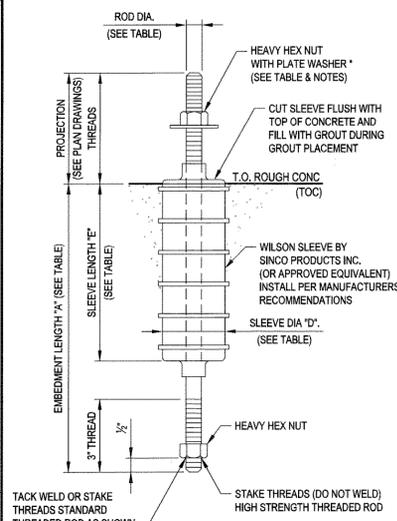


| ROD DIA. (Ø) | EMBEDMENT LENGTH "A" | | WASHER THICKNESS |
|--------------|-------------------------|--------------------------|------------------|
| | STANDARD | HIGH STRENGTH | |
| | TYPE AR F-1554 GRADE 36 | TYPE HAR F-1554 GRADE 55 | |
| 1/2 | 7 | 7 | 1/8 |
| 3/8 | 9 | 9 | 1/8 |
| 1/2 | 12 | 12 | 1/4 |
| 3/4 | 14 | 14 | 1/4 |
| 1 | 16 | 16 | 3/8 |
| 1 1/4 | 18 | 18 | 3/8 |
| 1 1/2 | 20 | 20 | 3/8 |
| 1 3/4 | 22 | 22 | 3/8 |
| 2 | 24 | 24 | 3/8 |
| 2 1/4 | 26 | 26 | 1/2 |
| 2 1/2 | 28 | 28 | 1/2 |
| 2 3/4 | 32 | 32 | 1/2 |
| 3 | 36 | 36 | 1/2 |
| 3 1/2 | 42 | 42 | 1/2 |

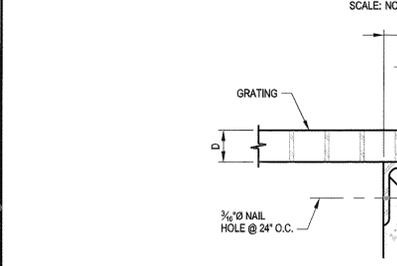
ANCHOR ROD DETAIL
SCALE: NONE

NOTE: F1554 GR 105 MAY BE REQUIRED AS SPECIFIED ON THE DRAWINGS.

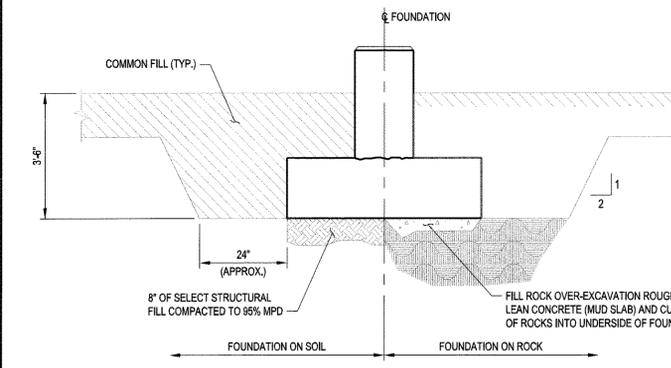


| ROD DIA. (Ø) | EMBEDMENT LENGTH "A" | | SLEEVE DIA. | SLEEVE LENGTH |
|--------------|-------------------------|--------------------------|-------------|---------------|
| | STANDARD | HIGH STRENGTH | | |
| | TYPE SAR F1554 GRADE 36 | TYPE HSAR F1554 GRADE 55 | | |
| 1/2 | 12 | 15 | 2 | 5 |
| 3/8 | 16 | 19 | 2 | 7 |
| 1/2 | 19 | 21 | 2 | 7 |
| 3/4 | 21 | 24 | 2 | 7 |
| 1 | 26 | 29 | 3 | 10 |
| 1 1/4 | 28 | 31 | 3 | 10 |
| 1 1/2 | 30 | 33 | 3 | 10 |
| 1 3/4 | 37 | 41 | 4 | 15 |
| 1 3/4 | 39 | 43 | 4 | 15 |
| 1 3/4 | 41 | 47 | 4 | 15 |
| 2 | 46 | 55 | 4 | 18 |
| 2 1/4 | 50 | 59 | 4 | 18 |
| 2 1/2 | 60 | 72 | 6 | 24 |

