



VERIZON SITE NAME:

SAL SLEET

CROWN CASTLE SITE NAME:

KWIK CITY MUFFLER

CROWN CASTLE BU NUMBER:

880534

SITE ADDRESS:

2449 WEST 4000 SOUTH  
ROY, UT 84067

SITE TYPE:

MONOPOLE TOWER

PLANS PREPARED FOR:



180 WASHINGTON VALLEY ROAD  
BEDMINSTER, NJ 07921

PLANS PREPARED BY:



FROM ZERO TO INFINIGY  
the solutions are endless

1490 W. 121st. Ave., Suite 101  
Westminster, CO 80234  
Office # (303) 219-1178  
Fax # (303) 242-8636  
JOB NUMBER: TBD

MLA PARTNER:



ENGINEERING LICENSE:

DRAWING NOTICE:

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	06/13/18	SF	A

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SHEET DESCRIPTION:

TITLE SHEET &  
PROJECT DATA

SHEET NUMBER:

T-1

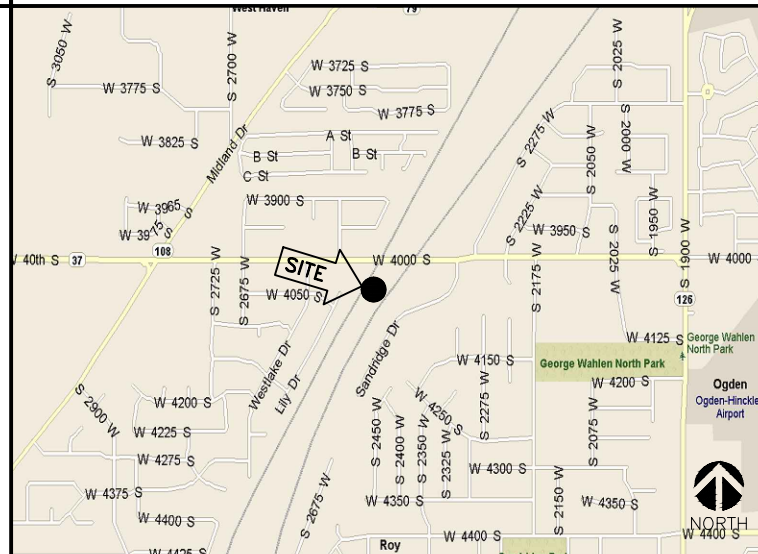
#### SITE INFORMATION

**APPLICANT:**  
VERIZON  
180 WASHINGTON VALLEY ROAD  
BEDMINSTER, NJ 07921  
**CONTACT:**  
TBD  
**TOWER OWNER:**  
CROWN CASTLE  
**CROWN CASTLE PM:**  
GRANT STEINHAUSER  
(720) 450-3009  
**LATITUDE (NAD83):**  
41° 11' 22.4" N  
-112.039167°  
**LONGITUDE (NAD83):**  
112° 2' 21.0" W  
-112.039167°  
**COUNTY:**  
WEBER  
**ZONING JURISDICTION:**  
TBD  
**POWER COMPANY:**  
PACIFICORP  
(888) 221-7070  
**TELCO PROVIDER:**  
TBD  
**VERIZON WIRELESS CM:**  
BILLY WALDRIDGE  
(385) 707-7043

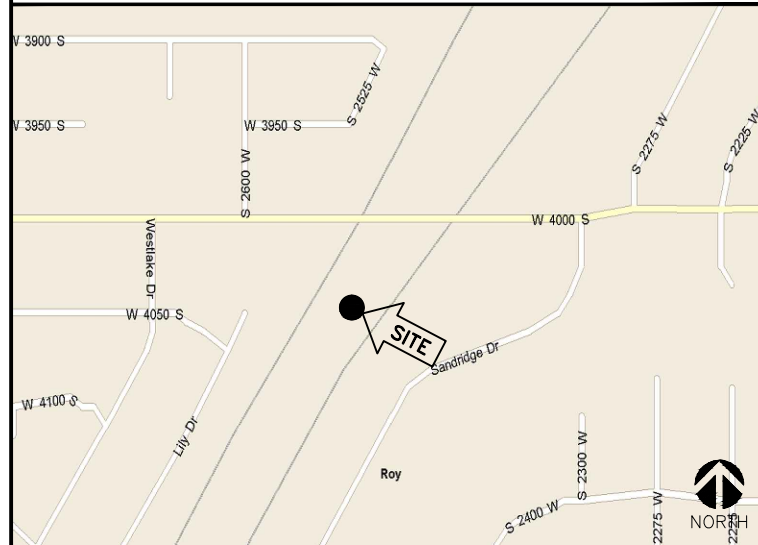


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#### AREA MAP



#### LOCATION MAP



#### PROJECT DESCRIPTION

VERIZON PROPOSES TO MODIFY AN EXISTING UNMANNED  
TELECOMMUNICATION FACILITY:

- INSTALL (2) NEW EQUIPMENT CABINETS ON EXISTING 10'x16' CONCRETE PAD
- INSTALL (1) NEW 30KW BACKUP GENERATOR ON EXISTING 10'x16' CONCRETE PAD
- INSTALL (1) UTILITY H-FRAME EXTENSION
- INSTALL (6) NEW PANEL ANTENNAS, (6) NEW RRHs, & (2) NEW OVPs
- INSTALL (2) NEW HI-CAP HYBRID CABLES
- INSTALL NEW ICE BRIDGE EXTENSION
- INSTALL (1) ILC CABINET ON PROPOSED H-FRAME EXTENSION

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN  
EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY  
VERIZON IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY VERIZON.  
INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE  
PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING  
STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL  
ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

#### APPLICABLE CODES

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

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 - LIGHTNING PROTECTION CODE
4. 2017 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES,  
MOST RECENT EDITIONS
6. UT BUILDING CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

#### LEGAL DESCRIPTION

PART OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 5  
NORTH, RANGE 2 WEST, SALT LAKE BASE & MERIDIAN, U S  
SURVEY. BEGINNING AT A POINT ON THE SOUTH SIDE OF 4000 SOUTH  
STREET AND THE EAST RIGHT OF WAY LINE OF THE DENVER AND RIO  
GRAND RAILROAD, SAID POINT BEGINNING 917.20 FEET, NORTH  
89D53'27" WEST AND SOUTH 34D21' WEST 39.92 FEET, FROM THE  
NORTH QUARTER CORNER OF SECTION 11, TOWNSHIP 5 NORTH, RANGE  
2 WEST, RUNNING THENCE SOUTH 34D21' WEST 846.99 FEET ALONG  
THE EAST LINE OF SAID RIGHT OF WAY; THENCE SOUTH 55D39" EAST  
164.49 FEET; THENCE NORTH 34D34'32" EAST 254.56 FEET; THENCE  
NORTH 37D20'04" EAST 160.74 FEET; THENCE NORTH 31D33'31" EAST  
533.16 FEET; THENCE NORTH 89D53'27" WEST 178.82 FEET ALONG  
THE SOUTH BOUNDARY LINE OF 4000 SOUTH STREET TO THE POINT  
OF BEGINNING. TOGETHER WITH A RIGHT OF WAY FOR INGRESS AND  
EGRESS ACROSS THE NORTHWESTERLY 30 FEET.

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#### DRIVING DIRECTIONS

FROM: SALT LAKE INTERNATIONAL AIRPORT

1. HEAD NORTH ON N TERMINAL DR TOWARD 3800 W
2. KEEP RIGHT TO CONTINUE ON TERMINAL DR
3. USE THE LEFT 2 LANES TO TAKE THE I-80 E RAMP TO CITY  
CENTER/OGDEN/PROVO
4. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR I-80 E AND MERGE ONTO  
I-80 E
5. USE THE RIGHT 2 LANES TO TAKE EXIST 117 TOWARD I-215 N/OGDEN
6. MERGE ONTO I-215N
7. MERGE ONTO I-15 N
8. KEEP LEFT AT THE FORK TO STAY ON I-15 N, FOLLOW SIGNS FOR  
INTERSTATE 15 N/OGDEN
9. TAKE EXIST 339 FOR UTAH 26/W RIVERDALE RD
10. KEEP LEFT AT THE FORK TO CONTINUE TOWARD W RIVERDALE RD
11. TURN LEFT ONTO W RIVERDALE RD
12. KEEP LEFT TO STAY ON W RIVERDALE RD
13. TURN RIGHT ONTO S 1900 W
14. TURN LEFT ONTO 4000 S ST
15. AT THE TRAFFIC CIRCLE, CONTINUE STRAIGHT TO STAY ON 4000 S ST
16. AFTER APPROXIMATELY 0.5 MILES, DESTINATION SHOULD BE ON THE RIGHT



ELECTRICAL NOTES:

- WORK INCLUDED
1. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
    - A. PREPARE AND SUBMIT SHOP DRAWINGS, DIAGRAMS AND ILLUSTRATIONS.
    - B. PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS CONTRACT.
    - C. SUBMIT AS-BUILT DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUALS.
    - D. EXECUTE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING OF EXISTING OR NEWLY INSTALLED CONSTRUCTION REQUIRED FOR THE WORK OF THIS CONTRACT. FOR SLAB PENETRATIONS THROUGH POST TENSION SLABS, X-RAY EXACT AREA OF PENETRATION PRIOR TO PERFORMING WORK. COORDINATE ALL X-RAY WORK WITH BUILDING ENGINEER.
    - E. PROVIDE HANGERS, SUPPORTS, FOUNDATIONS, STRUCTURAL FRAMING SUPPORTS, AND BASES FOR CONDUIT AND EQUIPMENT PROVIDED OR INSTALLED UNDER THE WORK OF HIS CONTRACT. PROVIDE COUNTER FLASHING, SLEEVES AND SEALS FOR FLOOR AND WALL PENETRATIONS.
    - F. MAINTAIN ALL EXISTING ELECTRICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATION DURING THE PROGRESS OF THE WORK INCLUDING PROVIDING ALL TEMPORARY JUMPERS, CONDUITS, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED. PROVIDE TEMPORARY LIGHT AND POWER FOR CONSTRUCTION PURPOSES.
  2. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IT IS NOT THE INTENT TO GIVE EVERY DETAIL ON THE DRAWINGS AND IN THE SPECIFICATIONS. IF AN ITEM OF WORK IS INDICATED IN THE DRAWINGS, IT IS CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION WHETHER OR NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

GENERAL REQUIREMENTS

1. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.
  2. THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. REFER TO THE ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDING.
  3. LOAD CALCULATIONS ARE BASED ON EXISTING BUILDING INFORMATION/DRAWINGS PROVIDED TO ENGINEERING. CONTRACTOR IS TO VERIFY ALL EXISTING RATINGS AND LOADS PRIOR TO PURCHASING OF SPECIFIED EQUIPMENT FOR COMPLIANCE TO NEC. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES AND REQUEST FURTHER DIRECTION BY ENGINEER.
  4. EXISTING BUILDING EQUIPMENT IS NOTED ON THE DRAWINGS. NEW OR RELOCATED EQUIPMENT IS SHOWN WITH SOLID LINES. FUTURE EQUIPMENT (NOT IN THIS CONTRACT) IS DEPICTED WITH SHADED LINES. REQUEST CLARIFICATION OF DRAWINGS OR OF SPECIFICATIONS PRIOR TO PRICING OR INSTALLATION.
  5. GENERAL
    - A. AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THE PROPOSAL, MAKE A MANDATORY SITE VISIT TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR FAILURE TO NOTIFY THE OWNER, IN WRITING, OF ANY DISCREPANCIES THAT MAY HAVE BEEN NOTED BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS AND SPECIFICATIONS.
    - B. VERIFY ALL MEASUREMENTS AT THE SITE AND BE RESPONSIBLE FOR CORRECTNESS OF SAME.
  6. QUALITY, WORKMANSHIP, MATERIALS AND SAFETY
    - A. PROVIDE NEW MATERIALS AND EQUIPMENT OF A DOMESTIC MANUFACTURER BY THOSE REGULARLY ENGAGED IN THE PRODUCTION AND MANUFACTURE OF SPECIFIED MATERIALS AND EQUIPMENT. WHERE UL, OR OTHER AGENCY, HAS ESTABLISHED STANDARDS FOR MATERIALS, PROVIDE MATERIALS WHICH ARE LISTED AND LABELED ACCORDINGLY. THE COMMERCIALY STANDARD ITEMS OF EQUIPMENT AND THE SPECIFIC NAMES MENTIONED HEREIN ARE INTENDED FOR THE PROPER FUNCTIONING OF THE WORK.
    - B. WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE REQUIRED FOR THE WORK. INSTALL MATERIALS AND EQUIPMENT TO PRESENT A NEAT APPEARANCE WHEN COMPLETED AND IN ACCORDANCE WITH THE APPROVED RECOMMENDATIONS OF THE MANUFACTURER AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
    - C. PROVIDE LABOR, MATERIALS, APPARATUS AND APPLIANCES ESSENTIAL TO THE FUNCTIONING OF THE SYSTEMS DESCRIBED OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL WHENEVER MENTIONED IN THE CONTRACT DOCUMENT OR NOT.
    - D. MAKE WRITTEN REQUESTS FOR SUPPLEMENTARY INSTRUCTIONS TO ARCHITECT/ENGINEER IN CASE OF DOUBT AS TO WORK INTENDED OR IN EVENT OF NEED FOR EXPLANATION THEREOF.
    - E. PERFORMANCE AND MATERIAL REQUIREMENTS SCHEDULED OR SPECIFIED ARE MINIMUM STANDARD ACCEPTABLE. THE RIGHT TO JUDGE THE QUALITY OF EQUIPMENT THAT DEVATES FROM THE CONTRACT DOCUMENT REMAINS SOLELY WITH ARCHITECT/ENGINEER. CONTRACT DOCUMENT OR NOT.
- GUARANTEE
1. GUARANTEE MATERIALS, PARTS AND LABOR FOR WORK FOR ONE YEAR FROM THE DATE OF ISSUANCE OF OCCUPANCY PERMIT. DURING THAT PERIOD, MAKE GOOD FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIALS OR WORKMANSHIP WITH NO ADDITIONAL COMPENSATION AND AS DIRECTED BY ARCHITECT.

CLEANING

1. REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE WORK.
  2. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.
- COORDINATION AND SUPERVISION
1. CAREFULLY LAY OUT ALL WORK IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES. WHERE SUCH WORK IS NECESSARY, HOWEVER, PATCH AND REPAIR THE WORK IN AN APPROVED MANNER BY SKILLED MECHANICS AT NO ADDITIONAL COST TO THE OWNER. RENDER FULL COOPERATION TO OTHER TRADES WHERE WORK WILL BE INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES. ASSIST IN WORKING OUT SPACE CONDITIONS. IF WORK IS INSTALLED BEFORE COORDINATION WITH OTHER TRADES, OR CAUSES INTERFERENCE, MAKE CHANGES NECESSARY TO CORRECT CONDITIONS WITHOUT EXTRA CHARGE.

SUBMITTALS

1. AS-BUILT DRAWINGS:
  - A. UPON COMPLETION OF THE WORK, FURNISH TO THE OWNER "AS-BUILT" DRAWNGS.
2. SERVICE MANUALS:
  - A. UPON COMPLETION OF THE WORK, FULLY INSTRUCT VERIZON AS TO THE OPERATION AND MAINTENANCE OF ALL MATERIAL, EQUIPMENT AND SYSTEMS.
  - B. PROVIDE 3 COMPLETE BOUND SETS OF INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT.

CUTTING AND PATCHING

1. PROVIDE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING REQUIRED TO COMPLETE THE WORK.
2. OBTAIN OWNER APPROVAL PRIOR TO CUTTING THROUGH FLOORS OR WALLS FOR PIPING OR CONDUIT.

TESTS, INSPECTION AND APPROVAL

1. BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TIGHTEN ALL BOLTS AND CONNECTIONS (TORQUE-TIGHTEN WHERE REQUIRED) AND DETERMINE THAT ALL COMPONENTS ARE ALIGNED, AND THE EQUIPMENT IS IN SAFE, OPERATIONAL CONDITION.
2. PROVIDE THE COMPLETE ELECTRICAL SYSTEM FREE OF GROUND FAULTS AND SHORT CIRCUITS SUCH THAT THE SYSTEM WILL OPERATE SATISFACTORILY UNDER FULL LOAD CONDITIONS, WITHOUT EXCESSIVE HEATING AT ANY POINT IN THE SYSTEM.

SPECIAL REQUIREMENTS

1. DO NOT LEAVE ANY WORK INCOMPLETE NOR ANY HAZARDOUS SITUATIONS CREATED WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. DO NOT INTERFERE WITH OR CUTOFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S WRITTEN PERMISSION.
2. WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING BUILDING UTILITIES AND SERVICE SYSTEMS, INCLUDING FEEDER OR BRANCH CIRCUITING SUPPLYING EXISTING FACILITIES, CONFER WITH THE OWNER AND ARRANGE THE PERIOD OF INTERRUPTION FOR A TIME MUTUALLY AGREED UPON. SHUTDOWN NOTE: SCHEDULE AND NOTIFY OWNER 48 HOURS PRIOR TO SHUTDOWN. ALL SHUTDOWN WORK TO BE SCHEDULED AT A TIME CONVENIENT TO OWNER.

