



Memorandum

Subject: Request for Proposal 2 - Changes to Backfill at Interior Retaining Walls

Project Name: Camden Rockport Middle School

Date: August 28, 2018

Introduction/Overview

The original bid included a plan to use the retaining wall as a preloading mechanism to compact the clay. The contractor identified a better sequence that led to the VM option. Through the Value Management (VM) process, a plan was developed to use soils excavated on site as a means to preload the clay supporting the retaining walls. Certain assumptions were made to develop the proposed VM pricing. As the engineering was completed a number of the assumed parameters were different. While the contractor has proceeded with construction activities based on these VM assumptions, it has become clear that the base bid construction sequence and the VM sequence are no longer viable options, resulting in the need for a new solution.

The following summary and attached documents are provided to explain the conditions that led to the necessity of this change as well as provide technical background for the options evaluated. The recommendation for the use of lightweight cellular concrete backfill (LCCF) represents the best solution for the current construction scheduling and provides the project additional benefits by eliminating potential contractual delays, eliminates stability issues and reduces the impact on existing clays.

Background

The school site is underlain by compressible deposits of silty clay. Silty clay deposits typically compress more and more slowly than other soils types from changes in pressures from foundations and ground elevation. Additionally, saturated silty clay soils are generally weaker than other soil types. The thickness and compressibility of the silty soil materials beneath the planned building varies, which further exacerbates the conditions. These conditions presented a challenge during the design and detailing of the nearly 380 linear foot long concrete retaining wall.

From the beginning of design, we have pursued minimizing an increase of pressure on the soils below the building by using lower weight materials below foundations and ground floor slabs to improve the structures performance. The design of the internal retaining wall that separates the lower level with the main level was particularly challenging due to the type of soils found in the area.

Work included in the base-bid

The base-bid design consists of geogrid-reinforced crushed stone behind the internal retaining wall. The purpose of crushed stone behind the wall is to reduce increases in pressure on the subgrade soils compared to typical gravel backfill materials, as it is a lighter material. The weight of crushed stone typically ranges from 90 to 105 pounds per cubic foot where typical gravels used for backfill normally ranges from 135 to 145 pounds per cubic foot. This reduction in weight reduces the pressures on the subgrade soils, which translates to reduced post-construction settlement.

Crushed stone was favored over other alternatives for backfill behind the wall during the project design due to several factors:

1. Crushed stone was the apparent low-cost alternative during design.
2. Crushed stone is commonly used for backfill beneath foundations.
3. Crushed stone provides a singular design solution for the entire retaining wall.
4. Crushed stone backfill was better suited for project phasing and to work around temporary facilities like sheet-piles, necessary for previous project phasing.

Because the use of crushed stone would result in increased pressure on the clay deposits, and clays settle slowly, a six-week minimum settlement period after the wall is built and backfilled was required to pre-compress the clay before additional building construction along and near the wall could proceed. The actual time to pre-compress the clay could be longer depending on how the clay behaves along the length of the retaining wall. A longer than anticipated preload period could delay other parts of construction and extend foundation work further into winter conditions.

Value Management and evaluation of alternative approaches

During the value management (VM) process, the design and construction team discussed many options to reduce the cost of the project. These discussions included using alternative methods to pre-compress the clays, reduce excavation and methods to facilitate construction.

The initial plan intended to pile soils excavated on site, in the area around the retaining wall, as a means to pre-compress the clay. As discussed during the value management review meetings, these proposals were based on concept planning, not full engineered solutions. Upon acceptance, the contractor proceeded with material procurement, mobilization and construction work based on the expected sequence of construction and OPA proceeded with the full design and engineering on all of the accepted cost savings.

This preload option was included in VM item 2.01 and saved a total of \$6,750. The total value of item 2.01 was \$177,175 and the remaining savings are still savings realized by the project.

When the final engineering was complete, the assumed areas for the preload were larger than anticipated, resulting in less available area for contractor activities for the duration of the preload, estimated to be 6 weeks. As construction has progressed and the final design completed, it became clear that the both the base bid and VM were not viable options. Foundations are currently well underway in the areas outside of the preload footprint. If the preload option had remained the direction, there would have been a pause in construction, resulting in additional costs for general conditions (the contractors overhead costs) and winter construction costs. To avoid delays to the project, alternative options needed to be evaluated.

Lightweight cellular concrete backfill proposal

The selected alternative to the preload option was the use of lightweight cellular concrete backfill (LCCF). The use of (LCCF) behind the retaining wall was a part of the initial VM discussion, but not initially pursued due to the apparent costs associated with this work. This option generally consists of modifications to the design of the internal retaining wall that separates the gymnasium/locker spaces and mechanical basement from the first floor, including providing LCCF behind the wall in lieu of the heavier geogrid-reinforced crushed stone.

R.W. Gillespie & Associates evaluated the LCCF option due to the apparent performance and schedule benefits to the project. Their evaluation found that the costs and other project benefits were much better than previously considered. The following is a brief summary of the benefits of LCCF in the construction of the retaining walls:

1. LCCF weighs between 28 and 33 pounds per cubic foot and substantially reduces the pressure on the subgrade soils compared to current condition and other fill alternatives. Reduced pressures in turn reduce post-construction settlement, and provides a better performing structure near the retaining wall compared to the crushed-stone and other alternatives. The use of LCCF will further reduce the pressure on the clay in areas of thicker fills and result in less settlement and more uniform settlement. The total and differential settlements along the constructed wall are expected to be further reduced by up to 40 percent with LCCF compared to crushed stone.
2. LCCF reduced lateral pressures on the retaining wall, which improves wall stability during and after construction and reduces retaining wall construction costs.
3. Eliminating Phase 2 building demolition as a part of the value engineering process further improved the viability of LCCF as it eliminates a second equipment mobilization and associated costs.
4. Using LCCF eliminates the 6 plus week preload settlement period, which provides advantages to the schedule and reduces contract risks for delays and unforeseen winter conditions.
5. The value management change to preloading increased temporary excavation stability issues for the contractor, which are improved by LCCF.
6. The use of LCCF in the Northeast has been increasing in recent years, resulting in a more cost-effective solution. During the VM process, a LCCF contractor was found that is currently performing similar work in New England and has proposed to complete the necessary scope for about 35% less than earlier cost estimates and within the required time frame.
7. LCCF eliminates indirect project costs associated with preload – survey work by the contractor, inspections by the consulting geotechnical engineer and material testing by the third-party inspector. These costs are currently being paid for from administrative reserve accounts.

Recommendations

Through this evaluation, it has become apparent that the use of LCCF is a preferred earthwork design modification, that would improve performance of the building structure, provide better value, and reduces project contract and schedule risk compared to the base-bid design. While the use of crushed stone costs less than other alternatives, its use would include greater construction contract and

performance risk compared to the recommended LCCF alternative. Although the modification reduces the net effect of identified value-engineered cost reduction measures, the added value and reduced risks warrants acceptance of the modification.

Based on the value of the improvement to the structure, reduced contract risk and reduced long term maintenance costs, Oak Point Associates recommends proceeding with the work outlined in RFP 02 and this memorandum for the amount of \$369,650.00. Please note that this proposal includes an allowance of \$60,000 for potential Temporary Heat and Tenting for cold weather construction. Work will be billed against this line as needed and any unused funds credited back upon completion of this work.

Please also note that every effort continues to be made by Oak Point Associates, Ledgewood Construction and their subcontractors as well as the School District Staff to reduce costs associated with this change. In the event that efficiencies can be found during the final planning of this work these will be documented, and the contract adjusted at that time.



Ledgewood Construction
 27 Main Street
 South Portland, Maine 04106
 Phone: 207.767.1866
 Fax: 207.767.1869

Camden Rockport Middle School
 Job #: 18689
 34 Knowlton Street
 Camden, Maine 04843

Potential Change Order #007

To: MSAD #28
 28 Lions Lane
 Camden, Maine 04843
Date: 8/28/ 2018 at 07:54 AM

From: Ledgewood Construction
Potential Change Order Number / Revision: 007 / 0

Ledgewood Construction submits the following changes in the work for your approval:

Title: RFP 2R1, Lightweight Cellular Concrete
Reason: RFP #2R1
Description: RFP 2R1, Lightweight Cellular Concrete. Temporary heat and cover for this work will be completed on a time and material basis. A \$60k allowance is included as part of this PCO for this work.

- References / Attachments:**
- [RFP 002R1 - SK-C5.pdf](#)
 - [RFP 002R2 - SK-C4, Revised 08-23-18.pdf](#)
 - [RFP 002R1 - SK-C3.pdf](#)
 - [RFP 002R1 - SK-C2.pdf](#)
 - [RFP 002R1 - SK-C1.pdf](#)
 - [RFP 002R1 - SB505.pdf](#)
 - [RFP 002R1 - SB504.pdf](#)
 - [RFP 002R1 - SB503.pdf](#)
 - [RFP 002R1 - SB102.pdf](#)
 - [RFP 002R1 - CP101.pdf](#)
 - [RFP 002R1 - 08-22-18, Low density controlled low-strength material \(LD-CLSM\).pdf](#)
 - [JBI - CRMS - RFP 002 - 100 PSI Proposal 8-27-2018.pdf](#)
 - [RH 08-27-18 RFP 002R1.pdf](#)
 - [Folsom proposal.pdf](#)

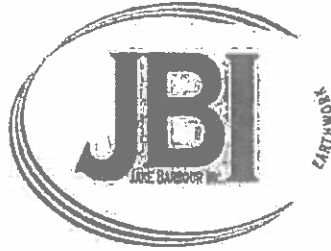
Schedule Impact: 0 days

Change Order Line Items:

| # | Cost Code | Description | Type | Amount |
|---------------------|--------------------|---|------------|---------------------|
| 1 | 19-19007 - PCO #07 | JBI proposal Lightweight Cellular Concrete | Commitment | \$ 277,489.00 |
| 2 | 19-19007 - PCO #07 | RH proposal foundation changes | Commitment | \$ 985.00 |
| 3 | 19-19007 - PCO #07 | Concrete credit due to foundation changes, • Credit concrete gym retaining wall 18.75 Cy @ \$96.60 = -\$1,811.25, • Credit concrete admin area wall 6.39 Cy @ 96.60 = -\$617.27 | Materials | (\$2,429.00) |
| 4 | 19-19007 - PCO #07 | Temporary heat and cover allowance | Other | \$ 60,000.00 |
| 5 | 18-18900 - Fee | LWC 10% overhead and profit | Other | \$ 33,605.00 |
| Subtotal: | | | | \$369,650.00 |
| Grand Total: | | | | \$369,650.00 |



| | | |
|---|--|--|
| Authorized by Owner: MSAD #28 | Architect / Engineer: Oak Point Associates | Accepted By Contractor: LedgeWood Construction |
| By _____ | By _____ | By _____ |
| Date _____ | Date _____ | Date _____ |



RFP-002

Lightweight Cellular Concrete Proposal

August 27, 2018

Mr. Peter J. Reynolds, Project Manager
 Ledgewood Construction
 27 Main Street
 South Portland, ME 04106

Re: New Camden/Rockport Middle School – MSAD 28, Knowlton Street, Camden, ME 04843

Dear Peter,

The total extra cost for furnishing and placing cellular concrete in lieu of the ½" crushed stone is (\$277,489.00) Two Hundred Seventy Seven Thousand Four Hundred Eighty Nine Dollars and No Cents. Placement of the cellular concrete behind the retaining wall and stepped foundation wall is scheduled to begin November 1, 2018 and to be placed up to elevation 111.00' with one area to 108.00 at a slope of 3H to 1V and without crushed stone beneath the cellular concrete at the sloped areas. We've allowed 9 working days to place the 1st phase of cellular concrete. It is anticipated three weeks will be required for completing the concrete work on top of the cellular concrete at elevation 111.00'. Therefore, the remainder of the cellular concrete from elevation 111.00' up to elevation 114.83' would be placed beginning December 10, 2018 to completion. A setup area of 4,500 s.f. is required in the vicinity of the future playground area to setup the cellular concrete equipment.

| Description | Quan. | | Unit | Cost |
|--|-------|------------|----------------|---------------------|
| Geo-Cell Midwest, LLC. - 1st mobilization | 1 | Each | \$ 15,000.00 | \$ 15,000 |
| Geo-Cell Midwest, LLC. - 2nd mobilization | 1 | Each | \$ 5,750.00 | \$ 5,750 |
| Pervious Cellular Concrete (28 - 33 PCF & 100 PSI) | 6,532 | Cubic Yard | \$ 70.50 | \$ 460,506 |
| Sub-Total Geo-Cell Midwest | | | | \$ 481,256 |
| JBI O.H. & Profit for Geo-Cell Sub-Contractor - 10% | | | | \$ 48,125 |
| Sub-Total | | | | \$ 529,381 |
| Crane for equipment mobilization & demobilization | 2 | Each | \$ 1,500.00 | \$ 3,000 |
| Water Company - Water Fee | 1 | Each | \$ 1,000.00 | \$ 1,000 |
| JBI labor to assist with cellular concrete placement | 234 | Man Hour | \$ 50.00 | \$ 11,700 |
| JBI forming labor & material | 1 | Lump Sum | \$ 2,500.00 | \$ 2,500 |
| ½" Crushed Stone in place above cellular | 383 | Cubic Yard | \$ 30.00 | \$ 11,490 |
| Equipment temporary heat & enclosure | 1 | Lump Sum | \$ 7,500.00 | \$ 7,500 |
| Sub-Total | | | | \$ 37,190 |
| O.H. & Profit for work performed by JBI - 20% | | | | \$ 7,438 |
| Sub-Total | | | | \$ 44,628 |
| TOTAL ADD: | | | | \$ 574,009 |
| Excavation Cut Reduction | 1,300 | Cubic Yard | \$ (3.50) | \$ (4,550) |
| Excavation Trucking Reduction | 1,300 | Cubic Yard | \$ (4.00) | \$ (5,200) |
| Crushed Stone | 7,034 | Cubic Yard | \$ (20.00) | \$ (140,680) |
| Place Crushed Stone | 7,034 | Cubic Yard | \$ (10.00) | \$ (70,340) |
| Geogrid | 1 | Lump Sum | \$ (31,750.00) | \$ (31,750) |
| Preload | 1 | Lump Sum | \$ (44,000.00) | \$ (44,000) |
| TOTAL DEDUCT: | | | | \$ (296,520) |
| TOTAL NET DIFFERENCE - ADD: | | | | \$ 277,489 |

Excluded and/or Supplied by Others:

- Any work not listed in "Scope of Work"
- Cellular concrete testing.
- Cold weather protection is not included
- Temporary shelter & heat will be provided on a time & material basis
- Hot water is not included (*Due to the required volume of water it is not practical to heat water on site*)

Sincerely,



Carmel Ouellet, Project Manager

Proposal

RH Contracting, Inc.

