

Sprint VISION

SITE NUMBER:

BS23XC398-A

SITE NAME:

AT&T MONOPOLE

SITE ADDRESS:

**533 MAIN STREET
ACTON, MA 01720**

AT&T TOWER SITE ID #: 3150

Sprint
VISION

1 INTERNATIONAL BLVD., SUITE 800
MAHWAH, NJ 07495
OFFICE: (201) 684-4000
FAX: (201) 648-4223

Alcatel-Lucent

1 ROBBINS RD
WESTFORD MA 01886
OFFICE: (978) 692-1153

**ATLANTIS
GROUP**

1340 Centre Street, Suite 203
Newton Center, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

SITE INFORMATION

SITE NUMBER: BS23XC398-A
SITE NAME: AT&T MONOPOLE
SITE ADDRESS: 533 MAIN STREET
ACTON, MA 01720
COUNTY: MIDDLESEX

PROPERTY OWNER: AT&T TOWER
400 BLUE HILL DRIVE,
SUITE 100,
WESTWOOD, MA 02090

STRUCTURE OWNER: AT&T TOWER
400 BLUE HILL DRIVE,
SUITE 100,
WESTWOOD, MA 02090

APPLICANT: SPRINT SPECTRUM REALTY
COMPANY, L.P.
1 INTERNATIONAL BLVD
SUITE 800
MAHWAH, NJ 07495
P: (201) 684-4000

APPLICANT REPRESENTATIVE: ALCATEL-LUCENT
1 ROBBINS ROAD
WESTFORD, MA 01886
P: (978) 952-1600

SITE ACQUISITION REPRESENTATIVE: C. DAVIS ASSOCIATES
66-H CONCORD STREET
WILMINGTON, MA 01887
ATTN: MICHAEL P. GRANESE
CELL: (978) 621-1381

ARCHITECT/ENGINEER: ATLANTIS GROUP INC.
1340 CENTRE ST. SUITE 203
NEWTON CENTER, MA 02459
OFFICE: (617) 965-0789

*** COORDINATES:** N 42° 29' 23.1"
W 71° 25' 29.0"

*** GROUND ELEV:** 228' ± AMSL

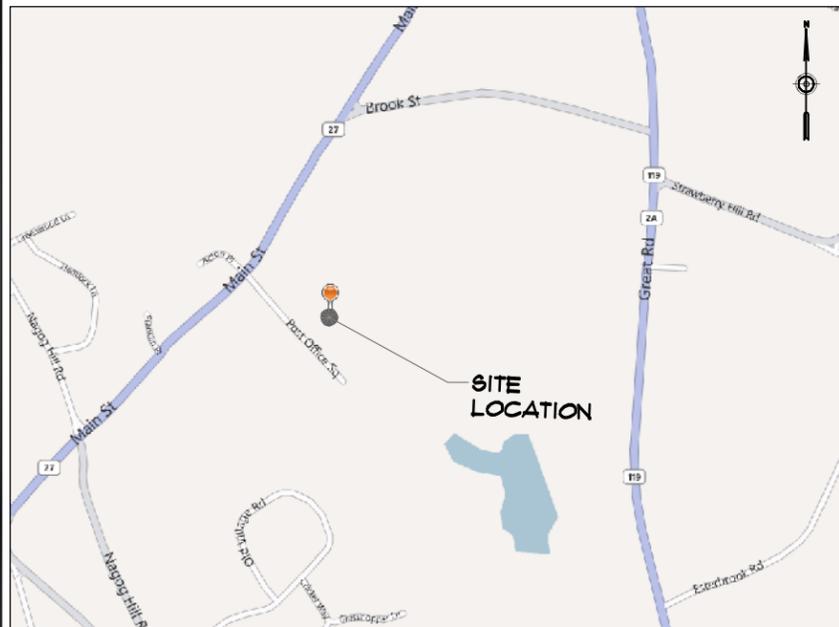
STRUCTURE TYPE: FLAGPOLE
STRUCTURE HEIGHT: 150' ± AGL

ANTENNA RAD CENTER: 131' ± AGL

LOCAL POWER COMPANY: NATIONAL GRID
LOCAL TELCO COMPANY: VERIZON

*** SOURCE OF COORDINATES AND ELEVATION:**
SPRINT SITERRA DATABASE CONFIRMED BY
ALCATEL-LUCENT USING GOOGLE EARTH.

VICINITY MAP (NOT TO SCALE)



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SUBMITTALS

NO	DATE	DESCRIPTION	BY
A	02/22/12	ISSUED FOR REVIEW	MB
0	6/19/12	PRELIMINARY FINAL	MB
1	7/11/12	FINAL	MB

GENERAL NOTES

- THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED.
- FACILITY HAS NO PLUMBING OR REFRIGERANTS.
- THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATOR REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
- DEVELOPMENT AND USE OF THIS SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.

BUILDING CODE: MASSACHUSETTS STATE BUILDING CODE 780
CMR - 8TH EDITION

ELECTRICAL CODE: 2008 NATIONAL ELECTRIC CODE

STRUCTURAL CODE: TIA/EIA - 222 - G OR LATEST EDITION
- REFER TO STRUCTURAL ANALYSIS DOCUMENT ENTITLED "REVISED RIGOROUS STRUCTURAL ANALYSIS REPORT" PREPARED BY GPD GROUP, "AT&T TOWER SITE ID 3150", DATED MARCH 30, 2012

SCOPE OF WORK

- SPRINT PROPOSES: TO MODIFY AN EXISTING WIRELESS TELECOMMUNICATIONS FACILITY AS FOLLOWS:
- (1) NEW MULTIMODE BTS CABINET TO REPLACE (1) EXISTING MODCELL CABINET WITHIN EXISTING LEASE AREA.
 - (2) NEW BBU CABINETS TO REPLACE (1) EXISTING POWER PLANT CABINET.
 - (1) NEW FIBER DISTRIBUTION BOX.
 - (3) 800/1900 MM ANTENNAS TO REPLACE (3) EXISTING CDMA ANTENNAS.
 - (3) 800MHZ AND (3) 1900MHZ RRH ALL NEW.
 - (3) HYBRIFLEX CABLES FROM EQUIPMENT TO ANTENNAS.
 - (1) GPS ANTENNA TO REPLACE EXISTING GPS ANTENNA.
 - NEW FIBER LINES FROM MEET POINT TO EQUIPMENT.

DIG SAFE SYSTEMS, INC.
1-888-DIG-SAFE (344-7233)



APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

CONSTRUCTION: _____ DATE: _____

SITE ACQUISITION: _____ DATE: _____

LEASING/
RF. ENGINEER: _____ DATE: _____

LANDLORD/
PROPERTY OWNER: _____ DATE: _____

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SHEET TITLE:
TITLE SHEET

SHEET NO:
1

DIVISION 01000-GENERAL NOTES

- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
- THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE PROJECT OWNER'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.
- THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
- THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL OBTAIN AUTHORIZATION FROM THE PROJECT OWNER'S REPRESENTATIVE TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS / CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
- THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
- THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
- THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE BASIC STATE BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK 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 CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. THE CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, D) TRENCHING AND EXCAVATION OF ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHICH INTERFERE WITH THE EXECUTION OF THE WORK SHALL BE REMOVED AND OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT THE POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER.
- THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
- THE CONTRACTOR SHALL NOTIFY THE THE RF ENGINEER FOR ANTENNA AZIMUTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO CONDUCTING SWEET TESTS.
- THE CONTRACTOR SHALL SUBMIT AT THE END OF THE PROJECT A COMPLETE SET OF AS-BUILT DRAWINGS TO THE CLIENT REPRESENTATIVE.

DIVISION 03000-CONCRETE

- 1.03 APPLICABLE STANDARDS (USE LATEST EDITIONS)
- ACI-301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
 - ACI-347 GUIDE TO FORM WORK FOR CONCRETE.
 - ASTM C33- CONCRETE AGGREGATE
 - ASTM C94 - READY MIXED CONCRETE
 - ASTM C150 - PORTLAND CEMENT.
 - ASTM C260 - AIR-ENTRAINING ADMIXTURES FOR CONCRETE
 - ASTM C309- LIQUID MEMBRANE FORMING COMPOUNDS FOR CURING CONCRETE.
 - ASTM C494 - CHEMICAL ADMIXTURES FOR CONCRETE
 - ASTM A615- DEFORMED AND PLAIN BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT
 - ASTM A185- STEEL WELDED WIRE FABRIC (PLAIN) FOR CONCRETE REINFORCEMENT
- 1.04 QUALITY ASSURANCE
- CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ARCHITECT/ENGINEER AS DIRECTED BY THE CLIENT'S REPRESENTATIVE.
- 3.04 SURFACE FINISHES
- SURFACES AGAINST WHICH BACKFILL OR CONCRETE SHALL BE PLACED REQUIRE NO TREATMENT EXCEPT REPAIR OF DEFECTIVE AREAS.
 - SURFACES THAT WILL BE PERMANENTLY EXPOSED SHALL PRESENT A UNIFORM FINISH PROVIDED BY THE REMOVAL OF FINIS AND THE FILLING HOLES AND OTHER IRREGULARITIES WITH DRY PACK GROUT, OR BY SACKING WITH UTILITY OR ORDINARY GROUT.
 - SURFACES THAT WOULD NORMALLY BE LEVEL AND WHICH WILL BE PERMANENTLY EXPOSED TO THE WEATHER SHALL BE SLOPED FOR DRAINAGE. UNLESS ENGINEER'S DESIGN DRAWING SPECIFIES A HORIZONTAL SURFACE OR SURFACES SUCH AS STAIR TREADS, WALLS, CURBS, AND PARAPETS SHALL BE SLOPED APPROXIMATELY 1/4" PER FOOT.
 - SURFACES THAT WILL BE COVERED BY BACKFILL OR CONCRETE SHALL BE SMOOTH SCREENED.
 - EXPOSED SLAB SURFACES SHALL BE CONSOLIDATED, SCREENED, FLOATED, AND STEEL TROWELED. HAND OR POWER-DRIVEN EQUIPMENT MAY BE USED FOR FLOATING. FLOATING SHALL BE STARTED AS SOON AS THE SCREENED SURFACE HAS ATTAINED A STIFFNESS TO PERMIT FINISHING OPERATIONS. OPERATIONS. ALL EDGES MUST HAVE A 3/4" CHAMFER.
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- CONCRETE EXPANSION ANCHORS AND EPOXY ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. SPECIAL INSPECTIONS REQUIRED BY THE GOVERNING CODES SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. MANUFACTURER'S MINIMUM CONCRETE EDGE DISTANCE SHALL BE MAINTAINED DURING INSTALLATION.
- 3.05 PATCHING
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON REMOVAL OF THE FORMS TO OBSERVE CONCRETE SURFACE CONDITIONS. IMPERFECTIONS SHALL BE PATCHED ACCORDING TO THE ENGINEER'S DIRECTION.
- 3.06 DEFECTIVE CONCRETE
- THE CONTRACTOR SHALL NOTIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LEVELS AND LINES, DETAILS, AND ELEVATIONS AS SPECIFIED IN ACI 301.
- 3.07 PROTECTION
- IMMEDIATELY AFTER PLACEMENT. THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.
 - CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
 - ALL CONCRETE SHALL BE WATER CURED PER ACCEPTABLE PRACTICES SPECIFIED BY ACI CODE (LATEST EDITION)

