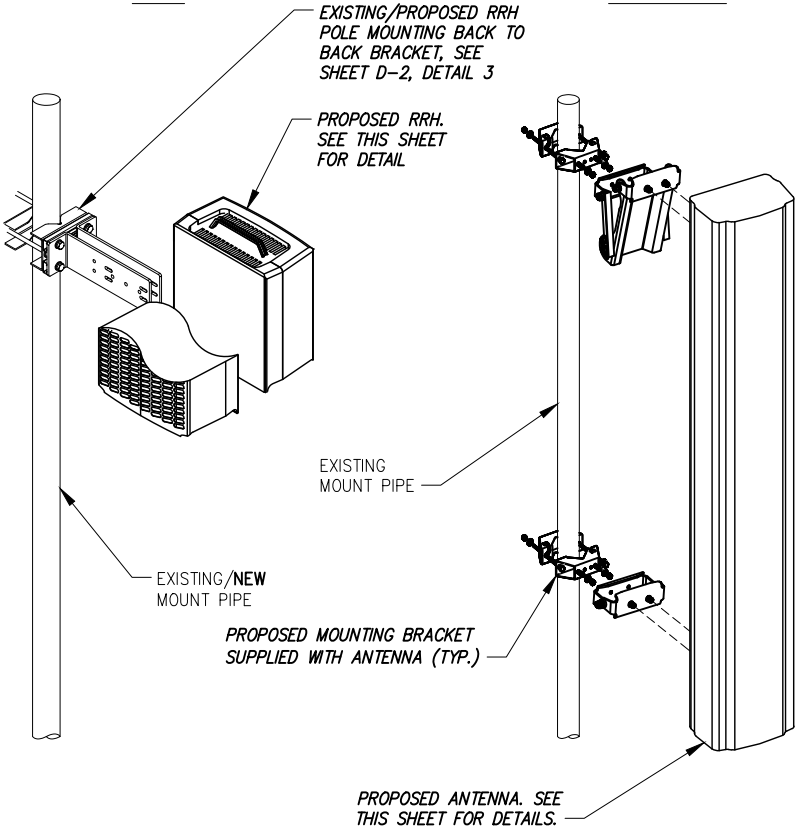
CCI PANEL ANTENNA (TPA65R-BU8DA-K)

DIMENSIONS, HxWxD: 96.0"x21.0"x7.8"  
WEIGHT, W/O BRACKETS: 82.5 lbs



RRH

ANTENNA



REMOTE RADIO HEAD  
SPECIFICATIONS (OR SIMILAR)

NO SCALE

1A

REMOTE RADIO HEAD  
SPECIFICATIONS (OR SIMILAR)

NO SCALE

1B

PANEL ANTENNA SPECIFICATIONS (OR SIMILAR)

NO SCALE

2

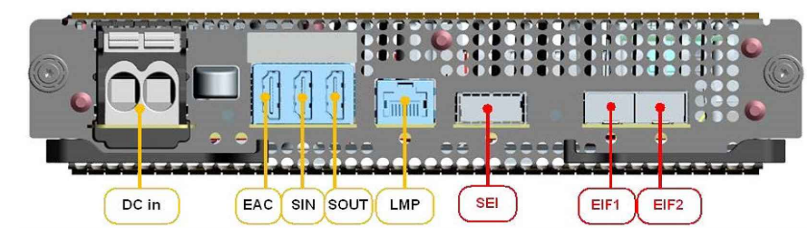
EQUIPMENT MOUNTING DETAIL

NO SCALE

3

NOKIA ASIK UNIT

DIMENSIONS, HxWxD: 1.9"x8.6"x14.8" (UNIT ONLY)  
WEIGHT: 7.1 LBS. (UNIT ONLY)



ASIK SPECIFICATIONS

NO SCALE

4

NOKIA FSM4 BBU

DIMENSIONS (WxDxH): 17.6"x15.7"x5.1"



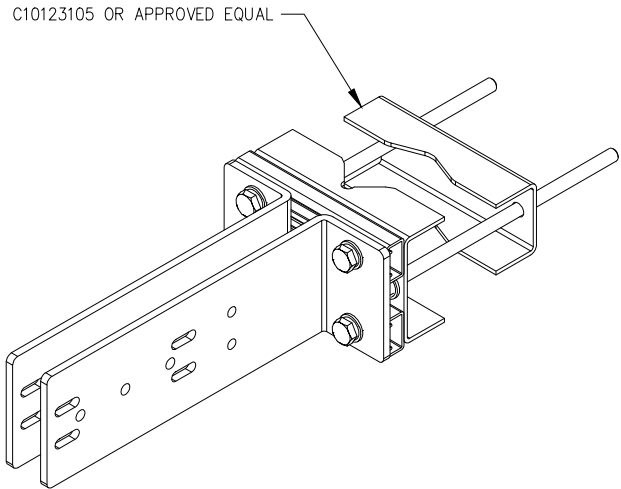
FSM4 BBU SPECIFICATIONS

NO SCALE

5

UNIVERSAL PIPE MOUNT BRACKET FOR 2" TO 5" OD PIPE. FITS UP TO 20 DEGREE TAPERS. FITS 2"-6" ROUND TOWER LEGS AND 2-1/2" - 6" ANGLE TOWER LEGS

SABRE P/N: C10123105 OR APPROVED EQUAL



BACK TO BACK MOUNT DETAIL

NO SCALE

6

PLANS PREPARED FOR:



PLANS PREPARED BY:

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2500 W. HIGGINS RD, SUITE 500  
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Office # (847) 648-4068

JOB NUMBER: 674-003

PROJECT MANAGER:

**md7**

10590 W. OCEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

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EQUIPMENT DETAILS

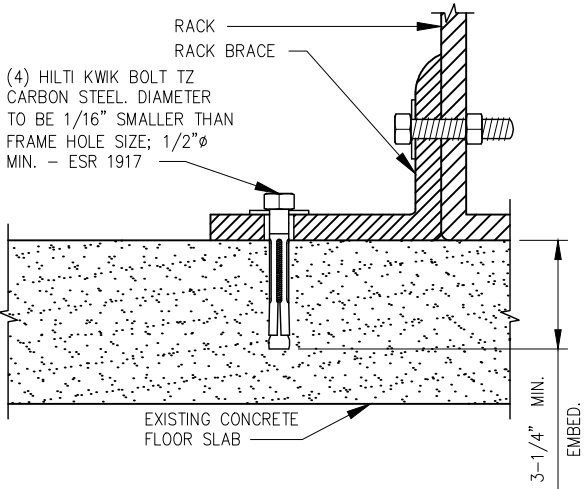
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D-1



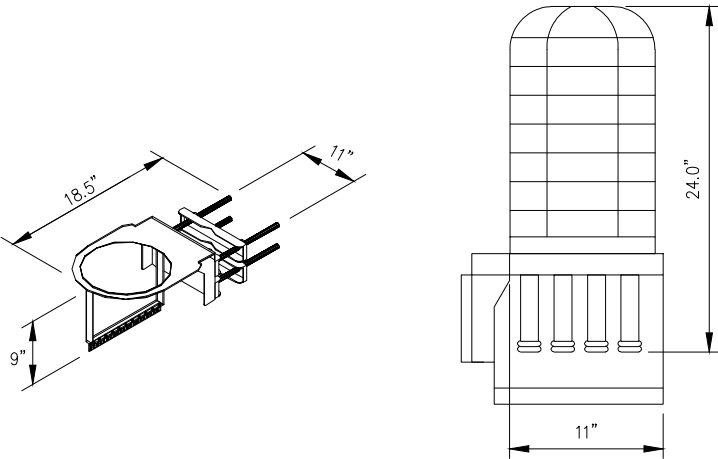
CORDEX RECTIFIER SPECIFICATIONS NOT AVAILABLE UPON ISSUANCE OF THESE PLANS

CORDEX CONVERTER SPECIFICATIONS NOT AVAILABLE UPON ISSUANCE OF THESE PLANS



RAYCAP DC6-48-60-18-8F

NOMINAL OPERATING VOLTAGE:	48 VDC
NOMINAL DISCHARGE CURRENT:	20 kA 8/20 $\mu$ s
MAXIMUM DISCHARGE CURRENT:	60 kA 8/20 $\mu$ s
MAXIMUM CONTINUOUS OPERATING VOLTAGE:	75 VDC
VOLTAGE PROTECTION RATING:	400 V
WIND LOADING:	150 MPH (SUSTAINED) 195 MPH (GUST)
TOTAL WEIGHT:	32 lbs.



