



PROJECT: 2.5 EQUIPMENT DEPLOYMENT  
 SITE NAME: HUNTSVILLE  
 SITE NUMBER: SL54XC068  
 SITE ADDRESS: 676 N 7100 EAST  
 HUNTSVILLE, UT, 84317  
 SITE TYPE: MONOPOLE

PLANS PREPARED FOR:  
**Sprint**  
 6580 Sprint Parkway  
 Overland Park,  
 Kansas 66251

PLANS PREPARED BY:  
**NEW HORIZON**  
 SITE SERVICES  
 92 East Shenango Street  
 Sharpsville, PA 16150  
 724.383.4033  
 www.newhss.com

MLA PARTNER:

ENGINEERING LICENSE:

DRAWING NOTICE:  
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PROJECT NUMBER: TS- 1795

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD's	12.23.13	CNS	A
315	FINAL CD's	01.27.14	CNS	B

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SHEET DESCRIPTION:  
 TITLE SHEET

SHEET NUMBER:  
 T-1

SITE INFORMATION

PROPERTY OWNER:  
 FRANK CLAWSON  
 6862 E. BONANZA RD.  
 LAS VEGAS, NV 89110  
 PHONE: (303) 573-3332

SITE ADDRESS:  
 676 N 7100 EAST  
 HUNTSVILLE, UT, 84317  
 WEBBER COUNTY

GEOGRAPHIC COORDINATES:  
 LATITUDE: 41° 16' 16.88" N, (41.27135555°)  
 LONGITUDE: 111° 46' 16.41" W, (-111.77122500°)

ZONING JURISDICTION:  
 WEBBER COUNTY

ZONING DISTRICT:  
 AV-3

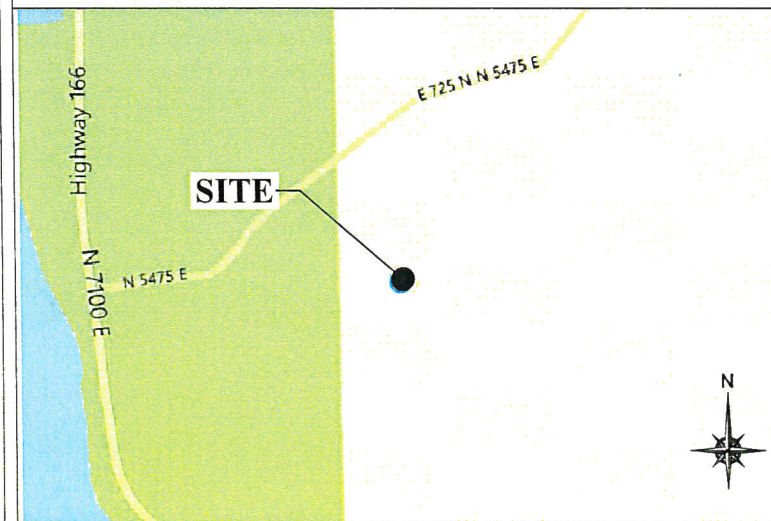
POWER COMPANY:  
 ROCKY MOUNTAIN POWER

SPRINT CONSTRUCTION MANAGER:  
 NAME: JUSTIN R. NELSON  
 PHONE: 801-685-5809  
 E-MAIL: Justin.R.Nelson@sprint.com

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

- \* INSTALL (1) UADU KIT IN EXISTING CABINET
- \* INSTALL (3) PANEL ANTENNAS
- \* INSTALL (3) RRU'S
- \* INSTALL (27) JUMPERS
- \* INSTALL (3) OPTICAL JUNCTION CYLINDERS
- \* INSTALL (3) POWER JUNCTION CYLINDERS

APPLICABLE CODES

- \* ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH 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
- 2. ANSI/TIA-222 STRUCTURAL STANDARD FOR ANTENNA STRUCTURES
- 3. NFPA 780 - LIGHTNING PROTECTION CODE
- 4. NATIONAL ELECTRIC CODE



SHEET INDEX

SHT NO:	SHEET TITLE:	REV:	ENGINEER:
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SP-3	SPRINT SPECIFICATIONS	B	GWC
SP-4	SPRINT SPECIFICATIONS	B	GWC
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A-2	TOWER ELEVATIONS & ANTENNA DETAILS	B	GWC
A-3	RF DATA SHEET	B	GWC
A-4	RF DATA SHEET	B	GWC
A-5	RF DATA SHEET	B	GWC
A-6	ANTENNA & HYBRID CABLE DETAILS	B	GWC
A-7	BREAKOUT & EQUIPMENT DETAILS	B	GWC
E-1	GROUNDING DETAILS	B	GSM
E-2	DC POWER DETAILS & PANEL SCHEDULES	B	GSM

**SECTION 01 100 – SCOPE OF WORK**

THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF.

A. RELATED DOCUMENTS: THE CONTRACTOR SHALL COMPLY WITH THE MOST CURRENT VERSION OF THE FOLLOWING SUPPLEMENTAL REQUIREMENTS FOR INSTALLATION AND TESTING.

1. EN-2012-001: (FIBER OPTIC AND DC CABLE TAGGING STANDARDS)
2. TS-0200 – (TRANSMISSION ANTENNA LINE ACCEPTANCE STANDARDS)
3. EL-0568: (FIBER TESTING POLICY)
4. NP-312-201: (EXTERIOR GROUNDING SYSTEM TESTING)
5. NP-760-500: MICROWAVE, TESTING AND ACCEPTANCE

PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE.

CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.

THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, AND METHODS.

THE CONTRACTOR SHALL MAINTAIN A FULL SET OF THE DRAWINGS ON THE JOBSITE TO BE MARKED DAILY WITH REDLINE FIELD CORRECTIONS.

**SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT**

COMPANY FURNISHED MATERIALS AND EQUIPMENT TO BE INSTALLED BY THE CONTRACTOR ARE IDENTIFIED ON THE RF DATA SHEET IN THE DRAWINGS.

UPON RECEIPT, CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT.

**SECTION 01 300 – CELL SITE CONSTRUCTION**

NOTICE TO PROCEED: NO WORK SHALL COMMENCE PRIOR TO COMPANY'S ISSUANCE OF THE WORK ORDER. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

**SECTION 01 400 – TESTS, INSPECTIONS, SUBMITTALS, AND PROJECT CLOSEOUT**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. COAX SWEEP TESTS PER SPRINT STANDARD TS-0200
2. FIBER TESTS PER SPRINT STANDARD EL-0568
3. MICROWAVE LINK TESTS PER NP-760-500
4. ANTENNA AZIMUTHS AND DOWN TILT USING ELECTRONIC ALIGNMENT TOOL .
5. POST CONSTRUCTION HEIGHT VERIFICATION AS REQUIRED HEREWITH IN THE TOWER INSTALLATION SPECIFICATIONS.
6. AGGREGATE BASE TESTS

TESTING BY THIRD PARTY AGENCY:

A. EMPLOY AN AGENCY OF ENGINEERS AND SCIENTISTS WHO IS REGULARLY ENGAGED IN FIELD AND LABORATORY TESTING AND ANALYSIS.

B. REQUIRED THIRD PARTY TESTS:

1. SITE RESISTANCE TO EARTH TEST PER NP-312-201
2. CONCRETE CYLINDER BREAK TESTS FOR TOWER PIER AND ANCHORS PER NATIONALLY RECOGNIZED STANDARDS
3. STRUCTURAL SOILS COMPACTION TESTS PER NATIONALLY RECOGNIZED STANDARDS
4. REBAR PLACEMENT VERIFICATION WITH REPORT
5. TESTING TENSION STUDY FOR ROCK ANCHORS
6. ALL THIRD PARTY TESTS AS REQUIRED BY LOCAL JURISDICTION

SUBMITTALS:

A. UPLOAD THE FOLLOWING TO SITERRA AS APPLICABLE INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. CHEMICAL GROUNDING SYSTEM DESIGN
4. REINFORCEMENT CERTIFICATIONS
5. STRUCTURAL BACKFILL TEST RESULTS
6. SWEEP AND FIBER TESTS
7. ANTENNA AZIMUTH AND DOWN-TILT VERIFICATION
8. POST CONSTRUCTION HEIGHT VERIFICATION
9. ALL FINAL DOCUMENTATION INCLUDING CLOSEOUT PHOTOS FIELD "RED-LINE" SET SUITABLE FOR USE BY A/E TO MAKE ELECTRONIC RECORD DRAWINGS.
10. ADDITIONAL SUBMITTALS MAY BE REQUIRED BY COMPANY
11. MICROWAVE LINK TEST

FINAL ACCEPTANCE

A. CLOSEOUT DOCUMENTATION: ALL SUBMITTALS, CLOSEOUT DOCUMENTATION AND FINAL SITE CONFIGURATION PHOTOGRAPHS SHALL BE UPLOADED PRIOR TO FINAL ACCEPTANCE. SPRINT WILL PROVIDE REQUIREMENTS SEPARATELY.

B. POPULATE ALL REQUIRED POST NTP MILESTONES AND UPLOAD ALL DOCUMENTATION TO SITERRA, SPRINT'S DATA BASE OF RECORD.

C. SPRINT WILL CONDUCT A FINAL PUNCH WALK USING SPRINT'S STANDARD FORM AND PROCESS. ALL PUNCHLIST "CRITICAL" ITEMS MUST BE ADDRESSED PRIOR TO SITE BEING PLACED ON AIR. CONTRACTOR MUST REMEDIATE ALL MINOR PUNCH LIST ITEMS WITHIN 30 DAYS OF PUNCH WALK.

D. CONTRACTOR MUST BE PRESENT DURING SITE INTEGRATION ACTIVITIES UNTIL SITE IS PLACED ON AIR.

**SECTION 03 300 – CAST-IN-PLACE CONCRETE**

FURNISH AN INSTALL ALL CAST-IN-PLACE CONCRETE FOR SITE PADS AND FOOTINGS AS REQUIRED.

MIX DESIGN: SUBMIT PER SECTION 01 400.

STANDARDS:

ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.  
ACI 318, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, AND CRSI MANUAL OF STANDARD PRACTICE.

TOLERANCE: 1/8 INCH IN 10 FEET FOR GRADE, ALIGNMENT, AND STRAIGHTNESS.

FORM MATERIALS: PLYWOOD, METAL, METAL-FRAMED PLYWOOD

REINFORCING MATERIALS:

A. BARS AND TIE BARS: ASTM A 615, GRADE 60, DEFORMED.

CONCRETE MATERIALS:

A. PORTLAND CEMENT: ASTM C 150, TYPE I.

1. FLY ASH: ASTM C 618, TYPE C.
2. NORMAL-WEIGHT AGGREGATES: ASTM C 33, CLASS 4, AND AS FOLLOWS.
3. AGGREGATE SIZE: 1-1/2 INCHES.
4. DO NOT USE FINE OR COARSE AGGREGATES CONTAINING SUBSTANCES THAT CAUSE SPALLING.

B. WATER: CLEAN, CLEAR, POTABLE.

CONCRETE MIX, GENERAL: CONCRETE MIX DESIGN SHALL BE 3000 PSI AND CONFORM TO THE FOLLOWING:

A. FOR PADS AND FOOTINGS, SIDEWALKS AND GUTTER: A558-1-2 OR WA 610-1-4.

CONCRETE FINISHING:

A. CONCRETE FINISHES FOR MONOLITHIC SLABS:

1. TROWEL FINISH FOR EQUIPMENT PADS
2. NONSLIP BROOM FINISH WITH TROWELED EDGE FOR WALKWAYS AND STOOPS.

INSTALLATION: DO NOT CHANGE MIX DESIGN WITHOUT APPROVAL.

A. CALCIUM CHLORIDE ADMIXTURES ARE NOT PERMITTED.

B. INSTALL WITH MINIMUM 3 INCH COVER OVER REINFORCEMENT.

C. CHAMFER EXPOSED EDGES/CORNERS 3/4 INCH AND PROVIDE STRAIGHT LINES.

D. CONCRETE PLACEMENT: PLACE CONCRETE USING ACCEPTED BEST PRACTICES.

**SECTION 03 600 – GROUT**

THIS SECTION SPECIFIES MATERIALS, METHODS, AND PROCEDURES FOR GROUTING BASE PLATES. BASE PLATES SHALL BE GROUTED IN ACCORDANCE WITH THE TOWER MANUFACTURER'S REQUIREMENTS.

ALL MATERIAL SHALL MEET THE TOWER MANUFACTURER'S SPECIFICATIONS AND THE FOLLOWING REQUIREMENTS:

A. GROUT: PROVIDE NON-SHRINK, NON-METALLIC, NON-CORROSIVE CEMENT-BASED GROUT MINIMUM 5,000 PSI, 28 DAY COMPRESSIVE STRENGTH WITH 0.00 SHRINKAGE BEFORE AND AFTER HARDENING

B. WATER: CLEAN AND POTABLE.

SURFACE PREPARATION: CHIP AND CLEAN TO EXPOSE AGGREGATE. ALIGNMENT AND LEVELING: BASEPLATES SHALL BE SET IN PLACE OVER ANCHOR BOLTS, PROPERLY ALIGNED AND LEVELED USING THREE-POINT CONTROL.

**SECTION 05 100 – ICE BRIDGE AND OTHER STRUCTURAL STEEL**

THIS SECTION SPECIFIES STRUCTURAL STEEL, FABRICATION PROCESSES, CONNECTIONS, INSPECTIONS AND INSTALLATION.

ICE BRIDGE POSTS:

A. ICE BRIDGE POSTS SHALL BE FABRICATED OF 3 1/2-INCH SCHEDULE 40 GALV. STEEL WITH CAP.

ICE BRIDGE MATERIAL: AS SHOWN ON DRAWINGS – ALL COMPONENTS SHALL BE HOT DIPPED GALV. STRUCTURAL STEEL MEET AISC, ASTM, ACI, CRSI, AWS AND ALL OTHER APPLICABLE STANDARDS.

A. ALL STEEL SHALL BE GALV. IN ACCORDANCE WITH ASTM A36

B. ROLLED STEEL SHAPES, PLATES AND BARS SHALL BE NO LESS THAN 3/16 INCHES IN THICKNESS AND SHALL COMPLY WITH ASTM A-36 AS A MINIMUM.

C. STEEL PIPE SHALL COMPLY WITH ASTM A-501 OR ASTM A-53, TYPE E OR S, GRADE B.

D. STEEL TUBE SHALL COMPLY WITH ASTM A-500, GRADE B.

E. GALV. STEEL GRATING SHALL BE A MINIMUM 3/4 INCH X 1/8 INCH AT 3/16 INCHES ON CENTER.

ICE BRIDGE:

A. INSTALL ICE BRIDGE AND SUPPORT POSTS BETWEEN THE MMBS RADIO EQUIPMENT AND THE TOWER

B. ICE BRIDGE SHALL EXTEND TO WITHIN 2 INCHES OF SHELTERS OR WITHIN 1 FOOT OF TOWERS. AT GROUND EQUIPMENT, EXTEND ICE BRIDGE TO PROTECT CABLE CONNECTIONS ON BACK SIDE OF CABINETS AND AS SHOWN ON DRAWINGS. DO NOT MECHANICALLY CONNECT TO ANY STRUCTURE.

C. GROUND ICE BRIDGE STRUCTURE AS INDICATED

D. WELDING: SHALL BE PERFORMED BY A CERTIFIED WELDER

CONNECTIONS:

A. CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS HARDWARE

B. REPAIR ALL DAMAGED GALVANIZED STEEL WITH "GALVANOX," "DRY GALV," OR "ZINC-IT."

PLANS PREPARED FOR:

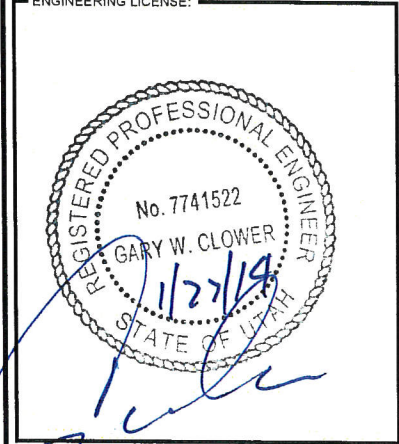


PLANS PREPARED BY:



MLA PARTNER:

ENGINEERING LICENSE:



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PROJECT NUMBER: TS- 1796

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD's	12.23.13	CNS	A
315	FINAL CD's	01.27.14	CNS	B

SITE NAME: HUNTSVILLE

SITE NUMBER: SL54XC068

SITE ADDRESS: 676 N 7100 EAST HUNTSVILLE, UT, 84317

SHEET DESCRIPTION: SPRINT SPECIFICATIONS

SHEET NUMBER: SP-I

**SECTION 11 400 -STEEL MONOPOLE TOWER INSTALLATION**

THIS SECTION SPECIFIES THE STEEL MONOPOLE TOWER INSTALLATION WHICH SHALL BE FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR

A. STEEL MONOPOLE TOWERS WILL BE FURNISHED WITH ANTENNA MOUNTS, AND SIDE STRUT ATTACHMENTS FOR EACH ANTENNA. CLIMBING LADDERS AS WELL AS SAFETY CLIMB EQUIPMENT WILL BE FURNISHED FOR EVERY TOWER. TOWER LIGHTING SYSTEMS COMPOSED OF LIGHTS, CONTROLLERS, PHOTO CELLS, BALLAST, JUNCTION BOXES AND ALARM SYSTEM WILL BE FURNISHED FOR TOWERS REQUIRED TO BE LIGHTED BY THE FAA. LIGHTING SHALL BE INSTALLED IN ACCORDANCE WITH FAA REQUIREMENTS AND THE MANUFACTURER'S WRITTEN INSTRUCTIONS. WAVEGUIDE/COAXIAL CABLE SUPPORTS AND GROUNDING ATTACHMENTS WILL BE FURNISHED FOR INSTALLATION AS INDICATED ON THE CONSTRUCTION DRAWINGS.