DIVISION 05000 - METALS

- PART 1 - GENERAL
- 1.01 WORK INCLUDED
- THE WORK CONSISTS OF THE FABRICATION AND INSTALLATION OF ALL MATERIALS TO BE FURNISHED, AND WITHOUT LIMITING THE GENERALITY THEREOF, INCLUDING ALL EQUIPMENT, LABOR AND SERVICES REQUIRED FOR ALL STRUCTURAL STEEL WORK AND ALL ITEMS INCIDENTAL AS SPECIFIED AND AS SHOWN ON THE DRAWINGS:
- STEEL FRAMING INCLUDING BEAMS, ANGLES, CHANNELS AND FLATES.
 - WELDING AND BOLTING OF ATTACHMENTS.
- 1.02 REFERENCE STANDARDS
- THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:
- ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS IN BUILDING CODES" OR LATEST EDITION.
 - AWS: AMERICAN WELDING SOCIETY CODE OR LATEST EDITION.
 - AISC: AMERICAN INSTITUTE OF STEEL CONSTRUCTION, "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" (LATEST EDITION).
- PART 2 - PRODUCTS
- 2.01 MATERIALS
- STRUCTURAL STEEL: SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A36 AND A50 FOR STRUCTURAL STEEL.
- ALL PROPOSED STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC CODE AND ASTM SPECIFICATIONS (LATEST EDITION) ALL NEW STEEL SHALL CONFORM TO THE FOLLOWING.
- STRUCTURAL WIDE FLANGE: ASTM A992 Fy=50KSI.
 - MISCELLANEOUS STEEL (PLATES), CHANNELS, ANGLES, ETC.): ASTM A36 (Fy=36KSI).
 - STRUCTURAL TUBING: ASTM A500 Gr. B (Fy=35KSI).
 - STEEL PIPE: ASTM A53 Gr B (Fy=35KSI).
- 2.02 WELDING
- ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHALL BE MADE AVAILABLE FOR ENGINEER'S AND / OR OWNER'S REVIEW IF REQUESTED.
 - WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO ASTM E-233, E70 SERIES. BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.
 - FIELD WELDING SHALL BE DONE AS PER AWS D11 REQUIREMENTS VISUAL INSPECTION IS ACCEPTABLE.
 - STUD WELDING SHALL BE ACCOMPLISHED BY CAPACITOR DISCHARGE (CD) WELDING TECHNIQUE USING CAPACITOR DISCHARGE STUD WELDER.
 - PROVIDE STUD FASTENERS OF MATERIALS AND SIZES SHOWN ON DRAWINGS OR AS RECOMMENDED BY THE MANUFACTURER FOR STRUCTURAL LOADINGS REQUIRED.
 - FOLLOW MANUFACTURERS SPECIFICATIONS AND INSTRUCTIONS TO PROPERLY SELECT AND INSTALL STUD WELDS.
- 2.03 BOLTING
- BOLTS SHALL BE CONFORMING TO ASTM A35 HIGH STRENGTH HOT DIP GALVANIZED WITH ASTM A193 HEAVY HEX TYPE NUTS.
 - BOLTS SHALL BE 3/4" (MINIMUM) CONFORMING TO ASTM A325, HOT DIP GALVANIZED, ASTM A193 NUTS SHALL BE HEAVY HEX TYPE.
 - ALL CONNECTIONS SHALL BE 2 BOLTS MINIMUM.
 - EXCEPT WHERE SHOWN, ALL BEAM TO BEAM AND BEAM TO COLUMN CONNECTIONS TO BE DOUBLE ANGLED CONNECTIONS WITH HIGH STRENGTH BOLTS (THREADS EXCLUDED FROM SHEAR PLANE) AND HARDENED WASHERS.
 - STANDARD, OVERSIZED OR HORIZONTAL SHORT SLOTTED HOLES.
 - HUNG-TIGHT STRENGTH BEARING BOLTS MAY BE USED IN STANDARD HOLES CONFORMING TO AISC, USING THE TURN OF THE NUT METHOD.
 - FULLY-TENSIONED HIGH STRENGTH (SLIP CRITICAL) SHALL BE USED IN OVERSIZED SLOT HOLES (RESPECTIVE OF SLOT ORIENTATION).
 - ALL BRACED CONNECTION, MOMENT CONNECTION AND CONNECTIONS NOTED AS "SLIP CRITICAL" SHALL BE BE SLIP CRITICAL JOINTS WITH CLASS A SURFACE CONDITIONS, UNLESS OTHERWISE NOTED.
- 2.04 FABRICATION
- FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS STANDARDS AND CODES.

- 2.05 FINISH
- STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. (LATEST EDITION) UNLESS OTHERWISE NOTED.
- 2.06 PROTECTION
- UPON COMPLETION OF ERECTION, INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS OR GALVANIZED BREAKS WITH (2) COATS OF ZINC-RICH COLD GALVANIZING PAINT.

- PART 3 - ERECTION
- PROVIDE ALL ERECTION, EQUIPMENT, BRACING, FLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF THE COMPLETED CONSTRUCTION, BUT ARE NECESSARY FOR ITS PROPER ERECTION.
 - ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISHED SUITABLE ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING
 - TEMPORARY BRACING, GUYING, AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SET AND ALIGNED AT ALL TIMES DURING CONSTRUCTION AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.



**1 INTERNATIONAL BLVD., SUITE 800
MAHWAH, NJ 07495
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**533 MAIN STREET
ACTON, MA 01720**

SHEET TITLE:
GENERAL NOTES

SHEET NO:
GN-1

DIVISION 13000-SPECIAL CONSTRUCTION ANTENNA INSTALLATION
PART 1 - GENERAL

1.01 WORK INCLUDED
A. ANTENNAS AND HYBRIFLEX CABLES ARE FURNISHED BY CLIENT'S REPRESENTATIVE UNDER SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPERTY.

B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND CLIENT'S REPRESENTATIVE SPECIFICATIONS.

C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT RESULT

F. INSTALL HYBRIFLEX CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.

G. ANTENNA AND HYBRIFLEX CABLE GROUNDING:
1. ALL EXTERIOR 16 GREEN GROUND WIRE DAISY CHAIN CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE 3221213 OR EQUIVALENT.

2. ALL HYBRIFLEX CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF HYBRIFLEX CABLE (NOT WITHIN BENDS). 1.02 RELATED WORK FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:

1. FLASHING OF OPENING INTO OUTSIDE WALLS.
2. SEALING AND CAULKING ALL OPENINGS.
3. PAINTING.
4. CUTTING AND PATCHING.

1.03 REQUIREMENTS OF REGULATOR AGENCIES

A. FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.

B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

1. EIA - ELECTRONIC INDUSTRIES ASSOCIATION R9-22. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. FAA - FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 107490-1H, CONSTRUCTION MARKING AND LIGHTING.
3. FCC - FEDERAL COMMUNICATION COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES
4. AISI - AMERICAN INSTITUTE OF STEEL CONSTRUCTION FOR STRUCTURAL JOINTS USING ASTM 1325 OR A490 BOLTS.
5. NEC - NATIONAL ELECTRIC CODE - ON TOWER LIGHTING KITS.
6. UL - UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.
7. IN ALL CASES, PART 11 OF THE FAA RULES AND PARTS 11 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.
8. LIFE SAFETY CODE NFPA, LATEST EDITION.

DIVISION 13000-EARTHWORK

PART 1 GENERAL

1.01 WORK INCLUDED: REFER TO SURVEY AND SITE PLAN FOR WORK INCLUDED.

1.02 RELATED WORK

A. CONSTRUCTION OF EQUIPMENT FOUNDATIONS B. INSTALLATION OF ANTENNA SYSTEM

PART 2 PRODUCTS

2.01 MATERIALS

A. ROAD AND SITE MATERIALS: FILL MATERIAL SHALL BE ACCEPTABLE. SELECT FILL SHALL BE IN ACCORDANCE WITH LOCAL DEPARTMENT OF HIGHWAY AND PUBLIC TRANSPORTATION STANDARD SPECIFICATIONS.

B. SOIL STERILIZER SHALL BE EPA REGISTERED OF LIQUID COMPOSITION AND OF PRE-EMERGENCE DESIGN.

C. SOIL STABILIZER FABRIC SHALL BE MIRAFI OR EQUAL - 600X AT ACCESS ROAD AND COMPOUND.

D. GRAVEL FILL: WELL GRADED, HARD, DURABLE, NATURAL SAND AND GRAVEL, FREE FROM ICE AND SNOW, ROOTS, SOD RUBBISH, AND OTHER DELETERIOUS OR ORGANIC MATTER. MATERIAL SHALL CONFORM TO THE FOLLOWING GRADATION REQUIREMENTS.

GRAVEL FILL TO BE PLACED IN LIFTS OF 9" MAXIMUM THICKNESS AND 90% DENSITY. COMPACTED TO 95

E. NO FILL OR EMBANKMENT MATERIALS SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OF EMBANKMENT

2.02 EQUIPMENT

A. COMPACTION SHALL BE ACCOMPLISHED BY MECHANICAL MEANS. LARGER AREAS SHALL BE COMPACTED BY SHEEPS FOOT, VIBRATORY OR RUBBER TIED ROLLERS WEIGHING AT LEAST FIVE TONS. SMALLER AREAS SHALL BE COMPACTED BY POWER-DRIVER, HAND HELD TAMPERS.

B. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION EFFORTS GRUB ORGANIC MATERIAL TO A MINIMUM OF 6" BELOW ORIGINAL GROUND LEVEL.

C. UNLESS OTHERWISE INSTRUCTED BY CLIENT'S REPRESENTATIVE. REMOVE TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED DISPOSAL LOCATION.

D. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.

E. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE GRUBBED AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.

3.03 INSTALLATION

A. THE SITE AND TURNAROUND AREAS SHALL BE AT THE SUB-BASE COURSE ELEVATION PRIOR TO FORMING FOUNDATIONS. GRADE OR FILL THE SITE AND ACCESS ROAD AS REQUIRED TO PRODUCE EVEN DISTRIBUTION OF SPOILS RESULTING FROM FOUNDATION EXCAVATIONS. THE RESULTING GRADE SHALL CORRESPOND WITH SAID SUB-BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM FINISHED GRADES OR SLOPES INDICATED.

B. THE ACCESS ROAD SHALL BE BROUGHT TO BASE COURSE ELEVATION PRIOR TO FOUNDATION CONSTRUCTION.

C. DO NOT CREATE DEPRESSIONS WHERE WATER MAY POND.

D. THE CONTRACT INCLUDES ALL NECESSARY GRADING, BANKING, DITCHING AND COMPLETE SURFACE COURSE FOR ACCESS ROAD. ALL ROADS OR ROUTES UTILIZED FOR ACCESS TO PUBLIC THROUGHFARE IS INCLUDED IN SCOPE OF WORK UNLESS OTHERWISE INDICATED.

E. WHEN IMPROVING AN EXISTING ACCESS ROAD, GRADE THE EXISTING ROAD TO REMOVE ANY ORGANIC MATTER AND SMOOTH THE SURFACE BEFORE PLACING FILL OR STONE.