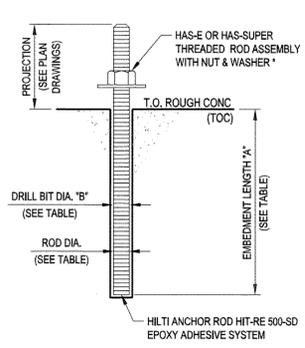
SLEEVED ANCHOR ROD DETAIL
SCALE: NONE



TRENCH ANGLE DETAIL
SCALE: NONE



TYPICAL FOUNDATION CONSTRUCTION DETAIL
SCALE: NONE

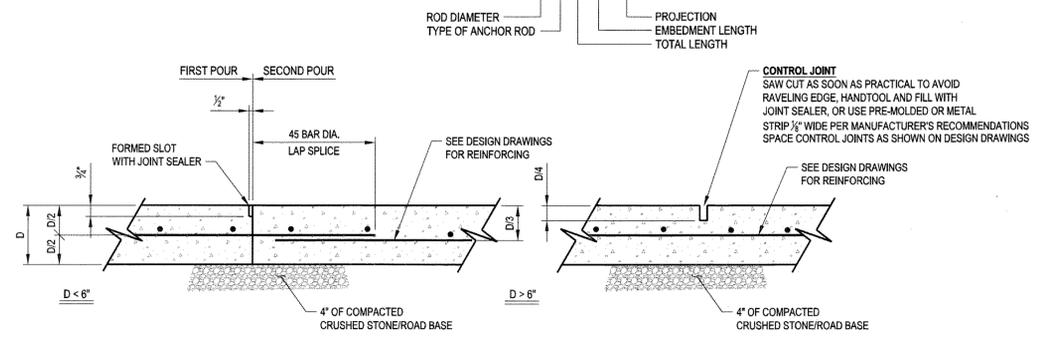


| ROD DIA. (Ø) | EMBEDMENT LENGTH "A" | | DRILL BIT DIA. (Ø) |
|--------------|---------------------------------|--|--------------------|
| | EAR ** STANDARD HAS-E Fy=68 KSI | HEAR ** HIGH STRENGTH DUCTILE HAS-SUPER Fy=105 KSI | |
| | "A" | "A" | |
| 1/2 | 4 1/2 | 5 | 3/8 |
| 3/8 | 6 | 7 | 3/8 |
| 1/2 | 7 | 8 | 3/8 |
| 3/4 | 8 | 9 | 1 |
| 1 | 9 | 10 | 1 1/8 |
| 1 1/4 | 12 | 12 | 1 3/8 |

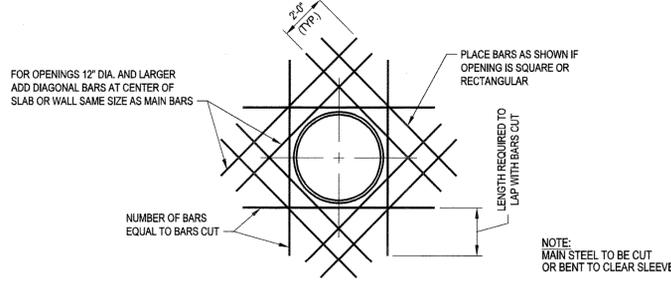
EPOXY ANCHOR ROD DETAIL
SCALE: NONE

TYPICAL ANCHOR ROD NOTES:

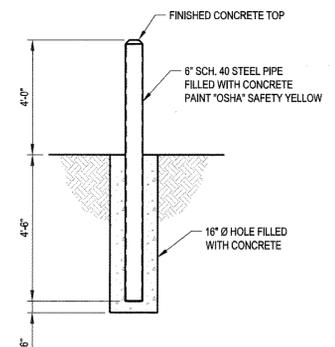
- NUTS SHALL BE ASTM A-563, GRADE C, WASHERS SHALL BE ASTM F-436.
- ALL DIMENSIONS ARE IN INCHES, USE ANSI B18.22.1 1985 (R2003) TYPE B, REGULAR FOR DIMENSIONS.
- EDGE DISTANCE SHALL BE 5d OR 4" MIN. FOR STANDARD ANCHOR RODS; 7d OR 6" MIN. FOR HIGH-STRENGTH RODS.
- ALL ANCHOR RODS PROJECTIONS SHOWN ON THIS DRAWING SHALL BE MEASURED FROM THE TOP OF THE ROUGH CONCRETE AND NOT FROM THE GROUT. ANCHOR RODS SHALL BE SET WITH A TEMPLATE. CLEAN OIL AND RUST FROM ALL ANCHOR RODS PRIOR TO PLACING
- TYPICAL ANCHOR ROD CALL-OUT SHALL BE AS FOLLOWS: 3/4 AR 16 (12" + 4")



TYPICAL SLAB ON GRADE DETAILS
SCALE: NONE



ADDITIONAL REINFORCEMENT AT SLAB PENETRATIONS, AROUND SLEEVES IN WALL OR FLOOR AND AT ALL RE-ENTRANT CORNERS OF FLOOR SLABS
SCALE: NONE



TYPICAL PIPE BOLLARD DETAIL
SCALE: NONE

EARTHWORK AND CONCRETE CONSTRUCTION NOTES / SPECIFICATION

A. GENERAL SITE INFORMATION

- DESIGN CODE = 2009; OCCUPANCY CATEGORY = II, GARFIELD COUNTY, CO.
- SNOW LOAD = 75; (GROUND SNOW) : I_s = 1.0
- WIND SPEED = 90 mph; EXPOSURE = "C"; I_w = 1.0
- SITE CLASS = "C"
- SEISMIC DESIGN PARAMETERS: S_s = 0.296; F_s = 1.2; S₁ = 0.237; S₂ = 0.069; F₂ = 1.7; S₂ = 0.078 } SEISMIC DESIGN CATEGORY (SDC) = B; I_e = 1.0

B. EARTHWORK AND FOUNDATION CONSTRUCTION

- FOUNDATION CONSTRUCTION AND SITE PREPARATION METHODS SHALL FOLLOW RECOMMENDATIONS OUTLINED IN GEOTECHNICAL REPORT NO. 213-050, DATED JUNE 5, 2013, PROVIDED BY YEH & ASSOCIATES. SPECIFIC REQUIREMENTS ARE AS FOLLOWS:
 - FOUNDATION SYSTEM: SHALLOW SPREAD FOOTINGS
 - FROST DEPTH: 42
 - SOIL COMPOSITION: SANDSTONE
- EXCAVATION AND BACKFILL:
 - FOLLOW SPECIFIC RECOMMENDATIONS OUTLINED IN PAGES (4 TO 7) OF THE REFERENCED ABOVE GEOTECHNICAL REPORT.
 - ENTIRE AREA AROUND EACH FOUNDATION MUST BE THOROUGHLY PROBED FOR UNDERGROUND PIPE, CONDUIT, HIGH PRESSURE LINES, ETC. BEFORE ANY EXCAVATION BEGINS.
 - STRUCTURAL BACKFILL SHALL CONSIST OF GRANULAR NON-EXPANSIVE SAND, GRAVEL AND SAND-GRAVEL MIXTURES, WITH PLASTICITY INDEX BELOW 15, WITH 100% LESS THAN 3.5" SIZE ROCK AND MAX. 20% PASSING NO. 200 SIEVE. IT SHALL BE PLACED IN 8" MAX. LIFTS. STRUCTURAL FILL IN FOUNDATION AREAS SHOULD BE COMPACTED TO 95% OF THE ASTM D-1557 MODIFIED PROCTOR DENSITY.
- SUBGRADE CONDITIONS SHOULD BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF ANY CONCRETE. STRUCTURAL FILL SHALL BE INSPECTED AND TESTED.