GROUNDING

1. ROUTE ALL GROUNDING CONDUCTORS AS SHOWN ON CONDUIT/GROUNDING RISER.
2. ROUTE 500 KCMIL CU. THHN CONDUCTOR FROM THE MGB LOCATION TO BUILDING STEEL. VERIFY BUILDING STEEL IS EFFECTIVELY GROUNDED PER NEC TO THE MAIN SERVICE GROUNDING ELECTRODE CONDUCTOR (GEC).
3. MAKE ALL GROUND CONNECTIONS FROM MGB TO ELECTRICAL EQUIPMENT WITH 2 HOLE, CRIMP TYPE, BURNDY COMPRESSION TERMINATIONS, SIZED AS REQUIRED.
4. USE 1 HOLE, CRIMP TYPE, BURNDY COMPRESSIONS TERMINATIONS, SIZED AS REQUIRED, AT EQUIPMENT GROUND CONNECTIONS.
5. HIRE AN INDEPENDENT LAB TO PERFORM THE SPECIFIED OHMS TESTING. PROVIDE 4 SETS OF THE CERTIFIED DOCUMENTS TO THE OWNER FOR VERIFICATION PRIOR TO THE PROJECT COMPLETION.

RACEWAYS

1. ALL WIRING TO BE INSTALLED IN CONDUIT SYSTEMS IN ACCORDANCE WITH THE FOLLOWING:
  - A. EXTERIOR FEEDERS AND CONTROL, WHERE UNDERGROUND, TO BE IN SCH 40 PVC.
  - B. EXTERIOR, ABOVE GROUND POWER CONDUITS TO BE GALVANIZED RIGID STEEL (RGS).
  - C. ALL TELECOMMUNICATION CONDUITS, INTERIOR/EXTERIOR, TO BE EMT.
- ON THIS PROJECT.
- E. ALL TELECOM CONDUITS AND PULL BOXES INSTALLED ON THIS PROJECT TO BE LABELED "VERIZON". OWNER WILL PROVIDE LABELS FOR CONTRACTOR TO INSTALL.
- F. INTERIOR FEEDERS TO BE INSTALLED IN E.M.T. WITH STEEL COMPRESSION FITTINGS.
- G. MINIMUM SIZE CONDUIT TO BE ¾" TRADE SIZE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- H. FINAL CONNECTIONS TO MOTORS AND VIBRATING EQUIPMENT TO BE INSTALLED IN LIQUID-TIGHT FLEXIBLE METAL CONDUIT.

- AREAS OR DRYWALL PARTITIONS, UNLESS OTHERWISE NOTED.
- J. THE ROUTING OF CONDUITS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. BEFORE INSTALLING ANY WORK, EXAMINE THE WORKING LAYOUTS AND SHOP DRAWINGS OF THE OTHER TRADES TO DETERMINE THE EXACT LOCATIONS AND CLEARANCES.
  - K. ALL EXTERIOR MOUNTING HARDWARE TO BE GALVANIZED STEEL. COORDINATE WITH BUILDING ENGINEER PRIOR TO ATTACHING TO BUILDING STRUCTURE.

RACEWAYS CONT'D

- L. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE PASSAGE OF ELECTRICAL RACEWAYS, TO BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL OR WATERPROOF INTEGRITY OF THE WALL, FLOOR OR ROOF SYSTEM TO BE PENETRATED. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE OR SMOKE RATED WALLS, CEILINGS OR SMOKE TIGHT CORRIDOR PARTITIONS TO MAINTAIN PROPER RATING OF WALL OR CEILING.
- M. PROVIDE ALL CONDUIT ENDS WITH INSULATED METALLIC GROUNDING BUSHINGS.
- N. CONDUIT TO BE SUPPORTED AT MAXIMUM DISTANCE OF 8'-0", OR AS REQUIRED BY NEC, IN HORIZONTAL AND VERTICAL DIRECTIONS.
- O. PROVIDE STAINLESS STEEL BLANK COVER PLATES FOR ALL JUNCTION BOXES AND/OR OUTLET BOXES NOT USED IN EXPOSED AREAS. PROVIDE ALL OTHER UNUSED BOXES WITH STANDARD STEEL COVER PLATES.
- P. WHERE APPLICABLE, PROVIDE ROOFTOP CONDUIT SUPPORT SYSTEM, CONFORMING TO ROOFTOP WARRANTY REQUIREMENTS, PER BUILDING.

WIRES AND CABLES

1. CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND VENDOR FOR EXACT EQUIPMENT OVER-CURRENT PROTECTION VOLTAGE, WIRE SIZE AND PLUG CONFIGURATION, IF APPLICABLE, PRIOR TO BID.
2. ALL EQUIPMENT/DEVICES TO BE PROVIDED WITH INSULATED GROUND CONDUCTOR.
3. ALL WIRE AND CABLE TO BE 600VOLT, COPPER, WITH THWN/ THHN INSULATION, EXCEPT AS NOTED.
4. WIRE FOR POWER AND LIGHTING WILL NOT BE LESS THAN NO. 12AWG. ALL WIRE NO. 8 AND LARGER TO BE STRANDED.
5. CONTROL WIRING IS NOT TO BE LESS THAN NO. 14AWG, FLEXIBLE IN SINGLE CONDUCTORS OR MULTI-CONDUCTOR CABLES. CONTROL WIRING WILL CONSIST OF MULTI-CONDUCTOR CABLES WHEREVER POSSIBLE. CABLES TO BE PROVIDED WITH AN OVERALL FLAME-RETARDANT, EXTRUDED JACKET AND RATED FOR PLENUM USE. ALL CONTROL WIRE TO BE 600VOLT RATED.
6. WIRE PREVIOUSLY PULLED INTO CONDUIT IS CONSIDERED USED AND IS NOT TO BE RE-PULLED.
7. HOME RUNS AND BRANCH CIRCUIT WIRING FOR 20A, 120V CIRCUITS:

LENGTH (FT.)	HOME RUN WIRE SIZE
0 TO 50	NO. 12
51 TO 100	NO. 10
101 TO 150	NO. 8
8. VOLTAGE DROP IS NOT TO EXCEED 3%.
9. MAKE ALL CONNECTIONS WITH UL APPROVED, SOLDERLESS, PRESSURE TYPE INSULATED CONNECTORS: SCOTCHLOK OR AND APPROVED EQUAL.

WIRING DEVICES

1. ALL RECEPTACLES INSTALLED IN THIS PROJECT TO BE GROUNDING TYPE, WITH GROUNDING PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION.

DISCONNECT SWITCHES AND FUSES

1. DISCONNECT SWITCHES TO BE VOLTAGE-RATED TO SUIT THE CHARACTERISTICS OF THE SYSTEM FROM WHICH THEY ARE SUPPLIED.
2. PROVIDE HEAVY-DUTY, METAL-ENCLOSED, EXTERNALLY-OPERATED DISCONNECT SWITCHES, FUSED OR UNFUSED, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.
3. PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
4. DISCONNECT SWITCHES TO BE MANUFACTURED BY:
  - A. GENERAL ELECTRIC COMPANY
  - B. SQUARE-D
5. PROVIDE RK-1 TYPE FUSES, UNLESS NOTED OTHERWISE.

INSTALLATION

1. INSTALL DISCONNECT SWITCHES WHERE INDICATED ON DRAWINGS.
2. INSTALL FUSES IN FUSIBLE DISCONNECT SWITCHES. FUSES MUST MATCH IN TYPE AND RATING.
3. FUSES TO BE MOUNTED SO THAT THE LABELS SHOWING THEIR RATINGS CAN BE READ WITHOUT REQUIRING FUSE REMOVAL.
4. FURNISH AND DEPOSIT SPARE FUSES AT THE JOB SITE AS FOLLOWS:
  - A. THREE SPARES FOR EACH TYPE AND SIZE, IN EXCESS OF 60A, USED FOR INITIAL FUSING.
  - B. TEN PERCENT SPARES FOR EACH TYPE AND SIZE, UP TO AND INCLUDING 60A, USED FOR INITIAL FUSING. IN NO CASE WILL LESS THAN THREE FUSES OF ONE PARTICULAR TYPE AND SIZE BE FURNISHED.

CONFLICTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
2. THE BIDDER, IF AWARDED THE CONTRACT, WILL NOT BE ALLOWED ANY EXTRA COMPENSATION BY REASON OF ANY MATTER OR THING CONCERNING SUCH BIDDER MIGHT HAVE FULLY INFORMED THEMSELVES PRIOR TO THE BIDDING.
3. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS GOVERNING THE WORK.

CONTRACTS AND WARRANTIES

1. CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS.
2. SEE MASTER CONTRACTION SERVICES AGREEMENT FOR ADDITIONAL DETAILS.

STORAGE

1. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

CLEANUP

1. THE CONTRACTORS SHALL, AT ALL TIMES, KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR EMPLOYEES AT WORK AND AT THE COMPLETION OF THE WORK. THEY SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA, INCLUDING ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS AND SHALL LEAVE THEIR WORK CLEAN AND READY TO USE.
2. EXTERIOR
  - A. VISUALLY INSPECT EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER.
  - B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
  - C. IF NECESSARY, TO ACHIEVE A UNIFORM DEGREE OF CLEANLINESS, HOSE DOWN THE EXTERIOR OF THE STRUCTURE.
3. INTERIOR
  - A. VISUALLY INSPECT INTERIOR SURFACE AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER FROM WALLS, FLOOR, AND CEILING.
  - B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
  - C. REMOVE PAINT DROPPINGS, SPOTS, STAINS, AND DIRT FROM FINISHED SURFACES.

CHANGE ORDER PROCEDURE:

1. REFER TO SECTION 17 OF SIGNED MCSA: SEE PROFESSIONAL SERVICE AGREEMENT FOR MCSA.

RELATED DOCUMENTS AND COORDINATION

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

SHOP DRAWINGS

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS TO THE OWNER FOR APPROVAL.
2. ALL SHOP DRAWINGS SHALL BE REVIEWED, CHECKED AND CORRECTED BY CONTRACTOR PRIOR TO SUBMITTAL TO THE OWNER.

PRODUCTS AND SUBSTITUTIONS

1. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST, IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.
2. SUBMIT ALL NECESSARY PRODUCT DATA AND CUT SHEETS WHICH PROPERLY INDICATE AND DESCRIBE THE ITEMS, PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE OWNER, SUBMIT ACTUAL SAMPLES TO THE OWNER FOR APPROVAL IN LIEU OF CUT SHEETS.

QUALITY ASSURANCE

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE, BUT NOT BE LIMITED TO THE APPLICABLE CODES SET FORTH BY THE LOCAL GOVERNING BODY. SEE "CODE COMPLIANCE" T-1.

ADMINISTRATION

1. BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT. THIS PROJECT MANAGER WILL DEVELOP A MASTER SCHEDULE FOR THE PROJECT WHICH WILL BE SUBMITTED TO THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. SUBMIT A BAR TYPE PROGRESS CHART, NOT MORE THAN 3 DAYS AFTER THE DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK ON THE SCHEDULE, INDICATING A TIME BAR FOR EACH MAJOR CATEGORY OR UNIT OF WORK TO BE PERFORMED AT THE SITE, PROPERLY SEQUENCED AND COORDINATED WITH OTHER ELEMENTS OF WORK AND SHOWING COMPLETION OF THE WORK SUFFICIENTLY IN ADVANCE OF THE DATE ESTABLISHED FOR SUBSTANTIAL COMPLETION OF THE WORK.
3. PRIOR TO COMMENCING CONSTRUCTION, THE OWNER SHALL SCHEDULE AN ON-SITE MEETING WITH ALL MAJOR PARTIES. THIS WOULD INCLUDE, BUT NOT LIMITED TO, THE OWNER, PROJECT MANAGER, CONTRACTOR, LAND OWNER REPRESENTATIVE, LOCAL TELEPHONE COMPANY, TOWER ERECTION FOREMAN (IF SUBCONTRACTED).
4. CONTRACTOR SHALL BE EQUIPPED WITH SOME MEANS OF CONSTANT COMMUNICATIONS, SUCH AS A MOBILE PHONE OR A BEEPER. THIS EQUIPMENT WILL NOT BE SUPPLIED BY THE OWNER, NOR WILL WIRELESS SERVICE BE ARRANGED.
5. DURING CONSTRUCTION, CONTRACTOR MUST ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES. CONTRACTOR WILL COMPLY WITH ALL WPCS SAFETY REQUIREMENTS IN THEIR AGREEMENT.
6. PROVIDE WRITTEN DAILY UPDATES ON SITE PROGRESS TO THE OWNER.
7. COMPLETE INVENTORY OF CONSTRUCTION MATERIALS AND EQUIPMENT IS REQUIRED PRIOR TO START OF CONSTRUCTION.
8. NOTIFY THE OWNER/PROJECT MANAGER IN WRITING NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, TOWER ERECTIONS, AND EQUIPMENT CABINET PLACEMENTS.

INSURANCE AND BONDS

1. CONTRACTOR, AT THEIR OWN EXPENSE, SHALL CARRY AND MAINTAIN, FOR THE DURATION OF THE PROJECT, ALL INSURANCE, AS REQUIRED AND LISTED, AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER. REFER TO THE MASTER AGREEMENT FOR REQUIRED INSURANCE LIMITS.
2. THE OWNER SHALL BE NAMED AS AN ADDITIONAL INSURED ON ALL POLICIES.
3. CONTRACTOR MUST PROVIDE PROOF OF INSURANCE.

GENERAL NOTES:

INTENT

1. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN,INDICATED OR SPECIFIED IN BOTH
3. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
4. THE PURPOSE OF THE SPECIFICATIONS IS TO INTERPRET THE INTENT OF THE DRAWINGS AND TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
5. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE MADE OR PERMITTED BY THE OWNER WITHOUT ISSUING A CHANGE ORDER.

PLANS PREPARED FOR:

**verizon**

180 WASHINGTON VALLEY ROAD  
BEDMINSTER, NJ 07921

PLANS PREPARED BY:

**INFINIGY**

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Westminster, CO 80234  
Office # (303) 219-1178  
Fax # (303) 242-8636  
JOB NUMBER: TBD

MLA PARTNER:

**CROWN CASTLE**

ENGINEERING LICENSE:

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DESCRIPTION	DATE	BY	REV
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VERIZON SITE NAME:

**SAL SLEET**

CROWN CASTLE SITE NAME:

**KWIK CITY MUFFLER**

CROWN CASTLE BU #:

**880534**

SITE ADDRESS:

**2449 WEST 4000 SOUTH  
ROY, UT 84067**

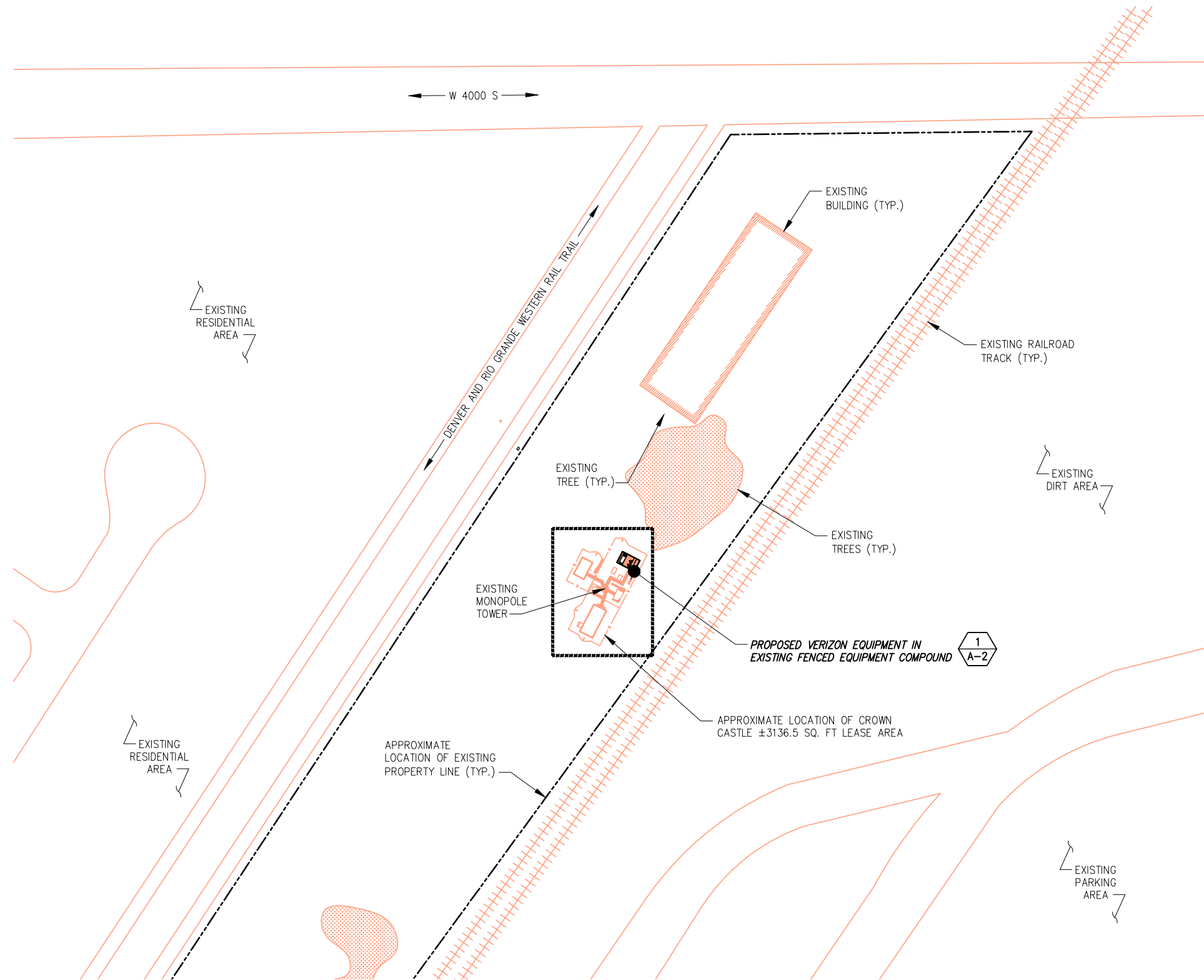
SHEET DESCRIPTION:

**VERIZON  
SPECIFICATIONS**

SHEET NUMBER:

**SP-1**

ABBREVIATIONS	
ADJ	ADJUSTABLE
AGL	ABOVE GROUND LINE
&	AND
APPROX	APPROXIMATE
Ø	AT
BTS	BASE TRANSMISSION STATION
CAB	CABINET
CLG	CEILING
CONC	CONCRETE
CONT	CONTINUOUS
DIA OR Ø	DIAMETER
DWG	DRAWING
EA	EACH
ELEC	ELECTRICAL
ELEV	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EGB	EQUIPMENT GROUND BAR
(E)	EXISTING
EXT	EXTERIOR
FF	FINISHED FLOOR
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GRND	GROUND
LG	LONG
MAX	MAXIMUM
MECH	MECHANICAL
MW	MICROWAVE DISH
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTL	METAL
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
(P)	PROPOSED
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SS	STAINLESS STEEL
STL	STEEL
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TP	TYPICAL
VIF	VERIFY IN FIELD
UON	UNLESS OTHERWISE NOTED
WWF	WELDED WIRE FABRIC
W/	WITH

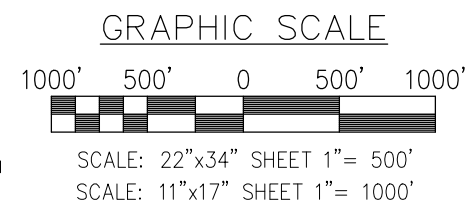


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OVERALL SITE PLAN

SCALE: AS NOTED

1



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SHEET DESCRIPTION:

OVERALL SITE PLAN

SHEET NUMBER:

A-1

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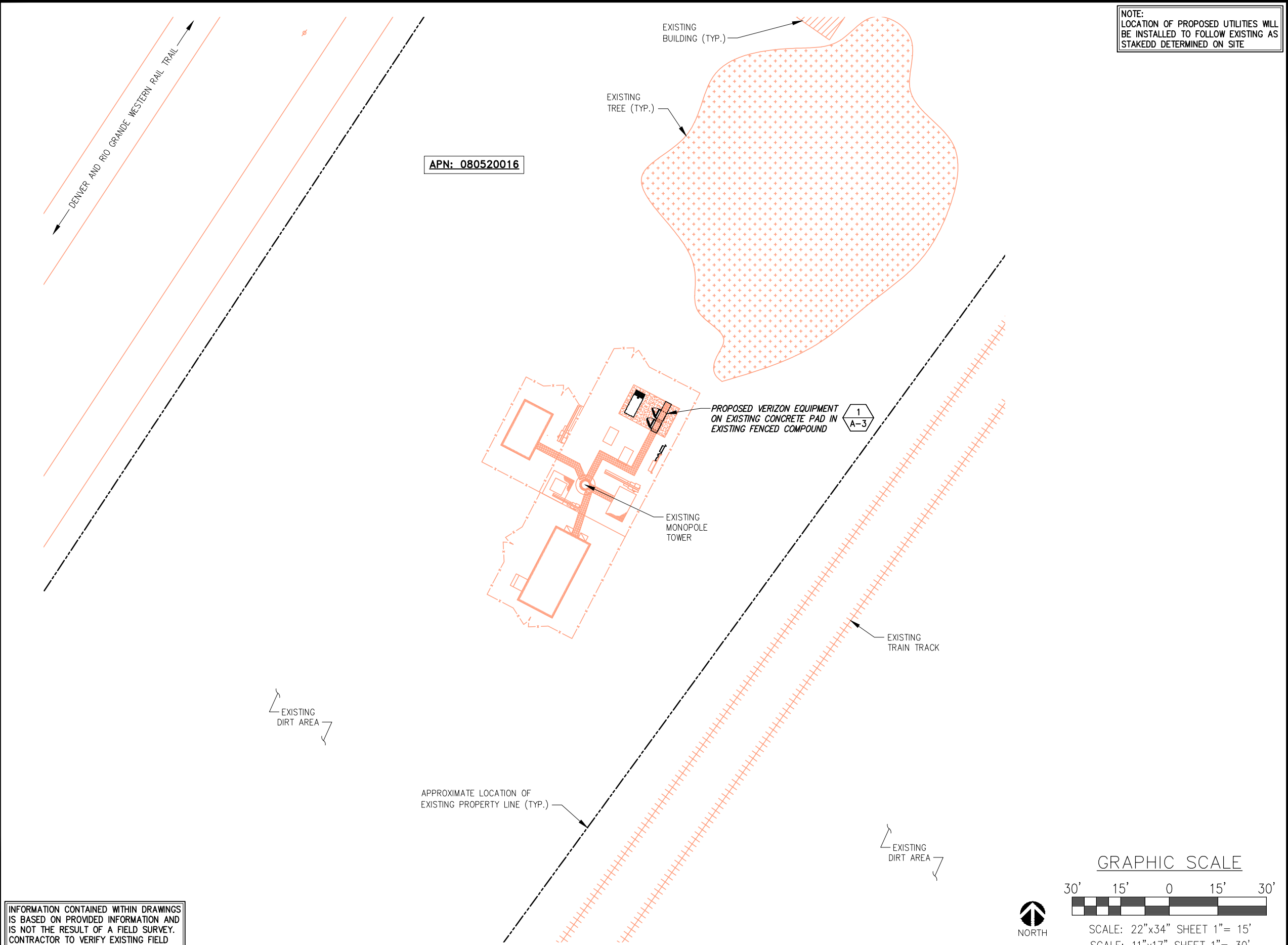
SHEET DESCRIPTION:

OVERALL SITE PLAN

SHEET NUMBER:

A-1





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CROWN CASTLE BU #:

**880534**

SITE ADDRESS:

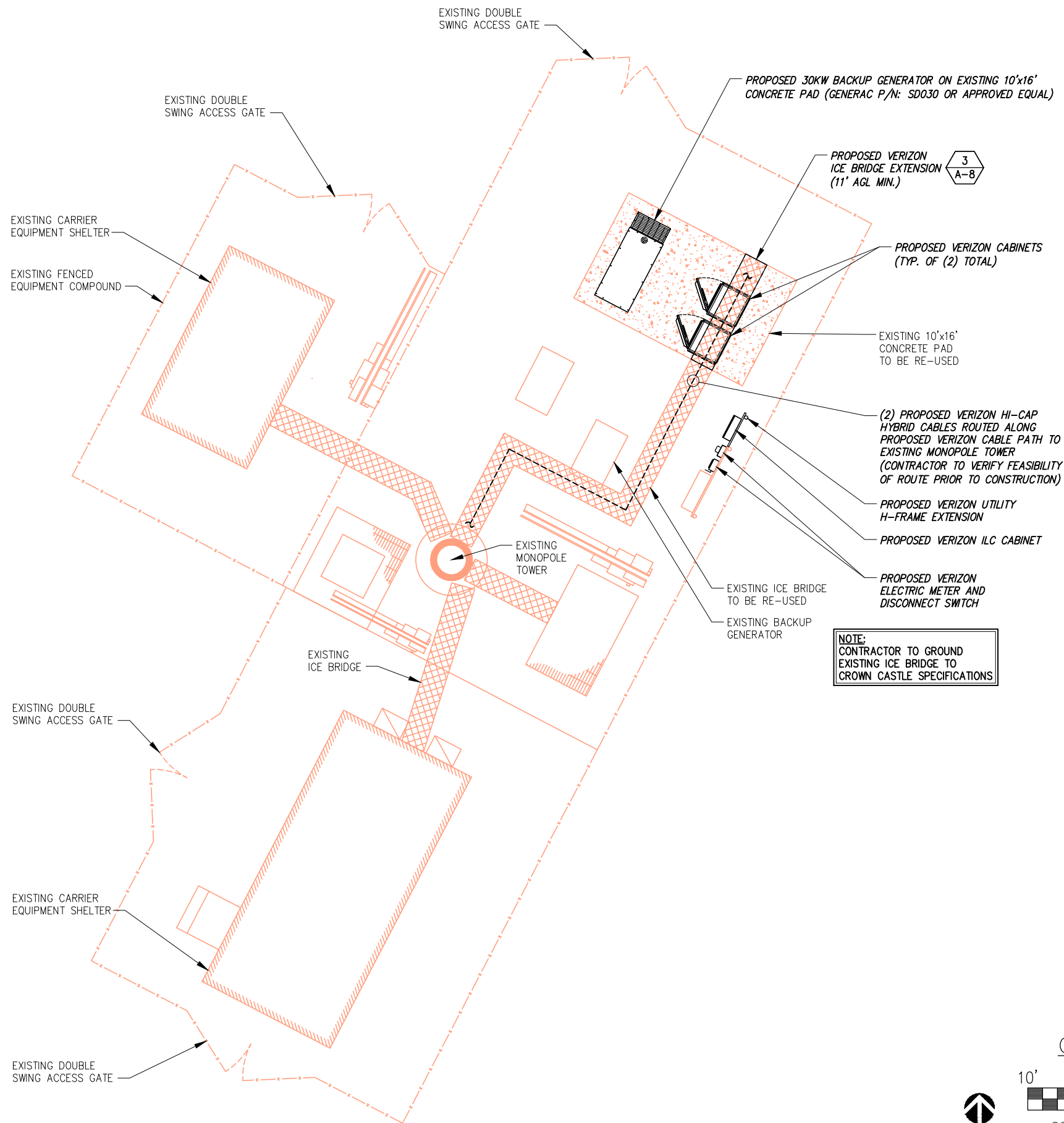
**2449 WEST 4000 SOUTH  
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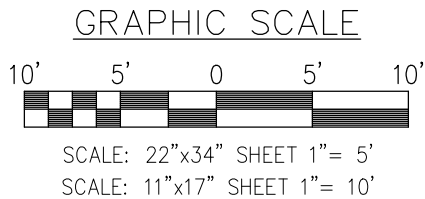
**ENLARGED SITE PLAN**

SHEET NUMBER:

**A-2**



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COMPOUND PLAN

SCALE: AS NOTED

1

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CROWN CASTLE BU #:

**880534**

SITE ADDRESS:

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ROY, UT 84067**

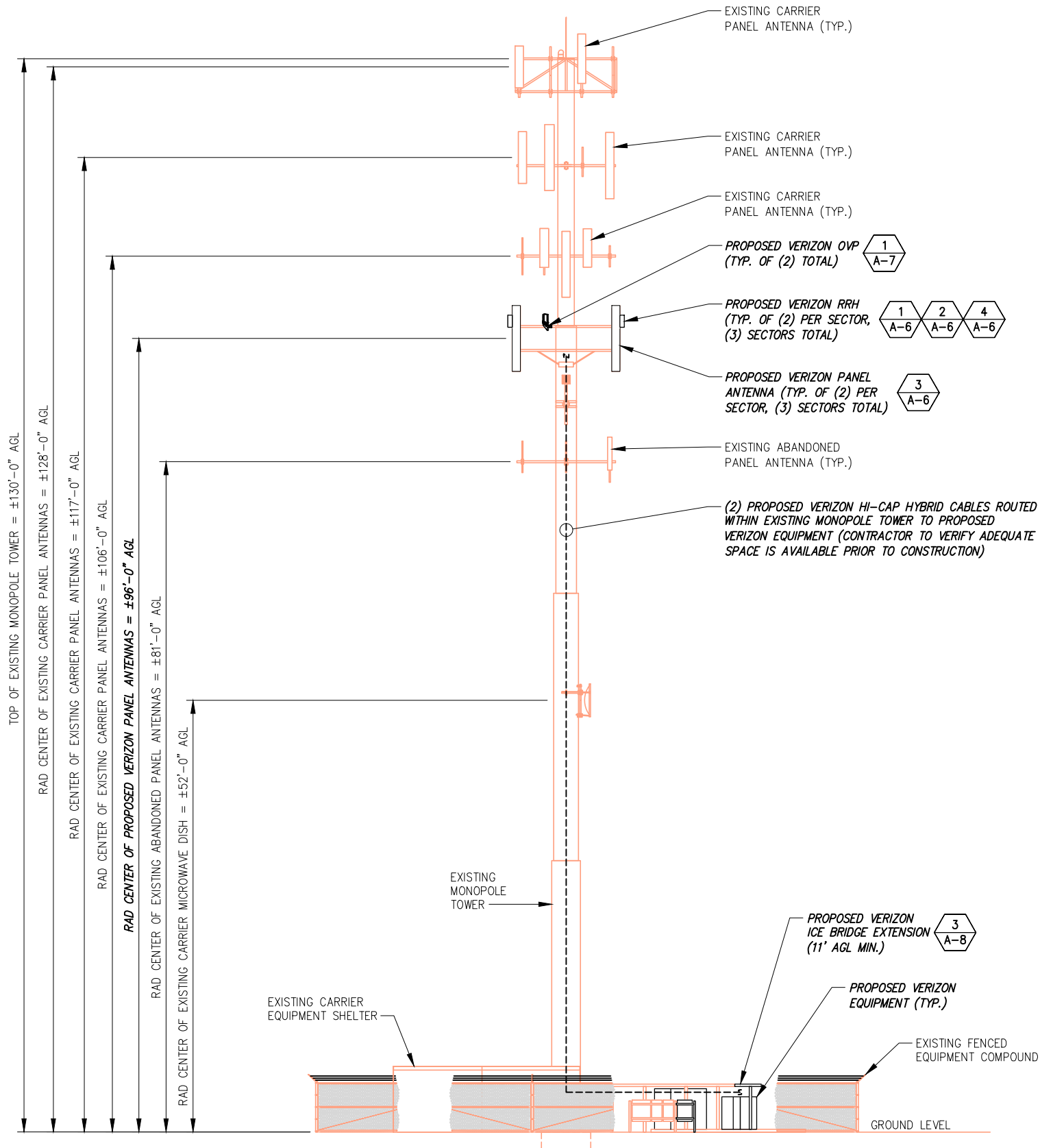
SHEET DESCRIPTION:

**COMPOUND PLAN**

SHEET NUMBER:

**A-3**

INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER OR MOUNT FOR THIS SITE AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY OTHERS PRIOR TO ANY CONSTRUCTION.



PROPOSED TOWER ELEVATION

NO SCALE

1

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CROWN CASTLE SITE NAME:

KWIK CITY MUFFLER

CROWN CASTLE BU #:

880534

SITE ADDRESS:

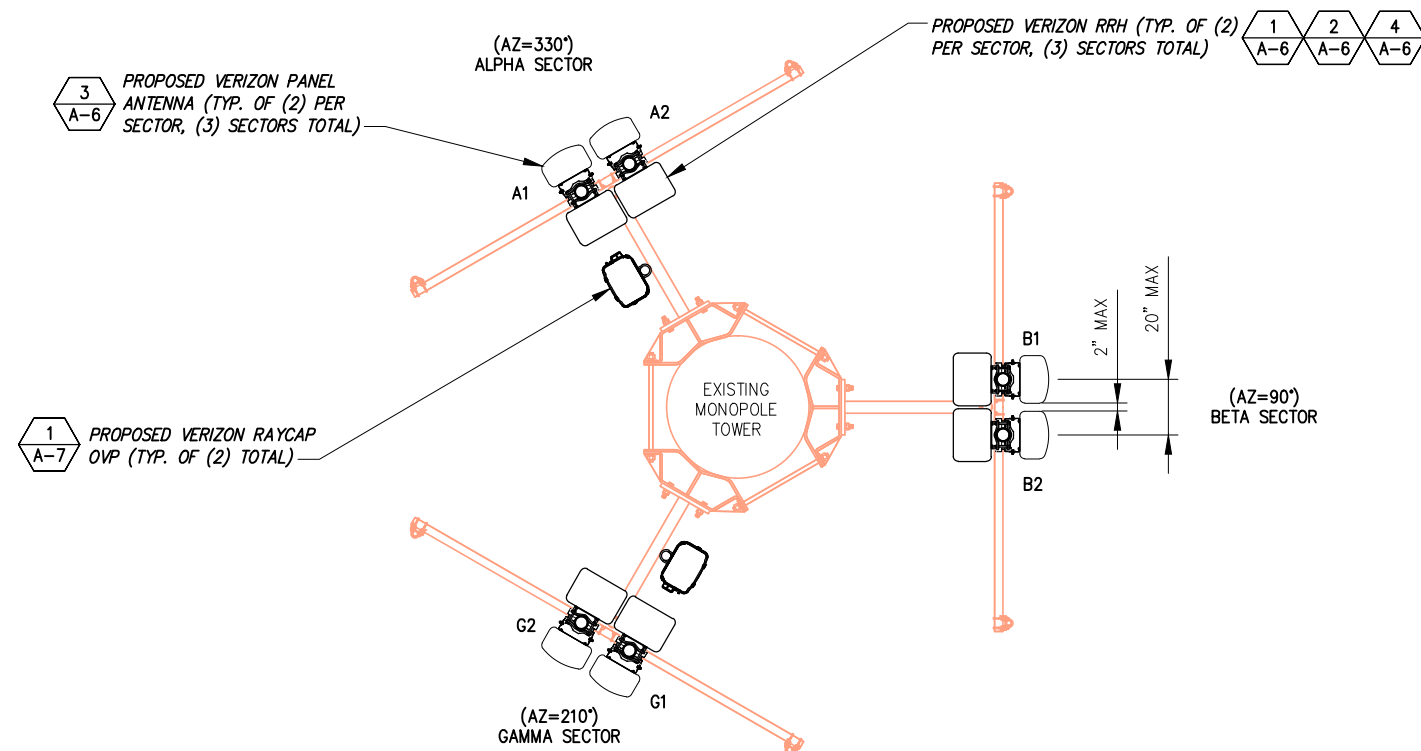
2449 WEST 4000 SOUTH  
ROY, UT 84067

SHEET DESCRIPTION:

PROPOSED TOWER  
ELEVATION

SHEET NUMBER:

A-4



NOTE:  
2" MAXIMUM EDGE-TO-EDGE ANTENNA SEPARATION  
AND 20" MAXIMUM CENTER-TO-CENTER ANTENNA  
SEPARATION IS TYPICAL FOR ALL (4) SECTORS

NOTE:  
CONTRACTOR TO VERIFY EQUIPMENT &  
MOUNTING HARDWARE DOES NOT TRAP  
OR INTERFERE WITH SAFETY CLIMB

INFINIGY ENGINEERING HAS NOT EVALUATED THE  
TOWER OR MOUNT FOR THIS SITE AND ASSUMES  
NO RESPONSIBILITY FOR ITS STRUCTURAL  
INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY  
OTHERS PRIOR TO ANY CONSTRUCTION.