F. PLACE FILL OR STONE IN 3" MAXIMUM LIFTS AND COMPACT BEFORE PLACING NEXT LIFT.

G. THE FINISH GRADE, INCLUDING TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF 12" BEYOND THE SITE FENCE AND SHALL COVER THE AREA AS INDICATED.

H. RIPRAP SHALL BE APPLIED TO THE SIDE SLOPES OF ALL FENCED AREAS, PARKING AREAS AND TO ALL OTHER SLOPES GREATER THAN 2:1.

I. RIPRAP SHALL BE APPLIED TO THE SIDES OF DITCHES OR DRAINAGE SWALES AS INDICATED ON PLANS.

J. RIPRAP ENTIRE DITCH FOR 6'-0" IN ALL DIRECTIONS AT CULVERT OPENINGS.

K. SEED, FERTILIZER AND STRAW COVER SHALL BE APPLIED TO ALL OTHER DISTURBED AREAS AND DITCHES, DRAINAGE, SWALES, NOT OTHERWISE RIP-RAPPED.

L. UNDER NO CIRCUMSTANCES SHALL DITCHES, SWALES OR CULVERTS BE PLACED SO THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SITE. IF OWNER DESIGNS OR IF DESIGN ELEVATIONS CONFLICT WITH THIS GUIDANCE ADVISE THE OWNER IMMEDIATELY.

M. IF A DITCH LIES WITH SLOPE GREATER THAN TEN PERCENT, MOUND DIVERSIONARY HEADWALL IN THE DITCH AT CULVERT ENTRANCES. RIP-RAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR 6'-0" ABOVE THE CULVERT.

N. IF A DITCH LIES WITH SLOPES GREATER THAN TEN PERCENT, MOUND DIVERSIONARY HEADWALLS IN THE DITCH FOR 6'-0" ABOVE THE CULVERT ENTRANCE.

O. SEED AND FERTILIZER SHALL BE APPLIED TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEED TO EVEN THE SURFACE AND TO LOOSEN THE SOIL.

P. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.

Q. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROWTH OF SEEDS AND LANDSCAPED AREAS BY WATERING UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.

3.04 FIELD QUALITY CONTROL

A. COMPACTION SHALL BE D-1551 FOR SITE WORK AND 95% MAXIMUM DENSITY UNDER SLAB AREAS. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE. REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET SHALL BE AN ACCEPTABLE ALTERNATIVE.

B. THE COMPACTION TEST RESULTS SHALL BE AVAILABLE PRIOR TO THE CONCRETE POUR.

3.05 PROTECTION

A. PROTECT SEEDS AREAS FROM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1'-2". STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET SHALL BE AN ACCEPTABLE ALTERNATIVE.

B. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT SHALL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE AND SECURED TO STAKES EXTENDING 2'-0" INTO THE GROUND ON FOUR SIDES OF THE TREE.

C. ALL EXPOSED AREAS SHALL BE PROTECTED AGAINST WASHOUTS AND SOIL EROSION. STRAW BALES SHALL BE PLACED AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS. REFER TO DETAILS ON DRAWINGS

BACKHAUL ANTENNA DESIGN GUIDELINES

A. ALL 1' AND 2' ANTENNAS WILL USE MINIMUM 3" OD PIPES

B. ALL 3' AND 4' ANTENNAS WILL USE MINIMUM 4.5" PIPES

C. IF 2 OR MORE MW ANTENNAS ARE ON THE SAME PIPE, A 4.5" PIPE SHOULD BE USED

D. 1, 2 AND 3' DISHES WILL NOT GET STIFF ARMS

F. 4' DISHES WILL ALWAYS GET A SINGLE STIFF ARM

G. A SINGLE MW DISH CAN SUPPORT ANYWHERE FROM 1-4 INDIVIDUAL MW RADIOS - THIS SHOULD BE DETERMINED BY THE DESIGN SHEETS

H. IF THERE IS MORE THAN ONE RADIO ON SINGLE ANTENNA, A COUPLING DEVICE WILL BE USED.

I. THERE ARE 3 TYPES OF COUPLERS

J. SINGLE POLARITY, DUAL-PORT

K. DUAL POLARITY, DUAL -PORT

L. DUAL POLARITY, FOUR-PORT

M. THE COUPLER WILL INCREASE THE DEPTH OF THE MW BEHIND THE PIPE TO 10" DEPENDING ON THE MODEL

N. EACH MW WILL USE A SINGLE CAT5E ETHERNET CABLE FOR POWER AND SIGNAL - 2 MW RADIOS USE 2 CAT5E CABLES

O. EACH CAT5E CABLE IS 6.2MM IN DIAMETER

P. THE CAT5E CABLE WILL BE SECURED TO THE TOWER IN A BARREL CUSHION INSIDE A 1 5/8" STACKABLE SNAP-IN HANGER

Q. UP TO (10) MW CAT5E CABLES WILL GO INTO A SINGLE CUSHION SET - CUSHIONS HAVE (10) HOLES

R. EXCEPTION: -- RUNS OF CABLE OVER 100M (TOTAL LENGTH, NOT CENTERLINE OR RAD CENTER) WILL USE A (2) CABLE SYSTEM PER INDIVIDUAL RADIO - (1) FOR DC POWER AND (1) FOR ETHERNET SIGNAL

S. THE DC FEED WILL USE LMR400 WHICH IS 10.1MM IN DIAMETER

T. THE ETHERNET SIGNAL WILL BE CARRIED ON A FIBER CABLE THAT IS 9.3MM IN DIAMETER

U. THESE DC/SIGNAL CABLE PAIRS WILL BE SECURED USING A BARREL CUSHION INSIDE A 1 5/8" STACKABLE SNAP-IN HANGER

V. UP TO (4) DC/FIBER PAIRS WILL GO INTO A SINGLE CUSHION SET - CUSHIONS HAVE (4) LARGER AND (5) SMALLER HOLES

W. SPRINT WOULD PREFER THE MW DISH GO ABOVE THE RAN ANTENNA, BUT REALIZES THAT MAY NOT ALWAYS BE POSSIBLE - THE PREFERENCE WAS STILL TO GO ABOVE THE RAN EVEN IF 2' OF SEPARATION COULD NOT BE MAINTAINED.

X. SPRINT WILL BE DEVELOPING MORE CLEAR GUIDELINES FOR PLACING THE MW ANTENNA BELOW THE RAN ANTENNA AND ALSO IN THE SAME HORIZONTAL SPACE. WE WILL NEED TO WAIT FURTHER INSTRUCTION SHOULD WE ENCOUNTER THESE SITUATIONS.

Y. MPR E (11, 18, 23 & 28GHZ PATHS)
DIMENSIONS: 9" X 12" X 4.5"
WEIGHT: 11.5 LBS.
MPT HC (80GHZ PATHS)
DIMENSIONS: 11.5" X 11.5" X 5"
WEIGHT: 14 LBS.

ETHERNET ELECTRICAL CABLE MUST BE GROUNDED BY USING THE DEDICATED GROUNDING KITS.

1. ALL GROUNDS MUST BE 2 HOLE COMPRESSION LUGS. FOR TOWER/MAST INSTALLATIONS THE CABLES MUST BE GROUNDED AT:

A. THE POINT WHERE IT COMES ON TO THE TOWER FROM THE MPT-HC

B. NOT MORE THAN 25 M INTERVALS ON THE TOWER IF THE HEIGHT ON THE TOWER EXCEEDS 90 M

C. THE POINT WHERE IT LEAVES THE TOWER TO GO TO THE EQUIPMENT BUILDING

D. A POINT JUST PRIOR TO BUILDING/CABINET ENTRY

REQUIRED MATERIALS: QTY	PART NUMBER	DESCRIPTION
3*	IAD040130004	GROUNDING KIT FOR SINGLE CAT5 CABLE
3*	921232-058	GROUNDING KIT FOR 4 PACK CAT5 CABLE
1	NA	ANTI-OXIDATION COMPOUND
1	NA	3/8" BLACK HEAT SHRINK DO NOT DISCONNECT TAGS (BRASS)
1	NA	1" CTC, 3/8" 2 HOLE 6AWG COMPRESSION LUG PER KIT
1	NA	MISC TYWRAPS, LACING TWINE ETC...

* NOTE: IF CAT5 RUN IS OVER 160' IN LENGTH THEN 4EA. GROUND KITS ARE REQUIRED. 1 AT TOP, 1 AT BOTTOM AND 1 IN THE MIDDLE.

CAT5 SUPPORT:

1. 1-5/8" BARREL SNAP IN EVERY 4FT AS PER MUEIG 330. CONTRACTOR TO REFER TO MUEIG SECTION 330, 340 FOR CAT 5 INSTALLATION.

2. CAT5 TO BE SUPPORTED IN 1-5/8" BARREL CUSHION SNAP-IN GROUND PER MANUFACTURERS SPECIFICATIONS.

SYMBOLS	ABBREVIATIONS
— — — — G — — — — G —	GROUND WIRE
— — — — E — — — — E —	ELECTRIC
— — — — T — — — — T —	TELEPHONE
— OHW — OHW — OHW — OHW — OHW —	OVERHEAD WIRE
— — — — — — — — — —	PROPERTY LINE
- X — — — — X — — — — X — — — —	CHAIN LINK FENCE
A-1	ANTENNA MARK
(E)	EXISTING
(P)	PROPOSED DETAIL
	REFERENCE
	SURFACE ELEVATION