B. THE CONTRACTOR SHALL COORDINATE THE DELIVERY OF ALL TOWERS TO THE JOB SITE. THE CONTRACTOR SHALL UNLOAD THE TOWERS AT THE JOB SITE AND NOTIFY THE COMPANY IN WRITING OF ANY DAMAGE OR SHORTAGES.

C. THE CONTRACTOR SHALL INSTALL THE MONOPOLES COMPLETE AS INDICATED ON THE CONSTRUCTION DRAWINGS, AS SPECIFIED IN THESE SPECIFICATIONS, AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

D. ALL STRUCTURE COMPONENTS SHALL BE HANDLED WITH CARE TO PREVENT DAMAGE TO THE FINISH. SECTIONS MAY BE ASSEMBLED ON THE GROUND AND THE COMPLETED STRUCTURE LIFTED ONTO THE FOUNDATION OR SECTIONS CAN BE ASSEMBLED VERTICALLY IN THE AIR.

**ASSEMBLY**

A. MATING SURFACES SHOULD BE CLEAN OF DIRT AND EXCESS GALVANIZING BUILDUP BEFORE PRIOR TO ASSEMBLY.

B. NON-STAINING LUBRICANTS MAY BE USED ON THE SLIP JOINTS. ONLY HYDRAULIC OR MECHANICAL JACKING DEVICES MAY BE USED FOR SLIP JOINT ASSEMBLY - NO MACHINERY. JACKING PLATES SHALL BE USED WITH HYDRAULIC JACKS. WHEN JACKING NUTS ARE USED WITH MECHANICAL JACKS, FORCES WILL BE APPLIED AT A MINIMUM OF 1-12 INCHES FROM THE STRUCTURE SURFACE.

C. FLANGE TYPE SECTIONS SHALL BE BOLTED AND LEVELED PER THE MANUFACTURER'S RECOMMENDATIONS.

D. FOUNDATION LEVELING NUTS SHALL BE ADJUSTED TO OBTAIN A TRUE HORIZONTAL PLANE PRIOR TO ERECTION. AFTER ERECTION THE STRUCTURE MAY BE PLUMBED BY ADJUSTMENT OF THE HEAVY HEX LEVELING NUTS UNDERNEATH THE BASE PLATE.

**ERECTION TOLERANCES AND PLUMBING:**

A. VERTICAL ALIGNMENT CHECKS SHALL BE MADE DURING THE MONOPOLE ERECTION. ALL ALIGNMENT CHECKS SHALL BE PERFORMED UNDER CONDITIONS OF 0-10 MPH SURFACE WIND VELOCITY IF SITE CONDITIONS PERMIT. THE HORIZONTAL DISTANCE BETWEEN THE VERTICAL CENTERLINE AT ANY TWO ELEVATIONS SHALL NOT EXCEED 0.25 PERCENT OF THE VERTICAL DISTANCE BETWEEN THE TWO ELEVATIONS.

B. TWO TRANSIT OR THEODOLITE SETUPS SHALL BE USED FOR EACH CHECK. SETUPS SHALL BE ORIENTED PERPENDICULAR TO ONE ANOTHER WITH RESPECT TO THE TOWER.

C. A NAKED EYE "STRAIGHTNESS" CHECK SHALL BE MADE BY THE COMPANY. NO DEFLECTIONS OR "KINKS" SHOULD BE DETECTABLE WHEN STANDING AT THE BASE OF THE MONOPOLE.

D. THERE SHALL BE AT LEAST 1/4 INCH OF THREAD VISIBLE BEYOND ALL NUTS.

**SECTION 11 700 - ANTENNA ASSEMBLY, REMOTE RADIO UNITS AND CABLE INSTALLATION**

THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRU'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE AND WAVEGUIDE.

A. ANTENNAS AND REMOTE RADIO UNITS (RRU): REFER TO THE DRAWINGS FOR TYPES AND QUANTITIES OF PANEL AND MICROWAVE ANTENNAS AND RRUS TO BE INSTALLED.

B. MISCELLANEOUS RF EQUIPMENT: INSTALL COMBINERS, FILTERS, COUPLERS, AND AMPLIFIERS, FURNISHED BY COMPANY, PER MANUFACTURERS RECOMMENDATIONS.

C. JUMPERS AND CONNECTORS: FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRU'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12-50, CR 540, OR FXL 540. SUPER-FLEX CABLES ARE NOT ACCEPTABLE.

D. HYBRID AND COAXIAL CABLE: INSTALL HYBRID DC/FIBER CABLE AND COAXIAL CABLES, INCLUDING CONNECTORS, JUMPERS, AND CABLE TERMINATING DEVICES FURNISHED BY COMPANY. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS.

E. RF DATA SHEETS: RF DATA INFORMATION ON THE DRAWINGS WILL PROVIDE A COMPLETE LIST OF COMPANY FURNISHED EQUIPMENT.

F. REMOTE ELECTRICAL TILT (RET) CABLES: FURNISH INSTALL RET CABLE AND CONNECTORS BETWEEN RRU AND ANTENNAS. CABLE SHALL BE INDICATED ON THE DRAWINGS AND AS REQUIRED BY MANUFACTURER.

G. GPS ANTENNAS SHALL BE INSTALLED AT A LOCATION IDENTIFIED ON THE CONSTRUCTION DRAWING AND SHALL HAVE AN UNOBSTRUCTED VIEW OF THE SOUTHERN SKY. EFFORT SHOULD BE MADE TO LOCATE GPS ANTENNAS ON THE SHELTER, GROUND PLATFORM, GROUND CABINETS OR THE ICE BRIDGE.

H. FURNISH AND INSTALL ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.

**INSTALLATION, TESTING, AND INSPECTION STANDARDS:**

A. COMPLY WITH THE REQUIREMENTS OF TS-0200 ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS AND EL-0568 CELL SITE HYBRID CABLE CONTAINING FIBER AND POWER WITH SPARE FIBERS INCLUDED - FIBER TESTING POLICY AND ACCEPTABLE LOSS.

B. THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

C. THE CONTRACTOR SHALL INSTALL ALL ANTENNAS AND SIDE STRUTS IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS AND THE MANUFACTURER'S RECOMMENDATIONS. POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB.

D. GPS ANTENNAS SHALL BE INSTALLED AT A LOCATION IDENTIFIED ON THE CONSTRUCTION DRAWING AND SHALL HAVE AN UNOBSTRUCTED VIEW OF THE SOUTHERN SKY. EFFORT SHOULD BE MADE TO LOCATE GPS ANTENNAS ON THE SHELTER, GROUND PLATFORM, GROUND CABINETS OR THE ICE BRIDGE.

**HYBRID AND COAXIAL CABLE INSTALLATION:**

A. COIL ANY EXCESS MAIN CABLE IN A HORIZONTAL PLANE UNDER THE ICE BRIDGE OR GROUND PLATFORM. PERMANENTLY SUPPORT COIL WITH STAINLESS STEEL HANGERS, UNISTRUT THREADED ROD AND SIMILAR EQUIPMENT.

B. CABLES SHALL BE GROUNDED IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS AND MANUFACTURERS REQUIREMENTS.

C. CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING INSTALLATION. DO NOT EXCEED MINIMUM BEND RADIUS.

D. WAVEGUIDE LADDER: SHALL BE USED TO SUPPORT ALL CABLES ON TOWER. ONE LADDER, 18 INCHES WIDE, SHALL BE MOUNTED ON THE TOWER PER THE TOWER STRUCTURAL REQUIREMENTS. THE RUNGS SHALL BE SPACED A MAXIMUM OF 4 FEET APART.

E. AT ICE BRIDGE, USE STAINLESS STEEL SNAP-IN TYPE HANGERS TO SUPPORT CABLES ON THE ICE BRIDGE.

F. CABLES SHALL BE RAISED ON THE TOWER USING PROPERLY SIZED SPLIT TYPE, LACE-UP HOISTING SOCKS ATTACHED TO EACH CABLE EVERY 200FT EXCEPT AS OTHERWISE REQUIRED BY MANUFACTURER. USE STAINLESS STEEL (NON MAGNETIC) SNAP IN TYPE CABLE HANGERS AT EACH WAVE GUIDE LADDER RUNG. DO NOT DRILL HOLES IN TOWER MEMBERS, USE ANGLE MEMBER ADAPTERS AND STAINLESS STEEL BUTTERFLY CLIPS TO ATTACH CABLING TO TOWER. HOIST CABLE USING PROPER HOISTING GRIPS. HOIST SLOWLY AND CAREFULLY. PREVENT KINKING AND SNAGS WHEN AROUND TOWER MEMBERS. BEND CABLE SLOWLY AT THE MAXIMUM PRACTICAL BEND RADIUS CONSISTENT WITH GOOD INSTALLATION PRACTICE. AVOID USING MINIMUM CABLE BENDS.

G. INSTALLATION OF INDIVIDUAL FIBER AND DC POWER BUNDLES IN A VERTICAL PLANE AND SECURE AT CABINET OR EQUIPMENT. ABOVE BREAKOUT ENCLOSURE (MEDUSA) AT TOWER TOP, INSIDE MMBS, AND AT ANY INTERMEDIATE FIBER/DC DISTRIBUTION BOXES:

1. FIBER: SUPPORT FIBER BUNDLES USING 1/2" VELCRO STRAPS OF THE REQUIRED LENGTH ON 18" CENTERS. VELCRO STRAPS SHALL BE OIL, UV AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR EQUAL. COIL EXCESS FIBER BUDLES IN A VERTICAL PLANE AND SECURE AT CABINET OR EQUIPMENT.

2. DC: SUPPORT DC BUNDLES ON 18" CENTERS WITH ZIP-TIES OF ADEQUATE LENGTH. ZIP-TIES SHALL BE UV STABILIZED, BLACK NYLON WITH A TENSILE STRENGTH OF 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL. CUT DC CABLES TO LENGTH AND TERMINATE AT EQUIPMENT.

3. BENDING RADIUS: CABLES SHALL NOT EXCEED THE MINIMUM BENDING RADIUS AS DETERMINED BY THE CABLE MANUFACTURER.

4. CLEAN FIBER CONNECTORS AS REQUIRED IN EL-0568.

H. COLOR CODING OF CABLES: COMPLY WITH TS 0200 AND THE RF DATA SHEETS ON THE DRAWINGS.

I. ALPHA-NUMERIC LABELING OF CABLES: COMPLY WITH EN-2012-001 .

**WEATHERPROOFING CONNECTORS AND GROUND KITS:**

A. ALL COAX CONNECTORS, FIBER CONNECTORS AND INSTALLED CABLE GROUND KITS SHALL BE WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.

1. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2" ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE 3M COLD SHRINK CXS SERIES OR EQUAL.

2. SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP (HALF OVERLAP) OF SELF-AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY A DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF-AMALGAMATING TAPE.

3. 3M SLIM LOCK CLOSURE 716. SUBSTITUTIONS WILL NOT BE ALLOWED.

4. HEAT SHRINK TUBING REQUIRING OPEN FLAME ON THE SITE IS NOT ACCEPTABLE.

**SECTION 11 800 - MULTIMODAL BASE STATIONS (MMBS) AND RELATED EQUIPMENT**

THIS SECTION SPECIFIES MMBS AND RELATED EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

A. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND LABOR REQUIRED FOR INSTALLATION OF THE MMBS CABINET AND RELATED EQUIPMENT.

B. ALL WORK PROVIDED BY CONTRACTOR SHALL BE IN COMPLIANCE WITH THE CONSTRUCTION DRAWINGS AND DETAILS, SITE SPECIFIC CONTRACT DOCUMENTS, AND THESE SPECIFICATIONS.

C. THE NUMBER OF CABINETS INSTALLED AT EACH SITE IS SHOWN ON THE CONSTRUCTION DRAWINGS. THE NUMBER OF RELATED COAX CABLES TO BE INSTALLED AT EACH SITE IS INDICATED ON THE CONSTRUCTION DRAWINGS AND/OR THE RF CONFIGURATION SHEET FOR THE SITE.

D. CONTRACTOR SHALL TAKE RECEIPT AND ACCEPT RESPONSIBILITY FOR THE RADIO

**E. MULTIMODAL BASE STATION EQUIPMENT**

1. INSTALL CABINETS AND COMPONENTS INCLUDING BASE BAND UNITS, CELL SITE ROUTERS, RECTIFIERS AND SIMILAR EQUIPMENT AS INDICATED ON THE DRAWINGS AND REQUIRED BY THE APPLICABLE INSTALLATION MOPS.

2. GENERAL: THE CONTRACTOR SHALL INSTALL THE MMBS AND ASSOCIATED EQUIPMENT AT THE LOCATIONS SHOWN ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SERVICES ASSOCIATED WITH THE WORK.

F. LABEL FIBER CABLES INCLUDING FIBER BACKHAUL CABLING AS REQUIRED BY EN-2012-001 .

G. LABEL DC CIRCUIT BREAKERS AS REQUIRED BY NEC.

H. INSTALL GPS ANTENNA AS INDICATED ON THE DRAWINGS.

I. MAKE FINAL CONNECTIONS TO EQUIPMENT AS INDICATED ON THE DRAWINGS INCLUDING

1. PROVIDE DC CIRCUIT TO BACKHAUL NID

2. PROVIDE AC WIRING FROM LOAD CENTER TO POWER SUPPLY OR RADIO CABINET

3. PROVIDE ALARM CABLING FROM RADIO EQUIPMENT TO TELCO ALARM TERMINAL STRIP

4. INSTALL CABLES AND MAKE FINAL CONNECTIONS FOR FIBER CABLING BETWEEN RADIO EQUIPMENT AND RRUS, AND DC CIRCUITS BETWEEN RRUS AND RADIO EQUIPMENT

PLANS PREPARED FOR:

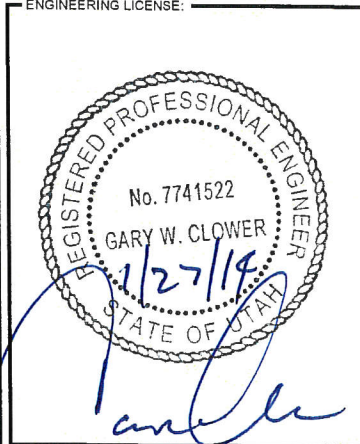


PLANS PREPARED BY:



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PROJECT NUMBER: TS- 1796

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD's	12.23.13	CNS	A
315	FINAL CD's	01.27.14	CNS	B

SITE NAME:

HUNTSVILLE

SITE NUMBER:

SL54XC068

SITE ADDRESS:

676 N 7100 EAST  
HUNTSVILLE, UT, 84317

SHEET DESCRIPTION:

SPRINT  
SPECIFICATIONS

SHEET NUMBER:

SP-2

**SECTION 26 100 – BASIC ELECTRICAL REQUIREMENTS**

THIS SECTION SPECIFIES BASIC ELECTRICAL REQUIREMENTS FOR SYSTEMS AND COMPONENTS. THE CODES AND STANDARDS REFERENCED IN DIVISION 26 SHALL BE THE MOST CURRENT REVISION, REGARDLESS OF THE ACTUAL YEAR INDICATED HEREINAFTER, EXCEPT AS OTHERWISE REQUIRED BY DIVISION 1.

THE ENTIRE ELECTRICAL INSTALLATION SHALL COMPLY FULLY WITH THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION.