139 Richardson Hollow Road
GREENWOOD, MAINE 04255
Phone (207) 527-2797 / Fax (207) 527-2795

| | | | |
|--|---------------------------------|--|------------------------|
| PROPOSAL SUBMITTED TO Ledgewood Construction | | PHONE: 207-767-1866 FAX: 207-767-1869 | DATE 8/27/18 |
| STREET 27 Main Street | | JOB NAME Camden-Rockport Middle School | |
| CITY, STATE and ZIP CODE South Portland, Maine 04106 | | JOB LOCATION Camden, Maine | |
| ATTN: Pete Reynolds | DATE OF PLANS 8/15/18 | ARCHITECT Oak Point | |

RFP 002R1

Gym Wall: There is no change to footing and wall forming square footage so costs remain the same.
Reducing the width of the footing will require cutting the reinforcing steel that has been supplied.

Added cost to cut reinforcing..... \$985.

Admin Area: There is a small decrease in the square footage of forming.
5 dowels will need to be relocated and the lengths modified to fit the new elevations.
Net change \$0.

We Propose hereby to furnish form equipment and labor – complete in accordance with above specifications, for the sum of:

Payment to be made as follows:

All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workman's Compensation Insurance.

Authorized
Signature

Note: This proposal may be 10
withdrawn by us if not accepted within _____ days.

Acceptance of Proposal -

Signature:



Owen J. Folsom, Inc.

Delivering Quality Construction Materials Since 1914

Date: May 15, 2018
 To: Interested Bidders
 Project: Middle School
 Camden/Rockport, ME

Pho#:
 Fax#:
 E Mail:

Owen J. Folsom, Inc. is pleased to provide you with this quote for ready mixed concrete for the above project:

| Material | Unit | Rate |
|---|------|----------|
| 3000 psi; 3/4", 4" max, 5.5+/-1.5%, .50 max, wt slag | cy | \$91.70 |
| Super @ 8" max | cy | \$2.10 |
| Non chloride accelerator @ 1% | cy | \$2.80 |
| 4000 psi; 3/4", 4" max, 5.5+/-1.5%, .45 max, wt slag | cy | \$96.60 |
| Super @ 8" max | cy | \$2.40 |
| Non chloride accelerator @ 1% | cy | \$3.20 |
| 4000 psi; 3/4", 4" max, 2.0+/-1.0%, .45 max, wt slag | cy | \$99.30 |
| Super @ 8" max | cy | \$2.50 |
| Non chloride accelerator @ 1% | cy | \$3.40 |
| 4000 psi; 3/4" LW, 4" max, 5.0+/-1.0%, .45 max, wt slag | cy | \$159.20 |
| Super @ 8" max | cy | \$2.80 |
| Non chloride accelerator @ 1% | cy | \$3.80 |
| Monofilament Fiber @ 1.5#/cy | cy | \$6.50 |
| Concrete Delivered after December 31, 2018 | cy | +\$2.00 |
| Small Load Charge (Ea cy under 5) | ea | N/C |
| Winter Charge (Nov 1 to April 15) | cy | \$6.00 |

96.60
 102.20
 105.20
 165.80

7 minutes per cy to unload budgeted with additional time billed at \$85.00/hr. Mixes designed to meet project requirements at point of discharge. Quote must be accepted in 30 days. Terms are net 30 days from date of invoice. If tax exempt, please provide proper documentation prior to delivery. A fuel surcharge will apply when fuel costs exceed \$4.50/gal.

If you have other needs or questions, please call.

Thank you for your consideration,

Jason O. Folsom
 Operations Manager
 Owen J. Folsom, Inc.

Accepted by: _____

Print Name: _____

Date: _____

Main Office
 (207) 827-3319
 P.O. Box 206
 Stillwater, ME 04489
 Info@ojf-inc.com

Old Town Concrete Plant
 (207) 827-7625
 299 Gilman Falls Avenue
 Old Town, ME 04468
 OldTownConcretePlant@ojf-inc.com

Ellsworth Concrete Plant
 (207) 667-1222
 211 North Street
 Ellsworth, ME 04605
 EllsworthConcretePlant@ojf-inc.com

Searsport Concrete Plant
 (207) 930-7625
 19 Dump Road
 Searsport, ME 04974
 SearsportConcretePlant@ojf-inc.com



Request for Proposal No. 002

To: Peter Reynolds
Ledgewood Construction
27 Main Street
South Portland, Maine 04106

Date: Revised August 22, 2018

Project: Camden/Rockport Middle School
Camden, Maine

Requested By: Tyler G. Barter, AIA LEED AP BD+C Oak Point Associates

Work Description:

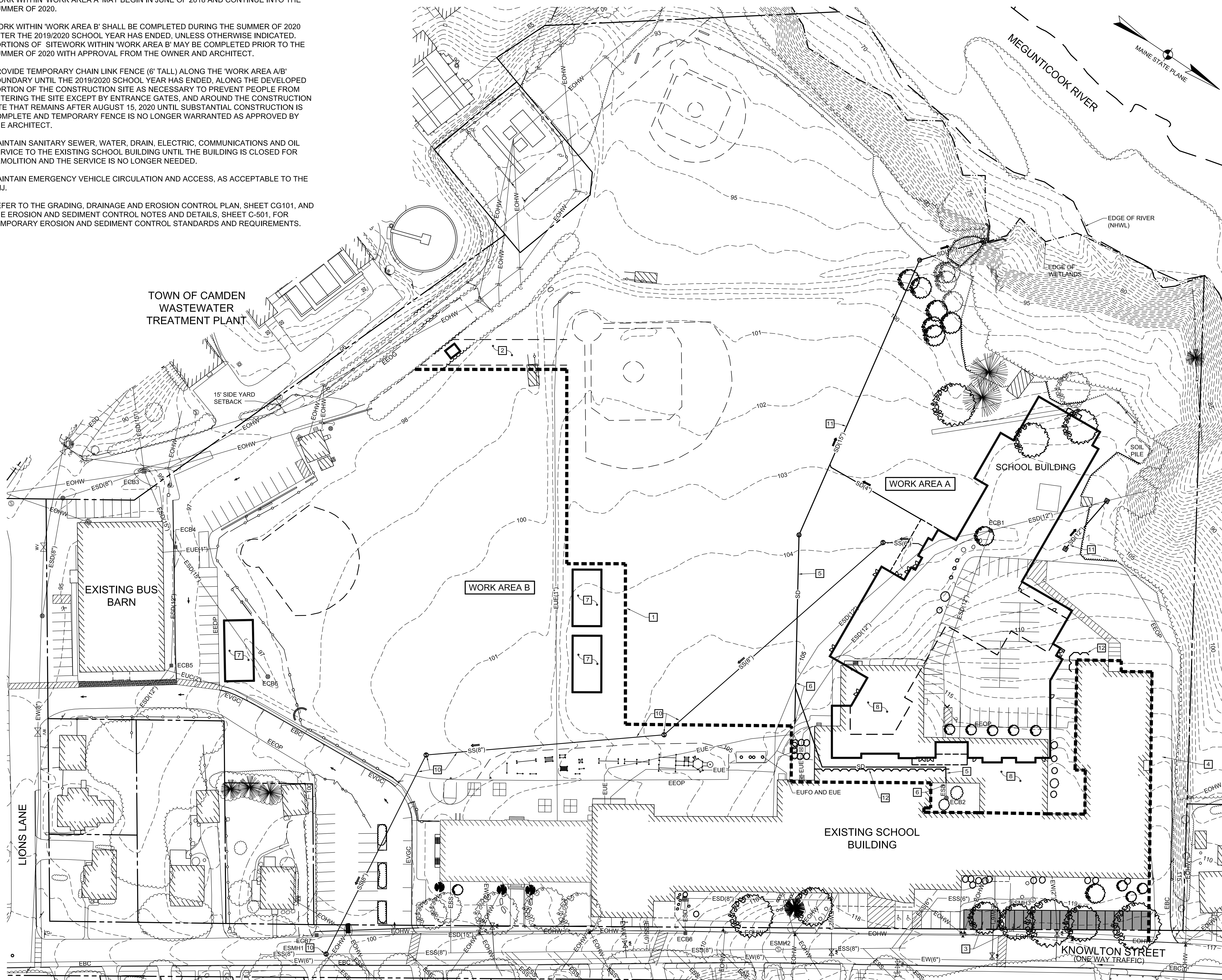
Oak Point Associates is respectfully requesting a proposal for the following:

1. Delete crushed stone backfill and geo-grid reinforcing around reinforced concrete retaining and foundation walls.
2. Provide low density controlled low-strength material (LD-CLSM) at reinforced concrete retaining and foundation walls. Refer to SK-C2, SK-C3, SK-C4 and SK-C5 for extent of LC-CLSM material
3. Revise reinforced concrete retaining wall indicated in detail 1/SB504.
4. Refer to attached drawings SB102 (**Revised 08-22-18**), SB503, SB503, SB504 and SB505 for modifications to foundation plans and details.
5. Structural fill material may also be used in lieu of base course for backfill at the exterior foundation wall to the limits indicated on the Foundation Preparation and Drain detail (1/C-502). Structural fill material shall meet requirements indicated on the Clarification Sketch SK-C1.
6. Structural fill material may be used for backfill along the interior wall between column lines KK-50 and MM-39, as depicted on Clarification Sketch SK-C1. Structural fill material shall meet requirements indicated on the Clarification Sketch SK-C1.

cc: Maria Libby, MSAD #28
Mary Beth Van Keuren, MSAD #28
Keith Rose, MSAD #28
Tom McNealy, Clerk of the Works

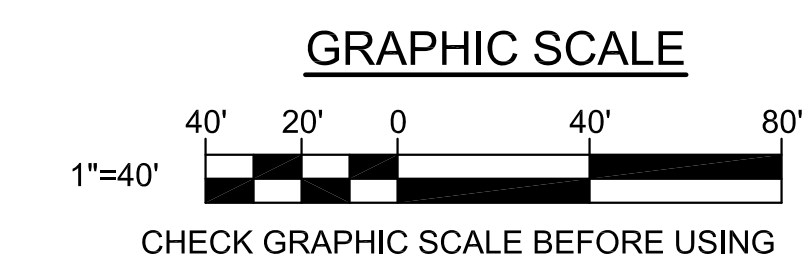
CONSTRUCTION PHASING NOTES:

1. WORK WITHIN 'WORK AREA A' MAY BEGIN IN JUNE OF 2018 AND CONTINUE INTO THE SUMMER OF 2020.
2. WORK WITHIN 'WORK AREA B' SHALL BE COMPLETED DURING THE SUMMER OF 2020 AFTER THE 2019/2020 SCHOOL YEAR HAS ENDED, UNLESS OTHERWISE INDICATED. PORTIONS OF SITEWORK WITHIN 'WORK AREA B' MAY BE COMPLETED PRIOR TO THE SUMMER OF 2020 WITH APPROVAL FROM THE OWNER AND ARCHITECT.
3. PROVIDE TEMPORARY CHAIN LINK FENCE (6' TALL) ALONG THE 'WORK AREA A/B' BOUNDARY UNTIL THE 2019/2020 SCHOOL YEAR HAS ENDED, ALONG THE DEVELOPED PORTION OF THE CONSTRUCTION SITE AS NECESSARY TO PREVENT PEOPLE FROM ENTERING THE SITE EXCEPT BY ENTRANCE GATES, AND AROUND THE CONSTRUCTION SITE THAT REMAINS AFTER AUGUST 15, 2020 UNTIL SUBSTANTIAL CONSTRUCTION IS COMPLETE AND TEMPORARY FENCE IS NO LONGER WARRANTED AS APPROVED BY THE ARCHITECT.
4. MAINTAIN SANITARY SEWER, WATER, DRAIN, ELECTRIC, COMMUNICATIONS AND OIL SERVICE TO THE EXISTING SCHOOL BUILDING UNTIL THE BUILDING IS CLOSED FOR DEMOLITION AND THE SERVICE IS NO LONGER NEEDED.
5. MAINTAIN EMERGENCY VEHICLE CIRCULATION AND ACCESS, AS ACCEPTABLE TO THE AHJ.
6. REFER TO THE GRADING, DRAINAGE AND EROSION CONTROL PLAN, SHEET CG101, AND THE EROSION AND SEDIMENT CONTROL NOTES AND DETAILS, SHEET C-501, FOR TEMPORARY EROSION AND SEDIMENT CONTROL STANDARDS AND REQUIREMENTS.



KEYNOTES: (THIS SHEET ONLY).

- 1 WORK AREA BOUNDARY.
- 2 TEMPORARY GRAVEL CONSTRUCTION ACCESS ROAD.
- 3 TEMPORARY PARKING SPACES (BY OWNER).
- 4 MAINTAIN PAVED DRIVEWAY AS SECONDARY MEANS OF ACCESS TO THE CONSTRUCTION SITE.
- 5 TEMPORARY DRAIN PIPE.
- 6 CONNECT TO EXISTING DRAIN PIPE.
- 7 PORTABLE CLASSROOM AND FOUNDATION (BY OWNER).
- 8 PHASE 1 BUILDING DEMOLITION (REFER TO SHEET AD001).
- 9 NOT USED.
- 10 PROVIDE SANITARY SEWER TO THE BUILDING DURING THE SUMMER OF 2019 AND RESTORE THE DISTURBANCE TO MATCH THE EXISTING CONDITIONS. REFER TO CU101 FOR SANITARY SEWER SYSTEM INFORMATION. TEMPORARILY SET FRAME RIM TO EXISTING GRADE OR BELOW GRADE AT THE DESIGN RIM ELEVATION.
- 11 PROVIDE STORM DRAIN SYSTEM TO ACCOMMODATE TEMPORARY SERVICE DURING THE SUMMER OF 2018. REFER TO CG101 FOR DRAIN SYSTEM INFORMATION. TEMPORARILY SET THE FRAME AND GRATE TO FINISH GRADE OR BELOW GRADE WITH A COVER AT THE DESIGN ELEVATION.
- 12 TEMPORARY SHEET PILES (REFER TO SHEET S-007), PROVIDE ADDITIONAL EXCAVATION SUPPORT AS REQUIRED TO SUPPORT EXCAVATIONS AND STRUCTURES ACCORDING TO THE CONTRACTORS EXCAVATION AND PROTECTION PLAN.