RECTIFIER & CONVERTER DETAIL

NO SCALE

1

RACK MOUNT DETAIL

NO SCALE

2

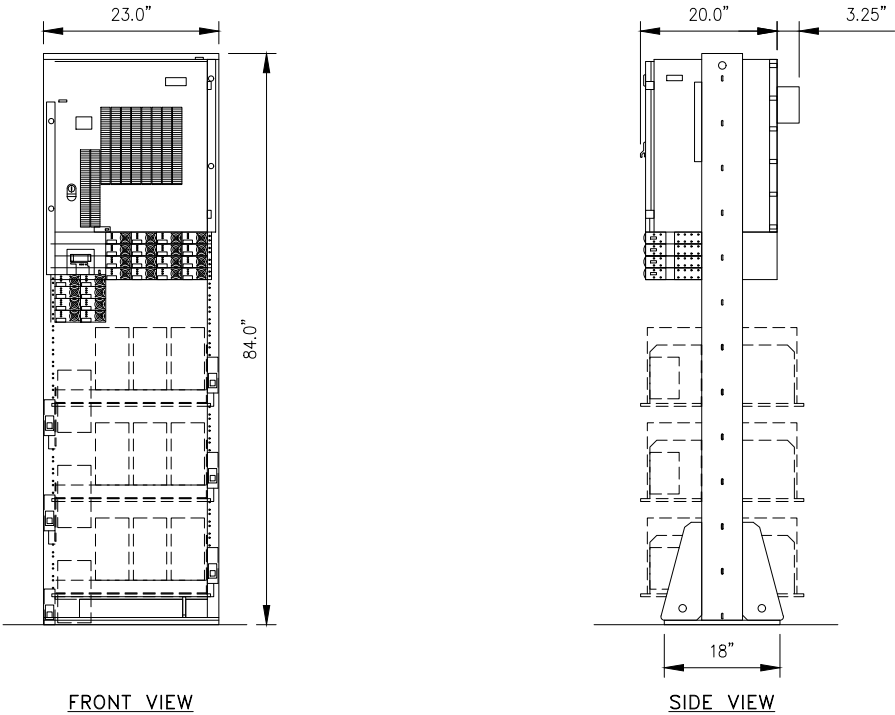
RAYCAP "SQUID" DC SURGE SUPPRESSOR

NO SCALE

3

EMERSON NETSURE 7100 -48VDC POWER SYSTEM [NEQ.19735]

DIMENSIONS (WxDxH): 23.0"x20.0"x84.0"



NOTE:  
FOR ANCHORAGE SEE SHEET D-2, DETAIL 2

NOTE:  
FOR GROUNDING SEE SHEET G-1, DETAIL 2

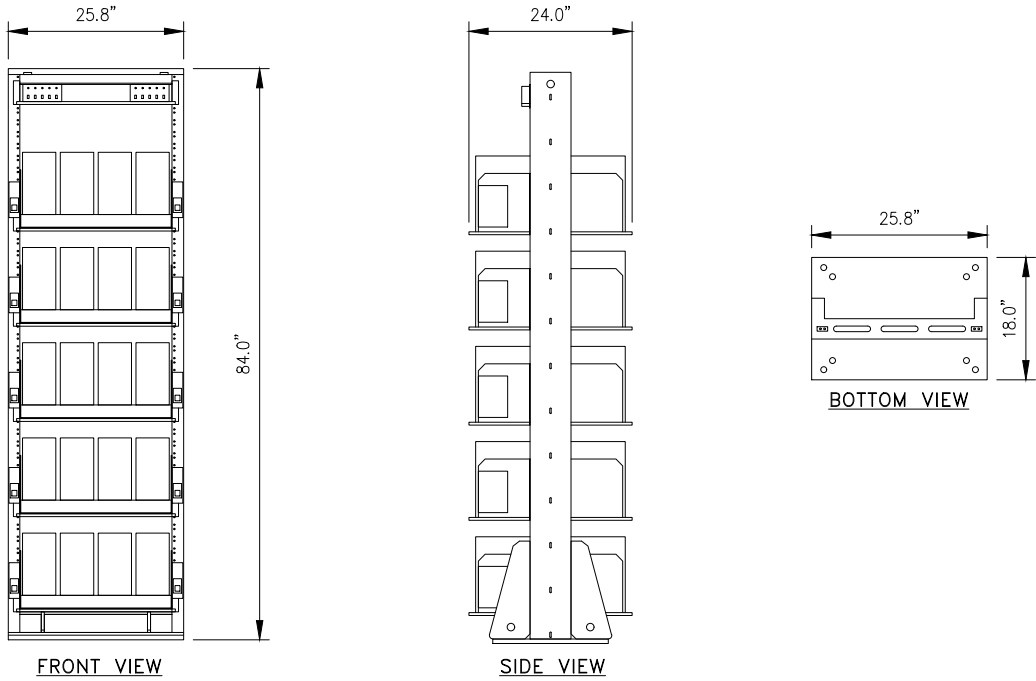
POWER SYSTEM DETAIL

NO SCALE

4

EMERSON SEISMIC RATED INDOOR -48VDC VRLA BATTERY RACK [NEQ.15312]

DIMENSIONS (WxDxH): 25.8"x24.0"x84.0"



NOTE:  
FOR ANCHORAGE SEE SHEET D-2, DETAIL 2

NOTE:  
FOR GROUNDING SEE SHEET G-1, DETAIL 2

BATTERY RACK DETAIL

NO SCALE

5

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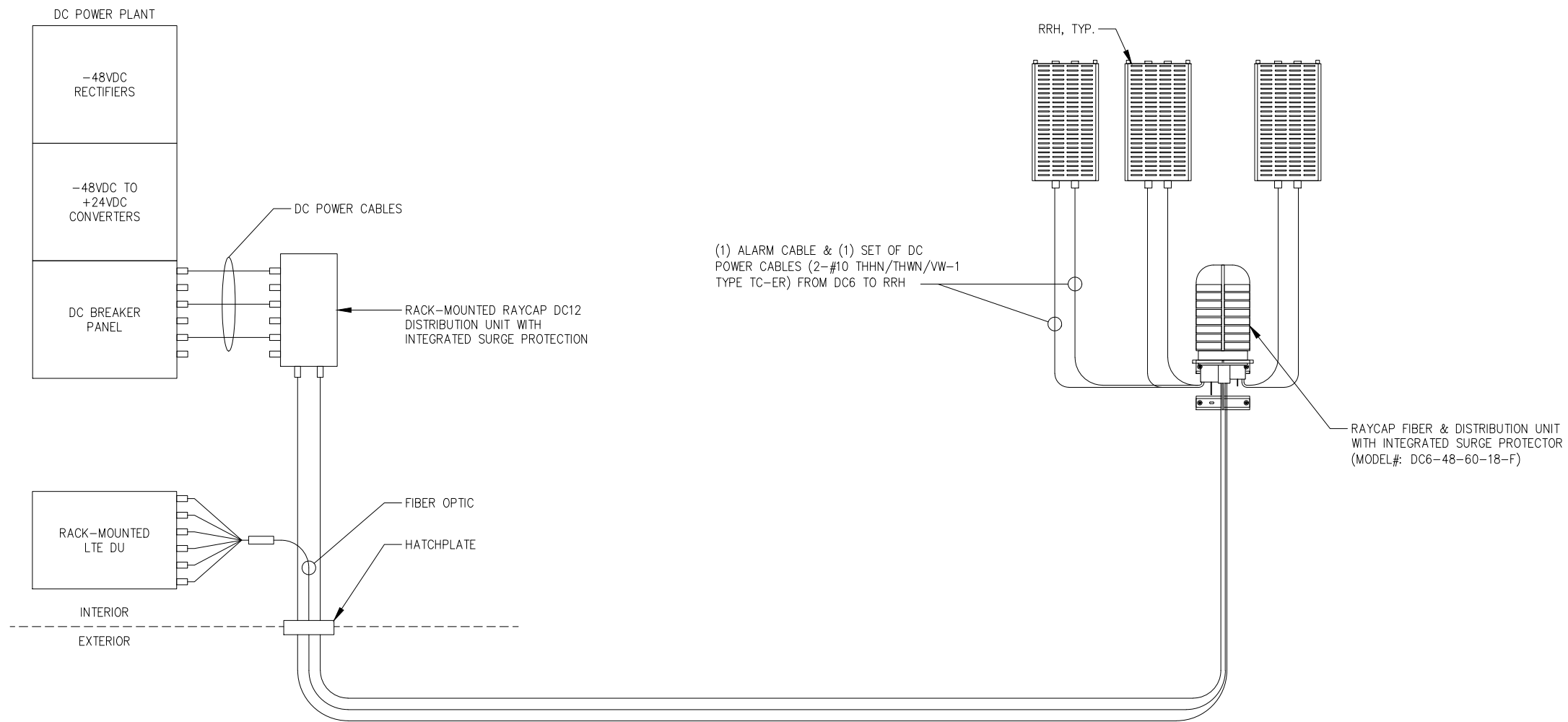
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BLACK FOREST, CO 80908