**QUALITY ASSURANCE:**

- A. ALL EQUIPMENT FURNISHED BY DIVISION 26 SHALL CARRY UL LABELS AND LISTINGS WHERE SUCH LABELS AND LISTINGS ARE AVAILABLE IN THE INDUSTRY.
- B. MANUFACTURERS OF EQUIPMENT SHALL HAVE A MINIMUM OF THREE YEARS' EXPERIENCE WITH THEIR EQUIPMENT INSTALLED AND OPERATING IN THE FIELD IN A USE SIMILAR TO THE PROPOSED USE FOR THIS PROJECT.

**MATERIALS AND EQUIPMENT:** ALL MATERIALS AND EQUIPMENT SPECIFIED IN DIVISION 26 OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER AND SHALL BE NEW, OF THE BEST QUALITY AND DESIGN, AND FREE FROM DEFECTS.

**MANUFACTURERS:** SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:

- A. ALLIED TUBE AND CONDUIT
- B. B-LINE SYSTEMS
- C. UNISTRUT DIVERSIFIED PRODUCTS
- D. THOMAS & BETTS

- FASTENERS:**
- A. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
  - B. TOGGLE BOLTS: ALL STEEL SPRINGHEAD TYPE.
  - C. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
  - D. FASTEN BY MEANS OF WOOD SCREWS ON WOOD,
  - E. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY,
  - F. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL,
  - G. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED.
  - H. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES.

**FABRICATED SUPPORTING DEVICES:**

- A. GENERAL U-CHANNEL SYSTEMS:
  - 1. SHOP OR FIELD FABRICATE SUPPORTS OR USE MANUFACTURED SUPPORTS ASSEMBLED FROM U-CHANNEL COMPONENTS, AS REQUIRED OR AS DETAILED ON THE DRAWINGS.
  - 2. U-CHANNEL SYSTEMS: 16-GAUGE STEEL CHANNELS, WITH 9/16-INCH DIAMETER (14.3 MM) HOLES, AT A MINIMUM OF 8 INCHES (200 MM) ON CENTER, IN TOP SURFACE. PROVIDE FITTINGS AND ACCESSORIES THAT MATE AND MATCH WITH U-CHANNEL AND ARE OF THE SAME MANUFACTURER. SUSPEND FROM BUILDING STEEL WITH THREADED STEEL RODS OR AS APPROVED BY ENGINEER
  - 3. STEEL BRACKETS: STEEL PIPE: – 40 GALVANIZED STEEL PIPE.

**ELECTRICAL IDENTIFICATION PRODUCTS:**

- A. UNDERGROUND LINE MARKING TAPE: PERMANENT, RED-COLORED, CONTINUOUS-PRINTED, PLASTIC TAPE COMPOUNDED FOR DIRECT-BURIAL SERVICE NOT LESS THAN 6 INCHES (152 MM) WIDE BY 4 MILS (0.1 MM) THICK.
- B. LABEL DC AND FIBER CABLES ACCORDING TO EN –2012-001
- C. PROVIDE COLOR CODING FOR HYBRID FIBER AND COAXIAL CABLES PER TS 0200.

**INSTALLATION:**

- A. VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS.
- B. SEQUENCE, COORDINATE, AND INTEGRATE INSTALLATIONS OF MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. STRUCTURE.
- C. ALL CUTTING AND CHANNELING SHALL BE ACCOMPLISHED IN A NEAT AND WORKMANLIKE MANNER.,
- D. COORDINATE CONNECTION OF SYSTEMS WITH EXTERIOR UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES.
- E. PROVIDE TYPED CIRCUIT SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF PANEL LBOARDS.
- F. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANEL BOARD.
- G. TESTING: TEST ALL EQUIPMENT BEFORE PROJECT CLOSEOUT TO ENSURE PROPER OPERATION. ACCOMPLISH MANUFACTURER'S STANDARD RECOMMENDED FIELD TESTING AND THE SPECIFIC TESTING REQUIRED HEREINAFTER IN DIVISION 16 SECTIONS.

**SECTION 26 200 – ELECTRICAL MATERIALS AND EQUIPMENT**

SUMMARY: THIS SECTION SPECIFIES ELECTRICAL MATERIALS AND EQUIPMENT. THE REQUIREMENTS OF SECTION 26 100 APPLY TO THIS SECTION AS WELL.

**CIRCUIT BREAKERS FOR INSTALLATION INTO PANELBOARDS:**

- A. FOR APPLICATION IN PANELBOARDS, PROVIDE CIRCUIT BREAKERS OF THE SAME MANUFACTURER AS THE ORIGINAL EQUIPMENT MANUFACTURER (OEM) CIRCUIT BREAKER CONFIGURATION (BOLT-ON OR CLIP-ON) SHALL MATCH THAT OF BREAKERS INSTALLED AND SHIPPED WITH THE CABINET.

**CONDUIT:**

- A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS, AND FOR ENCASED RUNS IN CONCRETE. RIGID CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.
- B. EXTERIOR UNDERGROUND CONDUIT SHALL BE POLYVINYLCHLORIDE (PVC) SCHEDULE 80 OR DIRECT BURIAL RATED.
- C. ELECTRICAL METALLIC TUBING (EMT) MAY BE USED IN CONCEALED SPACES ABOVE CEILINGS OR WITHIN WALLS AND IN SPRINT SHELTERS.
- D. FLEXIBLE CONDUITS MAY BE USED FOR FINAL CONNECTION TO EQUIPMENT. MAXIMUM LENGTH SHALL NOT EXCEED 6 FEET. SUPPORT AS REQUIRED BY NEC. MANUFACTURERS SHALL BE CAROL, ANACONDA METAL HOSE (HYSpan) OR UNIVERSAL METAL HOSE, SOUTHWIRE, OR EQUAL. LIQUID TIGHT FLEXIBLE CONDUIT (LMFC) SHALL BE UL LISTED, OIL RESISTANT, SUNLIGHT RESISTANT, WATERPROOF, AND TEMPERATURE RATED -30C TO +80C.
- E. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH.

**CONDUIT FITTINGS:**

- A. FOR RIGID GALVANIZED STEEL CONDUITS PROVIDE THREADED STEEL CONDUIT FITTINGS. SET SCREW, MALLEABLE IRON COMPRESSION OR QUICK CONNECT FITTINGS SHALL NOT BE ACCEPTABLE.
- B. TRANSITIONS BETWEEN UNDERGROUND PVC AND ABOVE GROUND RGS AND LIQUID TIGHT FLEXIBLE METALLIC (LFMC) SHALL BE PVC COATED RGS LONG SWEEP RADIUS ELLS.
- C. FOR ELECTRICAL METALLIC TUBING PROVIDE GLAND TYPE FITTINGS
- D. FOR FLEXIBLE LIQUID TIGHT CONDUIT PROVIDE GLAND TYPE
- E. AT ENTRANCES NOT HAVING INTEGRAL THREADED METALLIC HUBS PROVIDE A THREADED METALLIC GASKETED HUB OF THE SIZE AND CONFIGURATION REQUIRED. FOR CONDUIT ENTRANCES INTO BUILDINGS, STRUCTURES AND AT CONDUIT TERMINATIONS ABOVE OR BELOW GRADE, PROVIDE CONDUIT SEALING BUSHINGS AND CABLE TERMINATORS. PROVIDE CONDUIT SEALING BUSHINGS WITH SLEEVES AT CONCRETE AND MASONRY WALL PENETRATIONS. UNITS SHALL BE O-Z/GEDNEY TYPE CSM OR EQUAL.
- F. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O-Z/GEDNEY OR EQUAL.

- G. CABLE TERMINATORS FOR LFMC SHALL BE ETCO - CL2075; OR MADE-FOR-THE-PURPOSE PRODUCTS BY ROXTEC.

**POWER, BACKHAUL FIBER, AND ALARM CABLING:**

- A. PROVIDE THREE FEET EXCESS BACKHAUL FIBER CABLE AND ALARM CABLE AT MMBS AND PPC TELCO COMPARTMENT
- B. PUNCH DOWN 24 AWG ALARM CABLES AT PPC TELCO COMPARTMENT 66-BLOCK. AT MMBS PUNCH DOWN ALARM CIRCUITS ON CABINET SCAN BLOCKS.
- C. FIBER COMMUNICATION CABLES FOR CELL SITE BACKHAUL:
- D. ALARM CABLING: 24 AWG 4 PAIR AND 25 PAIR MOHAWK CAT 5E VERSALAN CABLES SUITABLE FOR WET LOCATIONS OR EQUAL BY BELDEN AS INDICATED ON THE DRAWINGS.
- E. POWER CONDUCTORS: COPPER, MINIMUM #12 (3.3 MM2) GAUGE. PROVIDE SOLID CONDUCTORS FOR SIZES NO. 10 (5.3 MM2) AND SMALLER AND STRANDED CONDUCTORS FOR NO. 8 (8.4 MM2) AND LARGER. CONDUCTORS SHALL BE AS MANUFACTURED BY HOUSTON, ROME, OKONITE, OR EQUAL. CONDUCTORS SHALL BE TYPE THWN OR THW EXCEPT AS OTHERWISE NOTED. CONDUCTORS SHALL NOT BE SPLICED.

**GROUNDING SYSTEM:**

- A. CONDUCTORS FOR SUPPLEMENTAL GROUNDING SYSTEM SHALL BE TINNED COPPER SIZED AS INDICATED ON THE DRAWINGS. REQUIREMENTS FOR BARE OR GREEN INSULATED AND STRANDED OR SOLID CONDUCTORS ARE SHOWN ON THE DRAWINGS.
- B. GROUNDING CONNECTIONS: AT GROUND BARS AND EQUIPMENT, PROVIDE TWO HOLE CRIMPED LUGS AND NO-OX. EXCEPT AS NOTED ON THE DRAWINGS, ALL OTHER CONNECTIONS SHALL BE EXOTHERMIC WELDS, USING THE PROPER MOLD FOR STRANDED OR COPPER CONDUCTORS.
- C. ELECTRICAL SERVICES, CIRCUITS AND SYSTEMS, ENCLOSURES AND EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC..

**BOXES AND COVERS:**

- A. PULL AND JUNCTION BOXES, ABOVE GRADE, SHALL BE PLATED CAST ALLOY, THREADED, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, CROUSE-HINDS WAB SERIES
- B. PULL BOXES IN EARTH SHALL BE FIBERGLASS OR COMPOSITE, OPEN BOTTOM COFFINS, INSTALLED IN EARTH ON GRAVEL BEDS AND RATED FOR PEDESTRIAN OR VEHICULAR TRAFFIC
- C. CONDUIT OUTLET BODIES AND CONDULETS SHALL BE PLATED, THREADED, CAST ALLOY WITH GASKETED COVERS. EXTERIOR SWITCH AND OUTLET BOXES SHALL BE RECESSED MOUNTED EXCEPT AS NOTED.
- D. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE-HINDS, COOPER, ADALET, APPLETON, O-Z GEDNEY, OR RACO

**CONDUIT AND CONDUCTOR INSTALLATION:**

- A. CONDUIT SHALL BE SIZED AS REQUIRED BY NEC AND SHALL BE INSTALLED CONTINUOUS AND COMPLETE FROM OUTLET TO OUTLET, PANELS AND JUNCTION BOXES.
- B. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CONDUITS SHALL BE CONCEALED IN
- C. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT INDICATED, TIGHTEN CONNECTORS AND TERMINALS TO COMPLY WITH TIGHTENING TORQUES SPECIFIED IN UL 486A AND 486B.

**SECTION 31 100 – EARTHWORK**

THIS SECTION INCLUDES REMOVAL OF ALL DEBRIS; EXCAVATION AND TRENCHING, DISPOSAL OF EXCAVATED MATERIAL; SHEETING, SHORING, PREPARATION OF SUB-GRADES; PUMPING AND DE-WATERING, SURFACING AND GRADING, EROSION CONTROL AND OTHER APPURTENANT WORK.

CONTRACTOR SHALL FURNISH AND INSTALL MIRAFI 500X GROUND STABILIZATION FABRIC. FABRIC SHALL BE INSTALLED PER THE DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. JOINTS SHALL HAVE A MINIMUM 6 INCH OVERLAP.

**AGGREGATE SURFACING:** CONTRACTOR SHALL SURFACE THE ENTIRE FENCED CELL SITE AREA INCLUDING A 1'-0" APRON OUTSIDE THE FENCE. SURFACING SHALL BE A MINIMUM COMPACTED THICKNESS OF 3 INCHES USING 1/4 INCH TO 3/4 INCHES ROCK.

- A. PRIOR TO ROCKING THE AREA, THE CELL SITE ARE SHALL BE TREATED TO CONTROL VEGETATION.
- B. ROCK SURFACING SHALL BE SPREAD EVENLY AND COMPACTED.
- PROVIDE WEED ERADICATOR AND SOIL FUMIGANT AS RECOMMENDED BY LOCAL PROFESSIONALS.
- A. CLEAR AND GRUB ALL AREAS TO THE DEPTHS AND LINES ON DRAWINGS.

B. WORK SHALL INCLUDE CLEARING AND REMOVING ALL TREES AND STUMPS WITHIN THE CONSTRUCTION AREA; CUTTING AND REMOVAL OF ALL BRUSH, SHRUBS, DEBRIS, AND VEGETATION TO APPROXIMATELY FLUSH WITH THE GROUND SURFACE; AND THE LEGAL DISPOSAL OF ALL DEBRIS.

C. GRUBBING SHALL INCLUDE THE REMOVAL OF ALL ORGANIC MATERIALS INCLUDING ALL STUMPS AND ROOTS.

D. AFTER CLEARING AND GRUBBING, CONTRACTOR SHALL FURNISH AND INSTALL FILL TO BRING THE AREA BACK TO THE ORIGINAL GRADE OR THE SUB-GRADE ELEVATION INDICATED ON THE DRAWING.

EROSION CONTROL SHALL BE INSTALLED AS DETAILED AND PER LOCAL CODES. ALL MATERIAL SHALL BE REMOVED AFTER VEGETATION IS ESTABLISHED AND ALL SOILS ARE STABILIZED.

CONTRACTOR SHALL PERFORM ALL EXCAVATION TO DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS OTHERWISE SPECIFIED.

CONTRACTOR SHALL CHECK WITH THE LOCAL UTILITIES AND UTILITY LOCATOR COMPANIES PRIOR TO STARTING EXCAVATION.

- A. UNLESS APPROVED IN WRITING OTHERWISE, ALL DIGGING WITHIN AN EXISTING CELL SITE COMPOUND IS TO BE DONE BY HAND.
- B. MATERIAL SUITABLE FOR BACKFILLING SHALL BE STOCKPILED.
- C. PREVENT SURFACE WATER FROM FLOWING INTO TRENCHES OR OTHER EXCAVATIONS
- D. SHEETING AND SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL.
- E. TRENCHES SHALL BE OF NECESSARY WIDTH FOR THE PROPER LAYING OF THE CONDUIT OR CABLE BOTTOM OF THE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM BEARING AND SUPPORT FOR EACH SECTION OF THE CONDUIT OR CABLE
- F. TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL SPECIFIED TESTS HAVE BEEN PERFORMED AND ACCEPTED. BACKFILL SHALL BE CAREFULLY PLACED IN THE TRENCH AND IN 1 FOOT LAYERS AND EACH LAYER TAMPED.

G. FILLS SHALL BE COMPACTED TO 90% ADEQUACY OF COMPACTION SHALL BE DETERMINED ON THE BASIS OF IN-PLACE DENSITY DETERMINATIONS CONDUCTED BY THE CONTRACTOR

COMPACTED ROCK FILL SHALL CONSIST OF CRUSHED ROCK CONFORMING TO ASTM C33, GRADATION 1-1/2 INCH TO CRUSHER FINES. THE ROCK FILL SHALL BE PLACED ON UNDISTURBED SUB-GRADE AND COMPACTED TO NOT LESS THAN 70 % RELATIVE DENSITY AS DETERMINED BY ASTM D4253 AND D4254, COMPACTION SHALL BE PERFORMED WITH VIBRATING MECHANICAL COMPACTORS.

COMPACTED SAND FILL MATERIAL SHALL CONSIST OF CLEAN NATURAL SAND. THE SAND SHALL CONFORM TO ASTM C33 AND NOT LESS THAN 75 % SHALL PASS A NO. 4 SIEVE. NOT MORE THAN 10 PERCENT SHALL PASS A NO. 200 SIEVE.

