



2.5 EQUIPMENT DEPLOYMENT
FALCON MIDDLE SCHOOL
PARCEL NUMBER: 5225300002

DN70XC032
9755 TOWER AVE
PEYTON, CO 80831
LATITUDE: 38.97216944°
LONGITUDE: -104.6194056°
CONSTRUCTION DRAWINGS



PROJECT SUMMARY

THIS PROJECT INCLUDES THE FOLLOWING SCOPE OF WORK:

PROPOSED MODIFICATION OF AN EXISTING TELECOMMUNICATIONS
SITE TO INCLUDE-
(3) NEW TRI-BAND ANTENNAS TO REPLACE EXISTING
(3) NEW REMOTE RADIO UNITS (RRU'S)
(3) NEW QUADPLEXERS
(1) NEW 2.5 BBU KIT INSIDE MMBS CABINET
(4) NEW BATTERIES INSIDE BBU CABINET (1 STRING)

SITE INFORMATION

SITE NAME: FALCON MIDDLE SCHOOL
SITE ADDRESS: 9755 TOWER AVE
PEYTON, CO 80831

TOWER LATITUDE: 38.97216944°
TOWER LONGITUDE: -104.6194056°

JURISDICTION: EL PASO COUNTY
TOP OF (E) STRUCTURE: 100' AGL

PROJECT CONTACTS

APPLICANT
SPRINT
6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

PROPERTY OWNER
FALCON SCHOOL DISTRICT 49
10850 E WOODMEN RD
FALCON, CO 80831

CONSTRUCTION MANAGER
SPRINT
TIMOTHY LEUCH
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PROJECT MANAGER
SPRINT
DANIELE L. HUXTABLE
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PH: 720.420.6915

SITE ACQUISITION CONSULTANT
CENTERLINE SOLUTIONS
16035 TABLE MOUNTAIN PARKWAY
GOLDEN, CO 80403
DAWN SMITH
PH: 303.993.3293, EXT. #1449

PROJECT MANAGER
CENTERLINE SOLUTIONS
16035 TABLE MOUNTAIN PARKWAY
GOLDEN, CO 80403
MICHAEL LASITER
PH: 303.993.3293 X1465

ENGINEER OF RECORD
CENTERLINE SOLUTIONS
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GOLDEN, CO 80403
KHRISTOPHER SCOTT, P.E., LEED AP
PH: 303.993.3293

DRAWING INDEX

<u>SHEET</u>	<u>DESCRIPTION</u>
T1.0	TITLE SHEET
SP1	SPRINT SPECIFICATIONS
SP2	SPRINT SPECIFICATIONS
A1.0	OVERALL SITE PLAN
A1.1	ENLARGED SITE PLAN
A2.0	EQUIPMENT PLAN
A3.0	ELEVATIONS
A3.1	ELEVATIONS
A3.2	ELEVATIONS
A4.0	ANTENNA PLAN AND DETAILS
A5.0	EQUIPMENT DETAILS
A5.1	EQUIPMENT DETAILS
A6.0	COLOR CODING
E1.0	ONE-LINE DIAGRAM AND NOTES
E1.1	DC DISTRIBUTION
E2.0	GROUNDING DETAILS

GOVERNING CODES

GOVERNING CODES, AS APPLICABLE:

IBC-2009, INTERNATIONAL BUILDING CODE W/ LOCAL AMENDMENTS

IBC-2009, INTERNATIONAL STRUCTURAL CODE

IMC-2009, INTERNATIONAL MECHANICAL CODE

NEC-2014, NATIONAL ELECTRICAL CODE

IFC-2009, INTERNATIONAL FIRE CODE

A.D.A. COMPLIANCE:
INSTALLATION IS UNMANNED AND NOT FOR HUMAN HABITATION.
HANDICAP ACCESS IS NOT REQUIRED PER A.D.A. AND IBC 1103.2.9.

DESIGN WIND SPEED:
90 MPH - 3 SECOND GUST

PROJECT VICINITY MAP



PROJECT AREA MAP



Approved

By: Mark Gebhart

On behalf of the PCD Executive Director

Date: 07/03/2019

El Paso County Planning & Community
Development



DRIVING DIRECTIONS

FROM THE INTERSECTION OF I-25 & I-70:

1. MERGE ONTO S I-25 TOWARD EXIT 163 COUNTY LINE RD (46.9 MI)
2. TAKE EXIT 163 AND TURN LEFT ONTO S COUNTY LINE RD/PALMER DIVIDE RD (5.2 MI)
3. TURN RIGHT ONTO S CO-83 (4.2 MI)
4. TURN LEFT ONTO HODGEN RD (8.5 MI)
5. TURN RIGHT ONTO MERIDIAN RD (8.6 MI)
6. TURN RIGHT ONTO LONDONDERRY DR (0.8 MI)

ESTIMATED DISTANCE: 72.6 MILES
ESTIMATED TIME: 1 HOUR 14 MINUTES



**Know what's below.
Call before you dig.**

THE INFORMATION CONTAINED IN THIS SET
OF DOCUMENTS IS PROPRIETARY BY
NATURE. ANY USE OR DISCLOSURE OTHER
THAN THAT WHICH RELATES TO SPRINT
SERVICES IS STRICTLY PROHIBITED.

PRELIMINARY

NO.	DATE	D/C	DESCRIPTION
0	08-18-17	SG/ML	90% CD REVIEW
1	08-24-17	AK/ML	90% CD REV A
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3	06-04-18	EC/TH	100% CONST
4	08-06-18	GW/TH	CLIENT COMMENT

SUBMITTAL

NO.	DATE	D/C	DESCRIPTION

SITE NAME:

**FALCON MIDDLE
SCHOOL
DN70XC032**

SITE ADDRESS:

9755 TOWER AVE
PEYTON, CO 80831

SHEET TITLE

**TITLE
SHEET**

SHEET NO.

T1.0

EPC PROJECT NUMBER: VA18-003

SIGN OFF OF FINAL CONSTRUCTION DRAWINGS

REVIEWERS SHALL CLEARLY PLACE INITIALS ADJACENT TO EACH
REDLINE NOTE AS DRAWINGS ARE BEING REVIEWED. ACKNOWLEDGEMENT
OR "SIGN-OFF" BY PARTIES TO THE CONSTRUCTION DRAWINGS DOES NOT
CONSTITUTE ALTERATION OF THE LEASE TERMS.

CONSULTANT	SIGNATURE	DATE
OWNER		
SITE ACQUISITION		
PERMITTING CONSULTANT		
RF ENGINEER		
CONSTRUCTION MANAGER		
OPS MANAGER		
PROJECT MANAGER		
REGULATORY REV.		
DEV. MANAGER		

SECTION 01 100 - SCOPE OF WORK

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

PRECEDENCE:
SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE.

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

ON-SITE SUPERVISION:
THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE:
THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

- A. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONING SYSTEM. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
- B. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
- C. MARK THE FIELD SET OF DRAWINGS IN RED, DOCUMENTING ANY CHANGES FROM THE CONSTRUCTION DOCUMENTS.

METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION:
CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

- A. TOP HAT
B. HOW TO INSTALL A NEW CABINET
C. BASE BAND UNIT IN EXISTING UNIT
D. INSTALLATION OF BATTERIES
E. INSTALLATION OF HYBRID CABLE
F. INSTALLATION OF RRU'S
G. CABLING
H. TS-0200 REV 4 - ANTENNA LINE ACCEPTANCE STANDARDS
I. SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1.
J. COMMISSIONING MOPS
K. GROUNDING NE-312-201
L. SPRINT INTEGRATED CONSTRUCTION STANDARDS VERSION 4.0

SECTION 01 200 - COMPANY FURNISHED MATERIAL AND EQUIP.

COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DRAWINGS.
CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT TO ENSURE IT IS PROTECTED AND HANDLED PROPERLY THROUGHOUT THE CONSTRUCTION DURATION.
CONTRACTOR RESPONSIBLE FOR RECEIPT OF SPRINT FURNISHED EQUIPMENT AT CELL SITE OR CONTRACTORS LOCATION. CONTRACTOR TO COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

SECTION 01 300 - CELL SITE CONSTRUCTION

NOTICE TO PROCEED:
NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF WORK ORDER.

SITE CLEANLINESS:
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 - SUBMITTALS AND TESTS

ALTERNATES:

AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINTS CONSTRUCTION MANAGER FOR APPROVAL. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED,

TESTS AND INSPECTIONS:

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
- COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
 - AGL, AZIMUTH AND DOWNTILT PROVIDE AN AUTOMATED REPORT UPLOADED TO SITERRA USING A COMMERCIAL MADE-FOR THE PURPOSE ELECTRONIC ANTENNA ALIGNMENT TOOL (AAT). INSTALLED AZIMUTH, CENTERLINE AND DOWNTILT MUST CONFORM WITH RF CONFIGURATION DATA

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
4. ALL TESTING REQUIRED BY APPLICABLE INSTALLATION MOPS.
- C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING
- AZIMUTH, DOWNTILT, AGL FROM SUNSIGHT INSTRUMENTS - ANTENNALIGN ALIGNMENT TOOL (AAT)
 - SWEEP AND FIBER TESTS
 - SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
 - ALL AVAILABLE JURISDICTIONAL INFORMATION
 - PDF SCAN OF REDLINES PRODUCED IN FIELD
 - A PDF SCAN OF REDLINE MARK-UPS SUITABLE FOR USE IN ELECTRONIC AS-BUILT DRAWING PRODUCTION
 - LIEN WAIVERS
 - FINAL PAYMENT APPLICATION
 - REQUIRED FINAL CONSTRUCTION PHOTOS
 - CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
 - ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).
 - CLOSEOUT PHOTOGRAPHS:
 - PROVIDE PHOTOGRAPHS OF FINAL PROJECT PER THE FOLLOWING LIST. ADDITIONAL PHOTOGRAPHS MAY BE REQUIRED TO SUPPORT ACCEPTANCE PROCESSES
 - MAIN HYBRID CABLE ROUTE (MINIMUM TWO PHOTOS)
 - PHOTOS OF EACH ANTENNA AND RRU
 - MANUFACTURERS NAME TAG FOR ALL SERIALIZED EQUIPMENT
 - PULL AND DISTRIBUTION BOXES INTERMEDIATE BETWEEN RRU'S AND MMBS (DOOR OPEN)
 - MMBS CABINET WITH DOOR OPEN SHOWING MODIFICATIONS
 - POWER CABINET, DOORS OPEN, BATTERIES INSTALLED
 - BREAK OUT CYLINDERS
 - ASR SIGNAGE FOR SPRINT OWNED TOWERS
 - RADIATION EXPOSURE WARNING SIGNS
 - PHOTOGRAPH FROM EACH SECTOR FROM APPROXIMATELY RAD CENTER OF ANY NEW ANTENNA AT HORIZON.
 - LOAD PHOTOS TO SITERRA PROJECT LIBRARY I5. IN I5 CREATE NEW CATEGORY; 2.5 DEPLOYMENT, AND SECTION; PERMANENT CONSTRUCTION. LABEL PHOTOS WITH SITE CASCADE AND VIEW BEING DEPICTED. CAMERAS USED TO TAKE PHOTOGRAPHS SHALL GPS ENABLED SUCH THAT THE GPS COORDINATES ARE INCLUDED IN THE PHOTO MEDIA-FILE INFORMATION.

COMMISSIONING:
PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPS

INTEGRATION:
PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPS

SECTION 07 500 - ROOF CUTTING, PATCHING AND REPAIR

SUMMARY:
THIS SECTION SPECIFIES CUTTING AND PATCHING EXISTING ROOFING SYSTEMS WHERE CONDUIT OR CABLES EXIT THE BUILDING ONTO THE ROOF OR BUILDING-MOUNTED ANTENNAS, AND AS REQUIRED FOR WATERTIGHT PERFORMANCE. ROOFTOP ENTRY OPENINGS IN MEMBRANE ROOFTOPS SHALL BE CONSTRUCTED TO COMPLY WITH LANDLORD, ANY EXISTING WARRANTY, AND LOCAL JURISDICTIONAL STANDARDS.

SUBMITTALS:

- A. PRE-CONSTRUCTION ROOF PHOTOS: COMPLETE A ROOF INSPECTION PRIOR TO THE INSTALLATION OF SPRINT EQUIPMENT ON ANY ROOFTOP BUILD. AT A MINIMUM INSPECT AND PHOTOGRAPH (MINIMUM 3 EA.) ALL AREAS IMPACTED BY THE ADDITION OF THE SPRINT EQUIPMENT.
- B. PROVIDE SIMILAR PHOTOGRAPHS SHOWING ROOF CONDITIONS AFTER CONSTRUCTION (MINIMUM 3 EA.)
- C. ROOF INSPECTION PHOTOGRAPHS SHOULD BE UPLOADED WITH CLOSEOUT PHOTOGRAPHS.

SECTION 09 900 - PAINTING

QUALITY ASSURANCE:

A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. COMPLY WITH ALL ENVIRONMENTAL REGULATIONS FOR VOLATILE ORGANIC SHELTERS.

MATERIALS:

A. MANUFACTURERS: BENJAMIN MOORE, ICI DEVOE COATINGS, PPG, SHERWIN WILLIAMS OR APPROVED EQUAL. PROVIDE PREMIUM GRADE, PROFESSIONAL-QUALITY PRODUCTS FOR COATING SYSTEMS.

PAINT SCHEDULE:

A. EXTERIOR ANTENNAE AND ANTENNA MOUNTING HARDWARE: ONE COAT OF PRIMER AND TWO FINISH COATS. PAINT FOR ANTENNAE SHALL BE NON-METALLIC BASED AND CONTAIN NO METALLIC PARTICLES. PROVIDE COLORS AND PATTERNS AS REQUIRED TO MASK APPEARANCE OF ANTENNAE ON ADJACENT BUILDING SURFACES AND AS ACCEPTABLE TO THE OWNER. REFER TO ANTENNA MANUFACTURER'S INSTRUCTIONS WHENEVER POSSIBLE.

B. ROOF TOP CONSTRUCTION: TOUCH UP - PREPARE SURFACES TO BE REPAIRED. FOLLOW INDUSTRY STANDARDS AND REQUIREMENTS OF OWNER TO MATCH EXISTING COATING AND FINISH.

PAINTING APPLICATION:

- INSPECT SURFACES, REPORT UNSATISFACTORY CONDITIONS IN WRITING; BEGINNING WORK MEANS ACCEPTANCE OF SUBSTRATE.
- COMPLY WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR PREPARATION, PRIMING AND COATING WORK. COORDINATE WITH WORK OF OTHER SECTIONS.
- MATCH APPROVED MOCK-UPS FOR COLOR, TEXTURE, AND PATTERN. RE-COAT OR REMOVE AND REPLACE WORK WHICH DOES NOT MATCH OR SHOWS LOSS OF ADHESION.
- CLEAN UP, TOUCH UP AND PROTECT WORK.

TOUCHUP PAINTING:

- GALVANIZING DAMAGE AND ALL BOLTS AND NUTS SHALL BE TOUCHED UP AFTER TOWER ERECTION WITH "GALVANOX," "DRY GALV," OR "ZINC-IT."
- FIELD TOUCHUP PAINT SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- ALL METAL COMPONENTS SHALL BE HANDLED WITH CARE TO PREVENT DAMAGE TO THE COMPONENTS, THEIR PRESERVATIVE TREATMENT, OR THEIR PROTECTIVE COATINGS.

SECTION 11 700 - ANTENNA ASSEMBLY, RRU'S, CABLE INSTALLATION

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

ANTENNAS AND RRU'S:
THE NUMBER AND TYPE OF ANTENNAS AND RRU'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

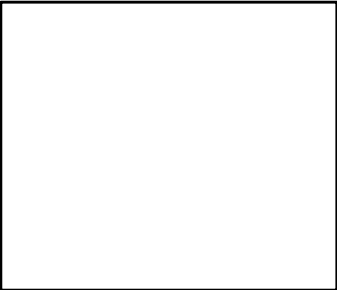
HYBRID CABLE:
HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS.

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. JUMPERS BETWEEN THE RRU'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE. DO NOT USE SUPERFLEX OUTDOORS. JUMPERS SHALL BE FACTORY FABRICATED IN APPROPRIATE LENGTHS WITH A MAXIMUM OF 4 FEET EXCESS PER JUMPER AND HAVE CONNECTORS AT EACH END, MANUFACTURED BY SUPPLIER. IF JUMPERS ARE FIELD FABRICATED, FOLLOW MANUFACTURER'S REQUIREMENTS FOR INSTALLATION OF CONNECTORS

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS:
INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.

ANTENNA INSTALLATION:
THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.



PRELIMINARY			
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0	08-18-17	SG/ML	90% CD REVIEW
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NO.	DATE	D/C	DESCRIPTION

SITE NAME:
FALCON MIDDLE
SCHOOL
DN70XC032

SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

SHEET TITLE
SPRINT
SPECIFICATIONS

SHEET NO.
SP1
EPC PROJECT NUMBER: VA18-003

- A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE.
- B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.

HYBRID CABLES INSTALLATION:

- A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.
- C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.
- FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE PERMANENTLY FASTENED TO THE COAX LADDER AT 4'-0" OC USING NON-MAGNETIC STAINLESS STEEL CLIPS.
 - FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
 - FIBER: SUPPORT FIBER BUNDLES USING ½" VELCRO STRAPS OF THE REQUIRED LENGTH @ 18" OC. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.
 - DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.
 - FASTENING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CLIPS.
 - CABLE INSTALLATION:
 - INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE, NOTIFY THE CONSTRUCTION MANAGER.
 - CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSEOVERS.
 - HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURES RECOMMENDED MAXIMUM BEND RADIUS.
 - GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.
 - HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 REV 4.
 - HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1 WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:
 - ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.
 - WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.
- 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.
 - SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF-AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF-AMALGAMATING TAPE.
 - 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
 - OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

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

SUMMARY:

- A. THIS SECTION SPECIFIES MMBS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).
- B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.
- C. COMPLY WITH MANUFACTURERS INSTALLATION AND START-UP REQUIREMENTS

DC CIRCUIT BREAKER LABELING

- A. LABEL CIRCUIT BREAKERS ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1.

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

SUMMARY:

- A. THIS SECTION SPECIFIES MMBS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).
- B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.
- C. COMPLY WITH MANUFACTURERS INSTALLATION AND START-UP REQUIREMENTS
- SUPPORTING DEVICES:
- A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:
- ALLIED TUBE AND CONDUIT
 - B-LINE SYSTEM
 - UNISTRUT DIVERSIFIED PRODUCTS
 - THOMAS & BETTS
- B. FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:
- EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
 - POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
 - FASTEN BY MEANS OF WOOD SCREWS ON WOOD.
 - TOGGLE BOLTS ON HOLLOW MASONRY UNITS.
 - CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY.
 - MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL.
 - EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED.
 - DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES.
 - IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

SUPPORTING DEVICES:

- A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC.
- B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.
- C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:
- D. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.
- E. USE VIBRATION AND SHOCK-RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL IDENTIFICATION:

- A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.
- B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT

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 AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED - SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.
- B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.
- C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS ELBOWS.

