

Reviewed for  
Code Compliance

06/21/2024

## Submittal Review Sheet

\*\*\*PLEASE USE THE SPACES BELOW FOR COMMENTS AND STAMPS\*\*\*



SUBMITTED FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS EXCEPT AS NOTED. REVIEW OF THIS SUBMITTAL DOES NOT RELEASE THE SUBCONTRACTOR OF ITS RESPONSIBILITY TO CONFORM WITH THE PLANS AND SPECIFICATIONS NOR DOES THIS REVIEW RELEASE THE SUBCONTRACTOR FROM VERIFYING THE ACCURACY OF QUANTITIES AND FIELD DIMENSIONS.

Submittal Package Number: 323200-002 Retaining Wall Shop Drawings for Review  
Signed: Alec Hallman  
Date: 04/26/2024  
SAUNDERS CONSTRUCTION, INC.

- ☐ NO EXCEPTION TAKEN
- ☐ REVISE AND RESUBMIT
- ☐ APPROVED AS NOTED
- ☒ SEE CONSULTANT REVIEW
- ☒ RECEIVED FOR RECORD ONLY
- ☐ REJECTED

Architect's or architect's consultant review is for general conformance of the submittal to the design concept and contract documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the project plans and specifications nor departures therefrom. The Contractor remains responsible for detail and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes and techniques of assembly, and for performing work in a safe and satisfactory manner.

**359 DESIGN, LLC**

BY: Griffin Gilbert DATE: 05.13.24

Review response submitted

Review step 01

Response **No Exceptions Taken**

Tim Brodman on 5/10/2024 at 1:15 PM

Reviewed for  
Code Compliance

06/21/2024

Reviewed for  
Code Compliance

06/21/2024

# THE AMBLE STEAMBOAT SPRINGS, CO RETAINING WALL SHOP DRAWINGS



PROJECT VICINITY MAP  
(NOT TO SCALE)



## SHEET INDEX

SHEET	DESCRIPTION
RW-1.00	TITLE SHEET
RW-2.00	SPECIFICATIONS
RW-2.01	SPECIFICATIONS
RW-3.00	SITE PLAN
RW-4.00	WALL 1 ELEVATION
RW-4.01	WALL 1 ELEVATION
RW-4.02	WALL 2 ELEVATION
RW-4.03	WALL 2 ELEVATION
RW-5.00	WALL SECTION A-A
RW-6.00	CONSTRUCTION DETAILS

### GENERAL NOTES:

- MULTIPLE CONTRACTORS (FENCE, WALL, GRADING, ETC.) MAY BE USED TO COMPLETE THE OVERALL PROJECT AS SHOWN ON THESE SHOP DRAWINGS. PLANS DO NOT DEFINE SCOPE OF WORK FOR INDIVIDUAL ENTITIES. SEE CONTRACT DOCUMENTS FOR SPECIFIC DETAILS ON THE SCOPE OF WORK THAT WILL BE PROVIDED BY ALL PARTIES.
- WALL CONSTRUCTION SHALL BE SUPERVISED BY A QUALIFIED ENGINEER OR TECHNICIAN TO VERIFY FIELD AND SITE SOIL CONDITIONS. IF THIS WORK IS NOT PERFORMED BY THE SITE GEOTECHNICAL ENGINEER, A QUALIFIED GEOTECHNICAL ENGINEER/TECHNICIAN SHALL BE CONSULTED IN THOSE MATTERS PERTAINING TO THE SOIL CONDITIONS AND WALL PERFORMANCE.
- THE FOUNDATION SOILS AT THE BASE OF THE WALLS SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER. ANY UNSUITABLE SOILS OR IMPROPERLY COMPACTED EMBANKMENT MATERIAL SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE ENGINEER PRIOR TO WALL CONSTRUCTION TO PROVIDE ADEQUATE BEARING CAPACITY AND MINIMIZE SETTLEMENT.
- ALL WALL EXCAVATION AND RETAINED SOILS SHALL BE INSPECTED FOR GROUNDWATER CONDITIONS. ANY ADDITIONAL DRAINAGE PROVISIONS REQUIRED IN THE FIELD SHALL BE INCORPORATED INTO THE WALL CONSTRUCTION AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- WALL BACKFILL MATERIAL SHALL BE TESTED AND APPROVED BY THE ENGINEER, MEETING THE MINIMUM REQUIREMENTS OF THE APPROVED DESIGN PLANS OR SPECIFICATIONS.
- ALL SOIL BACKFILL SHALL BE TESTED BY THE GEOTECHNICAL ENGINEER FOR MOISTURE, DENSITY, AND COMPACTION PERIODICALLY (EVERY 2' VERTICALLY, 100'-200' C/C) MEETING THE MINIMUM REQUIREMENTS OF THE APPROVED DESIGN PLANS OR SPECIFICATIONS.
- THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN QUALITY CONTROL FOR THE CONSTRUCTION OF THE WALL TO ASSURE COMPLIANCE WITH CONTRACT REQUIREMENTS AND MAINTAIN RECORDS OF ITS QUALITY CONTROL.
- ALL WALL ELEVATIONS, GRADES, AND BACK SLOPE CONDITIONS SHALL BE VERIFIED BY THE ENGINEER IN THE FIELD FOR CONFORMANCE WITH APPROVED DESIGN PLANS. ANY REVISIONS TO THE STRUCTURE GEOMETRY OR DESIGN CRITERIA SHALL REQUIRE DESIGN MODIFICATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.
- THE RETAINING WALL(S) SHOULD BE INSPECTED EVERY SIX MONTHS FOR MOVEMENT, SOIL TENSION CRACKS, EROSION ADJACENT TO THE RETAINING WALL STRUCTURES, AND FOR SURFICIAL SLOPE STABILITY WHEN A SLOPE EXISTS ABOVE OR BELOW THE RETAINING WALL(S).
- SURFICIAL SLOPE INSTABILITY TYPICALLY IMPACTS THE UPPER 3 TO 5 FEET OF THE SUBSURFACE PROFILE. REGULAR MAINTENANCE SHOULD BE ANTICIPATED TO IDENTIFY AND ADDRESS POTENTIAL SOIL CREEP OR EROSION. THIS INCLUDES REPLACING OR REPLANTING TREES AND GRASSES, AS NECESSARY, AND GRADING THE SLOPE TO REDUCE SOIL CREEP AND EROSION. IF FUTURE SURFICIAL SLOPE EROSION OCCURS, THE SLOPE FACE BE RESTORED AS SOON AS PRACTICAL.
- FILL SLOPES SHOULD BE RE-VEGETATED AS SOON AS POSSIBLE AFTER GRADING AND PROTECTED FROM EROSION UNTIL VEGETATION IS ESTABLISHED. SLOPE PLANTING SHOULD CONSIST OF GROUND COVER, SHRUBS, AND TREES POSSESSING DEEP, DENSE ROOT STRUCTURES THAT REQUIRE MINIMAL IRRIGATION.
- THE OWNER OR OWNER'S REPRESENTATIVE IS RESPONSIBLE FOR ENSURING THAT CONSTRUCTION ADJACENT TO THE WALL DURING AND AFTER CONSTRUCTION DOES NOT DISTURB THE WALL OR PLACE TEMPORARY OR PERMANENT LOADS ON THE WALL THAT EXCEED THE DESIGN LOADS, INCLUDING BUT NOT LIMITED TO WATER PRESSURE, TEMPORARY GRADES, EQUIPMENT LOADING, AND FUTURE STRUCTURES.
- AS-BUILT CONSTRUCTION TOLERANCES:
  - HORIZONTAL ALIGNMENT:  $\pm 0.75$ -INCHES OVER ANY 10-FOOT DISTANCE; 3-INCHES MAX
  - WALL BATTER: WITHIN  $1^\circ$  OF DESIGN BATTER
  - CORNERS, BENDS, AND CURVES:  $\pm 2$ -FEET FROM THEORETICAL POSITION
  - MAXIMUM DIFFERENTIAL SETTLEMENT:  $L/200$  (0.5% OF REFERENCED LENGTH)
  - TOTAL SETTLEMENT: 2-INCHES MAX