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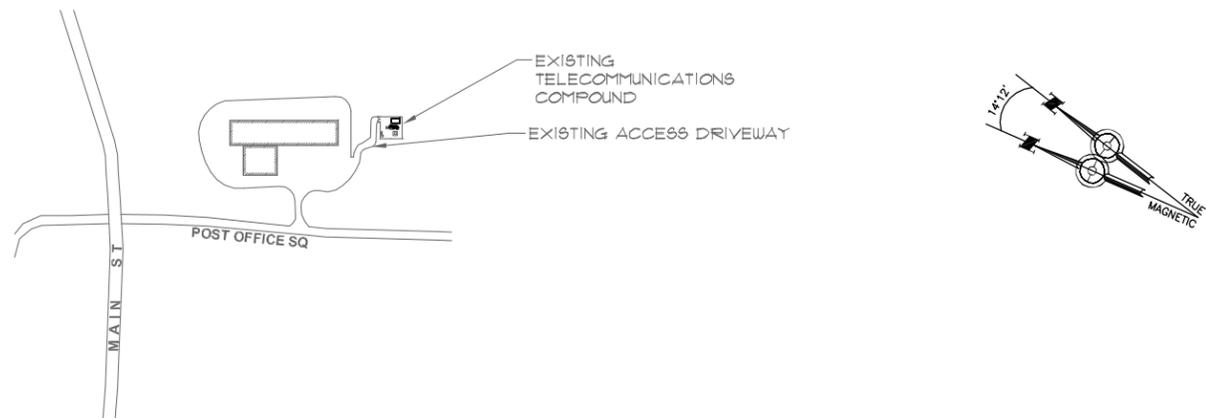
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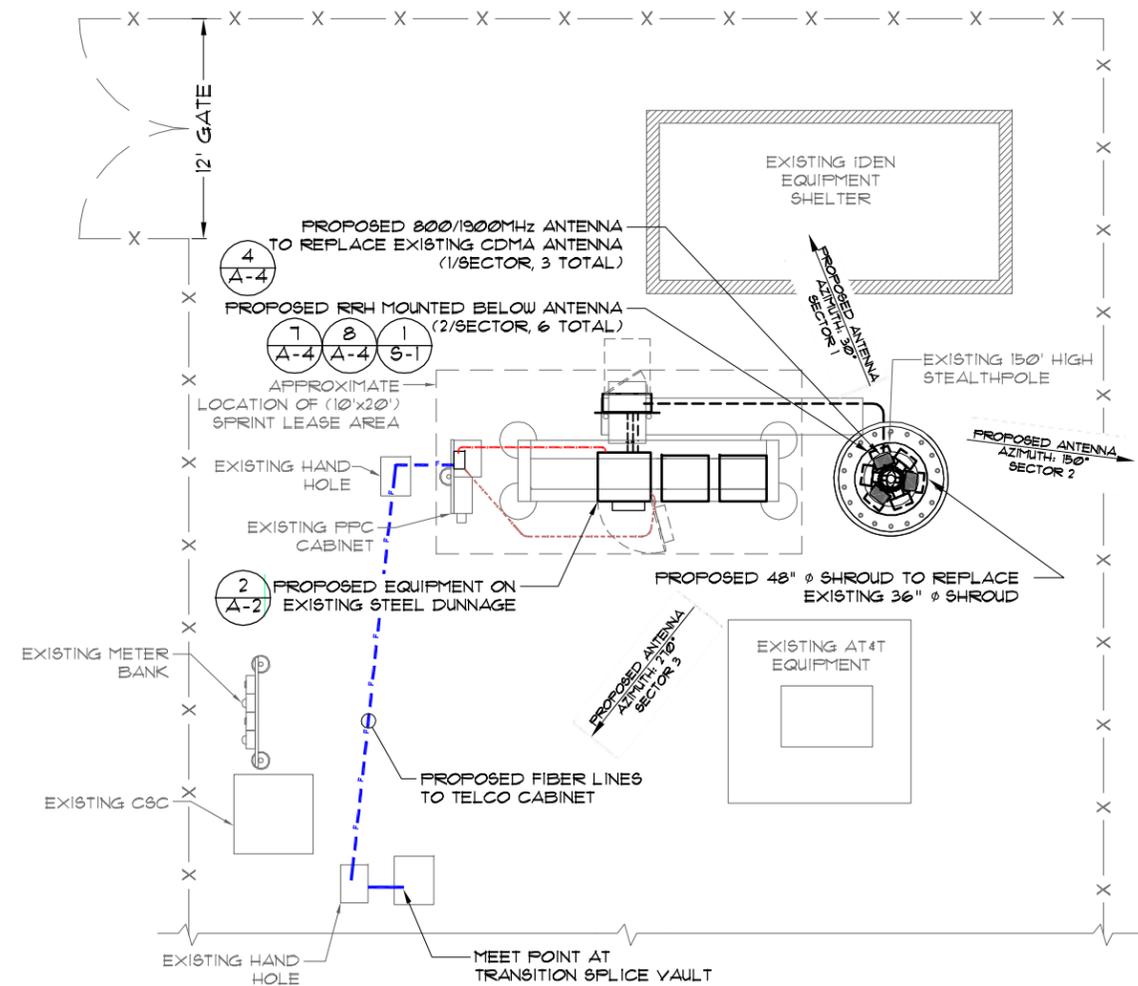
SHEET TITLE:
GENERAL NOTES

SHEET NO:
GN-2

REFER TO STRUCTURAL ANALYSIS DOCUMENT ENTITLED "REVISED RIGOROUS STRUCTURAL ANALYSIS REPORT" PREPARED BY GPD GROUP, "AT&T TOWER SITE ID 3150", DATED MARCH 30, 2012

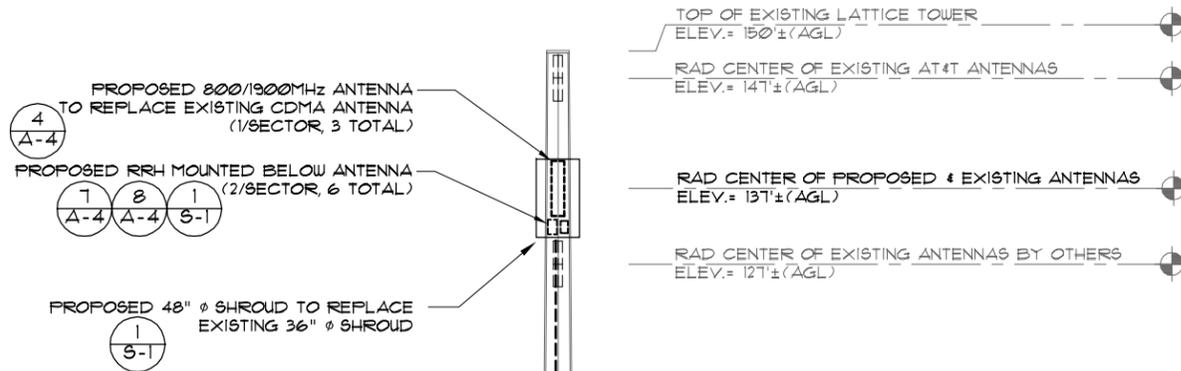
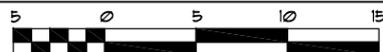


KEY PLAN
SCALE: N.T.S.



1 SITE PLAN

SCALE: 1" = 10'-0" (11x17)
SCALE: 1" = 5'-0" (24x36)



PROPOSED (3) HYBRFLEX CABLES INSIDE STEALTHPOLE

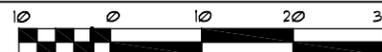


2 ELEVATION

- SITE NOTES
1. ALL ANTENNAS & TOWER ELEVATION SHOWN AS SCHEMATIC.
 2. SOME EXISTING & PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
 3. CONTRACTOR TO VERIFY POWER AND TELCO ROUTING WITH UTILITY COMPANY.
 4. TOWER & FOUNDATION DESIGN BY OTHERS.
 5. INSTALL ALL ANTENNAS, CABLES, MOUNTS, ETC., IN ACCORDANCE WITH TOWER MANUFACTURER'S RECOMMENDATIONS & TOWER STRUCTURAL ANALYSIS.

2 ELEVATION

SCALE: 1" = 20'-0" (11x17)
SCALE: 1" = 10'-0" (24x36)



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**SITE PLAN &
ELEVATION**

SHEET NO:
A-1



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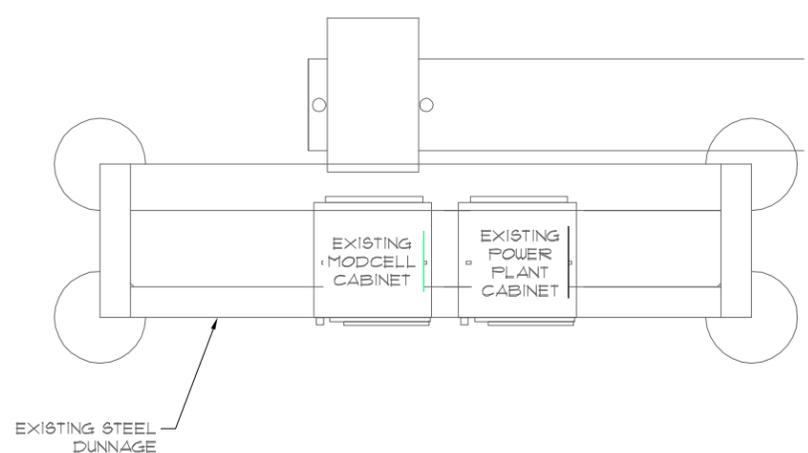
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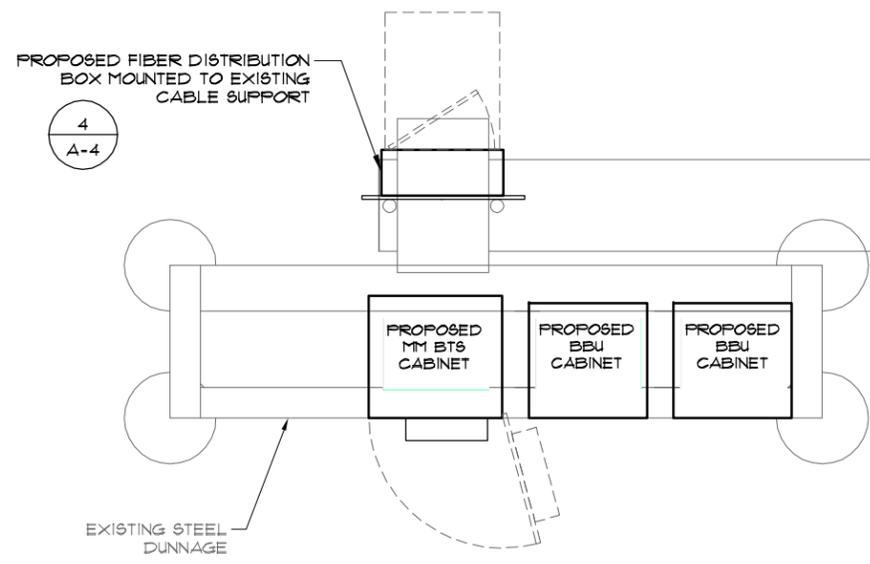
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EQUIPMENT LAYOUT

