

Addendum #2

This Addendum modifies, amends, and supplements designated parts of the Contract Documents, Specifications and Drawings for:

Brewer Armory Unheated Storage Building Project, Brewer, Maine - Project No. 23SR15-407, Bid Number #22-027

Directorate of Facilities Engineering

24 June 2022

It shall be the responsibility of the Contractor to notify all Subcontractors and Suppliers for various portions of the work of any changes or modifications contained in this Addendum.

Clarification Items:

1. Q: The specifications at Section 102213, 2.2.4, J.1 list a sheet metal base (wainscot). No sheet metal wainscot is indicated in the plans, this item is often boiler-plate in specs and almost never required, should we include or exclude a 39" high sheet metal base on the wire mesh panels?

A: Sheet metal base is not required.

2. Q: Regarding the connection to existing panel MP? Please provide drawing and/or pics of the existing armory detailing the routing of the electrical feed as the C dwgs only show the underground portion to the corner of the existing building. Horizontal length as well as vertical heights; are we to surface mount conduit, or do we have to open up walls/ceiling to run concealed, are we penetrating into the building low, or run GRC up the exterior 20', or maybe even run horizontally on exterior? Is there an existing 60A breaker in MP, if not, please confirm there is space to add it and provide spec (make/model, AIC, or pic of nameplate)?

A: For bidding purposes, assume 25 feet. Provide 1-inch EMT conduit to panel. Existing conduit is 3/4-inch. Conduit must be concealed in finished spaces. Provide 60A 3P breaker in Panelboard MP. MP is GE Cat No AQF3422MB. Type HCAR breakers.

3. Q: 260543-3.2 says PVC-40 for underground, but 260533-3.1-B says PVC-80. Please confirm which shall be used?

A: Provide Schedule-40 PVC.

4. Q: On sheet E-001 the symbol for Photocell is marked with "PE". Is this a typo? Sheet E-101 shows a similar symbol marked with "PC". Please clarify.

A: The symbol on E-101 should read, "PE".

5. Q: Spec 00 21 13 Part 3.3 prohibits escalation clauses in the bid. Due to the timing of this bid, projected lead times to award the general and subcontracts, and procure material this project is likely to be built in the spring. How should the bidders account for unknown material cost escalation for 2023? Will the awarded contractor be allowed to procure material upon contract execution and bill for stored material as a means to avoid cost escalation?

A: Per information provided at the pre-bid meeting, the Contractor will keep Owner informed of purchases of materials and schedule of deliveries of such materials. Contractor will be paid for materials provided Owner is granted Right of Access as well as proof of insurance of those materials while stored at the contractor's site. Contractor will not store materials at the project site unless mobilization for construction is imminent.

6. Q: Is there a HazMat report available for the existing building? If not, should bidders carry a cost to have the building testing prior to demo?

A: There is no HazMat report available. Except for Universal Waste, it is not expected that hazardous materials will be encountered in the Work.

7. Q: Is there a HazMat report available for the site soil? If not, should bidders carry a cost to have the building testing prior to breaking ground?

A: Please see attached Geotechnical Report dated, December 16, 2021.

8. Q: Is there a geotechnical survey available for the site to located groundwater, ledge etc. within the work area? If not, should bidders carry a cost to conduct a geotechnical survey?

A: Please see attached Geotechnical Report dated, December 16, 2021.

9. Q: What level of FAR is required in regards to the Buy America Act for small gear and the lighting package?

A: ADDITIONAL CLARIFICATION: The lighting and other small gear required for this project have been reviewed by a Federal Contracting Officer and in this situation the basis-of-design products are allowable.

10. A corrected Pre-Bid Meeting sign in sheet is provided.

Drawing Items:

1. None.

Specification Items:

1. **Specification 260533, paragraph 3.1.B – DELETE** sub paragraph 3.
2. **Specification 10102213, paragraph 2.2.4.J – DELETE** sub paragraph 1.

Attachments:

1. Geotechnical Report
2. Pre-Bid Meeting sign in sheet.



REPORT

21-1306 S

December 16, 2021

Explorations and Geotechnical Engineering Services

Proposed Cold Storage Building Replacement
MEARNG Brewer Armory
133 Elm Street
Brewer, Maine

Prepared For:

Oak Point Associates
Attention: Kerry S. Peiser, PLA
231 Main Street
Biddeford, Maine 04005

Prepared By:

S. W. Cole Engineering, Inc.
286 Portland Road
Gray, Maine 04039
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21-1306 S

December 16, 2021

Oak Point Associates
Attention: Kerry S. Peiser, PLA
231 Main Street
Biddeford, Maine 04005

Subject: Explorations and Geotechnical Engineering Services
Proposed Cold Storage Building Replacement
MEARNG Brewer Armory
133 Elm Street
Brewer, Maine

Dear Kerry:

In accordance with our Proposal, dated August 30, 2021, we have performed subsurface explorations for the subject project. This report summarizes our findings and geotechnical recommendations and its contents are subject to the limitations set forth in Appendix A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain subsurface information at the site in order to develop geotechnical recommendations relative to foundations and earthwork associated with the proposed construction. Our scope of services included a review of prior explorations, one test boring exploration, soils laboratory testing, a geotechnical analysis of the subsurface findings and preparation of this report.