SHEET DESCRIPTION:

EQUIPMENT DETAILS

SHEET NUMBER:

D-2



- NOTE:
1. DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V. REFER TO ATT-002-290-701.
  2. NON-LTE DC POWER WIRING SIZE 14AWG TO 10AWG SHALL BE TELCOFLEX L2. DC POWER WIRING 8AWG AND LARGER SHALL BE TELCOFLEX L2. ALL TELCOFLEX MUST BE L2 IF REPLACED.
  3. LTE POWER WIRING SHALL BE IN ACCORDANCE WITH ATT-002-290-531.
  4. DC ELECTRICAL LOAD DEMAND FOR PROPOSED ADDITIONS WERE INCLUDED IN PRIOR AC LOAD CALCULATIONS.
  5. ALL UPGRADES TO EXISTING SERVICE IS RESPONSIBILITY OF THE OWNER.

PLANS PREPARED FOR:

PLANS PREPARED BY:

**INFINIGY8**  
ENGINEERING, PLLC

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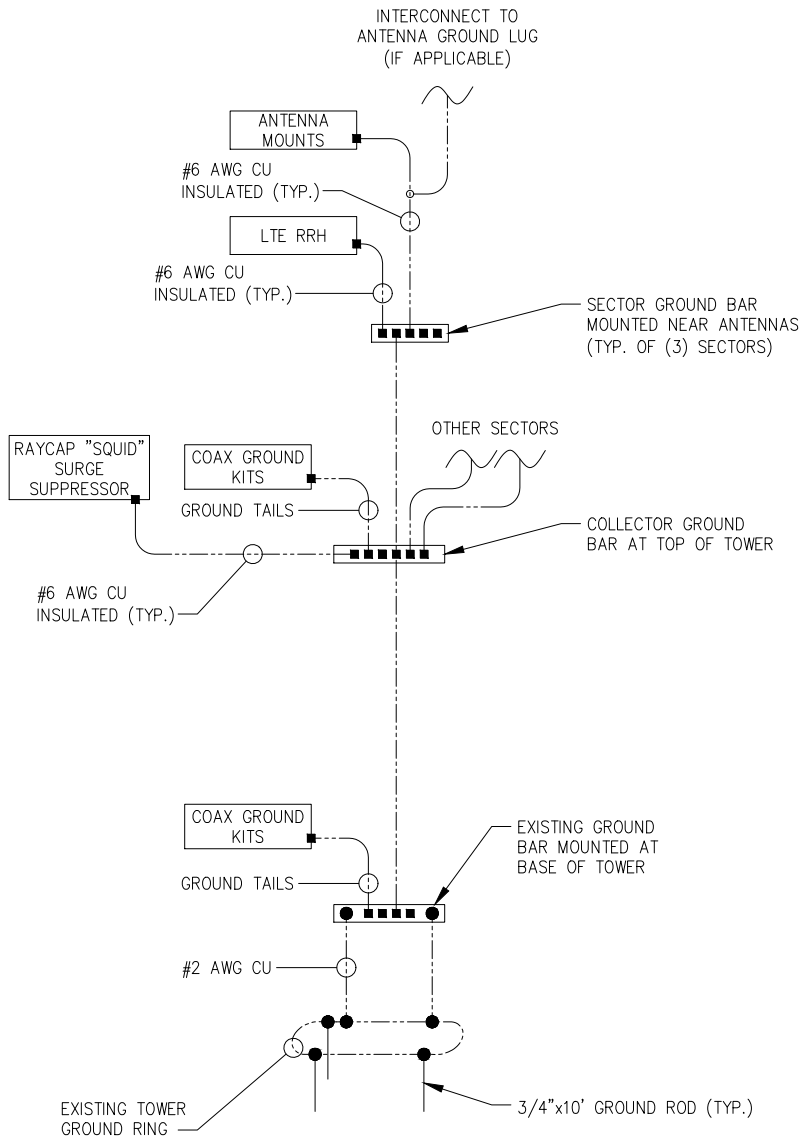
SHEET DESCRIPTION:

**DC SCHEMATIC  
DIAGRAM**

SHEET NUMBER:

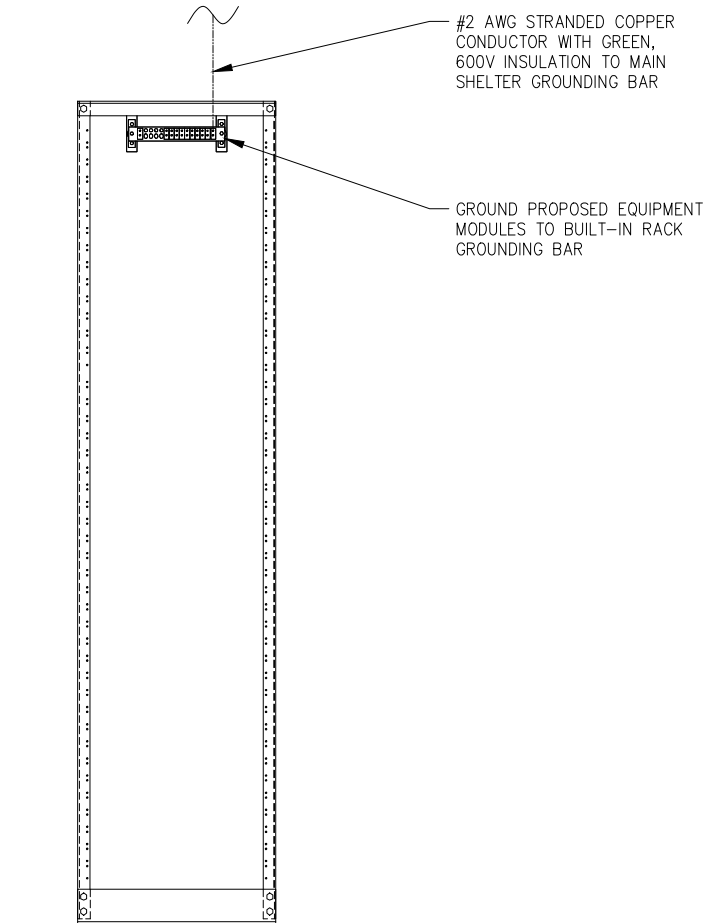
**E-1**





LEGEND:

- EXOTHERMIC
- COMPRESSION TYPE CONNECTIONS
- GROUNDING CONDUCTOR



NOTES:

1. SPACING BETWEEN EQUIPMENT WITHIN THE RACK SHALL BE ONE RACK UNIT (OR APPROXIMATELY 1-3/4").
2. SPACING BETWEEN RACKS MUST BE 1" MINIMUM.
3. REFER TO FINAL RFDs FOR RF DESIGN AND PLUMBING.
4. REFER TO EQUIPMENT LAYOUT FOR RACK LOCATION.
5. SEE PAGE G-2 FOR GROUNDING CONNECTION DETAILS.
6. MINIMUM 8 RACK UNITS OF SPACE ABOVE EQUIPMENT IN FIF RACKS.
7. MAINTAIN 4 RACK UNITS OF SPACE BETWEEN RAYCAP AND SUPPRESSORS.
8. ADD P-TAPE LABELS TO ALL EQUIPMENT.
9. DETAIL INDICATES TYPICAL CONFIGURATION. ACTUAL SITE CONDITIONS MAY DIFFER.