1 CONSTRUCTION STAGING AND PHASING PLAN
 CP101 SCALE: 1"=40'

| | | | | | |
|-----|---------|------------------------|-----|---|----------|
| | | | | MAINE SCHOOL ADMINISTRATIVE DISTRICT 28 | |
| | | | | TITLE CAMDEN-ROCKPORT MIDDLE SCHOOL | |
| | | | | LOCATION CAMDEN, MAINE | |
| | | | | TITLE THIS DWG. CONSTRUCTION STAGING AND PHASING PLAN | |
| 7 | 8-15-18 | RFP 002 | SES | DRAWN BY: | SES |
| 6 | 6-20-18 | VM NO 1 | SES | CHECK BY: | SES |
| NO. | DATE | DESCRIPTION | BY | NO. | |
| | | READY FOR CONSTRUCTION | | DATE | 06-20-18 |
| | | | | | |
| | | | | CP101 | |
| | | | | 26 of 369 | |



OAK POINT ASSOCIATES

231 Main Street, Biddeford, Maine 04005 (T) 207.283.0193 (F) 207.283.4283 www.oakpoint.com

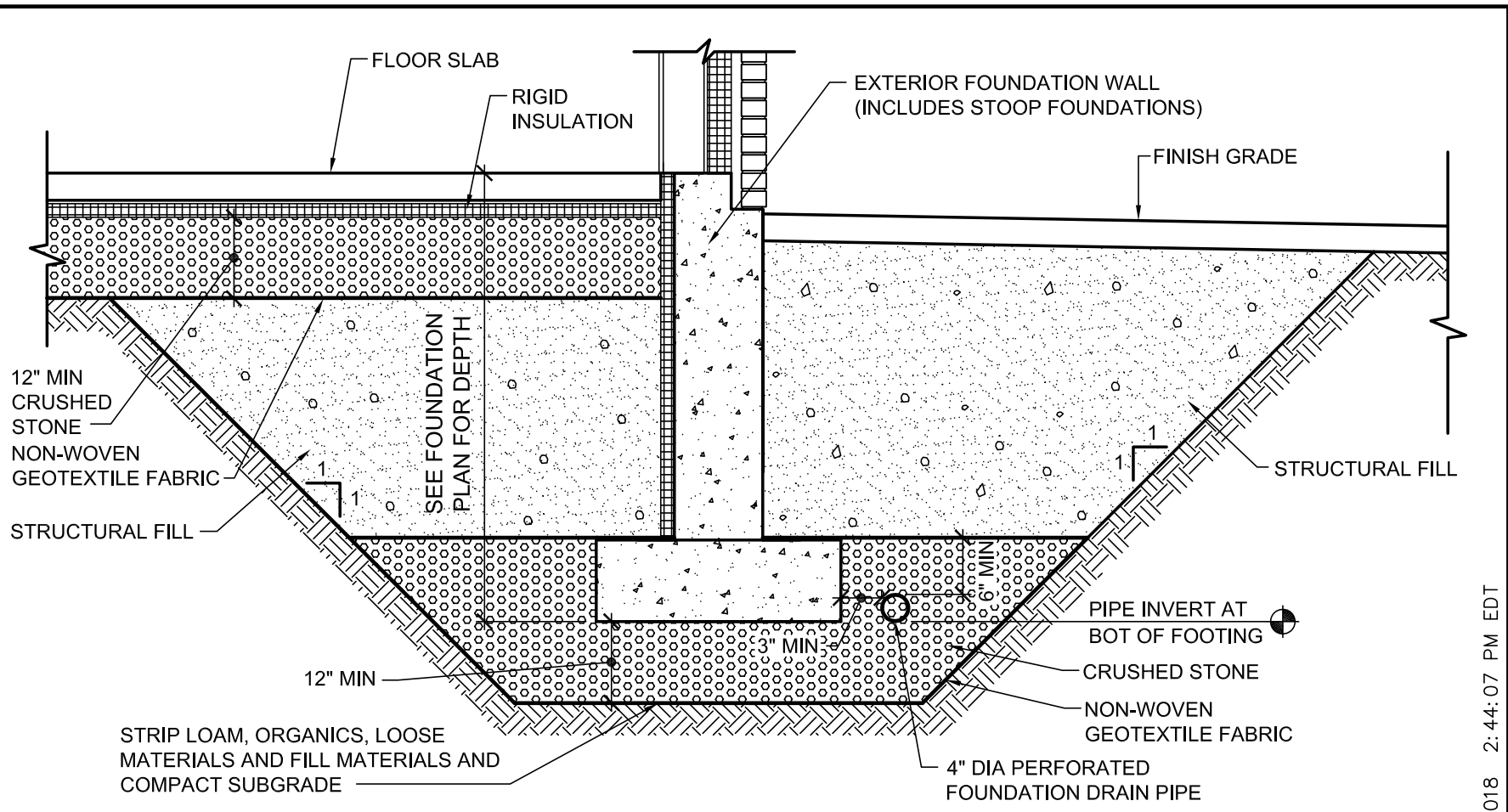
DESIGNED BY: SES
 DRAWN BY: SES
 CHECKED BY: SES
 PROJECT: 21702.10

CAMDEN-ROCKPORT
 MIDDLE SCHOOL
 CAMDEN, MAINE

AMENDED
 FOUNDATION
 PREPARATION

SCALE: NTS
 DATE: 08/15/18
 REV: SK-C1
 CLARIFICATION
 SKETCH

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**TYPICAL FOUNDATION PREPARATION SECTION
 BETWEEN COLUMN LINES KK-50 AND MM-39**

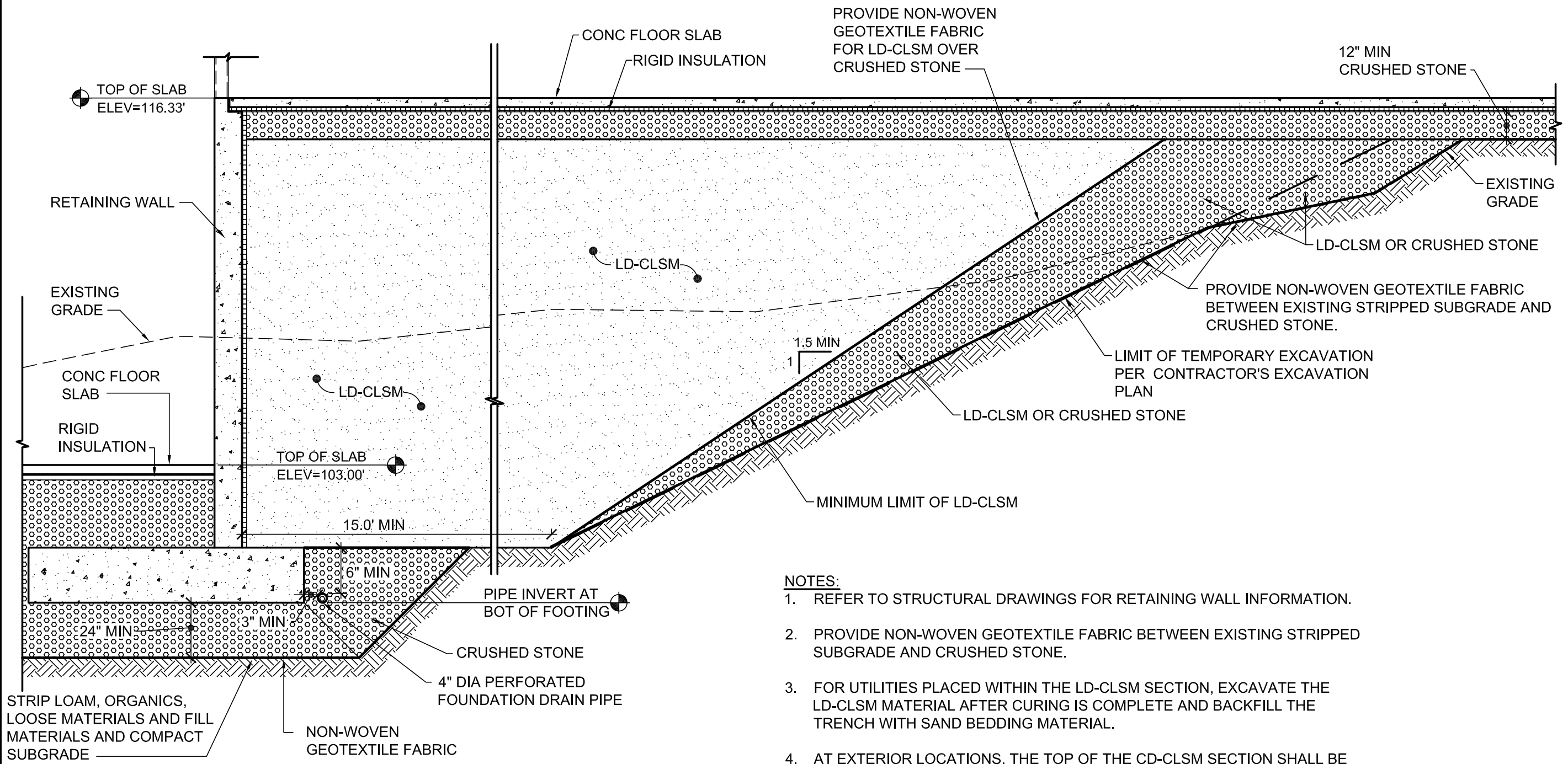
NOTES:

1. Structural Fill: Naturally or artificially well graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand free from vegetable matter, lumps, or balls of clay and other deleterious substances and meeting the following gradation:

| Sieve Size | Percent Finer by Weight |
|------------|-------------------------|
| 6-inch | 100 |
| 3-inch | 70-100 |
| No. 4 | 35-70 |
| No. 40 | 5-35 |
| No 200 | 0-5 |

Note: Maximum particle size shall be limited to 3 inches within 2 feet of foundation walls, footings, and floor slabs.

2. Refer to notes on FOUNDATION PREPARATION AND DRAIN DETAIL (1/C-502).



- NOTES:**
1. REFER TO STRUCTURAL DRAWINGS FOR RETAINING WALL INFORMATION.
 2. PROVIDE NON-WOVEN GEOTEXTILE FABRIC BETWEEN EXISTING STRIPPED SUBGRADE AND CRUSHED STONE.
 3. FOR UTILITIES PLACED WITHIN THE LD-CLSM SECTION, EXCAVATE THE LD-CLSM MATERIAL AFTER CURING IS COMPLETE AND BACKFILL THE TRENCH WITH SAND BEDDING MATERIAL.
 4. AT EXTERIOR LOCATIONS, THE TOP OF THE CD-CLSM SECTION SHALL BE PLACED TO 18 INCHES BELOW FINISH GRADE. PROVIDE 12 INCHES OF SAND AND 6 INCHES OF PLANTING SOIL OVER THE CD-CLSM SECTION.

1 FOUNDATION PREPARATION - RETAINING WALL

 SK-C2 NOT TO SCALE

DESIGNED BY: SES

 DRAWN BY: SES

 CHECKED BY: SES

 PROJECT: 20702.10

CAMDEN-ROCKPORT MIDDLE SCHOOL

 CAMDEN, MAINE

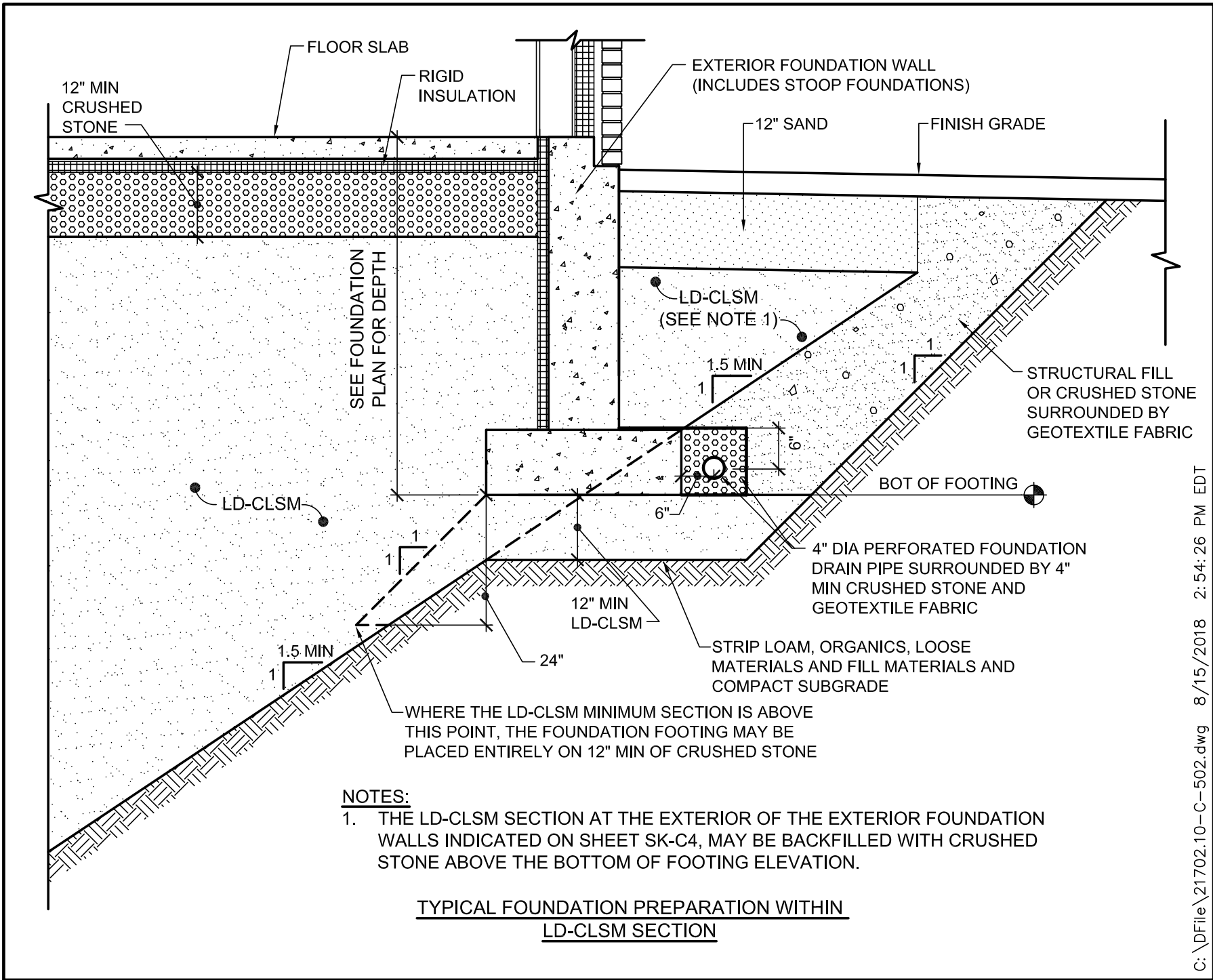
REVISED FOUNDATION PREPARATION

SCALE: AS NOTED

 DATE: 8/15/18

 REV: **SK-C2**

 CLARIFICATION SKETCH



NOTES:

1. THE LD-CLSM SECTION AT THE EXTERIOR OF THE EXTERIOR FOUNDATION WALLS INDICATED ON SHEET SK-C4, MAY BE BACKFILLED WITH CRUSHED STONE ABOVE THE BOTTOM OF FOOTING ELEVATION.