1.2 Site and Proposed Construction

The site is located at the existing MEARNG armory at 133 Elm Street in Brewer, Maine. We understand project planning include an in-kind replacement of the existing cold storage building located in the westerly portion of the site. We understand the replacement building will be on-grade, occupying a plan footprint of approximately 1,500

SF and will likely consist of relatively lightweight, light-gauge metal construction. We understand finish floor elevation will be about 3-inches lower than that of the existing building, matching grade of the adjacent paved yard.

Existing site features are shown on the “Exploration Location Plan” attached in Appendix B.

2.0 EXPLORATION AND TESTING

2.1 Explorations

S. W. Cole Engineering, Inc. (S.W.COLE) reviewed prior subsurface explorations made at the site and coordinated an exploration program as discussed below.

2.1.1 Prior Explorations

S.W.COLE coordinated and logged ten shallow test borings (B-1 through B-10) at the Brewer Armory in 2014 for a prior evaluation of paved areas. The approximate locations are shown on the “Exploration Location Plan” attached in Appendix B. Logs of these prior explorations are attached in Appendix C. It should be noted that current site conditions may vary from the conditions at the time of these prior explorations.

2.1.2 Current Explorations

One test boring (B-101) was made at the site on November 24, 2021 by S. W. Cole Explorations, LLC. The exploration location was selected and established in the field by S. W. Cole Engineering, Inc. (S.W.COLE) using measurements from existing site features. Two additional deeper borings were proposed but could not be completed due to lack of access inside the secured facility on the day of exploration work. The approximate exploration location is shown on the “Exploration Location Plan” attached in Appendix B. A log of the exploration and a key to the notes and symbols used on the logs are attached in Appendix C. The elevation shown on the log was estimated based on topographic information shown on the “Exploration Location Plan”.

2.2 Testing

The test borings were drilled using hollow-stem augers. The soils were sampled at 2 to 5 foot intervals using a split spoon sampler and Standard Penetration Testing (SPT) methods. Pocket Penetrometer Tests (PPT) were performed where stiffer cohesive soils were encountered. SPT blow counts and PPT results are shown on the logs.

Soil samples obtained from the explorations were returned to our laboratory for further visual classification and testing. The results of two moisture content tests are noted on the boring log.

3.0 SUBSURFACE CONDITIONS

3.1 Soil and Bedrock

Underlying a surficial layer of topsoil, recent boring B-101 encountered fill consisting of loose brown silty sand extending to a depth of 1-foot. Underlying the fill, the boring encountered glaciomarine silty clay. The silty clay consisted of an upper “crust” of very stiff to medium brown silty clay extending to a depth of about 16 feet, transitioning to an underlying layer of softer gray silty clay. Rod probing penetrated the gray silty clay at a depth of about 42 feet.

Prior test borings B-8 and B-9, made in the vicinity of the proposed cold storage building, encountered granular fill extending to depths ranging from about 0.3 to 3.4 feet, overlying sandy silt and silty clay. The borings were terminated in very stiff brown and brown-gray silty clay a depth of about 5 feet. Current site conditions may vary from the conditions at the time the prior explorations were made.

Not all the strata were encountered at each exploration; refer to the attached logs for more detailed subsurface information.

3.2 Groundwater

The soils encountered at test boring B-101 were saturated below a depth of about 5 feet. Groundwater likely becomes perched on the relatively impervious silty clay encountered at the test boring. Long term groundwater information is not available. It should be anticipated that groundwater levels will fluctuate, particularly in response to periods of snowmelt and precipitation, as well as changes in site use.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint. The principle geotechnical considerations include:

- All existing topsoil, organics, pavement, fill, remnant structures, foundations, utilities and debris must be completely removed from beneath the proposed building and backfilled with properly compacted Structural Fill.
- Spread footing foundations and a slab-on-grade floors bearing on properly prepared subgrades appear suitable for the proposed cold storage building replacement. Footings should bear on at least 6-inches of compacted Crushed Stone wrapped in geotextile fabric overlying undisturbed native non-organic soils.
- If the proposed building interior is maintained above freezing, we recommend at least 1-foot of compacted Structural Fill beneath the floor slab. If the building interior is exposed to freezing conditions, we recommend a layer of high-load rigid insulation below the Structural Fill layer or over-excavating to full frost depth below the slab and backfilling with compacted, non-frost susceptible fill.
- Subgrades across the site will consist of sensitive silts and clays. Earthwork and grading activities should occur during drier, non-freezing weather of Spring, Summer and Fall. Rubber tired construction equipment should not operate directly on the native silt and clays when wet. Excavation of bearing surfaces should be completed with a smooth-edged bucket to lessen subgrade disturbance.

4.2 Site and Subgrade Preparation

We recommend that site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. Surficial organics, roots and topsoil should be completely removed from areas of proposed fill and construction. As much vegetation and pavement as possible should remain outside the construction areas to lessen the potential for erosion and site disturbance.

We recommend all existing topsoil, organics, pavement, fill, remnant structures, foundations, utilities and debris must be completely removed from beneath the proposed building and backfilled with properly compacted Structural Fill. The extent of removal should extend 1 foot laterally outward from outside edge of perimeter footings for every 1-foot of excavation depth (1H:1V bearing splay). We recommend that footings be excavated using a smooth-edged bucket and that footings be underlain by at least 6 inches of Crushed Stone wrapped in non-woven geotextile filter fabric, such as Mirafi 180N.