SHEET NO:
A-2



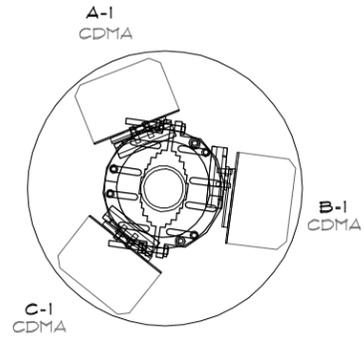
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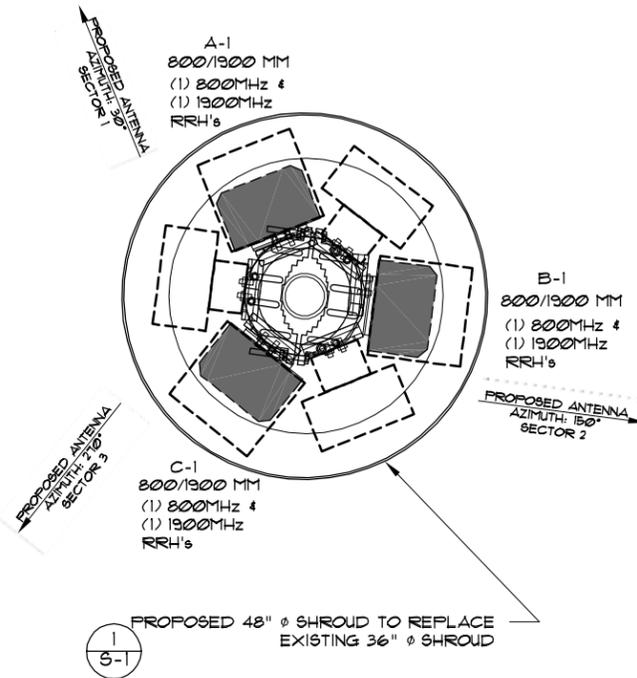
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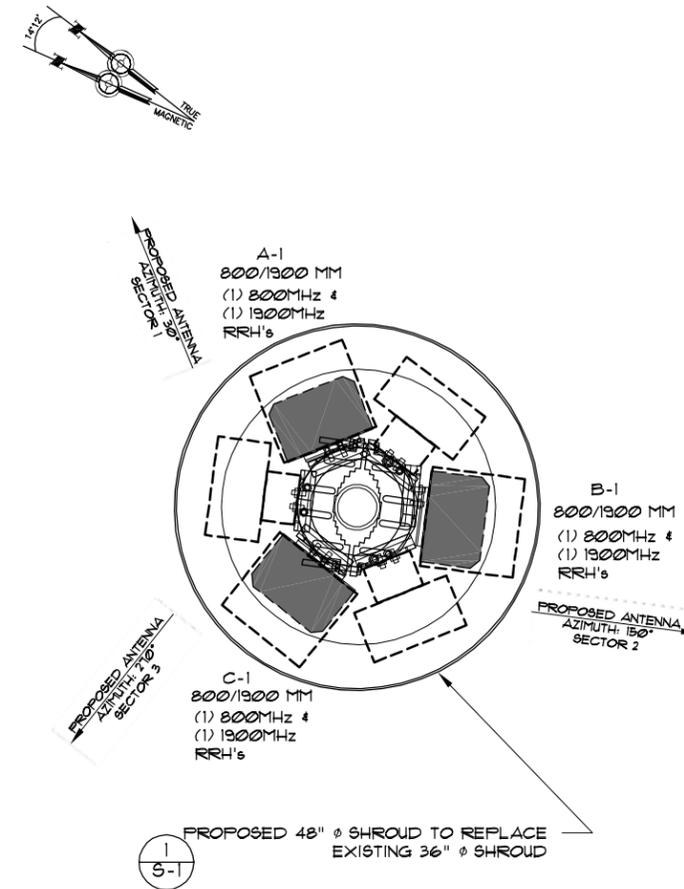
EXISTING ANTENNA PLAN



INTERIM ANTENNA PLAN



FINAL ANTENNA PLAN



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1 ANTENNA SCENARIO

SCALE : N.T.S.

ALPHA	POSITION	ANTENNA STATUS	FREQUENCY (MHZ)	ANTENNA MAKE	ANTENNA MODEL	AZIMUTH		MECHANICAL DOWN TILT	ELECTRICAL DOWN TILT	RAD CENTER (A.G.L.)	HYBRID CABLE LENGTH	RRH COUNT	TOP COAX JUMPER SIZE (IN.)	TOP COAX JUMPER LENGTH (FT.)	TOP COAX JUMPER MAKE	TOP COAX JUMPER MODEL	COMBINER	COMBINER JUMPER LENGTH (FT.)	ANTENNA COLOR CODING
						EXISTING (FOR REFERENCE)	PROPOSED												
A-1	PROPOSED	800/1900	RFS	APXV5FP18-C-A20	10°	30°	0°	-3°	131'	156'	(1)800MHz (1)1900MHz	1/2	6'	RFS	(2) LCF12-50J (4) LCF12-50J	N/A	N/A	TBD	
					0°	-1°													
BETA	B-1	PROPOSED	800/1900	RFS	APXV5FP18-C-A20	130°	150°	0°	-6°	131'	156'	(1)800MHz (1)1900MHz	1/2	6'	RFS	(2) LCF12-50J (4) LCF12-50J	N/A	N/A	TBD
						0°	-2°												
GAMMA	C-1	PROPOSED	800/1900	RFS	APXV5FP18-C-A20	250°	270°	0°	-6°	131'	156'	(1)800MHz (1)1900MHz	1/2	6'	RFS	(2) LCF12-50J (4) LCF12-50J	N/A	N/A	TBD
						0°	0°												

*CONTRACTOR TO FIELD VERIFY ALL CABLE/JUMPER LENGTHS AGAINST CURRENT BOM

2 RF SYSTEM SCHEDULE

SCALE : N.T.S.

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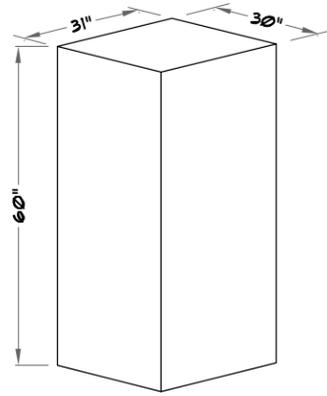
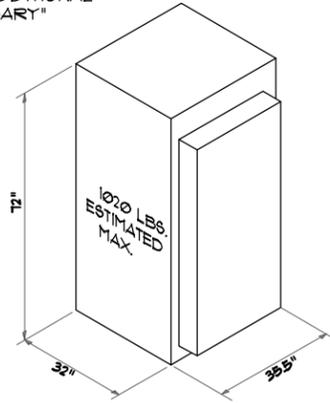
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SHEET TITLE:
**ANTENNA
SCENARIO AND RF
SYSTEM SCHEDULE**

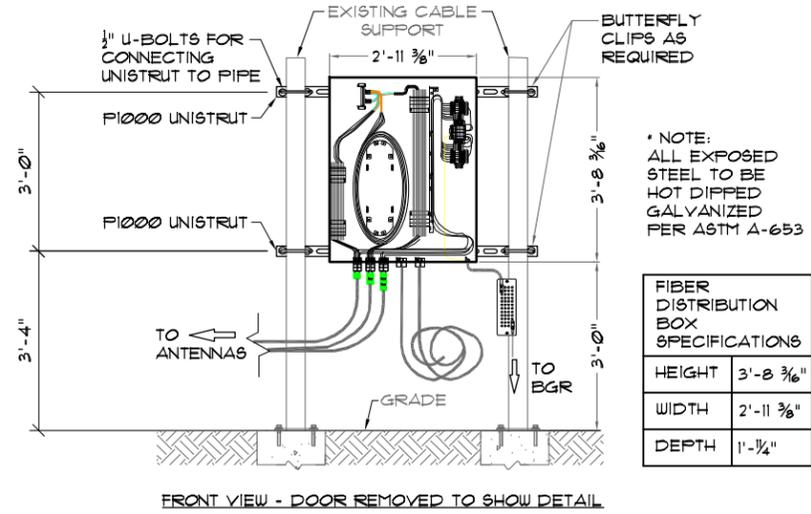
SHEET NO:

A-3

NOTE:
NEW CABINET TO BE ANCHORED TO THE
EXISTING STEEL DUNNAGE IN ACCORDANCE
WITH MANUFACTURER'S RECOMMENDATIONS.
CONTRACTOR TO INSTALL ADDITIONAL
STEEL MEMBERS AS NECESSARY"



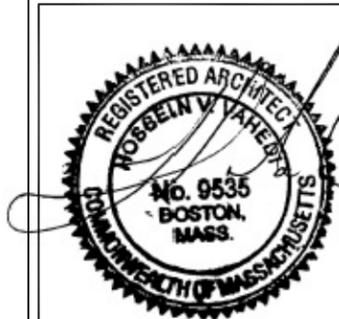
60ECV2 CABINET SPECIFICATIONS	
HEIGHT	60"
WIDTH	31"
DEPTH	30"
WEIGHT W/ BATTERIES	2,405 LBS.



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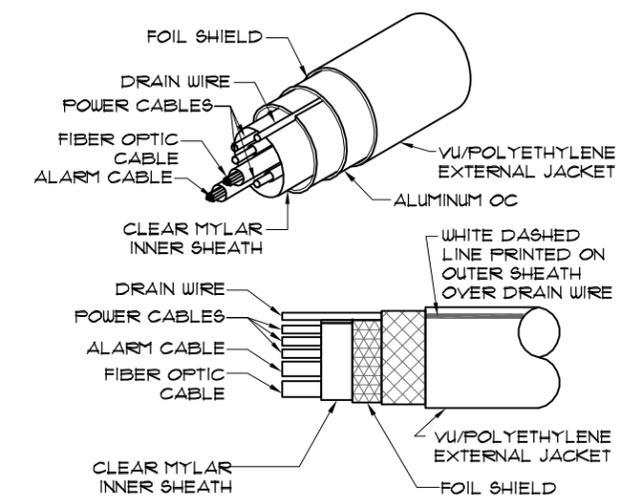
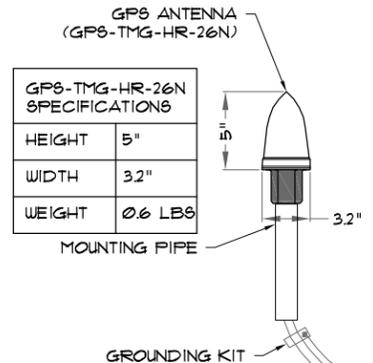
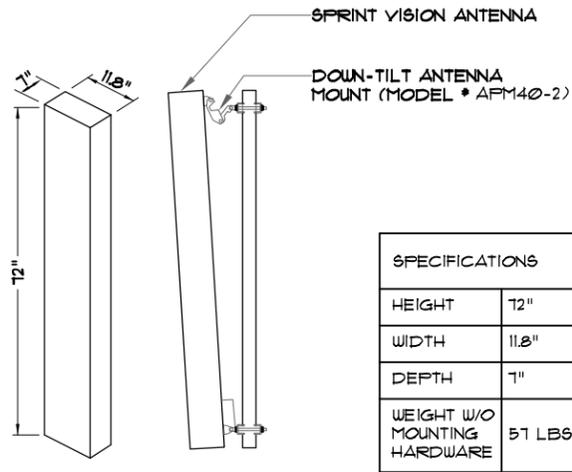


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1 ALCATEL-LUCENT 9928 OUTDOOR CABINET (MULTI MODAL BTS)
SCALE : N.T.S.

2 60ECV2 BATTERY BACK-UP CABINET (BBU)
SCALE : N.T.S.

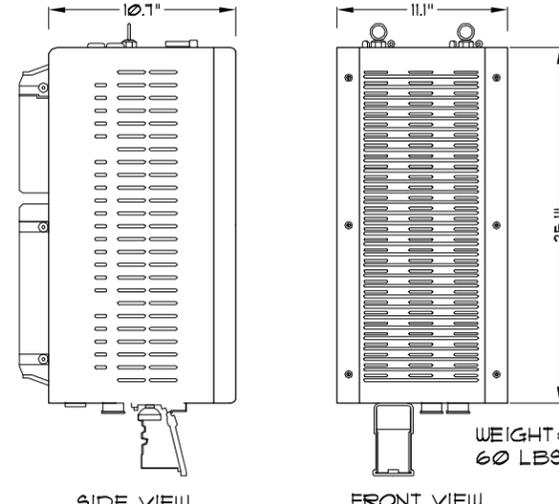
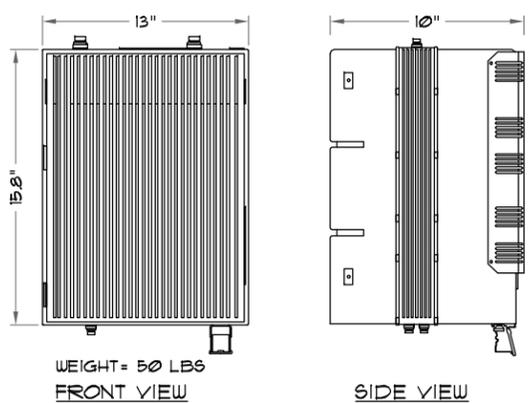
3 FIBER DISTRIBUTION BOX
SCALE : N.T.S.