THE CONFIGURATION PLAN IS BASED  
ON PROVIDED INFORMATION AND IS  
FOR CONCEPTUAL PURPOSES ONLY.  
CONTRACTOR TO VERIFY FIELD  
CONDITIONS PRIOR TO CONSTRUCTION.



PROPOSED ANTENNA LAYOUT

NO SCALE

1

SITE LOADING CHART													
SECTOR	POSITION	SECTOR COLOR	TECHNOLOGY	ANTENNA MODEL #	VENDOR	QTY. (REMOVED)	QTY. (NEW)	RRH (QTY/MODEL)	AZIMUTH	DOWNTILT		RAD CENTER	FEED LINE TYPE/LENGTH (FEET + 20%)
										MECHANICAL	ELECTRICAL		
ALPHA	A1	RED	L700/L850	NHH-65C-R2B	COMMSCOPE	--	1	1/RRH 8843	330°	2°	9°	±96' AGL	(2) PROPOSED HI-CAP HYBRID CABLE LENGTH = ±120' (TYP.)
ALPHA	A2	RED	L1900/L2100	NHH-65C-R2B	COMMSCOPE	--	1	1/RRH 4449	330°	2°	6°	±96' AGL	PROPOSED HYBRID SHARED WITH ABOVE
BETA	B1	BLUE	L700/L850	NHH-65C-R2B	COMMSCOPE	--	1	1/RRH 8843	90°	1°	8°	±96' AGL	PROPOSED HYBRID SHARED WITH ABOVE
BETA	B2	BLUE	L1900/L2100	NHH-65C-R2B	COMMSCOPE	--	1	1/RRH 4449	90°	1°	6°	±96' AGL	PROPOSED HYBRID SHARED WITH ABOVE
GAMMA	G1	WHITE	L700/L850	NHH-65C-R2B	COMMSCOPE	--	1	1/RRH 8843	210°	2°	9°	±96' AGL	PROPOSED HYBRID SHARED WITH ABOVE
GAMMA	G2	WHITE	L1900/L2100	NHH-65C-R2B	COMMSCOPE	--	1	1/RRH 4449	210°	2°	6°	±96' AGL	PROPOSED HYBRID SHARED WITH ABOVE

NOTE:  
CABLE LENGTHS ARE BASED ON PROVIDED INFORMATION. CONTRACTOR  
TO VERIFY REQUIRED CABLE LENGTHS PRIOR TO CONSTRUCTION.

SITE LOADING CHART


NO SCALE

2

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KWIK CITY MUFFLER

CROWN CASTLE BU #:

880534

SITE ADDRESS:

2449 WEST 4000 SOUTH  
ROY, UT 84067

SHEET DESCRIPTION:

ANTENNA LAYOUT &  
LOADING CHART

SHEET NUMBER:

A-5

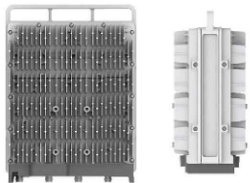
RADIO 8843 DUAL BAND  
B2 & B66A

- › 4TX/4RX per Band (B2 & B66A)
- › 320W of total power with three configuration options
  - 4x40 W per band (4T4R in each band)
  - Or 4x20W for B2 and 4x80W for B66A
  - Or 2x60W for B2 and 2x80W for B66A (2T4R in each band)
- › Full IBW in each band
- › Carrier BW:
  - 5, 10, 15, 20 MHz
- › LTE: Max 3 carriers per port (DL), max 3 carriers per port (UL)
- › CPRI Support:
  - 2.5; 4.9; 9.8; 10.1
- › -48 VDC 3-wire (2-wire with adapter)
  - Two DC power ports of 20A
- › AISG TMA & RET support via RS-485 or RF connectors
  - Bias-T only be supported on antenna port A and E.
- › Eight antenna connectors : 8 x 4.3-10 plus (f)
  - 4 ports dedicated to B2 and 4 ports dedicated to B66A
- › 2 external alarms
- › ~ 75 lb.
- › ~36L (14.96" x 13.19" x 11.1")
- › IP 65, -40 to +55 °C

Target PRA: Jun 30



SW Baseline- 18.Q1  
Supported on DUS41  
and BB5216



Specification	Ericsson Radio 4449
Band(s)	LTE B13 (700 MHz) + LTE B5 (850 MHz)
Output power	(2) 2 x 40W
Power consumption	1439W
Power supply	-48 V <sub>DC</sub> or external (100-250)V <sub>AC</sub> power supply unit
Physical dimensions	18.0" (height) x 13.2" (width) x 9.4" (depth)
Weight	70.0 lbs
Connectors	4 x 4.3-10 female



PLANS PREPARED FOR:

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MLA PARTNER:

CROWN  
CASTLE

ENGINEERING LICENSE:

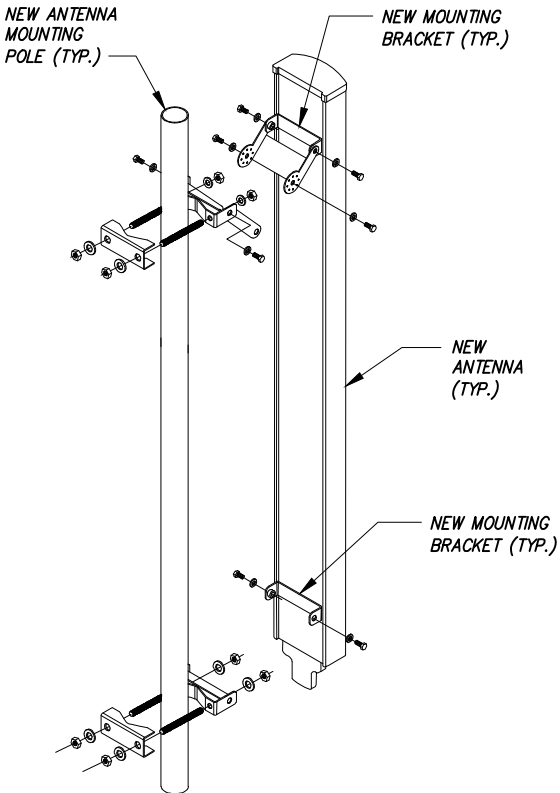
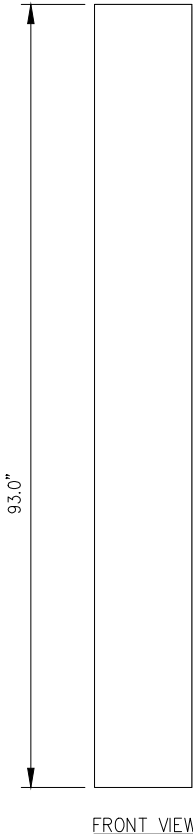
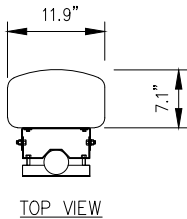
REMOTE RADIO HEAD SPECIFICATIONS

NO SCALE

1

COMMSCOPE PANEL ANTENNA

PART NUMBER: NHH-65C-R2B  
DIMENSIONS (HxWxD): 96.0"x11.9"x7.1"  
TOTAL WEIGHT: 51.6 lbs.



PANEL ANTENNA DETAIL

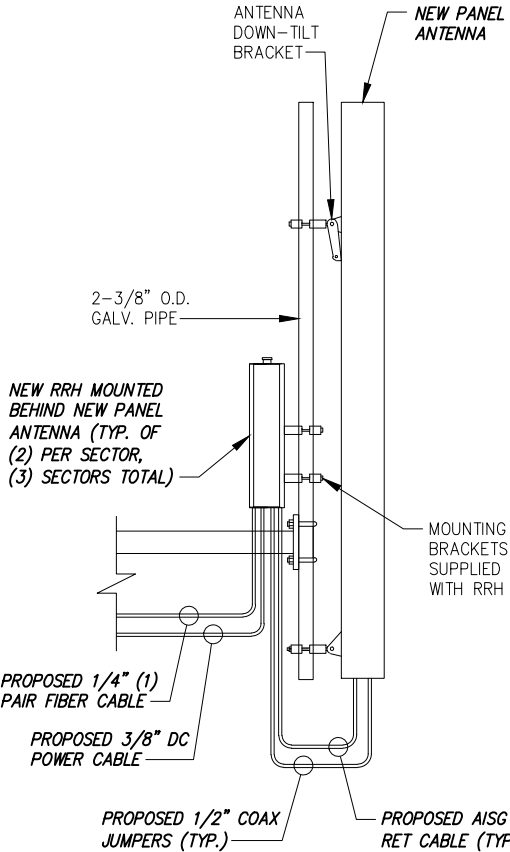
NO SCALE

3

REMOTE RADIO HEAD SPECIFICATIONS

NO SCALE

2



PANEL ANTENNA & RRH MOUNTING DETAIL

NO SCALE

4

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KWIK CITY MUFFLER

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SITE ADDRESS:

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ROY, UT 84067

SHEET DESCRIPTION:

EQUIPMENT &  
MOUNTING DETAILS

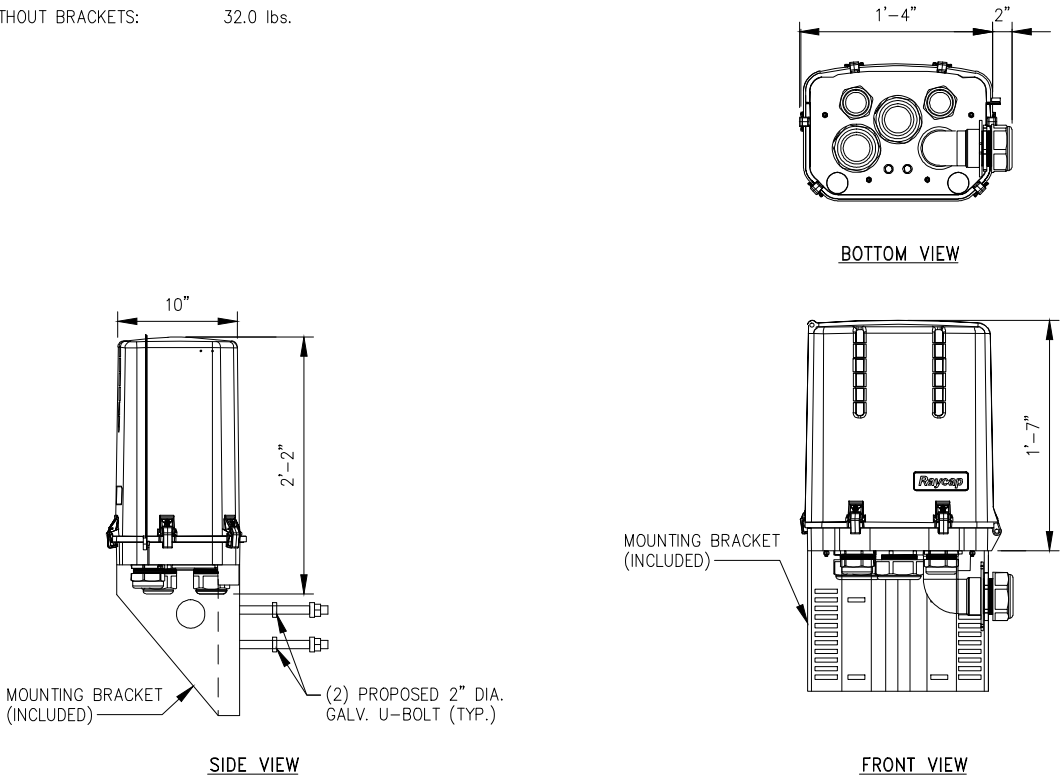
SHEET NUMBER:

A-6



RAYCAP DB-B1-6C-12AB-0Z

DIMENSIONS (WxDxH): 16"x10"x19"  
WEIGHT, WITHOUT BRACKETS: 32.0 lbs.



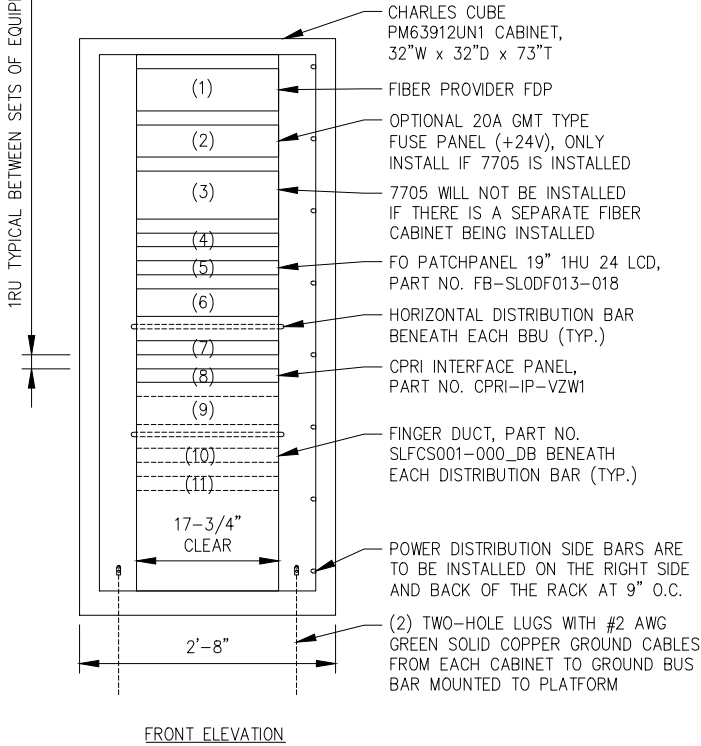
RAYCAP OVP DETAIL

NO SCALE

1

- NOTES:
- (1) CONTRACTOR IS TO INSTALL TWO 20 AMP BREAKERS IN THE PDF FRAME FEEDING THE A/B SIDES OF THE DUAL FEED FUSE PANEL, #6 CONDUCTOR, LABELED 'BBU RACK FUSE PANEL', +24v
  - (2) TIE WRAPS ARE NOT TO BE USED FOR SUPPORT OF ANY CABLING, VZW REQUIRES WAXED NSTD305 STANDARDS
  - (3) ALL EQUIPMENT RACKS ARE TO MEET VZW NSTD406 STANDARDS AND BE INSTALLED PER VZW NSTD305 STANDARDS
  - (4) EACH EQUIPMENT RACK IS SUPPLIED WITH (4) SEISMIC ZONE 4 STEEL WEDGE ANCHORS (11/16"Ø) AND EACH RACK IS TO NE SECURED TO THE CONCRETE FLOOR USING THERSE ANCHORS, EMBEDMENT DEPTH =  $\frac{2}{3}$  OF THE THICKNESS (4" FOR 6" SLAB, 2-5/8" FOR 4" SLAB, 2" FOR 3" SLAB) PER VZW NSTD305 STANDARDS
  - (5) ALL CABLING IS TO BE INSTALLED ON THE INSIDE OF CABINET SUPPORT LEG AND ON INSIDE SEAL TIGHT CONDUITS
  - (6) THE CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING FIBER JUMPERS FROM THE FDP TO THE CPRI INTERFACE PANEL, THEN FROM THE CPRI INTERFACE PANEL TO THE BBU FOR THE RRHs. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING FIBER MANAGEMENT AS REQ'D IN ORDER TO COMPLETE THIS INSTALLATION

- LEGEND:
- |                     |                       |                  |
|---------------------|-----------------------|------------------|
| (1) FDP (3RU        | (5) HYBRID FDP        | (9) FUTURE BBU   |
| (2) GMT PANEL       | (6) DUAL/TRI BAND BBU | (10) FINGER DUCT |
| (3) 7705, OPTIONAL  | (7) FINGER DUCT       | (11) CPRI PANEL  |
| (4) HYBRID OVERFILL | (8) CPRI PANEL        |                  |