4.3 Excavation and Dewatering

Excavation work will generally encounter fill, clayey silt, and silty clay soils. Care must be exercised during construction to limit disturbance of the bearing soils. Earthwork and grading activities should occur during drier, non-freezing weather of Spring, Summer and Fall. Rubber tired construction equipment should not operate directly on the native silt and clays, when wet. Final cuts to subgrade should be performed with a smooth-edged bucket to help reduce strength loss from soil disturbance.

Vibrations from construction should be controlled below threshold limits of 0.5 in/sec for structures, water supply wells and infrastructure within 500 feet of the project site. More restrictive vibration limits may be warranted in specific cases with sensitive equipment, historic structures or artifacts on-site or within close proximity.

Sumping and pumping dewatering techniques should be adequate to control groundwater in excavations. Controlling the water levels to at least one foot below planned excavation depths will help stabilize subgrades during construction. Excavations must be properly shored or sloped in accordance with OSHA Regulations to prevent sloughing and caving of the sidewalls during construction. Care must be taken to preclude undermining adjacent structures, utilities and roadways. The design and planning of excavations, excavation support systems, and dewatering is the responsibility of the contractor.

4.4 Foundations

We recommend the proposed building be supported on spread footings founded on at least 6-inches of Crushed Stone fully wrapped in non-woven geotextile fabric, such as Mirafi 180N, bearing on properly prepared subgrades. For foundations bearing on

properly prepared subgrades, we recommend the following geotechnical parameters for design consideration:

Geotechnical Parameters for Spread Footings and Foundation Walls	
Design Frost Depth (100 year AFI)	5.0 feet
Net Allowable Soil Bearing Pressure	2.0 ksf
Base Friction Factor	0.35
Total Unit Weight of Backfill	125 pcf
At-Rest Lateral Earth Pressure Coefficient	0.5
Internal Friction Angle of Backfill	30°
Seismic Soil Site Class	E (IBC 2015)
Estimated Total Settlement	1-inch
Differential Settlement	½-inch

4.5 Foundation Drainage

We recommend an underdrain system be installed on the outside edge of the perimeter footings. The underdrain pipe should consist of 4-inch diameter, perforated SDR-35 foundation drain-pipe bedded in Crushed Stone and wrapped in non-woven geotextile fabric. The underdrain pipe must have a positive gravity outlet protected from freezing, clogging and backflow. Surface grades should be sloped away from the building for positive surface water drainage. General underdrain details are illustrated on the “Foundation Detail Sketch” attached in Appendix B.

4.6 Slab-On-Grade

If the building interior is to be heated, we recommend the on-grade floor slab be underlain by at least 12-inches of compacted Structural Fill placed over properly prepared subgrades. If the building interior is exposed to freezing conditions, we recommend the on-grade floor slab be underlain by 12-inches of compacted Structural Fill, underlain by 2-inches of high-load rigid insulation, underlain by 12-inches of compacted Structural Fill, overlying properly prepared subgrades. Alternatively the building footprint can be over-excavated to frost depth and backfilled with compacted non-frost susceptible fill.

Considering the recommendations above, on-grade floor slabs may be designed using a subgrade reaction modulus of 100 pci (pounds per cubic inch) The structural engineer or concrete consultant must design steel reinforcing and joint spacing appropriate to slab thickness and function.

We recommend a sub-slab vapor retarder particularly in areas of the building where the concrete slab will be covered with an impermeable surface treatment or floor covering that may be sensitive to moisture vapors. The vapor retarder must have a permeance that is less than the floor cover or surface treatment that is applied to the slab. The vapor retarder must have sufficient durability to withstand direct contact with the sub-slab base material and construction activity. The vapor retarder material should be placed according to the manufacturer's recommended method, including the taping and lapping of all joints and wall connections. The architect and/or flooring consultant should select the vapor retarder products compatible with flooring and adhesive materials.

The floor slab should be appropriately cured using moisture retention methods after casting. Typical floor slab curing methods should be used for at least 7 days. The architect or flooring consultant should assign curing methods consistent with current applicable American Concrete Institute (ACI) procedures with consideration of curing method compatibility to proposed surface treatments, flooring and adhesive materials.

4.7 Entrance Slabs and Sidewalks

Entrance slabs and sidewalks adjacent to the building must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and entrances. We recommend that non-frost susceptible Structural Fill be provided to a depth of at least 5.0 feet below the top of entrance slabs. This thickness of Structural Fill should extend the full width of the entrance slab and outward at least 5.0 feet, thereafter, transitioning up to the bottom of the adjacent sidewalk or pavement gravels at a 3H:1V or flatter slope. General details of this frost transition zone are shown on the "Foundation Detail Sketch" attached in Appendix B.

4.8 Fill, Backfill and Compaction

We recommend the following fill and backfill materials: recycled products must also be tested in accordance with applicable environmental regulations and approved by a qualified environmental consultant.

Common Borrow: Fill to raise grades in landscape areas should be non-organic compactable earth meeting the requirements of 2020 MaineDOT Standard Specification 703.18 Common Borrow.

Structural Fill: Fill to raise grades in building areas, backfill for over-excavations, backfill for foundations, slab base material, and material below exterior entrances slabs should be clean, non-frost susceptible sand and gravel meeting the gradation requirements for Structural Fill as given below:

Structural Fill	
Sieve Size	Percent Finer by Weight
4 inch	100
3 inch	90 to 100
¾ inch	25 to 90
No. 40	0 to 30
No. 200	0 to 6

Crushed Stone: Crushed Stone, used beneath foundations and for underdrain aggregate should be washed ¾-inch crushed stone meeting the requirements of 2020 MaineDOT Standard Specification 703.13 Crushed Stone ¾-Inch.