LEGEND:

- EXOTHERMIC
- COMPRESSION TYPE CONNECTIONS
- GROUNDING CONDUCTOR

PLANS PREPARED FOR:



PLANS PREPARED BY:

**INFINIGY**  
ENGINEERING, PLLC  
2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
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SHEET DESCRIPTION:

GROUNDING SCHEMATIC  
DIAGRAM

SHEET NUMBER:

G-1

LTE BUILDING GROUNDING SCHEMATIC (TYPICAL)

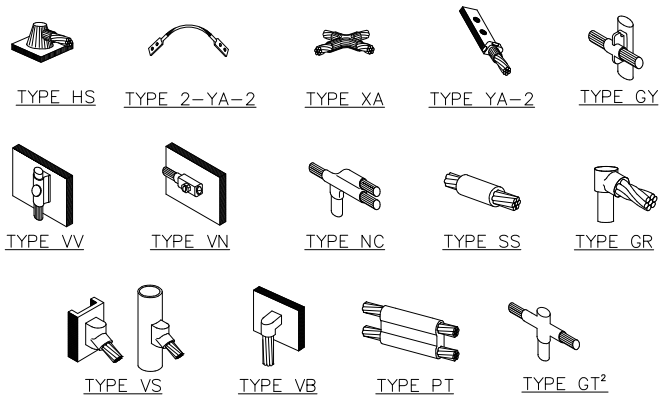
NO SCALE

1

RACK GROUNDING (TYPICAL)

NO SCALE

2

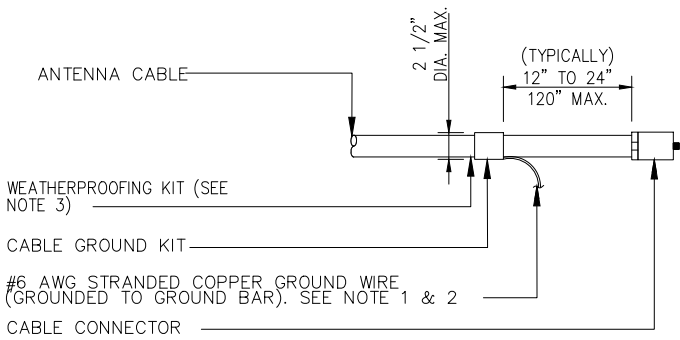


- NOTE:
1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
  2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

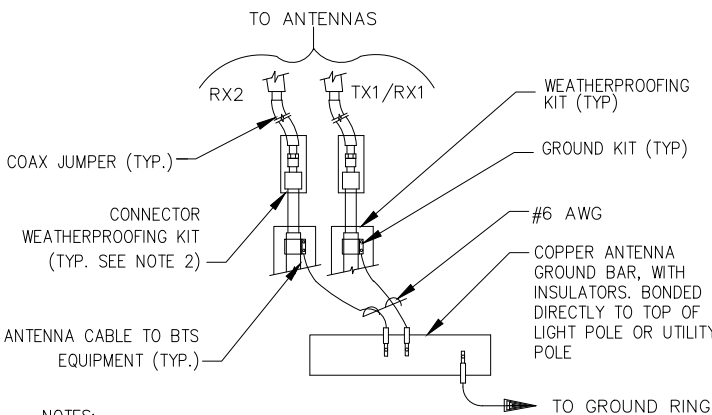
EXOTHERMIC WELD GROUNDING CONNECTIONS

NO SCALE

1



- NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
  2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
  3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.



- NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
  2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

CABLE GROUND KIT CONNECTION

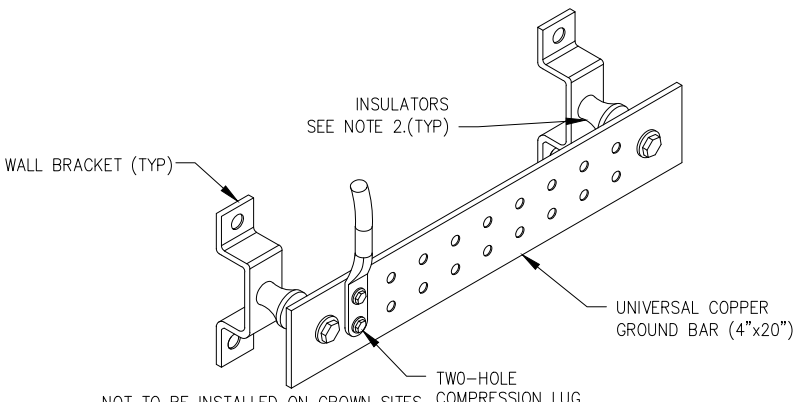
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3

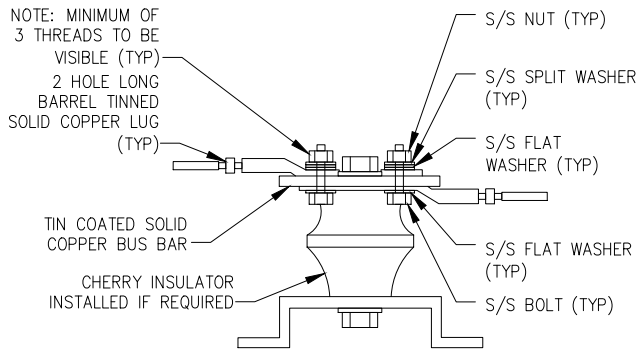
GROUND CABLE CONNECTION

NO SCALE

4



- NOTES:
1. DOWN LEAD (HOME RUN) CONDUCTORS PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, EXOTHERMIC WELDS ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
  2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.



- NOTE: MINIMUM OF 3 THREADS TO BE VISIBLE (TYP)
- 2 HOLE LONG BARREL TINNED SOLID COPPER LUG (TYP)
- TIN COATED SOLID COPPER BUS BAR
- CHERRY INSULATOR INSTALLED IF REQUIRED
- S/S NUT (TYP)
- S/S SPLIT WASHER (TYP)
- S/S FLAT WASHER (TYP)
- S/S FLAT WASHER (TYP)
- S/S BOLT (TYP)

GROUND BAR DETAIL

NO SCALE

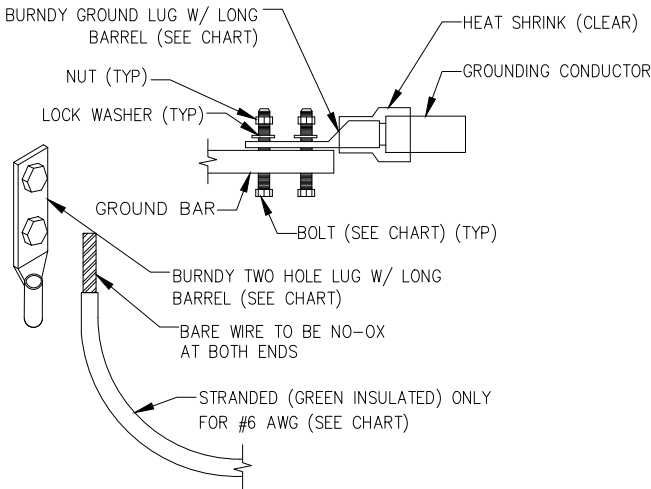
6

LUG DETAIL

NO SCALE

7

WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT

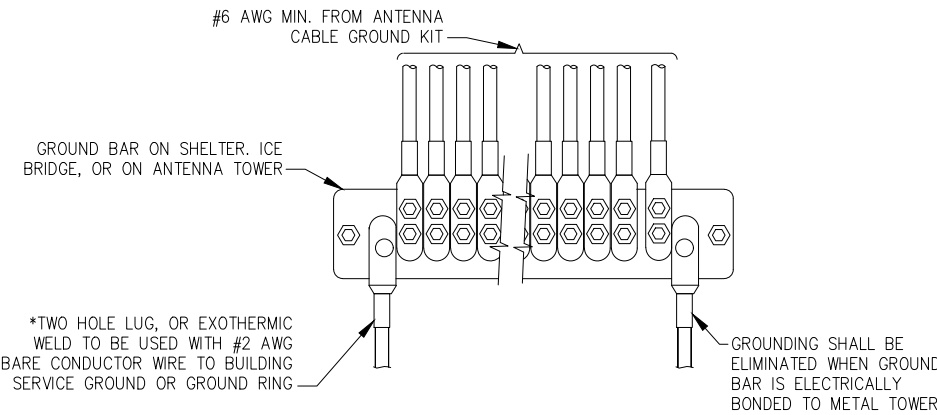


- NOTES :
1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

MECHANICAL LUG CONNECTION

NO SCALE

2



- \*TWO HOLE LUG, OR EXOTHERMIC WELD TO BE USED WITH #2 AWG BARE CONDUCTOR WIRE TO BUILDING SERVICE GROUND OR GROUND RING
- GROUNDING SHALL BE ELIMINATED WHEN GROUND BAR IS ELECTRICALLY BONDED TO METAL TOWER

