construction bid document
addendum 01

ARCADIA DESIGNWORKS

project: Southern Maine Community College - Horticulture Greenhouse
Midcoast Campus, Brunswick, Maine BGS # 3674

pages: 02 plus attachments

date: 12 November 2024

The Contract Documents govern all aspects of the project. Information conveyed during pre-bid meetings, telephone, email or text with the Owner and/or Architect are informational only. Official instructions, clarifications and/or changes made to the Contract Documents during the bid phase are made only by addenda. The following information, clarifications, changes and additional instructions are hereby made as part of the Project Manual and Construction Drawings dated September 2024.

items: GENERAL: Project Manual

1. SECTION 001113 Notice to Contractors.	OMIT:	Bid to be received on 5 November 2024.
	ADD:	Bid to be received on 19 November 2024.
2. SECTION 003100 Available Project Information.		See attached Geotechnical Report
3. SECTION 004113 Contractor Bid Form		See attached updated form.
4. SECTION Greenhouse Specifications.	OMIT:	Thermal Curtain and/or Shading Curtain systems, Section G. Equipment - Mechanical Systems in its entirety.
	REVISE:	Section 1. HVAC, 3. Ventilation. See Response Question 9.
	OMIT:	Section L. 2. Hydroponics, 3. Fertigation Tanks and 4. Water Filtration System. Contractor to provide a price to supply and install benches only as an Alternate. **All grow equipment to be purchased separately by the Owner including grow lights - see Response Questions 15 for additional electrical information. Owner maintains the option to work directly with the selected Greenhouse manufacturer (or other supplier) on design and selection of grow systems and equipment under separate a contract.**
5. SECTION Preload Monitoring Plan.		Incorrectly located after Fire Extinguisher and before Plumbing specification sections.

Pre Bid Information and Responses to Questions

6. Pre bid conference attendees list provided by Architect.

7. ***Is the contractor responsible for the building permit?*** The Owner has procured state and local building, life safety and barrier-free permits and have completed submissions to the Midcoast Regional Redevelopment Administration (MRRA) including Navy approval to dig. Contractor is responsible for site utilities including fees for the Sewer District estimated at $2,979.29, water and electricity (if applicable), and cost associated with all inspections during construction. See inspection fee schedule on the Town of Brunswick website.

8. ***Hollow Metal Doors and Frames Specification SECTION 081113.***
   OMIT: Cold Rolled Steel Sheet material.
   ADD: Aluminum standard doors and frames provided by the Greenhouse manufacturer including transparent polycarbonate multi-wall glazing.

9. ***Ventilation system.*** Revisions as follows and as noted on attached drawings.
   OMIT: West side of motorized gull-wing ridge vent. Maintain east side of motorized ridge vent on both bays.
   OMIT: Manually operated wall ventilation.
   OMIT: South elevation upper exhaust fans. Maintain (2) two lower exhaust fans on both bays per Greenhouse manufacturers sizing and specifications.
   OMIT: North elevation upper intake dampers. Maintain (2) two lower intake dampers on both bays per Greenhouse manufacturers sizing and specifications.

ARCADIA
DESIGNWORKS

10. ***Who will be responsible for parking lot stripping?*** The Owner will restripe the parking lot after asphalt installation by Contractor.
11. ***Is this a Buy America project?*** Yes, with a provision of around 5% foreign material source.
12. ***Status of existing trees?*** Contractor to relocate existing parking lot island trees with root balls to the east side of the new Greenhouse and along the ballfield fence.
13. ***Will there be water and electricity available on site during construction?*** Yes. Temporary connections can be provided from the existing MATEC building.
14. ***Can rain-tight EMT be run throughout each side of the space?*** Rain tight EMT would be acceptable.
15. ***Grow lights are to be supplied by the owner, but is there any info showing the number of lights, location, and circuiting?*** Grow lights will be installed at a later date and powered from the panelboards provided in this project.
16. ***As far as the generator is concerned, would a Generac generator be a suitable alternative?*** Generac would be acceptable as long as it is from their industrial product line.

DRAWINGS

Civil

C3 SITE LAYOUT PLAN - Water supply pipe to be 4 inch to main water line connection at the street.

Architectural

A10 GROUND LEVEL & FURNITURE PLANS: Column dimension string to match S1.1 with equal 12'-0" center lines. Tank storage omitted. Exhaust and dampers shown.
A11 ROOF PLAN: Ridge ventilation revised.
A20 EXTERIOR ELEVATIONS: Wall ventilation removed, ridge ventilation revised and exhaust fans and dampers revised.
A30 BUILDING SECTIONS & DETAILS: Revised ventilation system.

Structural [Not Used]

Mechanical

M101 MECHANICAL PLAN: OMIT: Water storage tanks, pipe and valves associated with installation.

Electrical

E12 ELECTRICAL SITE PLAN: Underground electrical conduit and transformer coordinate with Enterprise Electric/MRRA.

ATTACHMENTS:

1. Revised SECTION 001113 Notice to Contractors.
2. Updated SECTION 004113 Contractor Bid Form.
3. Summit Geoengineering - Exploration Data Package.
4. Pre Bid Conference Attendee Sheet.
5. Drawing sheets A10, A11, A20 and A30.

199 prospect street, suite A
portland, maine, usa 04103
tel: 207-347-5252

00 11 13
Notice to Contractors

Southern Maine Community College, Horticulture Greenhouse, Midcoast Campus, Brunswick, MEBGS #3674

1. Sitework preparation includes removal of a portion of existing asphalt parking lot and preloading the grade in preparation for a new concrete foundation and slab. Trenching and installation of electrical service, water, sewer, propane gas and internet fiber utilities.

2. Construction includes installation of a 2-bay pre-manufactured greenhouse comprised of an aluminum frame and polycarbonate wall and roof panels anchored to the concrete foundation. Systems installation includes sewer and water piping, electrical conduit and wire, interior and exterior lighting, mechanical equipment to heat both water and the building. Carpentry includes wall partition framing, door installation, and built-in counters with sinks, complete and ready for use

The contract shall designate the Substantial Completion Date on or before *15 July 2025*, and the Contract Final Completion Date on or before *5 August 2025*.

1. Submit bids on a completed Contractor Bid Form (section 00 41 13), provided in the Bid Documents, include bid security when required, and scan each item as an attachment to an email addressed to: BGS.Architect@Maine.gov, so as to be received no later than **2:00:00 p.m.** on ***19 November 2024***. The email subject line shall be marked **Bid for *Southern Maine Community College, Horticulture Greenhouse, Midcoast Campus, Brunswick, ME., BGS Project #3674***.

   Bid submissions will be opened and read aloud at the time and date noted above at the Bureau of General Services office, accessible as a video conference call. Those who wish to participate in the call must submit a request for access to BGS.Architect@Maine.gov.

   Any bid received after the noted time will not be considered a valid bid and will remain unopened. Any bid submitted by any other means will not be considered a valid bid. In certain circumstances, the Bureau of General Services may require the Bidder to surrender a valid paper copy of the bid form or the bid security document. The Owner reserves the right to accept or reject any or all bids as may best serve the interest of the Owner.

2. Questions and comments on the *bid opening process* shall be addressed to: Division of Planning, Design & Construction, Bureau of General Services, 77 State House Station, Augusta, Maine 04333-0077, BGS.Architect@Maine.gov.

3. Questions and comments regarding the *project* design specifications or drawings shall be directed in writing to the Consultant during the bid period prior to the question and comment deadline of 4:00 p.m. on *13 November 2024*.

   ARCADIA designworks
   Patric Santerre, Architect
   patric@arcadiadesignworks.com

4. ☒ Bid security is required on this project.
   The Bidder shall include a satisfactory Bid Bond (section 00 43 13) or a certified or cashier's check for 5% of the bid amount with the completed bid form submitted to the Owner. The Bid Bond form is available on the BGS website.
   or
   ☐ Bid security is not required on this project.

5. ☒ Performance and Payment Bonds are required on this project.
   If noted above as required, or if any combination of Base Bid and Alternate Bids amounts selected in the award of the contract exceeds $125,000.00, the selected Contractor shall furnish a 100% contract Performance Bond (section 00 61 13.13) and a 100% contract Payment Bond (section 00 61 13.16) in the contract amount to cover the execution of the Work. Bond forms are available on the BGS website.
   or
   ☐ Performance and Payment Bonds are not required on this project.

6. Filed Sub-bids *are not required* on this project.

7. ☐ Pre-qualified General Contractors are utilized on this project.
   insert the company name, city and state for each
   or
   ☒ Pre-qualified General Contractors are not utilized on this project.

8. ☒ An on-site pre-bid conference (☐ *mandatory* or ☒ *optional*) will be conducted for this project.
   The pre-bid conference is intended for General Contractors. Subcontractors and suppliers are welcome to attend. Contractors who arrive late or leave early for a mandatory meeting may be prohibited from participating in this meeting and bidding.
   10:00 AM, 5 November 2024
   Southern Maine Community College,
   Midcoast Campus, Brunswick, ME.,
   or
   ☐ An on-site pre-bid conference will not be conducted for this project.

9. Bid Documents - full sets only - will be available on or about *23 October 2024* and may be obtained at no cost from:
   ARCADIA designworks
   199 Prospect Street, Suite A
   Portland, Maine 04103
   (207) 347-5252 ideate@arcadiadesignworks.com

10. Bid Documents may be examined at:

AGC Maine
188 Whitten Road, Augusta, ME 04330
207-622-4741

Construction Summary
734 Chestnut Street, Manchester, NH 03104
603-627-8856

00 41 13
Contractor Bid Form

Southern Maine Community College, Horticulture Greenhouse BGS #3674

Bid Form submitted by: *email only to email address below*

Bid Administrator:

Deane Rykerson BGS.Architect@Maine.gov
Bureau of General Services
111 Sewall Street, Cross State Office Building, 4th floor
77 State House Station
Augusta, Maine 04333-0077

Bidder:

Signature: _____

Printed name and title: _____

Company name: _____

Mailing address: _____

City, state, zip code: _____

Phone number: _____

Email address: _____

State of incorporation, if a corporation: _____

List of all partners, if a partnership: _____

The Bidder agrees, if the Owner offers to award the contract, to provide any and all bonds and certificates of insurance, as well as Schedule of Values, Project Schedule, and List of Subcontractors and Suppliers if required by the Owner, and to sign the designated Construction Contract within twelve calendar days after the date of notification of such acceptance, except if the twelfth day falls on a State of Maine government holiday or other closure day, or a Saturday, or a Sunday, in which case the aforementioned documents must be received before 12:00 noon on the first available business day following the holiday, other closure day, Saturday, or Sunday.