Reuse of Site Soils: The non-organic on-site soils are unsuitable for reuse in building areas, but may be suitable for reuse as Common Borrow in paved and landscape areas, provided they are at a compactable moisture content at the time of reuse.

Placement and Compaction: Fill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Loose lift thicknesses for grading, fill and backfill activities should not exceed 12 inches. We recommend that fill and backfill in building and paved areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted with 3 to 5 passes of a vibratory plate compactor having a static weight of at least 500 pounds.

4.9 Weather Considerations

Construction activity should be limited during wet and freezing weather and the site soils may require drying or thawing before construction activities may continue. The contractor should anticipate the need for water to temper fills in order to facilitate compaction during dry weather. If construction takes place during cold weather, subgrades, foundations and floor slabs must be protected during freezing conditions. Concrete and fill must not be placed on frozen soil; and once placed, the concrete and soil beneath the structure must be protected from freezing.

4.10 Design Review and Construction Testing

S.W.COLE should be retained to review the construction documents prior to bidding to determine that our earthwork and foundation recommendations have been properly interpreted and implemented.

A construction materials testing and quality assurance program should be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to observe earthwork activities, the preparation of foundation bearing surfaces and pavement subgrades, as well as to provide testing and IBC Special Inspection services for soils, concrete, steel, spray-applied fireproofing, fire-stopping, structural masonry and asphalt construction materials.

4.11 Recommendations For Additional Study

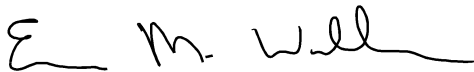
As discussed, additional deep borings were proposed but could not be completed due to lack of access inside the secure facility the day of exploration work. If proposed grades are to be raised more than 2-feet, we recommend performing additional borings, including obtaining undisturbed Shelby tube samples of the gray silty clay for laboratory consolidation testing and settlement evaluation.

5.0 CLOSURE

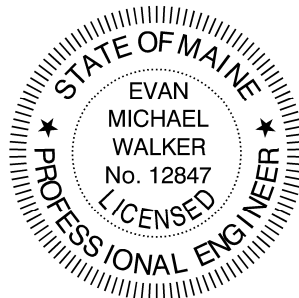
It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you during the construction phase of the project.

Sincerely,

S. W. Cole Engineering, Inc.



Evan M. Walker, P.E.
Senior Geotechnical Engineer



EMW:rec

APPENDIX A

Limitations

This report has been prepared for the exclusive use of Oak Point Associates for specific application to the proposed Cold Storage Building Replacement at the MEARNG Brewer Armory at 133 Elm Street in Brewer, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE's scope of services has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.

APPENDIX B

Figures



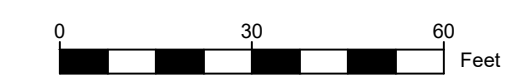
N/F
PINE CONE, LLC
 BOOK 12427, PAGE III, 03-11-2011

LEGEND:

APPROXIMATE BORING LOCATION

NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=30' SCALE PLAN OF THE SITE ENTITLED "RECORD DRAWING LAYOUT PLAN," PREPARED BY PLYMOUTH ENGINEERING, INC..
2. BORING B-101 WAS LOCATED IN THE FIELD BY TAPED MEASUREMENTS FROM EXISTING SITE FEATURES.
3. BORINGS B-1 THROUGH B-10 WERE PERFORMED UNDER THE DIRECTION OF S. W. COLE ENGINEERING, INC. IN 2014. LOCATIONS AS PROVIDED ON THE ABOVE REFERENCED PLAN.
4. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
5. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.