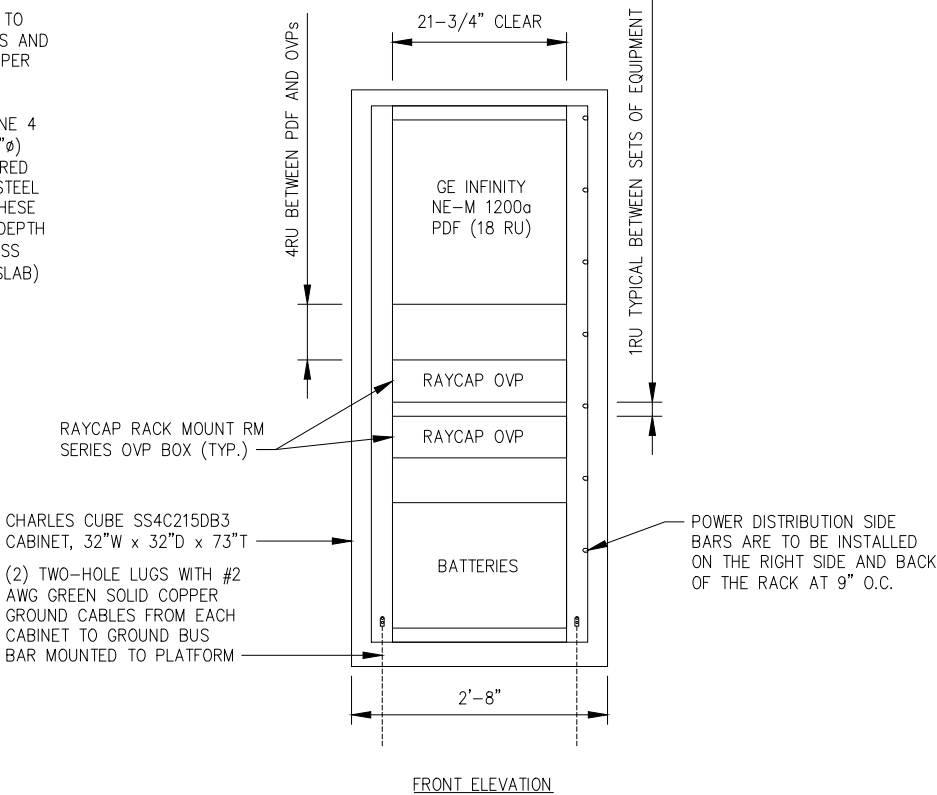


BBU CABINET DETAIL

NO SCALE

2

- NOTES:
- (1) TIE WRAPS ARE NOT TO BE USED FOR SUPPORT OF ANY CABLING, VZW REQUIRES WAXED LACING
  - (2) ALL EQUIPMENT CABINETS ARE TO MEET VZW NSTD406 STANDARDS AND BE INSTALLED AND GROUNDED PER VZW NSTD305 STANDARDS
  - (3) EACH EQUIPMENT CABINET IS SUPPLIED WITH (4) SEISMIC ZONE 4 STEEL WEDGE ANCHORS (11/16"Ø) OR BOLTS AND IS TO BE SECURED TO THE CONCRETE FLOOR OR STEEL EQUIPMENT PLATFORM USING THESE ANCHORS/BOLTS, EMBEDMENT DEPTH =  $\frac{2}{3}$  OF THE FLOOR THICKNESS (4" FOR 6" SLAB, 2" FOR 3" SLAB) PER VZW NSTD305 STANDARDS

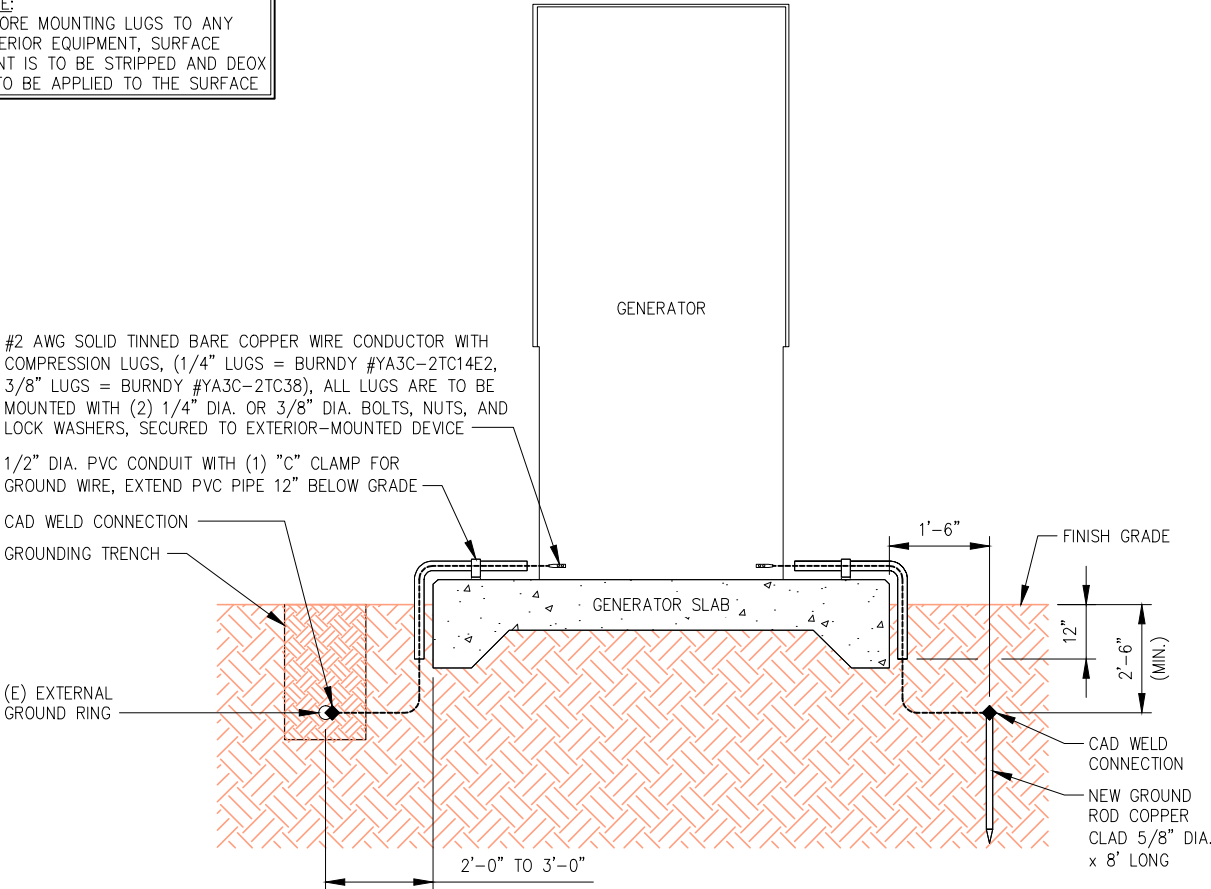


POWER DISTRIBUTION CABINET DETAIL

NO SCALE

3

NOTE:  
BEFORE MOUNTING LUGS TO ANY EXTERIOR EQUIPMENT, SURFACE PAINT IS TO BE STRIPPED AND DEOX IS TO BE APPLIED TO THE SURFACE



GENERATOR GROUNDING DETAIL (TYPICAL)

NO SCALE

4

PLANS PREPARED FOR:

**verizon**

180 WASHINGTON VALLEY ROAD  
BEDMINSTER, NJ 07921

PLANS PREPARED BY:

**INFINIGY**

FROM ZERO TO INFINIGY  
the solutions are endless

1490 W. 121st. Ave., Suite 101  
Westminster, CO 80234  
Office # (303) 219-1178  
Fax # (303) 242-8636  
JOB NUMBER: TBD

MLA PARTNER:

**CROWN CASTLE**

ENGINEERING LICENSE:

DRAWING NOTICE:

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REVISIONS:			
DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	06/13/18	SF	A

VERIZON SITE NAME:

**SAL SLEET**

CROWN CASTLE SITE NAME:

**KWIK CITY MUFFLER**

CROWN CASTLE BU #:

**880534**

SITE ADDRESS:

**2449 WEST 4000 SOUTH  
ROY, UT 84067**

SHEET DESCRIPTION:

**EQUIPMENT &  
MOUNTING DETAILS**

SHEET NUMBER:

**A-7**

CODED DRAWING NOTES:

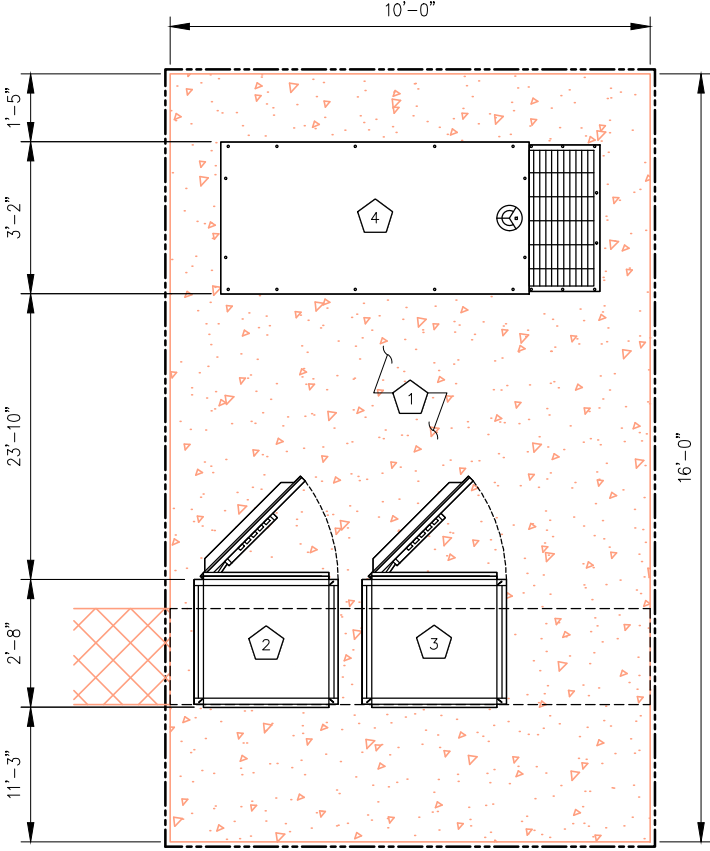
- 1

EXISTING 10'x16' CONCRETE PAD  
TO BE REUSED BY VERIZON
- 2

PROPOSED VERIZON POWER  
DISTRIBUTION CABINET
- 3

PROPOSED VERIZON  
BBU CABINET
- 4

PROPOSED VERIZON 30KW BACKUP GENERATOR  
(GENERAC P/N: SD030 OR APPROVED EQUAL)



NOTE:  
ICE BRIDGE NOT  
SHOWN FOR CLARITY.

PLANS PREPARED FOR:

**verizon**

180 WASHINGTON VALLEY ROAD  
BEDMINSTER, NJ 07921

PLANS PREPARED BY:

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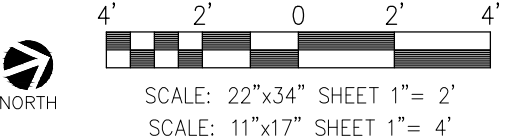
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Westminster, CO 80234  
Office # (303) 219-1178  
Fax # (303) 242-8636  
JOB NUMBER: TBD

MLA PARTNER:

**CROWN CASTLE**

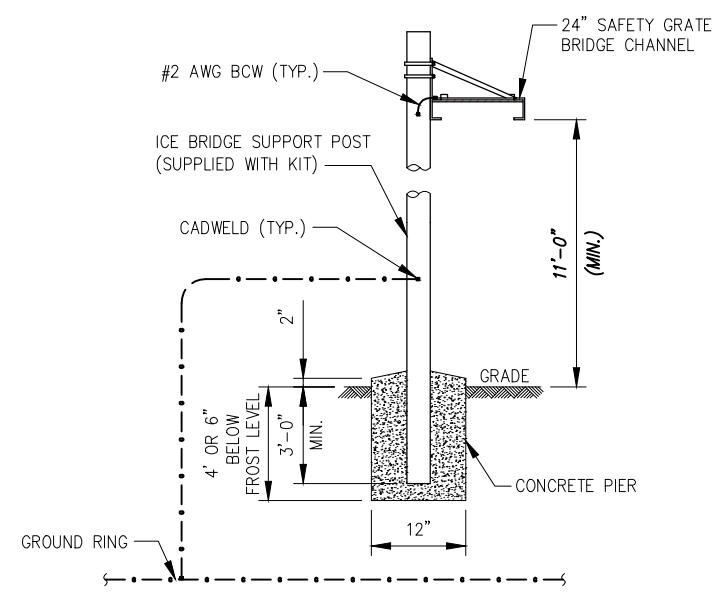
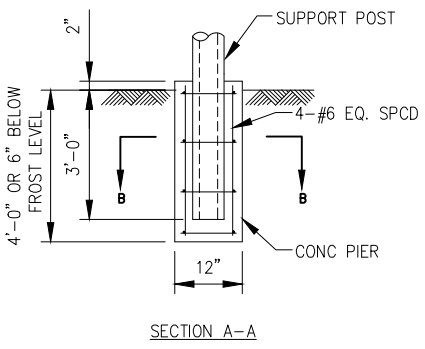
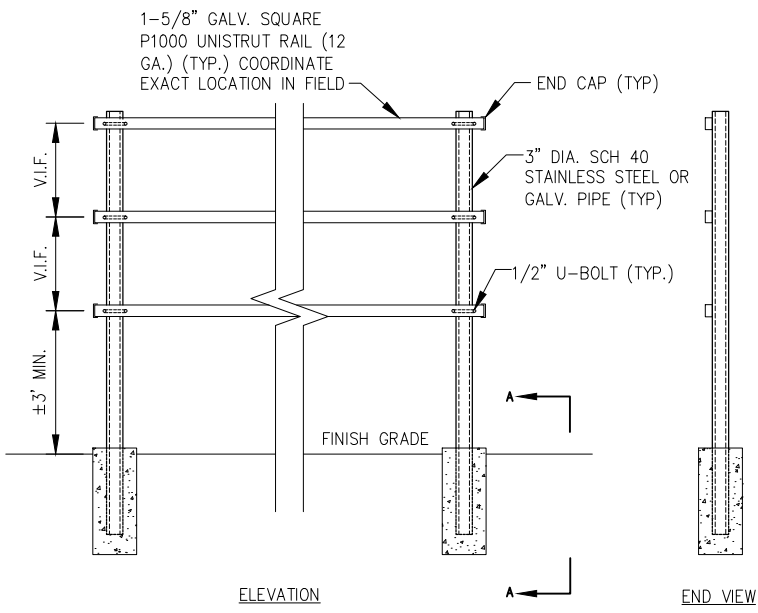
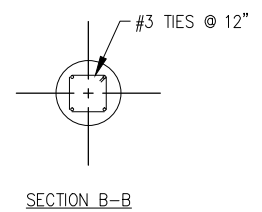
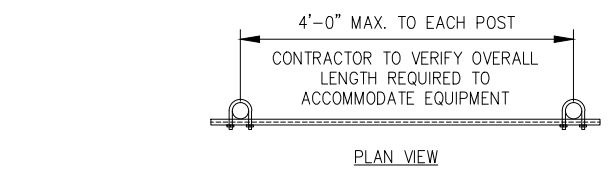
ENGINEERING LICENSE:

GRAPHIC SCALE



PLATFORM EQUIPMENT LAYOUT

SCALE: AS NOTED 1



- NOTES:
- USE SITE PRO PARTS OR APPROVED EQUIVALENT.
  - SUPPORT POSTS SHALL BE LOCATED ON ALTERNATING SIDES OF ICE BRIDGE SPACED NO MORE THAN 6'-0".
  - ANY SPLICES OR CANTILEVERED SECTIONS OF THE ICE BRIDGE SHALL BE LOCATED WITHIN 2'-0" OF A SUPPORT POST.
  - CONTRACTOR SHALL PROVIDE ADEQUATE ICE BRIDGE TO COVER ALL EQUIPMENT CABINETS
  - CONCRETE SHALL BE 3000 PSI

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REVISIONS:			
DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	06/13/18	SF	A

VERIZON SITE NAME:

**SAL SLEET**

CROWN CASTLE SITE NAME:

**KWIK CITY MUFFLER**

CROWN CASTLE BU #:

**880534**

SITE ADDRESS:

**2449 WEST 4000 SOUTH  
ROY, UT 84067**

SHEET DESCRIPTION:

**EQUIPMENT LAYOUT  
& DETAILS**

SHEET NUMBER:

**A-8**

H-FRAME FABRICATION DETAIL (TYPICAL)

NO SCALE 2

TYPICAL ICE BRIDGE DETAILS

NO SCALE 3

SD030 | 2.4L | 30 kW  
INDUSTRIAL DIESEL GENERATOR SET  
EPA Certified Stationary Emergency



STANDBY POWER RATING  
30 kW, 38 kVA, 60 Hz

PRIME POWER RATING\*  
27 kW, 34 kVA, 60 Hz



\*Built in the USA using domestic and foreign parts

\*EPA Certified Prime ratings are not available in the U.S. or its Territories.

\*\*Certain options or customization may not hold certification valid.