GROUND WIRE INSTALLATION

NO SCALE

5

NOT USED

NO SCALE

8



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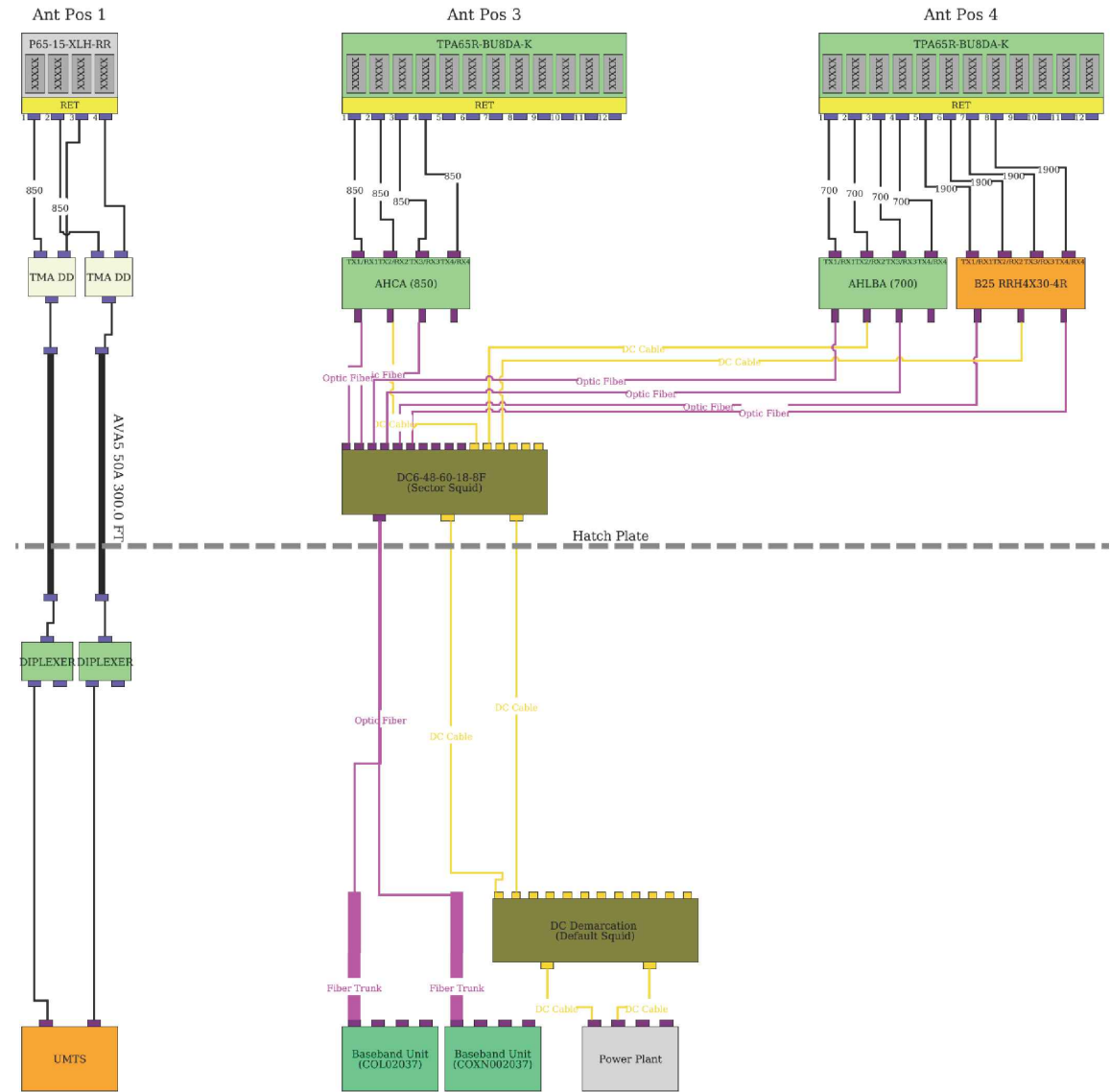
SHEET DESCRIPTION:

**GROUNDING DETAILS**


SHEET NUMBER:

**G-2**






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REVISED PER JURISDICTION COMMENTS	03/30/20	CAP	1
FINAL CD	01/22/20	CAP	0
REVISED/ISSUED FOR REVIEW	12/19/19	CAP	B
ISSUED FOR REVIEW	10/30/19	RCD	A

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BLACK FOREST

AT&T SITE NUMBER:

COL02037

AT&T FA NUMBER:

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SITE ADDRESS:

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BLACK FOREST, CO 80908

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

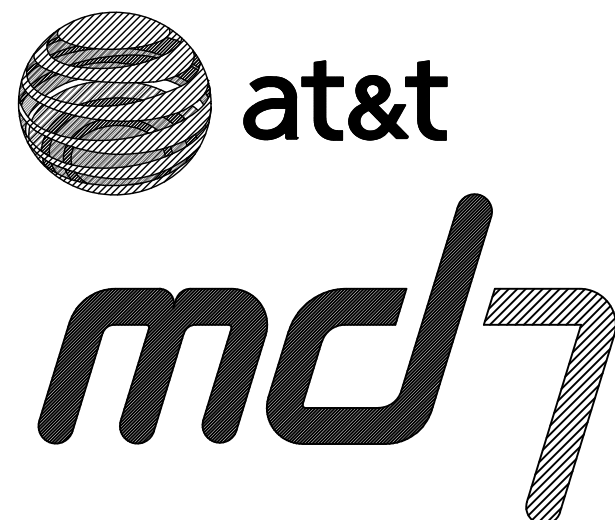
RF-1

# ANTENNA MODIFICATION DRAWINGS

PREPARED BY:

# INFINIGY®

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the solutions are endless

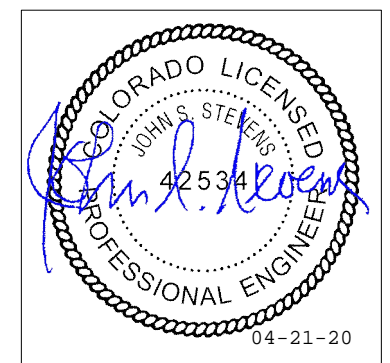


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12/09/2019

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**PROFESSIONAL SEAL**

IT IS A VIOLATION OF LAW FOR ANY PERSON,  
UNLESS THEY ARE ACTING UNDER THE  
DIRECTION OF A LICENSED PROFESSIONAL  
ENGINEER, TO ALTER THESE DOCUMENTS.



GENERAL NOTES:

- THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE LATEST VERSION OF APPLICABLE LOCAL/STATE/COUNTY/CITY BUILDING CODES, AS WELL AS ANSI/TIA-222 STANDARD, AWWA-D100 STANDARD, NDS, NEC, MSJC, AND/OR THE LATEST VERSION OF THE INTERNATIONAL BUILDING CODE, UNLESS NOTED OTHERWISE IN THE CORRESPONDING STRUCTURAL REPORT.
- ALL CONSTRUCTION METHODS SHOULD FOLLOW STANDARDS OF GOOD CONSTRUCTION PRACTICE.
- ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN SIMILAR CONSTRUCTION.
- ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. IF OBSTRUCTIONS ARE FOUND, CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD PRIOR TO CONTINUING WORK.
- ANY CHANGES OR ADDITIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL CHANGES OR ADDITIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION AND/OR CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE DURING CONSTRUCTION. TIA-1019-A-2011 IS AN APPROPRIATE REFERENCE FOR THOSE DESIGNS MEETING TIA STANDARDS. THE ENGINEER OF RECORD MAY PROVIDE FORMAL RIGGING PLANS AT THE REQUEST AND EXPENSE OF THE CONTRACTOR.
- INSTALLATION SHALL NOT INTERFERE NOR DENY ADEQUATE ACCESS TO OR FROM ANY EXISTING OR PROPOSED OPERATIONAL AND SAFETY EQUIPMENT.
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO ANY FABRICATION. CONTACT INFINIGY ENGINEERING IF ANY DISCREPANCIES EXIST.