As a guarantee thereof, the Bidder submits, together with this bid, a bid bond or other acceptable instrument as and if required by the Bid Documents.

00 41 13
Contractor Bid Form

1. The Bidder, having carefully examined the *Southern Maine Community College, Horticulture Greenhouse, Midcoast Campus* Project Manual dated *October 2024*, prepared by *ARCADIA designworks*, as well as Specifications, Drawings, and any Addenda, the form of contract, and the premises and conditions relating to the work, proposes to furnish all labor, equipment and materials necessary for and reasonably incidental to the construction and completion of this project for the **Base Bid** amount of:

   $ _____ .00

2. Allowances *are included* on this project.
   Bid amount above includes the following Allowances
   Not used. $ *0*.00

3. Alternate Bids *are included* on this project.
   Alternate Bids are as shown below
   Any dollar amount line below that is left blank by the Bidder shall be read as a bid of **$0.00**.

   1 Propane powered back-up generator, pad, and ATS connection. $ _____ .00

   2 16 mm polycarbonate roof and wall panels. $ _____ .00

   3 Benching as shown on drawings. $ _____ .00

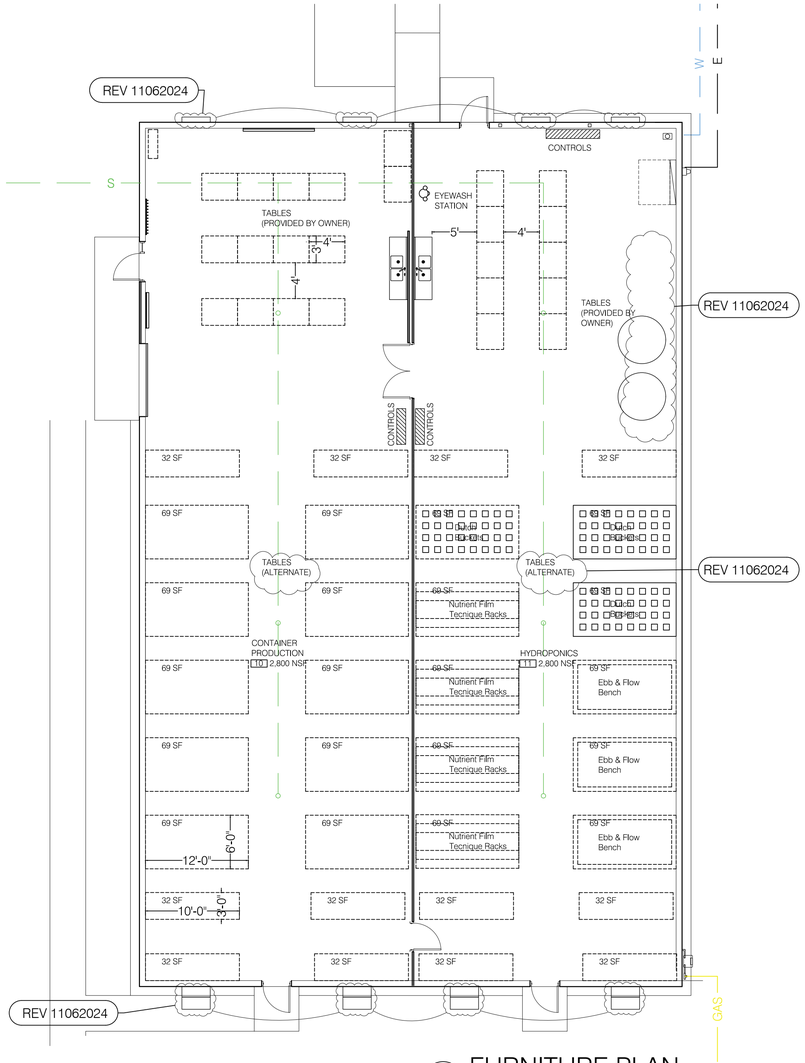
   4 Not used $ _____ .00

4. Bid security *is required* on this project.
   If noted above as required, or if the Base Bid amount exceeds $125,000.00, the Bidder shall include with this bid form a satisfactory Bid Bond (section 00 43 13) or a certified or cashier's check for 5% of the bid amount with this completed bid form submitted to the Owner.

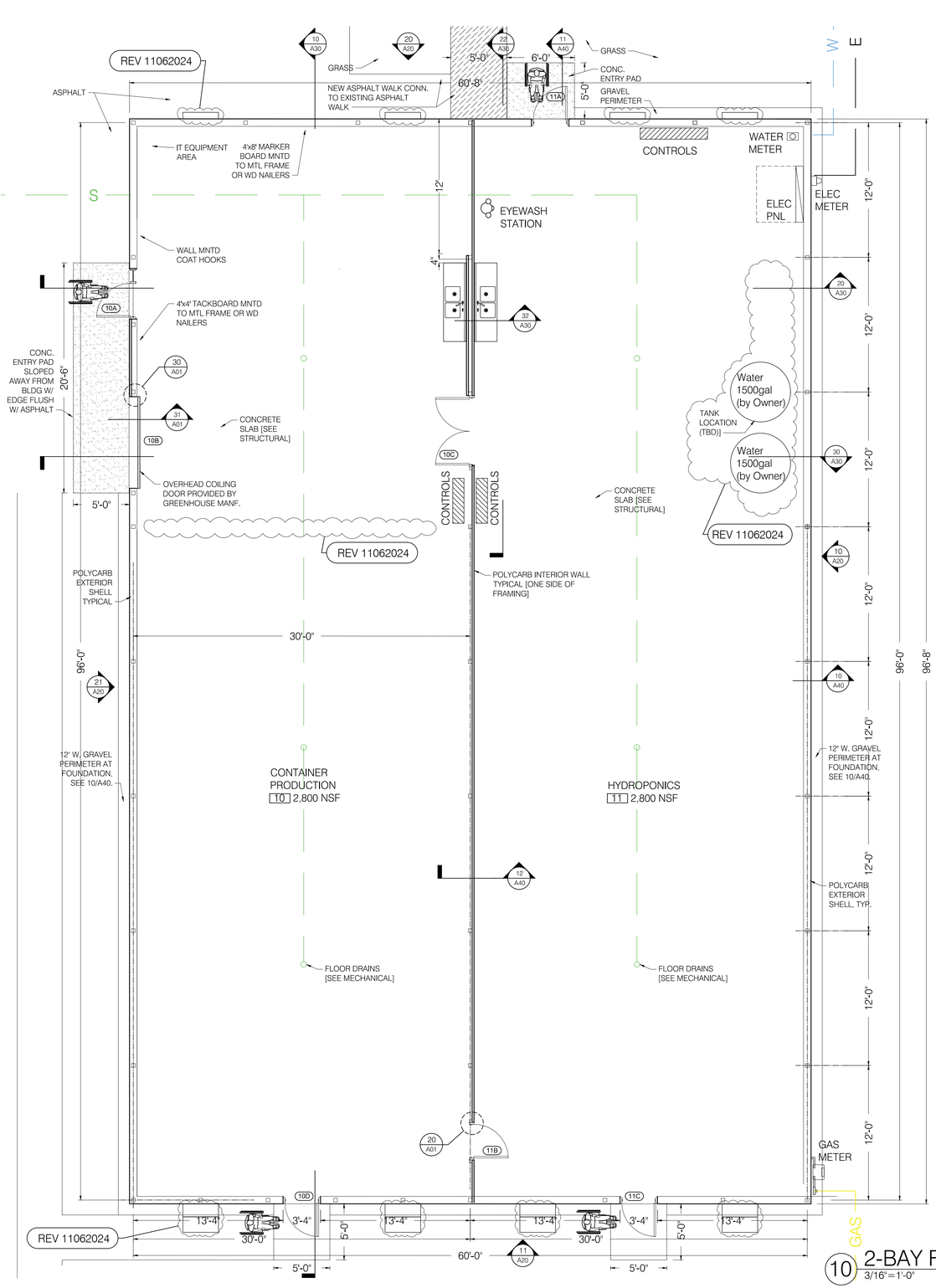
5. Filed Sub-bids *are not required* on this project.
   If noted above as required, the Bidder shall include with this bid form a list of each Filed Sub-bidder selected by the Bidder on the form provided (section 00 41 13F).

ARCADIA DESIGNWORKS

COMPANY	ATTENDEE	EMAIL	TELEPHONE
Benchmark Construction	Kyle Stevens	Krice@benchmarkconstruction.org	207-591-7600
Rimol Greenhouse	Mike Bisogno	Mbisogno@rimol.com	(802)495-6197
Hardypond Construction	Deirdre Wadsworth	deirdre@hardypond.com	(207) 450-2212
RAY LABBE & SONS, INC	PHILIP ABBOTTS	PHILIP@RAYLABBEANDSONS.COM	207-725-7336
Growspan	Zachery Carr	zcarr@growspan.com	860-965-3159
Growspan	Will Hopkins	Whopkins@growspan.com	860-306-9998



11 FURNITURE PLAN
1/8" = 1'-0"



10 2-BAY FLOOR PLAN
3/16" = 1'-0"

ARCADIA DESIGNWORKS
SOUTH
199 prospect street, suite A
portland, maine 04101
NORTH
22 balsam drive
Millinocket, maine 04462
PH: 207.347.5252 & 207.749.9306
arcadiadesignworks.com

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SITELINES Civil Engineers • Land Surveyors
BENNETT ENGINEERING MECHANICAL • ELECTRICAL
SUMMIT GEOENGINEERING SERVICES

SOUTHERN MAINE COMMUNITY COLLEGE

HORTICULTURE GREENHOUSE
MIDCOAST CAMPUS, BRUNSWICK, MAINE

CONSTRUCTION DRAWINGS
REVISIONS: 11/06/24.