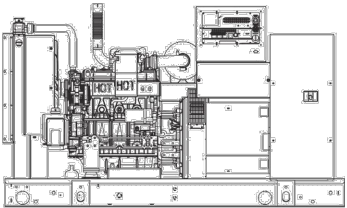


Image used for illustration purposes only

CODES AND STANDARDS

Generac products are designed to the following standards:

UL2200, UL508, UL142, UL498

NFPA70, 99, 110, 37

NEC700, 701, 702, 708

ISO9001, 8528, 3046, 7637,  
Puses #2b, 4

NEMA ICS10, MG1, 250, ICS6, AB1

ANSI C62.41

POWERING AHEAD

For over 50 years, Generac has led the industry with innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac's gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We chose only engines that have already been proven in heavy-duty industrial application under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SD030 | 2.4L | 30 kW  
INDUSTRIAL DIESEL GENERATOR SET  
EPA Certified Stationary Emergency



STANDARD FEATURES

ENGINE SYSTEM

General

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel flexible exhaust connection
- Critical Exhaust Silencer (enclosed only)
- Factory Filled Oil
- Radiator Dust Adapter (open set only)

Fuel System

- Fuel lockoff solenoid
- Primary fuel filter

Cooling System

- Closed Coolant Recovery System
- UV/Ozone resistant hoses
- Factory installed Radiator
- Radiator Drain Extension
- 50/50 Ethylene glycol antifreeze
- 120 VAC Coolant Heater

Engine Electrical System

- Battery charging alternator
- Battery cables
- Battery tray
- Solenoid activated starter motor
- Rubber-booted engine electrical connections

ALTERNATOR SYSTEM

- UL2200 GENprotec™
- 12 leads (3-phase, non 600 V)
- Class H insulation material
- Vented rotor
- 2 1/2 pitch
- Skewed stator
- Auxiliary voltage regulator power winding
- Amortisseur winding
- Brushless Excitation
- Sealed Bearings

- Automated manufacturing (winding, insertion, lacing, varnishing)
- Rotor dynamically s/n balanced
- Full load capacity alternator
- Protective thermal switch

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of circuits - high/low voltage
- Separation of circuits - multiple breakers
- Silencer Heat Shield
- Wrapped Exhaust Piping
- Silencer housed in discharge hood (enclosed only)
- Standard Factory Testing
- 2 Year Limited Warranty (Standby rated Units)
- 1 Year Limited Warranty (Prime rated Units)
- Silencer mounted in the discharge hood (enclosed only)

ENCLOSURE (IF SELECTED)

- Rust-proof fasteners with nylon washers to protect finish
- High performance sound-absorbing material
- Gasketed doors
- Stamped air-intake louvers
- Air discharge hoods for radiator-upward pointing
- Stainless steel lift off door hinges
- Stainless steel kickable handles
- Rhino Coat™ - Textured polyester powder coat

TANKS (IF SELECTED)

- UL 142
- Double wall
- Vents
- Sloped top
- Sloped bottom
- Factory pressure tested (2 psi)
- Rupture basin alarm
- Fall level
- Check valve in supply and return lines
- Rhino Coat™ - Textured polyester powder coat
- Stainless hardware

CONTROL SYSTEM



Control Panel

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232C/485
- All-Phase Sensing DVR
- Full System Status
- Utility Monitoring
- Low Fuel Pressure Indication
- 2-Wire Start Compatible
- Power Output (kW)

- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isosynchronous Governor Control
- Watertight/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance algorithm
- Sealed Boards
- Password parameter adjustment protection

- Single point ground
- 15 channel data logging
- 0.2 msec high speed data logging
- Alarm information automatically comes up on the display

Alarms

- Oil Pressure (Pre-programmable Low Pressure Shutdown)
- Coolant Temperature (Pre-programmed High Temp Shutdown)
- Coolant Level (Pre-programmed Low Level Shutdown)
- Low Fuel Pressure Alarm
- Engine Speed (Pre-programmed Over speed Shutdown)
- Battery Voltage Warning
- Alarms & warnings time and date stamped
- Alarms & warnings for transient and steady state conditions
- Snap shots of key operation parameters during alarms & warnings
- Alarms and warnings spelled out (no alarm codes)

SD030 | 2.4L | 30 kW  
INDUSTRIAL DIESEL GENERATOR SET  
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OPERATING DATA

POWER RATINGS

		Standby					
Single-Phase 120/240 VAC @1.0pf		30 kW		Amps: 125			
Three-Phase 120/240 VAC @0.8pf		30 kW		Amps: 104			
Three-Phase 277/480 VAC @0.8pf		30 kW		Amps: 90			
Three-Phase 346/600 VAC @0.8pf		30 kW		Amps: 46			

STARTING CAPABILITIES (kVA)

		480 VAC						208/240 VAC					
		kVA vs. Voltage Dip											
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	35	24	36	48	60	72	84	18	27	36	45	54	63
Upsize 1	40	27	41	54	66	81	95	20	31	41	51	61	71
Upsize 2	50	34	52	69	86	103	120	26	39	52	65	77	90

FUEL CONSUMPTION RATES\*

		Diesel - gph (lph)		
Fuel Pump Lift - ft (m)		Percent Load		gph (lph)
3 (1)		25%		0.92 (3.5)
		50%		1.45 (5.5)
		75%		1.96 (7.4)
Total Fuel Pump Flow (Combustion + Return)		100%		2.74 (10.4)
4.5 gph				

\* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby	
Coolant Flow per Minute		gpm (lpm)	10 (38)
Coolant System Capacity		gal (L)	2.8 (10.95)
Heat Rejection to Coolant		BTU/hr	111,000
Inlet Air		cfm (m3/hr)	4,500 (7647)
Max. Operating Radiator Air Temp		F° (C°)	122 (50)
Max. Ambient Temperature (before derate)		F° (C°)	104 (40)
Maximum Radiator Backpressure		In H <sub>2</sub> O	0.5

COMBUSTION AIR REQUIREMENTS

		Standby
Flow at Rated Power		cfm (m3/min) 90 (2.55)

ENGINE

		Standby
Rated Engine Speed		rpm 1800
Horsepower at Rated kW**		hp 48
Piston Speed		f/min (m/min) 1110 (338)
BMEP		psi 153

EXHAUST

		Standby
Exhaust Flow (Rated Output)		cfm (m3/min) 230 (691)
Max. Backpressure (Post Silencer)		inHg (kPa) 1.5 (5.1)
Exhaust Temp (Rated Output)		°F (°C) 850 (454)
Exhaust Outlet Size (Open Set)		mm (in) 63.5 (2.5)

\*\* Refer to "Performance Data Sheet" for maximum SHP for EPA and ISO14853 permitting purposes.

Deration - Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

SD030 | 2.4L | 30 kW  
INDUSTRIAL DIESEL GENERATOR SET  
EPA Certified Stationary Emergency



CONFIGURABLE OPTIONS

ENGINE SYSTEM

General

- Oil Heater
- Industrial Exhaust Silencer

Fuel System

- Flexible fuel lines
- Primary fuel filter

Engine Electrical System

- 10A UL battery charger
- 2.5A UL battery charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater
- Tropical coating
- Permanent Magnet Excitation

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Short Trip and Auxiliary Contact
- Electronic Trip Breaker

GENERATOR SET

- Gen-Link Communications Software (English Only)
- 8 Position Load Center
- 2 Year Extended Warranty
- 5 Year Warranty
- 5 Year Extended Warranty

ENCLOSURE

- Weather Protected
- Level 1 Sound Attenuation
- Level 2 Sound Attenuation
- Steel Enclosure
- Aluminum Enclosure
- 150 MPH Wind Kit
- 12 VDC Enclosure Lighting Kit
- 120 VAC Enclosure Lighting Kit
- AC/DC Enclosure Lighting Kit
- Door Alarm Switch

TANKS (Size on last page)

- Electrical Fuel Level
- Mechanical Fuel Level
- 54 Gal (204.4 L) Usable Capacity
- 132 Gal (499.7 L) Usable Capacity
- 211 Gal (798.7 L) Usable Capacity
- 300 Gal (1135.6 L) Usable Capacity
- 8" Fill Extension
- 13" Fill Extension
- 19" Fill Extension

CONTROL SYSTEM

- 21-Light Remote Annunciator
- Remote Relay Panel (8 or 16)
- Oil Temperature Sender with Indication Alarm
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- Remote Communication - Modem
- Remote Communication - Ethernet
- 10A Run Relay
- Ground Fault Indication and Protection Functions

TANKS

- Overfill Protection Valve
- UL2085 Tank
- ULC S-601 Tank
- Stainless Steel Tank
- Special Fuel Tanks (MDEQ and FL DEP/DERM, etc.)
- Vent Extensions

ENCLOSURE

- Motorized Dampers
- Door switched for intrusion alert
- Enclosure ambient heaters

ALTERNATOR SYSTEM

- 3rd Breaker Systems

CONTROL SYSTEM

- Spare inputs (x4) / outputs (x4) - H Panel Only
- Battery Disconnect Switch

RATING DEFINITIONS

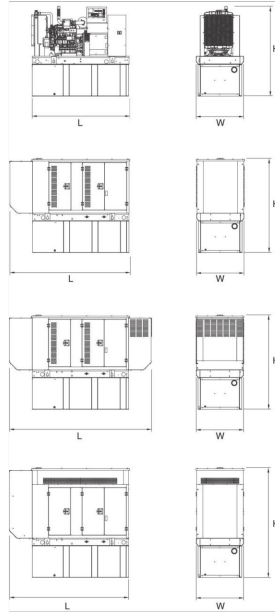
Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

Prime - Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. A 10% overload capacity is available for 1 out of every 12 hours. The Prime Power option is only available on International applications. Power ratings in accordance with ISO 8528-1, Second Edition

SD030 | 2.4L | 30 kW  
INDUSTRIAL DIESEL GENERATOR SET  
EPA Certified Stationary Emergency



DIMENSIONS AND WEIGHTS\*



OPEN SET

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Tank & Open Set
NO TANK	-	78 (1980.4) x 37.4 (949.9) x 42.2 (1072.1)	2680 (894)
19	54 (204.4)	78 (1980.4) x 37.4 (949.9) x 55.2 (1402.1)	2540 (1152)
48	132 (499.7)	78 (1980.4) x 37.4 (949.9) x 67.2 (1706.9)	2770 (1257)
77	211 (798.7)	78 (1980.4) x 37.4 (949.9) x 79.2 (2011.7)	2979 (1351)
109	300 (1135.6)	92.9 (2360) x 37.4 (949.9) x 87.2 (2100.8)	3042 (1380)

STANDARD ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only
NO TANK	-	94.8 (2408.9) x 38 (965.2) x 49.5 (1256.1)	
19	54 (204.4)	94.8 (2408.9) x 38 (965.2) x 62.5 (1587.3)	
48	132 (499.7)	94.8 (2408.9) x 38 (965.2) x 74.5 (1892.3)	302 (137)
77	211 (798.7)	94.8 (2408.9) x 38 (965.2) x 86.5 (2197.1)	
109	300 (1135.6)	94.8 (2408.9) x 38 (965.2) x 90 (2286)	

LEVEL 1 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only
NO TANK	-	112.5 (2857.1) x 38 (965.2) x 49.5 (1256.1)	
19	54 (204.4)	112.5 (2857.1) x 38 (965.2) x 62.5 (1587.3)	
48	132 (499.7)	112.5 (2857.1) x 38 (965.2) x 74.5 (1892.3)	455 (206)
77	211 (798.7)	112.5 (2857.1) x 38 (965.2) x 86.5 (2197.1)	
109	300 (1135.6)	112.5 (2857.1) x 38 (965.2) x 90 (2286)	

LEVEL 2 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY GAL (L)	L x W x H in (mm)	WT lbs (kg) - Enclosure Only
NO TANK	-	94.8 (2408.9) x 38 (965.2) x 62 (1573.9)	
19	54 (204.4)	94.8 (2408.9) x 38 (965.2) x 75 (1905)	
48	132 (499.7)	94.8 (2408.9) x 38 (965.2) x 87 (2209.8)	460 (209)
77	211 (798.7)	94.8 (2408.9) x 38 (965.2) x 99 (2514.6)	
109	300 (1135.6)	94.8 (2408.9) x 38 (965.2) x 102.5 (2603.3)	

\*All measurements are approximate and for estimation purposes only. Sound dBA can be found on the sound data sheet. Enclosure Only weight is added to Tank & Open Set weight to determine total weight.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

Generac Power Systems, Inc. | P.O. Box 8 | Waukesha, WI 53187  
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Part No. K50595  
Rev. D 08/19/15

PLANS PREPARED FOR:



180 WASHINGTON VALLEY ROAD  
BEDMINSTER, NJ 07921

PLANS PREPARED BY:



FROM ZERO TO INFINIGY  
the solutions are endless

1490 W. 121st. Ave., Suite 101  
Westminster, CO 80234  
Office # (303) 219-1178  
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JOB NUMBER: TBD

MLA PARTNER:



ENGINEERING LICENSE:

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	06/13/18	SF	A

VERIZON SITE NAME:

SAL SLEET



GENERAL ELECTRICAL NOTES:

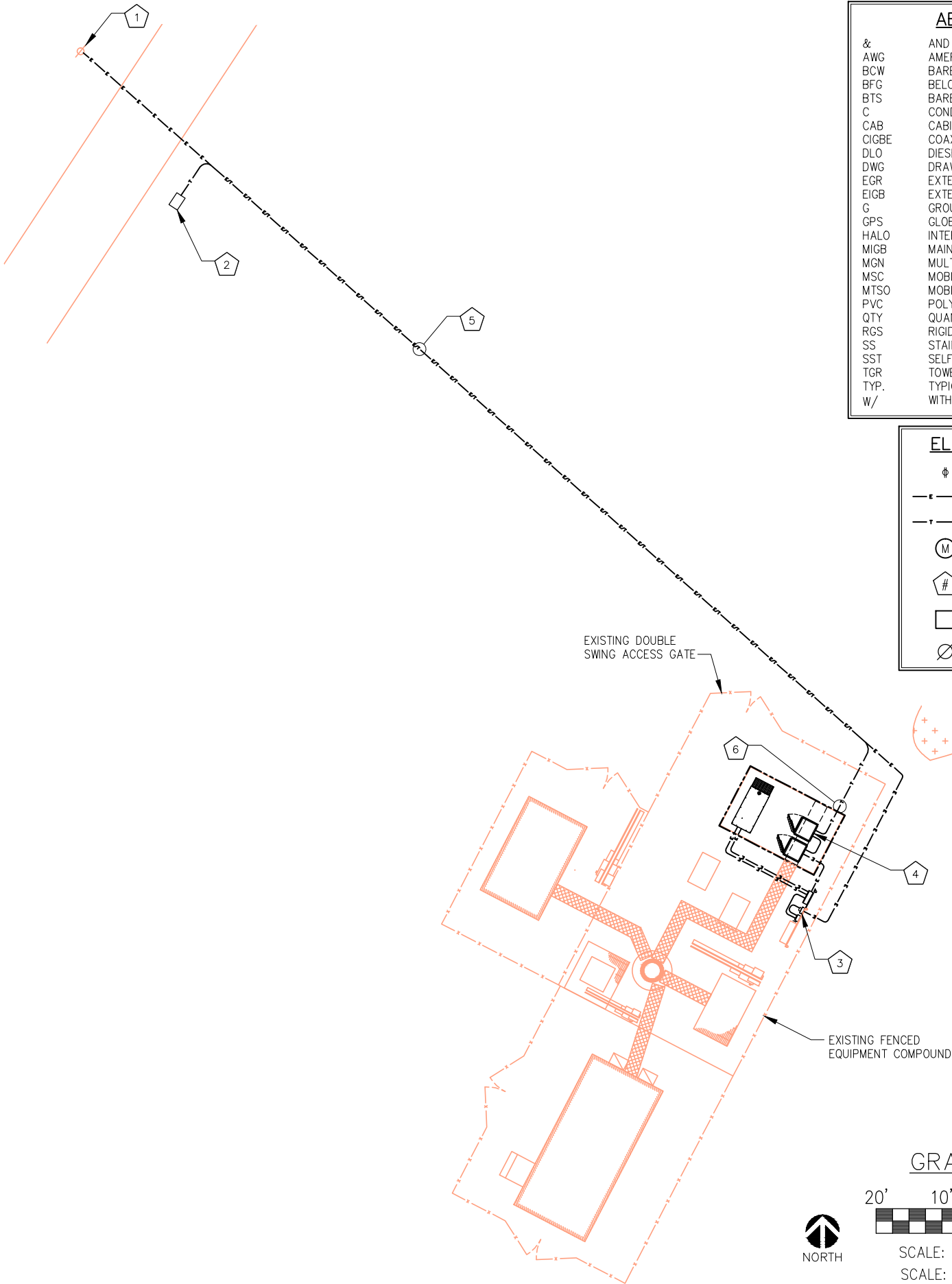
- ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
- ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED. SUPPLY UTILITY MARKING TAPE BURIED 12" BELOW GRADE ALONG ENTIRE LENGTH OF UNDERGROUND CONDUITS.
- ALL CONDUCTORS SHALL BE COPPER WITH THHN/THWN INSULATION. CONTROL CONDUCTORS SHALL BE STRANDED, POWER & LIGHTING CONDUCTORS SHALL BE SOLID FOR #10 & #12 CONDUCTORS AND STRANDED FOR ALL OTHER SIZES.
- ELECTRICAL DRAWINGS ARE IN PART DIAGRAMMATIC. COORDINATE ELECTRICAL WORK WITH SITE CONDITIONS.
- LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING. IF CONFLICTS ARISE, CONTACT UTILITY COMPANY AND ENGINEER IMMEDIATELY.
- ALL EXPOSED CONDUITS SHALL HAVE WEATHERPROOF CAPS, NOT DUCT TAPE.
- PROVIDE 200 LB TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT.
- PULL BOXES SHALL BE INSTALLED AS NEEDED PER NEC UTILITY REQUIREMENTS.

CODED DRAWING NOTES:

- 1 EXISTING UTILITY POLE
- 2 PROPOSED TRAFFIC-RATED FIBER VAULT (LOCATION TBD)
- 3 PROPOSED ELECTRIC METER IN EXISTING METER BANK
- 4 PROPOSED VERIZON BBU CABINET ON EXISTING 10'x16' CONCRETE PAD
- 5 FOR POWER - (1) 2" SCH. 40 PVC CONDUIT WITH (3) #3/0 AWG CU & (1) #4 GROUND FOR POWER FROM EXISTING UTILITY POLE TO PROPOSED ELECTRIC METER
- 6 FOR TELCO - (1) 4" GRC OR LIQUIDTIGHT CONDUIT FOR FIBER FROM PROPOSED FIBER VAULT (LOCATION TBD) TO PROPOSED VERIZON BBU CABINET (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)

NOTE:  
ICE BRIDGE NOT SHOWN FOR CLARITY.

NOTE:  
CONTRACTOR TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. COORDINATE LOCATION OF ALL PROPOSED DIGGING & UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.