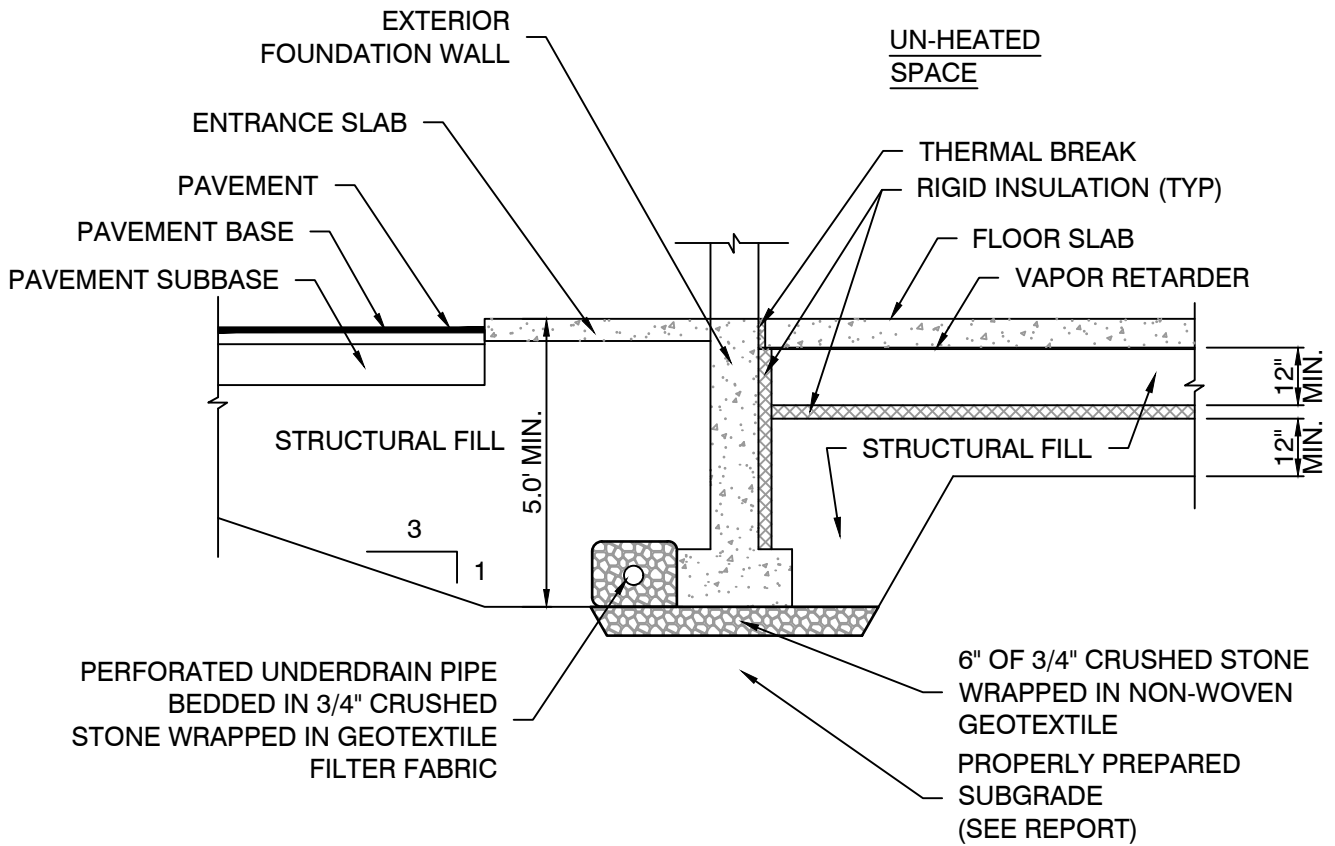


S.W. COLE ENGINEERING, INC.
 OAK POINT ASSOCIATES

EXPLORATION LOCATION PLAN
 PROPOSED COLD STORAGE BUILDING REPLACEMENT
 MEARING BREWER ARMORY
 133 ELM STREET
 BREWER, ME

Job No.: 21-1306 Scale: 1" = 30'
 Date: 12/16/2021 Sheet: 1

R:\2021\21-1306\CAD\Drawings\21-1306-EP.dwg 12/16/2021 10:27:11 AM L11, CEM, S. W. Cole Engineering, Inc.



NOTE:

1. UNDERDRAIN INSTALLATION AND MATERIAL GRADATION RECOMMENDATIONS ARE CONTAINED WITHIN THIS REPORT.
2. DETAIL IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY, NOT FOR CONSTRUCTION.



S.W. COLE
ENGINEERING, INC.

OAK POINT ASSOCIATES

FOUNDATION DETAIL SKETCH

PROPOSED COLD STORAGE BUILDING REPLACEMENT
MEARNG BREWER ARMORY
133 ELM STREET
BREWER, ME

Job No.:	21-1306	Scale:	Not to Scale
Date :	12/16/2021	Sheet:	2

APPENDIX C

Exploration Logs and Key



BORING LOG

BORING NO.: B-101
SHEET: 1 of 1
PROJECT NO.: 21-1306
DATE START: 11/24/2021
DATE FINISH: 11/24/2021

CLIENT: Oak Point Associates
PROJECT: Proposed Cold Storage Building Replacement
LOCATION: MEARNG Brewer Armory, 133 Elm St., Brewer, ME

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** N/A **TOTAL DEPTH (FT):** 41.5 **LOGGED BY:** Nate Strout
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Joe Layfield **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A / N/A **CORE BARREL:** N/A
HAMMER EFFICIENCY FACTOR: 0.974 **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): ∇ 5 ft Free water observed at 5 feet +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level
∇ At time of Drilling D = Split Spoon Sample Pen. = Penetration Length WOR = Weight of Rods S_v = Field Vane Shear Strength, kips/sq.ft.
∇ At Completion of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length WOH = Weight of Hammer q_u = Unconfined Compressive Strength, kips/sq.ft.
∇ After Drilling R = Rock Core Sample bpf = Blows per Foot RQD = Rock Quality Designation Ø = Friction Angle (Estimated)
V = Field Vane Shear mpf = Minute per Foot PID = Photoionization Detector N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H ₂ O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
			1D		0-2	24/16	2-2-4-4		0.3	Vegetation and Topsoil	
			2D		2-4	24/20	4-4-4-4	q _p =7-8 ksf	1.0	Loose, brown silty SAND, some gravel (probable FILL) Very stiff to stiff, brown silty CLAY	
	5		3D		5-7	24/24	4-4-4-5	q _p =5-6 ksf			∇
			4D		7-9	24/24	4-4-3-4	w =25.1 % q _p =4 ksf			
	10		5D		10-12	24/24	3-3-3-3	q _p =1 ksf			
	15		6D		15-17	24/24	2-1-2-2		16.0	Medium, gray silty CLAY	
	20		7D		20-22	24/24	WOH/12-1-2	w =33 %	22.0	... probable gray silty CLAY Advanced by hydraulic push rod probe from 22 to 41.5 feet	
	25										
	30										
	35										
	40										