4 800/1900MHz ANTENNA MODEL No. APXVSPPI8-C-A20
SCALE : N.T.S.

5 GPS ANTENNA(GPS-TMG-HR-26N)
SCALE : N.T.S.

6 HYBRIFLEX CABLE
SCALE : N.T.S.



7 800MHz RRH
SCALE : N.T.S.

8 1900MHz RRH
SCALE : N.T.S.

9 DISH ANTENNA
SCALE : N.T.S.

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SHEET TITLE:
DETAILS

SHEET NO:
A = 4

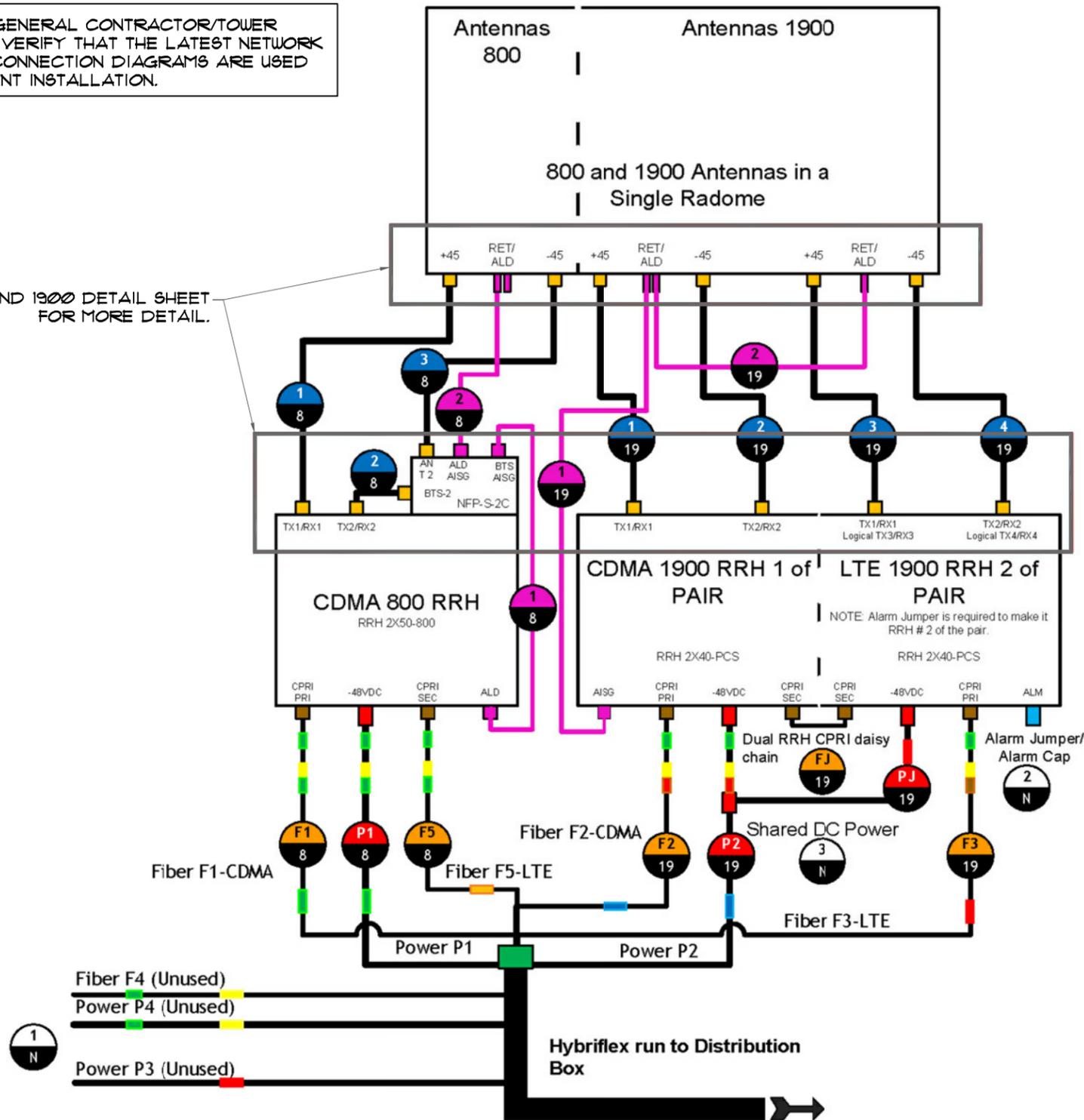
TOWER TOP SCENARIO 2

800 AND SINGLE 1900 RRH PAIR WITH SINGLE 800/1900 RADOME ANTENNA

SCENARIO 2 V1.8.VSD

IMPORTANT: GENERAL CONTRACTOR/TOWER CREW SHALL VERIFY THAT THE LATEST NETWORK VISION RAN CONNECTION DIAGRAMS ARE USED FOR EQUIPMENT INSTALLATION.

SEE 800 AND 1900 DETAIL SHEET FOR MORE DETAIL.



Power Feed Polarity Definition:
 Black= -48VDC Feed (Battery)
 Black/White Stripe= Return

NOTE: For power feed use the same Hybriflex OEM color designator as the fiber.

- MM Pair 1= F1= Green= P1(Green)
- MM Pair 2= F2= Blue= P2(Blue)
- MM Pair 3= F3= Red= P3(Red)
- MM Pair 4= F4= Yellow= P4(Yellow)
- MM Pair 5= F5= Orange= (No P5 power feed)

OEM COLOR CODE

HYBRIFLEX



SEE CONNECTION LEGEND FOR MORE DETAILS

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 VISION
 1 INTERNATIONAL BLVD., SUITE 800
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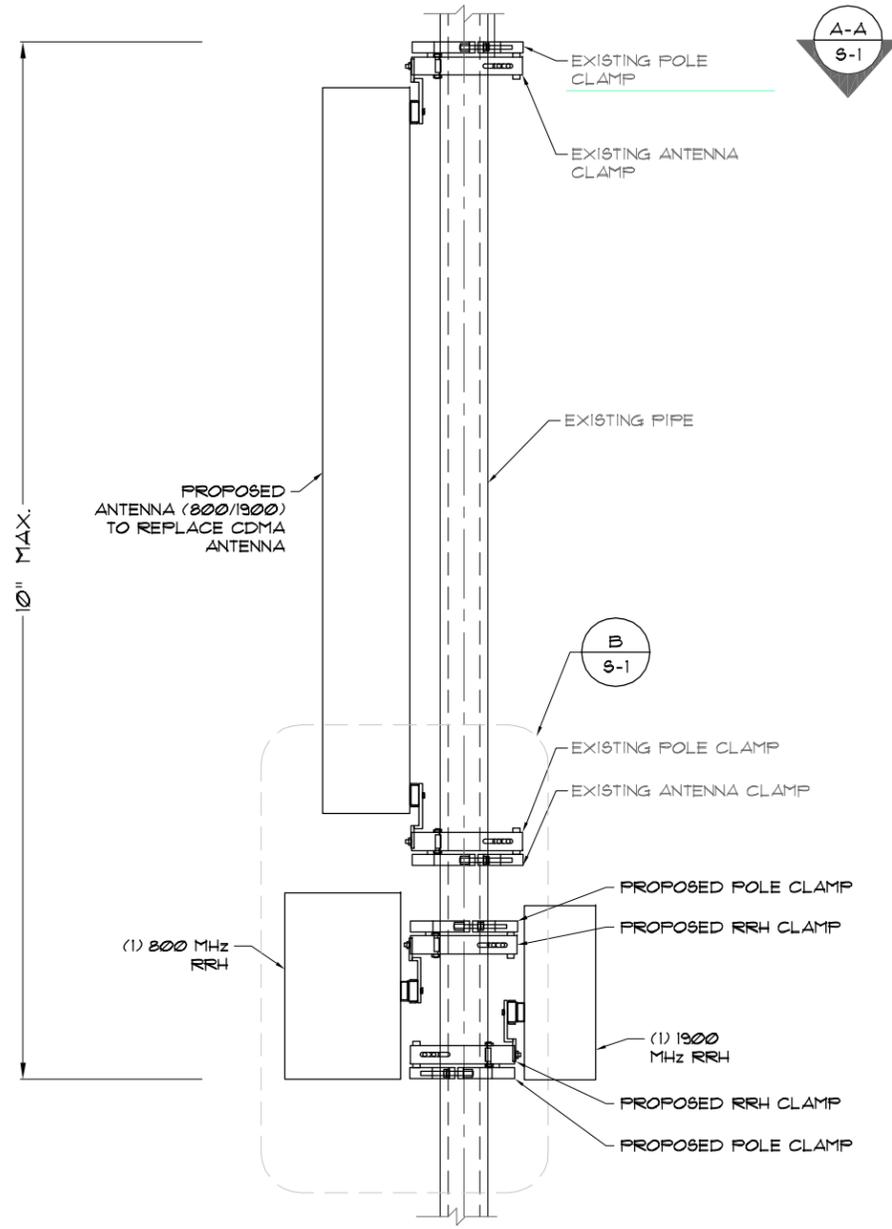
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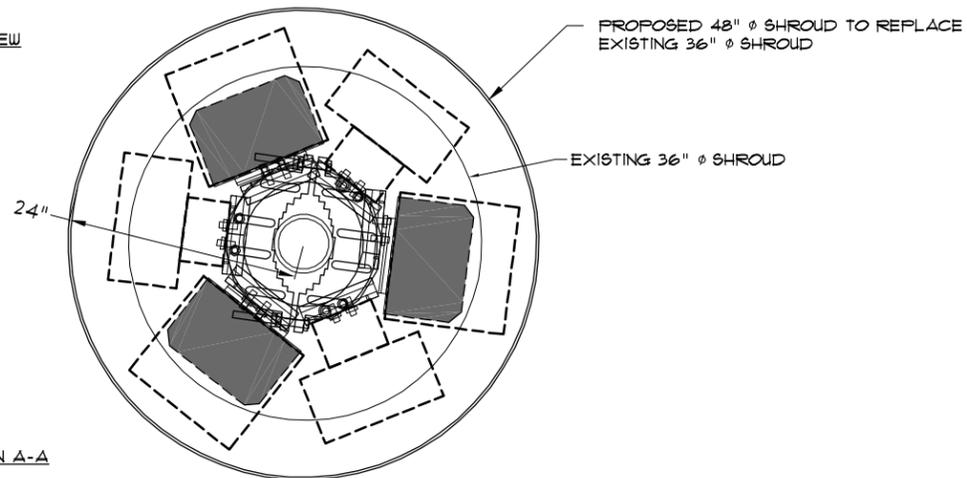
SITE NUMBER: **B623XC398-A**
 SITE NAME: **AT&T MONOPOLE**
 SITE ADDRESS: **533 MAIN STREET ACTON, MA 01720**

