GENERAL NOTES:

1. ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.

2. THE WALL(S) ARE DESIGNED TO BE SELF SUPPORTING AND STABLE AFTER COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE TO ENSURE SAFETY OF THE STRUCTURES AND ITS COMPONENTS DURING ERECTION. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING (AND ACCOMPANYING FOOTINGS), GUYS OR TIEDOWNS.

3. ADDITIONAL OBSERVATIONS AS A RESULT OF REJECTION OF WORK COMPLETED AND/OR ADDITIONAL OBSERVATIONS DUE TO DEFICIENCIES IN WORK OBSERVED WILL BE AT THE EXPENSE OF THE CONTRACTOR.

4. THE DESIGN OF THIS RETAINING WALL SHOWN IN THESE CONSTRUCTION DOCUMENTS IS FOR THE ONE TIME USE AT THE SPECIFIC ADDRESS REFERENCED IN THE TITLEBLOCK.

DESIGN CODES:

- 2021 INTERNATIONAL RESIDENTIAL CODE
- ACI 318–19 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY.
- ASCE 7–16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES.

DESIGN LOADS:

1. THE STRUCTURAL SYSTEMS FOR THE RETAINING WALLS HAVE BEEN DESIGNED BASED UPON THE FOLLOWING SOIL PARAMETERS.

   EXISTING/RETAINED SOIL :
   - ϕ = 24°
   - γ = 125 lb/ft^3
   - c = 0 lb/ft^2

   IMPORTED CLEAN GRAVEL FILL :
   - ϕ = 40°
   - γ = 135 lb/ft^3
   - c = 0 lb/ft^2

2. WALLS HAVE BEEN DESIGNED USING LATERAL EARTH PRESSURES BASED FROM SOIL PROPERTIES DESCRIBED ABOVE. CONTRACTOR SHALL PROVIDE BACKFILL MEETING THESE SOIL PARAMETERS.

FOUNDATIONS:

1. FOUNDATIONS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 2,500 PSF. ON EXISTING SOILS. WHEN FOOTING SUBGRADE IS EXPOSED, CONTACT CITY INSPECTION OFFICIAL TO DETERMINE IF ADDITIONAL GEOTECHNICAL TESTING IS REQUIRED. IF IT IS DETERMINED THAT ADDITIONAL TESTING IS REQUIRED, THE CITY WILL DIRECTLY HIRE A QUALIFIED THIRD PARTY GEOTECHNICAL ENGINEERING FIRM TO PROVIDE TESTING SERVICES. CONTRACTOR WILL NOT BE RESPONSIBLE FOR ANY GEOTECHNICAL TESTING COST.

2. CONTRACTOR SHALL SCARIFY & RECOMPACT TOP 8" OF EXISTING SOIL BELOW FOOTING LEVELING PAD. RECOMPACT TO 98% STD PROCTOR @ ± 3% OPTIMUM MOISTURE CONTENT.

DRAIN TILE:

1. DRAIN TILE SHALL BE 4" PERFORATED PVC CONFORMING TO ASTM D 1784 AND ASTM D 2729.

2. ALL FITTINGS SHALL BE PVC OR STYRENE.

GEOTEXTILE FABRIC:

1. FABRIC SHALL BE NON WOVEN US 205NW FABRIC AND SATISFY REQUIREMENTS PER AASHTO M–288, SURVIVABILITY CLASS 1.

2. FABRIC SHALL BE INSTALLED AT TOP HORIZONTAL AND BACK VERTICAL INTERFACE BETWEEN IMPORTED GRAVEL FILL AND ADJACENT SOIL.