Rod Probe Refusal at 41.5 feet
(Probable Glacial Till or Bedrock)

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-101

BORING / WELL 21-1306.GPJ SWCE TEMPLATE.GDT 12/15/21



BORING LOG

PROJECT NO.: 14-0173
 SWC REP.: KJH

PROJECT / CLIENT: BREWER ARMORY PARKING LOT RECONSTRUCTION / MAINE ARMY NATIONAL GUARD
 LOCATION: ELM STREET / BREWER, MAINE
 DRILLING FIRM: MAINE TEST BORINGS DRILLER: RICH LEONARD

CASING: TYPE SSA SIZE I.D. 4" O.D. HAMMER WT. 140 LBS HAMMER FALL 30"
 SAMPLER: TYPE SS SIZE I.D. 1 3/8" HAMMER WT. 140 LBS HAMMER FALL 30"

BORING NO.: <u>B-1</u>											
DATE: <u>4/28/14</u>			SURFACE ELEVATION: <u>119 +/-</u>				DEPTH TO WATER: <u>NO FREE WATER OBS.</u>				
SOLID STEM AUGER	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA	
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24			
									0.3'	DARK BROWN GRAVELLY SAND WITH SOME SILT AND PAVEMENT (FILL)	
	1D	24"	13"	2.0'	20	29	18	13	1.1'	BROWN SAND AND GRAVEL WITH SOME SILT (FILL) ~ DENSE ~	
									2.0'	GRAY SANDY SILT ~ DENSE ~	
										BROWN SILTY CLAY	
	2D	24"	24"	5.0'	5	6	6	7	5.0'	~ VERY STIFF CONSISTENCY ~ q_p = 7-8 ksf	
										BOTTOM OF EXPLORATION @ 5.0'	
SAMPLES: D=SPLIT SPOON C=3" SHELBY TUBE U=3.5" SHELBY TUBE					SOIL CLASSIFIED BY: <input type="checkbox"/> DRILLER - VISUALLY <input checked="" type="checkbox"/> SOIL TECH. - VISUALLY <input type="checkbox"/> LABORATORY TEST				REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.		BORING NO.: B-1

BORING NO.: <u>B-2</u>											
DATE: <u>4/28/14</u>			SURFACE ELEVATION: <u>120 +/-</u>				DEPTH TO WATER: <u>NO FREE WATER OBS.</u>				
SOLID STEM AUGER	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA	
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24			
	1D	24"	11"	2.0'	23	36	34	39	3.2'	BROWN GRAVELLY SAND WITH SOME SILT (FILL) ~ DENSE ~	
										BROWN SILTY CLAY	
	2D	24"	24"	5.0'	8	4	8	9	5.0'	~ VERY STIFF CONSISTENCY ~ q_p = 5-6 ksf	
										BOTTOM OF EXPLORATION @ 5.0'	
SAMPLES: D=SPLIT SPOON C=3" SHELBY TUBE U=3.5" SHELBY TUBE					SOIL CLASSIFIED BY: <input type="checkbox"/> DRILLER - VISUALLY <input checked="" type="checkbox"/> SOIL TECH. - VISUALLY <input type="checkbox"/> LABORATORY TEST				REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.		<div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">2</div> BORING NO.: B-2

PROJECT / CLIENT: BREWER ARMORY PARKING LOT RECONSTRUCTION / MAINE ARMY NATIONAL GUARD
 LOCATION: ELM STREET / BREWER, MAINE
 DRILLING FIRM: MAINE TEST BORINGS DRILLER: RICH LEONARD

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	4" O.D.		
SAMPLER:	SS	1 3/8"	140 LBS	30"

BORING NO.: <u>B-3</u>														
DATE: <u>4/28/14</u>				SURFACE ELEVATION: <u>120 +/-</u>				DEPTH TO WATER: <u>NO FREE WATER OBS.</u>						
SOLID STEM AUGER	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA				
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24						
									0.3'	DARK BROWN GRAVELLY SAND WITH SOME SILT AND PAVEMENT (FILL)				
	1D	24"	13"	2.0'	11	20	17	6	1.4'	BROWN SILTY GRAVEL AND SAND (FILL) ~ DENSE ~				
										BROWN SILTY CLAY				
	2D	24"	24"	5.0'	5	6	7	7	5.0'	~ VERY STIFF CONSISTENCY ~ q_p = 4.5-5.5 ksf				
										BOTTOM OF EXPLORATION @ 5.0'				
SAMPLES: D=SPLIT SPOON C=3" SHELBY TUBE U=3.5" SHELBY TUBE					SOIL CLASSIFIED BY: <input type="checkbox"/> DRILLER - VISUALLY <input checked="" type="checkbox"/> SOIL TECH. - VISUALLY <input checked="" type="checkbox"/> LABORATORY TEST					REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.				
BORING NO.: B-3														