- D. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.

- E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6-FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRE BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.

- F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (21MM).

HUBS AND BOXES:

- A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED. HUB SHALL INCLUDE LOCKNUT AND NEOPRENE O-RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION.
- B. CABLE TERMINATION FITTINGS FOR CONDUIT
- CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O-Z/GEDNEY OR EQUAL.
 - CABLE TERMINATORS FOR LFMC SHALL BE ETCO - CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.
- C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE-HINDS WAB SERIES OR EQUAL.
- D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKETED COVERS. OUTLET BODIES SHALL BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION. PROVIDE CROUSE-HINDS FORM 8 OR EQUAL.
- E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE-HINDS, COOPER, ADALET, APPLETON, O-Z GEDNEY, RACO, OR APPROVED EQUAL.

SUPPLEMENTAL GROUNDING SYSTEM

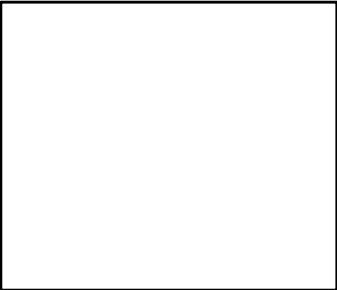
- A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM AS INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON-MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS AS INDICATED.
- B. SUPPLEMENTAL GROUNDING SYSTEM: ALL CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO HOLE SPADES WITH NO OX.
- C. STOLEN GROUND-BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CM FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

EXISTING STRUCTURE:

- A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE-ENERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

CONDUIT AND CONDUCTOR INSTALLATION:

- A. 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. 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. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
- B. CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.



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2	01-15-18	SG/ML	90% CD REV B
3	06-04-18	EC/TH	100% CONST
4	08-06-18	GW/TH	CLIENT COMMENT
SUBMITTAL			
NO.	DATE	D/C	DESCRIPTION

SITE NAME:
FALCON MIDDLE SCHOOL
DN70XC032

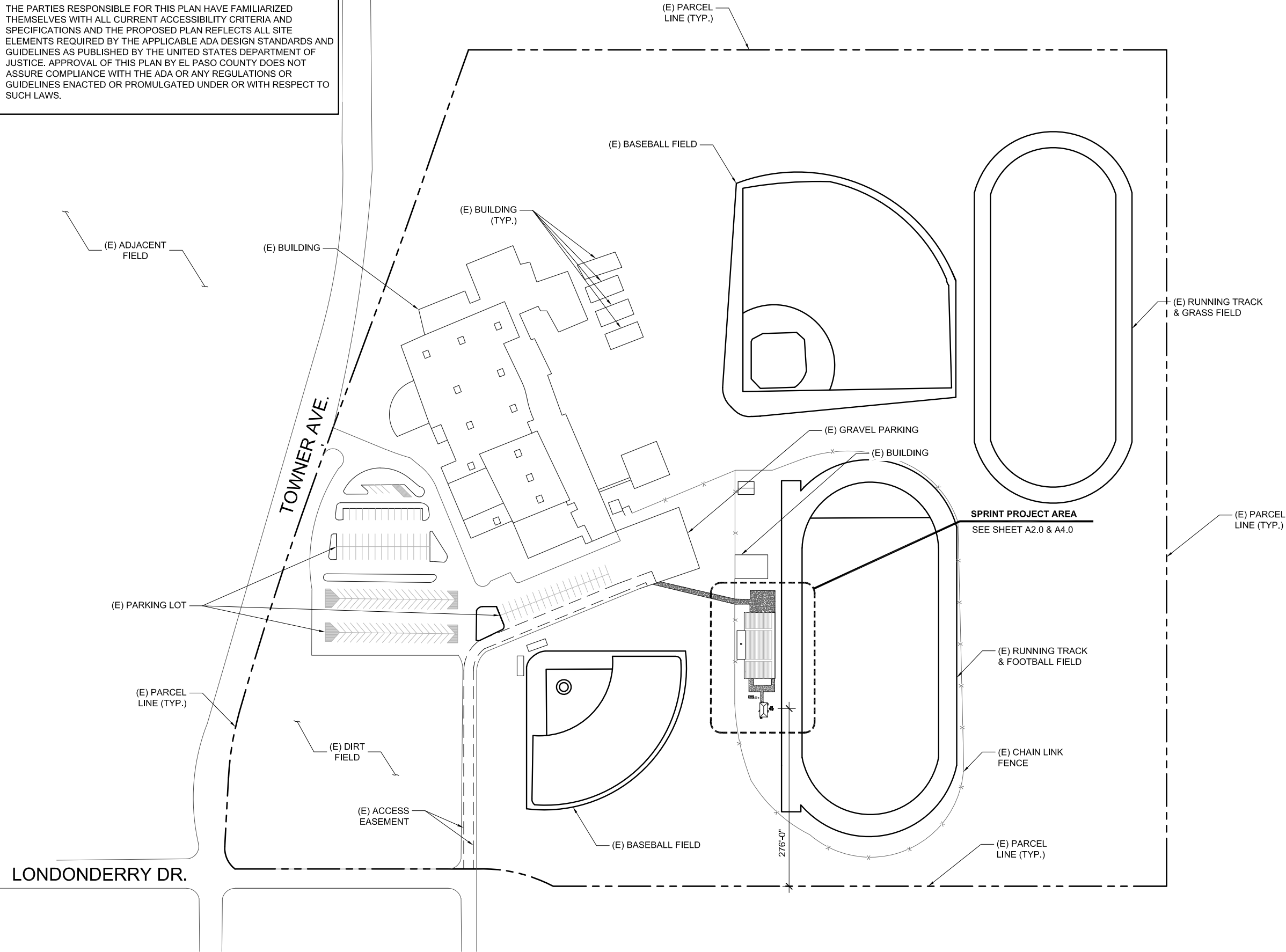
SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

SHEET TITLE
SPRINT SPECIFICATIONS

SHEET NO.
SP2
EPC PROJECT NUMBER: VA18-003

NOTE:

THE PARTIES RESPONSIBLE FOR THIS PLAN HAVE FAMILIARIZED THEMSELVES WITH ALL CURRENT ACCESSIBILITY CRITERIA AND SPECIFICATIONS AND THE PROPOSED PLAN REFLECTS ALL SITE ELEMENTS REQUIRED BY THE APPLICABLE ADA DESIGN STANDARDS AND GUIDELINES AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAN BY EL PASO COUNTY DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY REGULATIONS OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITH RESPECT TO SUCH LAWS.



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3	06-04-18	EC/TH	100% CONST
4	08-06-18	GW/TH	CLIENT COMMENT
SUBMITTAL			
NO.	DATE	D/C	DESCRIPTION

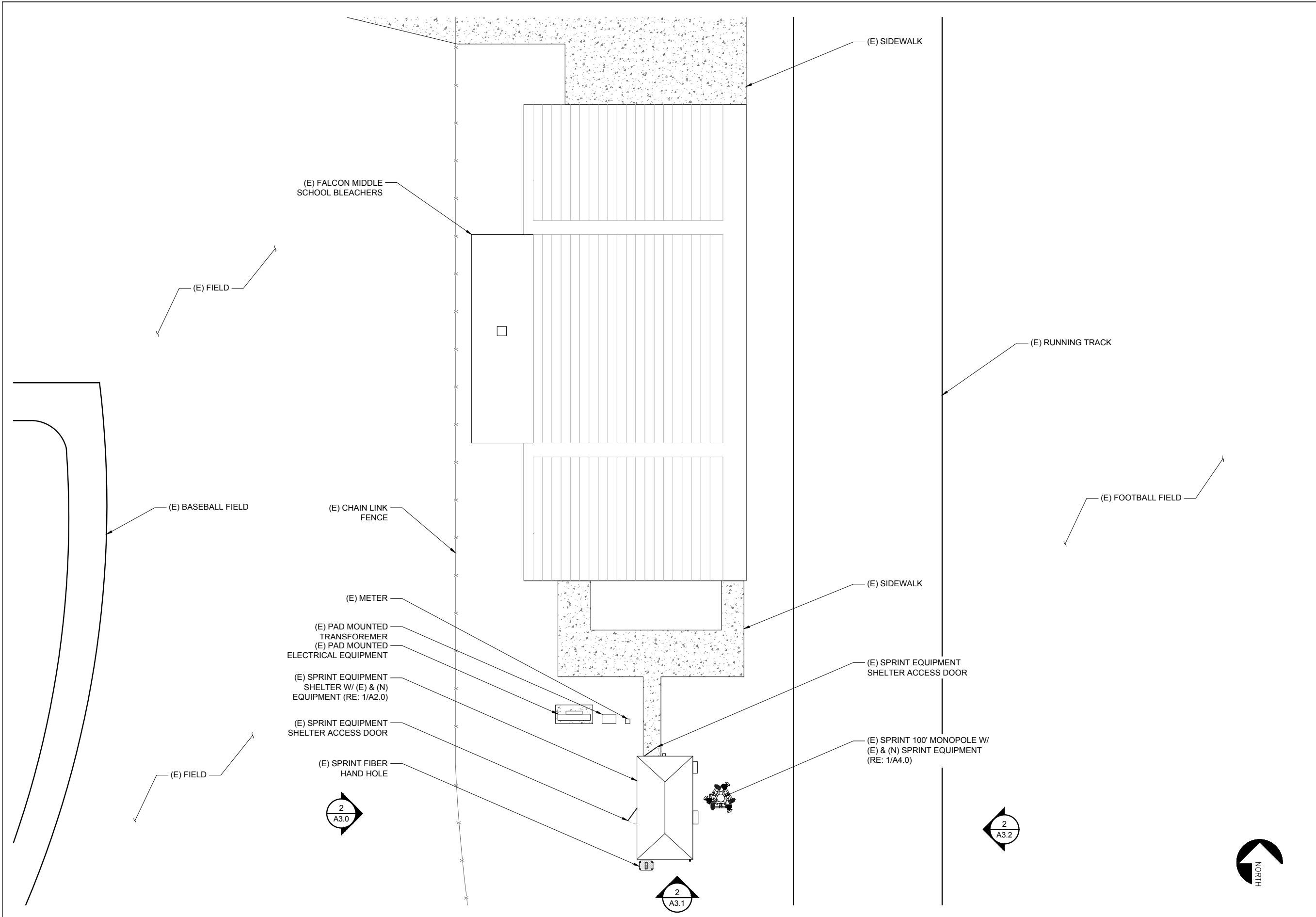
SITE NAME:
FALCON MIDDLE
SCHOOL
DN70XC032

SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

SHEET TITLE
OVERALL SITE
PLAN

SHEET NO.
A1.0
EPC PROJECT NUMBER: VA18-003





PRELIMINARY			
NO.	DATE	D/C	DESCRIPTION
0	08-18-17	SG/ML	90% CD REVIEW
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2	01-15-18	SG/ML	90% CD REV B
3	06-04-18	EC/TH	100% CONST
4	08-06-18	GW/TH	CLIENT COMMENT

SUBMITTAL			
NO.	DATE	D/C	DESCRIPTION

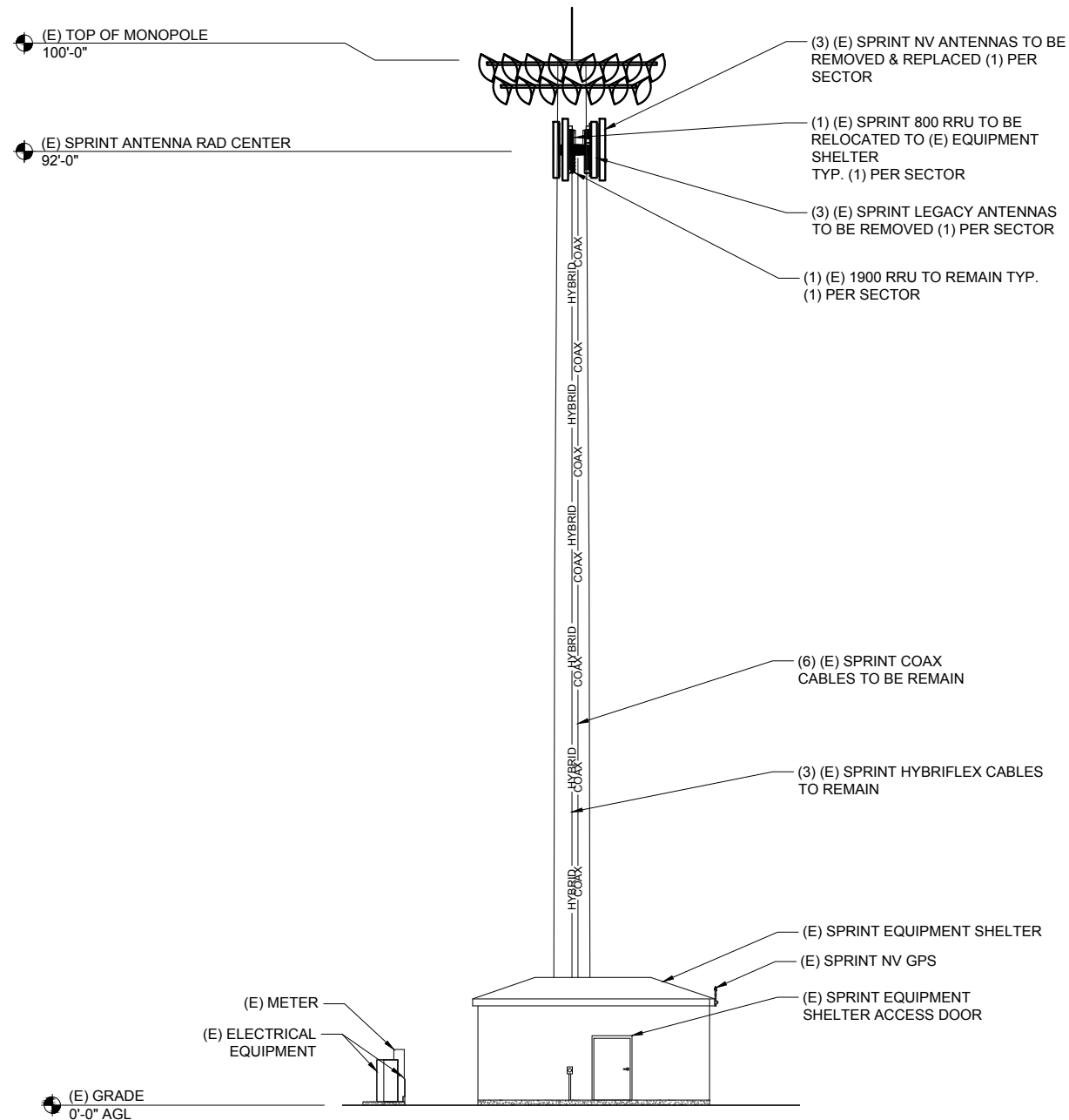
SITE NAME:
FALCON MIDDLE SCHOOL
DN70XC032

SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

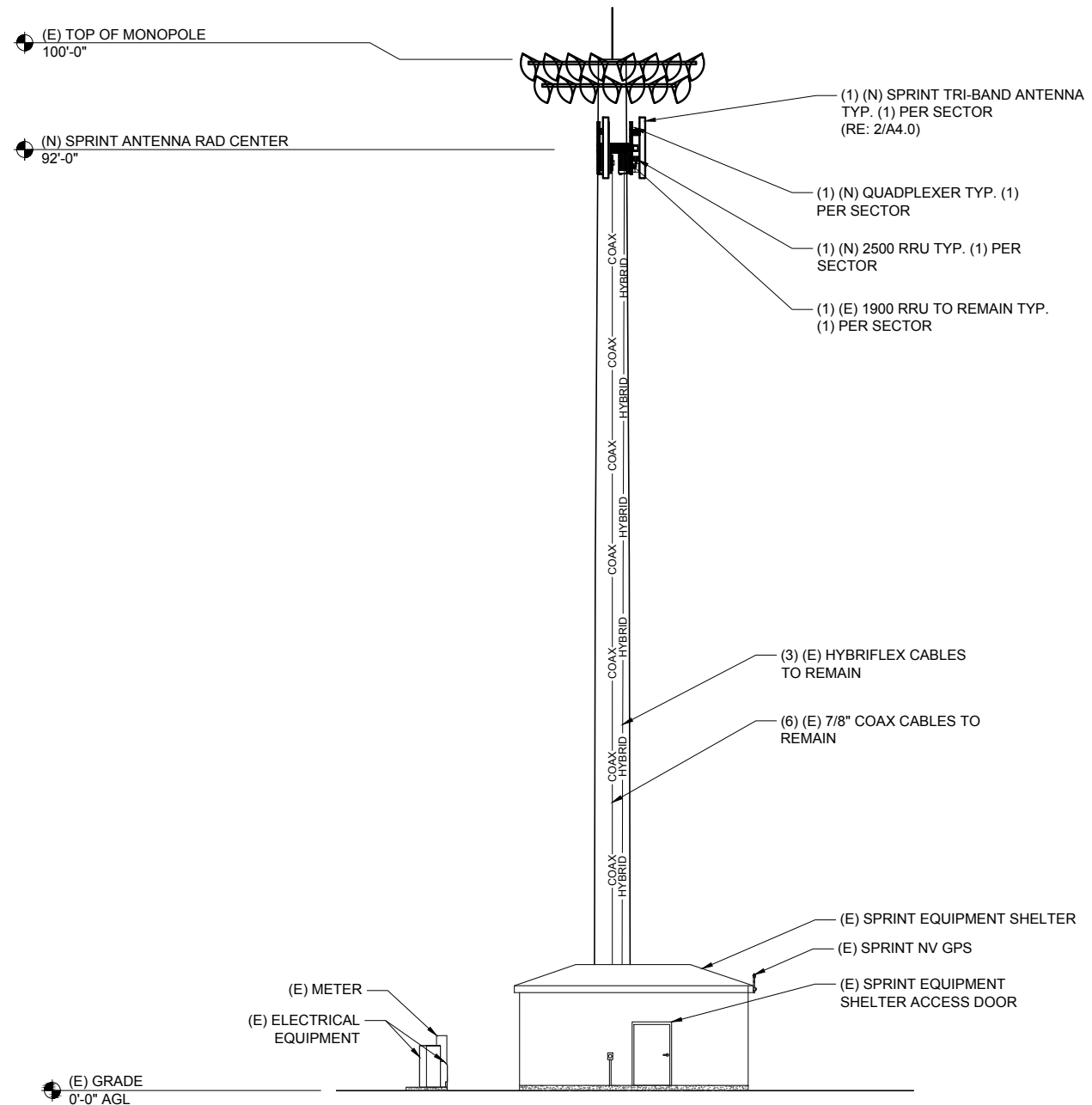
SHEET TITLE
ENLARGED SITE PLAN

SHEET NO.
A1.1

EPC PROJECT NUMBER: VA18-003



(N) ANTENNAS TO BE
PAINTED TO MATCH (E)
MONOPOLE



SITE ELEVATION NOTE:
ELEVATIONS SHOWN ARE BASED
ON ARCHIVED INFORMATION &
FIELD OBSERVATIONS. ELEVATION
SURVEYS WERE NOT COMPLETED.