C. CONCRETE

- ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI-301 SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS LATEST EDITION, TO ACI-318-08 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE. CONCRETE STRENGTH TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI-318 CHAPTER 5.
- CONCRETE AND REINFORCEMENT SHALL BE DESIGNED AND PLACED IN ACCORDANCE WITH THE ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ACI-318-08. ACI-305 "HOT WEATHER CONCRETING" AND ACI-306 "COLD WEATHER CONCRETING" SHALL BE FOLLOWED IF REQUIRED.
- CONCRETE PARAMETERS SHALL BE AS FOLLOWS:

| EXPOSURE CATEGORY & CLASS | | | | f'c AT 28 DAYS | CEMENT TYPE | WC RATIO | AIR CONTENT | MAX SLUMP | | OTHER PROVISIONS |
|---------------------------|----|----|----|----------------|-------------|----------|-------------|-----------|----|------------------|
| F | C | S | P | | | | | 6" | 9" | |
| F2 | C0 | S0 | P0 | 5000 psi | II | 0.45 | 6% | 6" | 9" | N/A |

- LEAN CONCRETE SHALL BE (f'c) 1500 psi
- AGGREGATES SHALL BE 3/4" CRUSHED STONE CONFORMING TO "SPECIFICATION FOR CONCRETE AGGREGATES" ASTM C33.
 - WATER USED IN MIXING CONCRETE SHALL CONFORM TO ASTM C1602.
 - REINFORCING BARS SHALL BE DEFORMED, INTERMEDIATE GRADE NINE BILLET STEEL CONFORMING TO ASTM A615 (ASTM A706 OR ASTM A615 MEETING THE REQUIREMENTS OF ASCE 7 CHAPTER 14, SECTION 21.2.1.5) INCLUDING SUPPLEMENTARY REQUIREMENTS SI, GRADE 60. FIELD SPLICES AND DEVELOPMENT LENGTH SHALL COMPLY WITH THE FOLLOWING SCHEDULE, UNLESS NOTED OTHERWISE:

| REBAR SIZE | HDL | TEL TOP | TEL OTHER | TLS TOP | TLS OTHER | WHERE |
|------------|-----|---------|-----------|---------|-----------|---|
| #4 | 7 | 25 | 19 | 32 | 25 | A. TEL = TENSION EMBEDMENT LENGTH TLS = TENSION LAP SPlice LENGTH HDL = HOOK DEVELOPMENT LENGTH |
| #5 | 8 | 31 | 24 | 40 | 31 | |
| #6 | 10 | 37 | 28 | 48 | 37 | B. "TOP" BARS ARE ALL HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPlice |
| #7 | 12 | 54 | 42 | 70 | 54 | |
| #8 | 13 | 62 | 47 | 80 | 62 | |
| #9 | 15 | 70 | 54 | 91 | 70 | C. ALL BARS THAT ARE NOT "TOP" BARS ARE "OTHER" BARS |
| #10 | 17 | 78 | 60 | 102 | 78 | |
| #11 | 19 | 87 | 67 | 113 | 87 | |
 - REINFORCEMENT SHALL BE INSPECTED BEFORE CONCRETE IS PLACED

CONCRETE PROTECTION FOR REINFORCEMENT - CLEAR DISTANCE FROM FACE OF CONCRETE TO BAR SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