BORING NO.: <u>B-4</u>														
DATE: <u>4/28/14</u>				SURFACE ELEVATION: <u>119 +/-</u>				DEPTH TO WATER: <u>NO FREE WATER OBS.</u>						
SOLID STEM AUGER	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA				
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24						
									0.3'	DARK BROWN GRAVELLY SAND WITH SOME SILT AND PAVEMENT (FILL)				
	1D	24"	15"	2.0'	7	17	30	17	2.4'	BROWN SILTY GRAVEL AND SAND (FILL) ~ DENSE ~				
										BROWN SILTY CLAY				
	2D	24"	24"	5.0'	5	5	6	7	5.0'	~ VERY STIFF CONSISTENCY ~ q_p = 4-4.5 ksf				
										BOTTOM OF EXPLORATION @ 5.0'				
SAMPLES: D=SPLIT SPOON C=3" SHELBY TUBE U=3.5" SHELBY TUBE					SOIL CLASSIFIED BY: <input type="checkbox"/> DRILLER - VISUALLY <input checked="" type="checkbox"/> SOIL TECH. - VISUALLY <input checked="" type="checkbox"/> LABORATORY TEST					REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.				
BORING NO.: B-4														

PROJECT / CLIENT: BREWER ARMORY PARKING LOT RECONSTRUCTION / MAINE ARMY NATIONAL GUARD
 LOCATION: ELM STREET / BREWER, MAINE
 DRILLING FIRM: MAINE TEST BORINGS DRILLER: RICH LEONARD

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	4" O.D.		
SAMPLER:	SS	1 3/8"	140 LBS	30"

BORING NO.: <u>B-5</u>														
DATE: <u>4/28/14</u>				SURFACE ELEVATION: <u>120 +/-</u>				DEPTH TO WATER: <u>NO FREE WATER OBS.</u>						
SOLID STEM AUGER	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA				
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24						
									0.4'	DARK BROWN GRAVELLY SAND WITH SOME SILT AND PAVEMENT (FILL)				
	1D	24"	17"	2.0'	8	11	6	6	1.4'	BROWN SILTY GRAVEL AND SAND (FILL) ~ MEDIUM DENSE ~				
										BROWN SILTY CLAY				
	2D	24"	24"	5.0'	3	5	7	9	5.0'	~ VERY STIFF CONSISTENCY ~ q_p = 4-4.5 ksf				
										BOTTOM OF EXPLORATION @ 5.0'				
SAMPLES: D=SPLIT SPOON C=3" SHELBY TUBE U=3.5" SHELBY TUBE					SOIL CLASSIFIED BY: <input type="checkbox"/> DRILLER - VISUALLY <input checked="" type="checkbox"/> SOIL TECH. - VISUALLY <input type="checkbox"/> LABORATORY TEST					REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.				
BORING NO.: B-5														

BORING NO.: <u>B-6</u>														
DATE: <u>4/28/14</u>				SURFACE ELEVATION: <u>119 +/-</u>				DEPTH TO WATER: <u>WATER @ 1.8'</u>						
SOLID STEM AUGER	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA				
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24						
									1.0'	DARK BROWN GRAVELLY SAND WITH SOME SILT AND PAVEMENT (FILL)				
	1D	24"	13"	2.0'	7	8	6	5	2.5'	GRAY SANDY SILT WITH CLAY, TRACE OF ORGANICS ~ MEDIUM DENSE ~				
										BROWN SILTY CLAY				
	2D	24"	24"	5.0'	4	4	5	6	5.0'	~ VERY STIFF CONSISTENCY ~ q_p = 4-4.5 ksf				
										BOTTOM OF EXPLORATION @ 5.0'				
SAMPLES: D=SPLIT SPOON C=3" SHELBY TUBE U=3.5" SHELBY TUBE					SOIL CLASSIFIED BY: <input type="checkbox"/> DRILLER - VISUALLY <input checked="" type="checkbox"/> SOIL TECH. - VISUALLY <input type="checkbox"/> LABORATORY TEST					REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.				
BORING NO.: B-6														

PROJECT / CLIENT: BREWER ARMORY PARKING LOT RECONSTRUCTION / MAINE ARMY NATIONAL GUARD
 LOCATION: ELM STREET / BREWER, MAINE
 DRILLING FIRM: MAINE TEST BORINGS DRILLER: RICH LEONARD

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	4" O.D.		
SAMPLER:	SS	1 3/8"	140 LBS	30"

BORING NO.: <u>B-7</u>														
DATE: <u>4/28/14</u>				SURFACE ELEVATION: <u>117 +/-</u>				DEPTH TO WATER: <u>NO FREE WATER OBS.</u>						
SOLID STEM AUGER	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA				
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24						
									0.5'	DARK BROWN GRAVELLY SAND WITH SOME SILT AND PAVEMENT (FILL)				
	1D	24"	4"	2.0'	11	13	10	7	3.5'	GRAY SANDY SILT WITH TRACE OF CLAY ~ MEDIUM DENSE ~				
	2D	24"	24"	5.0'	5	6	7	8	5.0'	BROWN SILTY CLAY ~ VERY STIFF CONSISTENCY ~ $q_p = 4-5$ ksf				
										BOTTOM OF EXPLORATION @ 5.0'				
SAMPLES: D=SPLIT SPOON C=3" SHELBY TUBE U=3.5" SHELBY TUBE					SOIL CLASSIFIED BY: <input type="checkbox"/> DRILLER - VISUALLY <input checked="" type="checkbox"/> SOIL TECH. - VISUALLY <input type="checkbox"/> LABORATORY TEST					REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.				
BORING NO.: B-7														