FINAL GRADING: AFTER ALL CONSTRUCTION WORK HAS BEEN COMPLETED, ALL GROUND SURFACE AREAS DISTURBED BY THIS CONSTRUCTION SHALL BE GRADED. THE GRADING SHALL BE FINISHED TO THE CONTOURS AND ELEVATIONS INDICATED ON THE CONSTRUCTION DRAWINGS.

PLANS PREPARED FOR:



6580 Sprint Parkway  
Overland Park,  
Kansas 66251

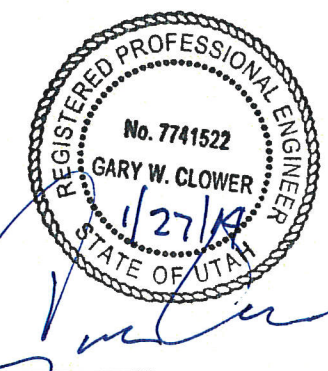
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SITE NAME:  
**HUNTSVILLE**

SITE NUMBER:  
**SL54XC068**

SITE ADDRESS:  
676 N 7100 EAST  
HUNTSVILLE, UT, 84317

SHEET DESCRIPTION:  
**SPRINT SPECIFICATIONS**

SHEET NUMBER:  
**SP-3**

**SECTION 31 630 – FOUNDATIONS FOR TOWER PIERS AND ANCHORS**

THIS SECTION SPECIFIES REQUIREMENTS FOR FOUNDATION PIER DRILLING AND PLACING OF CONCRETE FOR PIERS.

FIELD QUALITY CONTROL TESTING:

- A. PERFORM TESTING AS IDENTIFIED HEREIN AND IN DIVISION 1
- B. SAMPLING FRESH CONCRETE: ASTM C172, EXCEPT MODIFIED FOR SLUMP TO COMPLY WITH ASTM C94.
- C. SLUMP: ASTM C 143; ONE TEST AT POINT OF PLACEMENT FOR EACH COMPRESSIVE-STRENGTH TEST
- D. AIR CONTENT: ASTM C 231, PRESSURE METHOD; ONE TEST FOR EACH COMPRESSIVE-STRENGTH TEST
- E. CONCRETE TEMPERATURE: ASTM C 1064; ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEG F (4 DEG C) OR 80 DEG F (27 DEG C) AND ABOVE, AND ONE TEST FOR EACH COMPRESSIVE-STRENGTH SPECIMENS.
- F. COMPRESSION TEST SPECIMENS: ASTM C 31; ONE SET OF FOUR STANDARD CYLINDERS FOR EACH COMPRESSIVE-STRENGTH TEST.
- G. COMPRESSIVE-STRENGTH TESTS: ASTM C 39; ONE SET OF FOUR FOR EACH DAY'S POUR OF 5 CU. YD. BUT LESS THAN 25 CU. YD., PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD. TEST ONE SPECIMEN AT 7 DAYS, TEST TWO SPECIMENS AT 28 DAYS, AND RETAIN ONE SPECIMEN IN RESERVE FOR LATER TESTING IF REQUIRED.

- 1. STRENGTH LEVEL OF CONCRETE WILL BE CONSIDERED SATISFACTORY IF AVERAGES OF SETS OF THREE CONSECUTIVE STRENGTH TEST RESULTS EQUAL OR EXCEED SPECIFIED COMPRESSIVE STRENGTH AND NO INDIVIDUAL STRENGTH TEST RESULT FALLS BELOW SPECIFIED COMPRESSIVE STRENGTH BY MORE THAN 500 PSI.

DRILLING: FOUNDATION PIERS SHALL BE DRILLED WITH AN AUGER IN EARTH AND WITH A ROLLER BIT IN ROCK. CASINGS SHALL BE USED WHERE THE SIDES OF THE EXCAVATION ARE UNSTABLE AND MAY BE USED AT ALL LOCATIONS.

A. EACH PIER SHALL BE ACCURATELY LOCATED, SIZED, AND PLUMBED. VARIATION OF ANY PIER FROM ITS LOCATION SHALL NOT BE MORE THAN 2 INCHES AT ITS TOP ELEVATION. NO PIER SHALL BE OUT OF PLUMB MORE THAN 1 INCH IN 5 FEET OF HEIGHT. VARIATION OF PIER LOCATION WITHIN SPECIFIED LIMITS SHALL NOT BE CAUSE FOR VARIATION IN ANCHOR BOLT OR CONCRETE CAP LOCATION.

B. EACH PIER EXCAVATION SHALL BE MADE TO THE DEPTH INDICATED ON THE CONSTRUCTION DRAWINGS.

REINFORCEMENT: THE REINFORCEMENT FOR THE PIERS SHALL BE PROVIDED AND INSTALLED AS SHOWN ON THE FOUNDATION CONSTRUCTION DRAWINGS.

FIELD QUALITY CONTROL TESTING: PERFORM TESTING AS IDENTIFIED IN THE SCOPE OF WORK AND THE CONTRACT DOCUMENTS:

- A. SAMPLING FRESH CONCRETE: ASTM C172,
  - B. SLUMP: ASTM C 143;
  - C. AIR CONTENT: ASTM C 231,
  - D. CONCRETE TEMPERATURE: ASTM C 1064;
  - E. COMPRESSION TEST SPECIMENS: ASTM C 31;
  - F. COMPRESSIVE-STRENGTH TESTS: ASTM C 39;
- TEST RESULTS SHALL BE UPLOADED TO SITERRA

**SECTION 32 110 – AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS**

THIS SECTION SPECIFIES THE MATERIALS AND CONSTRUCTION FOR AGGREGATE SURFACED SITE ACCESS ROADS. ACCESS ROAD DETAILS ARE SHOWN ON THE CONSTRUCTION DRAWINGS.

AGGREGATE MATERIALS SHALL BE AS INDICATED ON THE CONSTRUCTION DRAWINGS.

WEED ERADICATOR AND SOIL FUMIGANT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN SECTION: EARTHWORK.

SUBGRADE PREPARATION:

- A. SUB-GRADE SHALL BE SHAPED TO THE GRADE AND CROSS SECTION INDICATED ON THE CONSTRUCTION DRAWINGS.
- B. AGGREGATE SHALL BE PLACED IN LAYERS
- C. EACH LAYER SHALL BE CLEANED MOISTURE CONTENT SHALL BE MAINTAINED AT PLUS OR MINUS 1-1/2 PERCENT OF OPTIMUM.
  - 1. THE AGGREGATE SHALL BE COMPACTED TO NOT LESS THAN 95%

**SECTION 32 320 – FENCES AND GATES**

THIS SECTION SPECIFIES COMPOUND FENCING AND ACCESS GATES FOR SITE. COMPLY WITH GOVERNING CODES AND REGULATIONS INCLUDING ASTM A392.

STEEL CHAIN-LINK FENCE:

PROVIDE STEEL CHAIN-LINK FENCING, 8 FEET IN HEIGHT, WITH AN ADDITIONAL 1 FOOT BARBED WIRE UNLESS INDICATED OTHERWISE.

A. FABRIC TO BE HEAVY GALV. CHAIN LINK FENCE CONFORMING TO ASTM A392.

B. POSTS: GALV. SCH. 40 PIPE FOR FABRIC UP TO AND INCLUDING 8 FEET IN HEIGHT,

- LINE POSTS – 2 1/2" PIPE.
- END, CORNER, PULL AND GATE POSTS: 3"
- TOP, BRACE, BOTTOM, INTERMEDIATE RAILS: 1 1/4" GALV. PIPE.

C. TRUSS RODS/CROSS BRACING: 3/8" DIAMETER DIAGONAL BARS WITH TURNBUCKLE.

D. TENSION WIRE: 7 GA. US STEEL WIRE GAL. PER ASTM A116 COATING CLASS III ATTACHED 2" ABOVE BOTTOM SELVAGE BY HOG RINGS AT 24" O.C.

E. BRACE BANDS, TENSION BANDS AND BARS / MISCELLANEOUS: PER INDUSTRY STANDARDS.

F. POST TOPS; PROVIDED PRESSED STEEL OR MALLEABLE IRON – GALV.

G. BARBED WIRE SHALL CONSIST OF DOUBLE STRANDED; 12-1 1/2 GAGE WIRE ASTM A121, CLASS 3 WITH 4 POINT BARBS SPACED AT 5 INCHES O.C. 3 STRANDS ATTACHED TO A 45 DEGREE ANGLE CAPABLE OF WITHSTANDING, 250 POUNDS DOWNWARD PULL.

b. GATES:

- 1. GATE MATERIALS SHALL BE CONSISTENT WITH FENCE MATERIALS.
- 2. GATE FRAMES SHALL BE 1 5/8" PIPE AND FURNISHED WITH ALL NECESSARY FITTINGS, INCLUDING HEAVY DUTY COMMERCIAL DOUBLE GATE LATCH SIMILAR TO DAC INDUSTRIES PART #4000.

I. BOLLARDS: CONCRETE-FILLED SCHEDULE 40 GALV. 6 INCH DIAMETER STEEL PIPE PAINTED SAFETY YELLOW.

INSTALLATION

A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND INDUSTRY STANDARDS. COMPLY WITH ASTM F 567.

TABLE 1 LINE, CORNER, PULL, AND TERMINAL POST INSTALLATION SCHEDULE

	FOUNDATION DIAMETER	FOUNDATION DEPTH	POST EMBEDMENT
LINE POST	1' - 0"	3' - 6"	3' - 0"
TERMINAL POST	1' - 0"	3' - 6"	3' - 0"
GATE POSTS	1' - 6"	4' - 0"	3' - 6"
BOLLARD	2' - 0"	4' - 0"	3' - 6"

PLANS PREPARED FOR:

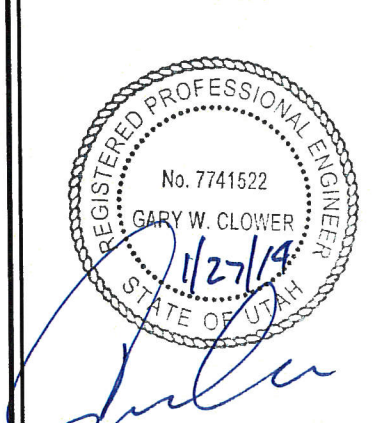


PLANS PREPARED BY:



MLA PARTNER:

ENGINEERING LICENSE:



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PROJECT NUMBER: TS- 1786

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD'S	12.23.13	CNS	A
315	FINAL CD'S	01.27.14	CNS	B