**TYPICAL FOUNDATION PREPARATION WITHIN
LD-CLSM SECTION**

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**OAK POINT
ASSOCIATES**

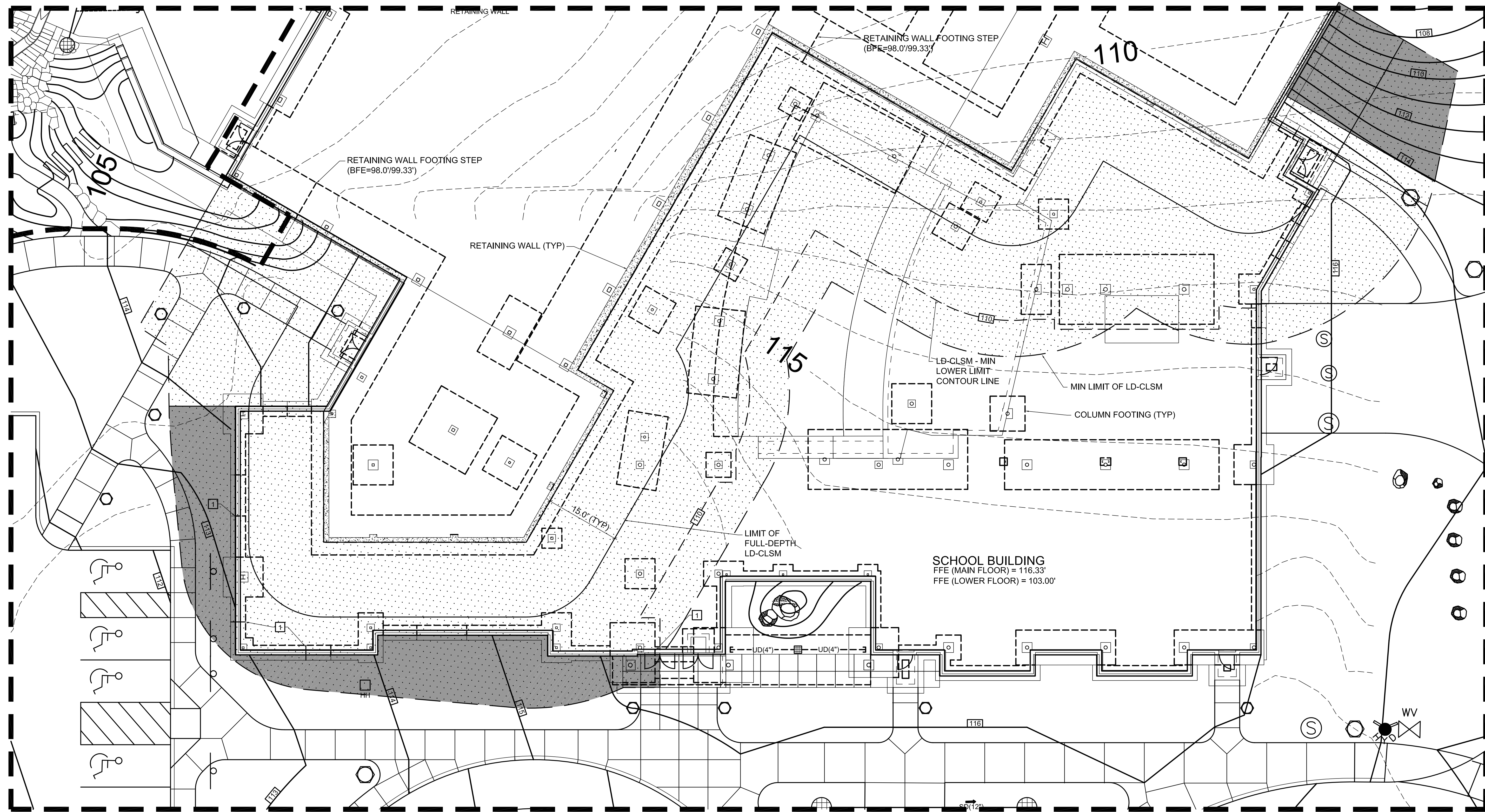
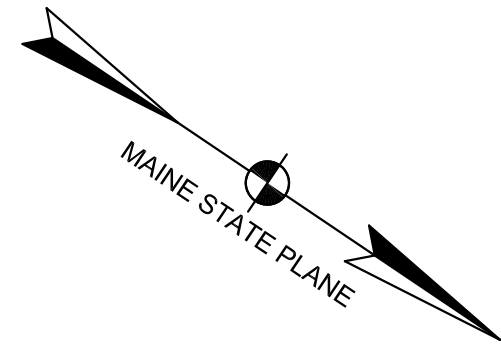
231 Main Street, Biddeford, Maine 04005 (T) 207.283.0193 (F) 207.283.4283
www.oakpoint.com

DESIGNED BY: SES
DRAWN BY: SES
CHECKED BY: SES
PROJECT: 21702.10

**CAMDEN-ROCKPORT
MIDDLE SCHOOL**
CAMDEN, MAINE

**REVISED
FOUNDATION
PREPARATION**

SCALE: NTS
DATE: 08/15/18
REV: **SK-C3**
**CLARIFICATION
SKETCH**



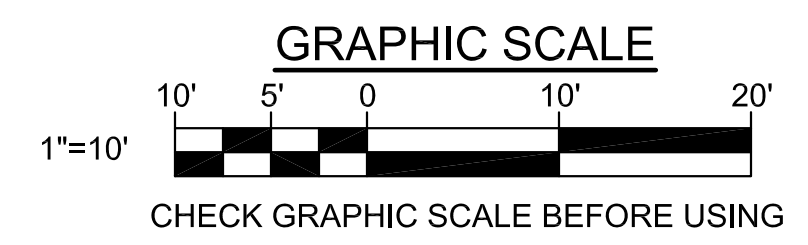
1 LD-CLSM LOCATION PLAN
SK-C4 SCALE: 1"=10'

KEYNOTES: (THIS SHEET ONLY).

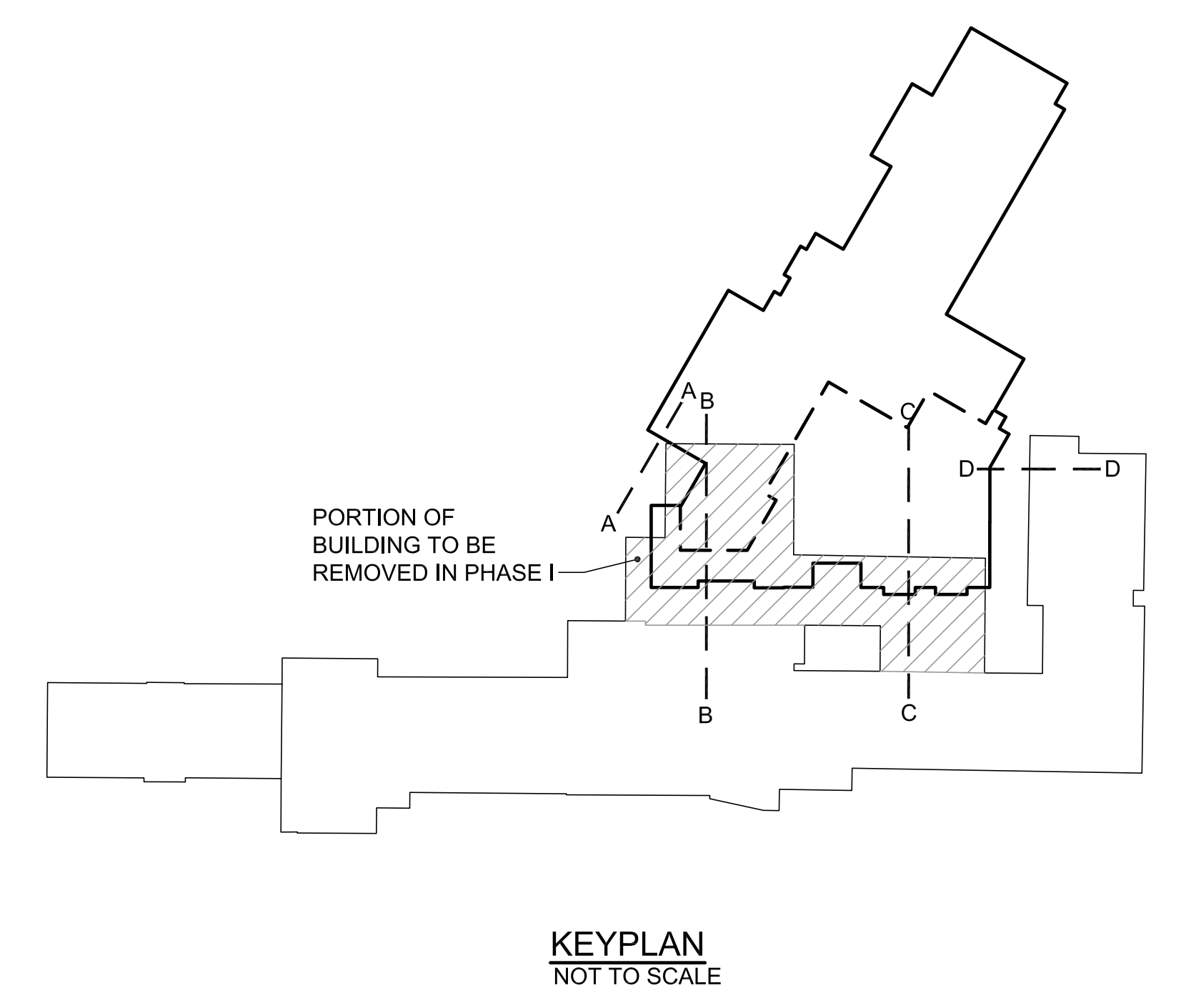
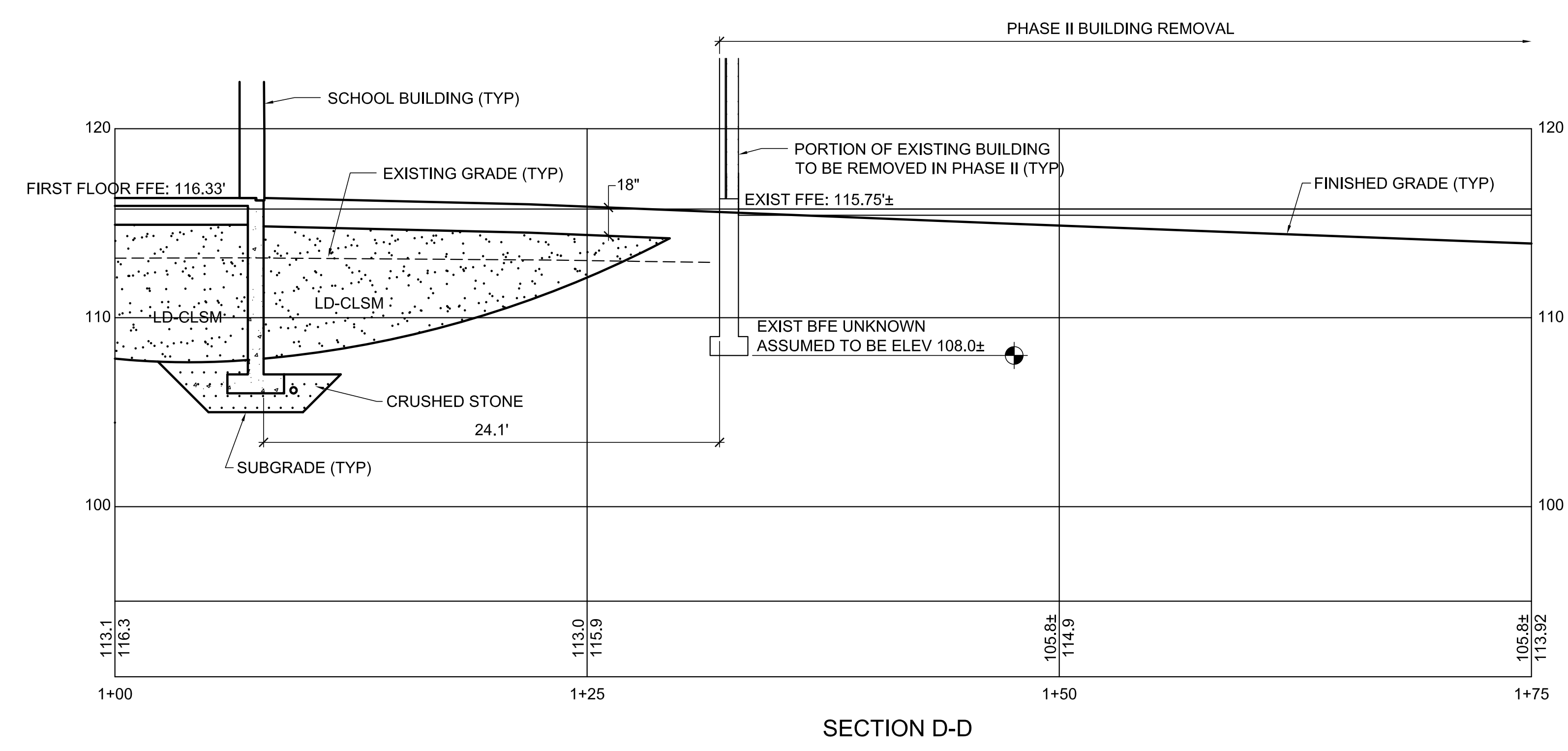
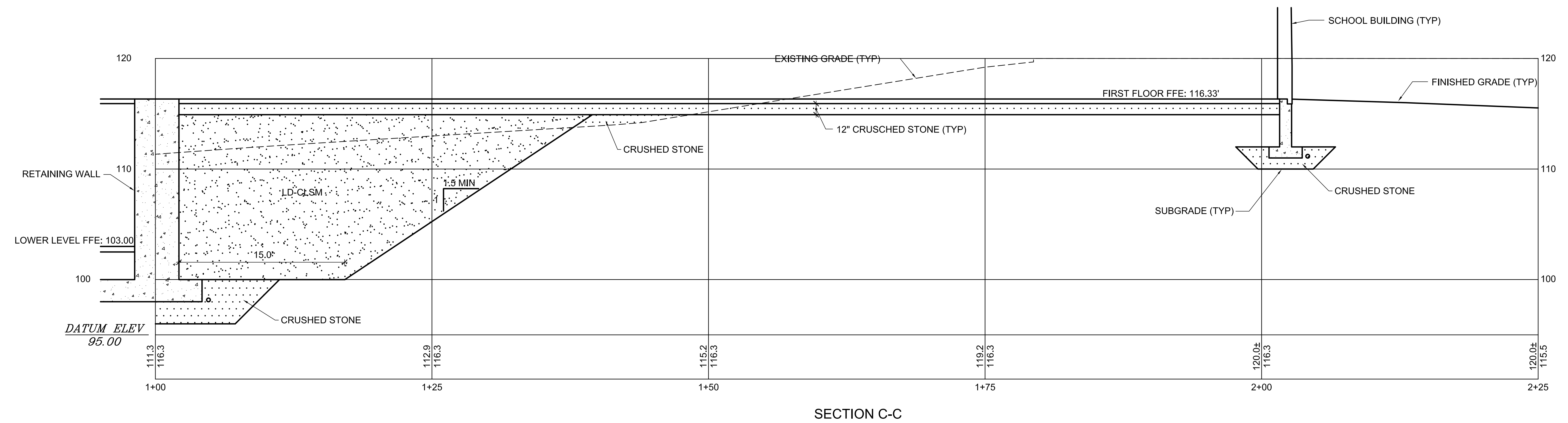
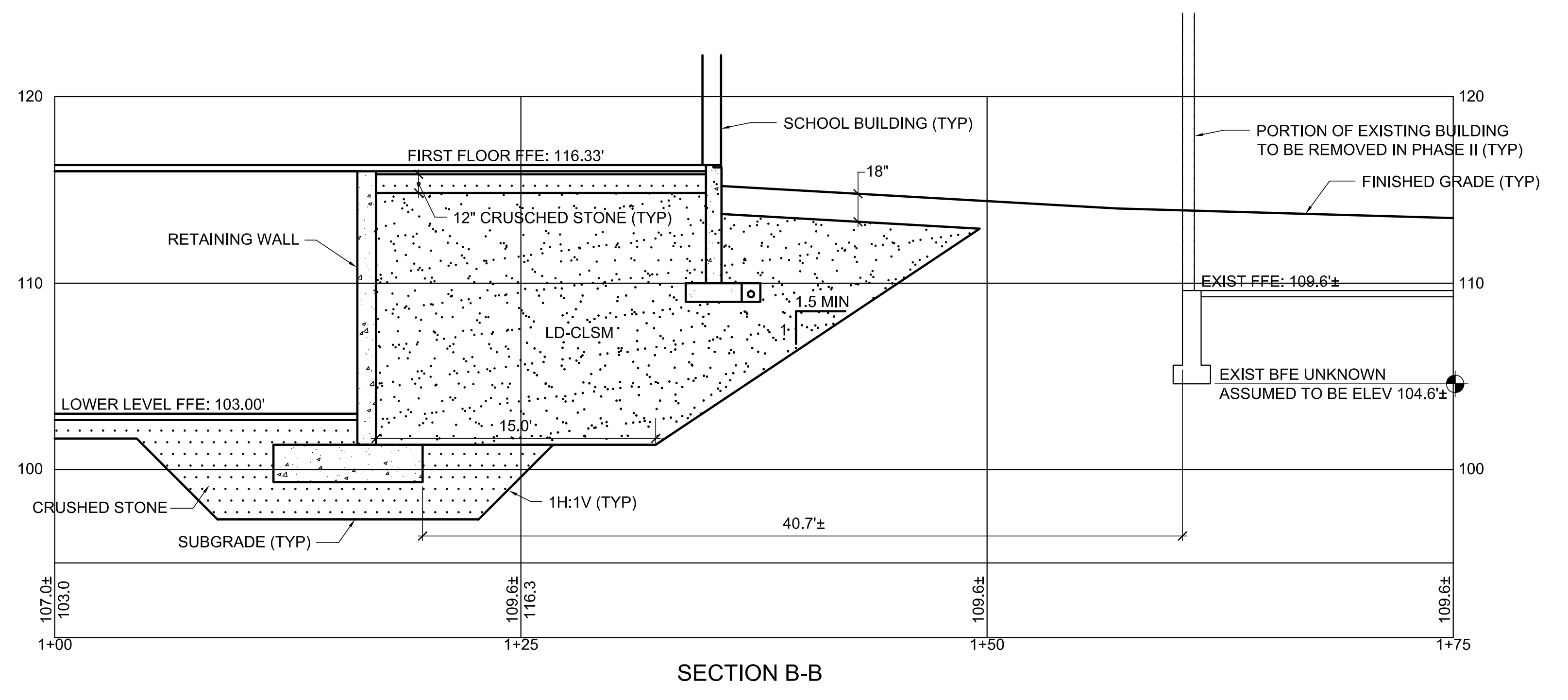
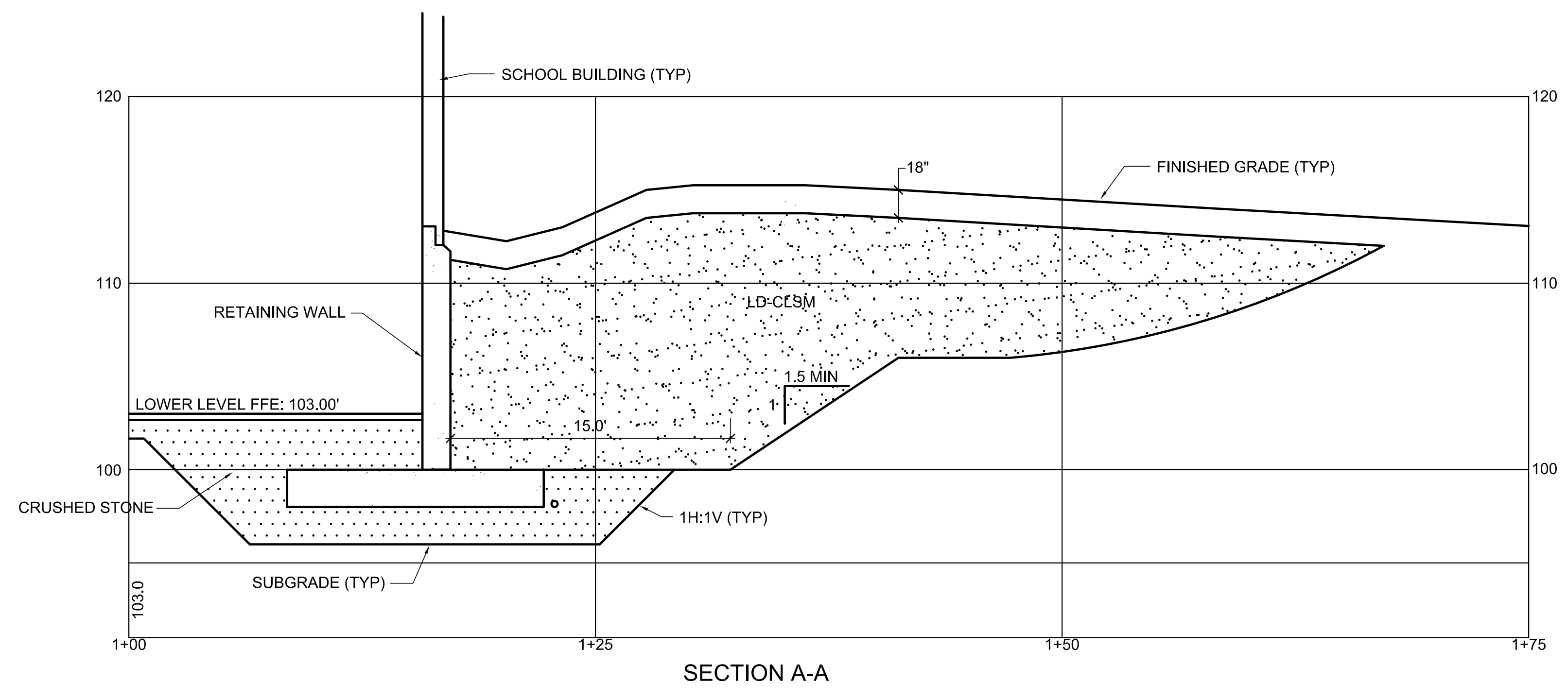
- 1 FOUNDATION FOOTING BEARING ON CRUSHED STONE TO LD-CLSM TRANSITION LOCATION.