3. CARE SHALL BE TAKEN BY CONTRACTOR AS TO NOT PUNCTURE FABRIC DURING INSTALLATION.

CLEAN ROCK IMPORTED FILL GRADATION:

1. WHERE CLEAN ROCK IS INDICATED IN PLANS, MATERIAL SHALL BE A CRUSHED LIMESTONE ROCK HAVING A MINIMUM OF TWO FRACTURED FACES AND MEET THE FOLLOWING GRADATION REQUIREMENTS BY DRY WEIGHT:

PASSING 1½" SIEVE :	100%
PASSING #200 SIEVE:	5% MAX

2. PLACE MATERIAL IN MAXIMUM 12" LIFTS AND COMPACT WITH HAND HELD EQUIPMENT ONLY.

PENETRATIONS:

1. NO PENETRATIONS SHALL BE MADE IN ANY STRUCTURAL MEMBERS OTHER THAN THOSE LOCATED ON THESE DRAWINGS WITHOUT PREVIOUS APPROVAL OF THE ENGINEER.

CONCRETE MIX DESIGN

1. CONCRETE MIX SHALL BE DESIGNED BY RECOGNIZE TESTING LABORATORY TO ACHIEVE A STRENGTH AT 28 DAYS AS SHOWN IN THE BELOW CONCRETE CURING STRENGTH SCHEDULE WITH A PLASTIC AND WORKABLE MIX:

CONCRETE PROPERTIES

LOCATION	28 DAY COMPRESSIVE STRENGTH	ENTRAINED AIR	SLUMP	MAX W/C RATIO
FOOTINGS	3,500 PSI	4.0% – 6.0%	5"±1"	0.55
FND WALLS & ALL OTHER CONC	4,500 PSI	5.0% – 7.0%	4"±1"	0.45

2. SUBMIT PROPOSED MIX DESIGN WITH RECENT FIELD CYLINDER OR LAB TESTS FOR REVIEW PRIOR TO USE. MIX SHALL BE UNIQUELY IDENTIFIED BY MIX NUMBER OR OTHER POSITIVE IDENTIFICATION. CONCRETE SHALL COMPLY WITH ALL THE REQUIREMENTS OF ASTM STANDARD C94 FOR MEASURING, MIXING, TRANSPORTING, ETC. CONCRETE TICKETS SHALL BE TIME STAMPED WHEN CONCRETE IS BATCHED. THE MAXIMUM TIME ALLOWED FROM THE TIME THE MIXING WATER IS ADDED UNTIL IT IS DEPOSITED IN ITS FINAL POSITION SHALL NOT EXCEED ONE AND ONE HALF (1–1/2) HOURS. IF FOR ANY REASON THERE IS A LONGER DELAY THAN STATED ABOVE, THE CONCRETE SHALL BE DISCARDED. IT SHALL BE THE RESPONSIBILITY OF THE TESTING LAB TO NOTIFY THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR OF ANY NONCOMPLIANCE WITH THE ABOVE. ALL SLABS SHALL BE CURED USING CURING COMPOUND MEETING ASTM STANDARD C309 TYPE 1 AND SHALL HAVE A FUGITIVE DYE. THE COMPOUND SHALL BE PLACED AS SOON AS THE FINISHING IS COMPLETED OR AS SOON AS THE WATER HAS LEFT THE UNFINISHED CONCRETE. ALL SCUFFED OR BROKEN AREAS IN THE CURING MEMBRANE SHALL BE RECOATED DAILY. CALCIUM CHLORIDES SHALL NOT BE UTILIZED; OTHER ADMIXTURES MAY BE USED ONLY WITH THE APPROVAL OF THE ENGINEER.

3. CONCRETE SHALL UTILIZE TYPE IL CEMENT AND SHALL HAVE A 20% MINIMUM CLASS IL FLY–ASH CONTENT BY WEIGHT.

4. COARSE AND FINE AGGREGATES SHALL COMPLY WITH ASTM C33 AND ACI 302.1, CURRENT VERSIONS.

5. THE CONCRETE STRENGTHS SHOWN IN THE SECTION ABOVE AND IN THE SPECIFICATIONS ARE MINIMUM COMPRESSIVE STRENGTHS. THE ENGINEER SHALL DETERMINE IF THE CONCRETE IS ACCEPTABLE, OR TO BE REMOVED, OR TO RECEIVE SPECIAL CURING IF THE COMPRESSIVE STRENGTHS ARE LESS THAN SPECIFIED.