SITE NAME: HUNTSVILLE

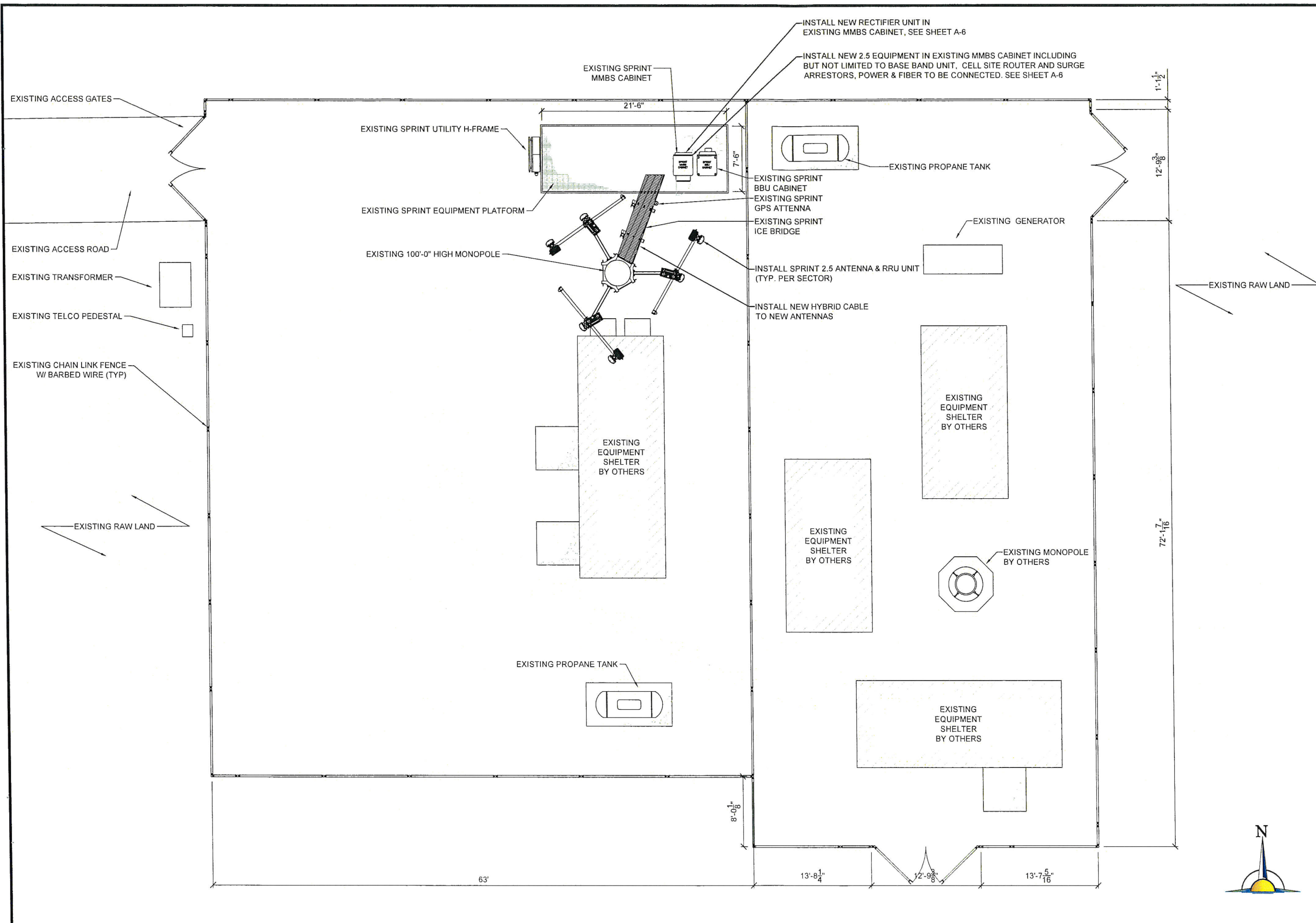
SITE NUMBER: SL54XC068

SITE ADDRESS: 676 N 7100 EAST HUNTSVILLE, UT, 84317

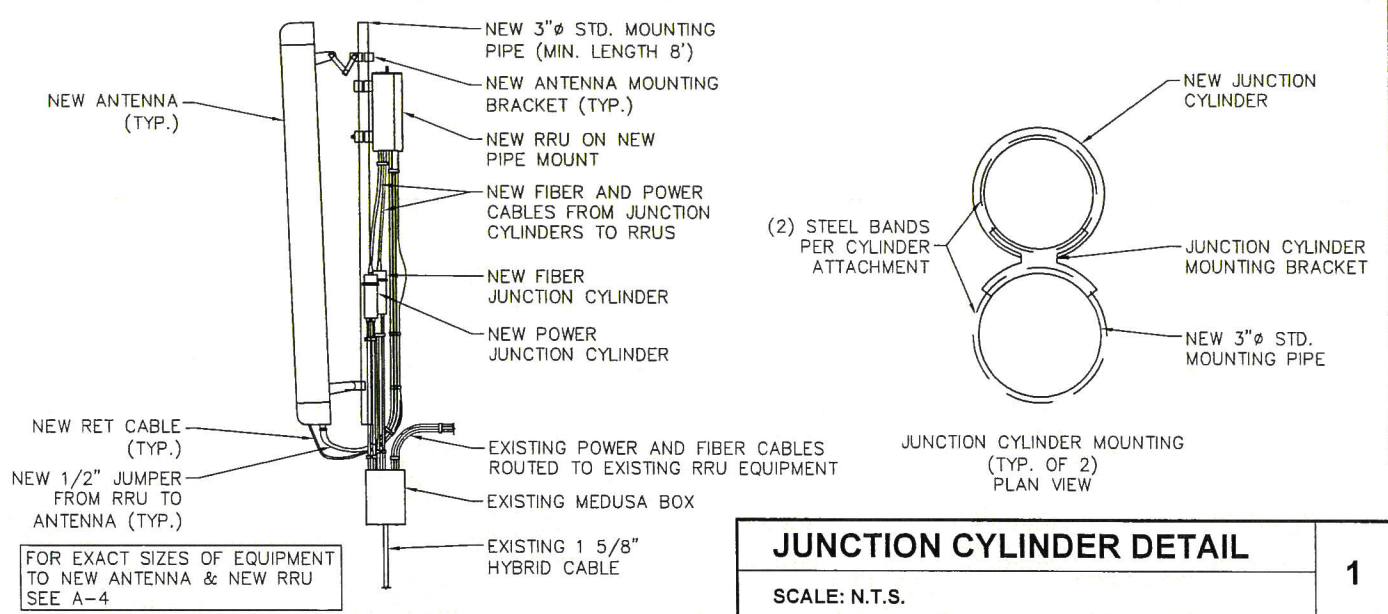
SHEET DESCRIPTION: SPRINT SPECIFICATIONS

SHEET NUMBER: SP-4

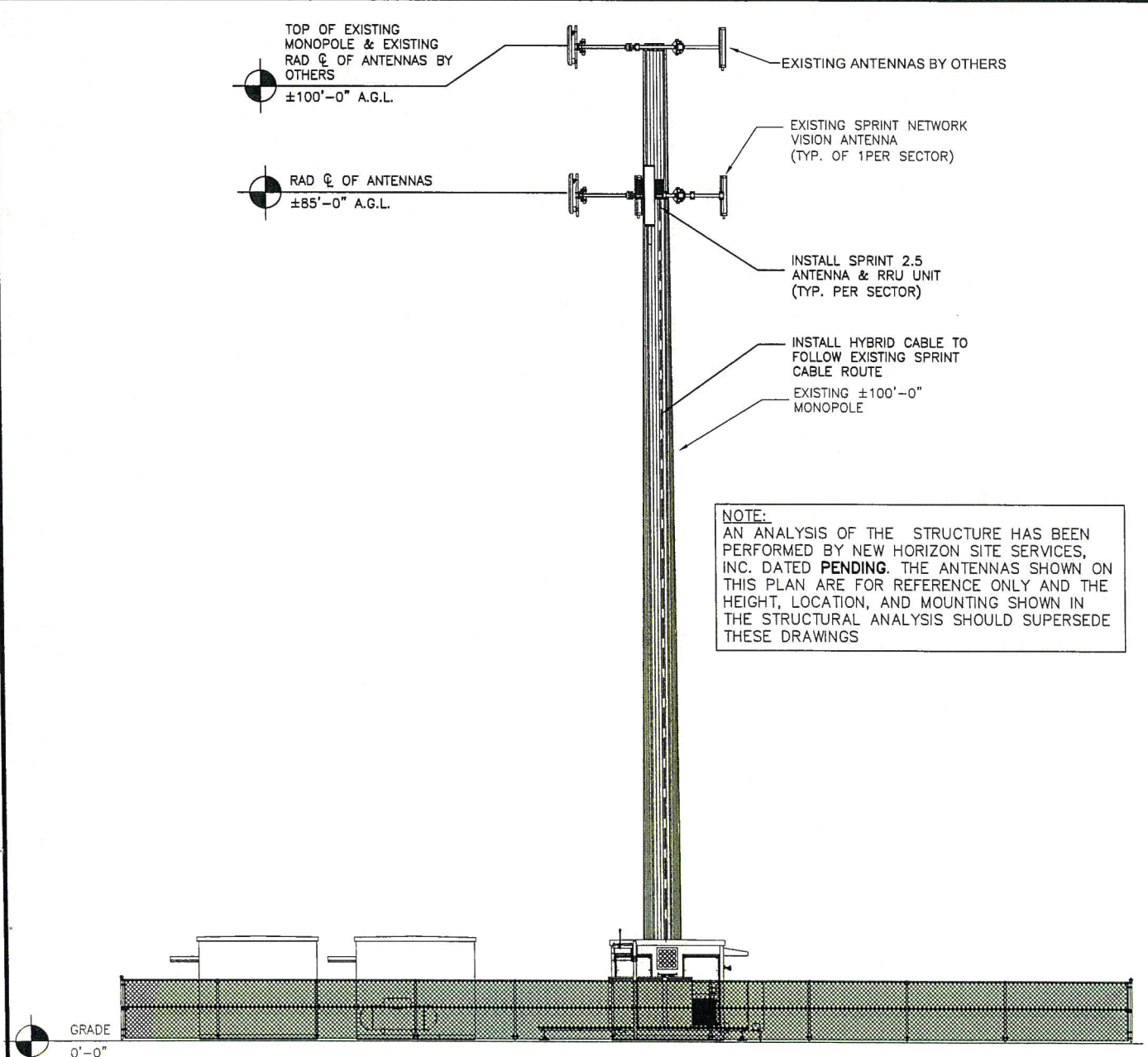
REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD's	12.23.13	CNS	A
315	FINAL CD's	01.27.14	CNS	B



**SITE PLAN**  
SCALE: 1/4" = 1'-0" (1/2"=1'-0" ON 22"x34" SHEET)

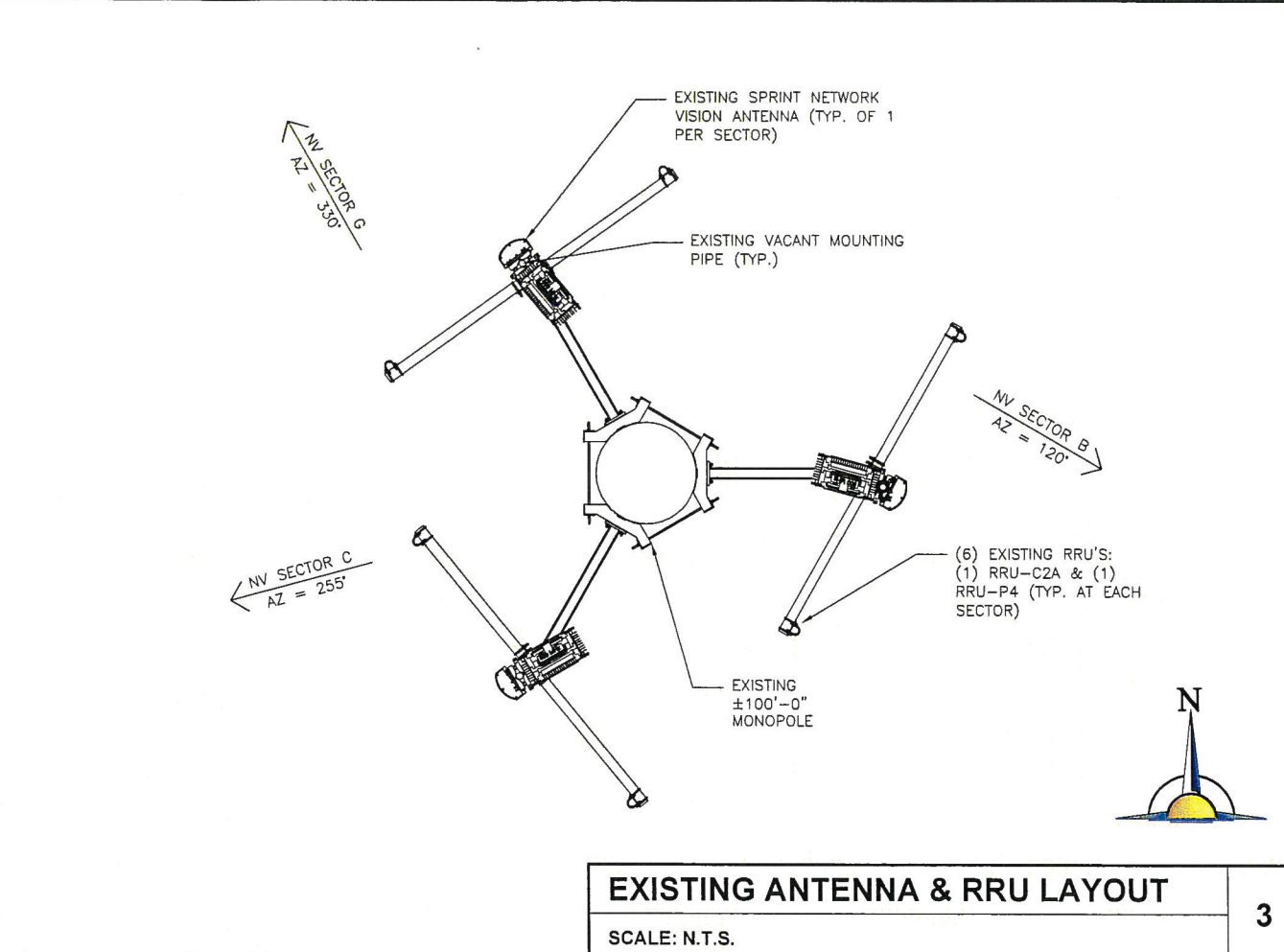


**JUNCTION CYLINDER DETAIL**  
SCALE: N.T.S. 1

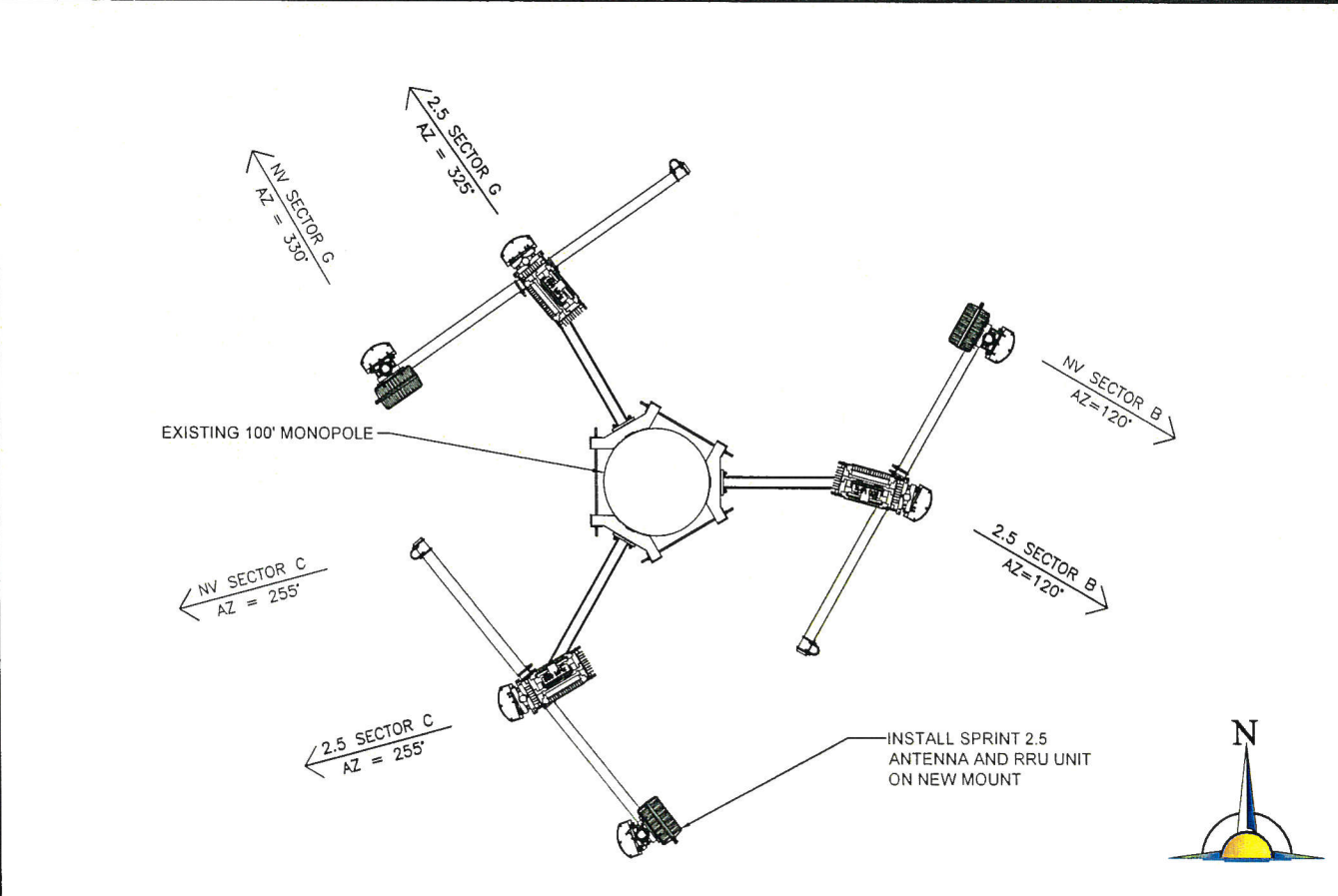


**FINAL TOWER ELEVATION**  
SCALE: N.T.S. 2

\* IF EXISTING HYBRID CABLE DOES NOT EXIST, NEW HYBRID CABLE TO FOLLOW EXISTING SPRINT CABLE ROUTE



**EXISTING ANTENNA & RRU LAYOUT**  
SCALE: N.T.S. 3



**FINAL ANTENNA & RRU LAYOUT**  
SCALE: N.T.S. 4

PLANS PREPARED FOR:

6580 Sprint Parkway  
Overland Park,  
Kansas 66251

PLANS PREPARED BY:

92 East Shenango Street  
Sharpsville, PA 16150  
724.383.4033  
www.newhss.com

MLA PARTNER:

ENGINEERING LICENSE:

1/27/14

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PROJECT NUMBER: TS- 1795

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD'S	12.23.13	CNS	A
315	FINAL CD'S	01.27.14	CNS	B

SITE NAME:  
**HUNTSVILLE**

SITE NUMBER:  
**SL54XC068**

SITE ADDRESS:  
676 N 7100 EAST  
HUNTSVILLE, UT, 84317

SHEET DESCRIPTION:  
**TOWER ELEVATIONS & ANTENNA DETAILS**

SHEET NUMBER:  
**A-2**

**RFDS Sheet**

**General Site Information**

Site ID	<b>SLS4XC068</b>	Equipment Vendor	<b>Samsung</b>
Market	<b>Utah</b>	Latitude	<b>41.27167</b>
Region	<b>West</b>	Longitude	<b>-111.77139</b>
MLA		LL SITE ID	
Structure Type	<b>MONOPOLE</b>		
BTS Type	<b>STANDARD</b>		
Solution ID	<b>MP_4G_LTE_30803</b>	Siterra SR Equipment type	<b>Outdoor Macro</b>
		Equipment Vendor	<b>Samsung</b>

Incremental Power Draw needed by added Equipment	<b>0</b>
--	----------

**Base Equipment**

BBU Kit	<b>UADU</b>	Top Hat	
BBU Kit Qty	<b>1</b>	Top Hat Qty	
Growth Cabinet		Top Hat Dimensions	
	<b>NA</b>	Top Hat Weight (lbs)	
Growth Cabinet Qty			
Growth Cabinet Dimensions			
Growth Cabinet Weight			

**RF Path Information**

RRH	<b>RRH-V3</b>
RRH Qty	<b>3</b>
RRH Dimensions	<b>15.5" x 18.6" x 9.45"</b>
RRH Weight. lbs.	<b>59.5</b>
RRH Mount Weight. Lbs.	<b>12.32</b>
Power and Fiber Cable	<b>None. Bi-Wire Solution derived from existing Hybrid cable</b>
Cable Qty	<b>NA</b>
Weight per foot. Lbs.	<b>NA</b>
Diameter. Inches.	<b>NA</b>
Length Ft.	<b>144</b> (calculated as antenna height plus 20%)
Coax Jumper	
Coax Jumper Qty	<b>27</b>
Coax Jumper Length. Feet.	<b>8</b>
Coax Jumper Weight	<b>TBD</b>
Coax Jumper Diameter. Inches	<b>0.5</b>
AISG Cable	<b>Commscope ATCB-B01-006</b>
AISG Cable Qty	<b>3</b>
AISG Diameter. Inches.	<b>0.315</b>
AISG Cable length.	<b>8</b>
Weight of entire AISG cable. Lbs.	<b>1.3</b>

**Antenna Sector Information**

	<b>Sector 1</b>	<b>Sector 2</b>	<b>Sector 3</b>
Antenna make/model	<b>KMW ET-X-WM-18-65-8P</b>	<b>KMW ET-X-WM-18-65-8P</b>	<b>KMW ET-X-WM-18-65-8P</b>
Antenna qty	<b>1</b>	<b>1</b>	<b>1</b>
Antenna Dimensions. Inches	<b>61" x 12" x 4.3"</b>	<b>61" x 12" x 4.3"</b>	<b>61" x 12" x 4.3"</b>
Antenna Weight. Lbs	<b>36.4</b>	<b>36.4</b>	<b>36.4</b>
Antenna Mounting Kit Weight. Lbs.	<b>~11 lb estimate. TBD.</b>	<b>~11 lb estimate. TBD.</b>	<b>~11 lb estimate. TBD.</b>
CL Height	<b>120</b>	<b>120</b>	<b>120</b>
Antenna Azimuth	<b>325</b>	<b>120</b>	<b>255</b>
Antenna Mechanical Downtilt	<b>0</b>	<b>0</b>	<b>0</b>
Antenna etilt	<b>-2</b>	<b>-2</b>	<b>-2</b>

**NOTES:**

- STRUCTURAL ANALYSIS MUST BE PERFORMED ON ALL ROOFTOPS, FLAGPOLES AND TOWER SITES BEFORE INSTALLATION OF NEW ANTENNAS, NEW RRUS, & NEW CABINETS/TEMPORARY PLATFORM. REFER TO EXISTING STRUCTURAL ANALYSIS BY NEW HORIZON SITE SERVICES, INC. DATE PENDING.
- NEW SPRINT ANTENNAS INCLUDE RESPECTIVE RRU'S WHICH SHALL BE MOUNTED ON THE PIPE BEHIND THE ANTENNA OR ON THE WALL NEAR THE ANTENNA SIMILAR TO THAT SHOWN ON DETAIL 1, SHEET A-6.
- FIELD VERIFY EXISTING AZIMUTH BEFORE RELOCATING THE ANTENNA, IF REQUIRED. PRIOR APPROVAL FROM SPRINT TO BE GRANTED BEFORE RELOCATION OF ANTENNAS.
- ALL AZIMUTHS ARE TO BE ESTABLISHED CLOCKWISE FROM THE TRUE NORTH HEADING. CONTRACTOR SHALL VERIFY NEW ANTENNA RAD CENTER AND ORIENTATIONS WITH SPRINT PCS PRIOR TO INSTALLATION OF ANTENNAS. PRIOR TO ATTACHING ANTENNAS AND MOUNTING SECTIONS, EXISTING STRUCTURE AND APPLICABLE FOUNDATION MUST BE ANALYZED BY A LICENSED ENGINEER TO VERIFY STRUCTURE IS CAPABLE OF SUPPORTING THE NEW LOADS. REFER TO STRUCTURAL INFORMATION BY NEW HORIZON SITE SERVICES, INC. CONTRACTOR SHALL REFER TO STRUCTURAL CALCULATIONS FOR ADDITIONAL LOADS. NO ERECTION OR MODIFICATION OF STRUCTURE SHALL BE MADE WITHOUT APPROVAL OF PROFESSIONAL ENGINEER.