SOIL STRUCTURES ENGINEERING

Earth Retention • Foundations • Steel & Concrete Structures

10065 Kings Canyon Dr., Peyton, CO 80831  
(303) 956-8967  
info@soilstructures.com  
www.soilstructures.com



Signature Stone  
211 30th St., Greeley, CO 80631  
(970) 351-0270  
www.signaturestone.com

Sales:  
Seth Clark  
(970) 539-2201  
sclark@signaturestone.com

No.	Date	Revision	By
0	20 APR 2024	RELEASED FOR CONSTRUCTION	BTB
1			
2			
3			
4			
5			
6			
7			
8			
9			

Project: THE AMBLE STEAMBOAT SPRINGS, CO			
Title: TITLE SHEET			
Project No: 24SSL010	Date: 20 APR 2024	Scale: N.T.S.	Sheet No: RW-1.00



©2024 SOIL STRUCTURES ENGINEERING, LLC. - THIS DRAWING IS BEING FURNISHED FOR THIS SPECIFIC PROJECT ONLY. COPY AND OR REUSE WITHOUT THE CONSENT OF SOIL STRUCTURES ENGINEERING, LLC IS PROHIBITED.

1.0 MATERIALS

1.1 BACKFILL SOILS  
1.1.1 AGGREGATE AND RETAINED SOIL 1 SHALL CONSIST OF CLEAN CRUSHED STONE, CRUSHED GRAVEL, OR CRUSHED RECYCLED CONCRETE MEETING THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM C-136:

06/21/2024

SIEVE SIZE	PERCENT PASSING
1.5"	100%
1.0"	95-100%
1/2"	25-60%
No. 4	0-10%
No. 8	0-5%

LOSS BY WASHING 2.0% MAX

1.1.2 ROUNDED AGGREGATE (e.g. RIVER ROCK AND PEA GRAVEL) SHALL NOT BE USED IN ANY CAPACITY BEHIND OR BELOW THE PROPOSED RETAINING WALL.

1.1.3 LEVELING PAD SHALL CONSIST OF DENSE-GRADED, OPEN-GRADED CRUSHED STONE OR CRUSHED GRAVEL. IF OPEN GRADED AGGREGATE IS USED IN A WATER APPLICATION, LEVELING PAD SHALL BE WRAPPED WITH NON-WOVEN GEOTEXTILE.

1.2 BLOCK FACING SHALL BE REDI-ROCK, 28" AND 41" UNITS. UNITS SHALL MEET ASTM C1372 FOR DRY CAST BLOCK OR C1776 FOR WET CAST CONCRETE, EXCEPT MANUFACTURED CONCRETE VERTICAL DIMENSIONAL TOLERANCE SHALL BE +/- 1/16". CONCRETE SHALL BE OF ORIGINAL PRODUCTION MIX WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI. AIR CONTENT, MIX DESIGN, ABSORPTION, AND FREEZE THAW EXPOSURE CLASS SHALL MEET THE SPECIFICATIONS AS REQUIRED BY THE CONTRACT DOCUMENTS AND INDUSTRY BEST PRACTICES.

1.3 FILTER FABRIC SHALL BE 4 oz/sy (MIN.) NON-WOVEN, NEEDLE PUNCHED, POLYPROPYLENE GEOTEXTILE - MIRAFI 140N OR EQUAL.

1.4 DRAIN PIPE SHALL BE 4" DIAMETER SINGLE WALL HDPE PIPE WITHOUT FILTER SOCK, OR APPROVED EQUAL. PIPE AND PIPE FITTINGS SHALL MEET ASTM F405 AND F667. 4" FLEX DRAIN IS A PRE APPROVED ALTERNATE.

2.0 TECHNICAL REQUIREMENTS

2.1 THE OWNER'S REPRESENTATIVE OR GRADING CONTRACTOR SHALL SUBMIT TO SOIL STRUCTURES ENGINEERING, LLC THE GRADATION AND STRENGTH PARAMETERS OF RETAINED SOIL/FILL AND FOUNDATION SOIL, FOR APPROVAL PRIOR TO PROCEEDING WITH CONSTRUCTION. WORK SHALL NOT PROCEED UNTIL THIS SUBMITTAL IS APPROVED BY SOIL STRUCTURES ENGINEERING, LLC.

2.2 PRIOR TO CONSTRUCTION OF THE WALLS, THE GRADING CONTRACTOR SHALL CLEAR AND GRUB THE REINFORCED BACKFILL ZONE AREA, REMOVING TOP SOILS, BRUSH, SOD OR OTHER ORGANIC OR DELETERIOUS MATERIALS. ANY UNSUITABLE SOILS SHALL BE OVER-EXCAVATED, REPLACED AND COMPACTED WITH STRUCTURAL FILL MATERIAL TO PROJECT SPECIFICATIONS OR OTHERWISE DIRECTED BY THE OWNER'S GEOTECHNICAL ENGINEER.

2.3 THE GEOTECHNICAL ENGINEER SHALL CONFIRM THAT THE SITE HAS BEEN PROPERLY PREPARED AND THE DESIGN PARAMETERS IN SECTION 6.0 ARE APPROPRIATE PRIOR TO FILL PLACEMENT. A WRITTEN CONFIRMATION SHALL BE PROVIDED TO SOIL STRUCTURES ENGINEERING, LLC PRIOR TO FILL PLACEMENT.

2.4 FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 10" (INCHES) IN UNCOMPACTED THICKNESS FOR HEAVY COMPACTION EQUIPMENT. FOR ZONES WHERE COMPACTION IS ACCOMPLISHED WITH HAND OPERATED EQUIPMENT, FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 6" (INCHES) IN UNCOMPACTED THICKNESS. ONLY HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN THREE FEET OF THE BACK FACE OF WALL FACING.

2.5 TESTING METHODS AND VERIFICATION OF FILL SHALL BE COMPACTED AS SPECIFIED BY PROJECT SPECIFICATIONS OR TO A MINIMUM 95% (98% MINIMUM FOR WALLS EXCEEDING 10 FT) OF THE MAXIMUM DRY DENSITY AND WITHIN +/-2% OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH STANDARD PROCTOR (ASTM D698). MATERIAL SPECIFICATIONS AND COMPACTION TESTING IS THE RESPONSIBILITY OF THE OWNER'S REPRESENTATIVE.