NOTES:

1. NO WORK SHALL COMMENCE WITHOUT THE APPROVED STRUCTURAL (AMA) ANTENNA/MOUNT/ANALYSIS REPORT (SIGNED AND SEALED) TO BE PROVIDED UNDER SEPARATE COVER.
2. CONTRACTOR PRIOR TO CONSTRUCTION SHALL REVIEW THE APPROVED (AMA) ANTENNA/MOUNT/ANALYSIS REPORT SUPPLIED BY SPRINT AND MODIFY IF REQUIRED ALL APPLICABLE MEMBERS AS INDICATED IN CERTIFIED STRUCTURAL REPORT PRIOR TO INSTALLATION ON STRUCTURE.
3. PM/GC TO VERIFY PAINTING REQUIREMENTS WITH JURISDICTION PRIOR TO ORDERING SUPPORT STRUCTURES, ATTACHMENTS, ANTENNAS, AND OTHER APPURTENANCES.
4. SIZE, HEIGHT AND DIRECTION OF ANTENNAS SHALL BE ADJUSTED TO MEET SYSTEM REQUIREMENTS.
5. CONTRACTOR SHALL VERIFY HEIGHT OF ANTENNA WITH SPRINT REPRESENTATIVE.
6. ALL ANTENNA AZIMUTHS ARE TO BE TAKEN FROM TRUE NORTH.



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3	06-04-18	EC/TH	100% CONST
4	08-06-18	GW/TH	CLIENT COMMENT

<u>SUBMITTAL</u>			
NO.	DATE	D/C	DESCRIPTION

SITE NAME:
FALCON MIDDLE
SCHOOL
DN70XC032

SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

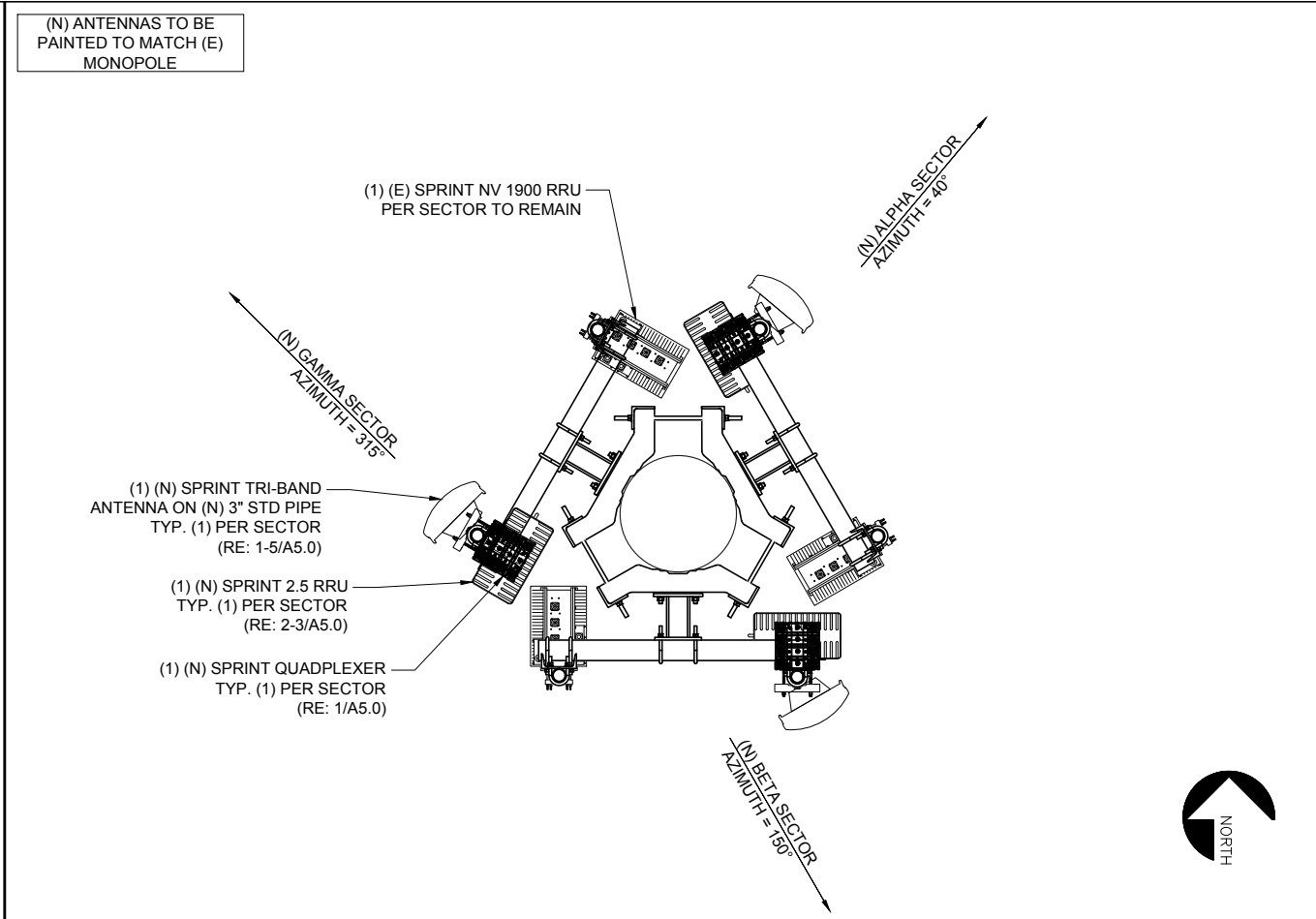
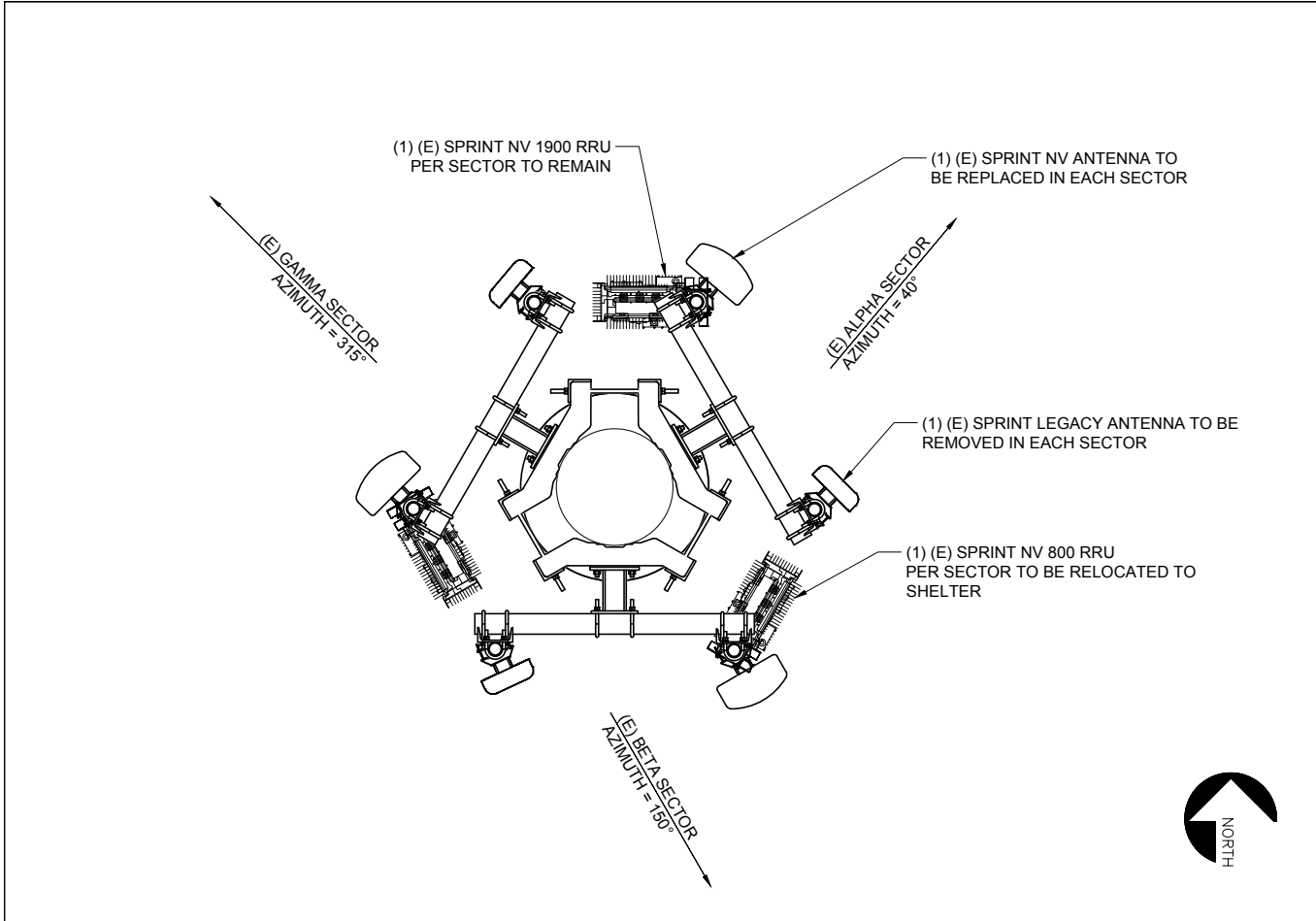
SHEET TITLE

ELEVATIONS

SHEET NO.

A3.2

EPC PROJECT NUMBER: VA18-003



1 EXISTING ANTENNA PLAN

2 NEW ANTENNA PLAN

ANTENNA DATA				
MECHANICAL SPECIFICATIONS				
MANUFACTURER	HEIGHT	WIDTH	DEPTH	WEIGHT
CCI	72.8"	11.9"	7.1"	50.7 LBS
PART # RVV65B-C3-3XR				

3 ANTENNA SPECS

SECTOR	RRU MODEL	RRU FREQUENCY	JUMPER SIZE	JUMPER LENGTH	RET LENGTH	RET CABLE MANUFACTURER	RET CABLE MODEL NUMBER
ALPHA	RRH-B8	2500 MHZ	1/2"	8'	N/A	COMMSCOPE	iRET AISG V1.1
BETA	RRH-B8	2500 MHZ	1/2"	8'	N/A	COMMSCOPE	iRET AISG V1.1
GAMMA	RRH-B8	2500 MHZ	1/2"	8'	N/A	COMMSCOPE	iRET AISG V1.1

SECTOR	ANTENNA FREQUENCY	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA QTY.	AZIMUTH	RAD CENTER	ANTENNA SIZE	ELECT. TILT 800/1900	MECH. TILT
ALPHA	800/1900/2500 MHz	CCI	RVV65B-C3-3XR	1	40°	92'	72.8"	TBD	0°
BETA	800/1900/2500 MHz	CCI	RVV65B-C3-3XR	1	150°	92'	72.8"	TBD	0°
GAMMA	800/1900/2500 MHz	CCI	RVV65B-C3-3XR	1	315°	92'	72.8"	TBD	0°

NOTES:

- STRUCTURAL ANALYSIS MUST BE PERFORMED ON ALL ROOFTOPS, FLAGPOLES AND TOWER SITES BEFORE INSTALLATION OF NEW ANTENNAS, NEW RRHs, & NEW CABINETS/TEMPORARY PLATFORM. STRUCTURAL ANALYSIS PROVIDED BY GENERAL DYNAMICS.
- EXISTING ANTENNAS ARE CDMA UNLESS NOTED OTHERWISE.
- NEW SPRINT ANTENNAS INCLUDE RESPECTIVE RRHs WHICH SHALL BE MOUNTED ON THE PIPE BEHIND THE ANTENNA SIMILAR TO THAT SHOWN ON DETAIL 7, 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 TOWER AND TOWER FOUNDATION MUST BE ANALYZED BY A LICENSED STRUCTURAL ENGINEER TO VERIFY TOWER IS CAPABLE OF SUPPORTING THE NEW LOADS. REFER TO STRUCTURAL ANALYSIS BY OTHERS. CONTRACTOR SHALL REFER TO TOWER STRUCTURAL CALCULATIONS FOR ADDITIONAL LOADS. NO ERECTION OF MODIFICATION OF TOWER SHALL BE MADE WITHOUT APPROVAL OF STRUCTURAL ENGINEER.

4 ANTENNA / ANCILLARY SCHEDULE AND NOTES

PRELIMINARY			
NO.	DATE	D/C	DESCRIPTION
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4	08-06-18	GW/TH	CLIENT COMMENT

SUBMITTAL			
NO.	DATE	D/C	DESCRIPTION

SITE NAME:
FALCON MIDDLE SCHOOL
DN70XC032

SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

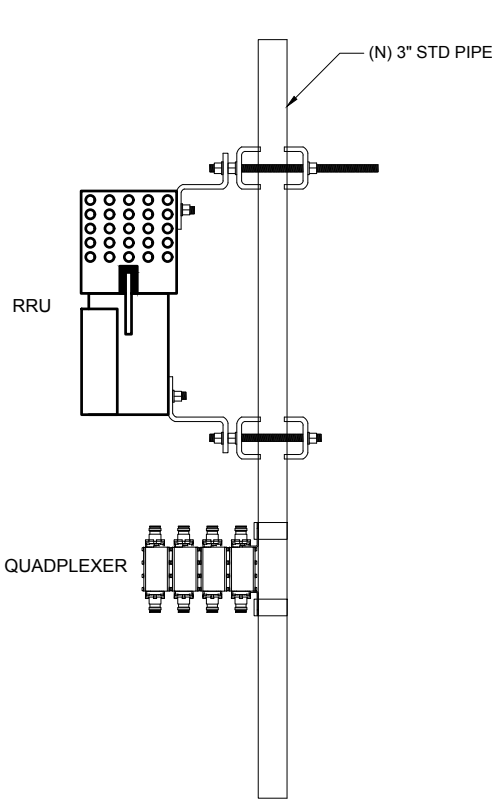
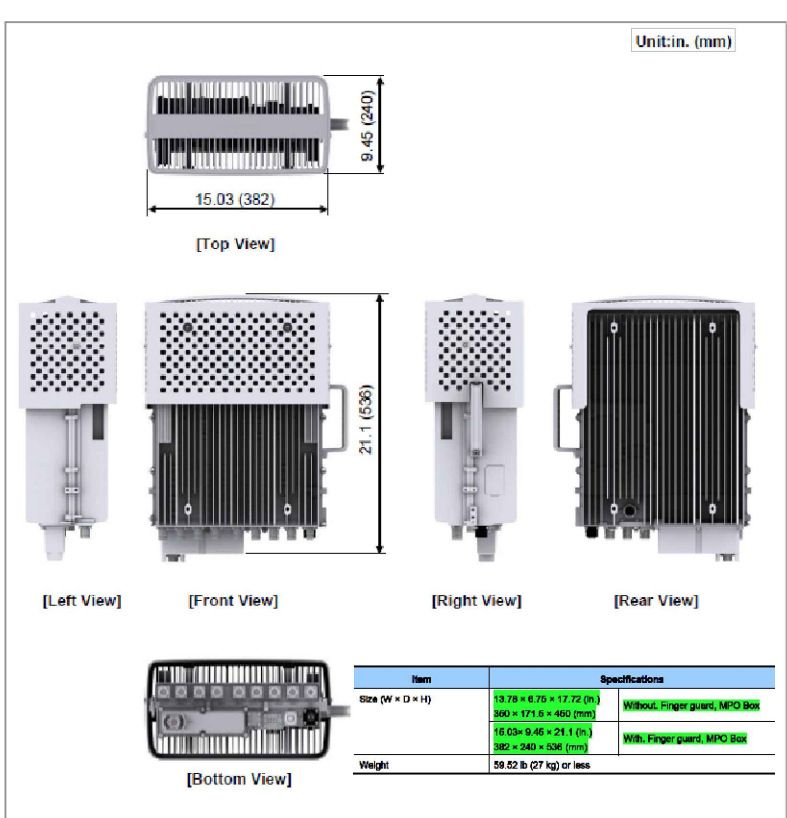
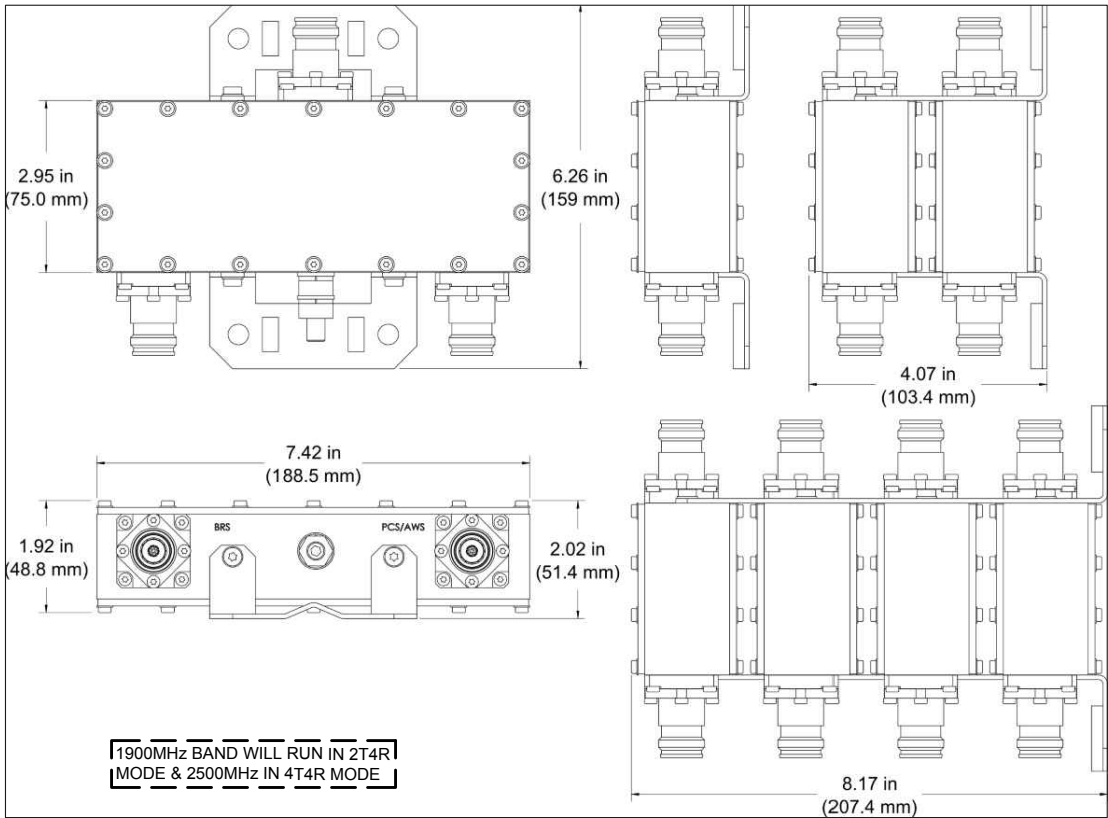
SHEET TITLE

ANTENNA PLAN AND DETAILS

SHEET NO.