PLANS PREPARED FOR:



6580 Sprint Parkway  
Overland Park,  
Kansas 66251

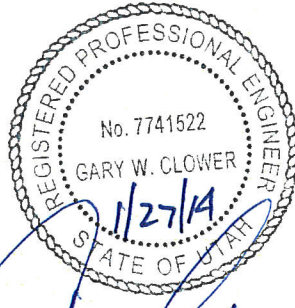
PLANS PREPARED BY:



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Sharpsville, PA 16150  
724.383.4033  
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MLA PARTNER:

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PROJECT NUMBER: **TS- 1796**

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD's	12.23.13	CNS	A
315	FINAL CD's	01.27.14	CNS	B

SITE NAME: **HUNTSVILLE**

SITE NUMBER: **SL54XC068**

SITE ADDRESS: **676 N 7100 EAST  
HUNTSVILLE, UT, 84317**

SHEET DESCRIPTION: **RF DATA SHEET**

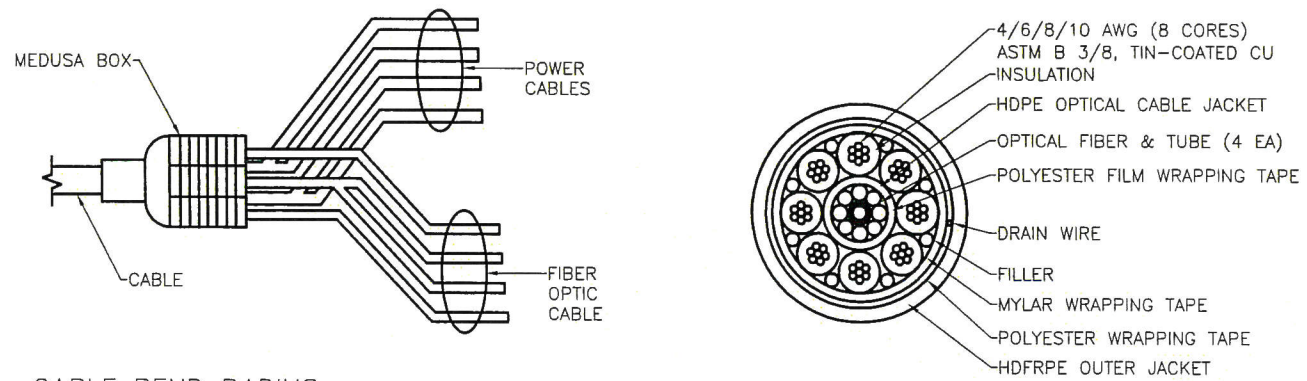
SHEET NUMBER: **A-3**

**ANTENNA SCHEDULES & PARTS LIST**

SCALE: N.T.S.

**1**





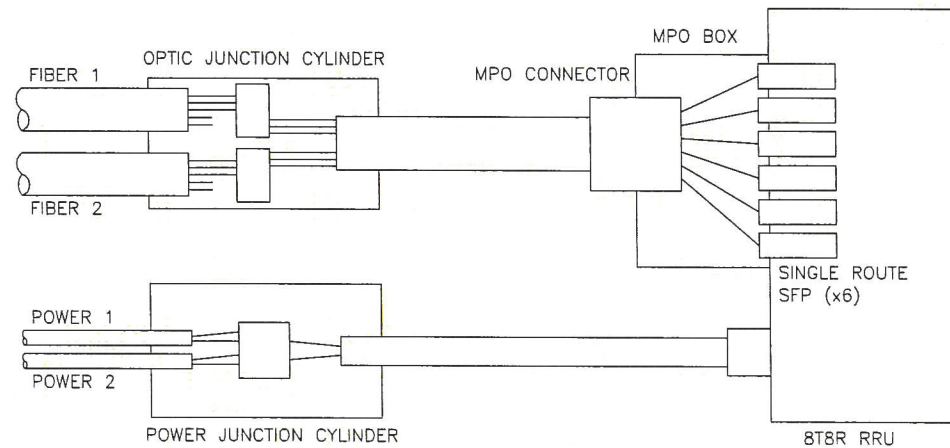
**CABLE BEND RADIUS**  
 20 x CABLE DIAMETER (DURING OPERATION)  
 25 x CABLE DIAMETER (DURING INSTALLATION)  
 1.2 LB FT CABLE WEIGHT

	TYPE 1	TYPE 1	TYPE 1
TOTAL LENGTH	~40m	~70m	~120m
HYBRID POWER CABLE CONFIGURATION	AWG 8 1 PAIR AWG 10 3 PAIR	AWG 6 1 PAIR AWG 8 3 PAIR	AWG 4 1 PAIR AWG 6 3 PAIR
CABLE DIAMETER	32 mm	32 mm	36 mm
BENDING RADIUS	800 mm	800 mm	800 mm
OPTIC CABLE	LC/PC-TO-LCPC SINGLE MODE	LC/PC-TO-LCPC SINGLE MODE	LC/PC-TO-LCPC SINGLE MODE
RRU POWER CABLE SPEC	AWG 10, 4 PAIR	AWG 10, 4 PAIR	AWG 10, 4 PAIR
NON USE POWER AND OPTIC CABLE PROTECTION	2 PAIR POWER AND OPTIC CABLE WITH PE PIPE	2 PAIR POWER AND OPTIC CABLE WITH PE PIPE	2 PAIR POWER AND OPTIC CABLE WITH PE PIPE

**HYBRID CABLE**

SCALE: N.T.S

1

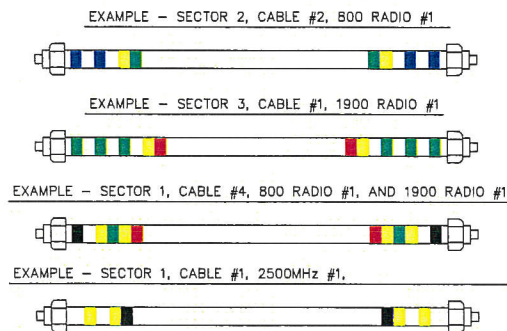
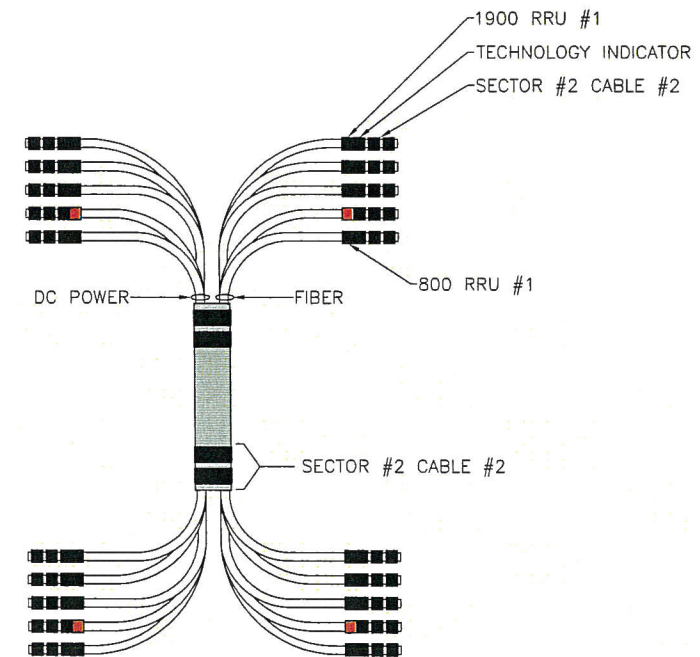


**CYLINDER SCHMATIC DETAIL**

SCALE: N.T.S

2

FREQUENCY/RADIO	INDICATOR	ID
800MHz #1	YELLOW	GREEN
1900MHz #1	YELLOW	RED
1900MHz #2	YELLOW	BROWN
1900MHz #3	YELLOW	BLUE
1900MHz #4	YELLOW	GREY
800MHz #2	YELLOW	ORANGE
2500MHz #1	YELLOW	WHITE
2500MHz #2	YELLOW	PURPLE



- COLOR BAND TO BE 2" WIDE ON MAIN LINE.
- SPACING TO BE 1" BETWEEN BANDS AND 2" BETWEEN LINE AND TECHNOLOGY BANDS. NO SPACE BETWEEN TECHNOLOGY COLOR BANDS.
- COLOR BAND ON JUMPERS 1" WIDE WITH 1" SPACE.
- START COLOR BANDS 2" BEYOND WEATHERPROOFING.
- START SECTOR COLOR NEXT TO END CONNECTOR.

2500MHz RADIO CALIBRATION COLOR CODING SCHEME							
2500MHz #1 CAL CABLE - SECTOR	CABLE	FIRST RING	SECOND RING	THIRD RING	FOURTH RING	FIFTH RING	SIXTH RING
1 ALPHA	1	YELLOW		YELLOW	WHITE		
2 BETA	2	YELLOW	YELLOW		YELLOW	WHITE	
3 GAMMA	3	YELLOW	YELLOW	YELLOW		YELLOW	WHITE

2500MHz #2 CAL CABLE - SECTOR	CABLE	FIRST RING	SECOND RING	THIRD RING	FOURTH RING	FIFTH RING	SIXTH RING
1 ALPHA	1	YELLOW		YELLOW	PURPLE		
2 BETA	2	YELLOW	YELLOW		YELLOW	PURPLE	
3 GAMMA	3	YELLOW	YELLOW	YELLOW		YELLOW	PURPLE

**COLOR CODING**

SCALE: N.T.S

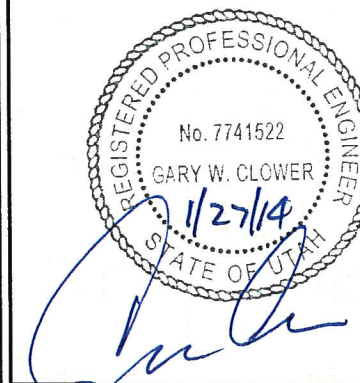
3



PLANS PREPARED BY:  
**NEW HORIZON**  
 SITE SERVICES  
 92 East Shenango Street  
 Sharpsville, PA 16150  
 724.383.4033  
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PROJECT NUMBER: TS- 1795

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD's	12.23.13	CNS	A
315	FINAL CD's	01.27.14	CNS	B

SITE NAME:

HUNTSVILLE

SITE NUMBER:

SL54XC068

SITE ADDRESS:

676 N 7100 EAST  
 HUNTSVILLE, UT, 84317

SHEET DESCRIPTION:

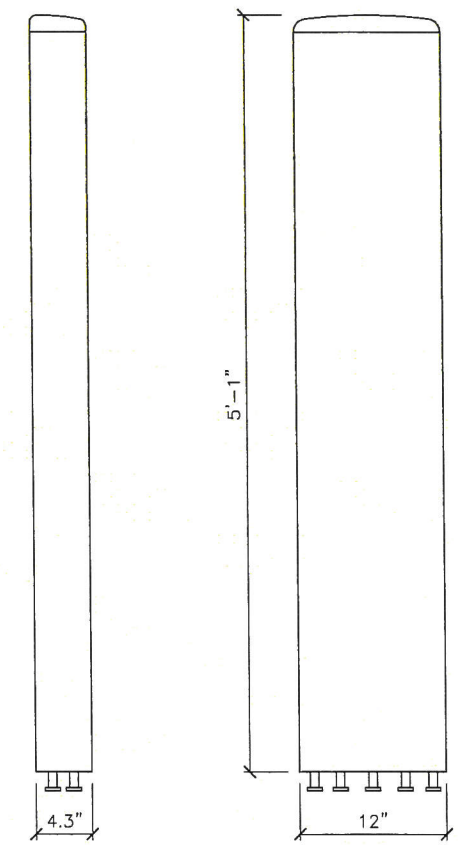
RRU CABLE MARKING  
 LOCATIONS DIAGRAM

SHEET NUMBER:

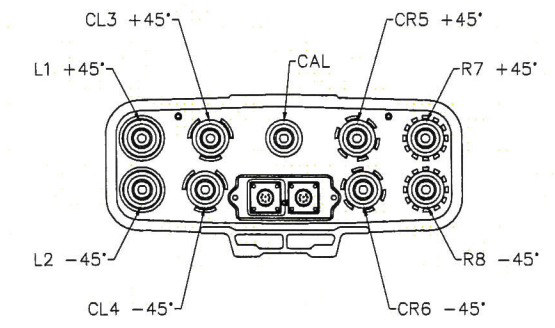
A-4

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD's	12.23.13	CNS	A
315	FINAL CD's	01.27.14	CNS	B

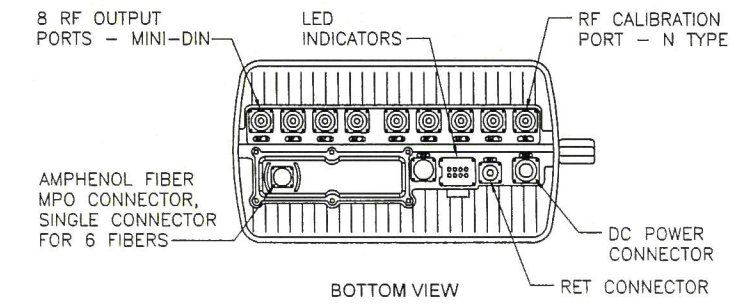
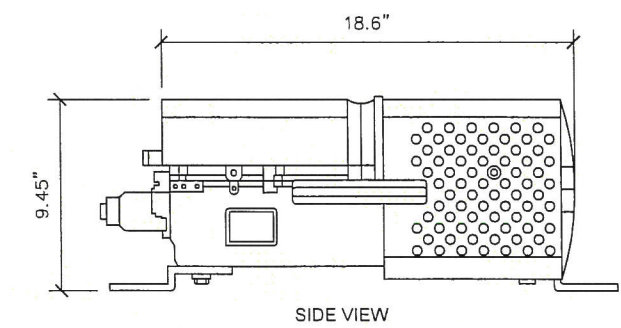
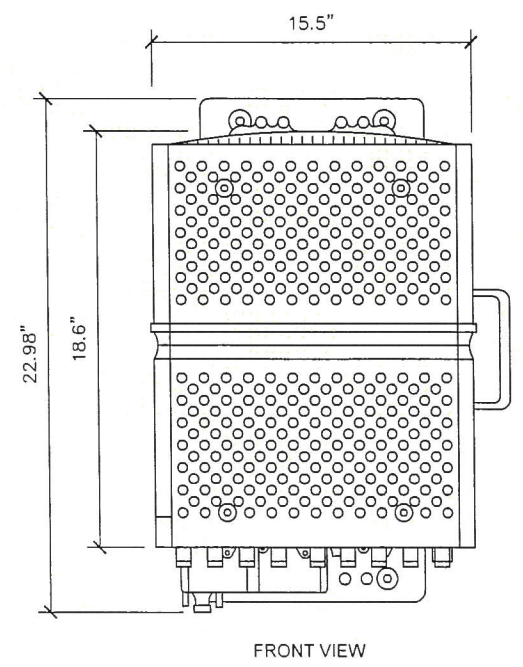
# KMW ANTENNA ET-X-WM-18-65-8P