2.5.1 WHERE COMPACTION OF STONE BACKFILL CANNOT BE VERIFIED USING IN-SITU FIELD DENSITY TEST METHODS, THE FILL SHALL BE COMPACTED USING APPROPRIATE VIBRATORY EQUIPMENT AS APPROVED BY THE SITE GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL MAKE A SUFFICIENT NUMBER OF PASSES WITH APPROVED ROLLING EQUIPMENT UNTIL THE SURFACE SHOWS NO VISIBLE SIGN OF FURTHER CONSOLIDATION. THE SITE GEOTECHNICAL ENGINEER SHALL APPROVE MEANS AND METHODS AND VERIFY COMPACTION.

2.6 WHERE NECESSARY, CAP UNITS SHALL BE PERMANENTLY SECURED TO THE BLOCK UNITS USING AN OUTDOOR CONSTRUCTION ADHESIVE FOR CONCRETE MASONRY OR HARDSCAPES SUCH AS LIQUID NAILS (OR EQUIVALENT). ADHESIVE SHALL BE PLACED PER MANUFACTURERS RECOMMENDATIONS.

2.7 AN APPROVED SET OF CONSTRUCTION DRAWINGS AND CONTRACT SPECIFICATIONS SHALL BE ON-SITE AT ALL TIMES, DURING CONSTRUCTION OF THE RETAINING WALLS.

3.0 BLOCK PLACEMENT

3.1 PRECAST MODULAR BLOCK UNITS SHALL BE PLACED USING THE SIZE AND TYPES SPECIFIED WITHIN THE SHOP DRAWINGS.

4.0 CHANGES

4.1 NO CHANGES TO THE WALL FACING TYPE SHALL BE MADE WITHOUT THE EXPRESSED PRIOR WRITTEN CONSENT OF SOIL STRUCTURES ENGINEERING, LLC.

5.0 DRAINAGE

5.1 AT THE END OF EACH WORK DAY, BACKFILL SURFACE SHALL BE COMPACTED WITH A SMOOTH PLATE COMPACTOR TO MINIMIZE PONDING OF WATER AND SATURATION OF THE BACKFILL.

5.2 PERMANENT AND TEMPORARY SURFACE WATER DIVERSION AND EROSION CONTROL SHALL BE AS REQUIRED AND PROVIDED BY THE OWNER OR OWNER'S REPRESENTATIVE. SURFACE WATER SHALL BE DIVERTED AWAY FROM THE FILL ZONES AND WALL FACE DURING WALL CONSTRUCTION AND AT THE END OF EACH WORK DAY.



**SOIL STRUCTURES ENGINEERING**  
Earth Retention • Foundations • Steel & Concrete Structures

10065 Kings Canyon Dr., Peyton, CO 80831  
(303) 956-8967  
info@soilstructures.com  
www.soilstructures.com



**Signature Stone**  
211 30th St., Greeley, CO 80631  
(970) 351-0270  
www.signaturestone.com

**Sales:**  
Seth Clark  
(970) 539-2201  
sclark@signaturestone.com

No.	Date	Revision	By
0	20 APR 2024	RELEASED FOR CONSTRUCTION	BTD
1			
2			
3			
4			
5			
6			
7			
8			
9			

Project: THE AMBLE STEAMBOAT SPRINGS, CO			
Title: SPECIFICATIONS			
Project No: 24SSL010	Date: 20 APR 2024	Scale: N.T.S.	Sheet No: RW-2.00





©2024 SOIL STRUCTURES ENGINEERING, LLC - THIS DRAWING IS BEING FURNISHED FOR THIS SPECIFIC PROJECT ONLY. COPY AND OR REUSE WITHOUT THE CONSENT OF SOIL STRUCTURES ENGINEERING, LLC IS PROHIBITED.

6.0 DESIGN PARAMETERS

6.0.1 DESIGN OF THE REINFORCED SOIL STRUCTURE IS BASED ON THE FOLLOWING EFFECTIVE PARAMETERS (COHESION APPLICABLE FOR GLOBAL STABILITY ONLY):

ZONE	DESCRIPTION	$\phi$	$c'$	$\gamma$
RETAINED SOIL	GRAVEL - GP	38°	0 PSF	125 PCF
FOUNDATION SOIL	LEAN CLAY - CL	25°	100 PSF	125 PCF

6.0.1.1 DESIGN METHODOLOGY: NCMA THIRD EDITION, IBC-2021, AND ASCE 7-16

6.2 FACTORS OF SAFETY

6.2.1 EXTERNAL STABILITY:

MIN. FACTOR OF SAFETY FOR OVERTURNING (GRAVITY) =	1.5
MIN. FACTOR OF SAFETY FOR SLIDING =	1.5
MIN. FACTOR OF SAFETY FOR BEARING (THEORETICAL) =	2.0

6.2.2 OVERALL / GLOBAL STABILITY:

MIN. FACTOR OF SAFETY FOR GLOBAL STABILITY =	1.3
--	-----

6.2.3 SEISMIC

MIN. FACTORS OF SAFETY ARE 75% OF STATIC CONDITIONS 1-SECOND DESIGN PEAK GROUND ACCELERATION =	0.103
---	-------

6.3 SURCHARGE LOADING

LIVE LOAD (LANDSCAPE AREAS) =	100 PSF
LIVE LOAD (ROAD/PARKING AREAS) =	250 PSF
DEAD LOAD =	N/A

6.4 BEARING

6.4.1 APPLIED BEARING  
MAXIMUM APPLIED BEARING PRESSURE = (SEE ELEVATION VIEWS)

6.4.2 ULTIMATE BEARING CAPACITY CALCULATED USING SOIL PARAMETERS NOTED IN SECTION 6.0 AND GEOMETRIC PROPERTIES OF THE RETAINING WALL. GEOTECHNICAL ENGINEER SHALL DETERMINE ACTUAL BEARING CAPACITY BASED ON FIELD CONDITIONS AND LABORATORY RESULTS.

6.5 FENCE LOADING

WALLS ARE NOT DESIGNED FOR ANY CONCENTRATED FENCE LOADS. SLEEVE-ITS SHALL BE USED WHERE POSTS CANNOT BE PLACED A MINIMUM OF 3.00' FROM WALL FACE. CONTRACTOR TO VERIFY POST SPACING UTILIZED DOES NOT EXCEED LOAD LIMITS BASED ON IBC LOADING FOR PEDESTRIAN HANDRAILS OR THE DESIGN LOAD, WHICHEVER IS GREATER.

6.6 HYDRAULIC CONDITIONS

6.6.1 WATER APPLICATION  
THE DESIGN DOES NOT CONSIDER HYDROSTATIC WATER PRESSURE AND ASSUMES WATER IS SUFFICIENTLY BELOW BOTTOM OF STRUCTURE SO AS NOT TO INFLUENCE STRUCTURE STABILITY.

6.6.2 EROSION CONTROL/PREVENTION

THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE IS MAINTAINED BOTH DURING AND AFTER CONSTRUCTION. EROSION PREVENTION AND PROTECTION SHALL BE MAINTAINED ABOVE AND BELOW THE RETAINING WALL AS DESIGNED BY OTHERS. ALL DOWNSPOUTS, SWALES, AND DRAINAGE FEATURES SHALL BE DIVERTED AWAY FROM THE WALL LOCATIONS.