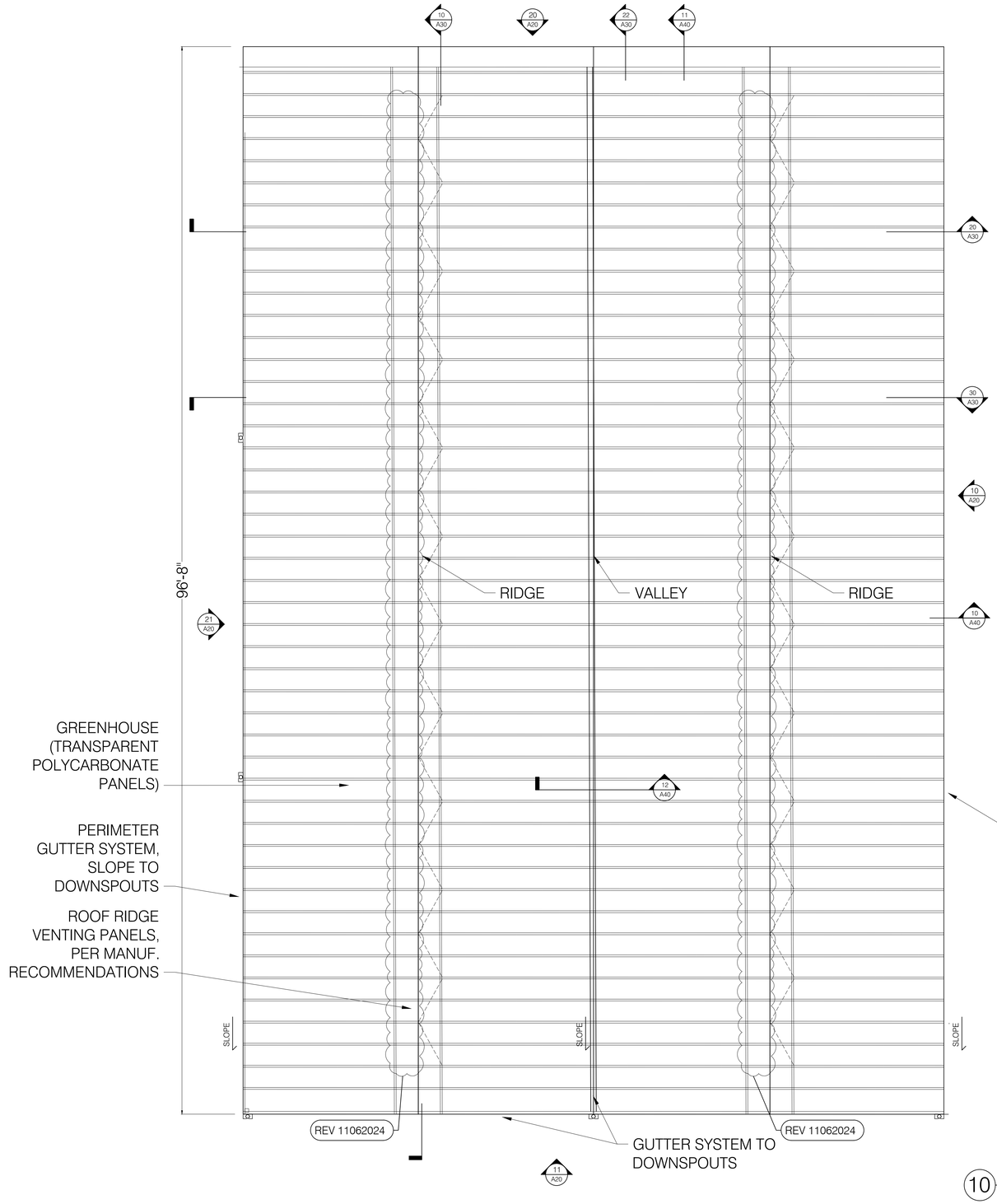
LICENSED ARCHITECT PATRIC J. SANTERRE AR 2476 STATE OF MAINE

N
6" 4" 2" 0 4" 8"
BAR SCALE
3/16" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

GROUND LEVEL & FURNITURE PLANS

ADAR202319 - OCT 2024

A10



10 ROOF PLAN
3/16"=1'-0"

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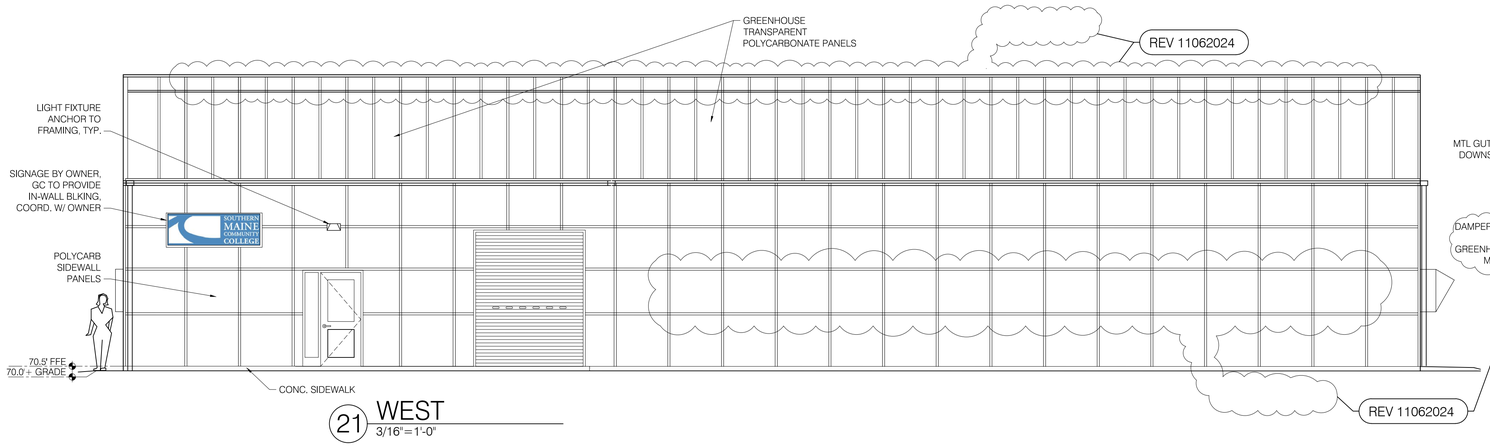
PATRIC J SANTERRE
AR 2476
STATE OF MAINE

6' 4' 2' 0 4' 8'
BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

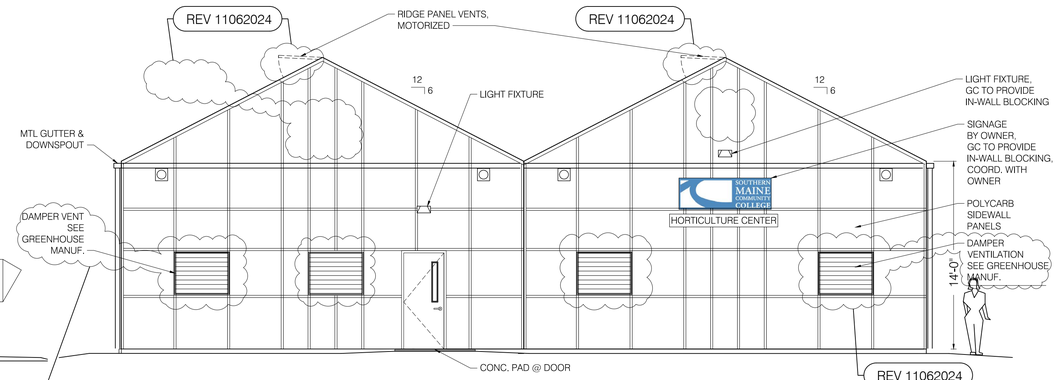
ROOF PLAN

ADAR202319 - OCT 2024

A11



21 WEST
3/16"=1'-0"



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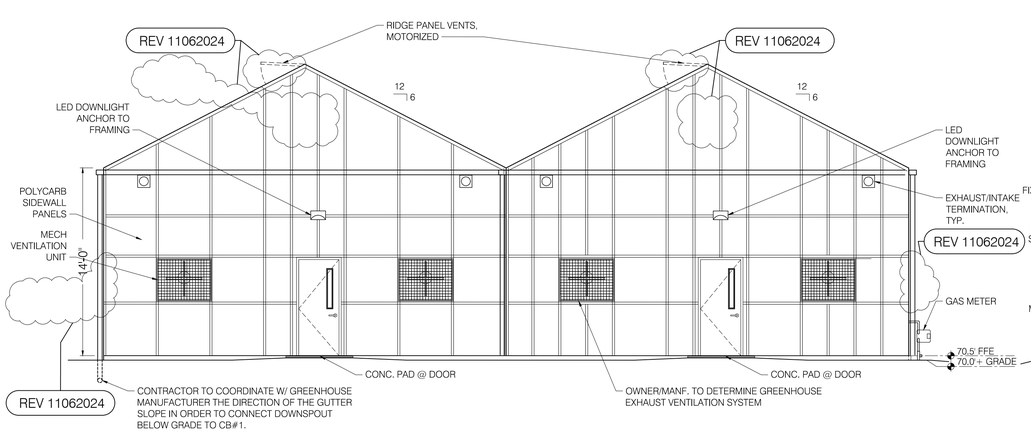