DIMENSIONS, HxWxD: 1550x305x110mm (61"x12"x4.3")  
 WEIGHT, WITH PRE-MOUNTED BRACKETS: 36.4 lbs  
 CONNECTOR (TYPE / POSITION): (8) MINI DIN (FEMALE) BOTTOM,  
 1 CALIBRATION PORT (N TYPE, FEMALE) BOTTOM



**2.5 ANTENNA DETAIL** 1  
 SCALE: N.T.S.



DIMENSIONS, HxWxD: (18.6"x15.5"x9.45")  
 RRU WEIGHT: 59.5 lbs  
 MOUNTING KIT WEIGHT: 12.32 lbs

**2.5 RRU DETAIL** 2  
 SCALE: N.T.S.

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD's	12.23.13	CNS	A
315	FINAL CD's	01.27.14	CNS	B

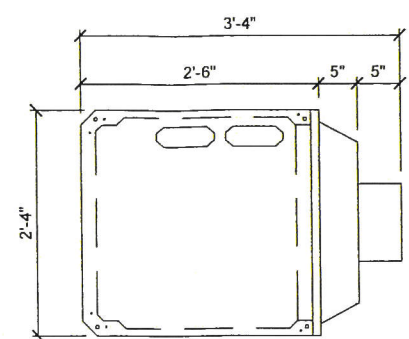
SITE NAME:  
**HUNTSVILLE**

SITE NUMBER:  
**SL54XC068**

SITE ADDRESS:  
676 N 7100 EAST  
HUNTSVILLE, UT, 84317

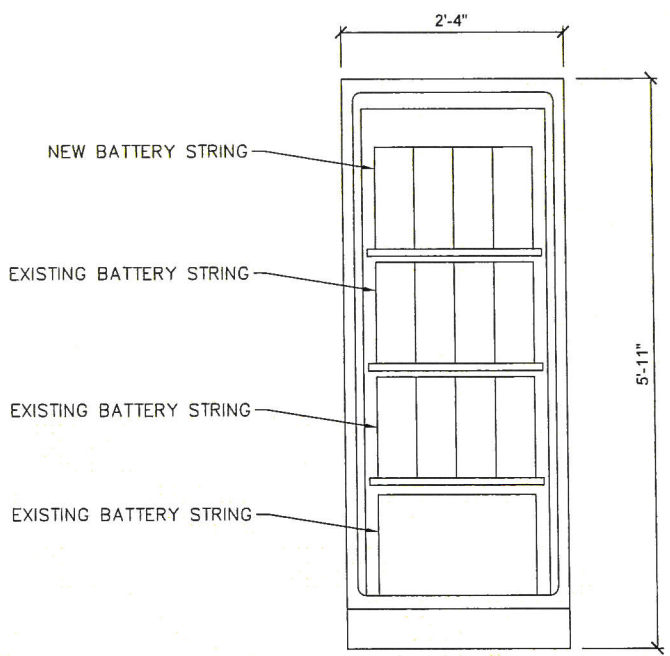
SHEET DESCRIPTION:  
**BREAKOUT & EQUIPMENT DETAILS**

SHEET NUMBER:  
**A-6**



BOTTOM PLAN

SAMSUNG BATTERY CABINET
MIN. CABINET CLEARANCE
BATTERY CABINET
- FRONT- 36"
- REAR- 36"
BATTERY CABINET & 4 - STRINGS
MAXIMUM 2500 LBS.



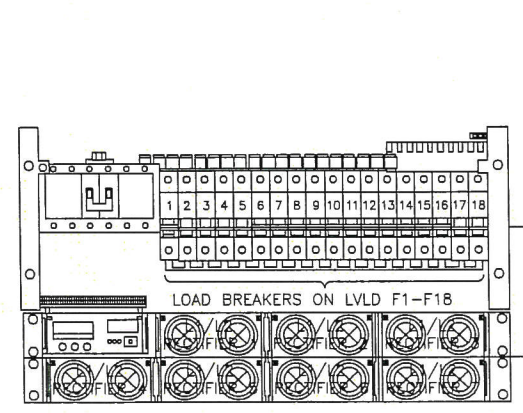
FRONT ELEVATION (CABINET INTERIOR)

**NOT USED**  
SCALE: N.T.S.

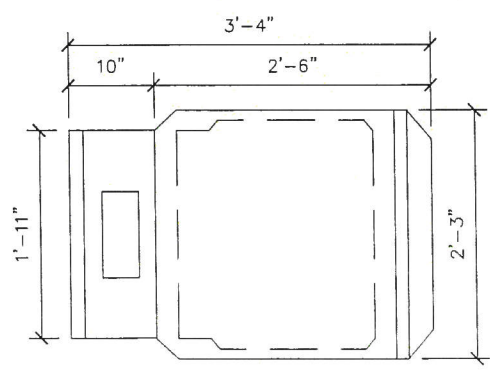
1

**EXISTING BBU CABINET**  
SCALE: N.T.S.

3

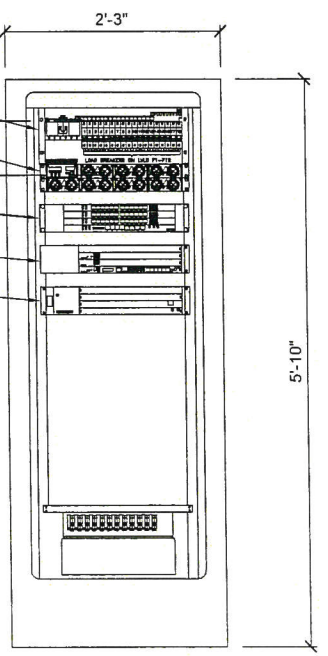


NOTE:  
LOCATIONS SHOWN FOR  
INSTALLATION OF NEW  
EQUIPMENT IN EXISTING  
CABINET ARE APPROXIMATE.  
ACTUAL SPACE AVAILABLE TO  
BE VERIFIED IN FIELD ON A  
SITE BY SITE BASIS.



BOTTOM PLAN

SAMSUNG RF CABINET
MIN. CABINET CLEARANCE
RF CABINET
- FRONT- 36"
- REAR- 36"
- LEFT- 12"
WEIGHT: 660 LBS.



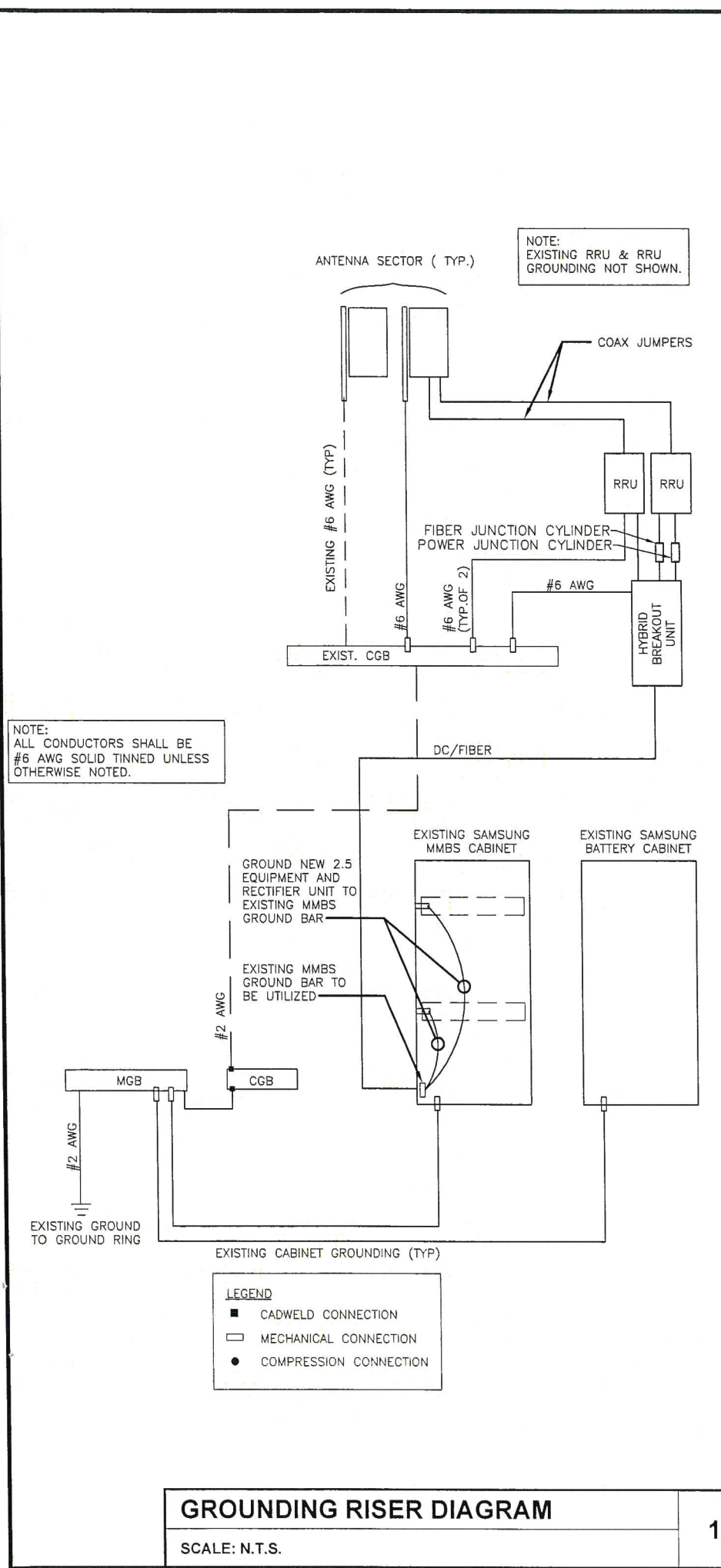
FRONT ELEVATION (CABINET INTERIOR)

**NOT USED**  
SCALE: N.T.S.

2

**EXISTING MMBS CABINET**  
SCALE: N.T.S.

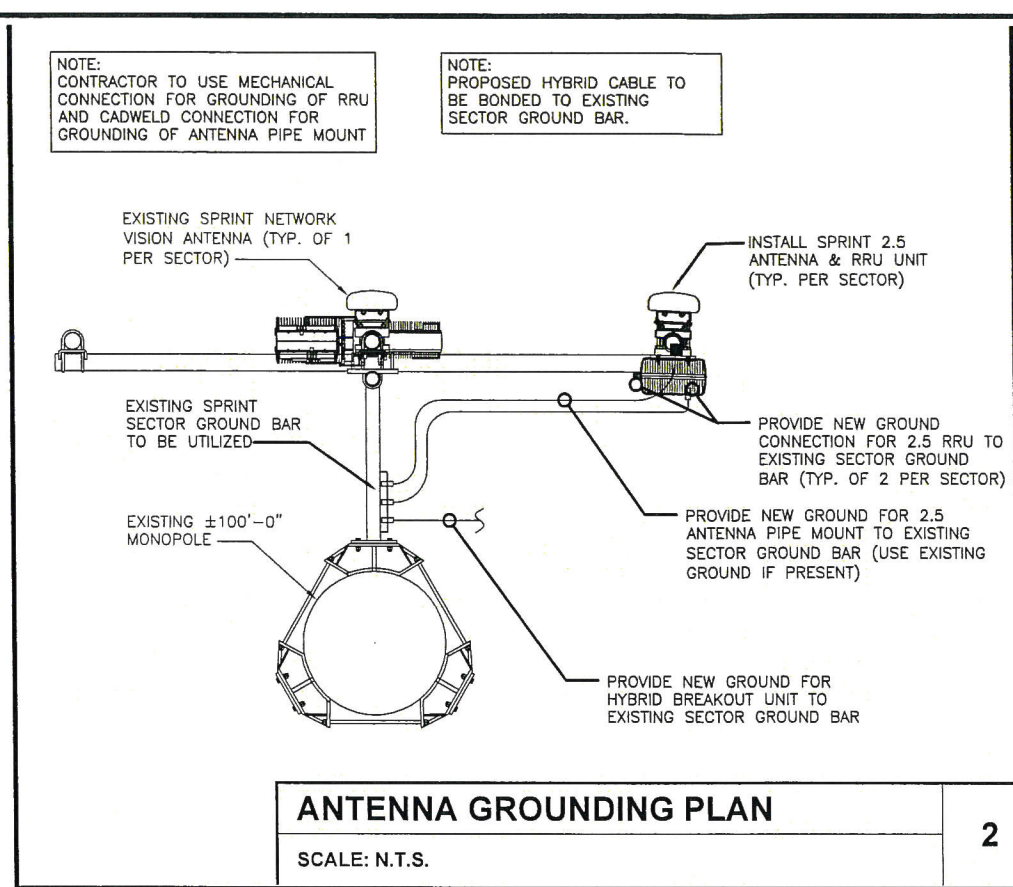
4



**GROUNDING RISER DIAGRAM**

SCALE: N.T.S.

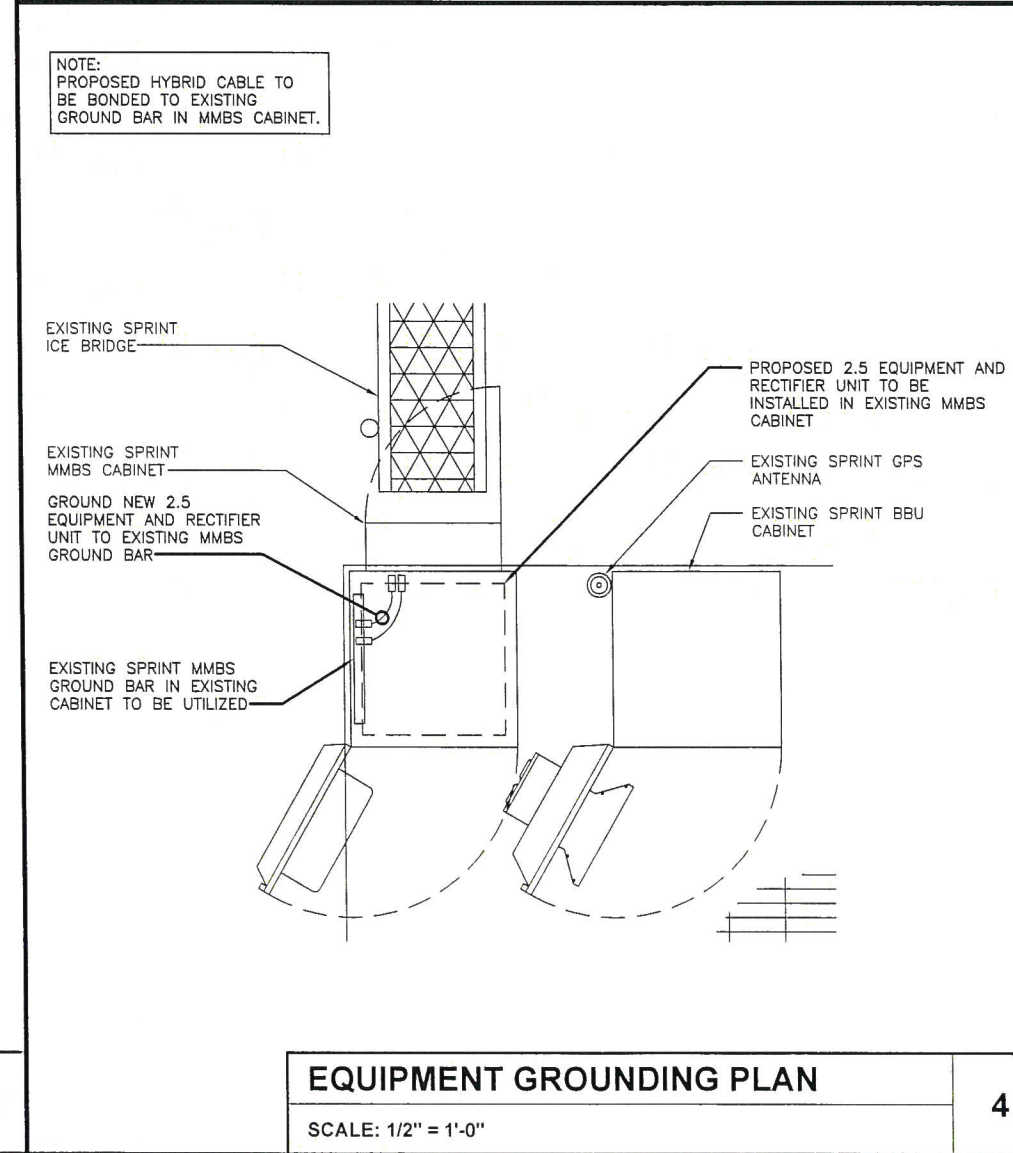
1



**ANTENNA GROUNDING PLAN**

SCALE: N.T.S.