LEGEND

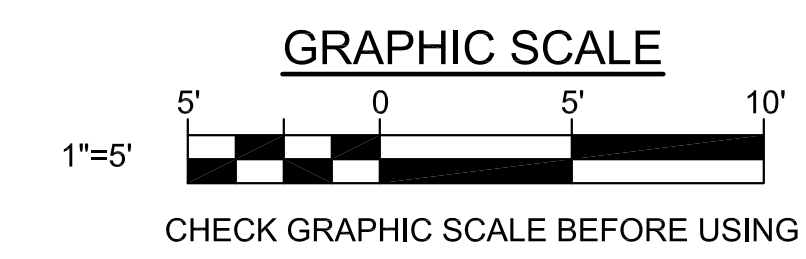
- AREA OF LD-CLSM SECTION
- AREA OF LD-CLSM SECTION THAT MAY BE BACKFILLED WITH CRUSHED STONE ABOVE THE BOTTOM OF FOOTING ELEVATION



| | | | |
|---|---------|-----------------|-----|
| MAINE SCHOOL ADMINISTRATIVE DISTRICT 28 | | DRAWING NO. | |
| TITLE CAMDEN-ROCKPORT MIDDLE SCHOOL | | SK-C4 | |
| LOCATION CAMDEN, MAINE | | SHEET NO. | |
| TITLE THIS DWG. LD-CLSM LOCATION PLAN | | 369 | |
| NO. | DATE | DESCRIPTION | BY |
| 1 | 8-15-18 | RFP 002 | SES |
| DRAWN BY: SES | | CHECKED BY: SES | |
| READY FOR CONSTRUCTION | | DATE 06-20-18 | |



1 FOUNDATION PREPARATION SECTIONS
SK-C5 SCALE: 1"=10'



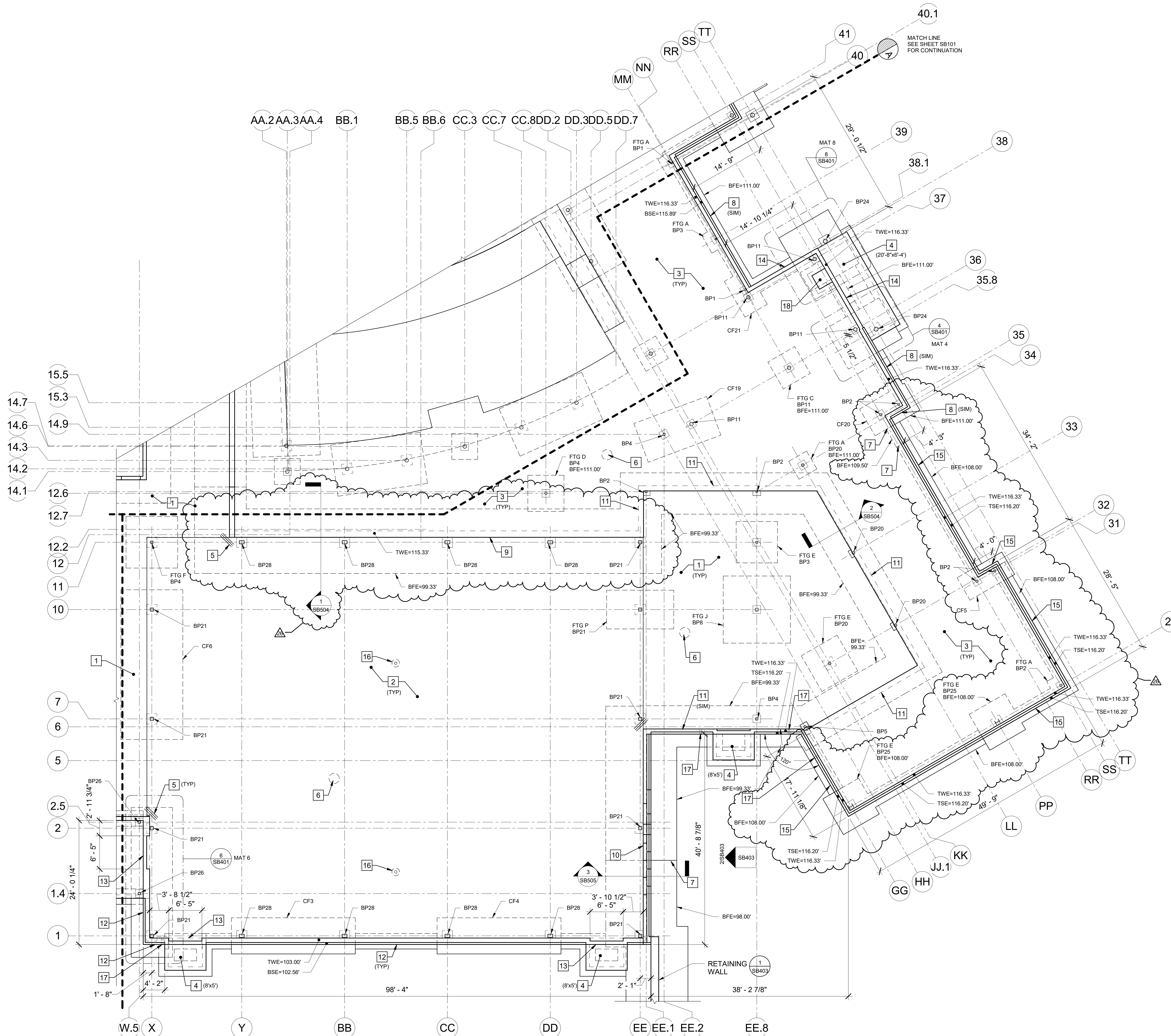
| | | | |
|---|--------------|---------------------|--------|
| MAINE SCHOOL ADMINISTRATIVE DISTRICT 28 | | | |
| TITLE: CAMDEN-ROCKPORT MIDDLE SCHOOL | | | |
| LOCATION: CAMDEN, MAINE | | | |
| TITLE THIS DWG: FOUNDATION PREPARATION SECTIONS | | | |
| DRAWN BY: SES | | CHECK BY: SES | |
| NO. 1 | DATE 8-15-18 | DESCRIPTION RFP 002 | BY SES |
| READY FOR CONSTRUCTION | | DATE 06-20-18 | |

DRAWING NOTES: (THIS SHEET ONLY)

- REFER TO SHEET SB104 FOR SLAB CONTROL JOINTS AND EXPANSION JOINT LAYOUTS.
- REFER TO SHEET SB001 FOR FOOTING SCHEDULES.
- REFER TO SHEET SF604 FOR COLUMN BASE PLATE SCHEDULE.
- REFER TO PLUMBING DRAWINGS FOR FLOOR DRAIN LOCATIONS IN SLABS. PITCH SLAB-ON-GRADE TO FLOOR DRAINS AS REQUIRED.
- BOTTOM OF THE EXTERIOR AND INTERIOR CONTINUOUS FOUNDATION WALL FOOTINGS, EXTERIOR SPREAD FOOTINGS AND EXTERIOR COMBINED FOOTINGS SHALL BE 98.00', UNLESS NOTED OTHERWISE.
- BOTTOM OF THE ISOLATED INTERIOR COLUMN FOOTINGS/COMBINED FOOTINGS SHALL BE 99.33', UNLESS NOTED OTHERWISE. REFER TO TYPICAL PIER DETAIL 4/SB501.
- TOP OF THE EXTERIOR FOUNDATION WALL SHALL BE 103.00' WITH AN INTEGRAL BRICK SHELF ELEVATION OF 102.56', UNLESS NOTED OTHERWISE. REFER TO TYPICAL FOUNDATION WALL DETAIL 1/SB501.
- REFER TO SHEET SB404 FOR ENLARGED PIER PLAN DETAILS.
- PROVIDE FOUNDATION WALL AND SLAB-ON-GRADE CONSTRUCTION JOINTS AT EACH EDGE OF CONCRETE PLACEMENT IN ACCORDANCE WITH DETAILS 3/SB104 AND 5/SB502.
- REFER TO SHEET S-006 FOR COLUMN GRID SPACING.
- PROVIDE CONTROL JOINTS IN FOUNDATION WALLS LOCATED BELOW BRICK VENEER CONTROL JOINTS AND AT A MAXIMUM SPACING OF 20'-0". COORDINATE WITH ARCHITECTURAL WALL ELEVATIONS FOR LOCATION OF CONTROL JOINTS. CONTROL JOINTS SHALL BE MADE BY 3/4" x 3/4" INSERTS ATTACHED TO FOUNDATION WALL FORMWORK.
- REDUCE VERTICAL SPACING OF GEOGRID REINFORCEMENT ALONG FOUNDATION WALL FROM SOUTHEAST OF COLUMN LINE 29 TO COLUMN LINE 35 AND FROM COLUMN LINE LL TO TT TO 1'-0" AND INSTALL BELOW BOTTOM OF FOOTING.
- REFER TO NOTE 7 ON DETAIL 2/SB504 FOR GEOGRID REINFORCEMENT FROM SOUTHWEST OF COLUMN LINE GG TO COLUMN LINE LL.