6.7 WIND LOADING

WIND LOAD HAS NOT BEEN EVALUATED IN THE DESIGN OF THE BELOW GRADE STRUCTURE. ALL ABOVE FREE STANDING STRUCTURES PLACED WITHIN A 1H:1V OF THE WALL FACING SHALL BE RELOCATED OR REDESIGNED AS TO NOT APPLY ANY ADDITIONAL LATERAL LOADING.

7.0 SPECIAL PROVISIONS

7.1 THE DESIGN PRESENTED HEREIN IS BASED ON SOIL PARAMETERS, FOUNDATION CONDITIONS, GROUNDWATER CONDITIONS, AND LOADINGS STATED IN SECTION 6.0., AND INTERPOLATED FROM INFORMATION PROVIDED BY OTHERS. GEOTECHNICAL DATA IS INTERPOLATED FROM REPORT PREPARED BY NORTHWEST COLORADO CONSULTANTS, INC., REPORT #: 21-12448, DATED 12/20/2022.

7.2 WALL ELEVATION VIEWS AND LOCATIONS AND GEOMETRY OF EXISTING STRUCTURES AND GRADE ABOVE AND BELOW THE WALLS MUST BE VERIFIED BY THE CONTRACTOR, TO MATCH ELEVATIONS SHOWN IN THE CONTRACT DOCUMENTS, PRIOR TO CONSTRUCTION.

7.3 SOIL STRUCTURES ENGINEERING, LLC ASSUMES NO LIABILITY FOR INFORMATION SUPPLIED BY OTHERS SUCH AS GEOTECHNICAL REPORT, SITE PLAN, AND WATER ELEVATIONS.

7.4 THE SOIL DESIGN PARAMETERS STATED IN SECTION 6.0 SHALL BE VERIFIED BY THE PROJECT GEOTECHNICAL ENGINEER. WRITTEN VERIFICATION OF DESIGN PARAMETERS SHALL BE SUBMITTED TO SOIL STRUCTURES ENGINEERING, LLC AND THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WITH CONSTRUCTION.

7.5 IF ANY ROCK FORMATIONS AND/OR GROUNDWATER (NOT ADDRESSED WITHIN THESE PLANS) ARE ENCOUNTERED DURING THE CONSTRUCTION OF THIS WALL, IMMEDIATELY CONTACT SOIL STRUCTURES ENGINEERING, LLC AT 303-956-8967 AND THE OWNER'S REPRESENTATIVE.

7.6 ANY REVISIONS TO DESIGN PARAMETERS STATED IN SECTION 6.0 OR STRUCTURE GEOMETRY SHALL REQUIRE DESIGN MODIFICATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.

7.7 ALL PIPES AND UTILITIES WITHIN 100 FEET OF THE RETAINING WALL MUST BE CONSTRUCTED WITH WATER TIGHT JOINTS.

7.8 THE SITE GEOTECHNICAL ENGINEER OR OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR EVALUATING TOTAL AND DIFFERENTIAL SETTLEMENTS.

7.9 THE OWNER OR OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR THE SELECTION OF PERMANENT EROSION PROTECTION AND PERMANENT VEGETATION FOR SLOPES LOCATED ABOVE OR BELOW THE PROPOSED RETAINING WALL(S).

8.0 QUALITY ASSURANCE

8.1 DUTIES OF THE SPECIAL INSPECTOR:

8.1.1 THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK REQUIRING SPECIAL INSPECTION FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.

8.1.2 THE SPECIAL INSPECTOR SHALL FURNISH REPORTS TO BE KEPT AT THE SITE FOR USE BY THE BUILDING OFFICIAL, THE CONTRACTOR, AND THE ENGINEER OF RECORD. IF SPECIAL INSPECTION IS PROVIDED BY ANYONE OTHER THAN THE ENGINEER OF RECORD, REPORTS SHALL BE SUBMITTED TO THE OFFICE OF THE ENGINEER OF RECORD ON A WEEKLY BASIS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN IF UNCORRECTED, TO THE DESIGN AUTHORITY AND THE BUILDING OFFICIAL.

8.1.3 UPON COMPLETION OF THE ASSIGNED WORK, THE SPECIAL INSPECTOR SHALL COMPLETE AND SIGN A FINAL REPORT CERTIFYING THAT TO THE BEST OF HIS/HER KNOWLEDGE, THE WORK IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.

8.2 SEE THE "SPECIAL INSPECTION SCHEDULE" FOR THE TYPES, EXTENTS, AND FREQUENCY OF SPECIFIC ITEMS REQUIRING SPECIAL INSPECTIONS AS PART OF THIS PROJECT.

SPECIAL INSPECTION SCHEDULE			
REQUIRED SPECIAL INSPECTION AREAS:	FREQUENCY OF TESTING		COMMENTS:
	CONTINUOUS	PERIODIC	
RETAINING WALLS			
DRAIN TILE INSTALLATION		X	INSPECTION SHALL BE MADE OF THE PLACEMENT, LOCATION, AND VENTING TO DAYLIGHT
SOILS			
EXCAVATIONS		X	VERIFY EXCAVATION ARE EXTENDED TO PROPER DEPTHS AND HAVE REACHED REQUIRED MATERIAL SUFFICIENT TO SUPPORT THE DESIGN
FIELD DENSITY		X	IN ACCORDANCE WITH ASTM D-6938 OR ASTM D-1556
MOISTURE-DENSITY RELATIONSHIPS		X	IN ACCORDANCE WITH AASHTO OR ASTM CRITERIA AS SPECIFIED FOR SUBGRADE, LEVELING PAD, AND BACKFILL
GRADATION ANALYSIS		X	IN ACCORDANCE WITH ASTM D-422
WALL BACKFILL		X	VERIFY USE OF PROPER MATERIALS, DENSITIES, LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF BACKFILL

TESTING MAY BE PERIODIC IN NATURE BUT CONTINUOUS THROUGHOUT CONSTRUCTION AS REQUIRED BY IBC.