SHEET TITLE: **CABINET & ANTENNA WIRING DIAGRAM**

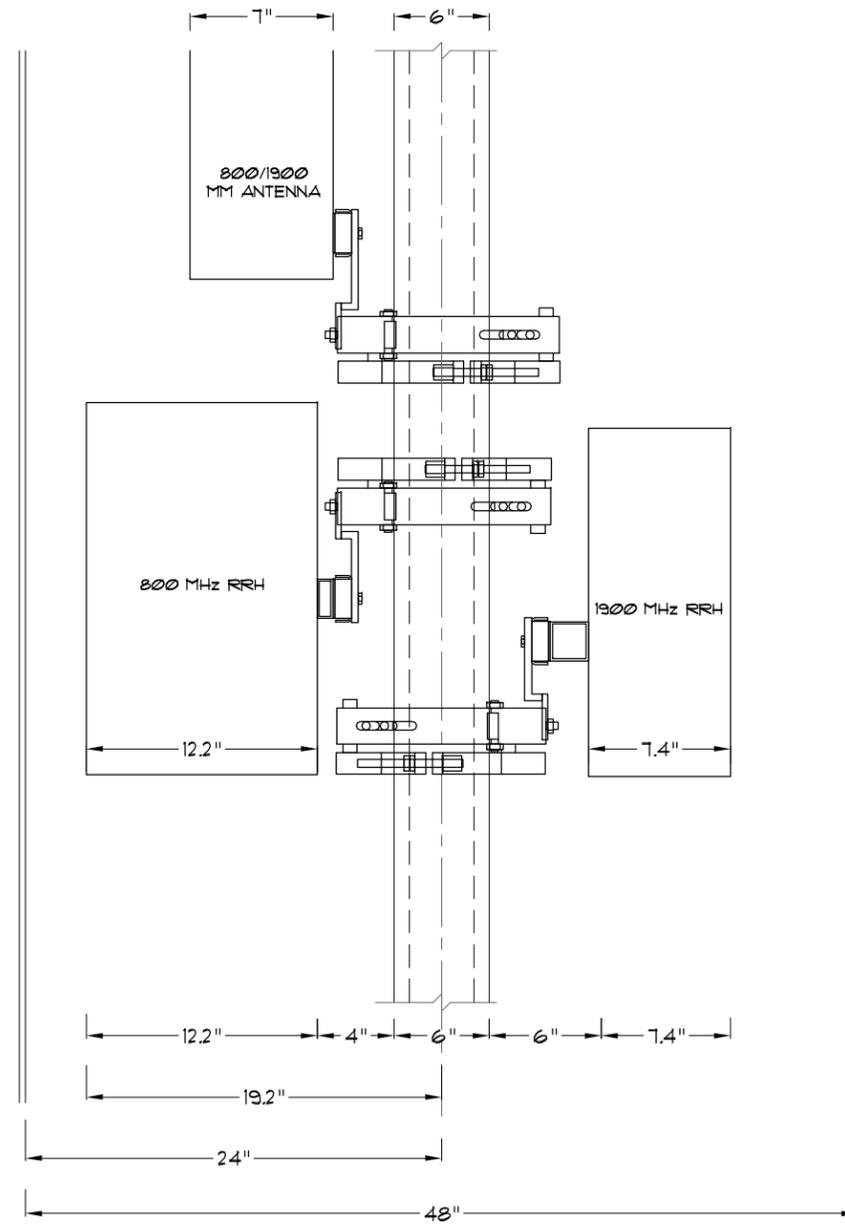
SHEET NO: **A-5**



SIDE VIEW



SECTION A-A



DETAIL B

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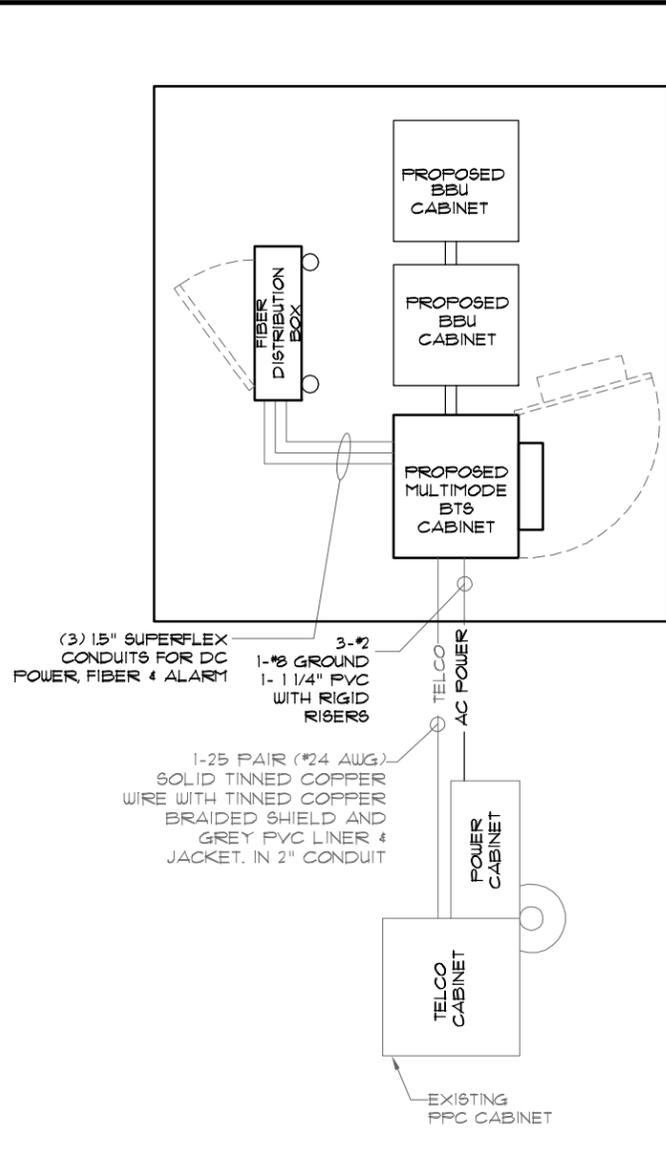
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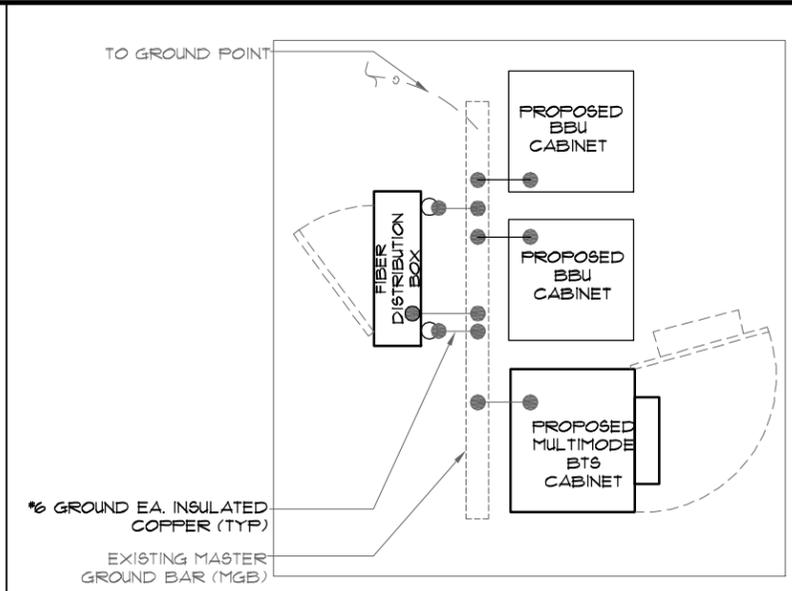
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B623XC398-A
SITE NAME:
AT&T MONOPOLE
SITE ADDRESS:
**533 MAIN STREET
ACTON, MA 01720**

SHEET TITLE:
**STRUCTURAL
DETAILS**

SHEET NO:
S-1



- ELECTRICAL SPECIFICATIONS:**
1. ALL ELECTRICAL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE.
 2. THE AC PANEL IN THE POWER CABINET IS WIRED AS A SERVICE ENTRANCE. IF IT IS USED AS SERVICE PANEL THE NEC-250.66 REQUIRED GROUNDING ELECTRODE CONDUCTOR SHALL BE INSTALLED IN THE AC POWER CONDUIT. THE INSTALLATION SHALL BE PER LOCAL AND NATIONAL ELECTRIC CODE (NFPA-70). IN THE CASE THAT MAIN SERVICE DISCONNECT IS SUPPLIED AT THE MAIN METER LOCATION, THE BOND BETWEEN NEUTRAL AND EQUIPMENT GROUNDING CONDUCTOR IN THE AC PANEL SHALL BE REMOVED BY CONTRACTOR.
 3. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHIELD) BEFORE MAKING THE CRIMP CONNECTIONS. THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
 4. THE ANTENNA CABLES SHALL BE GROUND AT THE TOP AND BOTTOM OF THE VERTICAL RUN FOR LIGHTNING PROTECTION. THE ANTENNA CABLE SHIELD SHALL BE BONDED TO A COPPER GROUND BUS AT THE LOWERMOST POINT OF A VERTICAL RUN JUST BEFORE IT BEGINS TO BEND TOWARD THE HORIZONTAL PLANE. WIRE RUNS TO GROUND SHALL BE KEPT AS STRAIGHT AND SHORT AS POSSIBLE. ANY ANTENNA CABLES OVER 200 FEET IN LENGTH SHALL ALSO BE EQUIPPED WITH ADDITIONAL GROUNDING AT MID-POINT.
 5. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
 6. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX", OR EQUAL.
 7. FIBER OPTIC CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 710-OPTICAL FIBER CABLES AND RACEWAYS
 8. COMMUNICATIONS CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 800-COMMUNICATIONS SYSTEMS.



- PROTECTIVE GROUNDING SYSTEM GENERAL NOTES:**
1. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
 2. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR
 3. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T4B KOPR SHIELD. VERIFY PRODUCT WITH LIGHTSQUARED PROJECT MANAGER.
 4. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
 5. INSTALL GROUND BUSHING ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANEL BOARD.
 6. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
 7. GROUND HYBRIFLEX SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.

- GROUNDING NOTES:**
1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250-GROUNDING AND BONDING.
 2. ALL GROUND WIRES SHALL BE BARE #6 AWG BCW UNLESS NOTED OTHERWISE.
 3. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
 4. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #6 AWG INSULATED STRANDED COPPER WIRE. EQUIPMENT CABINETS WILL HAVE (2) CONNECTIONS.
 5. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
 6. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
 7. ALL CONDUITS SHALL BE RIGID GALVANIZED STEEL AND SHALL BE PROVIDED WITH GROUNDING BUSHINGS.
 8. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
 9. WHEN CABLE LENGTH IS OVER 20' THE MANUFACTURER'S GROUND KIT MUST BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.