ABBREVIATIONS:

&	AND
AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
BFG	BELOW FINISH GRADE
BTS	BARE TINNED STRANDED
C	CONDUIT
CAB	CABINET
CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
DLO	DIESEL LOCOMOTIVE CABLE
DWG	DRAWING
EGR	EXTERIOR GROUND RING
EIGB	EXTERIOR ISOLATED GROUND BAR
G	GROUND
GPS	GLOBAL POSITIONING SYSTEM
HALO	INTERIOR GROUND RING
MIGB	MAIN ISOLATED GROUND BAR
MGN	MULTI-GROUNDED NEUTRAL
MSC	MOBILE SWITCHING CENTER
MTSO	MOBILE TELEPHONE SWITCHING OFFICE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RGS	RIGID GALVANIZED STEEL
SS	STAINLESS STEEL
SST	SELF SUPPORT TOWER
TGR	TOWER GROUND RING
TYP.	TYPICAL
W/	WITH

ELECTRICAL SYMBOLS:

	RECEPTACLE
	BURIED POWER CONDUIT
	BURIED TELCO CONDUIT
	ELECTRICAL METER
	INDICATES CODED NUMBER
	SAFETY SWITCH
	UTILITY POLE

PLANS PREPARED FOR:

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MLA PARTNER:

**CROWN CASTLE**

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**KWIK CITY MUFFLER**

CROWN CASTLE BU #:

**880534**

SITE ADDRESS:

2449 WEST 4000 SOUTH  
ROY, UT 84067

SHEET DESCRIPTION:

**OVERALL CONDUIT LAYOUT**

SHEET NUMBER:

**E-1**

OVERALL CONDUIT LAYOUT

SCALE: AS NOTED

1

CODED DRAWING NOTES:

- 1 EXISTING UTILITY POLE (NOT SHOWN)
- 2 PROPOSED TRAFFIC-RATED FIBER VAULT (LOCATION TBD) (NOT SHOWN)
- 3 PROPOSED UTILITY H-FRAME EXTENSION
- 4 EXISTING VERIZON METER & DISCONNECT
- 5 PROPOSED VERIZON ILC CABINET
- 6 PROPOSED VERIZON POWER DISTRIBUTION CABINET
- 7 PROPOSED VERIZON BBU CABINET
- 8 PROPOSED VERIZON BACKUP GENERATOR (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
- 9 FOR POWER - (1) 2" SCH. 40 PVC CONDUIT WITH (3) #3/0 AWG CU FROM EXISTING UTILITY POLE (NOT SHOWN) TO PROPOSED VERIZON METER (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
- 10 (1) 2" GRC OR LIQUIDTIGHT CONDUIT WITH (3) #3/0 AWG CU FROM PROPOSED VERIZON METER TO PROPOSED VERIZON DISCONNECT SWITCH (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
- 11 (1) 2" GRC OR LIQUIDTIGHT CONDUIT WITH (3) #3/0 AWG CU & (1) #4 GROUND FROM PROPOSED VERIZON DISCONNECT SWITCH TO PROPOSED VERIZON ILC CABINET (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)
- 12 (1) 3/4" SCH. 40 PVC CONDUIT FOR ALARMS FROM PROPOSED VERIZON ILC CABINET TO PROPOSED VERIZON BACKUP GENERATOR (CONTRACTOR TO SUPPLY SIZE/QTY CONDUCTORS PER MANUFACTURER SPECIFICATIONS)
- 13 (1) 2" SCH. 40 PVC CONDUIT WITH (3) #3/0 AWG CU & (1) #4 GROUND FOR POWER FROM PROPOSED VERIZON ILC CABINET TO PROPOSED VERIZON BACKUP GENERATOR (CONTRACTOR TO SUPPLY SIZE/QTY CONDUCTORS PER MANUFACTURER SPECIFICATIONS)
- 14 (1) 2" GRC OR LIQUIDTIGHT CONDUIT FROM PROPOSED VERIZON ILC CABINET TO PROPOSED VERIZON POWER DISTRIBUTION CABINET (CONTRACTOR TO SUPPLY SIZE/QTY CONDUCTORS PER MANUFACTURER SPECIFICATIONS)
- 15 (1) 2" GRC OR LIQUIDTIGHT CONDUIT WITH (3) #3/0 AWG CU & (1) #4 GROUND FROM PROPOSED VERIZON POWER DISTRIBUTION CABINET TO PROPOSED VERIZON BBU CABINET
- 16 FOR TELCO - (1) 4" GRC OR LIQUIDTIGHT CONDUIT FROM PROPOSED TRAFFIC-RATED FIBER VAULT (NOT SHOWN) TO PROPOSED VERIZON BBU CABINET (PENDING COORDINATION WITH LOCAL UTILITY COMPANY)

GENERAL ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
2. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED. SUPPLY UTILITY MARKING TAPE BURIED 12" BELOW GRADE ALONG ENTIRE LENGTH OF UNDERGROUND CONDUITS.
3. ALL CONDUCTORS SHALL BE COPPER WITH THHN/THWN INSULATION. CONTROL CONDUCTORS SHALL BE STRANDED, POWER & LIGHTING CONDUCTORS SHALL BE SOLID FOR #10 & #12 CONDUCTORS AND STRANDED FOR ALL OTHER SIZES.
4. ELECTRICAL DRAWINGS ARE IN PART DIAGRAMMATIC. COORDINATE ELECTRICAL WORK WITH SITE CONDITIONS.
5. LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING. IF CONFLICTS ARISE, CONTACT UTILITY COMPANY AND ENGINEER IMMEDIATELY.
6. ALL EXPOSED CONDUITS SHALL HAVE WEATHERPROOF CAPS, NOT DUCT TAPE.
7. PROVIDE 200 LB TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT.
8. PULL BOXES SHALL BE INSTALLED AS NEEDED PER NEC UTILITY REQUIREMENTS.

ABBREVIATIONS:

&	AND
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BCW	BARE COPPER WIRE
BFG	BELOW FINISH GRADE
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	INDICATES CODED NUMBER
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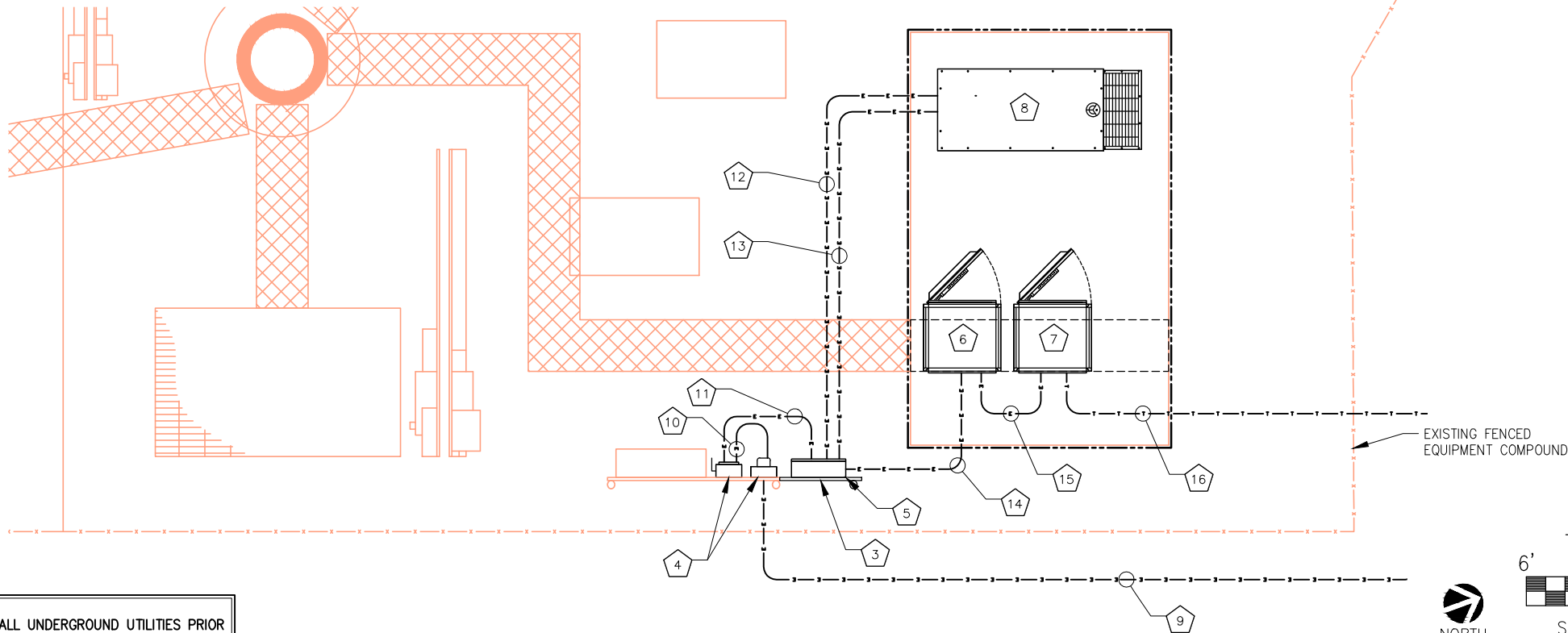
**EQUIPMENT CONDUIT  
LAYOUT**

SHEET NUMBER:

**E-2**

NOTE:  
ICE BRIDGE NOT  
SHOWN FOR CLARITY.

NOTE:  
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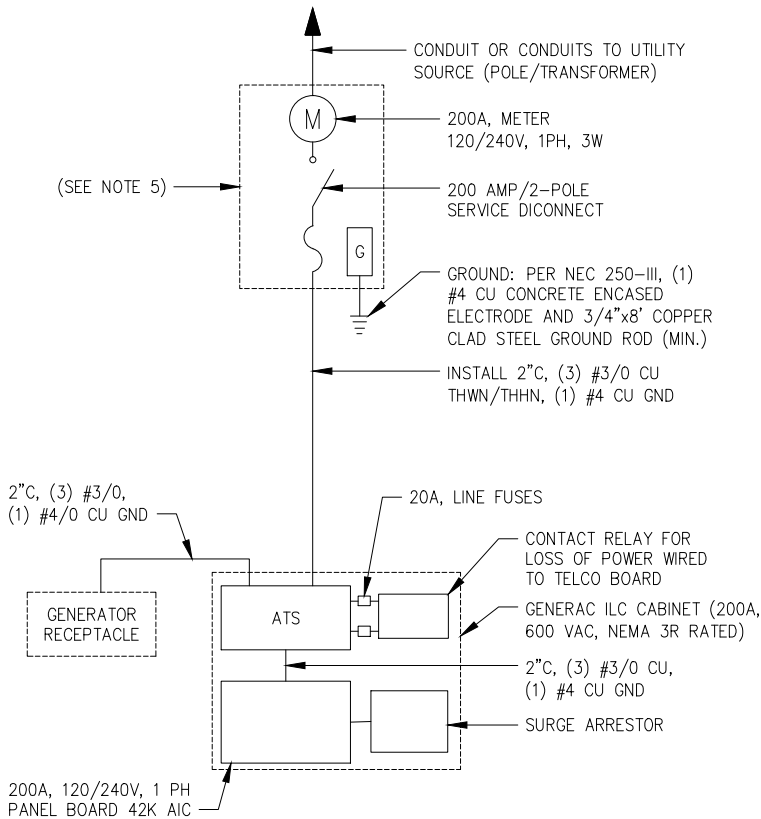
EQUIPMENT CONDUIT LAYOUT

SCALE: AS NOTED

1

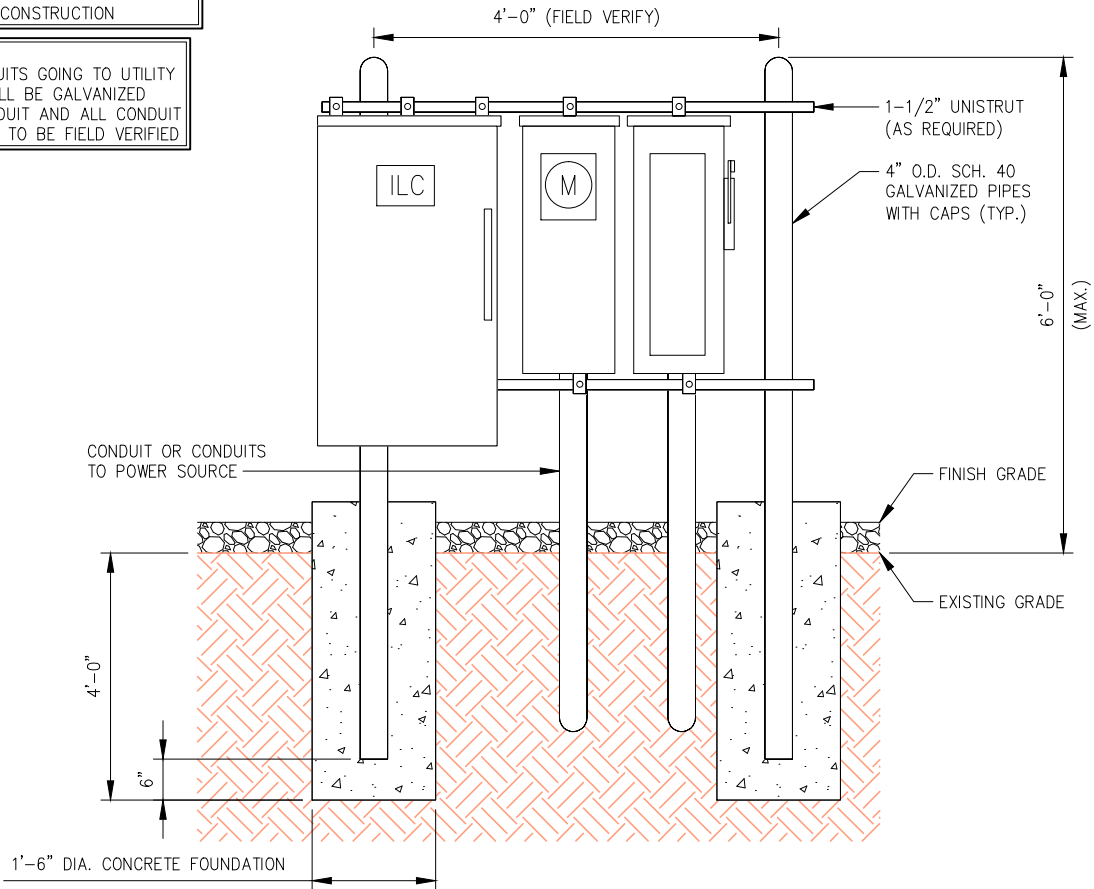
POWER NOTES:

- (1) ALL SERVICE EQUIPMENT SHALL USE EUSERC/POWER COMPANY REQUIREMENTS AND BE REVIEWED & APPROVED BY POWER COMPANY PRIOR TO CONSTRUCTION.
- (2) ALL CONDUITS MUST BE COPPER UNLESS OTHERWISE SPECIFIED.
- (3) CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR FINAL AND EXACT WORK/MATERIALS REQUIREMENTS & CONSTRUCT TO UTILITY ENGINEERING PLANS & SPECIFICATIONS ONLY.
- (4) CONTRACTOR SHALL FURNISH AND INSTALL CONDUITS, PULL WIRES, CABLE PULL BOXES, CONCRETE ENCASEMENT OF CONDUITS, TRANSFORMER PAD, BARRIERS, POLE RISER TRENCHING, BACK FILL, PAY ALL UTILITY FEES, & INCLUDE REQUIREMENTS IN SCOPE
- (5) COMMERCIAL ELECTRICAL SERVICE COMBINATION METER AND MAIN DISCONNECT, 200A 120/240V, 1-PHASE, 3-WIRE, RING-TYPE, WITH TEST-PASS FACILITIES, 10K AIC, NEMA 3R ENCLOSURE
- (6) THE DESIGN CRITERIA USED FOR THIS PROJECT WAS THE 2014 NEC



NOTE:  
ALL SERVICE EQUIPMENT SHALL MEET POWER COMPANY REQUIREMENTS AND BE REVIEWED & APPROVED BY POWER COMPANY PRIOR TO CONSTRUCTION

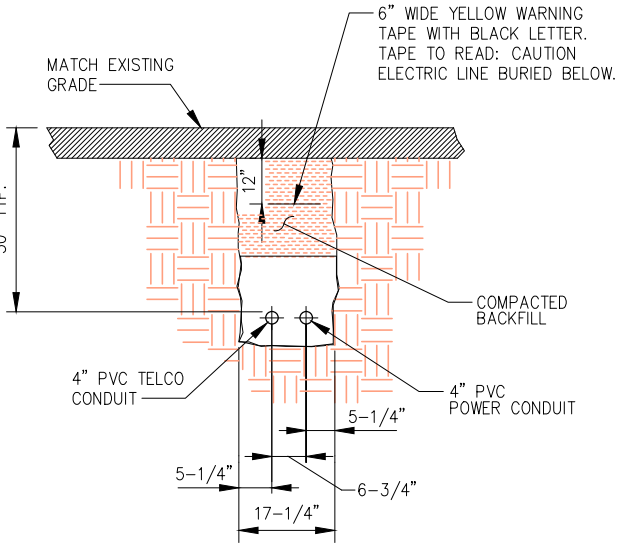
NOTE:  
ALL CONDUITS GOING TO UTILITY RACK SHALL BE GALVANIZED RIGID CONDUIT AND ALL CONDUIT SIZES ARE TO BE FIELD VERIFIED



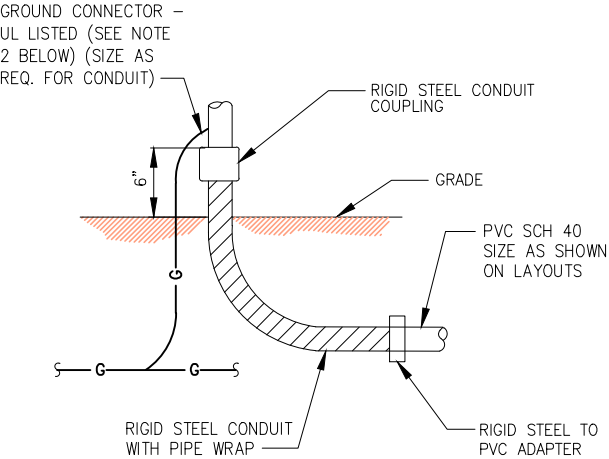
UTILITY H-FRAME DETAIL (TYPICAL)

NO SCALE

2



NOTE:  
NUMBER AND SIZE OF CONDUITS MAY VARY. SEE DWG E-1 FOR CONDUIT SIZE AND LOCATION. CONFIRM DIMENSIONS SHOWN WITH UTILITY COMPANY.