6. WATER REDUCING AGENTS MAY BE USED IN THE CONCRETE MIX. PLASTICIZERS AND SUPER–PLASTICIZERS MAY BE USED ONLY WHEN WRITTEN PERMISSION OF THE ENGINEER IS GIVEN.

7. NO SALTS OF ANY KIND MAY BE USED IN CONCRETE BEFORE OBTAINING THE ENGINEER'S WRITTEN PERMISSION FOR THEIR USE.

CONCRETE AND REINFORCING PLACEMENT:

1. ALL CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ACI 301 AND ACI 117.

2. ALL REINFORCING STEEL TO BE ASTM A615, GRADE 60 (#4 AND LARGER), EXCEPT WHERE NOTED OTHERWISE. REINFORCING SHALL NOT BE WELDED.

3. ALL REINFORCING STEEL BARS TO BE DETAILED AND PLACED IN ACCORDANCE WITH THE LATEST ACI MANUALS.

4. LAP ALL REINFORCING SPLICES IN CONCRETE A MINIMUM OF 48 BAR DIAMETERS OR 24 INCHES, WHICHEVER IS GREATER, UNLESS NOTED OTHERWISE ON DRAWINGS (CLASS B SPLICE).

5. PROVIDE CORNER BARS OF SAME BAR DIAMETER AS SPECIFIED FOR THE WALL, BEAM OR FOOTING. PROVIDE MINIMUM OF 40 BAR DIAMETER LAP FOR ALL CORNER BARS, UNLESS NOTED OTHERWISE.

6. PROVIDE FOUNDATION DOWELS AS SHOWN. MINIMUM SIZE DOWELS TO BE #4, UNLESS OTHERWISE NOTED. ALL VERTICAL REINFORCING STEEL IN COLUMNS AND PIERS, OR VERTICAL REINFORCING IN WALLS, SHALL BE DOWELED INTO THE FOOTINGS WITH SAME SIZE AND QUANTITY DOWEL AS THE VERTICAL REINFORCING.

7. REINFORCING STEEL SHALL RECEIVE CONCRETE COVER AS FOLLOWS:

DESCRIPTION	MINIMUM COVER
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
EXPOSED TO EARTH OR WEATHER	
#6 THROUGH #18 BARS	2"
#5 BARS OR SMALLER	1½"
NOT EXPOSED TO EARTH OR WEATHER OR IN CONTACT WITH THE GROUND, SLABS AND WALLS	
#11 BARS OR SMALLER	¾"
#14 AND #18	1½"
BEAMS AND COLUMNS	1½"

8. PROVIDE TWO (2) #5'S, ONE AT EACH FACE, UNLESS NOTED OTHERWISE, AROUND ALL OPENINGS GREATER THAN 12"x12" IN CAST–IN–PLACE CONCRETE. EXTEND REINFORCING 2'–0" BEYOND OPENING IN BOTH DIRECTIONS. CONTACT ENGINEER FOR ALL OPENINGS GREATER THAN 12"x12" FOR DESIGN.

9. COLD WEATHER AND HOT WEATHER PROVISIONS OF ACI 306 AND 305 (CURRENT EDITIONS), RESPECTIVELY, SHALL BE MAINTAINED.

MODULAR BLOCK RETAINING WALL:

1. MODULAR BLOCK RETAINING WALL UNITS SHALL BE REDI–ROCK AS PRODUCED BY PETE LIEN & SONS.

2. REDI–ROCK WALL TEXTURE SHALL BE LIMESTONE OR LEDGESTONE, CONTRACTOR SHALL COORDINATE WITH OWNER AND CITY OF DEADWOOD

3. FREE DRAINING BACKFILL MATERIAL SHALL BE A CLEAN ROCK AS INDICATED. ORGANIC SOILS OR FROST SUSCEPTIBLE SOILS SHALL NOT BE USED WITHIN THE INDICATED AREA TAKEN FROM THE BACK FACE OF THE WALL.