KEYNOTES: (THIS SHEET ONLY)

- 4" FIBER REINFORCED CONCRETE SLAB-ON-GRADE WITH 6x6, W2.9xW2.9 WELDED WIRE FABRIC. TOP OF SLAB ELEVATION = 103.00'.
- 4" FIBER REINFORCED CONCRETE SLAB-ON-GRADE WITH 6x6, W2.9xW2.9 WELDED WIRE FABRIC. TOP OF SLAB ELEVATION = 102.82'.
- 4" FIBER REINFORCED CONCRETE SLAB-ON-GRADE WITH 6x6, W2.9xW2.9 WELDED WIRE FABRIC. TOP OF SLAB ELEVATION = 116.33'.
- REINFORCED CONCRETE STOOP. SEE DETAIL 5/SB501.
- (3) #4 DOWELS, 3'-0" LONG AT 4" ON-CENTER. LOCATE IN MIDDLE OF SLAB.
- RADON PIT. SEE DETAIL 3/SB502.
- STEP FOOTING. SEE DETAIL 4/SB502.
- 1'-1" REINFORCED CONCRETE FOUNDATION WALL. SEE DETAIL 1/SB501.
- 1'-3" REINFORCED CONCRETE RETAINING WALL AND FOOTING. SEE DETAIL 1/SB504.
- 1'-6" REINFORCED CONCRETE RETAINING WALL AND FOOTING. SEE DETAIL 3/SB505.
- 1'-0" REINFORCED CONCRETE RETAINING WALL AND FOOTING. SEE DETAIL 2/SB504.
- 1'-3" REINFORCED CONCRETE FOUNDATION WALL. SEE DETAIL 10/SB501.
- 1'-3" REINFORCED CONCRETE FOUNDATION WALL AT DOOR. SEE DETAIL 5/SB501 (SIMILAR).
- 1'-0" REINFORCED CONCRETE FOUNDATION WALL AT CURTAIN WALL. SEE DETAIL 6/SB501.
- 10" REINFORCED CONCRETE FOUNDATION WALL. SEE DETAIL 9/SB501.
- CONCRETE VOLLEYBALL POST SUPPORT. SEE DETAIL 11/AE401.
- UTILITY SLEEVE(S). COORDINATE EXACT QUANTITY, SIZE, LOCATION AND ELEVATION WITH CIVIL, PLUMBING AND ELECTRICAL PLANS.
- ALTERNATE NO 7. 3'-0"x3'-0"x2'-0" DEEP REINFORCED CONCRETE PIT FOR SNOW MELT SYSTEM. SEE DETAIL 8/SB502 (SIMILAR).



1 FOUNDATION PART PLAN SOUTH
SCALE: 1/8" = 1'-0"



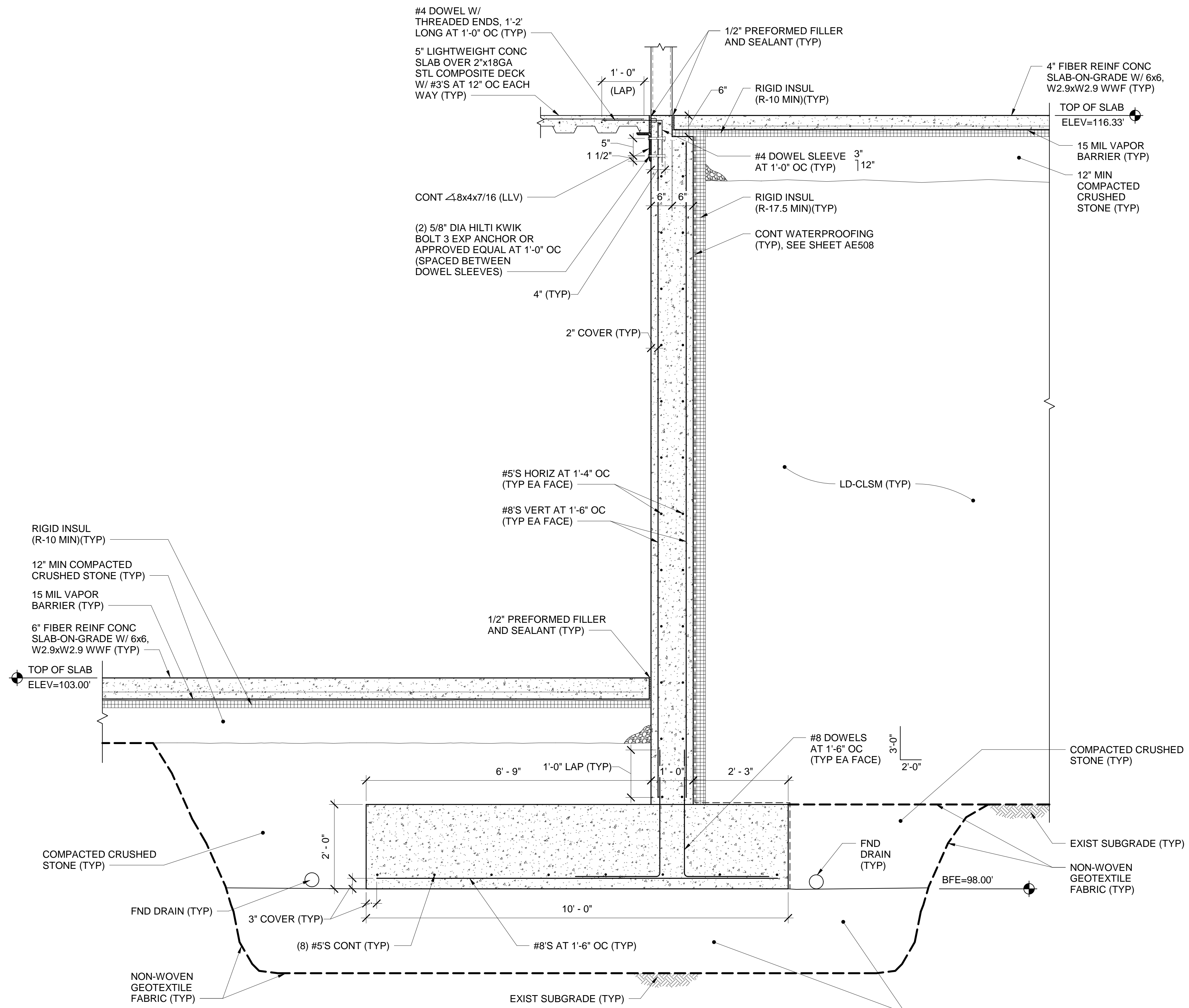
KEYPLAN PLAN NORTH
NOT TO SCALE

MAINE SCHOOL ADMINISTRATIVE DISTRICT 28
TITLE CAMDEN ROCKPORT MIDDLE SCHOOL
LOCATION CAMDEN, ME
TITLE THIS DWG. FOUNDATION PART PLAN SOUTH

| NO. | DATE | DESCRIPTION | BY | NO. |
|-----|----------|---------------|-----|-----|
| 27 | 08/15/18 | ASI 2 | DNM | |
| 26 | 08/14/18 | RFP-002 | DNM | |
| 24 | 08/13/18 | RFI 41 | DNM | |
| 4 | 05/08/18 | ADDENDUM NO 4 | DNM | |
| 2 | 04/27/18 | ADDENDUM NO 2 | DNM | |
| NO. | DATE | DESCRIPTION | BY | NO. |
| | | | | |

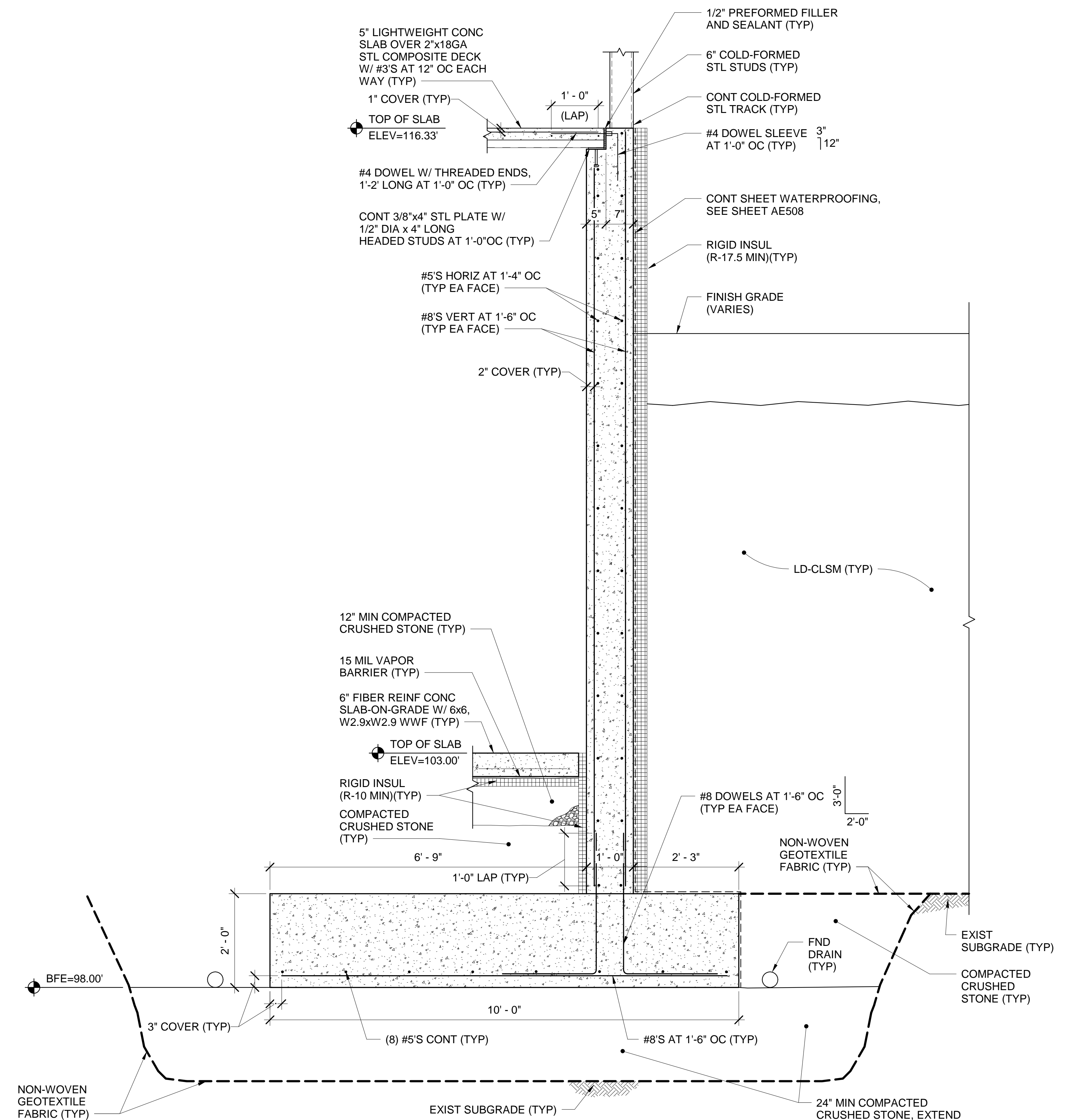
OAK POINT ASSOCIATES DRAWING NO. **SB102**
SHEET NO. 65 OF 369

READY FOR CONSTRUCTION DATE 06/20/18



NOTES:
 1. DOWEL SLEEVE SHALL DEVELOP 125 PERCENT OF REINFORCING YIELD STRENGTH.
 2. PROVIDE TEMPORARY GEOTEXTILE FABRIC WRAP AS REQUIRED TO PROTECT THE CRUSHED STONE FILL FROM BEING CONTAMINATED WITH DELETERIOUS MATERIAL DURING CONSTRUCTION UNTIL THE SLAB-ON-GRADE HAS BEEN PLACED.

1 TYP 1'-0" REINF CONC RETAINING WALL SECTION
 SB503 SCALE: 3/4" = 1'-0"

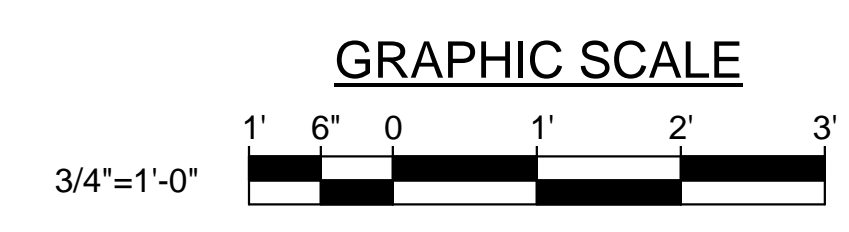


NOTES:
 1. SEE DETAIL 1/SB503 FOR FULL EXTENT OF FOUNDATION PROFILE.
 2. DOWEL SLEEVE SHALL DEVELOP 125 PERCENT OF REINFORCING YIELD STRENGTH.
 3. PROVIDE TEMPORARY GEOTEXTILE FABRIC WRAP AS REQUIRED TO PROTECT THE CRUSHED STONE FILL FROM BEING CONTAMINATED WITH DELETERIOUS MATERIAL DURING CONSTRUCTION UNTIL THE SLAB-ON-GRADE HAS BEEN PLACED.

2 TYP 1'-0" REINF CONC RETAINING WALL SECTION
 SB503 SCALE: 3/4" = 1'-0"

DRAWING NOTES:

- RADIANT HEAT TUBING NOT SHOWN FOR CLARITY
- REFER TO SK-C1, SK-C3, SK-C4 AND SK-C5 FOR FOUNDATION PREPARATION AND DRAIN DETAILS.
- WHEN EXISTING NATURALLY DEPOSITED SOILS OCCUR MORE THAN 1-FOOT BELOW THE INDICATED BOTTOM OF FOOTING ELEVATION, PROVIDE COMPACTED CRUSHED STONE (IN LIFTS) UP TO THE UNDERSIDE OF THE COMPACTED CRUSHED STONE LAYER INDICATED DIRECTLY BELOW THE CONCRETE FOOTING. LOCATE THE NON-WOVEN GEOTEXTILE FABRIC BETWEEN THE NATURALLY DEPOSITED SOILS AND THE COMPACTED CRUSHED STONE.