BORING NO.: <u>B-8</u>														
DATE: <u>4/28/14</u>				SURFACE ELEVATION: <u>118 +/-</u>				DEPTH TO WATER: <u>NO FREE WATER OBS.</u>						
SOLID STEM AUGER	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA				
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24						
									0.3'	DARK BROWN GRAVELLY SAND WITH SOME SILT AND PAVEMENT (FILL)				
	1D	24"	16"	2.0'	5	9	12	9	2.0'	BROWN GRAVELLY SANDY SILT ~ MEDIUM DENSE ~				
									3.7'	GRAY SANDY SILT WITH TRACE OF CLAY ~ MEDIUM DENSE ~				
	2D	24"	24"	5.0'	4	5	8	9	5.0'	BROWN SILTY CLAY ~ VERY STIFF CONSISTENCY ~ $q_p = 6-6.5$ ksf				
										BOTTOM OF EXPLORATION @ 5.0'				
SAMPLES: D=SPLIT SPOON C=3" SHELBY TUBE U=3.5" SHELBY TUBE					SOIL CLASSIFIED BY: <input type="checkbox"/> DRILLER - VISUALLY <input checked="" type="checkbox"/> SOIL TECH. - VISUALLY <input type="checkbox"/> LABORATORY TEST					REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.				
BORING NO.: B-8														

PROJECT / CLIENT: BREWER ARMORY PARKING LOT RECONSTRUCTION / MAINE ARMY NATIONAL GUARD
 LOCATION: ELM STREET / BREWER, MAINE
 DRILLING FIRM: MAINE TEST BORINGS DRILLER: RICH LEONARD

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	4" O.D.		
SAMPLER:	SS	1 3/8"	140 LBS	30"

BORING NO.: <u>B-9</u>											
DATE: <u>4/28/14</u>			SURFACE ELEVATION: <u>119 +/-</u>				DEPTH TO WATER: <u>WATER @ 3.0'</u>				
SOLID STEM AUGER	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA	
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24			
	1D	24"	12"	2.0'	12	14	12	10	3.4'	BROWN GRAVEL AND SAND WITH SOME SILT (FILL) ~ MEDIUM DENSE ~	
	2D	24"	3"	5.0'	7	4	3	4	5.0'	BROWN-GRAY SILTY CLAY ~ VERY STIFF CONSISTENCY ~	
										BOTTOM OF EXPLORATION @ 5.0'	
SAMPLES: D=SPLIT SPOON C=3" SHELBY TUBE U=3.5" SHELBY TUBE					SOIL CLASSIFIED BY: <input type="checkbox"/> DRILLER - VISUALLY <input checked="" type="checkbox"/> SOIL TECH. - VISUALLY <input type="checkbox"/> LABORATORY TEST				REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.		BORING NO.: B-9

BORING NO.: <u>B-10</u>											
DATE: <u>4/28/14</u>			SURFACE ELEVATION: <u>119 +/-</u>				DEPTH TO WATER: <u>NO FREE WATER OBS.</u>				
SOLID STEM AUGER	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA	
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24			
	1D	24"	15"	2.0'	11	12	11	10	2.4'	BROWN GRAVEL AND SAND WITH SOME SILT (FILL) ~ MEDIUM DENSE ~	
									3.3'	BROWN SANDY SILT WITH TRACE OF CLAY ~ MEDIUM DENSE ~	
	2D	24"	24"	5.0'	3	5	9	7	5.0'	BROWN-GRAY SILTY CLAY ~ VERY STIFF CONSISTENCY ~ q _p = 6-7 ksf	
										BOTTOM OF EXPLORATION @ 5.0'	
SAMPLES: D=SPLIT SPOON C=3" SHELBY TUBE U=3.5" SHELBY TUBE					SOIL CLASSIFIED BY: <input type="checkbox"/> DRILLER - VISUALLY <input checked="" type="checkbox"/> SOIL TECH. - VISUALLY <input checked="" type="checkbox"/> LABORATORY TEST				REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.		<div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">6</div> BORING NO.: B-10

KEY TO NOTES & SYMBOLS

Test Boring and Test Pit Explorations

Stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q _u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S _v	-	field vane shear strength, kips/sq. ft.
L _v	-	lab vane shear strength, kips/sq. ft.
q _p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W _L	-	liquid limit - Atterberg test
W _P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ _T	-	total soil weight
γ _B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
“Y”	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16” thickness
Seam:	1/16” to 1/2” thickness
Layer:	½” to 12” thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: Test Boring Explorations - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: Test Pit Explorations - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

	A	B	C	D
1	Pre Bid Conference Sign-In: Brewer Unheated Storage Project 23SR15-407-D, 16 June 2022 10 AM Brewer Armory			
2	<u>Name</u>	<u>Organization</u>	<u>Phone Number</u>	<u>email</u>
3	DON AVERY	THE SHERIDAN CORP.	(207) 453- 9311	sales@shericdancorp.com
4	DAN SAUNDERS	"	"	"
5	Kerry Reiser	Oak Point Associates	207-283 0193	kreiser@oakpoint.com
6	Brett Phelan	Phelan Co	617-999- 4005	bphelan@phelanconstruction.com
7	Teagan Phelan	Phelan Construction	617-615- 2000	tphelan@phelanconstruction.com
8	Bandy Chute	Nicherson & O'Day	207-999 -7400	rchute@nickoday.com
9	MIKE GLADU	GLADU DEVELOPMENT LLC	207-659-0417	GLADU.DEVELOPMENT@YAHOO.COM
10	TERRIE TOWNSEND	Hampton Electrical	207-745-9388	ttownsend@hamptonelectrical.com
11				