A4.0

EPC PROJECT NUMBER: VA18-003



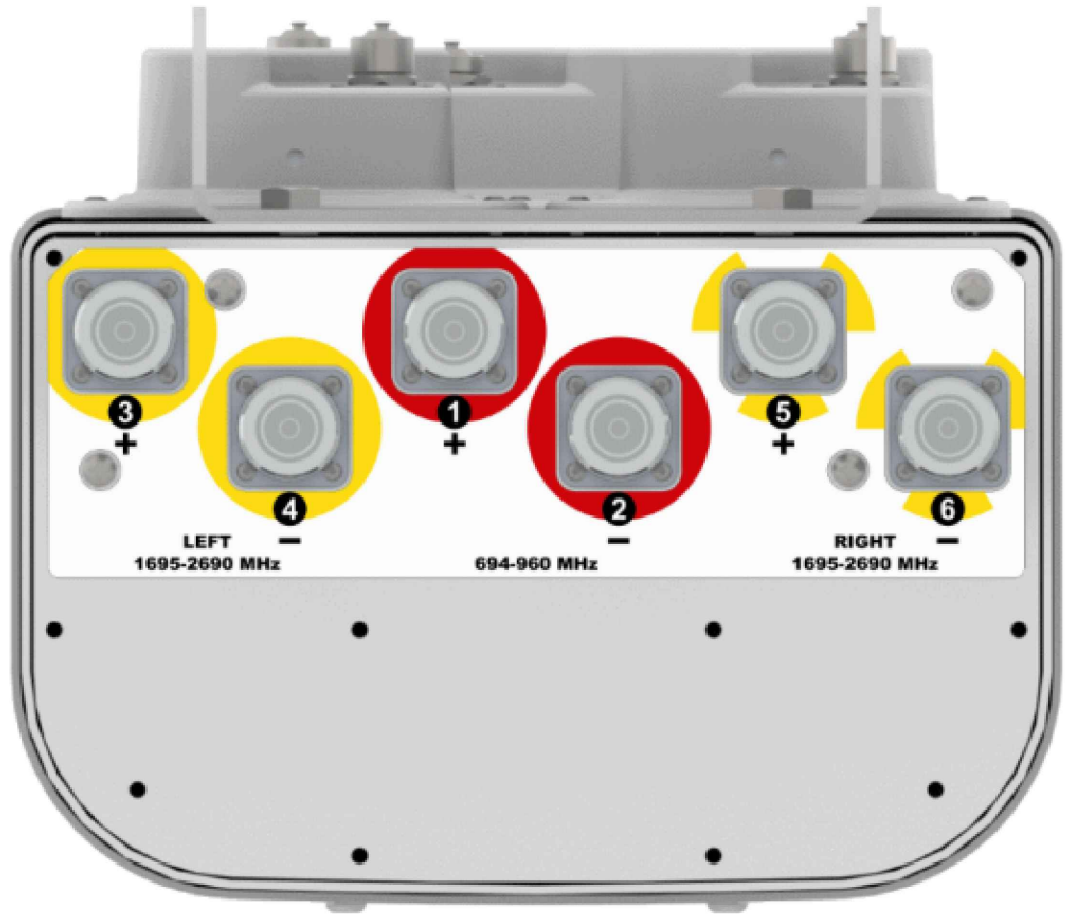
1 CCI DPO-7126Y-0Q1 DIPLEXER TO BE USED ALL SECTORS, (N.T.S.)

2 SAMSUNG 2.5 RRU
MODEL# RRH-B8

SCALE: NTS

SCALE: NTS

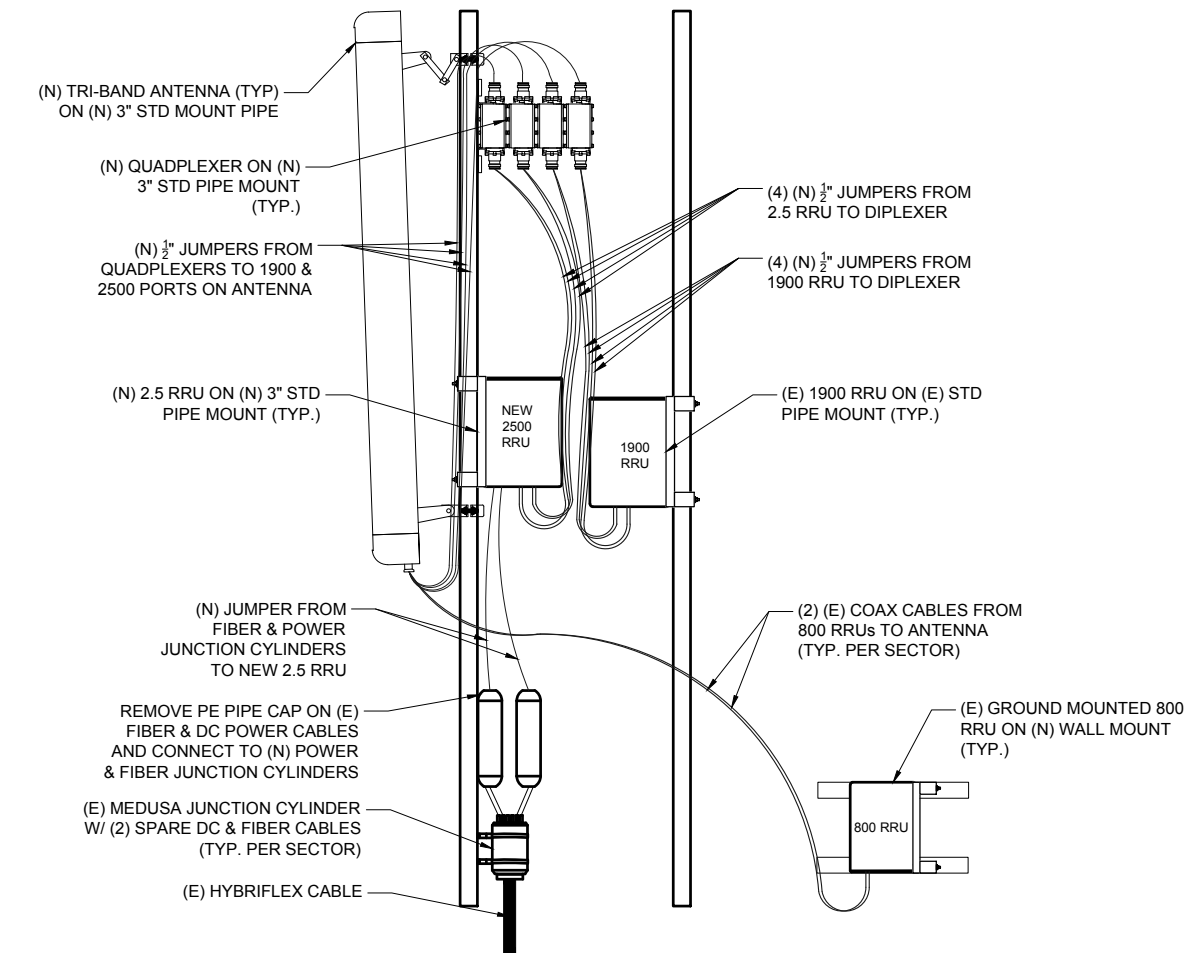
3 2.5 RRU MOUNT DETAIL (N.T.S.)



4 (N) TRI-BAND ANTENNA PORTS

SCALE: NTS

SCALE: NTS



5 2.5 ANTENNA/RRU CONNECTIONS, TYP.

SCALE: NTS

SCALE: NTS



PRELIMINARY

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SUBMITTAL

NO.	DATE	D/C	DESCRIPTION

SITE NAME:
FALCON MIDDLE
SCHOOL
DN70XC032

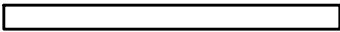
SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

SHEET TITLE
EQUIP. DETAILS

SHEET NO.

A5.0

EPC PROJECT NUMBER: VA18-003

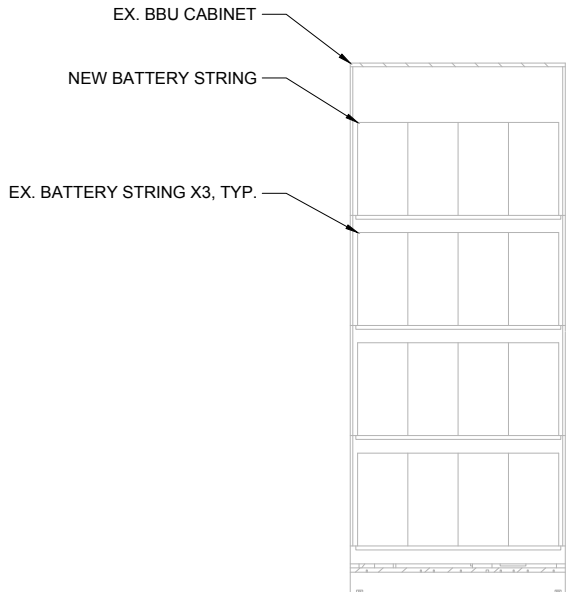
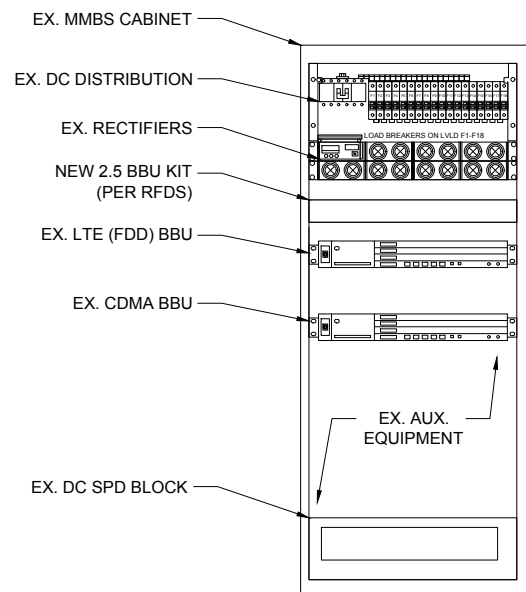


PRELIMINARY			
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SUBMITTAL			
NO.	DATE	D/C	DESCRIPTION

SITE NAME:	
FALCON MIDDLE SCHOOL	
DN70XC032	
SITE ADDRESS:	
9755 TOWER AVE	
PEYTON, CO 80831	

SHEET TITLE
EQUIP. DETAILS

SHEET NO.
A5.1
EPC PROJECT NUMBER: VA18-003



1 2.5 BBU KIT INSTALLATION INSIDE MMBS

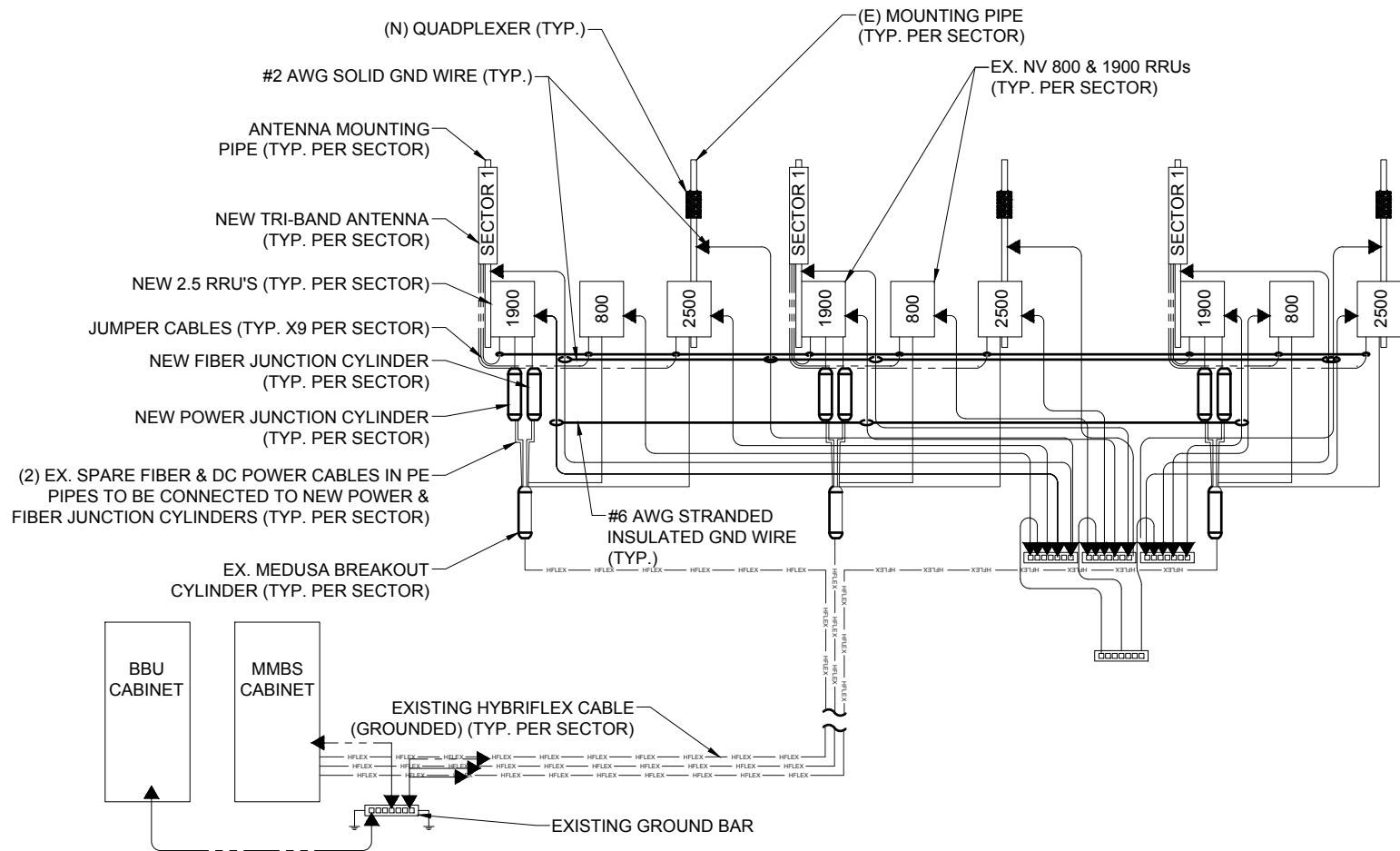
SCALE: NTS
SCALE: NTS

2 2.5 BATTERIES IN BBU CABINET

SCALE: NTS
SCALE: NTS

3 NOT USED

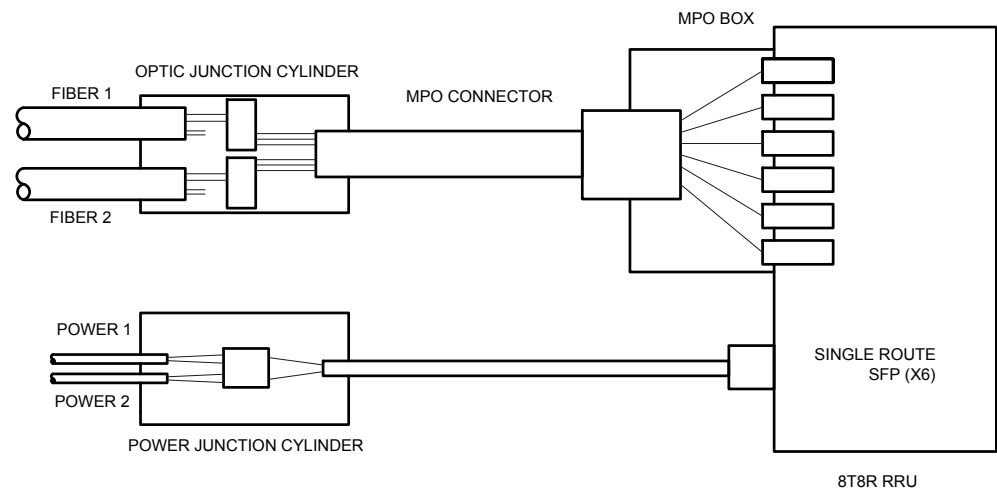
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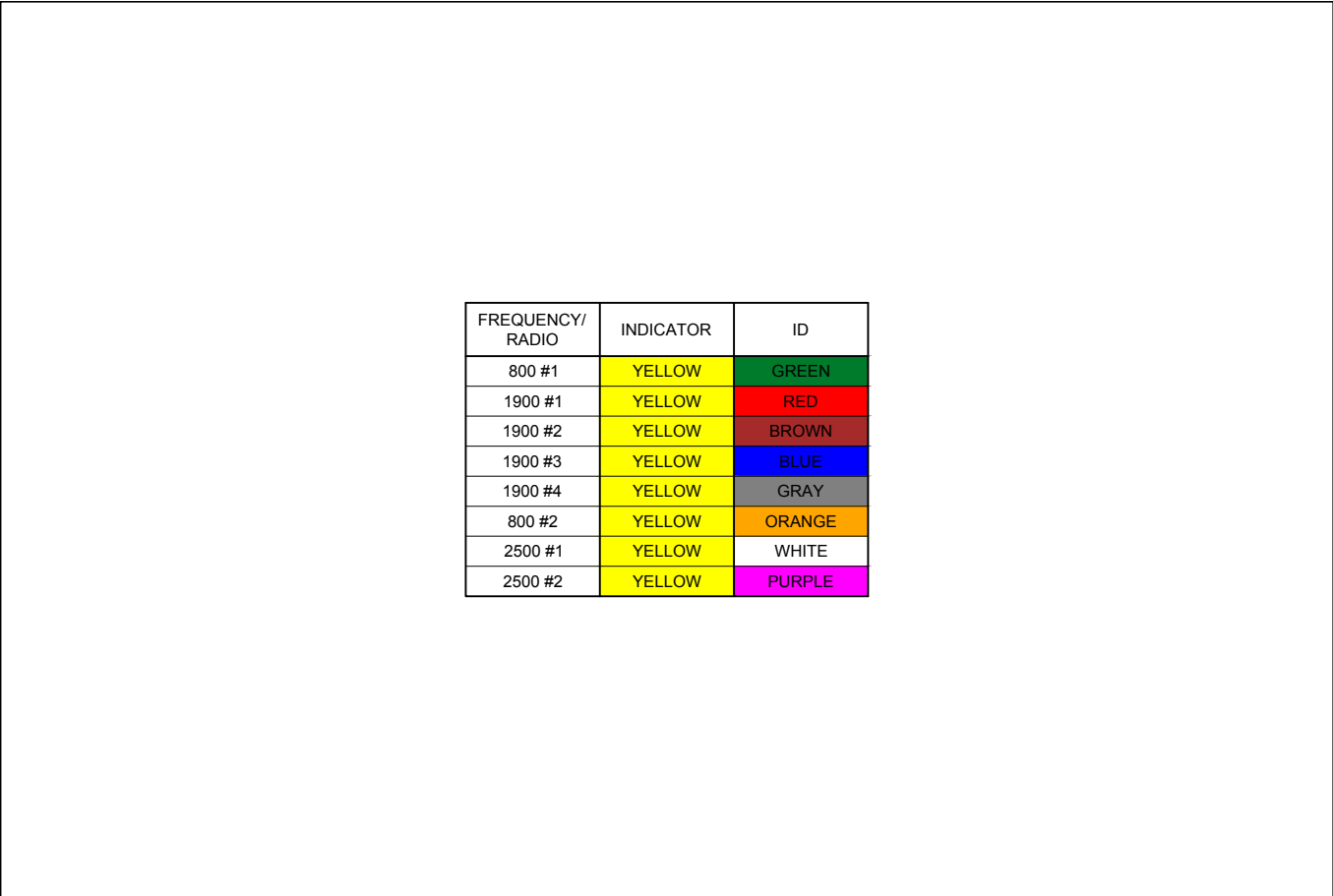
4 2.5 GROUNDING DIAGRAM