**SOIL STRUCTURES ENGINEERING**  
Earth Retention • Foundations • Steel & Concrete Structures

10065 Kings Canyon Dr., Peyton, CO 80831  
(303) 956-8967  
info@soilstructures.com  
www.soilstructures.com



**Signature Stone**  
211 30th St., Greeley, CO 80631  
(970) 351-0270  
www.signaturestone.com

**Sales:**  
Seth Clark  
(970) 539-2201  
sclark@signaturestone.com

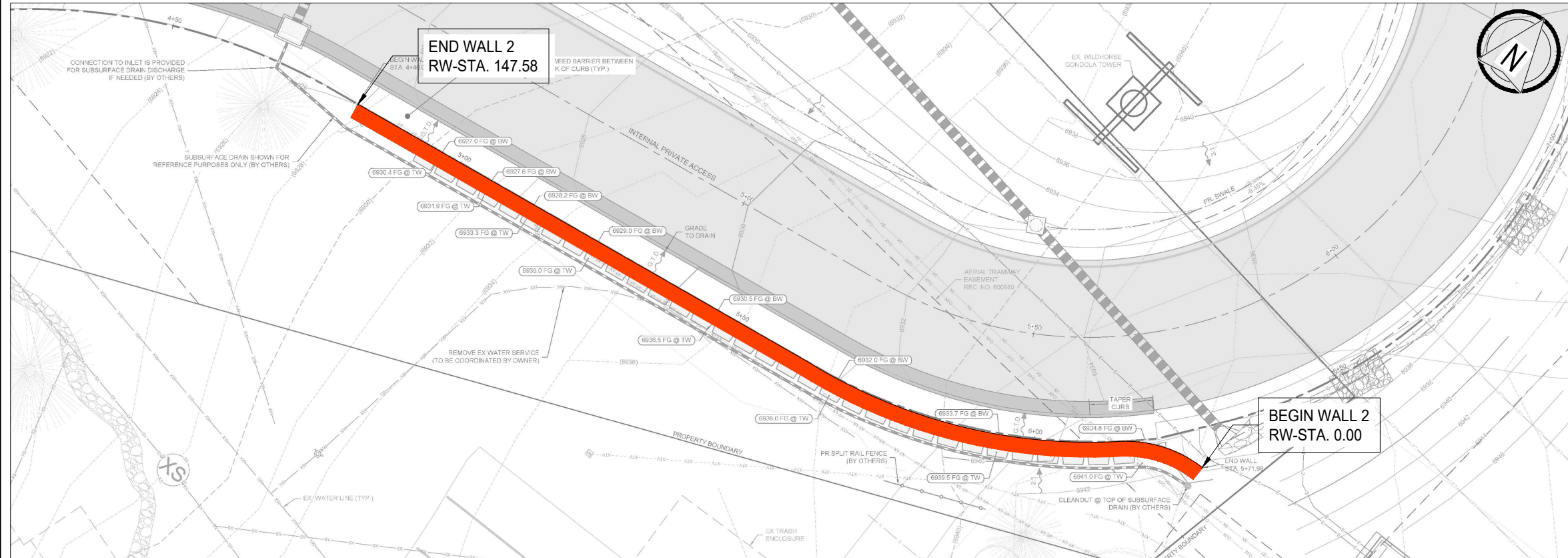
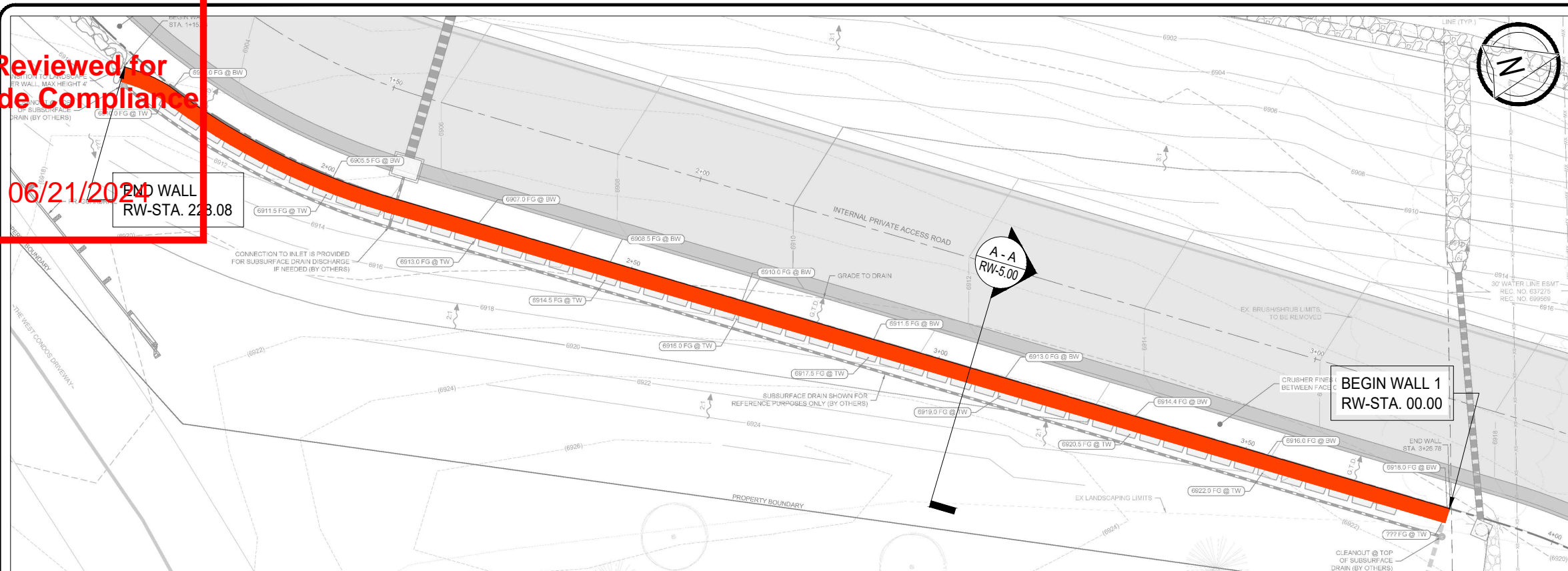
No.	Date	Revision	By
0	20 APR 2024	RELEASED FOR CONSTRUCTION	BTD
1			
2			
3			
4			
5			
6			
7			
8			
9			

Project: THE AMBLE STEAMBOAT SPRINGS, CO			
Title: SPECIFICATIONS			
Project No: 24SSL010	Date: 20 APR 2024	Scale: N.T.S.	Sheet No: RW-2.01




Reviewed for  
Code Compliance


06/21/2024




- GENERAL NOTES:**
1. THE SITE PLAN SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY. IT WAS REPRODUCED FROM LANDMARK CONSULTANTS, INC. PLAN (PROJECT #2571-001) DATED 03/15/2024. ANY CHANGES OR REVISIONS TO THE REFERENCED PLANS MAY IMPACT THE RETAINING WALL DESIGN.
  2. REFER TO THE CIVIL PLANS FOR HORIZONTAL CONTROL OF THE PROPOSED RETAINING WALLS.
  3. THE WALLS ARE NOT DESIGNED FOR CONCENTRATED FLOW DIRECTED TOWARDS THE WALL, INCLUDING BUT NOT LIMITED TO: SWALES, DOWNSPOUTS, ETC. GRADING SHALL DIRECT WATER AROUND THE ENDS OF THE WALLS WHEN POSSIBLE OR INTO COLLECTOR DRAINS. POSITIVE DRAINAGE SHALL BE PROVIDED AWAY FROM THE TOE OF WALL.
  4. THE APPROXIMATE LOCATION OF UTILITIES KNOWN TO EXIST AS SHOWN ON THE PLANS ARE BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF PLAN PREPARATION.
  5. THE GENERAL CONTRACTOR SHALL VERIFY INVERTS OF PROPOSED AND EXISTING UTILITIES TO ENSURE THERE ARE NO CONFLICTS. THE ENGINEER SHALL BE CONTACTED IF CONFLICTS ARISE AND AN ALTERNATIVE DESIGN MAY BE REQUIRED.

**LEGEND:**

WALL LOCATION 

 Know what's BELOW.  
CALL before you dig.