4. WALL UNIT INSTALLATION SHALL BE AS PER THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS. ONLY HAND–OPERATED PLATE COMPACTING EQUIPMENT SHALL BE USED WITHIN 3 FEET OF THE WALL TO ACHIEVE CONSOLIDATION. COMPACT BACKFILL AS PER THE SDDOT STANDARDS.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
12764
JARED D.
SCHIPPERS
02/23/2026

Albertson Engineering Inc.
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CONSULTANT

PROJECT IDEN:

15 FOREST AVE
RETAINING WALL

AEI PROJECT NO 25-263
DEADWOOD, SOUTH DAKOTA

ISSUE BLOCK:

NO	ISSUE TYPE	ISSUE DATE

MANAGEMENT:

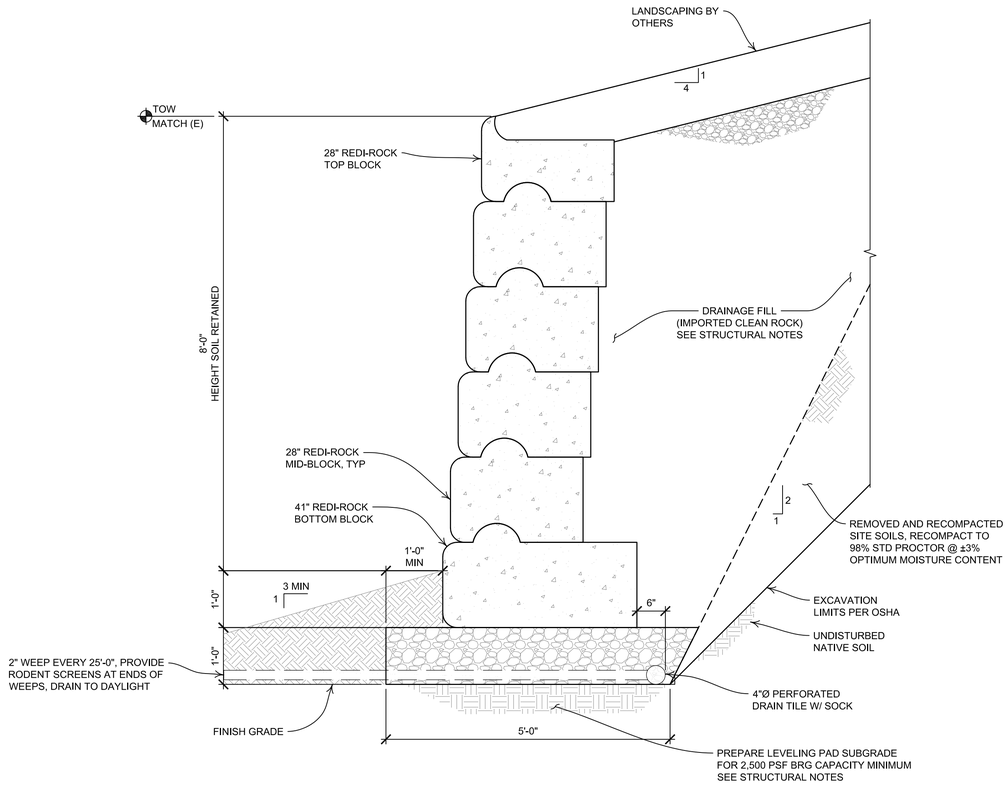
PROJECT NO: 25-263
DRAWN BY: BAD
CHECKED BY: JDS

SHEET TITLE:

COVER SHEET

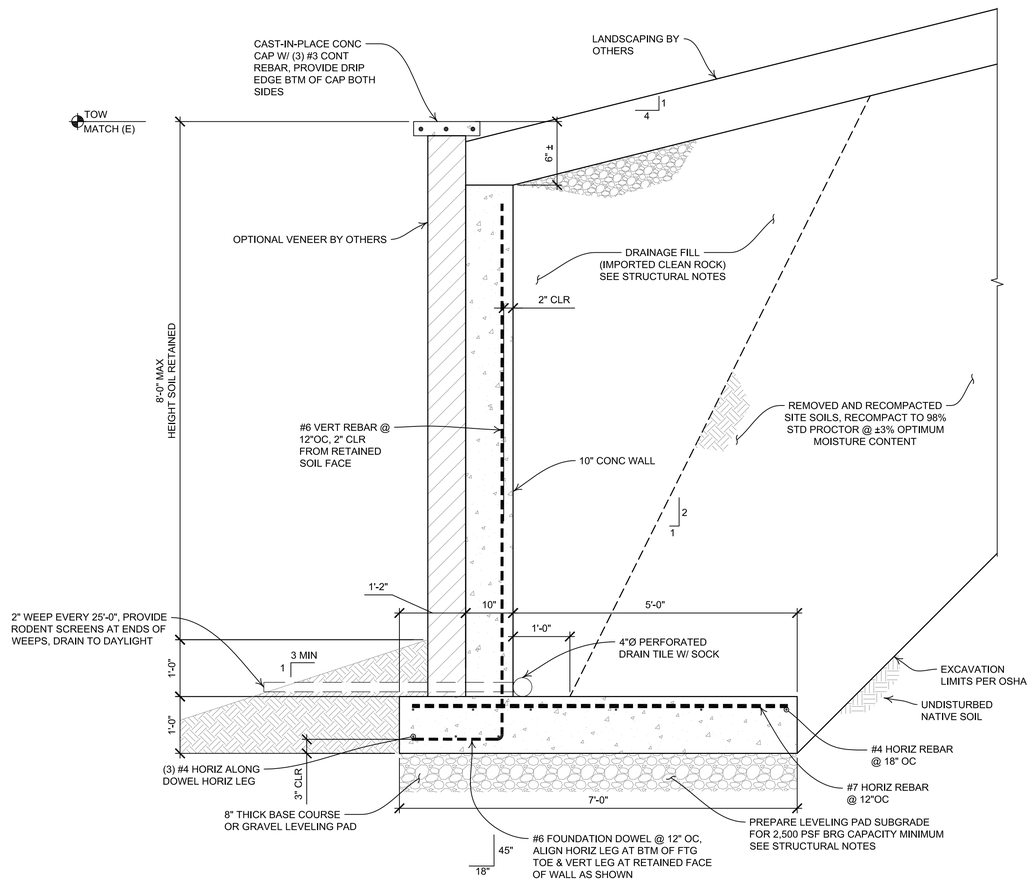
SHEET IDENTIFICATION:

S000



TYP REDI-ROCK RETAINING WALL DETAIL

SCALE: 3/4" = 1'-0"



TYP CAST-IN-PLACE RETAINING WALL DETAIL

SCALE: 3/4" = 1'-0"

NOTE: CONTRACTOR OPTION TO CONSTRUCT EITHER OF THE DETAILS SHOWN.

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PROJECT IDEN:

15 FOREST AVE
RETAINING WALL

AEI PROJECT NO 25-263
DEADWOOD, SOUTH DAKOTA

ISSUE BLOCK:

NO	ISSUE TYPE	ISSUE DATE

MANAGEMENT:

PROJECT NO: 25-263
DRAWN BY: BAD
CHECKED BY: JDS

SHEET TITLE:

NEW RETAINING WALL DETAILS

SHEET IDENTIFICATION:

S200