SCALE: NTS
SCALE: NTS

5 CYLINDER SCHEMATIC DETAIL



SCALE: NTS
SCALE: NTS



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

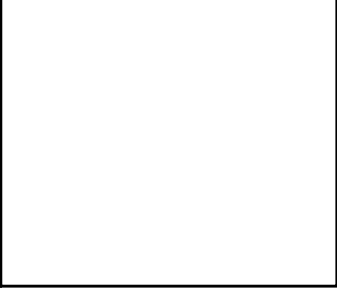
1	TECHNOLOGY COLOR CODING	SCALE: NTS	NOT TO SCALE
		SCALE: NTS	

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

2	2500 MHz RADIO CALIBRATION CABLE COLOR CODING	SCALE: NTS	NOT TO SCALE
		SCALE: NTS	

SECTOR	CABLE	FIRST RING	SECOND RING	THIRD RING
1 ALPHA	1	GREEN	NO TAPE	NO TAPE
1	2	BLUE	NO TAPE	NO TAPE
1	3	BROWN	NO TAPE	NO TAPE
1	4	WHITE	NO TAPE	NO TAPE
1	5	RED	NO TAPE	NO TAPE
1	6	GRAY	NO TAPE	NO TAPE
1	7	PURPLE	NO TAPE	NO TAPE
1	8	ORANGE	NO TAPE	NO TAPE
2 BETA	1	GREEN	GREEN	NO TAPE
2	2	BLUE	BLUE	NO TAPE
2	3	BROWN	BROWN	NO TAPE
2	4	WHITE	WHITE	NO TAPE
2	5	RED	RED	NO TAPE
2	6	GRAY	GRAY	NO TAPE
2	7	PURPLE	PURPLE	NO TAPE
2	8	ORANGE	ORANGE	NO TAPE
3 GAMMA	1	GREEN	GREEN	GREEN
3	2	BLUE	BLUE	BLUE
3	3	BROWN	BROWN	BROWN
3	4	WHITE	WHITE	WHITE
3	5	RED	RED	RED
3	6	GRAY	GRAY	GRAY
3	7	PURPLE	PURPLE	PURPLE
3	8	ORANGE	ORANGE	ORANGE

3	HYBRID CABLE COLOR CODING	SCALE: NTS	NOT TO SCALE
		SCALE: NTS	



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SUBMITTAL			
NO.	DATE	D/C	DESCRIPTION

SITE NAME:

FALCON MIDDLE SCHOOL
DN70XC032

SITE ADDRESS:

9755 TOWER AVE
PEYTON, CO 80831

SHEET TITLE

COLOR CODING

SHEET NO.

A6.0

EPC PROJECT NUMBER: VA18-003

ELECTRICAL NOTES

1.

ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL LOCAL AND STATE CODE, LAWS, AND CORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
2.

CONTRACTOR SHALL COORDINATE WITH LOCAL POWER COMPANY FOR REQUIREMENTS OF POWER SERVICE LINE TO THE METER BASE, WHEN REQUIRED. POWER SERVICE REQUIREMENT IS COMMERCIAL. AC NOMINAL 120/208 VOLT OR 120/240 VOLT, SINGLE PHASE WITH 200 AMP RATING. 3. CONTRACTOR SHALL COORDINATE WITH LOCAL TELEPHONE COMPANY FOR SERVICE LINE REQUIREMENTS TO TERMINATE AT THE PPC CABINET. 4. CONTRACTOR SHALL FURNISH AND INSTALL ELECTRIC METER BASE AND 200A DISCONNECT SWITCH PER SITE PLAN DETAIL DRAWINGS AND PER LOCAL UTILITY COMPANIES SPECIFICATION, WHEN REQUIRED. THE METER BASE SHOULD BE LOCATED IN A MANNER WHERE ACCESSIBLE BY THE LOCAL POWER COMPANY.
5.

LOCAL POWER COMPANY SHALL PROVIDE 200 AMP ELECTRIC METER. CONTRACTOR SHALL COORDINATE INSTALLATION OF METER WITH LOCAL POWER COMPANY.
6.

UNDERGROUND POWER AND TELCO SERVICE LINES SHALL BE ROUTED IN A COMMON TRENCH. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 AND CONDUIT EXPOSED ABOVE GROUND SHALL BE GALVANIZED RIGID STEEL TUBING UNLESS OTHERWISE INDICATED.
7.

ALL TELCO CONDUIT LINES SHALL BE 4" SCH. 40 PVC CONDUIT UNLESS OTHERWISE INDICATED. THE TELCO CONDUIT FROM THE PPC SHALL BE ROUTED AND TERMINATED AT DESIGNATED TELCO DEMARCATION OR 2-FEET OUTSIDE FENCED AREA, NEAR UTILITY POLE (IN FENCED AREA), OR END CAP OFF AND PROVIDE MARKER STAKE PAINTED BRIGHT ORANGE WITH DESIGNATION FOR TELCO SERVICE.
8.

CONDUITS INSTALLED AT PCS EQUIPMENT ENDS PRIOR TO THE EQUIPMENT INSTALLATION SHALL BE STUBBED AND CAPPED AT 6" ABOVE GRADE OR PLATFORM. IF SERVICE LINES CAN'T BE INSTALLED INITIALLY, PROVIDE NYLON PULL CORD IN CONDUITS.
9.

THE SPRINT CABINET, INCLUDING 200 AMP LOAD PANEL AND TELCO PANEL, SHALL BE PROVIDED BY OWNER AND INSTALLED BY THE CONTRACTOR. CONTRACTOR IS TO INSTALL BREAKER(S) NOT PROVIDED BY MANUFACTURER. SEE PANEL SCHEDULE ON THIS SHEET FOR BREAKER REQUIREMENTS.
10.

LOCATION OF ELECTRIC METER AND DISCONNECT SWITCH TO BE PROVIDED BY GENERAL CONTRACTOR.
11.

#2 WIRE TO BE UTILIZED IN ELECTRIC SERVICE RUNS EXCEEDING 100'.
12.

CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS. THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
13.

LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO ROUGH-IN.
14.

THE CONDUIT RUNS AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITLONS.
15.

PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.
16.

ALL CONDUITS SHALL BE MET WITH BENDS MADE IN ACCORDANCE WITH NEC TABLE 346-10. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 12" MINIMUM INSIDE SWEEPS FOR ALL CONDUITS 2" OR LARGER.
17.

ALL CONDUIT TERMINATIONS SHALL BE PROVIDED WITH PLASTIC THROAT INSULATING GROUNDING BUSHINGS.
18.

ALL WIRE SHALL BE "TYPE THWN, SOLID, ANNEALED COPPER UP TO SIZE 1/10 AWG (18 AND LARGER SHALL BE CONCENTRIC STRANDED) 75 DEGREE C, (167 DEGREES F), 98° CONDUCTIVITY. MINIMUM #12.
19.

ALL WIRES SHALL BE TAGGED AT ALL PULL BOXES. J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS, ACTION CRAFT, BRADY, OR APPROVED EQUAL.
20.

ALL NEW MATERIAL SHALL HAVE A U.I. LABEL.
21.

CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION TO CONFLICTS. VERIFY WITH MECHANICAL CONTRACTOR AND COMPLY AS REQUIRED.

22.

ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN NOT HAND WRITTEN.
23.

INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES. PULLBOXES, AND ALL DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.
24.

THE CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS. DOCUMENT ANY AND ALL WIRING AND EQUIPMENT CONDITIONS AND CHANGES WHILE COMPLETING THIS CONTRACT. SUBMIT AT SUBSTANTIAL COMPLETION.
25.

ALL DISCONNECT SWITCHES AND OTHER CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM (NO EXCEPTIONS.) PROVIDE SAMPLE FOR CONSTRUCTION MANAGER'S APPROVAL.
26.

ALL ELECTRICAL DEVICES AND INSTALLATIONS OF THE DEVICES SHALL COMPLY WITH (ADA) AMERICANS WITH DISABILITIES ACT AS ADOPTED BY THE APPLICABLE STATE.
27.

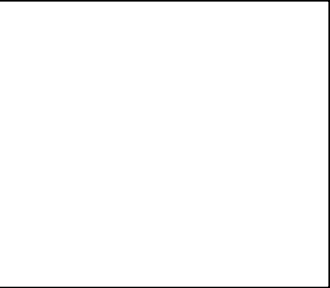
PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT CONSTRUCTION MANAGERS APPROVAL. SLEEVES ANO/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.
28.

ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN OF CONDUIT AND WIRE. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED ON THE EQUIPMENT (THE DESIGN OF THESE PLANS ARE BASED UPON BEST AVAILABLE INFORMA110N AT THE TIME OF DESIGN AND SOME EQUIPMENT CHARACTERISTICS MAY VARY FROM DESIGN AS SHOWN ON THESE DRAWINGS).
29.

LOCATION OF ALL OUTLET, BOXES, ETC., AND THE TYPE OF CONNECTION (PLUG OR DIRECT) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.



Know what's below.
Call before you dig.



PRELIMINARY			
NO.	DATE	D/C	DESCRIPTION
0	08-18-17	SG/ML	90% CD REVIEW
1	08-24-17	AK/ML	90% CD REV A
2	01-15-18	SG/ML	90% CD REV B
3	06-04-18	EC/TH	100% CONST
4	08-06-18	GW/TH	CLIENT COMMENT
SUBMITTAL			
NO.	DATE	D/C	DESCRIPTION

SITE NAME:
FALCON MIDDLE SCHOOL
DN70XC032
SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

SHEET TITLE
ONE-LINE DIAGRAM
AND NOTES

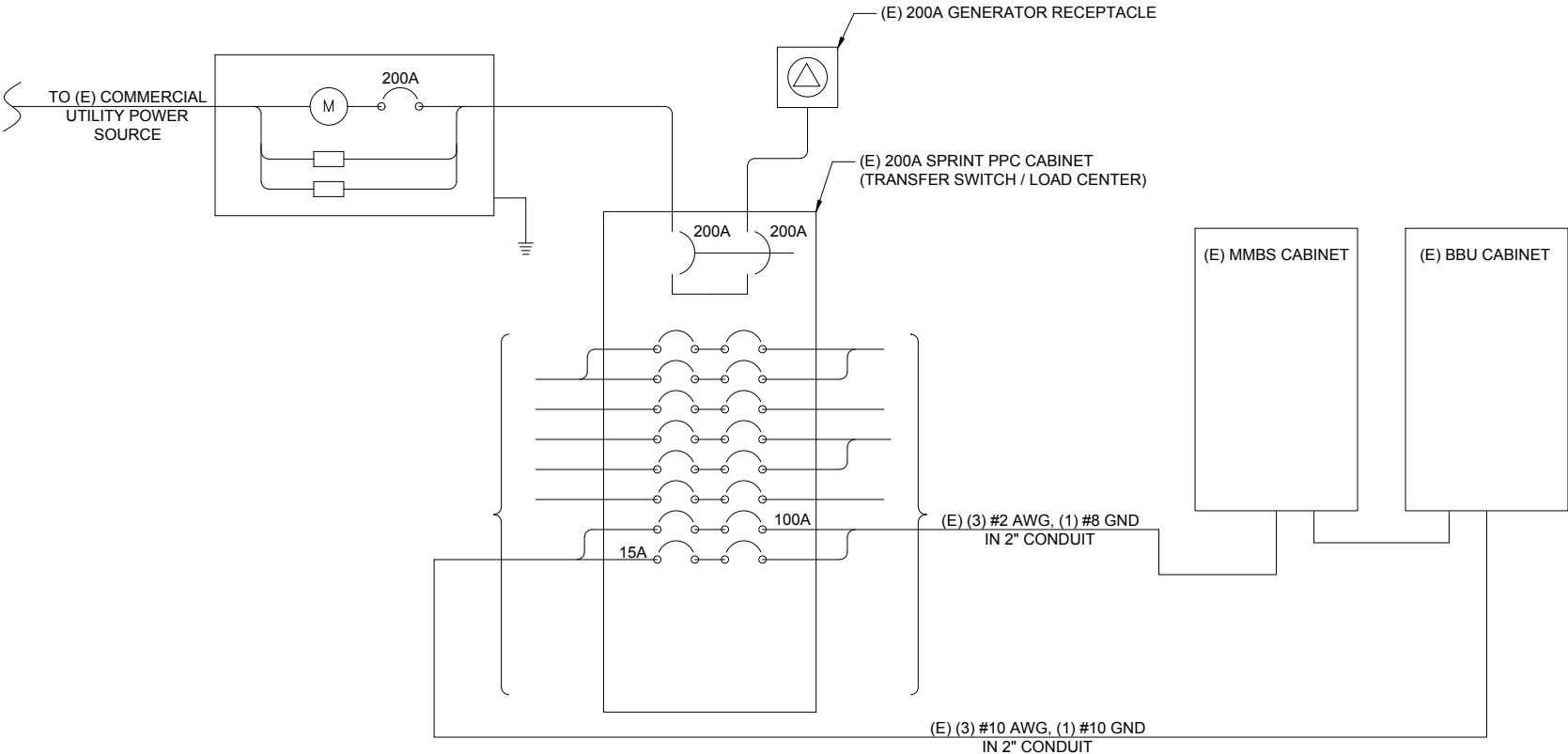
SHEET NO.
E1.0
EPC PROJECT NUMBER: VA18-003

1 ELECTRICAL NOTES

SCALE: NTS

NOT TO SCALE

SCALE: NTS

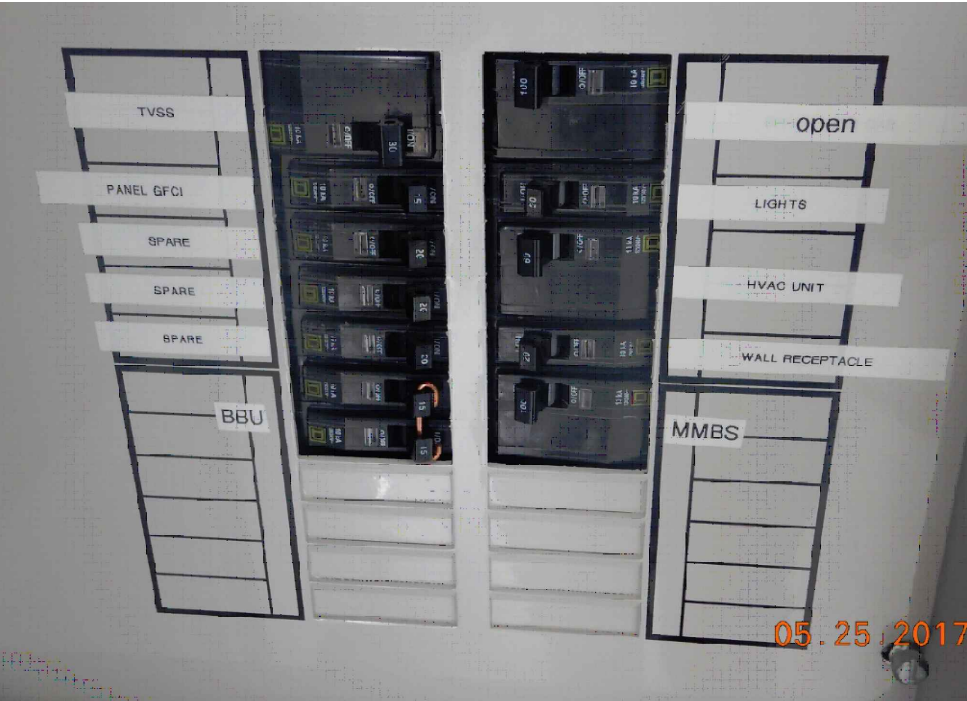


2 ONE-LINE DIAGRAM

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NOT TO SCALE

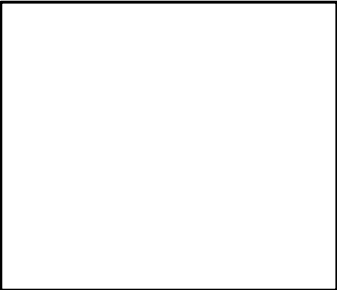
SCALE: NTS



3 BREAKER PHOTO

SCALE: NTS

SCALE: NTS



PRELIMINARY			
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SUBMITTAL			
NO.	DATE	D/C	DESCRIPTION

SITE NAME:

FALCON MIDDLE SCHOOL
DN70XC032

SITE ADDRESS:

9755 TOWER AVE
PEYTON, CO 80831

SHEET TITLE

DC DISTRIBUTION

SHEET NO.