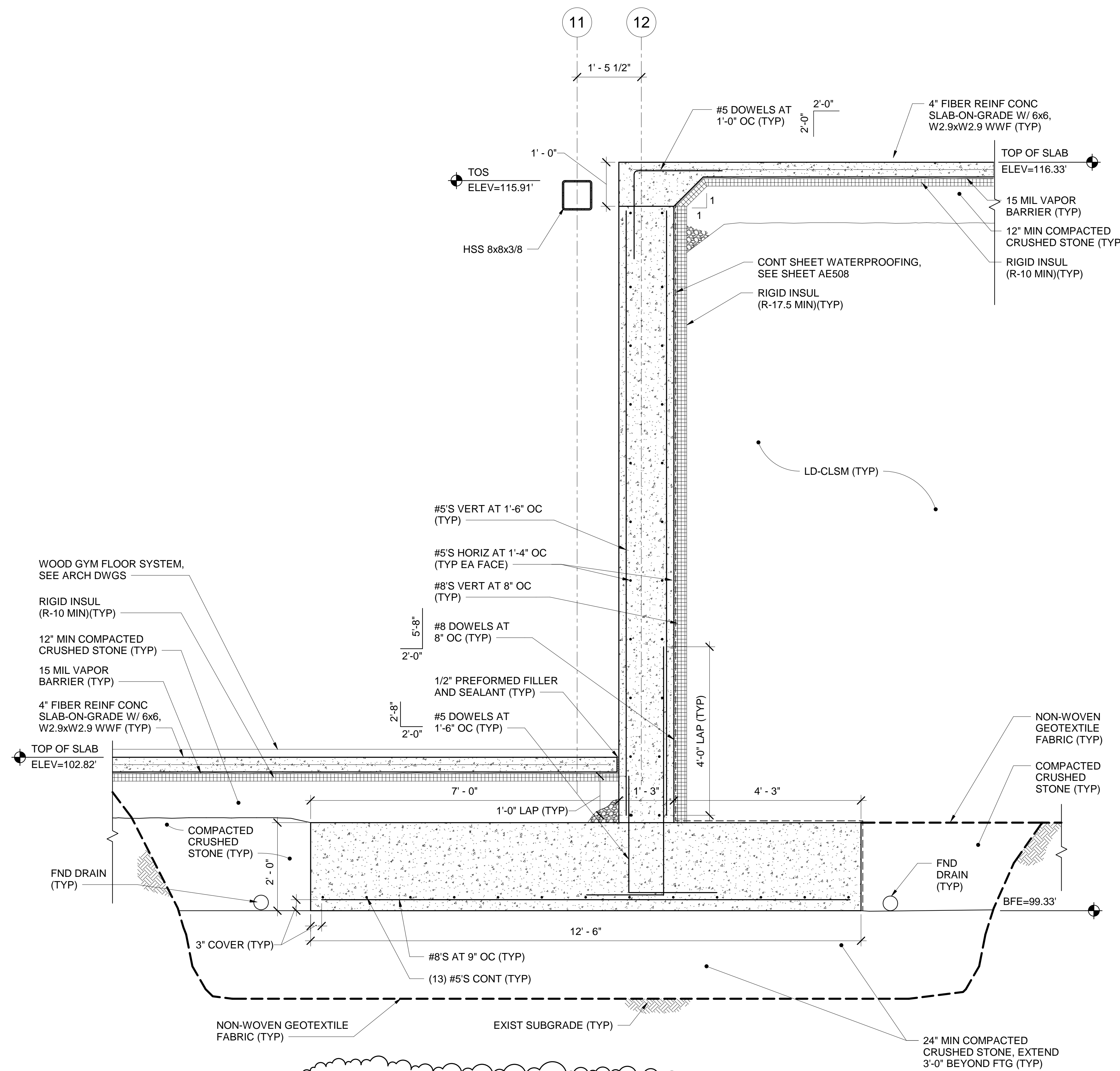


CHECK GRAPHIC SCALE BEFORE USING

| NO. | DATE | DESCRIPTION | BY | NO. |
|-----|----------|---------------|-----|-----|
| 26 | 08/14/18 | RFP-002 | DNM | |
| 6 | 06/20/18 | VM NO 1 | DNM | |
| 3 | 05/03/18 | ADDENDUM NO 3 | DNM | |
| 2 | 04/27/18 | ADDENDUM NO 2 | DNM | |

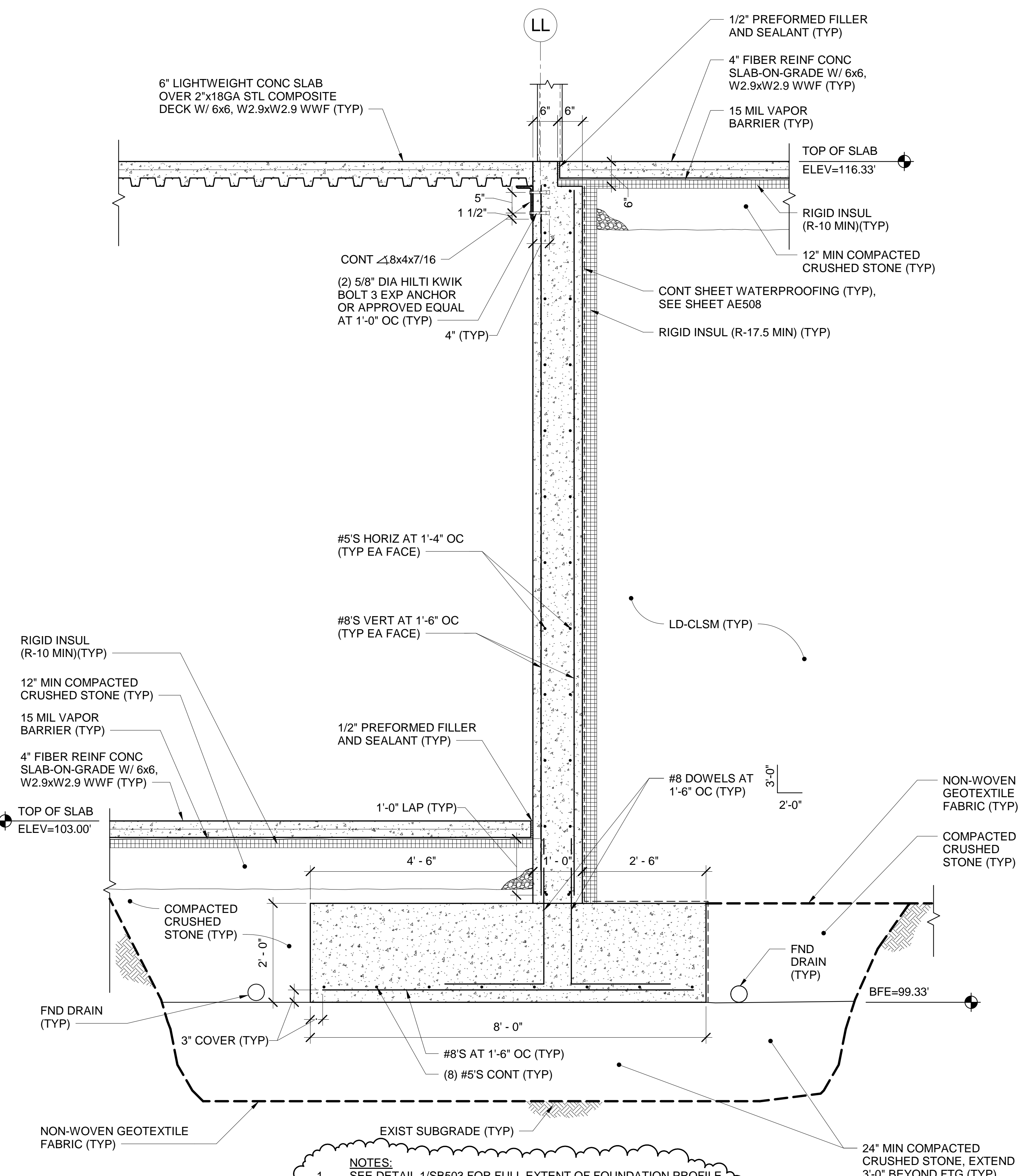
MAINE SCHOOL ADMINISTRATIVE DISTRICT 28
 TITLE CAMDEN ROCKPORT MIDDLE SCHOOL
 LOCATION CAMDEN, ME
 TITLE THIS DWG. FOUNDATION DETAILS 3

OAK POINT ASSOCIATES
 SB503
 DRAWING NO. SB503
 SHEET NO. 74 OF 369



NOTES:
 1. SEE DETAIL 1/SB503 FOR FULL EXTENT OF FOUNDATION PROFILE.
 2. PROVIDE TEMPORARY GEOTEXTILE FABRIC WRAP AS REQUIRED TO PROTECT THE CRUSHED STONE FILL FROM BEING CONTAMINATED WITH DELETERIOUS MATERIAL DURING CONSTRUCTION UNTIL THE SLAB-ON-GRADE HAS BEEN PLACED.

1 1'-6\"/>

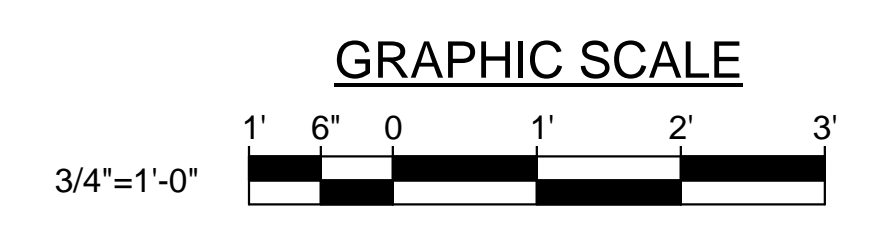


NOTES:
 1. SEE DETAIL 1/SB503 FOR FULL EXTENT OF FOUNDATION PROFILE.
 2. PROVIDE TEMPORARY GEOTEXTILE FABRIC WRAP AS REQUIRED TO PROTECT THE CRUSHED STONE FILL FROM BEING CONTAMINATED WITH DELETERIOUS MATERIAL DURING CONSTRUCTION UNTIL THE SLAB-ON-GRADE HAS BEEN PLACED.
 A. PROVIDE TEMPORARY GEOTEXTILE FABRIC WRAP AS REQUIRED TO PROTECT THE CRUSHED STONE FILL FROM BEING CONTAMINATED WITH DELETERIOUS MATERIAL DURING CONSTRUCTION UNTIL THE SLAB-ON-GRADE HAS BEEN PLACED.

2 1'-0\"/>

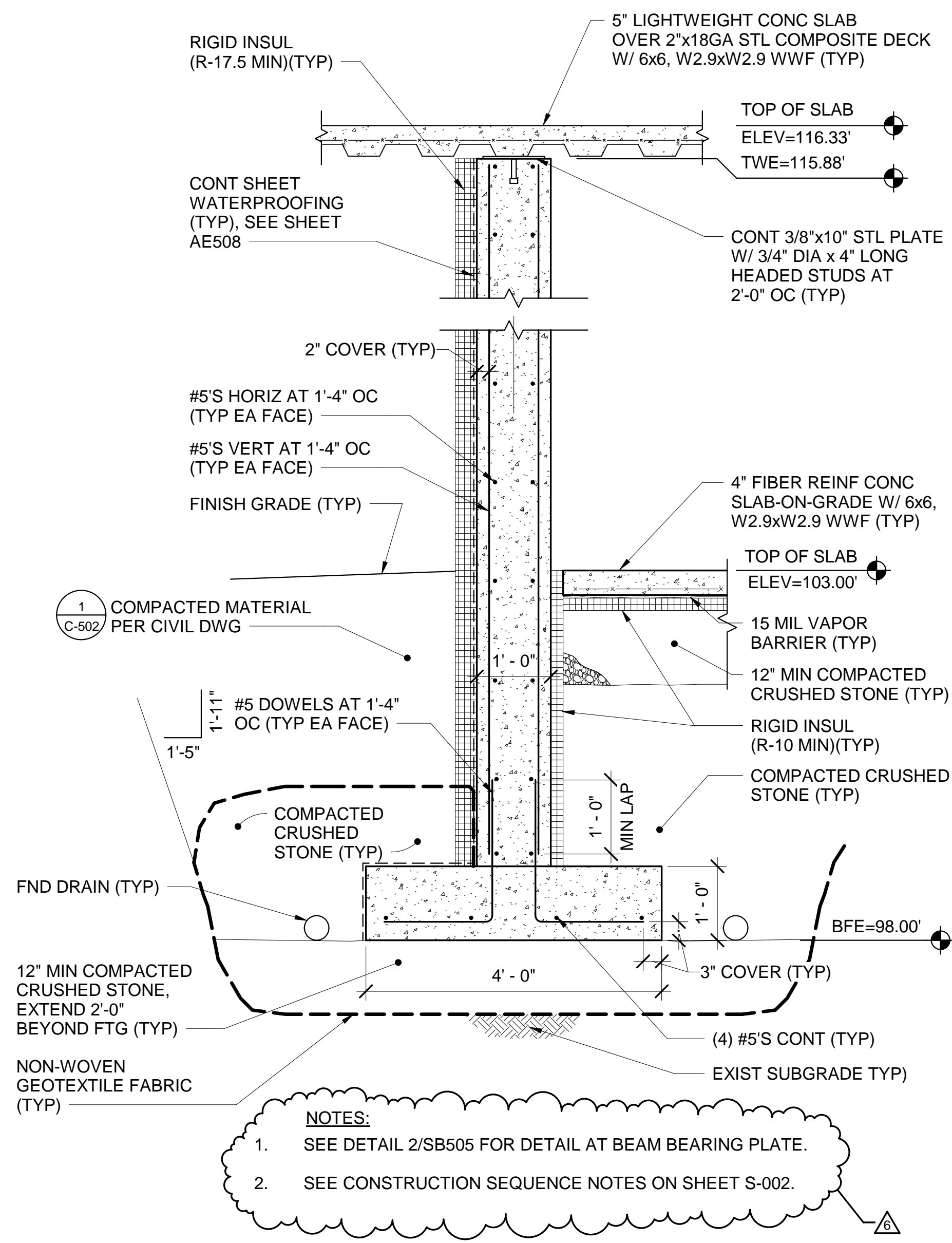
DRAWING NOTES:

- RADIANT HEAT TUBING NOT SHOWN FOR CLARITY.
- REFER TO SK-C1, SK-C3, SK-C4 AND SK-C5 FOR FOUNDATION PREPARATION AND DRAIN DETAILS.
- WHEN EXISTING NATURALLY DEPOSITED SOILS OCCUR MORE THAN 1-FOOT BELOW THE INDICATED BOTTOM OF FOOTING ELEVATION, PROVIDE COMPACTED CRUSHED STONE (IN LIFTS) UP TO THE UNDERSIDE OF THE COMPACTED CRUSHED STONE LAYER INDICATED DIRECTLY BELOW THE CONCRETE FOOTING. LOCATE THE NON-WOVEN GEOTEXTILE FABRIC BETWEEN THE NATURALLY DEPOSITED SOILS AND THE COMPACTED CRUSHED STONE.