- NOTES:
1. ALL CONDUIT ABOVE GRADE MUST BE RIGID STEEL OR LIQUIDTIGHT.
  2. ALL NEW STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 G90 AFTER FABRICATION.
  3. FIELD ABRASIONS SHALL BE TOUCH UP PAINTED WITH ZINC RICH GALVANIZING REPAIR PAINT IN ACCORDANCE WITH ASTM A780.
  4. ALL EXPOSED ENDS OF CONDUITS SHALL HAVE WEATHER PROOF CAPS. DO NOT USE DUCT TAPE.
  5. PROVIDE 200LB. TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT. STUB CONDUITS INTO ENCLOSURE AND LABEL.

ELECTRICAL ONE LINE DIAGRAM (TYPICAL)

NO SCALE

1

CONDUIT TRENCH DETAIL

NO SCALE

3

UNDERGROUND CONDUIT STUB-UP

NO SCALE

4

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SITE ADDRESS:

**2449 WEST 4000 SOUTH ROY, UT 84067**

SHEET DESCRIPTION:

**ELECTRICAL DETAILS**

SHEET NUMBER:

**E-3**



CODED DRAWING NOTES:

- 1

PROPOSED VERIZON BURIED EQUIPMENT GROUND RING (#2 SOLID TINNED BCW)
- 2

PROPOSED EQUIPMENT GROUND BAR NEAR PROPOSED VERIZON EQUIPMENT (TYP. OF (2))
- 3

PROPOSED VERIZON POWER DISTRIBUTION CABINET TO BE GROUNDED PER MANUFACTURER'S SPECIFICATIONS
- 4

PROPOSED VERIZON BBU CABINET TO BE GROUNDED PER MANUFACTURER'S SPECIFICATIONS
- 5

PROPOSED VERIZON ILC CABINET TO BE GROUNDED PER MANUFACTURER'S SPECIFICATIONS
- 6

PROPOSED H-FRAME EXTENSION TO BE GROUNDED PER MANUFACTURER'S SPECIFICATIONS
- 7

EXISTING TOWER GROUND RING
- 8

BOND PROPOSED EQUIPMENT GROUND BAR TO NEW VERIZON BURIED EQUIPMENT GROUND RING WITH #2 SOLID TINNED BCW. (TYP. OF (2) PLACES PER GROUND BAR)
- 9

BOND PROPOSED ICE BRIDGE TO NEW VERIZON BURIED EQUIPMENT GROUND RING WITH #2 SOLID TINNED BCW. (TYP.)
- 10

PROPOSED VERIZON TOWER BASE CIGBE (TYP. OF (1))
- 11

BOND PROPOSED VERIZON TOWER BASE CIGBE TO PROPOSED EQUIPMENT GROUND BAR WITH #2 SOLID TINNED BCW. (CONTRACTOR TO VERIFY)
- 12

BOND PROPOSED VERIZON TOWER TOP CIGBE (NOT SHOWN) TO PROPOSED TOWER BASE CIGBE WITH #2 SOLID TINNED BCW. (CONTRACTOR TO VERIFY)
- 13

BOND PROPOSED VERIZON BURIED EQUIPMENT GROUND RING TO EXISTING COMPOUND GROUNDING SYSTEM WITH #2 SOLID TINNED BCW. (TYP. OF (2) PLACES) (CONTRACTOR TO VERIFY)
- 14

BOND TOWER BASE CIGBE TO EXISTING TOWER GROUND RING WITH #2 SOLID TINNED BCW. (CONTRACTOR TO VERIFY)

BOND PROPOSED VERIZON PANEL ANTENNA TO PROPOSED VERIZON SECTOR CIGBE PER MANUFACTURER'S SPECIFICATIONS (TYP.)

BOND PROPOSED VERIZON RRH TO PROPOSED VERIZON SECTOR CIGBE PER MANUFACTURER'S SPECIFICATIONS (TYP.)

BOND PROPOSED VERIZON OVP TO PROPOSED VERIZON SECTOR CIGBE PER MANUFACTURER'S SPECIFICATIONS (TYP.)

BOND PROPOSED VERIZON SECTOR CIGBE TO EXISTING TOWER TOP CIGBE (TYP.) (CONTRACTOR TO VERIFY)

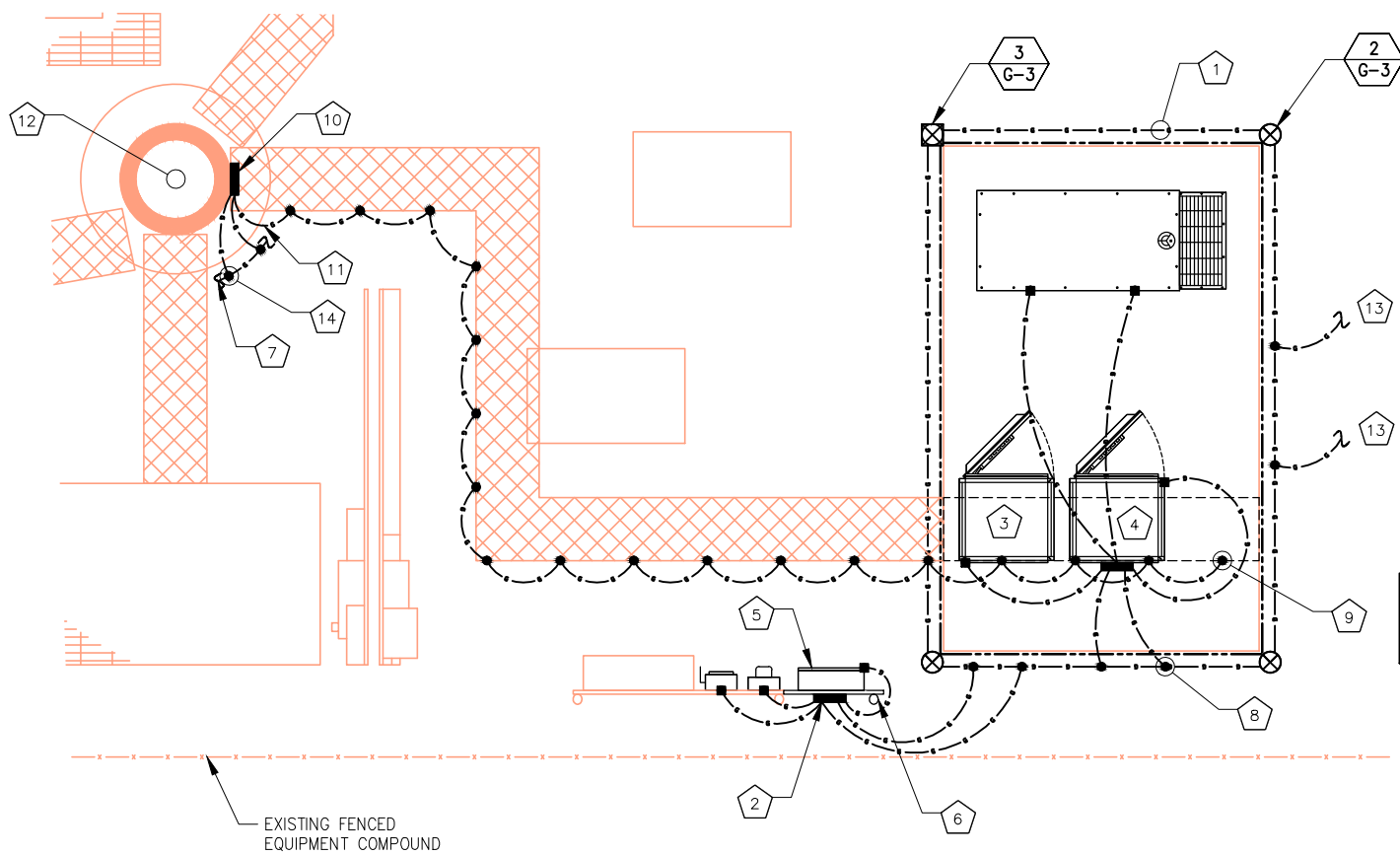
BOND PROPOSED VERIZON TOWER TOP CIGBE TO EXISTING TOWER BASE CIGBE (CONTRACTOR TO VERIFY)

TYPICAL ANTENNA GROUNDING PLAN (NOT TO SCALE)

NORTH = 0°

GROUNDING SYMBOLS:

- GROUND ROD
- ACCESS WELL
- GROUND ROD WITH ACCESS
- COMPRESSION TYPE CONNECTION
- EXOTHERMIC WELD TYPE CONNECTION
- #2/0 BTS COPPER CONDUCTOR BURIED GROUND CABLE
- INDICATES CODED NOTE



EXISTING FENCED EQUIPMENT COMPOUND

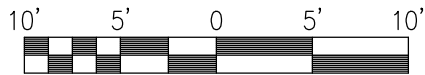
TYPICAL SITE GROUNDING PLAN

GENERAL GROUNDING NOTES:

1. TO ENSURE PROPER BONDING, ALL CONNECTIONS SHALL BE AS FOLLOWS:  
- #2 BARE TINNED SOLID COPPER CONDUCTOR: EXOTHERMIC WELD TO RODS OR GROUND RING  
- LUGS AND BUS BAR (UNLESS NOTED OTHERWISE): SANDED CLEAN, COATED WITH OXIDE INHIBITOR AND BOLTED FOR MAXIMUM SURFACE CONTACT. ALL LUGS SHALL BE COPPER (NO ALUMINUM SHALL BE PERMITTED). PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
2. ALL GROUNDING CABLE IN CONCRETE OR THROUGH WALLS SHALL BE IN 3/4" PVC CONDUIT. SEAL AROUND CONDUIT THROUGH WALLS. NO METALLIC CONDUIT SHALL BE USED FOR GROUNDING CONDUCTORS.
3. OWNER'S REPRESENTATIVE WILL INSPECT EXOTHERMIC WELD AND CONDUCT MEGGER TEST PRIOR TO BURIAL. MAXIMUM 5 OHMS RESISTANCE IS REQUIRED.
4. CONTRACTOR TO INSTALL GROUNDING IN CLOSE PROXIMITY TO EQUIPMENT PLATFORM OR PAD.
5. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. ALL BENDS SHALL BE A MINIMUM 8" RADIUS AND NO GREATER THAN 90 DEGREES.
6. ALL CADWELDS TO BURIED GROUND RING SHALL BE THE PARALLEL TYPE, EXCEPT FOR THE GROUND RODS WHICH SHALL BE THE TEE TYPE.
7. BOND SERVICE CONDUITS TO GROUND RING AS THEY CROSS. DO NOT EXOTHERMICALLY WELD TO CONDUITS.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
9. THE MINIMUM SPACING BETWEEN GROUND RODS SHALL BE 10'-0" (MAX. 15'-0").
10. BOND CIGBE TO EXTERNAL GROUND RING WITH 2 RUNS OF #2 BARE, TINNED, SOLID COPPER CONDUCTOR IN PVC. CONNECT BAR END WITH 2 HOLE LUG, AND "CADWELD" THE OTHER END TO THE EXTERNAL GROUND ROD.
11. THE PREFERRED LOCATION FOR COAX GROUNDING IS AT THE BASE OF THE TOWER PRIOR TO THE COAX BEND.
12. BONDING OF THE GROUNDED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTOR SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250-30.

NOTE:  
CONTRACTOR TO GROUND EXISTING ICE BRIDGE TO CROWN CASTLE SPECIFICATIONS

GRAPHIC SCALE



SCALE: 22"x34" SHEET 1"= 5'  
SCALE: 11"x17" SHEET 1"= 10'



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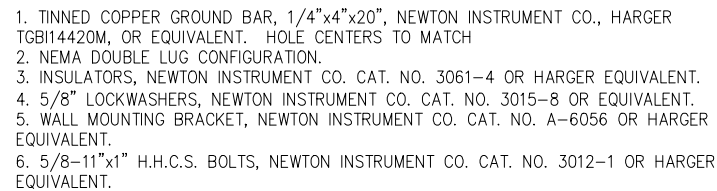
GROUNDING PLANS

SHEET NUMBER:

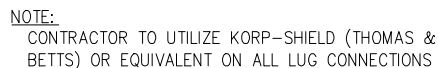
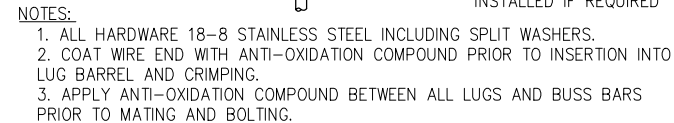
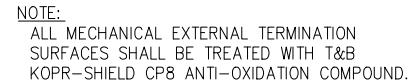
G-1

SCALE: AS NOTED

1



1. ALL MOUNTING HARDWARE CAN ALSO BE USED ON 6", 12", 18", ETC. GROUND BARS.  
2. ENTIRE ESSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106060010 OR  
AS HARGER TGB114420M.



G-2

## 1

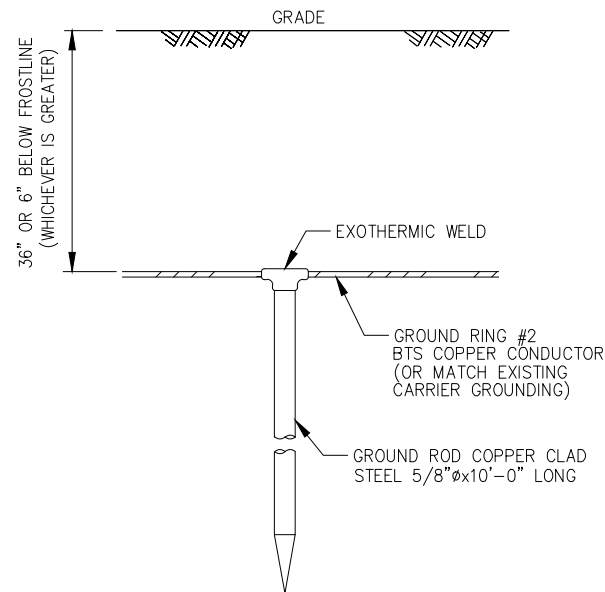
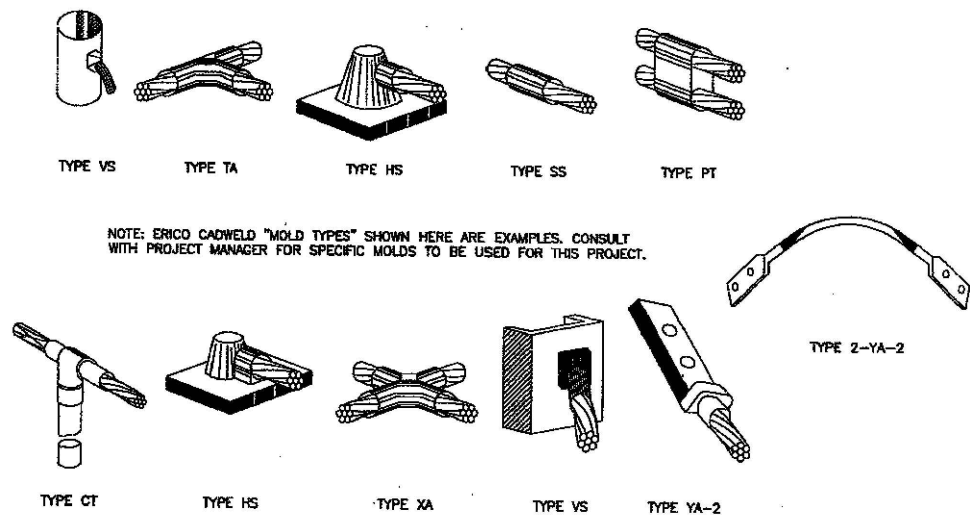
## 2

## 3

## 4

## 5

## 6



TYPICAL EQUIPMENT GROUND CONNECTIONS

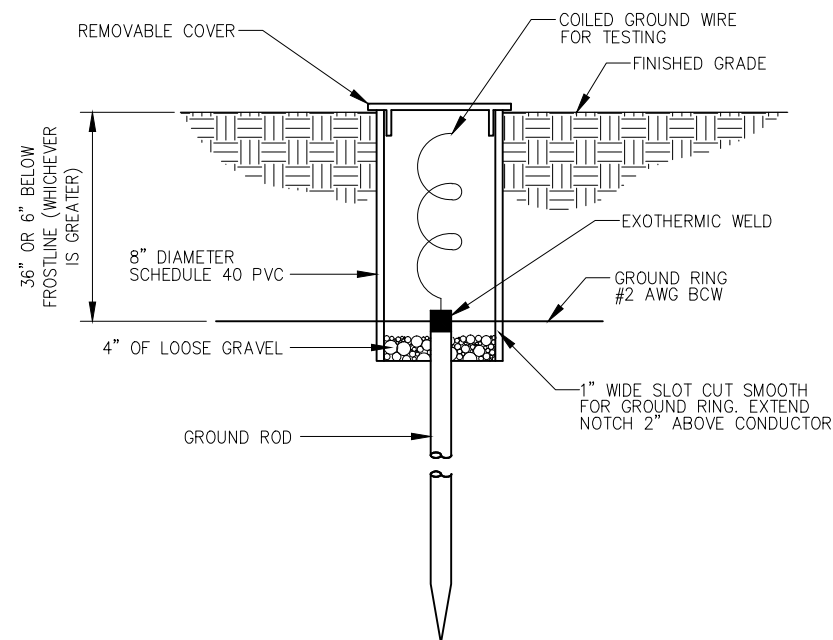
NO SCALE

1

TYPICAL GROUND ROD

NO SCALE

2



TYPICAL INSPECTION SLEEVE

NO SCALE

3

DETAIL NOT USED

NO SCALE

4

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**GROUNDING DETAILS**

SHEET NUMBER:

**G-3**