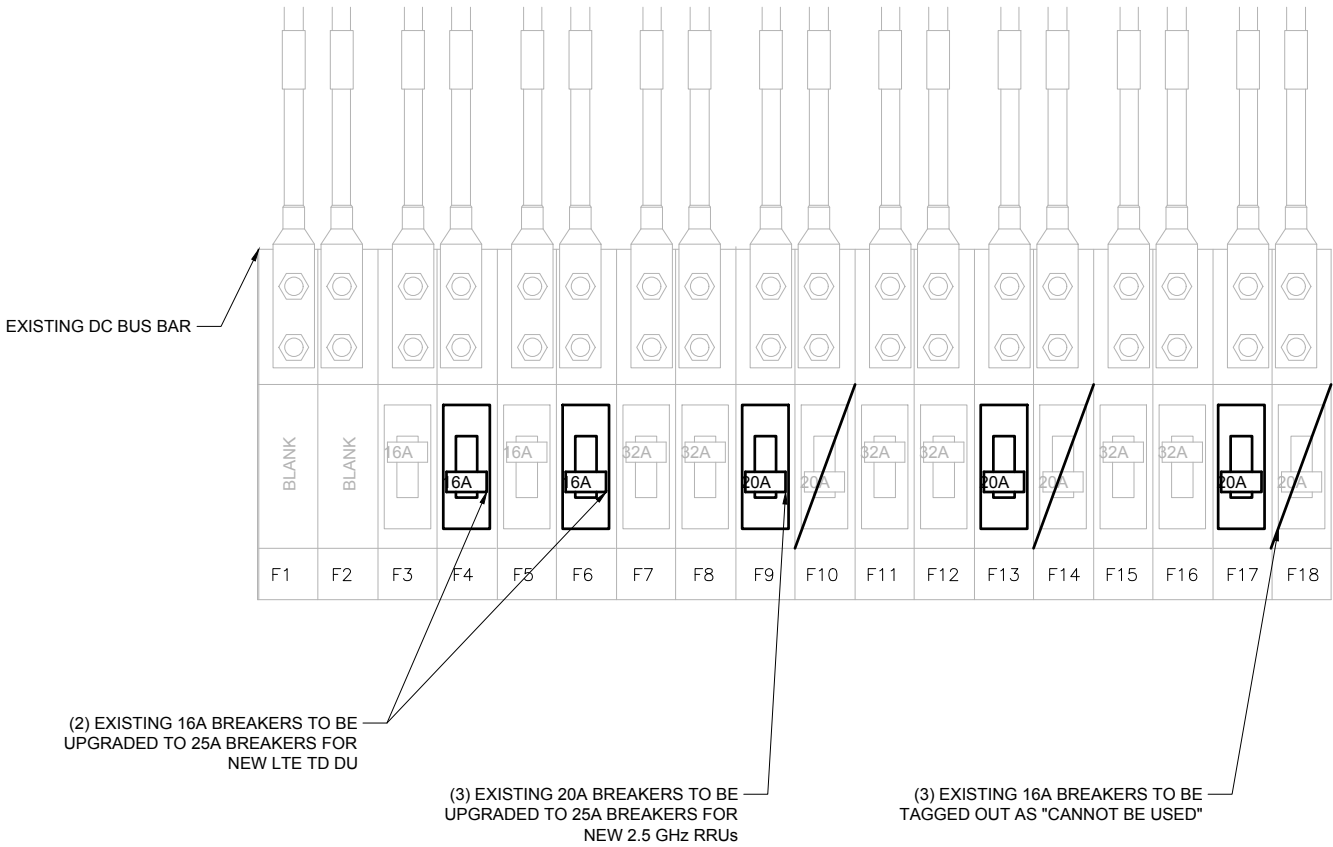
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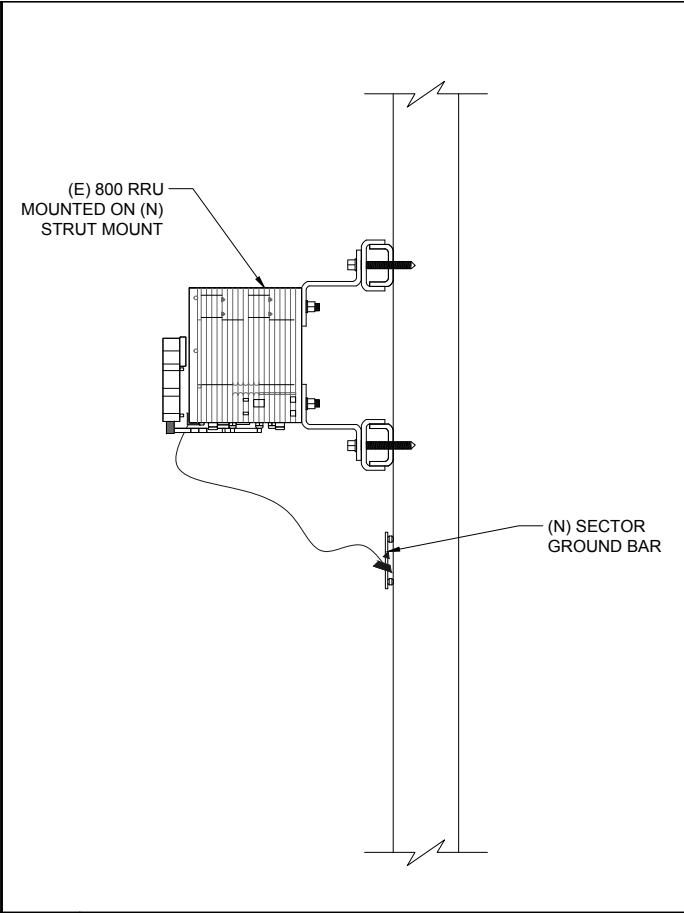
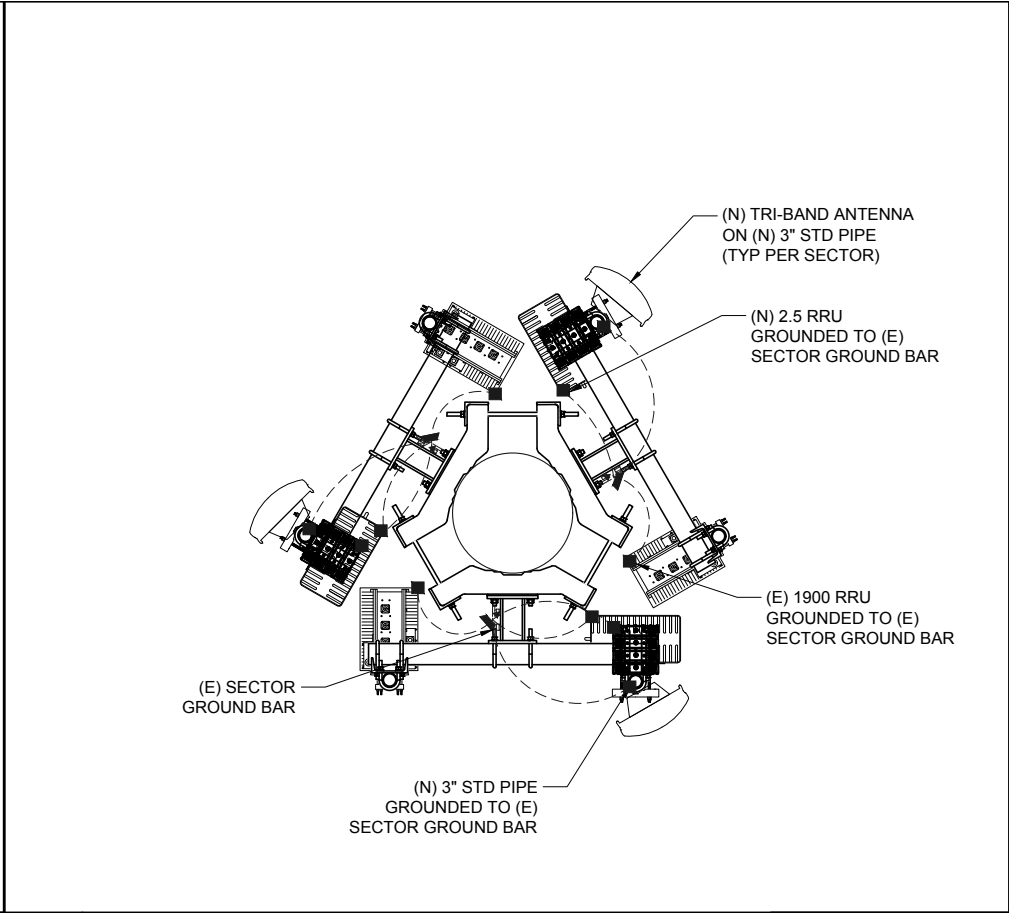
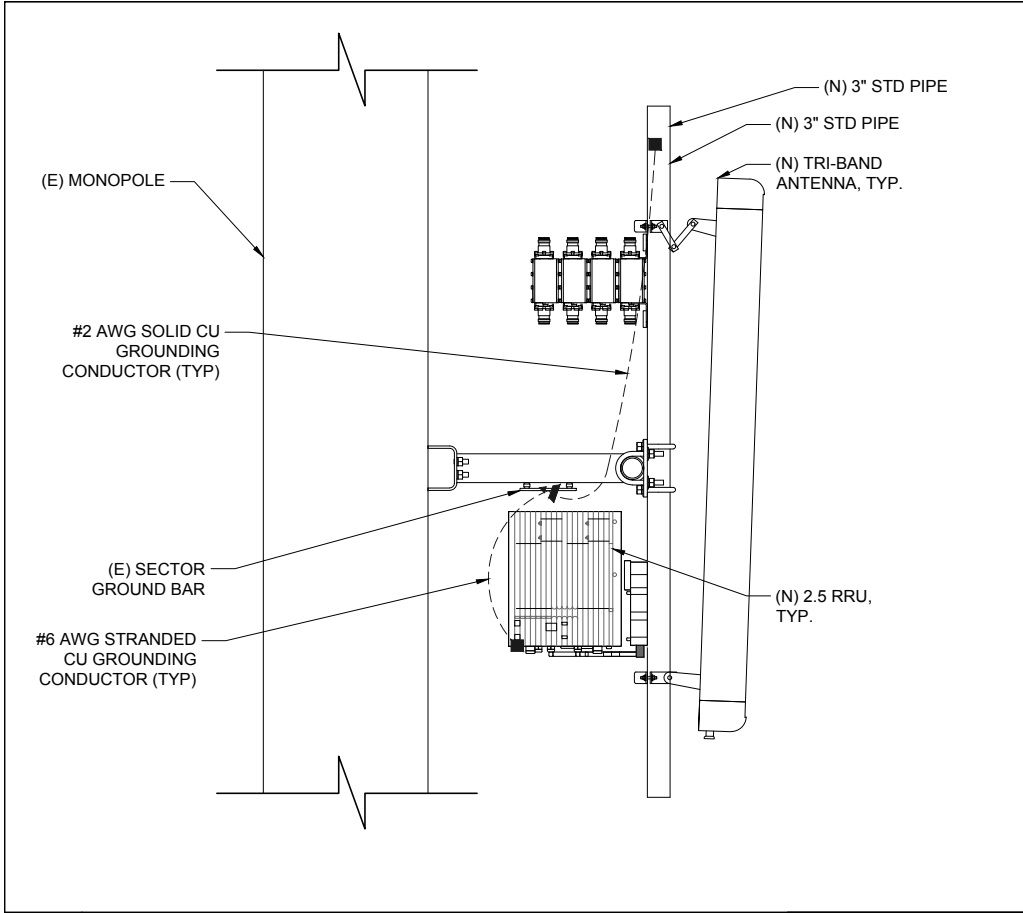
EPC PROJECT NUMBER: VA18-003

- NOTES:
1. (2) DU BREAKERS TO BE UPGRADED FROM 16A TO 25A.

2. (3) RRU BREAKERS TO BE UPGRADED FROM 20A TO 25A.

3. REMAINING/UNUSED RRH BREAKERS TO BE TAGGED OUT AS "CANNOT BE USED"

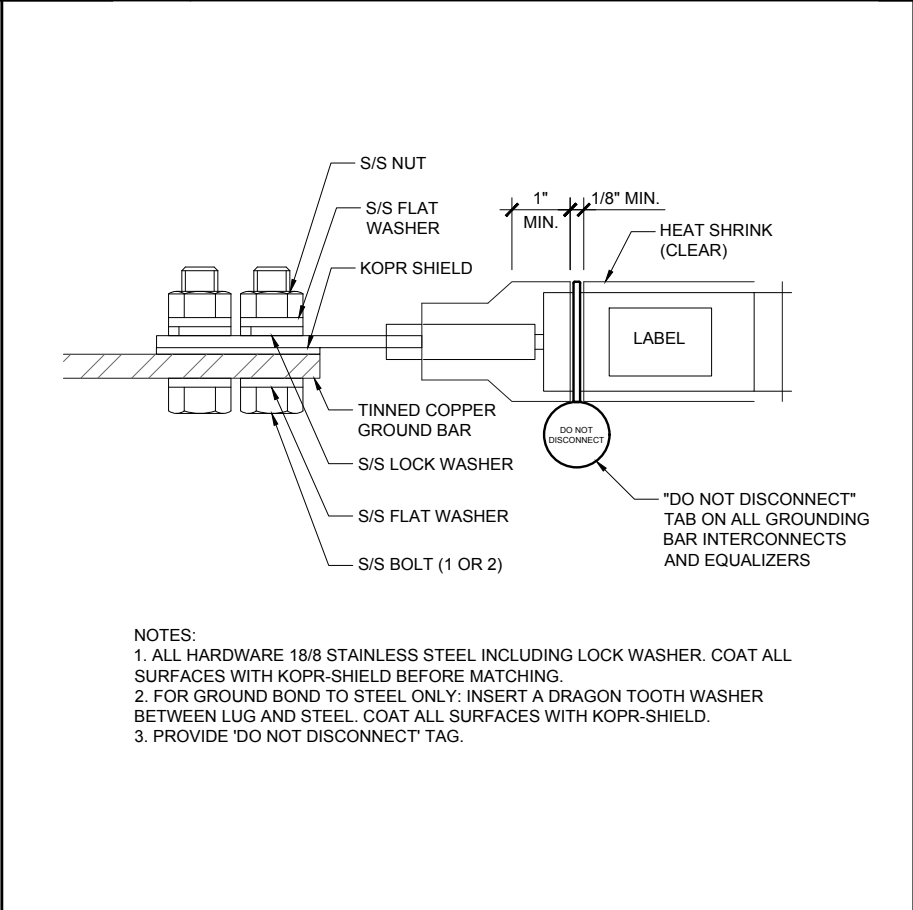
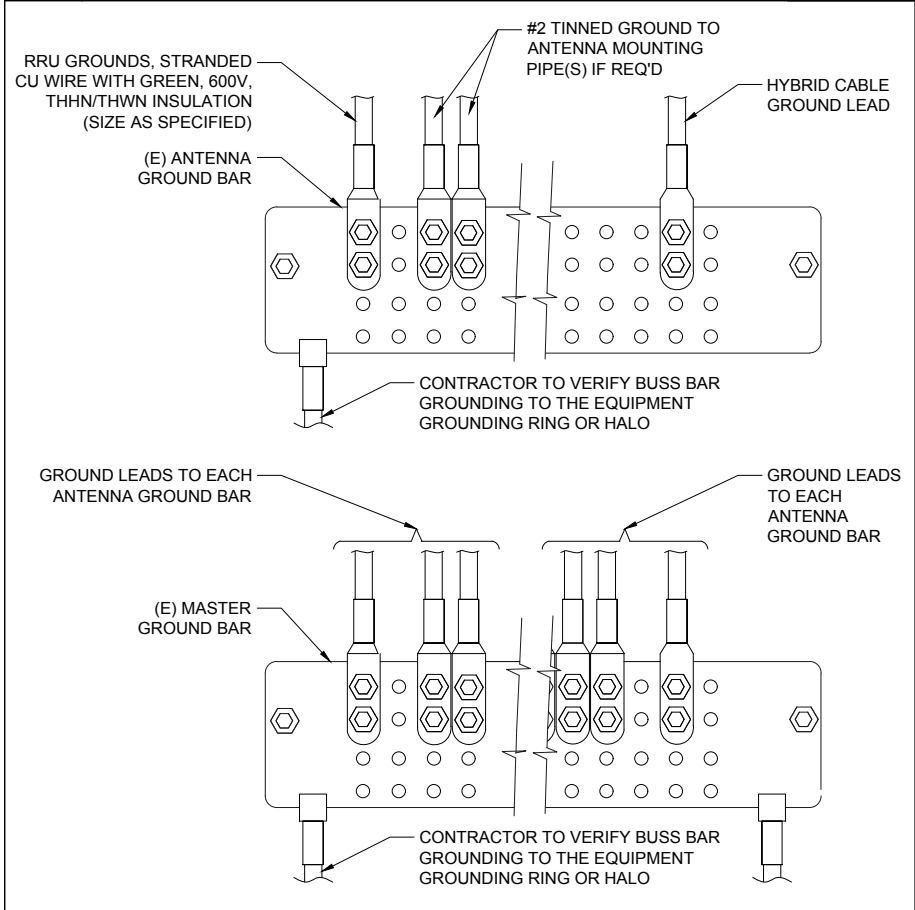




1 ANTENNA GROUNDING, TYP. SCALE: NTS

2 SECTOR GROUNDING SCALE: NTS

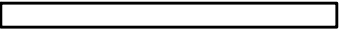
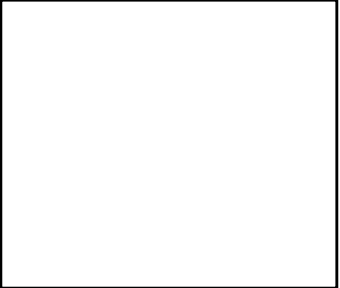
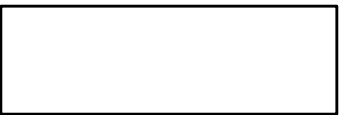
3 ANCILLIARY GROUNDING SCALE: NTS