STEEL CONSTRUCTION NOTES:

- STRUCTURAL STEEL SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION, FOR THE DESIGN AND FABRICATION OF STEEL COMPONENTS.
- ALL FIELD CUT SURFACES, FIELD DRILLED HOLES, AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS' RECOMMENDATIONS.
- ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.
- ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
- ALL STEEL MEMBERS AND CONNECTIONS SHALL MEET THE FOLLOWING GRADES:
  - ANGLES, CHANNELS, PLATES AND BARS TO BE A36. Fy=36 KSI, U.N.O.
  - W SHAPES TO BE A992. Fy=50 KSI, U.N.O.
  - RECTANGULAR HSS TO BE A500, GRADE B. Fy=46 KSI, U.N.O.
  - ROUND HSS TO BE A500, GRADE B. Fy=42 KSI, U.N.O.
  - STEEL PIPE TO BE A53, GRADE B. Fy=35 KSI, U.N.O.
  - BOLTS TO BE A325-X. Fu=120 KSI, U.N.O.
  - U-BOLTS AND LAG SCREWS TO BE A307 GR A. Fu=60 KSI, U.N.O.
- ALL WELDING SHALL BE DONE USING E70XX ELECTRODES, U.N.O.
- ALL WELDING SHALL CONFORM TO AISC AND AWS D1.1 LATEST EDITION.
- ALL HILTI ANCHORS TO BE CARBON STEEL, U.N.O.
  - MECHANICAL ANCHORS: KWIK BOLT-TZ, U.N.O.
  - CMU BLOCK ANCHORS: ADHESIVE - HY120, U.N.O.
  - CONCRETE ANCHORS: ADHESIVE - HY150, U.N.O.
  - CONCRETE REBAR: ADHESIVE - RE500, U.N.O.
- ALL STUDS TO BE NELSON CAPACITOR DISCHARGE 1/4"-20 LOW CARBON STEEL COPPER-FLASH AT 55 KSI ULT/50 KSI YIELD, U.N.O.
- BOLTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
- MINIMUM EDGE DISTANCES SHALL CONFORM TO AISC TABLE J3.4.
- REMOVAL/REPLACEMENT OF STRUCTURAL MEMBERS SHALL BE DONE ONE MEMBER AT A TIME. CONTRACTOR IS RESPONSIBLE FOR ENSURING THE STRUCTURAL INTEGRITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION.

CONCRETE CONSTRUCTION NOTES:

- CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR IS NOT PERMITTED.
- EXISTING CONCRETE SURFACES THAT ARE TO BE IN CONTACT WITH NEW PROPOSED CONCRETE SHOULD BE WIRE BRUSHED CLEAN AND TREATED WITH APPROPRIATE MECHANICAL SCRATCH COAT AND REPAIR MATERIALS OR APPROPRIATE CHEMICAL METHODS SUCH AS THE APPLICATION OF A BONDING AGENT, EX. SAKRETE OR EQUIVALENT, TO ENSURE A QUALITY BOND BETWEEN EXISTING AND PROPOSED CONCRETE SURFACES.

FIBER REINFORCED POLYMER (FRP) NOTES:

- FRP PLATES, SHAPES, BOLTS AND NUTS (STUD/NUT ASSEMBLIES) SHALL CONFORM TO ASTM D638, 695, 790. PLATES AND SHAPES TO BE FY = 5.35 KSI LW (SAFETY FACTOR OF 8), .945 KSI CW (SAFETY FACTOR OF 8) MIN.
- IF FIELD FABRICATION IS REQUIRED, ALL CUT EDGES AND DRILLED HOLES TO BE SEALED USING VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
- ALL FASTENERS TO BE 1/2" DIA FRP THREADED ROD WITH FIBER REINFORCED THERMOPLASTIC NUT, SPACED AT 12 INCHES ON CENTER MAXIMUM, U.N.O., FOR PANELS AND AS DESIGNED FOR STRUCTURAL MEMBERS.
- THE COLOR AND SURFACE PATTERN OF EXPOSED FRP PANELS SHALL MATCH THE EXTERIOR OF THE EXISTING BUILDING, U.N.O.
- STUD/NUT ASSEMBLIES SHOULD BE LUBRICATED FOR INSTALLATION
- ENSURE BEARING SURFACES OF THE NUTS ARE PARALLEL TO THE SURFACES BEING FASTENED.
- TORQUE BOLTS ACCORDING TO THE FOLLOWING TABLE:

INSTALLATION TORQUE TABLE		
SIZE	ULTIMATE TORQUE STRENGTH	RECOMMENDED MAXIMUM INSTALLATION TORQUE
3/8-16 UNC	8 FT-LBS	4 FT-LBS
1/2-13 UNC	18 FT-LBS	8 FT-LBS
5/8-11 UNC	35 FT-LBS	16 FT-LBS
3/4-10 UNC	50 FT-LBS	24 FT-LBS
1-8 UNC	110 FT-LBS	50 FT-LBS

- WHEN TIGHTENING FRP STUD/NUT ASSEMBLIES, WRENCHES MUST MAKE FULL CONTACT WITH ALL NUT EDGES. A STANDARD SIX POINT SOCKET IS RECOMMENDED.
- STUD/NUT ASSEMBLIES SHOULD BE BONDED BY APPLYING BONDING AGENT TO ENTIRE NUT AND EXPOSED STUD.
- ALL FRP MATERIALS TO BE PROVIDED BY FIBERGRATE COMPOSITE STRUCTURES, DALLAS TX, OR APPROVED EQUAL.
- ALL FRP SHAPES TO BE DYNAFORM PULTRUDED STRUCTURAL SHAPES.
- ALL FRP PLATES TO BE FIBERPLATE MOLDED FRP PLATE.
- ALL FRP PANELS TO BE FIBERPLATE CLADDING PANEL.
- EACH FRP PANEL TO BE IDENTIFIED WITH LARR#25536 AND FIBERGRATE COMPOSITE STRUCTURAL LABEL.
- FRP MATERIAL TO BE CLASSIFIED AS CC1 OR BETTER, AND HAVE MAXIMUM FLAME SPREAD OF 50.
- ALL DESIGN AND CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH LOS ANGELES RESEARCH REPORT RR25536, DATED FEBRUARY 1, 2016.
- SPECIAL INSPECTIONS MUST BE PROVIDED FOR ALL FRP INSTALLMENTS. SEE SPECIAL INSPECTION SECTION, THIS SHEET.

RATIO OF EDGE DISTANCE TO FRP FASTENER DIAMETER		
	RANGE	RECOMMENDED
EDGE DISTANCE - CL* BOLT TO END	2.0-4.0	3.0
EDGE DISTANCE - CL* BOLT TO SIDE	1.5-3.5	2.5
BOLT PITCH - CL* TO CL*	4.0-5.0	5.0

WOOD CONSTRUCTION NOTES:

- ALL EXISTING WOOD SHAPES ARE ASSUMED TO BE DOUGLAS FIR-LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN.
- ALL PROPOSED WOOD SHAPES ARE TO BE DOUGLAS FIR-LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN. U.N.O.
- ALL EXISTING AND PROPOSED GLUED LAMINATED TIMBERS ARE TO BE 24F-1.8C DOUGLAS FIR BALANCED WITH A REFERENCE DESIGN BENDING VALUE OF 2400 PSI MIN. U.N.O.

MASONRY CONSTRUCTION NOTES:

- ALL BRICK TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
  - FOR INTERIOR/ABOVE GRADE APPLICATIONS TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 100 PSI SHALL BE USED. FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 133 PSI.
  - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
- ALL CMU TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
  - FOR INTERIOR/ABOVE GRADE APPLICATIONS, TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 64 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 158 PSI FOR FULLY GROUTED BLOCKS.
  - FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 84 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 163 PSI FOR FULLY GROUTED BLOCKS.
  - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.