- CONCRETE DEPOSITED AGAINST GROUND OR VOID FORM: 3"
 - CONCRETE SURFACES EXPOSED TO WEATHER OR IN CONTACT WITH GROUND AFTER REMOVAL OF FORMS: 1 1/2" FOR #5 BARS AND SMALLER, 2" FOR #6 THROUGH #8.
 - SURFACES NOT EXPOSED TO GROUND OR WEATHER: 3/4" FOR SLABS AND WALLS WITH #11 AND SMALLER BARS, 1 5/8" FOR BEAMS AND COLUMNS.
- EXPANSION JOINT MATERIAL FOR EXPANSION OR ISOLATION JOINTS SHALL BE PREMOLDED, BITUMINOUS IMPREGNATED FIBERBOARD CONFORMING TO ASTM D994. JOINT THICKNESS SHALL BE 1/2" UNLESS NOTED OTHERWISE ON DESIGN DRAWINGS.
 - JOINT SEALANT FOR ALL CONCRETE CONTROL, CONSTRUCTION AND ISOLATION JOINTS SHALL BE SIKAFLEX-1A BY SIKA CORP., OR APPROVED EQUAL.
 - GROUT USED FOR VARIOUS APPLICATIONS SHALL BE AS FOLLOWS:
 - GROUT USED FOR STRUCTURAL STEEL COLUMN BASE PLATES SHALL BE PREPACKED, HIGH-FUIDITY NON-SHRINK NATURAL AGGREGATE GROUT SUCH AS "MASTERFLOW 713 PLUS" BY BASF (FORMERLY MASTER BUILDERS) OR APPROVED EQUAL. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION. SPACE BETWEEN THE ANCHOR RODS AND OVERSIZED HOLES IN THE BASE PLATE SHALL BE FULLY GROUTED WITH NON-SHRINK GROUT TO ASSURE PROPER SHEAR TRANSFER. GROUTING SHALL BE PERFORMED ONE BOLT AT A TIME, WHILE OTHER BASE PLATE RODS ARE FULLY TIGHTENED.
 - GROUT USED FOR GROUTING COMPRESSORS, TURBINES, LARGE PUMPS, AND OTHER RECIPROCATING OR ROTATING EQUIPMENT THAT REQUIRES EPOXY GROUTING AS SHOWN ON DESIGN DRAWINGS SHALL BE "TIVE STAR HP" EPOXY GROUT BY FIVE STAR PRODUCTS, INC. OR APPROVED EQUAL. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
 - GROUT USED FOR DRILLED AND EPOXY-GROUTED REBARS SHALL BE HILTI HIT-RE-500-SD EPOXY OR APPROVED EQUAL.
 - VOID FORM MATERIAL SHALL BE "SURE VOID" OR APPROVED EQUAL. KEEP VOID FROM MATERIAL DRY DURING PLACEMENT AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. VOID FORM SHALL BE BIODEGRADABLE AND CAPABLE OF SUPPORTING THE FLUID WEIGHT OF THE CONCRETE.
 - ALL WELDING PROCEDURES, INCLUDING STUD WELDING, AND QUALIFICATIONS SHALL BE IN ACCORDANCE WITH AWS D1.1.
 - ALL SLABS SHALL BE GIVEN A FLOAT FINISH AS DESCRIBED IN ACI-301 UNLESS NOTED OTHERWISE. ALL WALKS AND EXTERIOR SLABS SHALL BE BROOM FINISHED AFTER CONCRETE HAS RECEIVED A FLOAT FINISH.
 - EXPOSED CORNERS SHALL BE CHAMFERED 3/4" UNLESS NOTED.
 - CHECK ALL ELECTRICAL, MECHANICAL AND PIPING DRAWINGS FOR EMBEDDED ITEMS (PIPE, CONDUIT, ETC.) AND BLOCKOUTS BEFORE PLACING CONCRETE.
 - IF REINFORCING OR MESH IS FIELD CUT FOR SMALL OPENINGS, CONDUIT, ELECTRICAL BOXES, ETC. CUT REINFORCING SHALL BE REPLACED WITH AN EQUIVALENT AREA OF STEEL. ALL SUCH BARS SHALL EXTEND 24" MINIMUM (OR MESH LAP 2") BEYOND CORNER OR EDGE OF OPENING IF NECESSARY. REINFORCING SHALL BE BENT TO PROVIDE THIS MINIMUM EMBEDMENT. MAKE ALL BARS CONTINUOUS AROUND CORNERS.
 - THE CONTRACTOR SHALL VERIFY ALL EQUIPMENT ANCHOR ROD DIMENSIONS AGAINST THE CERTIFIED EQUIPMENT DRAWINGS BEFORE PLACING CONCRETE. TOLERANCES FOR ANCHOR ROD LOCATIONS AND ELEVATIONS SHALL BE AS DEFINED IN THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) CODE OF STANDARD PRACTICE.
 - ALL WATER STOP SHALL BE BENTONITE FLEXIBLE STRIP WATERSTOP BY VOLCLAY OR APPROVED EQUAL.