4 TYPICAL GROUND CONNECTIONS SCALE: NTS

5 TWO-HOLE LUG CONNECTION SCALE: NTS

6 NOT USED SCALE: NTS

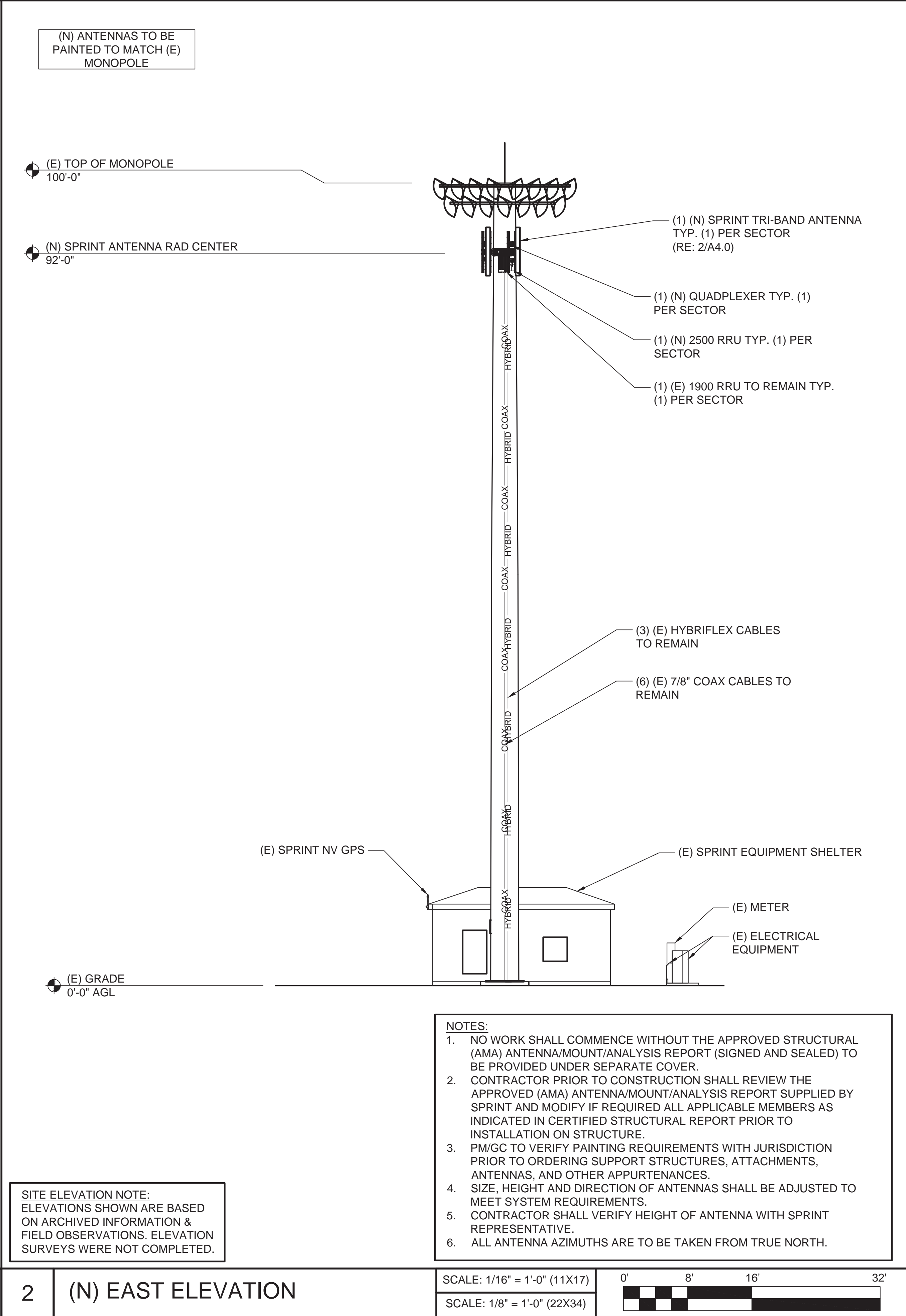
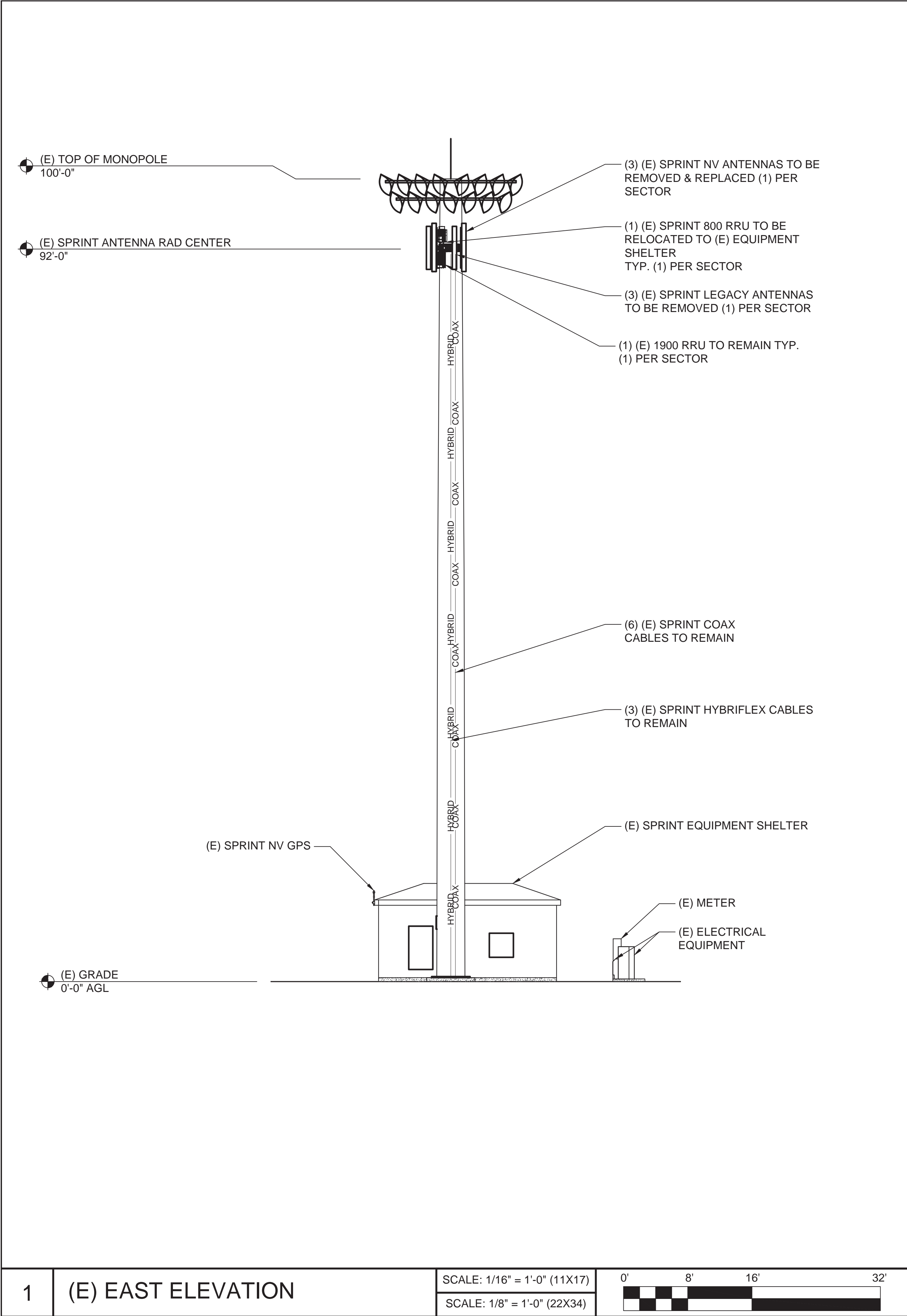


PRELIMINARY			
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SUBMITTAL			
NO.	DATE	D/C	DESCRIPTION

SITE NAME:
FALCON MIDDLE SCHOOL
DN70XC032
SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

SHEET TITLE
GROUNDING DETAILS

SHEET NO.
E2.0
EPC PROJECT NUMBER: VA18-003



PRELIMINARY			
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1	08-24-17	AK/ML	90% CD REV A
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SITE NAME:
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DN70XC032

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PEYTON, CO 80831

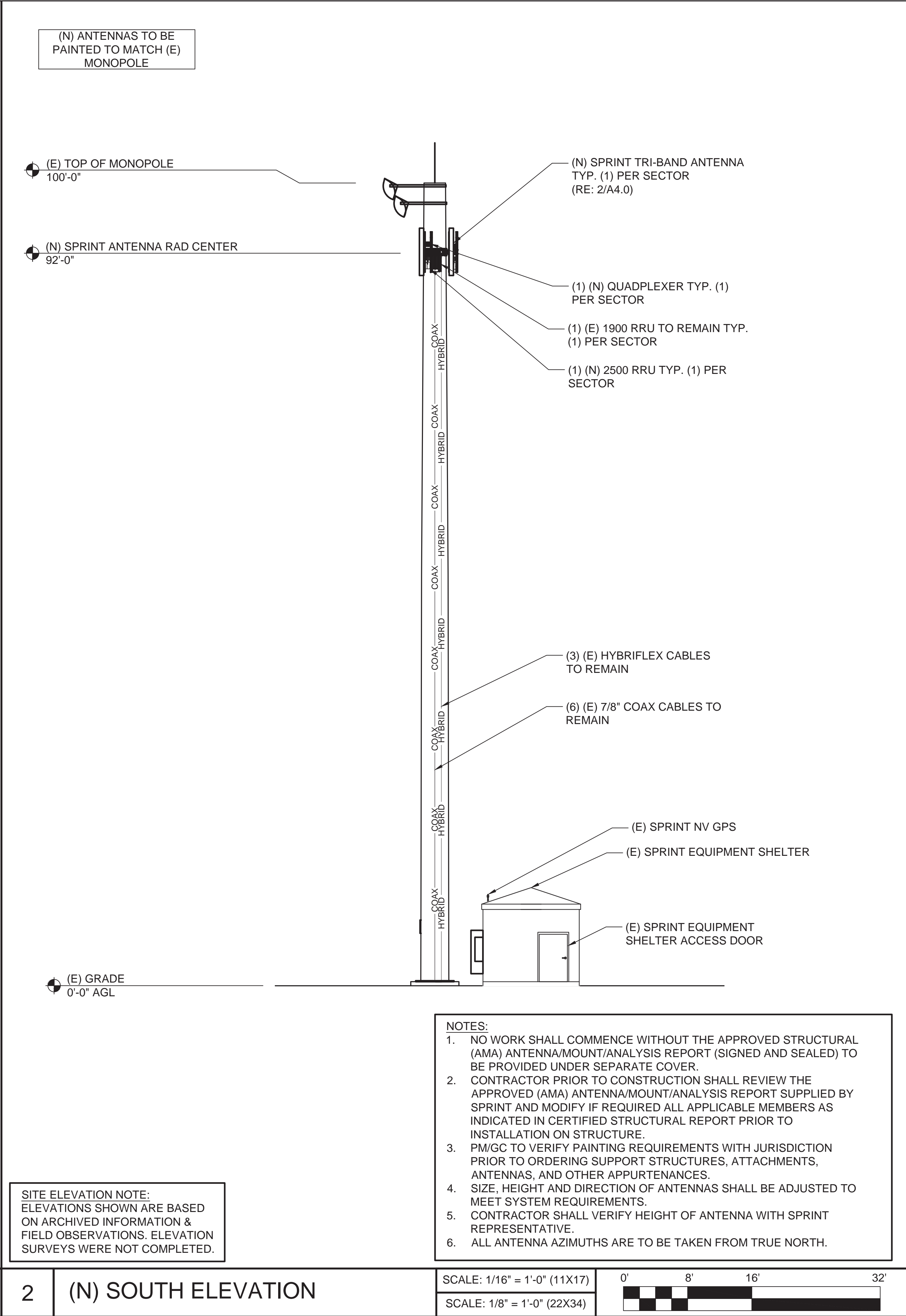
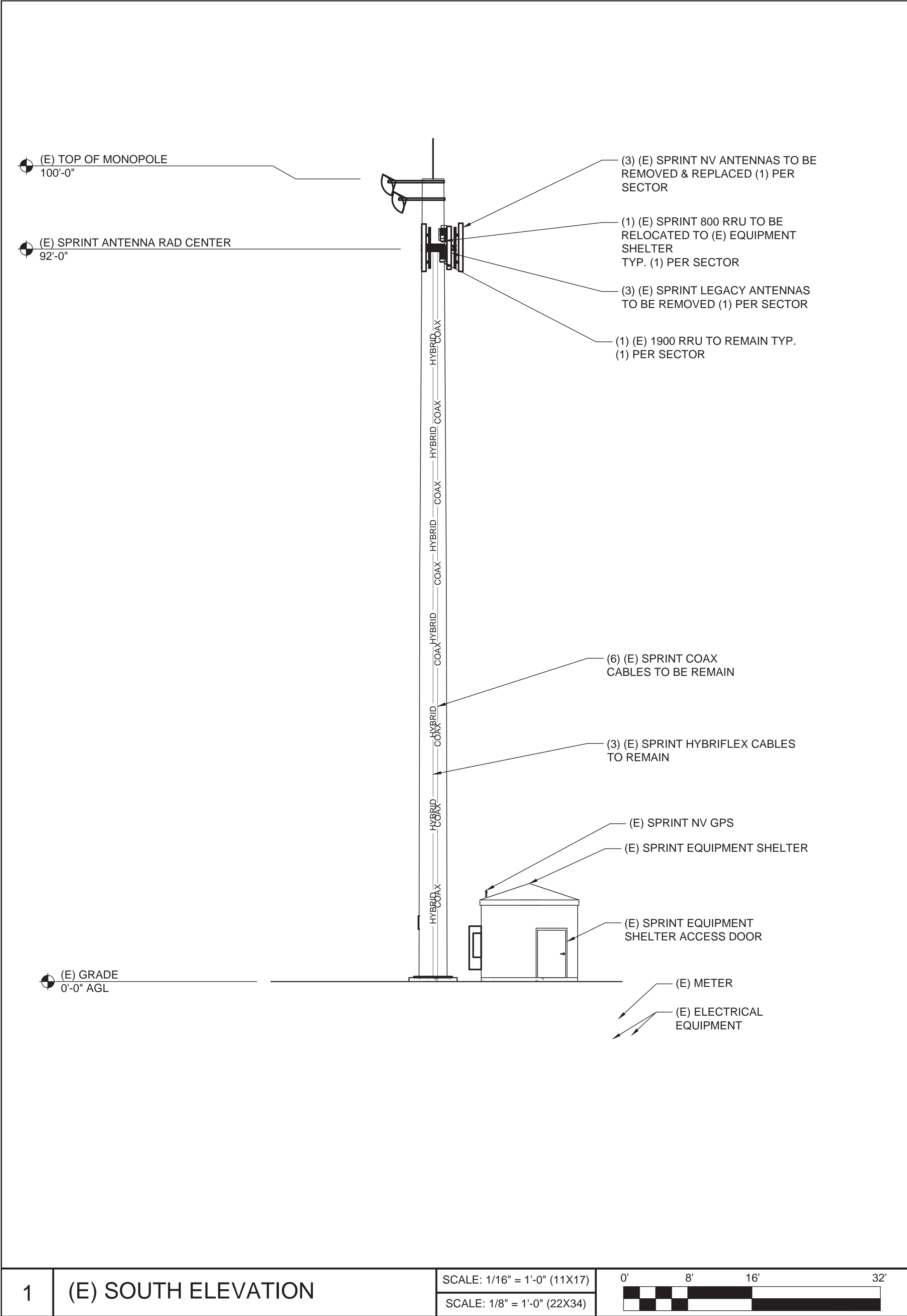
SHEET TITLE

ELEVATIONS

SHEET NO.

A3.0

EPC PROJECT NUMBER: VA18-003



NO.	DATE	D/C	DESCRIPTION
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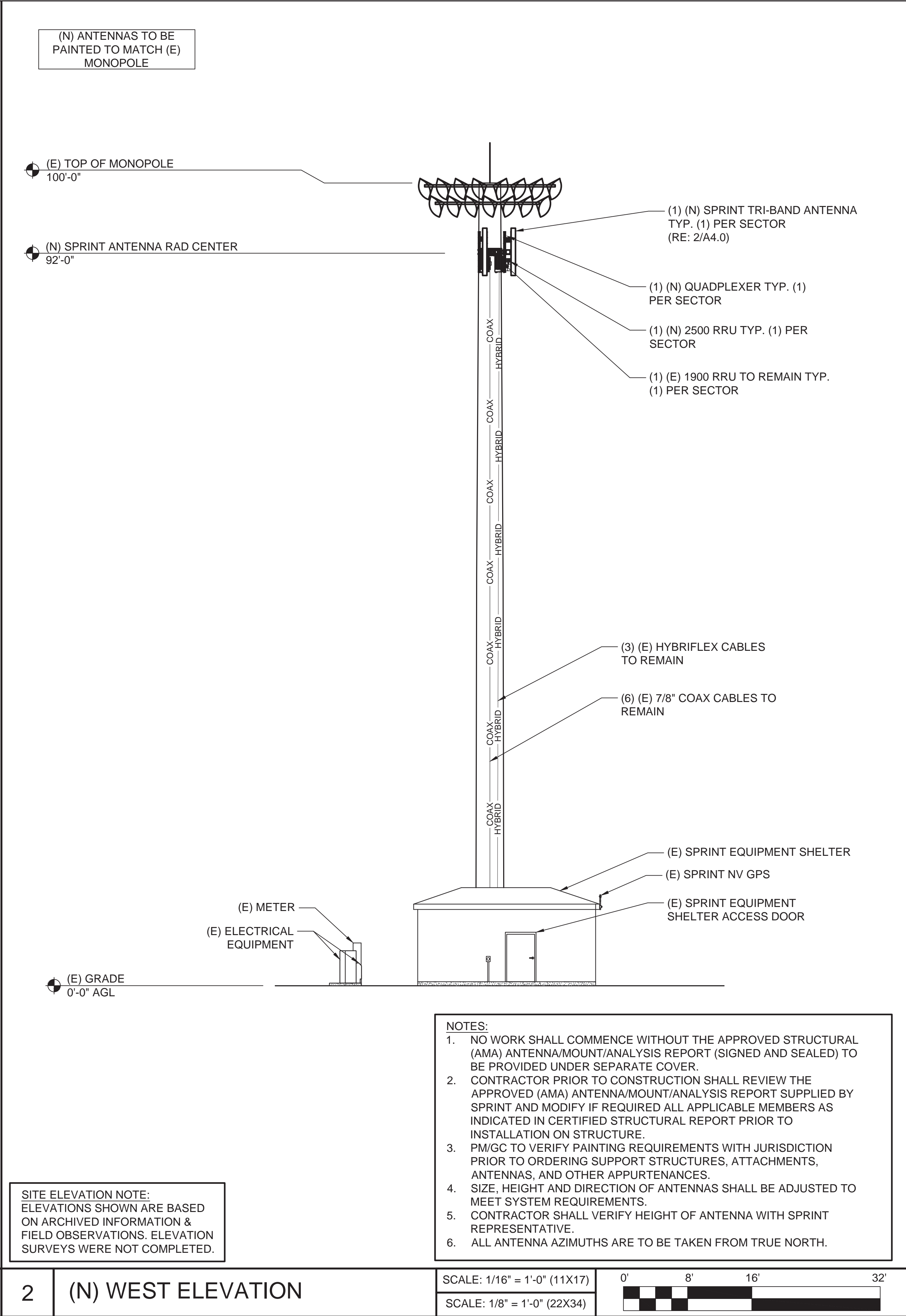
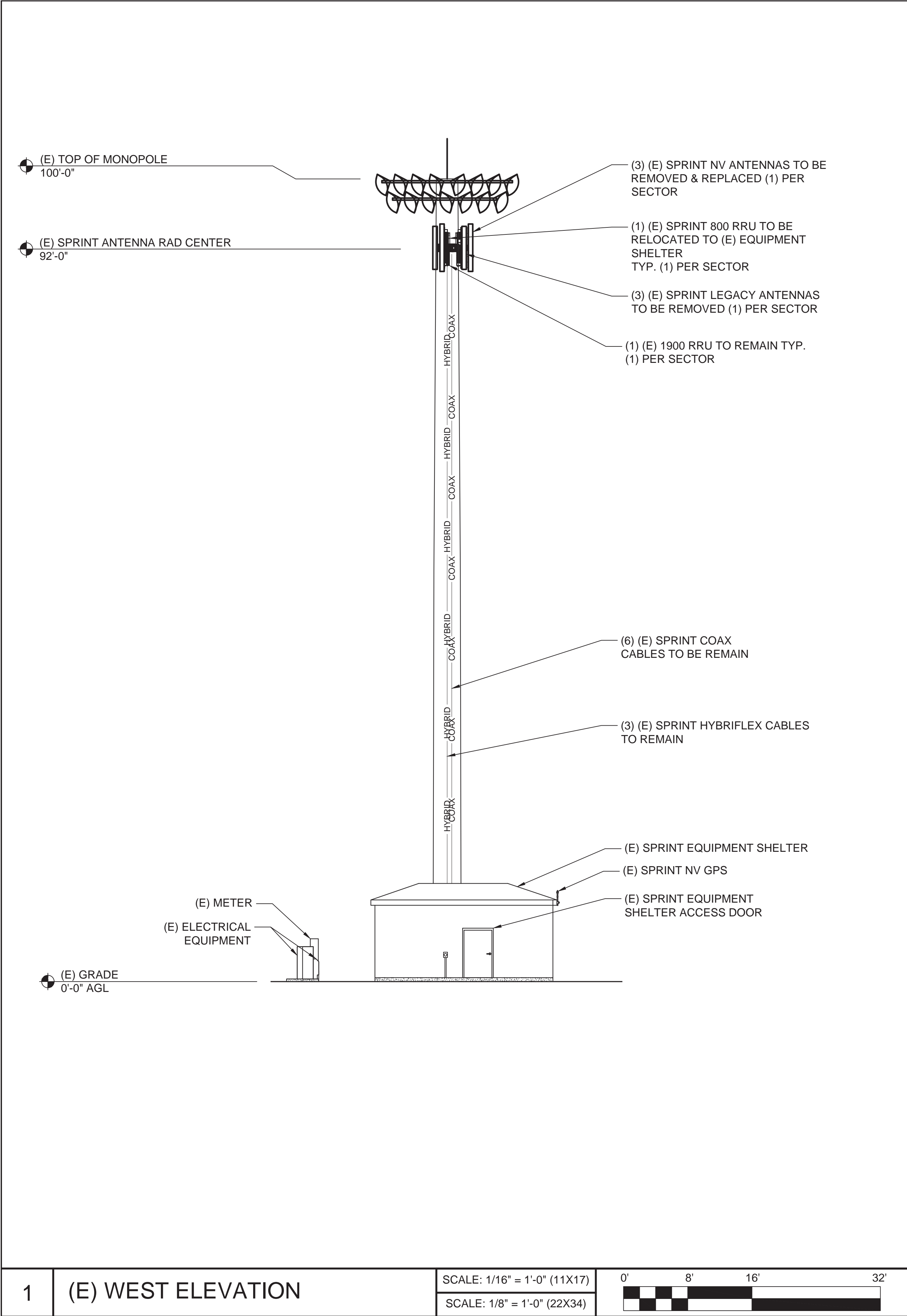
NO.	DATE	D/C	DESCRIPTION