  
**GRAPHIC SCALE IN FEET**

 **SOIL STRUCTURES ENGINEERING**  
Earth Retention • Foundations • Steel & Concrete Structures

10065 Kings Canyon Dr., Peyton, CO 80831  
(303) 956-8967  
info@soilstructures.com  
www.soilstructures.com

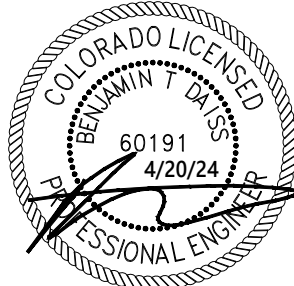


**Signature Stone**  
211 30th St., Greeley, CO 80631  
(970) 351-0270  
www.signaturestone.com

**Sales:**  
Seth Clark  
(970) 539-2201  
sclark@signaturestone.com

No.	Date	Revision	By
0	20 APR 2024	RELEASED FOR CONSTRUCTION	BTD
1			
2			
3			
4			
5			
6			
7			
8			
9			

Project: <b>THE AMBLE STEAMBOAT SPRINGS, CO</b>			
Title: <b>SITE PLAN</b>			
Project No: <b>24SSL010</b>	Date: <b>20 APR 2024</b>	Scale: <b>1" = 20'</b>	Sheet No: <b>RW-3.00</b>



©2024 SOIL STRUCTURES ENGINEERING, LLC - THIS DRAWING IS BEING FURNISHED FOR THIS SPECIFIC PROJECT ONLY. COPY AND OR REUSE WITHOUT THE CONSENT OF SOIL STRUCTURES ENGINEERING, LLC IS PROHIBITED.



**Reviewed for Code Compliance**

- 06/21/2024

TOP OF WALL ELEVATION (TOP OF BLOCK)	TW EL= XX.XX
BOTTOM OF WALL ELEVATION (BOTTOM OF BLOCK)	BW EL= XX.XX
FINISHED GRADE LINE	-----



DISTANCE SHOWN IN FEET ALONG FRONT FACE



10065 Kings Canyon Dr., Peyton, CO 80831  
(303) 956-8967  
info@soilstructures.com  
www.soilstructures.com



**Sales:**  
Seth Clark  
(970) 539-2201  
sclark@signaturestone.com

Project:			
THE AMBLE STEAMBOAT SPRINGS, CO			
Title:			
WALL 1 ELEVATION			
Project No:	Date:	Scale:	Sheet No:
24SSL010	20 APR 2024	1"=10'	RW-4.00



©2024 SOIL STRUCTURES ENGINEERING, LLC - THIS DRAWING IS BEING FURNISHED FOR THIS SPECIFIC PROJECT ONLY. COPY AND OR REUSE WITHOUT THE CONSENT OF SOIL STRUCTURES ENGINEERING, L.L.C. IS PROHIBITED.

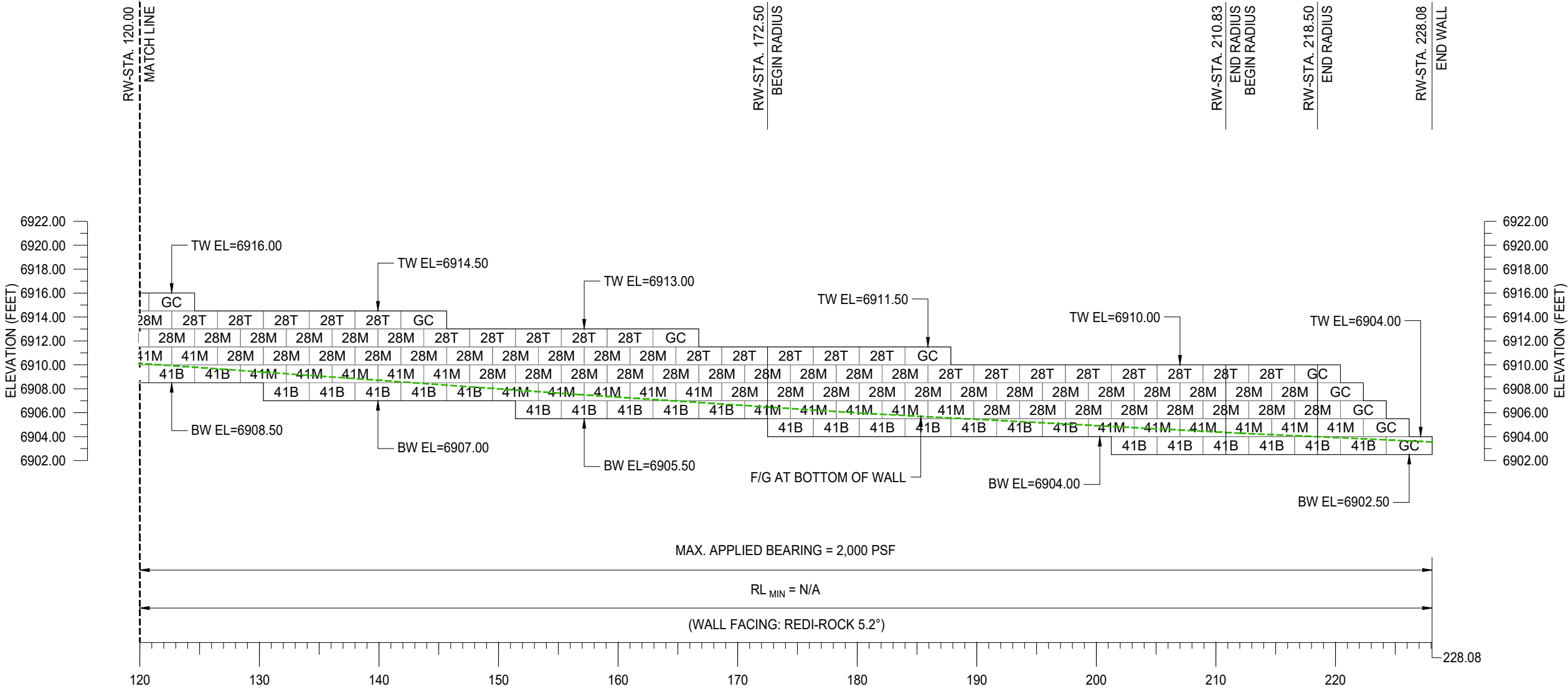
©2024 SOIL STRUCTURES ENGINEERING, LLC - THIS DRAWING IS BEING FURNISHED FOR THIS SPECIFIC PROJECT ONLY. COPY AND OR REUSE WITHOUT THE CONSENT OF SOIL STRUCTURES ENGINEERING, LLC IS PROHIBITED.

GENERAL NOTES:

1. ALL ELEVATIONS AND DISTANCES ARE SHOWN IN FEET ALONG
2. WALLS TO BE CONSTRUCTED USING REDI-ROCK: 28" AND 41" UNITS. SEE SHEET RW-2.00 FOR MATERIAL SPECIFICATIONS.
3. SEE MANUFACTURER'S INFORMATION FOR ADDITIONAL DETAILS ON THE BLOCK SYSTEM SHOWN.