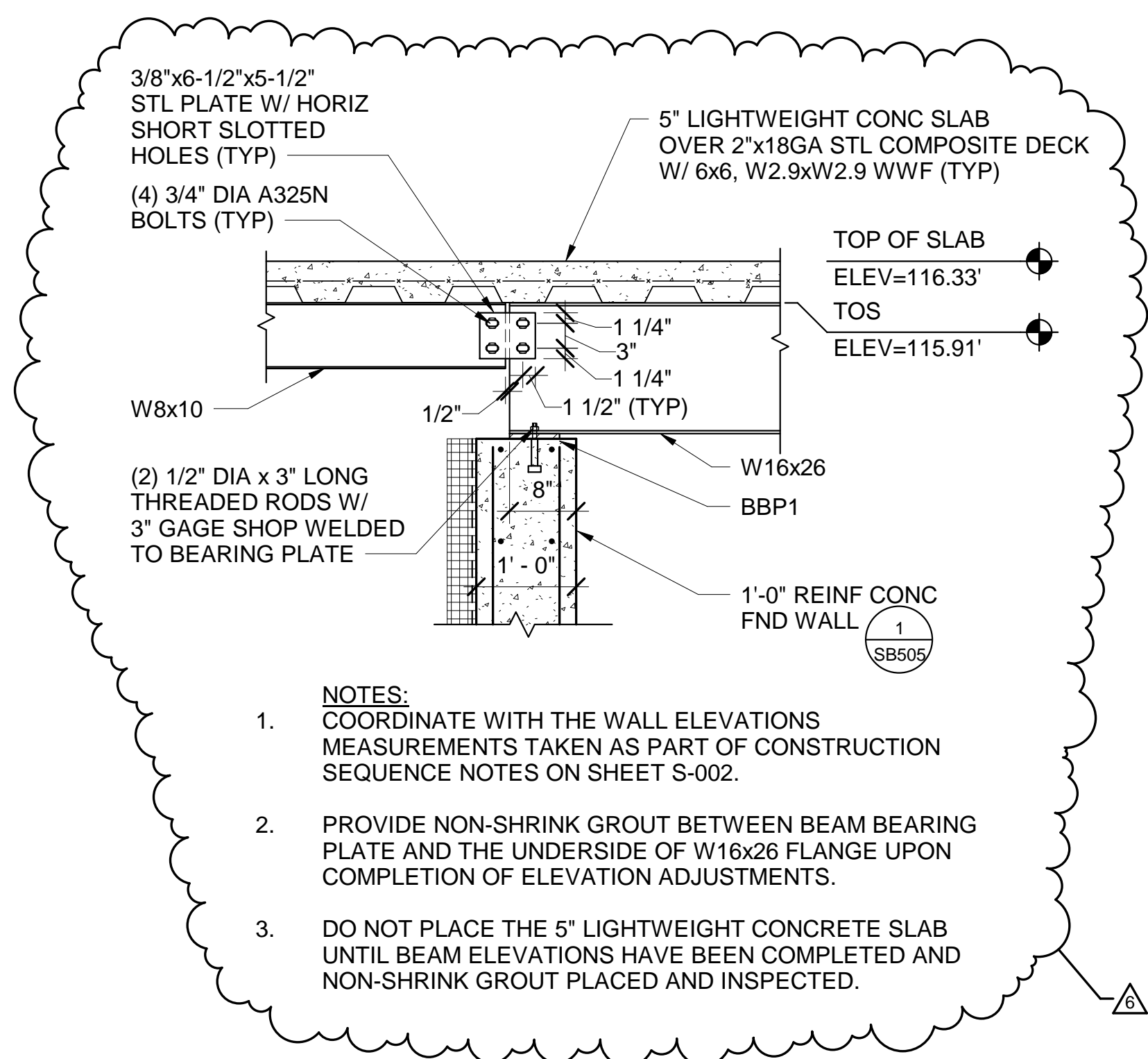


CHECK GRAPHIC SCALE BEFORE USING

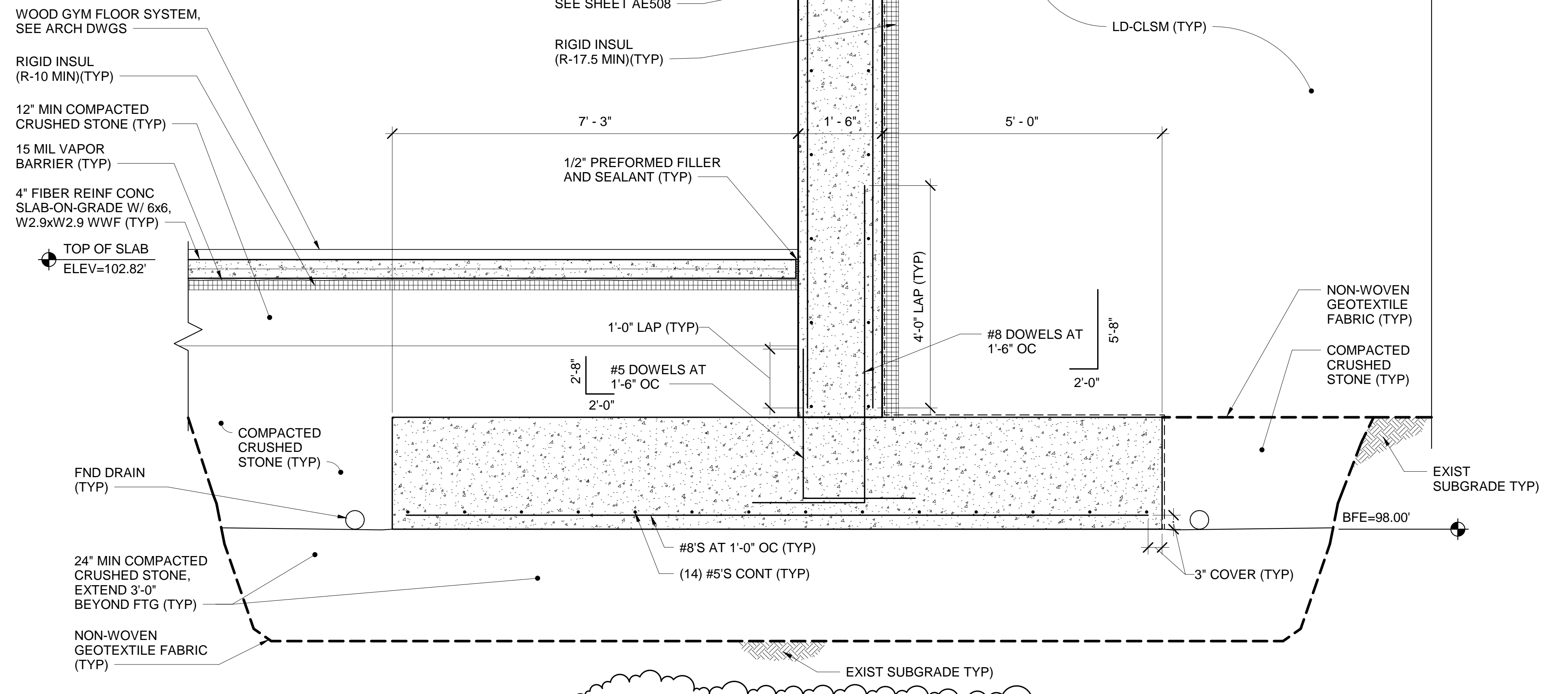
| | | | |
|--|----------|---------------|----------|
| MAINE SCHOOL ADMINISTRATIVE DISTRICT 28 | | | |
| TITLE CAMDEN-ROCKPORT MIDDLE SCHOOL | | | |
| LOCATION CAMDEN, ME | | | |
| TITLE THIS DWG. FOUNDATION DETAILS 4 | | | |
| NO. | DATE | DESCRIPTION | BY |
| 26 | 08/14/18 | RFP-002 | DNM |
| 6 | 06/20/18 | VM NO 1 | DNM |
| 3 | 05/03/18 | ADDENDUM NO 3 | DNM |
| 2 | 04/27/18 | ADDENDUM NO 2 | DNM |
| NO. | DATE | DESCRIPTION | BY |
| READY FOR CONSTRUCTION | | DATE | 06/20/18 |



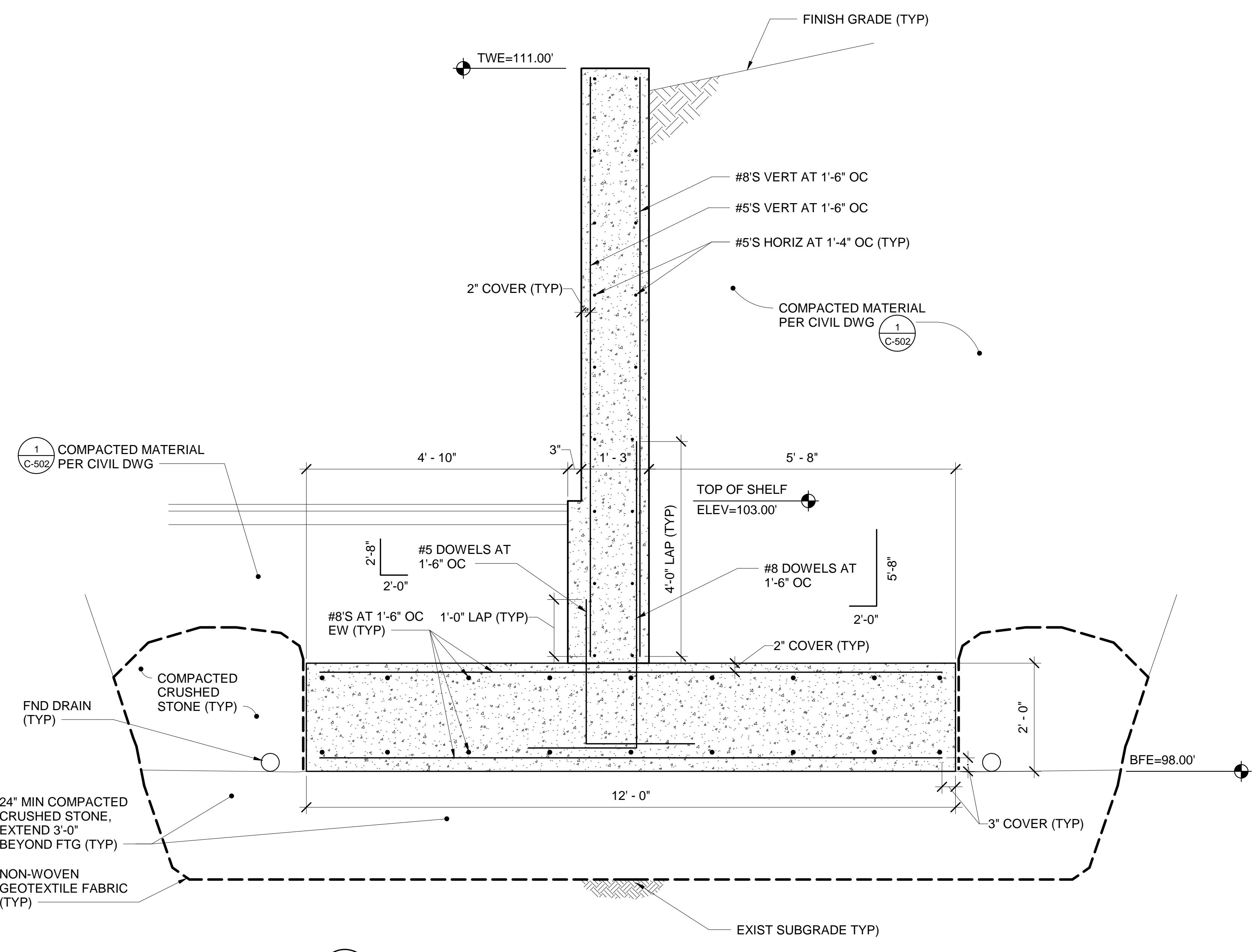
1 1'-0" REINF CONC FND WALL SECTION
 SB505 SCALE: 3/4" = 1'-0"



2 TYP W8x10 TO W16x26 CONN/BEARING DETAIL
 SB505 SCALE: 3/4" = 1'-0"



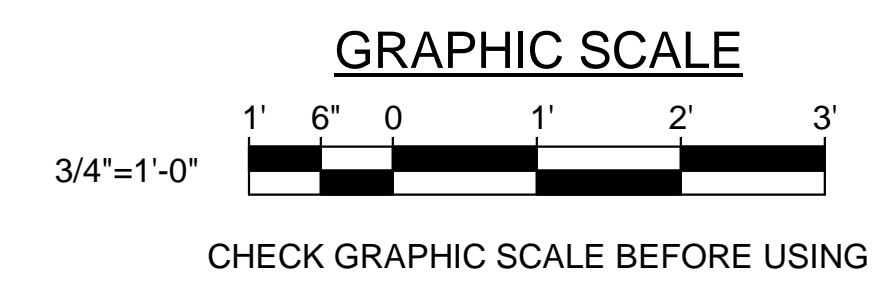
3 1'-6" REINF CONC RETAINING WALL SECTION AT EAST GYM WALL
 SB505 SCALE: 3/4" = 1'-0"



4 1'-6" REINF CONC EXTERIOR RETAINING WALL SECTION
 SB505 SCALE: 3/4" = 1'-0"

DRAWING NOTES:

- RADIANT HEAT TUBING NOT SHOWN FOR CLARITY.
- REFER TO SK-C1, SK-C3, SK-C4 AND SK-C5 FOR FOUNDATION PREPARATION AND DRAIN DETAILS.
- WHEN EXISTING NATURALLY DEPOSITED SOILS OCCUR MORE THAN 1-FOOT BELOW THE INDICATED BOTTOM OF FOOTING ELEVATION, PROVIDE COMPACTED CRUSHED STONE (IN LIFTS) UP TO THE UNDERSIDE OF THE COMPACTED CRUSHED STONE LAYER INDICATED DIRECTLY BELOW THE CONCRETE FOOTING. LOCATE THE NON-WOVEN GEOTEXTILE FABRIC BETWEEN THE NATURALLY DEPOSITED SOILS AND THE COMPACTED CRUSHED STONE.



| NO. | DATE | DESCRIPTION | BY | NO. |
|-----|----------|---------------|-----|-----|
| 26 | 08/14/18 | RFP-002 | DNM | |
| 6 | 06/20/18 | VM NO 1 | DNM | |
| 2 | 04/27/18 | ADDENDUM NO 2 | DNM | |

MAINE SCHOOL ADMINISTRATIVE DISTRICT 28
 TITLE CAMDEN ROCKPORT MIDDLE SCHOOL
 LOCATION CAMDEN, ME
 TITLE THIS DWG. FOUNDATION DETAILS 5

OAK POINT ASSOCIATES
 SB505

READY FOR CONSTRUCTION DATE 06/20/18

76 OF 369