SITE NAME:
FALCON MIDDLE SCHOOL
SCHOOL
DN70XC032

SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

SHEET TITLE
ELEVATIONS

SHEET NO.
A3.1
EPC PROJECT NUMBER: VA18-003



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NO.	DATE	D/C	DESCRIPTION

SITE NAME:
FALCON MIDDLE SCHOOL
DN70XC032

SITE ADDRESS:
9755 TOWER AVE
PEYTON, CO 80831

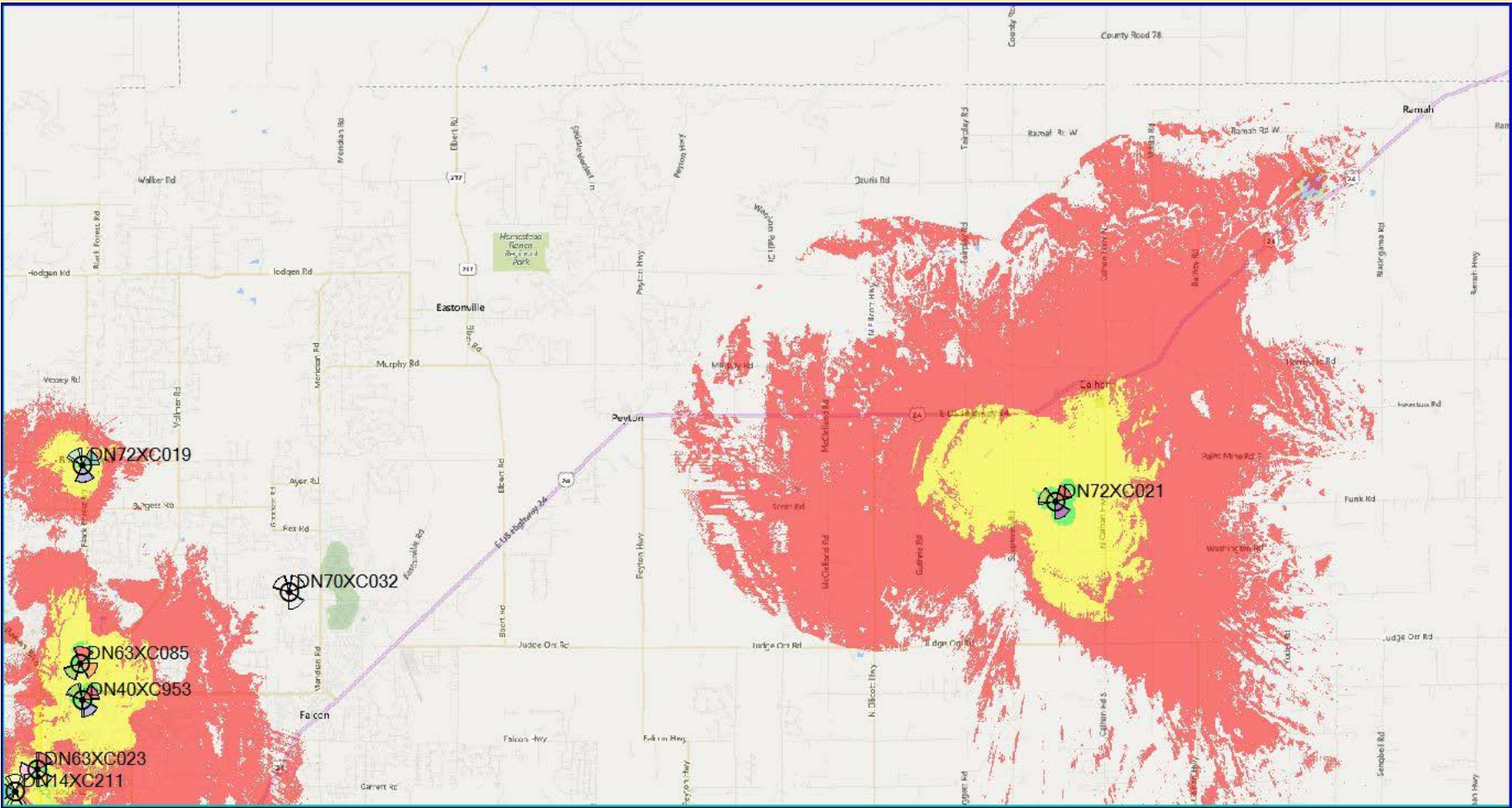
SHEET TITLE
ELEVATIONS

SHEET NO.
A3.2

EPC PROJECT NUMBER: VA18-003

EPC Project # VA 18-003

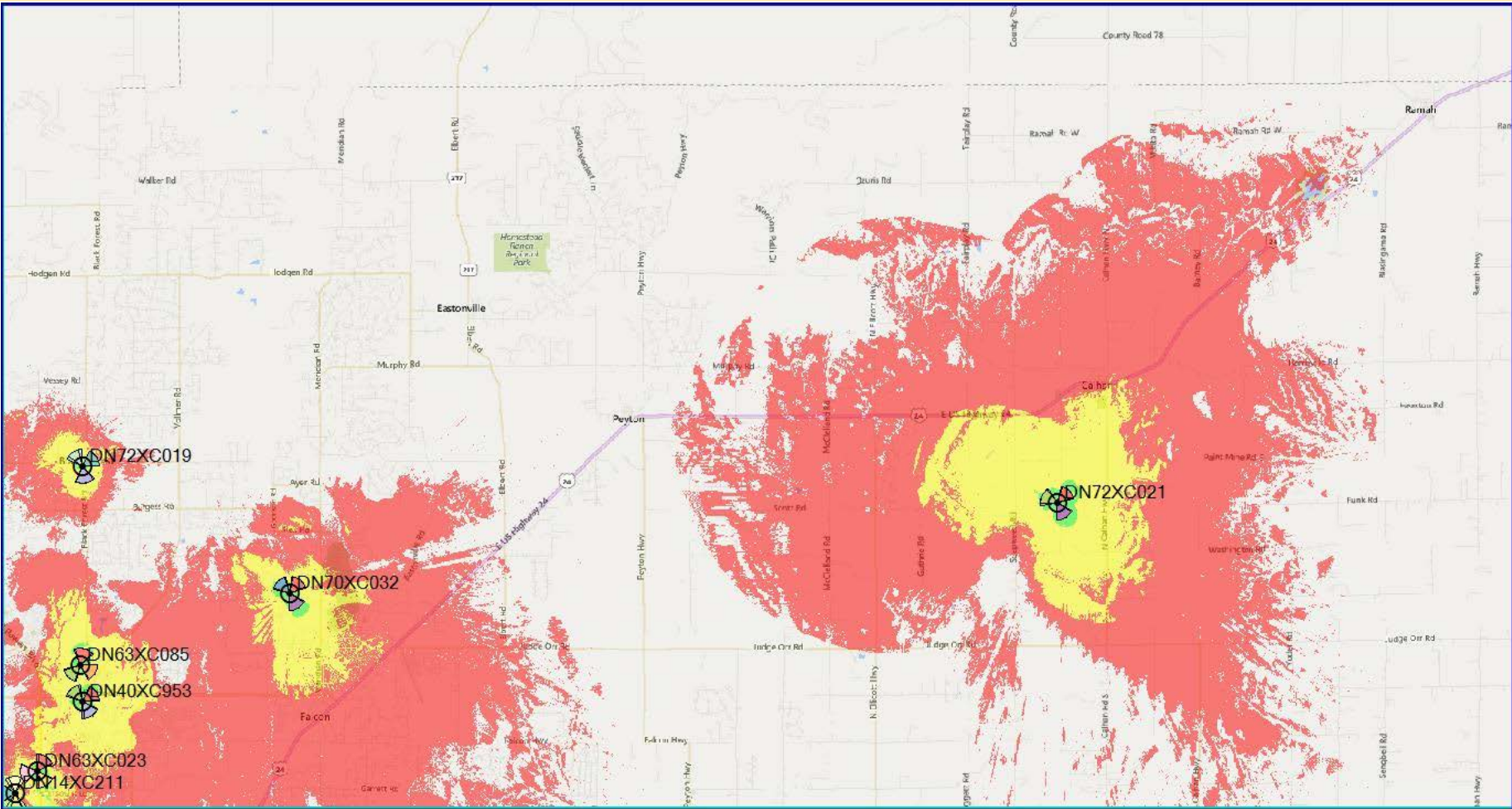
RE: Coverage With No DN70XC032 Site



Current Coverage of DN70XC032



NORTH Sprint



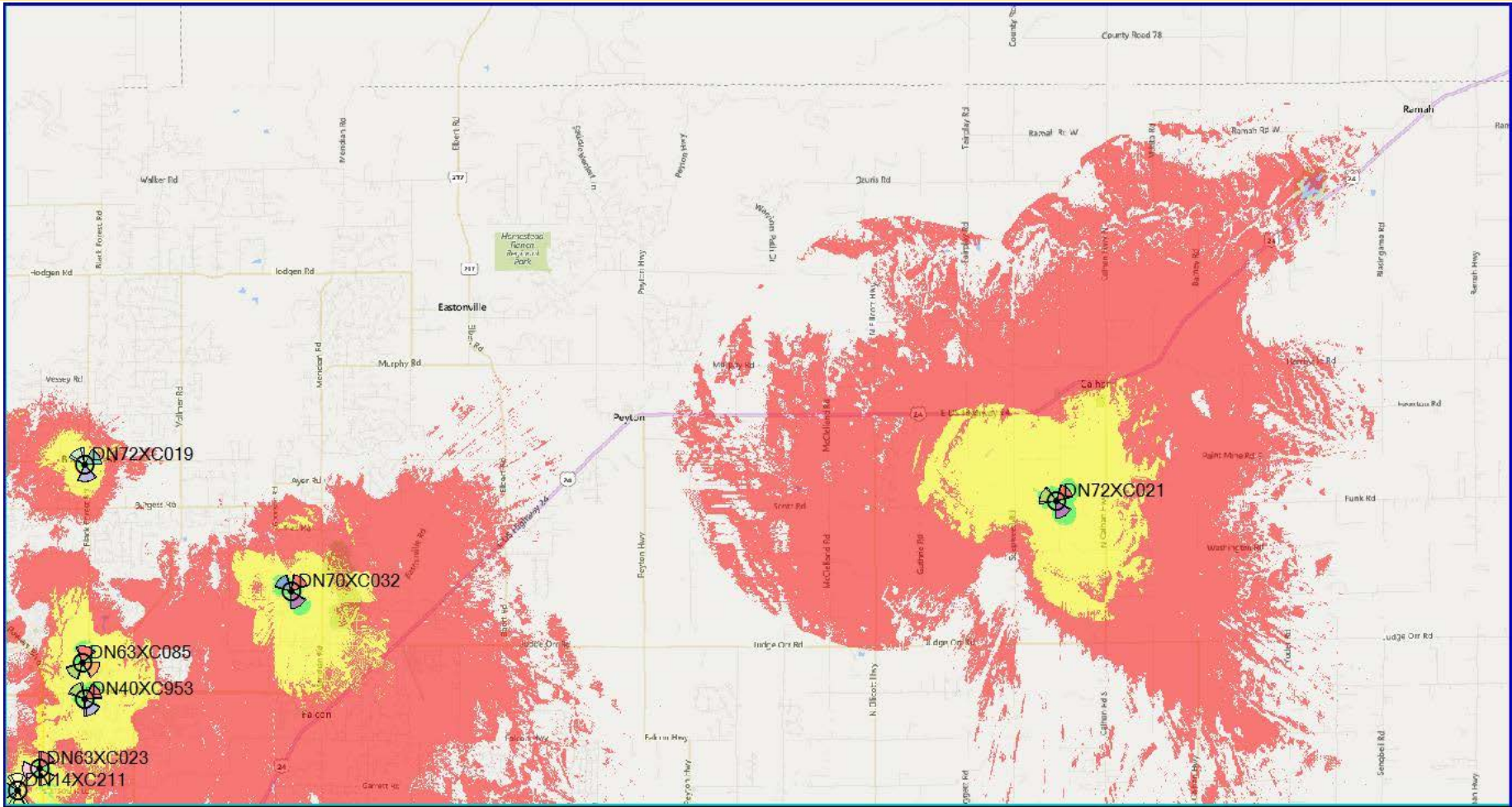
Legend

Signal Coverage Level

- Excellent
- Good
- Poor

#MoveForward

DN70XC032 Enhanced Coverage with New Equipment



Legend

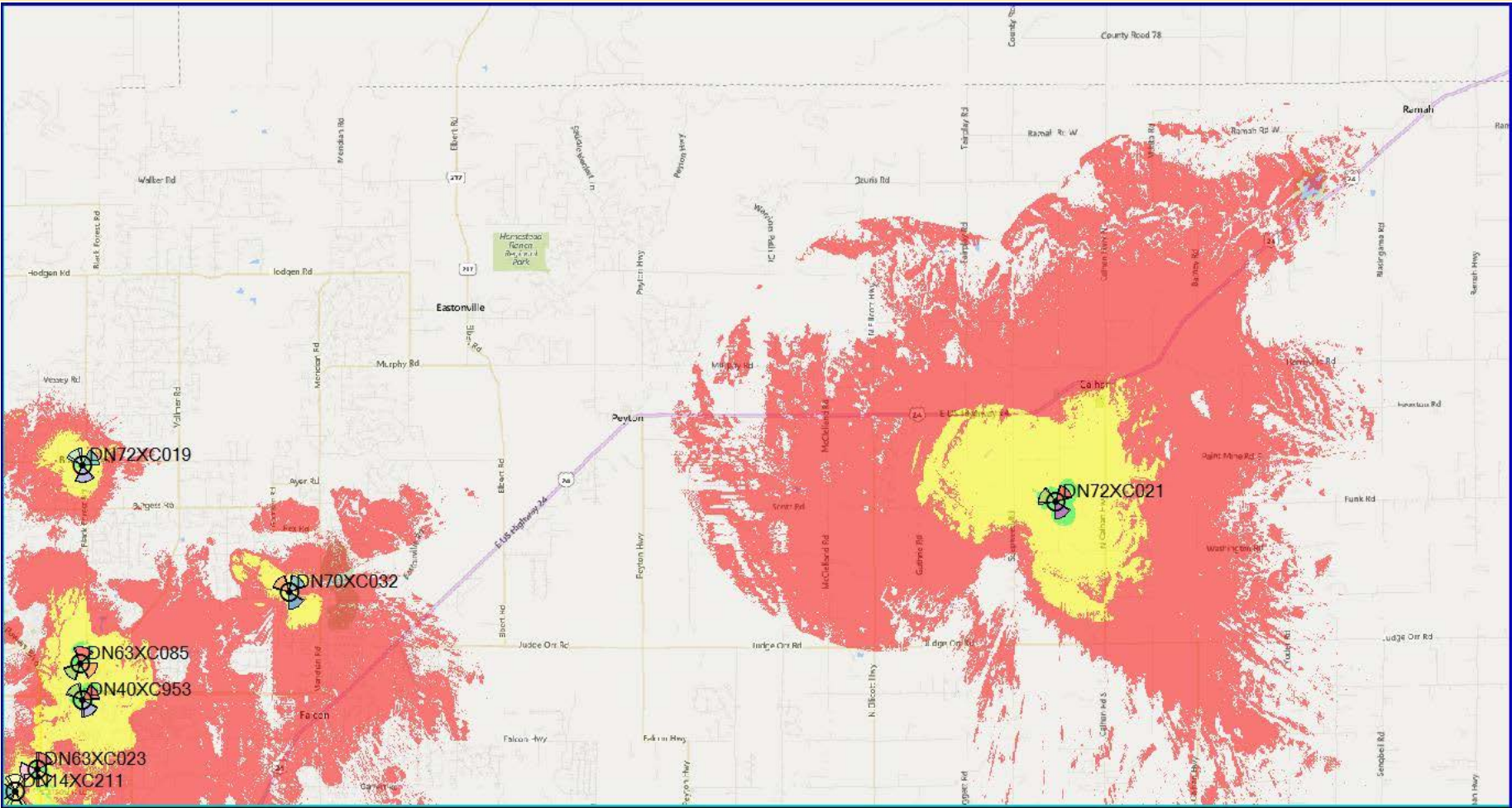
Signal Coverage Level

- Excellent
- Good
- Poor

DN70XC032 Coverage Reduced by 20' on Other Tower



NORTH Sprint



Legend

Signal Coverage Level

- Excellent
- Good
- Poor

#MoveForward



16360 Table Mountain Pkwy
Golden, CO 80403

REVISED COLOCATION ANALYSIS LETTER

FROM: Heidi GaNun

DATE: 8/6/2018

SUBJECT: Colocation Analysis Letter

SITE ID#: DN70XC032

SITE NAME: Falcon Middle School

SITE ADDRESS: 9755 Towner Ave. - Peyton, CO 80831

To Whom it may Concern

This is an existing 100' Telecommunications Facility with the capacity for colocation, should that be requested by another company. Currently this existing tower is at the max structural capacity @ 82% for equipment and to that effect, equipment will in fact be removed from the tower with the proposed modification and placed within the existing Sprint shelter on the ground. The proposed upgrade will include removing and replacing three (3) antennas on the tower, add three (3) new RRU's and move three (3) RRU's to the ground shelter area.

Should another carrier wish to collocate on this tower a new structural analysis and potential relocation of equipment would be required. The passing Structural Analysis is available upon request and will be provided with our Building Permit Application.

Vertical Bridge recently received a Variance of Use approval, project # VA-17-006 that will allow them to replace one of the existing light poles with one that can accommodate telecommunications equipment. This 100' tower can co-locate other carriers at a height of 77' and 64' as depicted on drawings provided by Vertical Bridge which are currently in review with the building department and provided with this application. As shown in our revised cellular coverage maps, it is not possible to maintain the current coverage going lower in height with the antennas. Please refer to those maps for a visual representation of current, reduced and enhanced coverage for wireless use in this area.

Sincerely,

Heidi GaNun
Centerline Solutions
hganun@centerlinesolutions.com
303.717.1602



Existing View from the North



New View from the North



Existing View from the East



New View from the East



Existing View from the South



New View from the South