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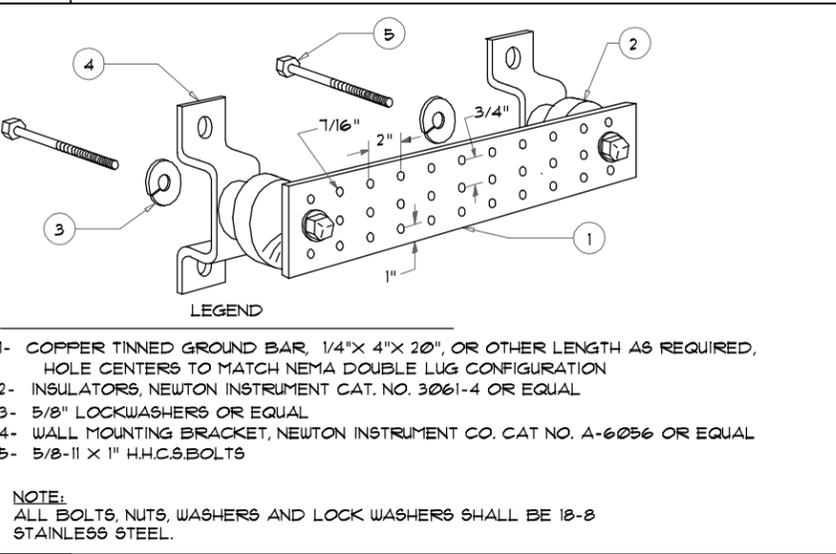
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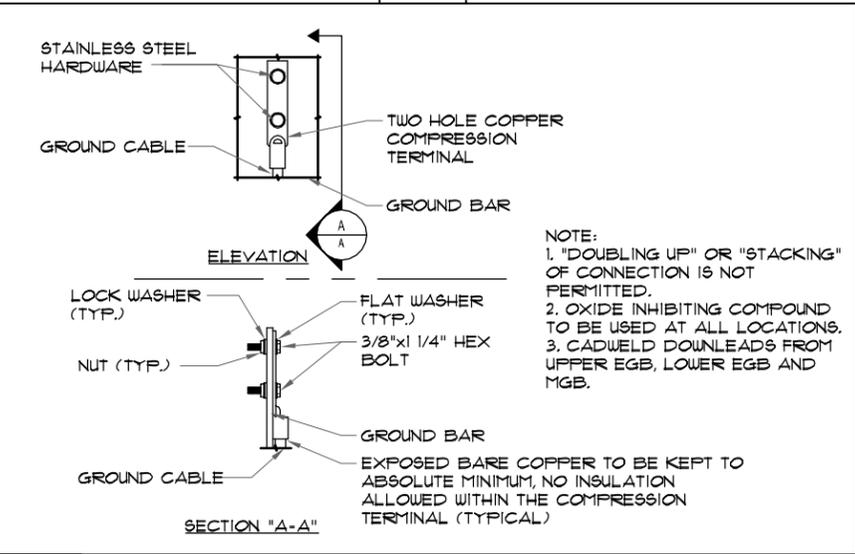
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1 TYPICAL ELECTRICAL PLAN
SCALE: N.T.S.

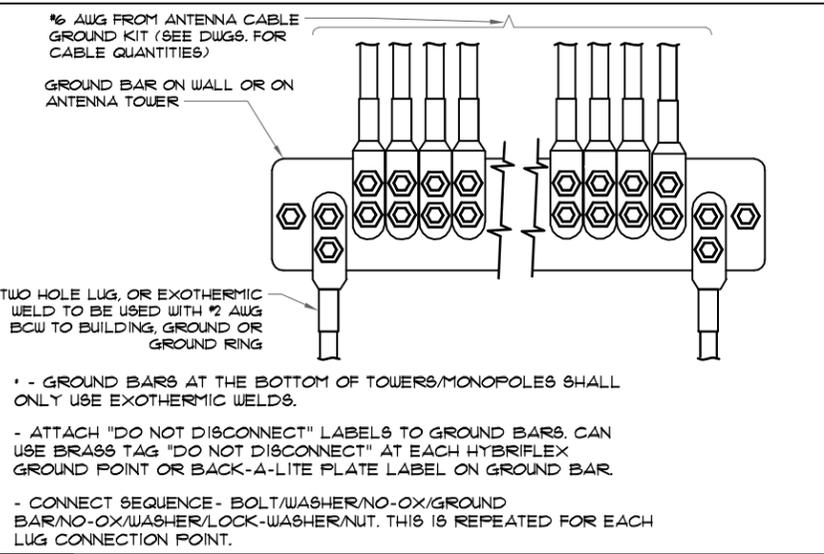
2 TYPICAL GROUNDING PLAN
SCALE: N.T.S.



3 GROUND BAR DETAIL
SCALE: N.T.S.



4 TYPICAL GROUND BAR CONNECTIONS DETAIL
SCALE: N.T.S.



5 ANTENNA GROUND BAR DETAIL
N.T.S. SCALE:

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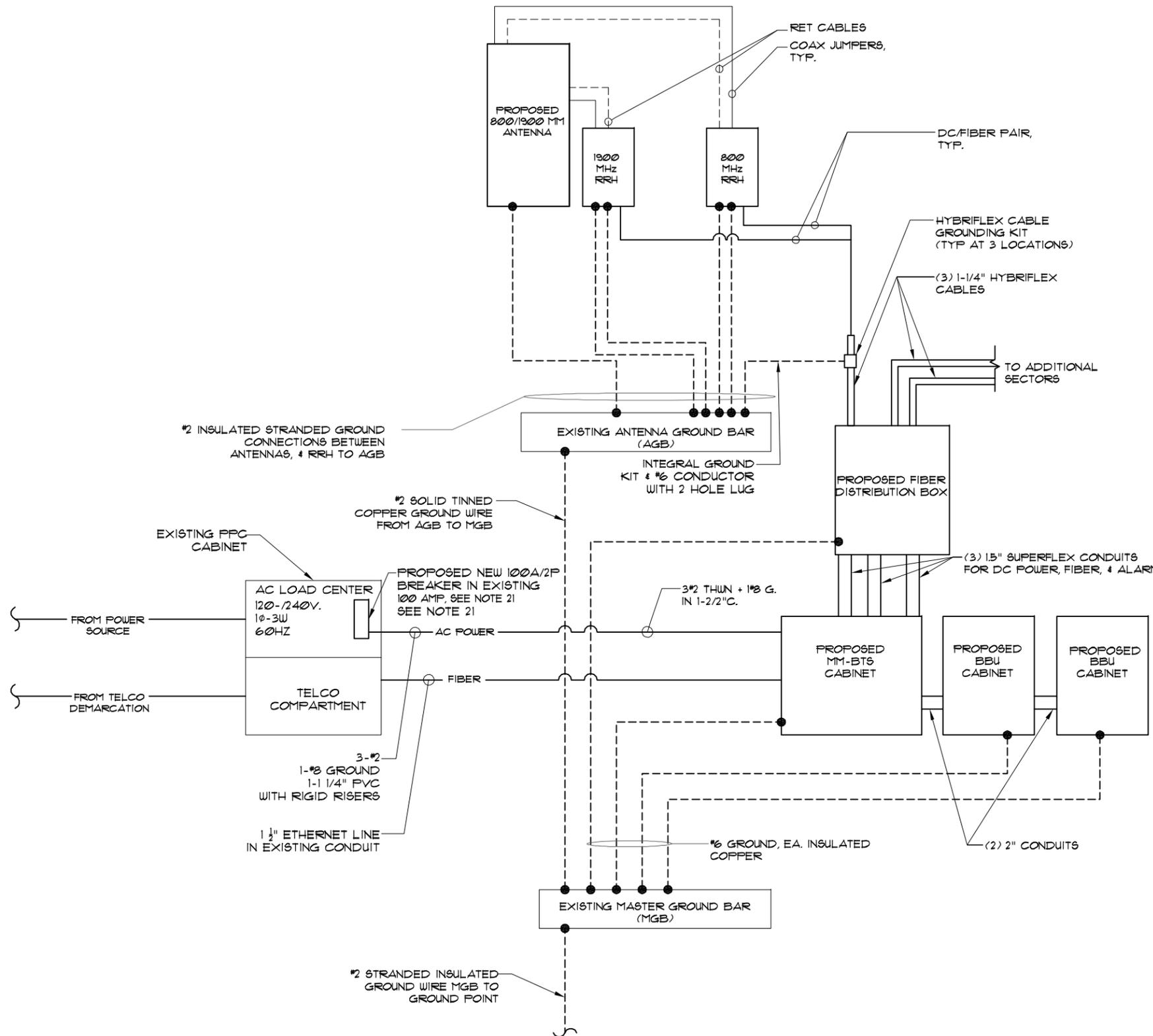
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SHEET TITLE:
**ELECTRICAL, GROUNDING
PLAN & DETAILS**

SHEET NO:
E-1

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
4. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
5. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THUN, OR THHN INSULATION.
6. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND MM-BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH FULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
7. WHERE CONDUIT BETWEEN MM-BTS AND PROJECT OWNER CELL SITE PFC AND BETWEEN MM-BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
8. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
9. GROUNDING SHALL COMPLY WITH NEC ART. 250.
10. GROUND HYBRIFLEX CABLE SHIELDS AT 3 LOCATIONS USING MANUFACTURER'S HYBRIFLEX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
11. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
12. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
13. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
14. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
15. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
16. BOND ANTENNA MOUNTING BRACKETS, HYBRIFLEX CABLE GROUND KITS, AND RRHs TO EGB PLACED NEAR THE ANTENNA LOCATION.
17. BOND ANTENNA EGB'S AND MGB TO GROUND RING.
18. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULT FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
19. CONTRACTOR SHALL CONDUCT ANTENNA, HYBRIFLEX CABLES, AND RRH RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.
20. CONTRACTOR SHALL CHECK CAPACITY OF EXISTING SERVICE 4 PANEL ON SITE TO DETERMINE IF CAPACITY EXISTS TO ACCOMMODATE THE ADDED LOAD OF THIS PROJECT. ADVISE ENGINEER OF ANY DISCREPANCY.
21. NEW BREAKER 100A-2P TO MATCH EXISTING BREAKERS IN EXISTING PANEL. WIRE FOR AC POWER TO BE TYPE THUN, COPPER, 15°C, 3 # 2
22. ONCE CAT5 HAS BEEN INSTALLED TO THE MPT ON THE TOWER IT MUST BE VERIFIED. TESTING OPERATION REQUIRES TWO MEN. ONE MAN ON TOWER WITH REMOTE ADAPTER AND THE OTHER ON GROUND WITH TEST UNIT. TESTING TOOLS: FLUKE CIQ-100 (OR EQUIVALENT), LAPTOP AND CABLE IQ REPORTER SOFTWARE. TESTING SHOULD BE CARRIED OUT PER ALU MUEIG-SEC. 340-CAT5 VERIFICATION GUIDELINES.



* CONTRACTOR (ELECTRICIAN) TO VERIFY IN FIELD THAT THE CABLING SERVICING THE EXISTING BTS CABINET FROM THE EXISTING POWER PANEL IS RATED EQUAL TO OR GREATER THAN #2 AWG SPECIFIED FOR THE PROPOSED BTS CABINET. UPGRADE THE CABLING AND CONDUIT IF NEEDED.

1 TYPICAL POWER & GROUNDING ONE LINE DIAGRAM

SCALE: N.T.S.

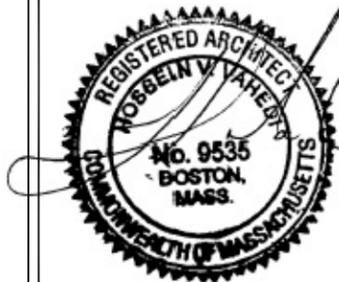
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SHEET TITLE:
**TYPICAL POWER &
GROUNDING
ONE LINE DIAGRAM**

SHEET NO:

E - 2