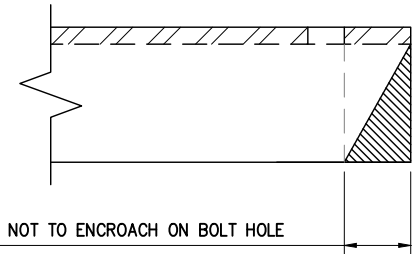
TOWER PLUMB & TENSION NOTES:

- PLUMB AND TENSION TOWER UPON COMPLETION OF STRUCTURAL MODIFICATIONS DETAILED IN THESE DRAWINGS.
- RETENSIONING OF EXISTING GUY WIRES SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE AND GUY WIRES.
- PLUMB THE TOWER WHILE RETENSIONING THE EXISTING GUY WIRES. THE HORIZONTAL DISTANCE BETWEEN THE VERTICAL CENTERLINES AT ANY TWO ELEVATIONS SHALL NOT EXCEED 0.25% OF THE VERTICAL DISTANCE BETWEEN TWO ELEVATIONS FOR LATTICED STRUCTURES.
- THE TWIST BETWEEN ANY TWO ELEVATIONS THROUGHOUT THE HEIGHT OF A LATTICE STRUCTURE SHALL NOT EXCEED 0.5 DEGREES IN 10 FEET. THE MAXIMUM TWIST OVER THE LATTICE STRUCTURE HEIGHT SHALL NOT EXCEED 5 DEGREES.

SPECIAL INSPECTIONS NOTES:

- A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER AND APPROVED BY THE JURISDICTION, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH THE THE GOVERNING BUILDING CODE, APPLICABLE SECTION(S) AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
  - STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELDS ONLY).
  - HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 AND/OR A490 BOLTS) TO BE TIGHTENED PER "TURN-OF-THE-NUT" METHOD.
  - MECHANICAL AND EPOXIED ANCHORAGES.
  - FIBER REINFORCED POLYMER.
    - THE SPECIAL INSPECTOR MUST VERIFY THAT THE FRP MATERIAL SPECIFIED ON THE APPROVED DESIGN DOCUMENTS IS BEING INSTALLED.
    - THE SPECIAL INSPECTOR MUST VERIFY THAT ALL CUT EDGES AND DRILLED HOLES ARE PROPERLY SEALED USING A VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
    - THE SPECIAL INSPECTOR MUST VERIFY THAT THE STRUCTURE IS BUILT IN ACCORDANCE WITH THE APPROVED DESIGN DOCUMENTS.
- THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM WORK WITHOUT THE SPECIAL INSPECTIONS.

MAXIMUM ALLOWABLE ANGLE CLIP



PLANS PREPARED FOR:



PLANS PREPARED BY:

**INFINIGY**  
**ENGINEERING, PLLC**

2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068

JOB NUMBER: 674-003

PROJECT MANAGER:



10590 W. OCEAN AIR DRIVE, SUITE 300  
SAN DIEGO, CA 92130

ENGINEERING LICENSE:



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DESCRIPTION	DATE	BY	REV
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AT&T SITE NAME:

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AT&T SITE NUMBER:

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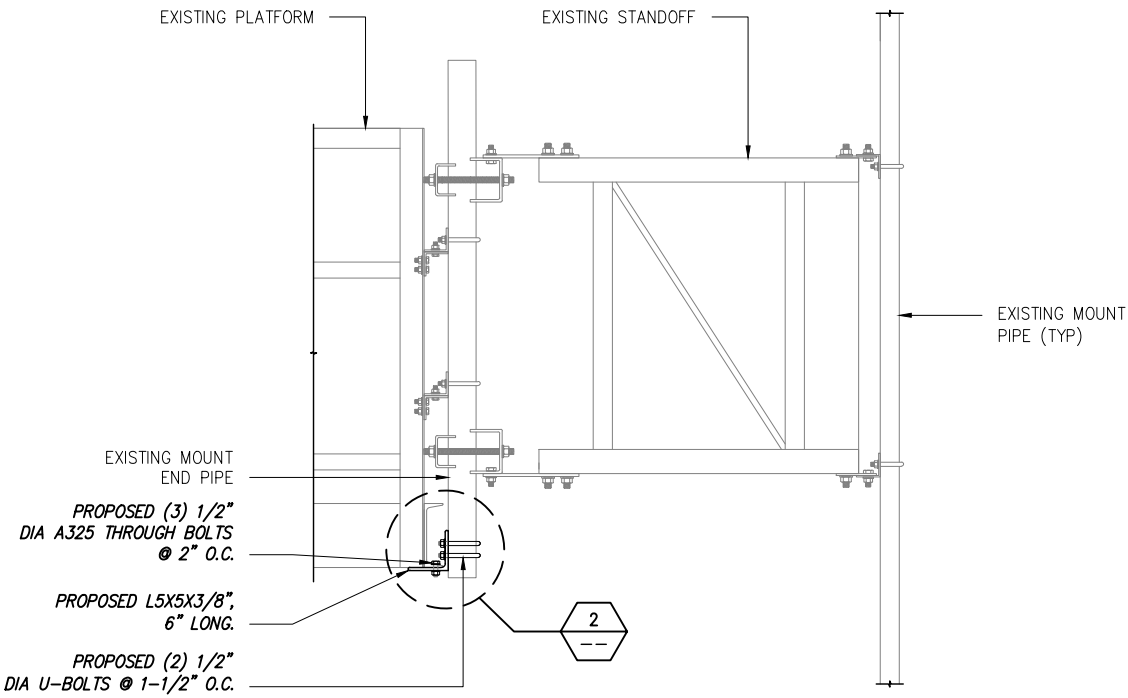
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**GENERAL  
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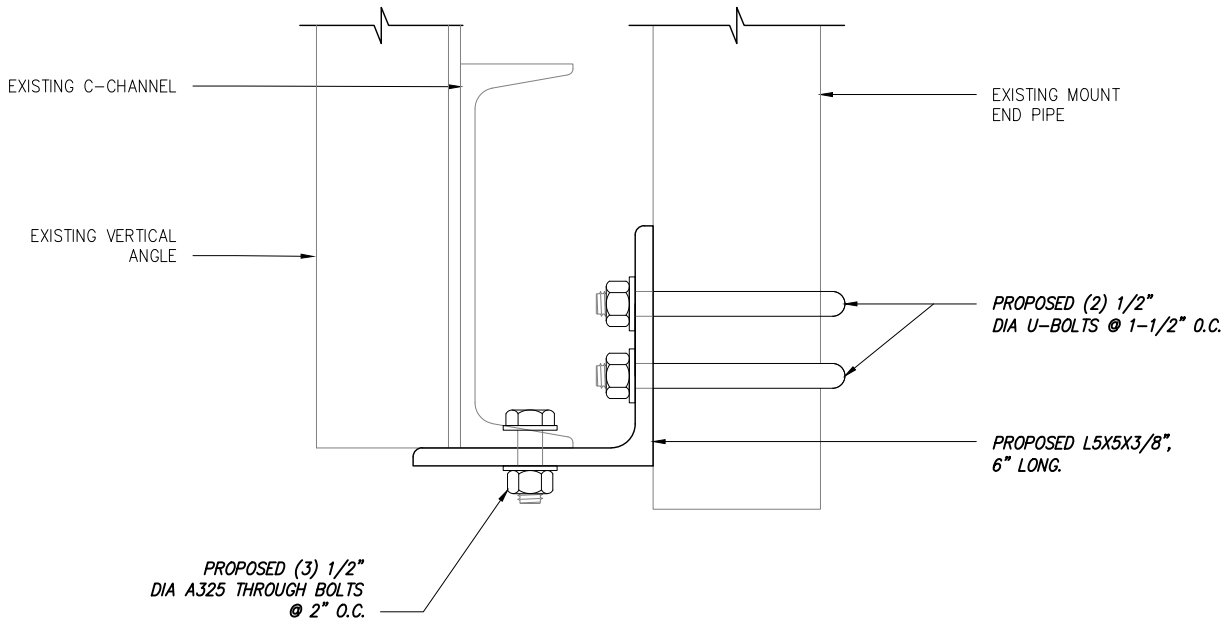
SHEET NUMBER:

**S2**

NOTES:  
1. VARIOUS EXISTING CONDITIONS AND PROPOSED MODIFICATIONS NOT SHOWN FOR CLARITY.  
2. CONTRACTOR TO FIELD VERIFY THE REQUIRED WIDTH OF THE BOLT.