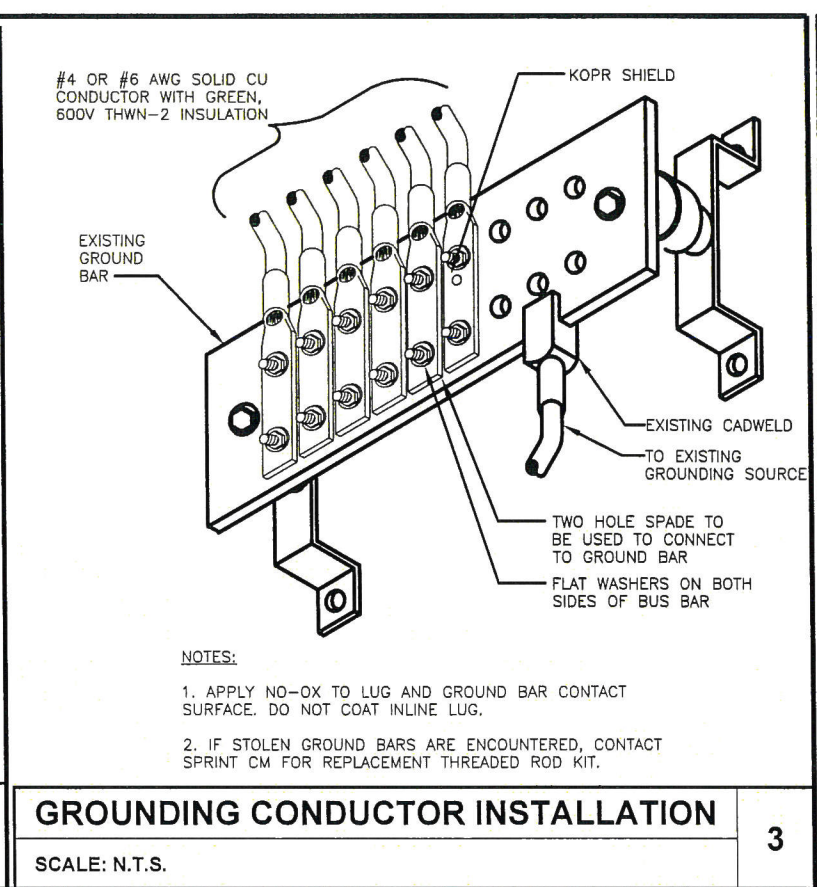
2



**EQUIPMENT GROUNDING PLAN**

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

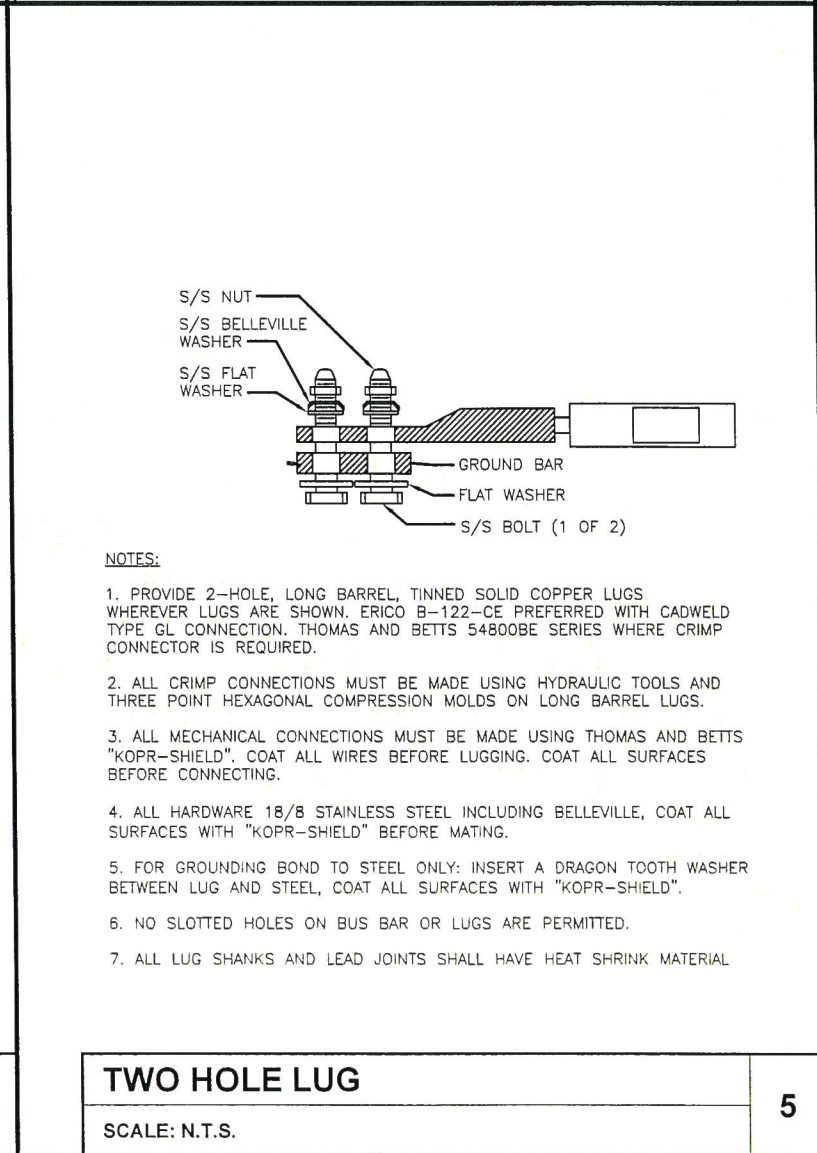
4



**GROUNDING CONDUCTOR INSTALLATION**

SCALE: N.T.S.

3



**TWO HOLE LUG**

SCALE: N.T.S.

5

PLANS PREPARED FOR:

**Sprint**  
6580 Sprint Parkway  
Overland Park,  
Kansas 66251

PLANS PREPARED BY:

**NEW HORIZON**  
SITE SERVICES  
92 East Shenango Street  
Sharpville, PA 16150  
724.383.4033  
www.newhss.com

MLA PARTNER:

ENGINEERING LICENSE:

**REGISTERED PROFESSIONAL ENGINEER**  
No. 7741522  
GARY W. CLOWER  
11/27/14  
STATE OF UTAH

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PROJECT NUMBER: TS- 1796

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD's	12.23.13	CNS	A
315	FINAL CD's	01.27.14	CNS	B

SITE NAME: HUNTSVILLE

SITE NUMBER: SL54XC068

SITE ADDRESS: 676 N 7100 EAST  
HUNTSVILLE, UT, 84317

SHEET DESCRIPTION: GROUNDING DETAILS

SHEET NUMBER: E-1

REVISIONS:	DESCRIPTION	DATE	BY	REV
310	PRELIM CD'S	12.23.13	CNS	A
315	FINAL CD'S	01.27.14	CNS	B

SITE NUMBER: SL54XC068	MODEL NUMBER: NORTHERN TECHNOLOGIES	PHASE: 1	WIRE: 3
VOLTAGE: 120/240	PHASE: 1	A/C: YES	GROUND BAR: YES
MAIN BREAKER: 200 AMP	BUSS RATING: 200 AMPS	N to GROUND BOND: FIELD VERIFY	
MOUNT: SURFACE	NEUTRAL BAR: YES	INTERNAL TVSS: YES	
ENCLOSURE TYPE: NEMA 3R			
PANEL STATUS: NEW			

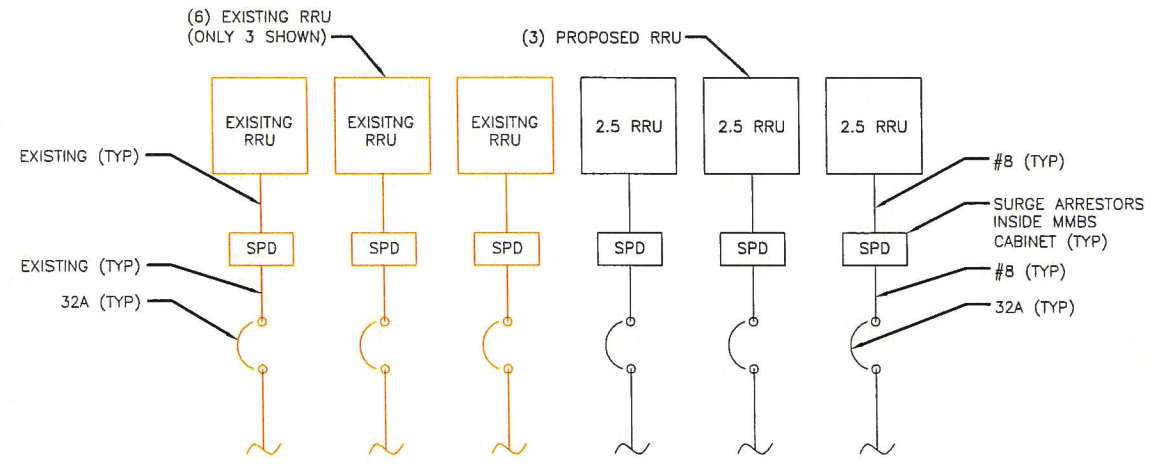
  

CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	LOAD (WATTS)		BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
					L1	L2					
1	BTS	100	2	ON	7,560	---	ON	2	60	TVSS	2
3	---	---	---	---	---	7,560	---	---	---	---	4
5	BBU HVAC	15	2	ON	1,380	---	ON	1	15	GFCI	6
7	---	---	---	---	---	1,350	ON	1	20	FAN	8
9	SPACE	---	---	---	7,560	---	ON	2	100	MMBS	10
11	LIGHT	10	1	ON	---	7,810	---	---	---	---	12
PHASE TOTAL					16,500	16,720					

NOTE: MMBS AND BTS LOADS BASED ON MAXIMUM VALUES

LOAD CALCULATIONS

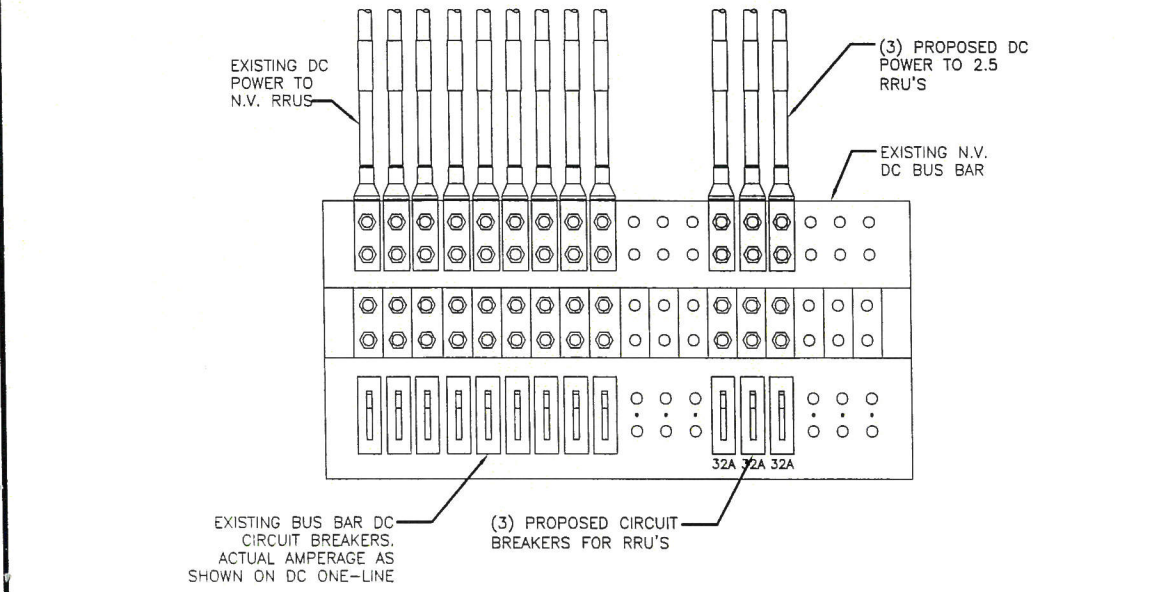
LIGHTING	250	VOLTAMPS x 1.25 =	312.5	VOLTAMPS
RECEPTACLES	180	VOLTAMPS x 1.00 =	180	VOLTAMPS
BBU HVAC	2,400	VOLTAMPS x 1.00 =	2,400	VOLTAMPS
MMBS/BTS	30,240	VOLTAMPS x 1.25 =	37,800	VOLTAMPS
MOTOR-FAN	150	VOLTAMPS x 1.25 =	187.5	VOLTAMPS
			<b>40,880</b>	TOTAL LOAD (VA)
			<b>170.3</b>	TOTAL LOAD (AMPS) AT 120/240V 1φ



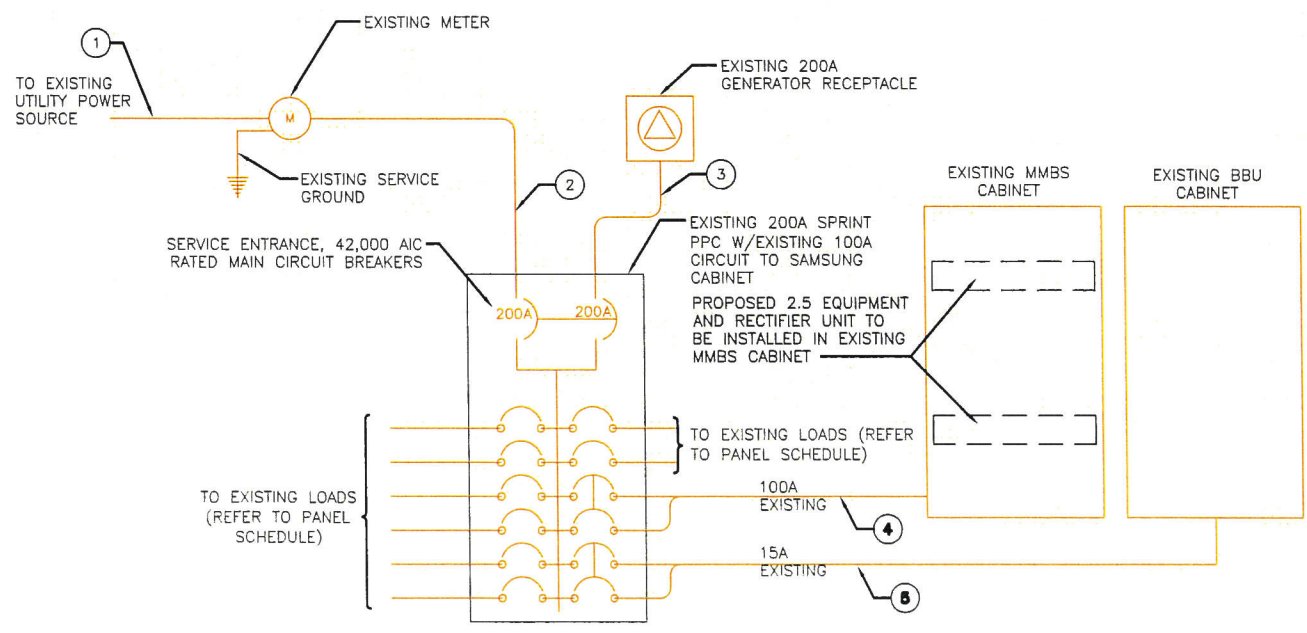
**DC ONE-LINE DIAGRAM**  
SCALE: N.T.S. **1**

**EXISTING PANEL SCHEDULE**  
SCALE: N.T.S. **4**

CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
①	UTILITY SOURCE	METER	EXISTING
②	METER	PPC	EXISTING
③	PPC	GENERATOR RECEPTACLE	EXISTING
④	PPC	EXISTING MMBS CABINET	EXISTING
⑤	PPC	EXISTING BBU CABINET	EXISTING



**DC POWER DISTRIBUTION**  
SCALE: N.T.S. **2**



**ELECTRICAL ONE-LINE DIAGRAM**  
SCALE: N.T.S. **5**