11 SOUTH
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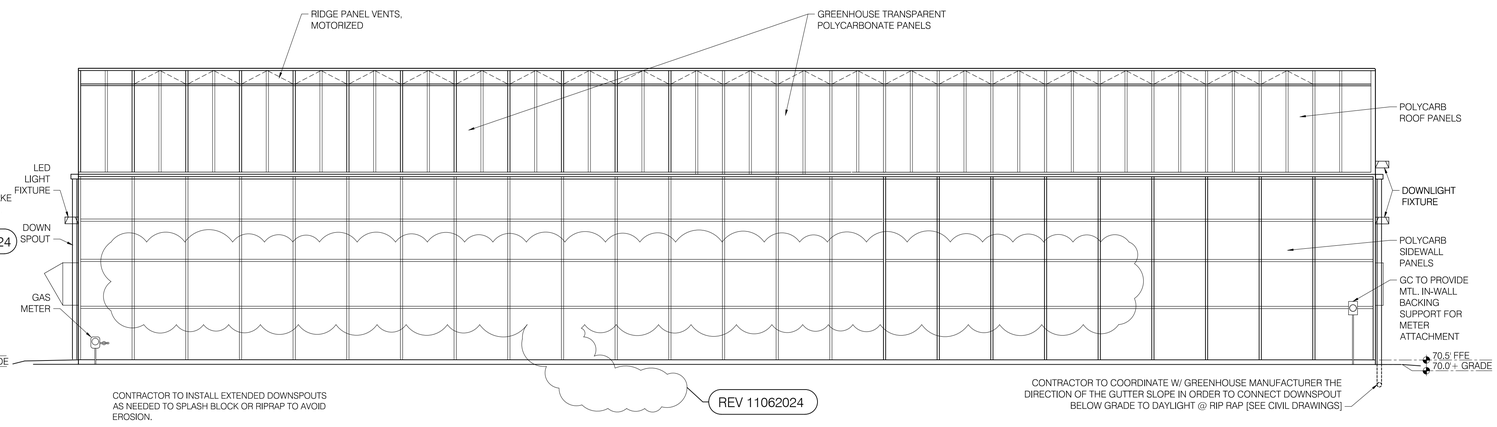

10 EAST
3/16"=1'-0"

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HORTICULTURE GREENHOUSE

MIDCOAST CAMPUS, BRUNSWICK, MAINE

CONSTRUCTION DRAWINGS

REVISIONS: 11/06/24.

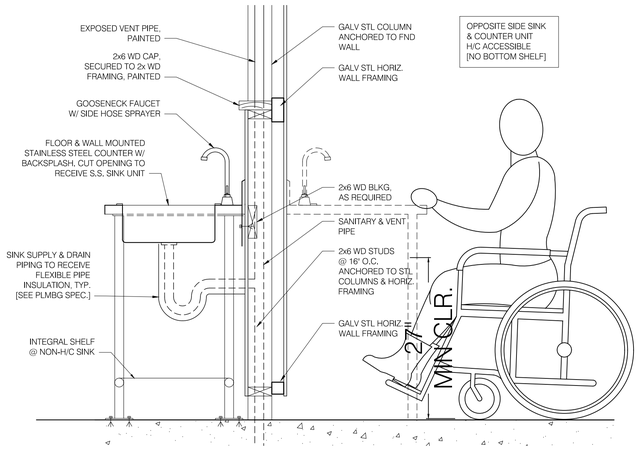
LICENSED ARCHITECT
PATRIC J. SANTERRE
AR 2476
STATE OF MAINE

6' 4' 2' 0 4' 8'
BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

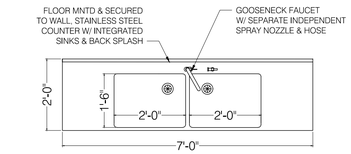
EXTERIOR ELEVATIONS

ADAR202319 - OCT 2024

A20



32 SINK/COUNTER DETAIL
1"=1'-0"



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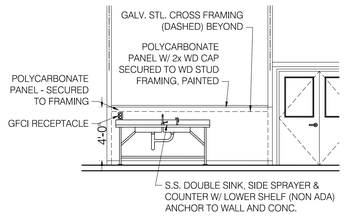
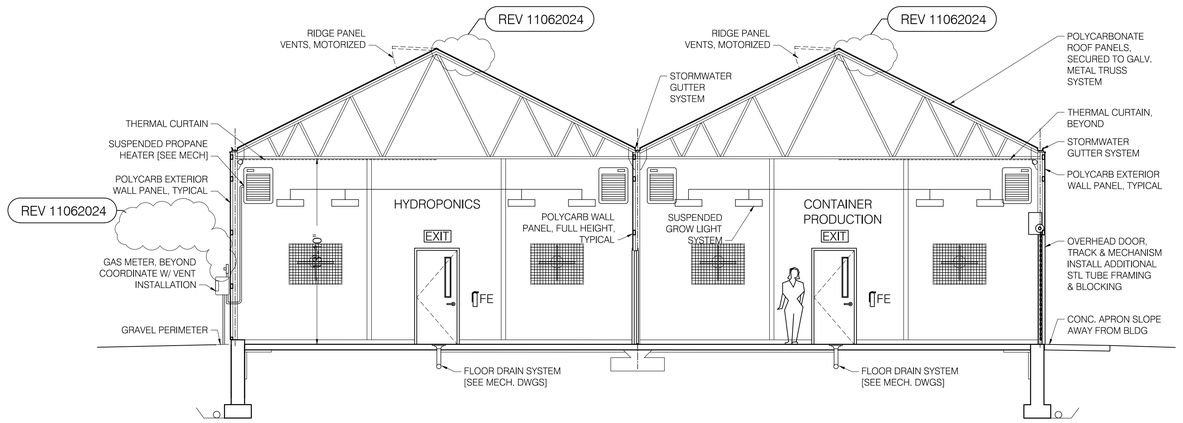
1/2"=1'-0"



31 SECTION
3/16"=1'-0" LOOKING EAST



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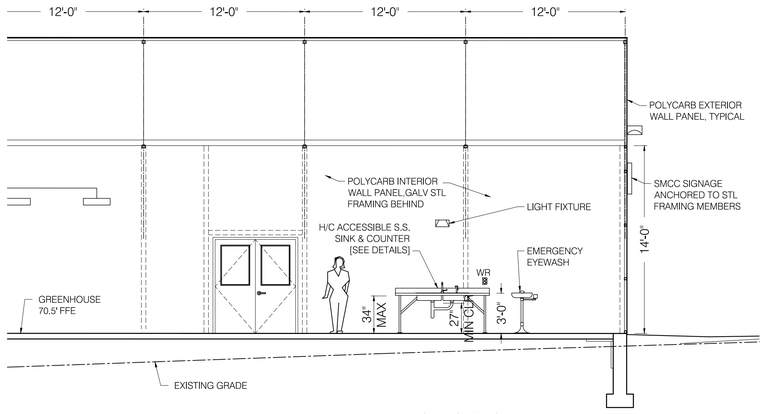

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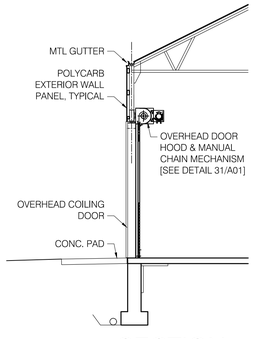

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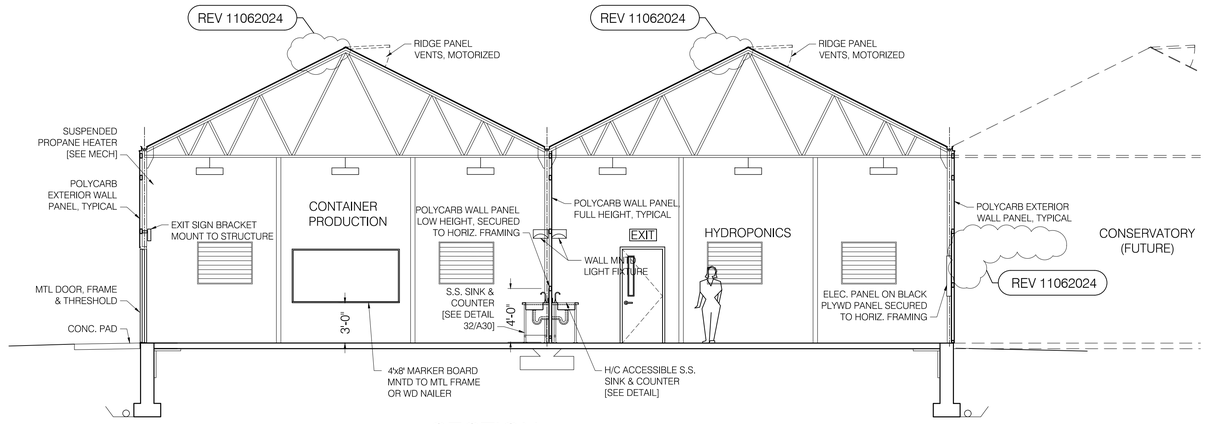

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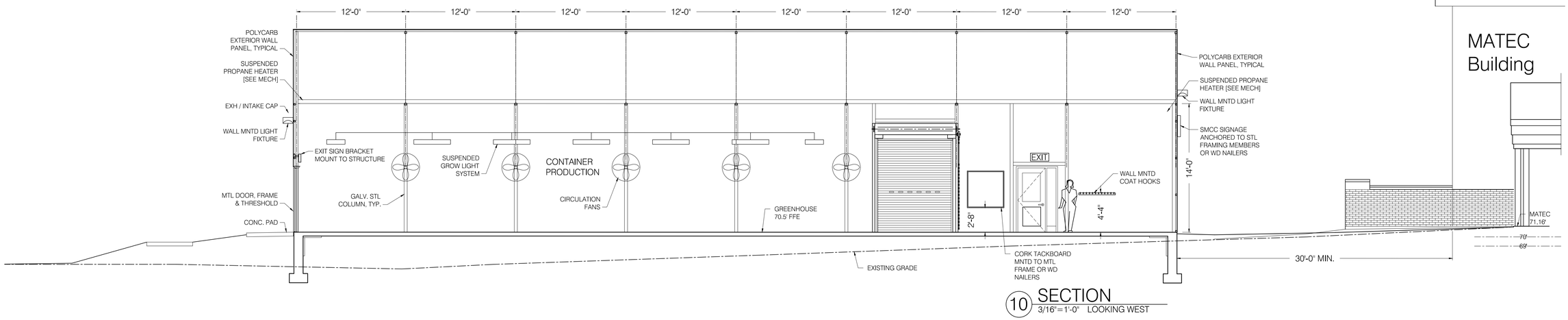

10 SECTION
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6' 4' 2' 0 4' 8'
BAR SCALE
1/4" = 1'-0"
CHECK GRAPHIC SCALE BEFORE USING

BUILDING SECTIONS & DETAILS

ADAR202319 - OCT 2024

A30

The key to success starts with a solid foundation.
ENGINEERING | EXPLORATION | EXPERIENCE

Geotechnical Report

Horticulture Greenhouse
SMCC Midcoast Campus, Brunswick, Maine

Client

Arcadia Designworks
199 Prospect Street, Suite A
Portland, Maine 04103

Project #: 24056
Date: 7/3/2024

SUMMIT
GEOENGINEERING SERVICES

Mailing: PO Box 515, Gardiner, ME 04345
Office: 210 Maine Avenue, Farmingdale, ME 04344
www.summitgeoeng.com

July 3, 2024
Summit #24056

Patric Santerre
Arcadia Designworks
199 Prospect Street, Suite A
Portland, Maine 04103

Reference: Geotechnical Engineering Services
Horticulture Greenhouse – SMCC Midcoast Campus, Brunswick, Maine

Dear Mr. Santerre;

Summit Geoengineering Services, Inc. (SGS) has completed the geotechnical investigation for the proposed horticulture greenhouse at Southern Maine Community College's Midcoast Campus (SMCC) in Brunswick, Maine. The scope of services includes performing explorations at the site and preparing this report summarizing our findings and geotechnical recommendations for the new greenhouse foundations.