1 ELEVATION VIEW  
SCALE: NOT TO SCALE



2 DETAIL — ELEVATION VIEW  
SCALE: NOT TO SCALE

PLANS PREPARED FOR:

PLANS PREPARED BY:  
**INFINIGY**  
ENGINEERING, PLLC  
2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
Office # (847) 648-4068  
JOB NUMBER: 674-003

PROJECT MANAGER:  
**md7**  
10590 W. OCEAN AIR DRIVE, SUITE 300  
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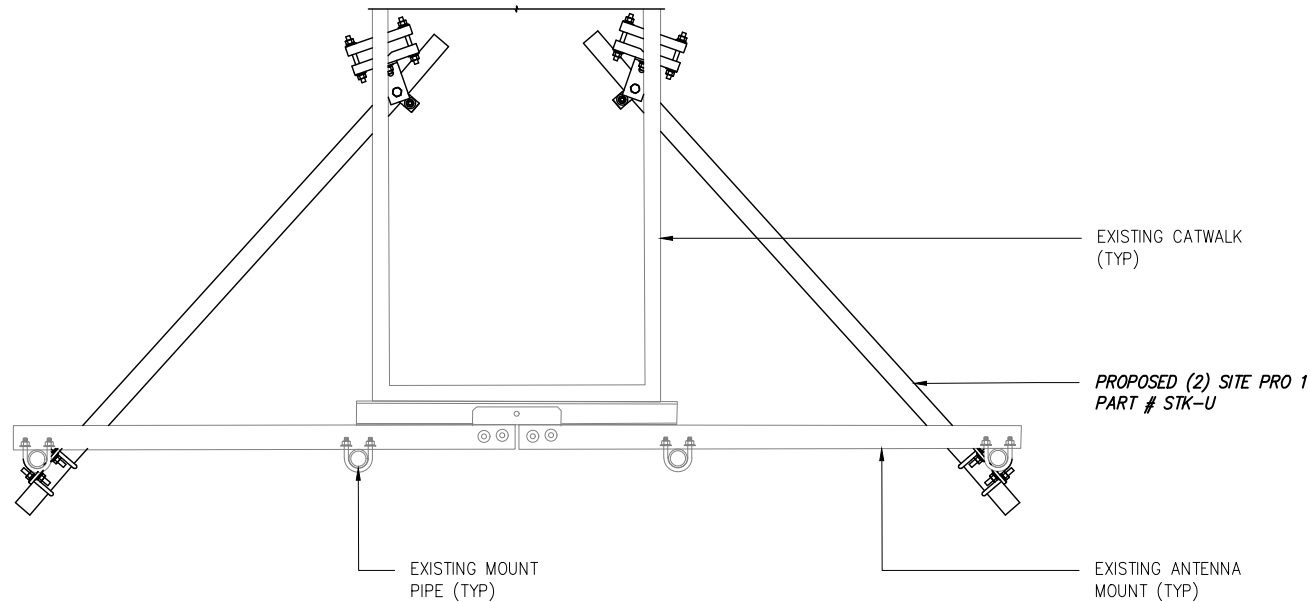
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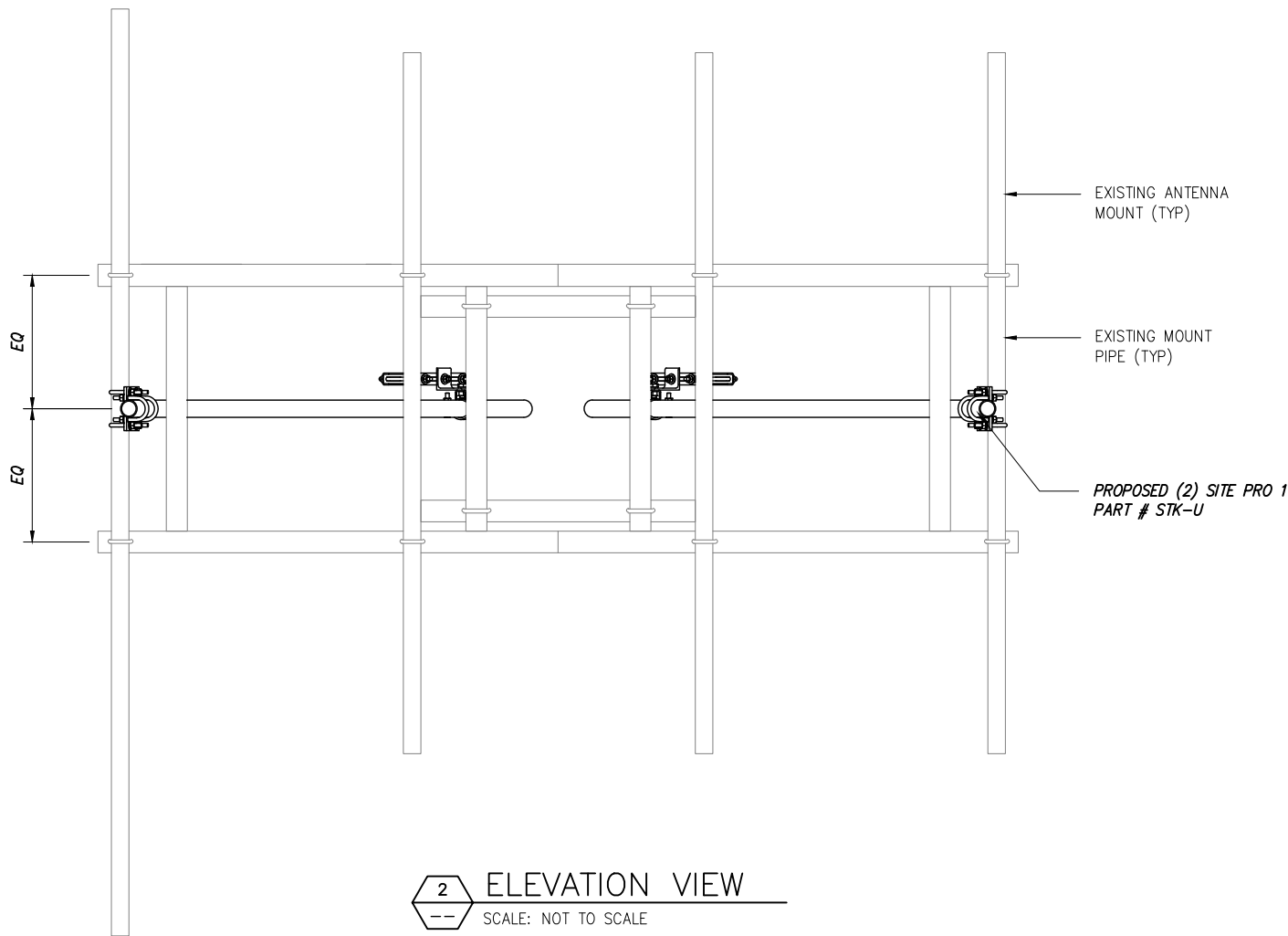
SHEET DESCRIPTION:  
**ALPHA SECTOR  
MODIFICATIONS**

SHEET NUMBER:  
**S3**






1 PLAN VIEW  
-- SCALE: NOT TO SCALE



2 ELEVATION VIEW  
-- SCALE: NOT TO SCALE

- NOTES:
1. VARIOUS EXISTING CONDITIONS AND PROPOSED MODIFICATIONS NOT SHOWN FOR CLARITY.
  2. ALL SITE PRO 1 PARTS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS, EXCEPT IF OTHERWISE NOTED.
  3. CONTRACTOR TO CONNECT SITE PRO 1 STK-U TO CATWALK'S VERTICAL ANGLE AT SAME ELEVATION.

PLANS PREPARED FOR:



PLANS PREPARED BY:

INFINIGY<sup>®</sup>

ENGINEERING, PLLC

2500 W. HIGGINS RD, SUITE 500  
HOFFMAN ESTATES, IL 60169  
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SHEET DESCRIPTION:

BETA & GAMMA  
SECTOR MODS

SHEET NUMBER:

S4