LEGEND:

- TOP OF WALL ELEVATION (TOP OF BLOCK) TW EL= XX.XX
- BOTTOM OF WALL ELEVATION (BOTTOM OF BLOCK) BW EL= XX.XX
- FINISHED GRADE LINE



WALL 1 ELEVATION

DISTANCE SHOWN IN FEET ALONG FRONT FACE



SOIL STRUCTURES ENGINEERING

Earth Retention • Foundations • Steel & Concrete Structures

10065 Kings Canyon Dr., Peyton, CO 80831  
(303) 956-8967  
info@soilstructures.com  
www.soilstructures.com



Signature Stone  
211 30th St., Greeley, CO 80631  
(970) 351-0270  
www.signaturestone.com

Sales:  
Seth Clark  
(970) 539-2201  
sclark@signaturestone.com

No.	Date	Revision	By
0	20 APR 2024	RELEASED FOR CONSTRUCTION	BTD
1			
2			
3			
4			
5			
6			
7			
8			
9			

Project: THE AMBLE STEAMBOAT SPRINGS, CO			
Title: WALL 1 ELEVATION			
Project No: 24SSL010	Date: 20 APR 2024	Scale: 1"=10'	Sheet No: RW-4.01



**Reviewed for Code Compliance**

- 06/21/2024

FINISHED GRADE LINE 



DISTANCE SHOWN IN FEET ALONG FRONT FACE



©2024 SOIL STRUCTURES ENGINEERING, LLC - THIS DRAWING IS BEING FURNISHED FOR THIS SPECIFIC PROJECT ONLY. COPY AND OR REUSE WITHOUT THE CONSENT OF SOIL STRUCTURES ENGINEERING, LLC IS PROHIBITED.



©2024 SOIL STRUCTURES ENGINEERING, LLC - THIS DRAWING IS BEING FURNISHED FOR THIS SPECIFIC PROJECT ONLY. COPY AND OR REUSE WITHOUT THE CONSENT OF SOIL STRUCTURES ENGINEERING, LLC IS PROHIBITED.

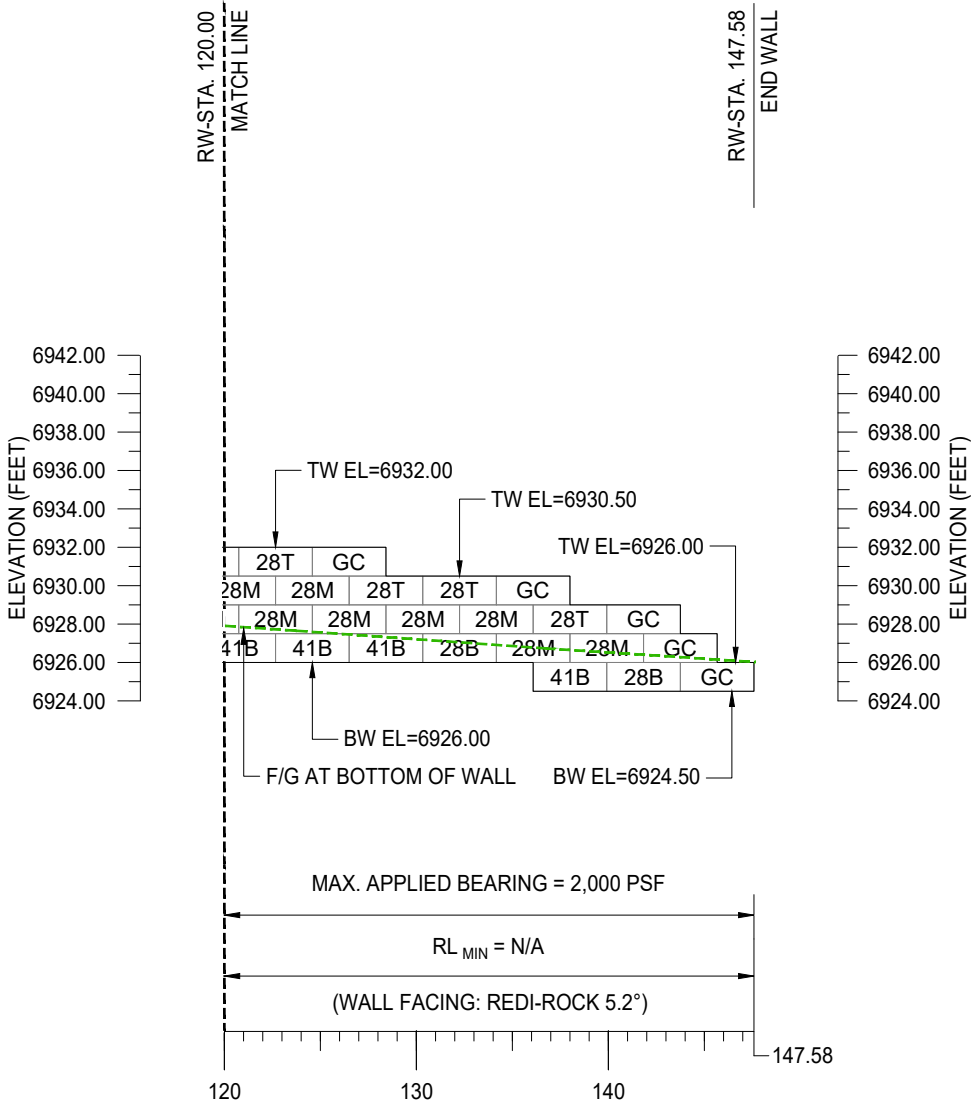
GENERAL NOTES:

1. ALL ELEVATIONS AND DISTANCES ARE SHOWN IN FEET ALONG
2. WALL TO BE CONSTRUCTED USING REDI-ROCK: 28" AND 41" UNITS. SEE SHEET RW-2.00 FOR MATERIAL SPECIFICATIONS.
3. SEE MANUFACTURER'S INFORMATION FOR ADDITIONAL DETAILS ON THE BLOCK SYSTEM SHOWN.

LEGEND:

- TOP OF WALL ELEVATION (TOP OF BLOCK)TW EL= XX.XX
- BOTTOM OF WALL ELEVATION (BOTTOM OF BLOCK)BW EL= XX.XX
- FINISHED GRADE LINE

Reviewed for  
Code Compliance  
06/21/2024



WALL 2 ELEVATION

DISTANCE SHOWN IN FEET ALONG FRONT FACE



SOIL STRUCTURES ENGINEERING

Earth Retention • Foundations • Steel & Concrete Structures

10065 Kings Canyon Dr., Peyton, CO 80831  
(303) 956-8967  
info@soilstructures.com  
www.soilstructures.com

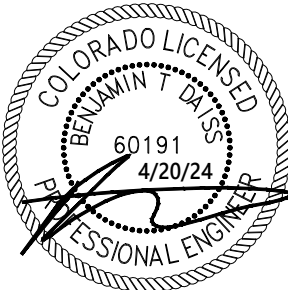


Signature Stone  
211 30th St., Greeley, CO 80631  
(970) 351-0270  
www.signaturestone.com

Sales:  
Seth Clark  
(970) 539-2201  
sclark@signaturestone.com

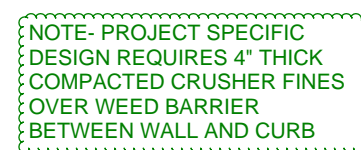
No.	Date	Revision	By
0	20 APR 2024	RELEASED FOR CONSTRUCTION	BTD
1			
2			
3			
4			
5			
6			
7			
8			
9			







Project: THE AMBLE STEAMBOAT SPRINGS, CO			
Title: WALL 2 ELEVATION			
Project No: 24SSL010	Date: 20 APR 2024	Scale: 1"=10'	Sheet No: RW-4.03