The subsurface soils consist of existing fill overlying organic deposits, glacial marine deposit (silt, sand, and clay), and presumed glacial till. Refusal on bedrock was encountered at a depth range of 48 to 67 feet below ground surface (BGS). Groundwater was observed at an approximate depth range of 3 to 7 feet BGS.

This report provides discussion of the geotechnical findings and design recommendations for the new greenhouse foundations. Our geotechnical evaluation is based on the existing site and subsurface conditions, along with planned development details provided by Arcadia Designworks.

SGS appreciates the opportunity to serve you during this phase of your project. If there are any questions or additional information is required, please do not hesitate to call.

Sincerely yours,
Summit Geoengineering Services

Colleen Sullivan, E.I.
Geotechnical Engineer

STATE OF MAINE
CRAIG W. COOLIDGE
NO# 11569
LICENSED
PROFESSIONAL ENGINEER

Craig W. Coolidge, P.E.
Vice President & Principal Engineer

Mailing: PO Box 515, Gardiner, ME 04345
Office: 210 Maine Avenue, Farmingdale, ME 04344
www.summitgeoeng.com

TABLE OF CONTENTS

Mailing: PO Box 515, Gardiner, ME 04345
Office: 210 Maine Avenue, Farmingdale, ME 04344
www.summitgeoeng.com

1.0 Project and Site Description

Summit Geoengineering Services (SGS) was asked by Arcadia Designworks to conduct a geotechnical investigation for a proposed horticulture greenhouse at Southern Maine Community College's Midcoast Campus (SMCC) in Brunswick, Maine. The greenhouse is proposed as a single-story structure with a footprint of 5,915 sf and will house a hydroponic greenhouse, container production greenhouse, and headhouse potting room.

The greenhouse location is proposed southeast of the existing Maine Advanced Technology and Engineering Center (MATEC) and southwest of the existing ball fields within a parking lot east of Sewall Street. Topography within the proposed greenhouse footprint slopes gently down from northwest to southeast, at elevations 70 to 67 feet. The greenhouse is anticipated to be constructed with a finish floor elevation at 70.5 feet, requiring fill heights up to 3.5 feet at the southeast portion of the greenhouse footprint.

2.0 Site Investigation

2.1 Subsurface Explorations

SGS explored the subsurface conditions with the drilling of 2 test borings and 1 seismic piezocone penetration test ($SCPT_u$) performed on April 30, 2024. Explorations were performed using a track mount AMS 9500 VTR drill rig. Explorations were field located by SGS by taping from existing site features and marked for notification of Dig Safe. Locations of the explorations are shown on the Exploration Location Plan in Appendix A. Logs of the explorations are provided in Appendix B.

$SCPT_u$ was advanced with a 5-ton Vertek digital cone to a depth of push refusal at 67 feet below ground surface (BGS) presumed to be bedrock. Anchoring was conducted using a dual anchor with start of test at ground surface. Parameters include cone resistance (q_c), sleeve friction (f_s), piezocone pore pressure (u_2), and shear wave velocity (v_s). Results are used to interpret soil behavior type and properties.

Test borings B-1 and B-2 were advanced using 3.5-inch drill casing with direct push and probed to depths of refusal at 48 to 59 feet BGS. Sampling was conducted at select intervals with standard penetration tests (SPT-N) using a split spoon sampler and auto-drop hammer. Field vane shear tests were conducted at select intervals to measure undrained shear strength (S_u). A thin wall tube sample was collected at boring B-1 within the marine clay.

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Performance of Field Vane at Test Boring B-2, Facing East

2.2 Laboratory Testing

Laboratory testing was performed by SGS for select soil samples collected on site as follows:

- Atterberg Limit (ASTM D4318)
- One Dimensional Consolidation (ASTM D2435)
- Unconfined Compressive Strength of Cohesive Soils (ASTM D2166)
- Moisture Content (ASTM D2216)

Reports of the laboratory tests are in Appendix C. Moisture content was performed by SGS on select samples with a range of 23.5 to 66.5 percent. A one dimensional consolidation test was performed on a remold sample of the organic silt from test boring B-1. Results from the thin wall tube sample and remolded organic silt sample are summarized in the table below:

Boring	Sample	Depth	Atterberg Limit			Unit Weight	Consolidation		
			LL	PI	MC	Ɣ	P'c	C_c	C_r
B-1	S-2b+3	4.2' – 7'	--	--	66.5%	--	0.717 ksf	0.711	0.059
B-1	UT-1	20' – 22.5'	32	9	37.5%	121 pcf	--	--	--

Samples of the organic deposit from test borings B-1 and B-2 were sent to Maine Environmental Lab for total organic content and moisture content. Total organic content ranged from 18.9 to 22.7 percent. Moisture content of the organic silt ranged from 42.6 to 47.4 percent.

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3.0 Subsurface Conditions

The subsurface conditions consist of 6 inches of bituminous pavement overlying ***granular fill, organic deposits***, ***glacial marine deposits,*** and presumed ***glacial till***. Refusal on probable bedrock was encountered at a depth range of 48 to 67 feet BGS. Details of the explorations are provided on the logs in Appendix B. The subsurface conditions are further described below.

3.1 Soil Layers

Granular fill is present beneath the pavement and ranges from 4 to 5 feet in thickness. The existing fill is described as brown medium to fine sand with little to some gravel and little silt to slightly mottled brown fine sand with little to no gravel and trace silt. The fill is visually classified as SP to SP-SM in accordance with the Unified Soil Classification System (USCS) and is considered loose to compact and damp to wet with depth.

Organic deposits are present below the existing fill with a thickness of approximately 3 feet. The organic deposit is described as dark brown organic silt with occasional wood fibers and occasional sand lenses throughout and is classified as OL in accordance with the USCS. Total organic content ranges from 18.9 to 22.7 percent. The organic silt is considered soft and damp to wet. Moisture content of the organic deposit ranges from 42.6 to 66.5 percent.

Glacial marine deposit is present beneath the organic deposit and consists of two subunits.

The upper unit ranges from 8 to 10 feet in thickness and consists of slightly mottled olive brown to gray interbedded sand, silt, and clay. The upper unit is classified as SM, ML, and ML-CL in accordance with the USCS and is considered loose or soft to stiff and moist to wet.

The lower unit ranges from 28 to 37 feet in thickness and consists of gray silty clay with occasional black organic streaks and silt-sand lenses. The lower unit is classified as CL in accordance with USCS and is considered very soft to soft and wet. Moisture content for the lower unit ranges from 26.5 to 37.5 percent.

The undrained shear strength (S_u) of the marine deposit is determined from results of the field vane shear tests and cone penetration test. The undrained shear strength (Su) for the lower marine deposit ranges from 300 psf to 800 psf, with depth, and averages 550 psf. Results are below:

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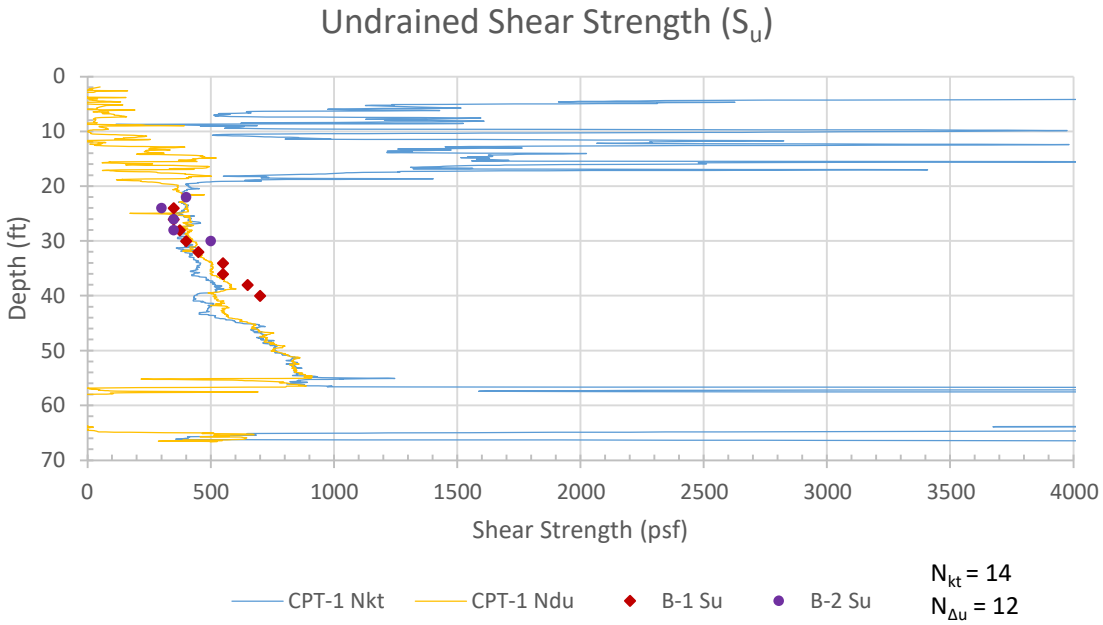

Glacial till is presumed to underly the glacial marine deposit based on a significant increase in tip resistance seen in results from the cone penetration test and further seen in the borings by an increase in drill resistance while probing to bedrock. The glacial till is estimated to have a thickness ranging from 5 to 11 feet.