D. CONTRACTOR'S MEANS AND METHODS

- THE STRUCTURAL DRAWINGS AND NOTES REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. FOR THIS REASON, DURING ERECTION OF THE STRUCTURE AND/OR THE DEMOLITION OF THE STRUCTURE OR PORTIONS OF THE STRUCTURE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY BRACING TO WITHSTAND ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING LATERAL LOADS, EXCAVATIONS, SHORING, STOCKPILES OF MATERIALS AND EQUIPMENT, IN ADDITION TO ANY WORKER SAFETY REQUIREMENTS. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS IT MAY BE REQUIRED FOR SAFETY AND UNTIL ALL STRUCTURAL FRAMING AND DIAPHRAGMS ARE IN PLACE WITH CONNECTIONS COMPLETED.
- DISCOVERY: DURING CONSTRUCTION, THE CONTRACTOR MAY ENCOUNTER EXISTING CONDITIONS OR AS BUILT DIMENSIONS WHICH ARE NOT NOW KNOWN OR ARE AT VARIANCE WITH PROJECT DOCUMENTATION (DISCOVERY). SUCH CONDITIONS MAY INTERFERE WITH CONSTRUCTION OR REQUIRE PROTECTION AND / OR SUPPORT OF EXISTING WORK DURING CONSTRUCTION, OR MAY CONSIST OF DAMAGE OR DETERIORATION TO THE STRUCTURAL MATERIALS OR COMPONENTS WHICH COULD JEOPARDIZE THE INTEGRITY OF THE STRUCTURE(S) RELATED TO SUCH DISCOVERIES.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMMEDIATELY NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCOVERY HE OR SHE IDENTIFIES THAT MAY INTERFERE WITH THE PROPER EXECUTION OF THE WORK OR JEOPARDIZE THE INTEGRITY OF THE STRUCTURE(S) PRIOR TO PROCEEDING WITH WORK RELATED TO SUCH DISCOVERIES.

E. CONTRACTOR'S COORDINATION

- THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS AND DETAILS BETWEEN ALL TRADES, SUBCONTRACTORS AND VENDOR SUPPLIED EQUIPMENT PRIOR TO COMMENCING ANY CONSTRUCTION. THE STRUCTURAL ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY INCONSISTENCIES RELATING TO THE STRUCTURE. FAILURE TO DO SO SHALL RELIEVE THE STRUCTURAL ENGINEER OF ALL CONSEQUENCES RELATED TO THE INCONSISTENCY.
- SEE MECHANICAL, ELECTRICAL AND OTHER DISCIPLINE'S DRAWINGS FOR ADDITIONAL INFORMATION RELATING TO THE STRUCTURE.

F. DRAWING CONVENTIONS

- T.O.C. EL. INDICATES TOP OF CONCRETE ELEVATION.
- B.O.C. EL. INDICATES BOTTOM OF CONCRETE ELEVATION.
- SCALES NOTED ON DRAWINGS ARE ACCURATE FOR FULL-SIZE (24"x36") DRAWINGS ONLY.



| | | | | | | | | | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|--|---------------------------------------|--|--|--|-----------------------------|--|--|--|
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| <p>DWG. NO. DESCRIPTION</p> | | | | <p>CLIENT PROJECT MANAGER PROJECT ENGINEER CHECK</p> | | | | <p>DATE BY</p> | | | | <p>LOCATION: GARFIELD COUNTY, CO</p> | | | | <p>DRAWING NUMBER</p> | | | |
| <p>REFERENCE DRAWINGS</p> | | | | <p>REVISIONS</p> | | | | <p>DATE BY</p> | | | | <p>APPROVED: [Signature]</p> | | | | <p>13041-SC-001</p> | | | |
| <p>REVISIONS</p> | | | | <p>REVISIONS</p> | | | | <p>DATE BY</p> | | | | <p>APPROVED: [Signature]</p> | | | | <p>REV. C</p> | | | |