**Reviewed for  
Code Compliance**

- 06/21/2024



LEGEND	
	LOW PERMEABLE SOIL
	RETAINED SOIL 1 (GRAVEL - GP)
	CONTROLLED FILL (LEAN CLAY - CL)
	LEVELING PAD (GRAVEL - GW)
	IN-SITU/STRUCTURAL FILL
	4 oz NON-WOVEN FILTER FABRIC

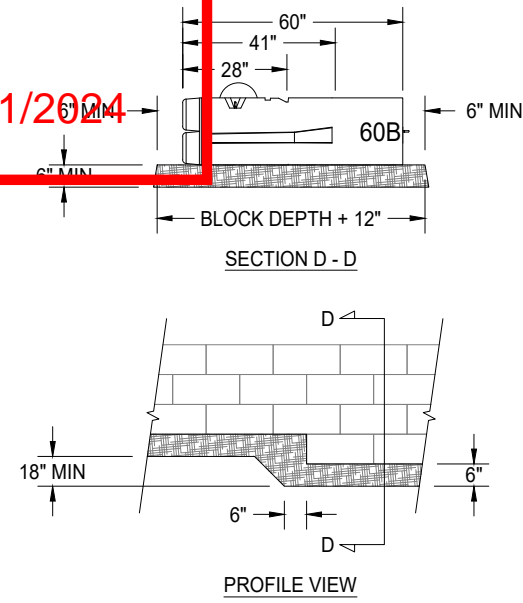
A circular professional engineer seal for Benjamin T. Daiss, Colorado License 60191, expires 4/20/24. The seal features the text "COLORADO LICENSED" at the top, "BENJAMIN T. DAISS" in the center, and "PROFESSIONAL ENGINEER" at the bottom. A signature is written across the seal.

©2024 SOIL STRUCTURES ENGINEERING, LLC - THIS DRAWING IS BEING FURNISHED FOR THIS SPECIFIC PROJECT ONLY. COPY AND OR REUSE WITHOUT THE CONSENT OF SOIL STRUCTURES ENGINEERING, LLC IS PROHIBITED.

Reviewed for  
Code Compliance

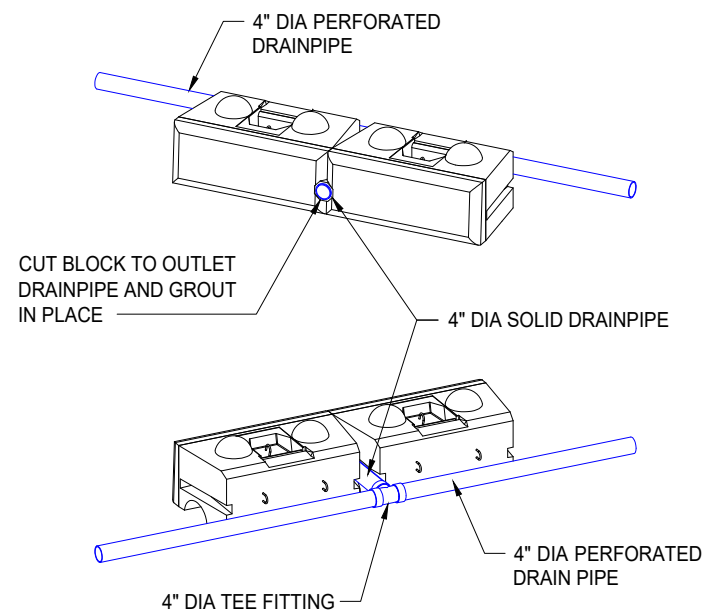
- NOTES:
1. FOUNDATION SOILS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF THE LEVELING PAD.
  2. LEVELING PAD SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN FOR 2,000 PSI UNREINFORCED CONCRETE.

06/21/2024



1 LEVELING PAD DETAIL - N.T.S

- NOTES:
1. THE DRAINAGE SYSTEM SHALL CONSIST OF A 4" MINIMUM DIAMETER CORRUGATED PERFORATED PLASTIC DRAINPIPE.



2 DRAIN PIPE OUTLET DETAIL - N.T.S

**CG - GARDEN CORNER**  
HEIGHT = 18"  
WIDTH = 46 1/8"  
DEPTH = 24"  
WEIGHT = 1,070 LBS

**28T - 28" TOP**  
HEIGHT = 18"  
WIDTH = 46 1/8"  
DEPTH = 28"  
WEIGHT = 1,230 LBS

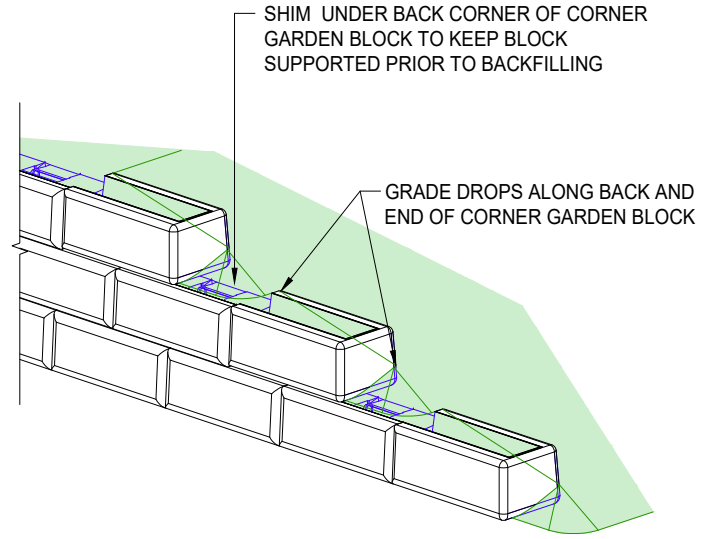
**28M - 28" MIDDLE**  
HEIGHT = 18"  
WIDTH = 46 1/8"  
DEPTH = 28"  
WEIGHT = 1,520 LBS

**28B - 28" BOTTOM**  
HEIGHT = 18"  
WIDTH = 46 1/8"  
DEPTH = 28"  
WEIGHT = 1,620 LBS

**41M - 41" MIDDLE**  
HEIGHT = 18"  
WIDTH = 46 1/8"  
DEPTH = 41"  
WEIGHT = 2,180 LBS

**41B - 41" BOTTOM**  
HEIGHT = 18"  
WIDTH = 46 1/8"  
DEPTH = 41"  
WEIGHT = 2,280 LBS

3 REDI-ROCK UNIT DETAIL - N.T.S



4 TOP OF WALL STEP DETAIL - N.T.S

**SOIL STRUCTURES ENGINEERING**  
Earth Retention • Foundations • Steel & Concrete Structures

10065 Kings Canyon Dr., Peyton, CO 80831  
(303) 956-8967  
info@soilstructures.com  
www.soilstructures.com

**Signature Stone**  
211 30th St., Greeley, CO 80631  
(970) 351-0270  
www.signaturestone.com

**Sales:**  
Seth Clark  
(970) 539-2201  
sclark@signaturestone.com

No.	Date	Revision	By
0	20 APR 2024	RELEASED FOR CONSTRUCTION	BTB
1			
2			
3			
4			
5			
6			
7			
8			
9			

Project:

**THE AMBLE  
STEAMBOAT SPRINGS, CO**

Title:

**CONSTRUCTION DETAILS**

Project No: 24SSL010

Date: 20 APR 2024

Scale: N.T.S.

Sheet No: RW-6.00