3.2 Bedrock

Refusal, presumed to be ***bedrock,*** was observed at a depth range of 48 to 67 feet BGS, elevations 19 to 0 feet. Mapping by the Maine Geological Survey indicates bedrock at the site is part of the Cape Elizabeth Formation consisting of light gray medium-grained schist with quartz, plagioclase, muscovite, and biotite granofels.

3.3 Groundwater

Groundwater was encountered at a depth range of 3 to 7 feet BGS, elevations 64 to 62 feet. Mottling indicates that groundwater may fluctuate between wet and dry periods. The site is located within a mapped significant sand and gravel aquifer by the Maine Geological Survey as having a potential yield of 10 gallons per minute or greater for properly constructed wells. Equilibrium pore pressure was measured by dissipation tests to estimate phreatic surface or coefficient of consolidation (C_h). Results are presented below:

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PHREATIC DISSIPATION TEST SUMMARY			MEASURED
Location	Test Depth (ft)	Phreatic Surface (ft)	Groundwater Depth (ft)
CPT-1	24.9	*(C_h = 0.35 ft^2/day)*	3.2
	66.7	*7.5*	

Cross Sectional Area = 10 cm^2, Pore Pressure Location = U_2

4.0 Geotechnical Evaluation

The primary geotechnical consideration at the site is the potential for compressive settlement of the organic silt and soft clay below the greenhouse footprint due to foundation loads and import fill. Finish floor elevation for the new greenhouse is anticipated at elevation 70.5 feet. Based on this, fill heights up to 3.5 feet will be required to develop the southeast portion of the greenhouse footprint. Discussion of foundation options for the new greenhouse is included in Section 5.0. It is recommended that SGS review structural loads once available to evaluate application to the recommendations provided in this report.

Subgrade inspections by the geotechnical engineer are recommended prior to placement of import fill and construction of foundation footings. It is recommended that a qualified testing agency inspects soil material gradation and compaction during construction for conformance to the project specifications. Soil materials testing reports should be made available to the geotechnical engineer for review and for determining final placement of fill for the recommended preload period.

5.0 Geotechnical Design Recommendations

Discussion and limitations for the following foundation options for the new greenhouse are presented as follows:

- Structural mat foundation
- Spread footings with over excavation of organic silt layer
- Support of foundations by helical piles or similar

Use of a structural mat foundation or helical piles permits leaving the organic layer in place. Supporting the greenhouse using a spread footing foundation will require removal of the organic layer.

Regardless of foundation type, it is recommended the building footprint be filled (preload) to finish grade and then excavated for footing construction. The fill should be left in place for a minimum of 30 days prior to constructing new foundations. Application of the fill (preload) prior to footing construction will apply compressive weight to the existing organic silt and/or marine clay to reduce post construction settlement.

The following soil parameters can be used for preliminary design of foundation systems:

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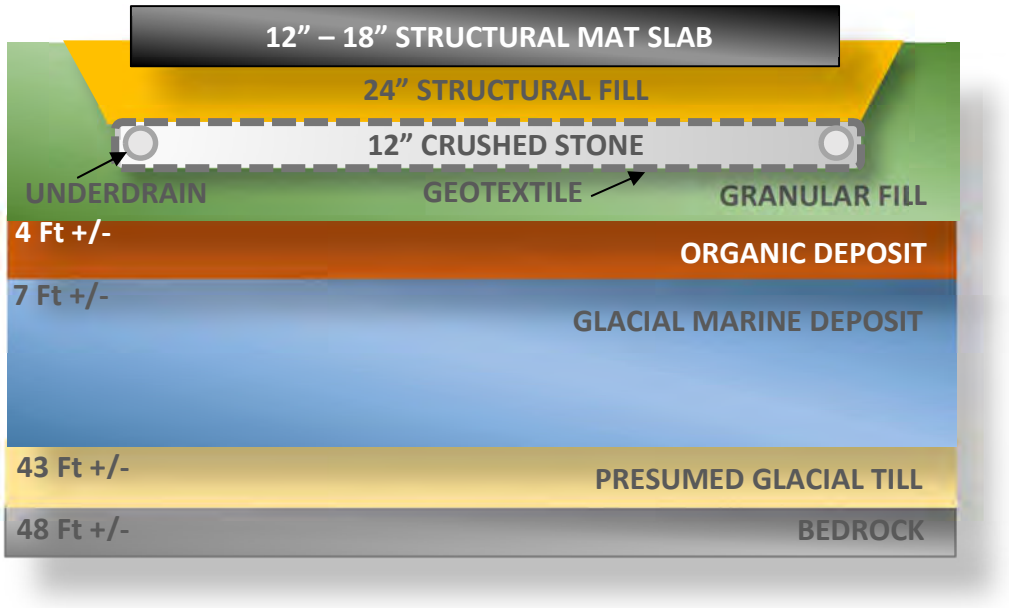
PARAMETER	ENGINEERED FILL	EXISTING FILL	UPPER MARINE DEPOSIT	LOWER MARINE DEPOSIT
Total Natural (moist) Unit Weight (Υ_t)	130 pcf	125 pcf	120 pcf	120 pcf
Saturated (buoyant) Unit Weight (Υ_s)	68 pcf	63 pcf	68 pcf	68 pcf
Friction Coefficient (f)	0.50	0.45	0.35	0.35
Passive Earth Pressure Coefficient (K_p)	3.54	3.25	3.25	--
Active Earth Pressure Coefficient (K_a)	0.28	0.31	0.31	--
At Rest Pressure Coefficient (K_o)	0.44	0.47	0.47	0.50
Effective Friction Angle (ϕ')	34^0	32^0	$32^{0\,1}$	--
Undrained Shear Strength (S_u)	--	--	2,000 psf [1]	500 psf

[1] Parameters included for granular & cohesive portions of interbedded upper glacial marine deposit

5.1 Structural Mat Foundation

To support a structural mat foundation, the following section is recommended to provide suitable bearing strength and frost protection:

STRUCTURAL MAT SLAB CROSS SECTION



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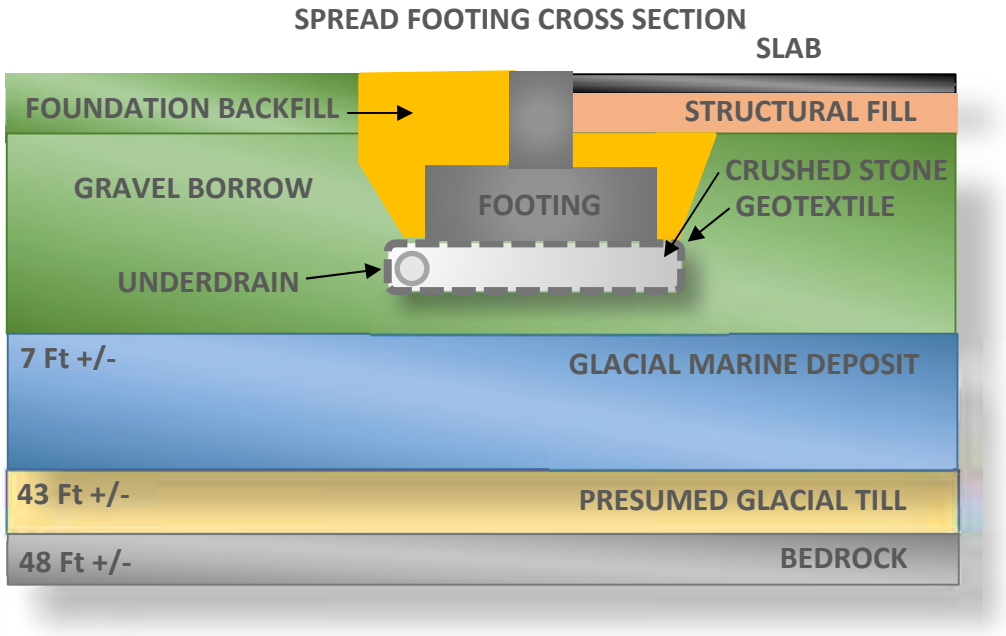
To reduce potential for differential settlement between heavy and lightly loaded foundation elements and to help reduce compressive settlement of the organic silt, a reinforced mat foundation could be used to support the foundation slab and exterior wall loads. Total settlement of the structural mat foundation is estimated at 1 to 2 inches for foundation loads and where import fill is limited to 3.5 feet in thickness.

The base of the mat slab should be constructed on a minimum of 24 inches of Structural Fill overlying 12 inches of Crushed Stone overlying geotextile, such as Mirafi FW404 or equivalent. All existing granular fill should be proof-rolled prior to construction. Proof-rolling should consist of a minimum of five passes in each of two perpendicular directions with a 5 ton (minimum operating weight) vibratory roller.

The coefficient of subgrade reaction (k_v) (per 12-inch plate) applies to the design of reinforced concrete foundations over soil. A mat foundation can be designed using a coefficient of subgrade reaction of 175 tons/ft^3.

5.2 Spread Footing Foundation

The following materials are recommended for a spread footing foundation as follows:



SGS recommends the foundation elements be proportioned using an allowable bearing pressure of 3,000 psf. Settlement is estimated at 1 inch or less for foundation loads and where import fill is limited to 3.5 feet in thickness. Individual column footings are discouraged due to their potential for localized settlement. It is recommended that strip footings have a minimum width of 3 feet and bear upon Crushed Stone overlying native subgrade.

An organic silt layer was encountered in the explorations at a depth range of 4 to 9 feet BGS with a thickness of approximately 3 feet. Prior to placement of fill or construction of footings, SGS recommends all organic deposits should be removed and replaced with compacted Gravel Borrow or Crushed Stone. Gravel Borrow should meet specification, placement, and compaction recommendations provided in Section 5.4.

The frost penetration depth based on a design air-freezing index of 1,200-degree days for Brunswick is 4 feet. Exterior footings should be constructed at a minimum depth of 4 feet and be backfilled with Foundation Backfill. The Foundation Backfill should extend a minimum of 24 inches laterally from the base of the foundation footing or walls.

Footings should be constructed upon a minimum of 12 inches of Crushed Stone overlying geotextile fabric. It is recommended the subgrade be inspected by the geotechnical engineer to verify conditions or to recommend further stabilization, if necessary.

SGS recommends the building slab be constructed with rebar reinforcement and sufficient thickness to support building loads. SGS recommends the building slab be constructed on a minimum 12-inch thick layer of Structural Fill. Foundation slabs can be designed using a coefficient of subgrade reaction (k_v) of 175 tons/ft^3. Structural Fill and Foundation Backfill should meet specification, placement, and compaction recommendations provided in Section 5.4.

5.3 Helical Piles

An alternative foundation option includes the use of helical piles or similar to support foundations. Helical piles are made of steel sections with flighted augers to penetrate the soil. The anchor flights provide the bearing and uplift resistance of the foundation loads and can help transfer loads to the upper marine deposit to prevent excessive settlement of the organic silt layer. Total settlement associated with a helical pile foundation is estimated at 1-inch or less.

In general, SGS recommends the piles be installed to elevation 60 feet (depth range of 7 to 9 feet below finish floor elevation) and terminate in the upper glacial marine deposit. Helical piles should be structurally connected to support the existing foundation footings. Helical piles should be designed in accordance to the manufacturer specifications and torque set to meet the design load requirements. Helical piles can be installed using skid steer, rubber track, or similar construction equipment. Smaller piles can be locally installed using portable power units. SGS can assist in providing preliminary design or assistance should piles be considered.

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5.4 Backfill Recommendations

Foundation Backfill should be placed in 12-inch lifts or less and compacted to 95 percent of its maximum dry density determined in accordance with ASTM D1557. Foundation Backfill should have a maximum particle size limited to 6 inches and portion passing a 3-inch sieve should meet the following specification:

FOUNDATION BACKFILL	
Sieve Size	**Percent Passing**
¼ inch	25 to 100
No. 40	0 to 50
No. 200	0 to 7

Reference: MDOT Specification 703.06, Type E (2020)

Foundation Backfill should be placed in 12-inch lifts or less and compacted to 95 percent of its maximum dry density determined in accordance with ASTM D1557.

Structural Fill should be placed in 6 to 12-inch lifts and compacted to 95 percent of its maximum dry density determined in accordance with ASTM D1557. Structural Fill should consist of well graded granular material with a maximum particle size limited to 6 inches. The portion passing a 3-inch sieve should meet the following specification:

STRUCTURAL FILL	
Sieve Size	**Percent Passing**
¼ inch	0 to 70
No. 200	0 to 10

Reference: MDOT Specification 703.20, Gravel Borrow (2020)

Crushed Stone should be tamped to lock the stone structure together and meet the following:

CRUSHED STONE ¾ INCH	
Sieve Size	**Percent finer**
1 inch	100
¾ inch	90 to 100
½ inch	20 to 55
⅜ inch	0 to 15
No. 4	0 to 5

Reference: MDOT Specification 703.13, Crushed Stone ¾-Inch (2014)

Geotextile should consist of Mirafi FW404 or similar placed between the bottom of the Crushed Stone layer and above subgrade.

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5.5 Site Fill

Based on existing topography and anticipated finish floor elevation, SGS anticipates fill heights up to 3.5 feet will be required to meet grades at the southeast portion of the building footprint. General fill required to meet grades across the site and within the building footprint should consist of compacted Gravel Borrow. Gravel Borrow should consist of well graded granular material with a maximum particle size of 6 inches. The portion passing a 3-inch sieve should meet the following gradation:

GRAVEL BORROW	
Sieve Size	**Percent Passing**
¼ inch	0 to 70
No. 200	0 to 10

Reference: MDOT Specification 703.20, Gravel Borrow (2020)

Gravel Borrow should be placed in maximum 12-inch lifts and compacted to 95 percent of its maximum dry density determined in accordance with ASTM D1557.

5.6 Groundwater Control

Groundwater was encountered at a depth range of 3 to 7 feet BGS, elevations 64 to 62 feet. Based on this, perimeter underdrains are not strictly required for the exterior footings. At a minimum, SGS recommends exterior grades be sloped away from the building footprint, as best practical, to reduce runoff water from infiltrating the foundation backfill.

Perimeter underdrains, if used, should consist of 4-inch rigid perforated PVC placed adjacent to the exterior footings and surrounded by a minimum of 6 inches of Crushed Stone wrapped in filter fabric to prevent clogging from the migration of the fine soil particles in the foundation backfill soils. The underdrain pipe should have an outlet free flowing. Where exposed at the ground surface, the ends of pipes should be screened or otherwise protected from entry and nesting of wildlife, which could cause clogging.

5.7 Seismic Design

Shear wave velocity tests were conducted during the cone penetration test (CPT) at rod break intervals. Results of the shear wave velocity testing are shown below:

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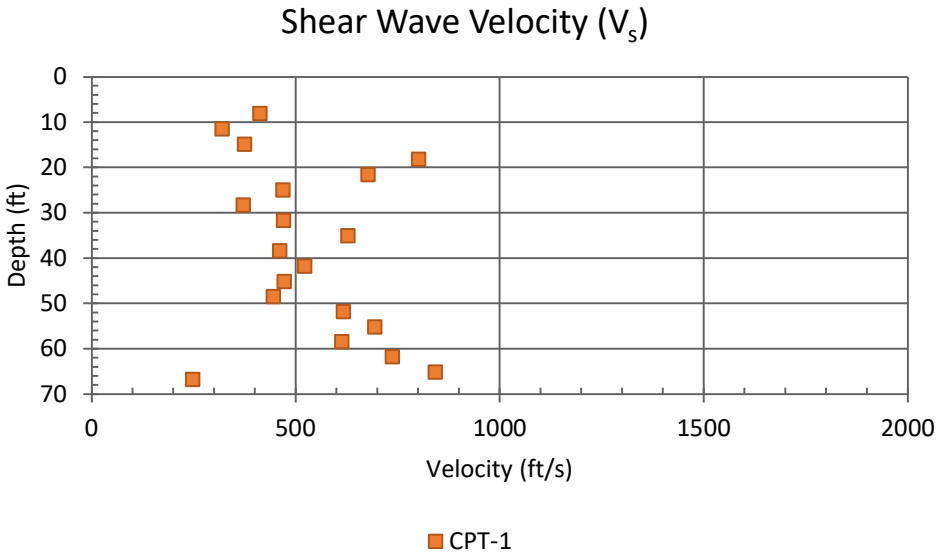

The soils at the site are categorized as Site Class E in accordance with ASCE 7-10 with an average shear wave velocity of 535 ft/s and thickness of soft clay greater than 10 ft having an average undrained shear strength below 500 psf. The marine clay is considered resistant to liquefaction due to soil cohesion. The following seismic site coefficients should be used:

SUBGRADE SITE SEISMIC DESIGN COEFFICIENTS – ASCE 7-10	
Seismic Coefficient	**Site Class E**
Peak Ground Acceleration (PGA)	0.119
Site Modified Peak Ground Acceleration (PGA_M)	0.279
Short period spectral response (S_S)	0.225
1 second spectral response (S_1)	0.076
Maximum short period spectral response (S_{MS})	0.562
Maximum 1 second spectral response (S_{M1})	0.267
Design short period spectral response (S_{DS})	0.375
Design 1 second spectral response (S_{D1})	0.178

6.0 Earthwork Considerations

Existing pavement should be stripped from the ground surface prior to placing fill or constructing footings. Structural Fill, Foundation Backfill, and Gravel Borrow should be placed in maximum 12-inch lifts and compacted to a minimum of 95 percent of their maximum dry density, determined in accordance with ASTM D1557, Modified Proctor Density.

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To provide additional time for the underlying organic silt and soft clay to consolidate and reduce long-term building foundation settlement, SGS recommends a preload of 30 days be implemented at the building footprint and areas within 10 feet outside of the building. This will involve raising the site grade up to the proposed sub slab elevation, allowing fill settlement for a period of 30 days, and then excavating for foundations.

Granular subgrade above groundwater should be proof rolled prior to placement of engineered fill. Proof rolling should consist of a minimum of five passes in a north-south direction and then five passes in an east-west direction using a vibratory roller or large plate compactor. Proof-rolling is not recommended where subgrade or foundation footings are located near or below groundwater due to potential for subgrade disturbance.

If the building is supported by a spread footing foundation, SGS recommends the organic deposit be removed and replaced with compacted Gravel Borrow or Crushed Stone. If subgrade disturbance occurs during construction, SGS recommends the base of the subgrade be over-excavated and replaced with 12 inches of Crushed Stone. Crushed Stone should be tamped to lock the stone structure together.

Engineered fill should be compacted to a minimum of 95 percent of their maximum dry density, determined in accordance with ASTM D1557, Modified Proctor Density. Engineered fill should be periodically verified at each lift by field density testing to confirm proper compaction is achieved. Density testing is not required for Crushed Stone.

Depending on the depth, location, and timing of excavation, dewatering may be required. Shallow sumps and conventional submersible pumps should be sufficient to control localized groundwater during construction. Diversion and control of surface water should be performed to prevent water flow from adjacent wet areas or from rain or snowmelt from entering the excavations.

Utility trenching and general excavations below 4 feet should be sloped no greater than 1.5H to 1V (OSHA type C) for sand and/or below groundwater. This slope is based on the current OSHA Excavation Guidelines.

It is recommended the geotechnical engineer be retained to conduct subgrade inspections to confirm that soil conditions and construction methods are consistent with this report. It is recommended that a qualified testing agency inspect soil materials gradation and compaction during construction for conformance to the project specifications. Soil materials testing reports should be made available to the geotechnical engineer for review.

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7.0 Closure

The recommendations provided in this report are based on professional judgment and generally accepted principles of geotechnical engineering and project information provided by others. No other warranty is expressed or implied. Our evaluations and recommendations are based on discrete and widely spaced data points. Some changes in subsurface conditions from those presented in this report are anticipated to occur. Should these conditions differ materially from those described in this report, SGS should be notified so that we can re-evaluate our recommendations.

SGS appreciates the opportunity to serve you during this phase of your project. If there are any questions or additional information is required, please do not hesitate to call.

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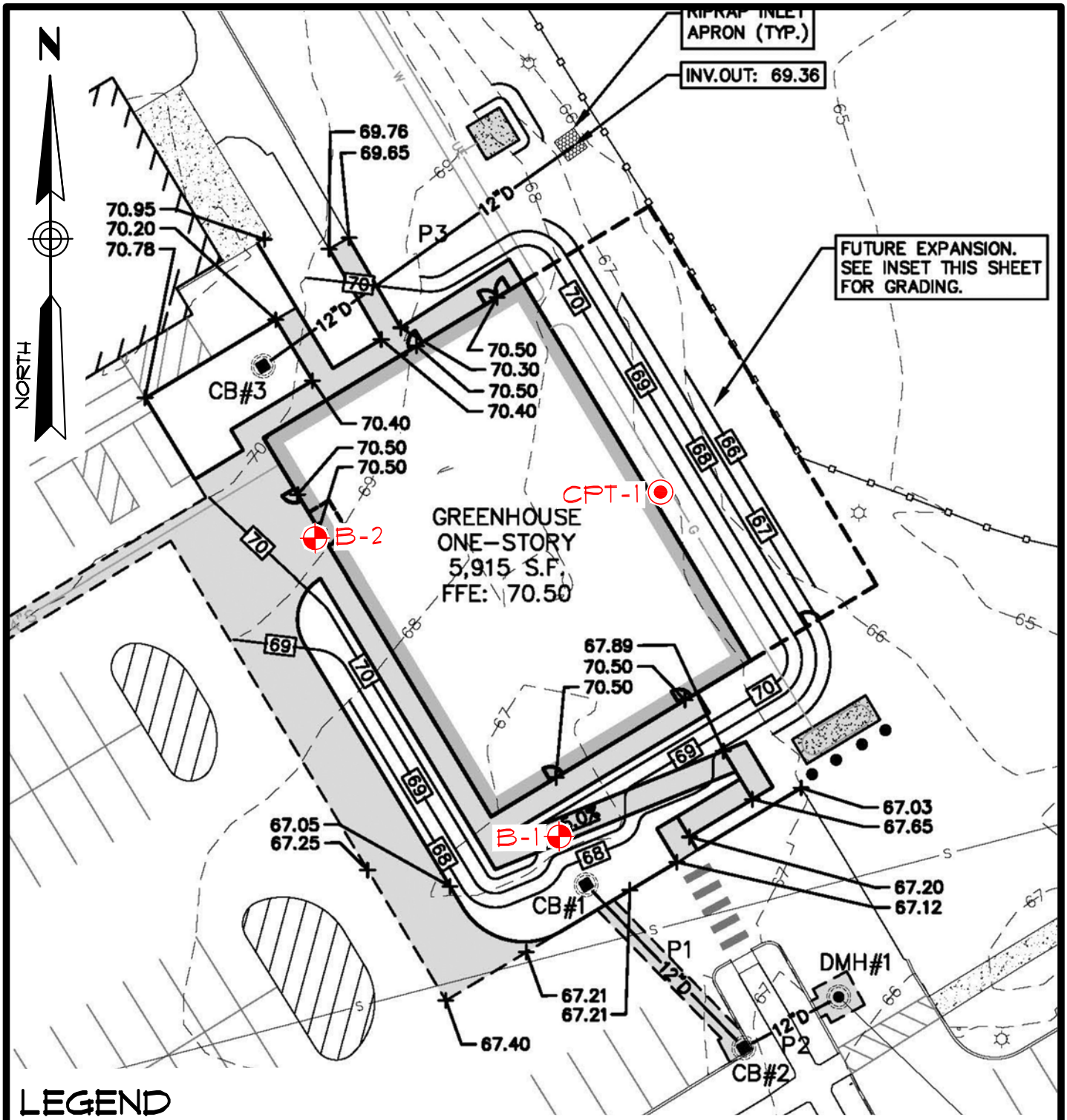
APPENDIX A

EXPLORATION LOCATION PLAN



LEGEND

B-1	SUMMIT TEST BORING (APRIL 30, 2024)
CPT-1	SUMMIT CONE PENETRATION TEST (APRIL 30, 2024)

PLAN REFERENCE

"GRADING AND DRAINAGE PLAN, GREENHOUSE BUILDING, SOUTHERN MAINE COMMUNITY COLLEGE", DATED MARCH 14, 2024, PREPARED BY SITELINES.

EXPLORATION LOCATION PLAN
HORTICULTURE GREENHOUSE

SMCC MIDCOAST CAMPUS - BRUNSWICK, ME

PREPARED FOR

ARCADIA DESIGNWORKS

DATE: 5-14-2024	DRAWN BY: KRF	CHECKED BY: CRS
JOB: 24056	SCALE: 1" = 30'	FILE: 24056

OFFICE: 210 MAINE AVENUE
FARMINGDALE, MAINE
TEL.: (207) 446-3360

MAIL: P.O. BOX 515
GARDINER, ME 04345

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APPENDIX B

EXPLORATION LOGS

EXPLORATION COVER SHEET

The exploration logs are prepared by the geotechnical engineer from both field and laboratory data. Soil descriptions are based upon the Unified Soil Classification System (USCS) per ASTM D2487 and/or ASTM D2488 as applicable. Supplemental descriptive terms for estimated particle percentage, color, density, moisture condition, and bedrock may also be included to further describe conditions.

Drilling and Sampling Symbols:

S = Split Spoon Sample
UT = Thin Wall Shelby Tube
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RW = Rotary Wash
SV = Lab Shear Vane (Torvane)
PP = Pocket Penetrometer
C = Rock Core Sample
FV = Field Vane Shear Test
SP = Concrete Punch Sample

Hyd = Hydraulic Advancement of Drilling Rods
Push = Direct Push of Drilling Rods
WOH = Weight of Hammer
WOR = Weight of Rod
PI = Plasticity Index
LL = Liquid Limit
MC = Natural Moisture Content
USCS = Unified Soil Classification System
Su = Undrained Shear Strength
Su(r) = Remolded Shear Strength

Water Level Measurements:

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable groundwater levels. In impervious soils, the accurate determination of groundwater elevations may not be possible, even after several days of observations. Groundwater monitoring wells may be required to record accurate depths and fluctuation.

Gradation Description and Terminology:

Boulders:	Over 12 inches	Trace:	Less than 5%
Cobbles:	12 inches to 3 inches	Little:	5% to 15%
Gravel:	3 inches to No.4 sieve	Some:	15% to 30%
Sand:	No.4 to No. 200 sieve	Silty, Sandy, etc.:	Greater than 30%
Silt:	No. 200 sieve to 0.005 mm		
Clay:	less than 0.005 mm		

Density of Granular Soils and Consistency of Cohesive Soils:

CONSISTENCY OF COHESIVE SOILS		DENSITY OF GRANULAR SOILS	
SPT N-value blows/ft	**Consistency**	**SPT N-value blows/ft**	**Relative Density**
0 to 2	Very Soft	0 to 4	Very Loose
2 to 4	Soft	5 to 10	Loose
5 to 8	Firm	11 to 30	Compact
9 to 15	Stiff	31 to 50	Dense
16 to 30	Very Stiff	>50	Very Dense
>30	Hard		

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-1**

Project:	Horticulture Greenhouse	Project #:	24056
Location:	SMCC Midcoast Campus	Sheet:	1 of 3
City, State:	Brunswick, Maine	Chkd by:	CWC

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	67 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Site Plan Prepared by Arcadia Designworks, Dated April 2024
Summit Staff:	C. Sullivan, E.I.	Date started: 4/30/2024	Date Completed: 4/30/2024

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9500 VTR	Diameter:	2"OD/1.5"ID
Method:	3" Casing	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
4/30/2024	6.4 ft	61 ft +/-	Measured in open hole after drilling

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	SP-1	12/12	0 - 1	PUSH		6" Bituminous Pavement		PAVEMENT
1				▼	67+/-			0.5'
	S-1	24/18	1 - 3	6		Brown medium-fine SAND, little-some Gravel, little Silt,		GRANULAR FILL
2				8		loose-compact, damp, SP-SM		
				9		Gray Silty SAND, little Gravel, compact, damp, SP-SM		2'
3				9				
	S-2	24/20	3 - 5	7		Gray medium-fine SAND, little Gravel & Silt, compact,		3' +/-
4				8		damp, SP-SM		
				6	63+/-	Dark brown Organic SILT, occasional Organic & wood	MC = 42.6%	4.2'
5				3		fibers, soft, damp, OL	Org. Matter: 19.9%	ORGANIC
	S-3	24/14	5 - 7	1		Dark brown Organic SILT, frequent organic fibers, wood		DEPOSITS
6				1		fibers at 6.2', occasional 1/4" fine Sand seams at 5.5' &	MC = 43.4%	
				2		5.6', soft, moist, OL	Org. Matter: 18.9%	
7				3				
	S-4	24/12	7 - 9	2	60+/-	Dark brown Silty SAND, frequent Organic fibers, very	MC = 28.5%	7'
8				1		loose, wet, SM	Org. Matter: 4.3%	GLACIAL MARINE
				1				DEPOSIT
9				1				
10								
	S-5	24/22	10 - 12	2		Gray SILT, trace Clay & fine Sand, occasional Organic		
11				4		fibers, slightly mottled, firm, moist-wet, ML	MC = 23.5%	
				4		Olive gray SILT-CLAY, trace fine Sand, occasional Organic	PP = 7,000 psf	11.5'
12				5		fibers & fine Sand seams, slightly mottled, firm, wet, ML-CL	to 8,000 psf	
	S-6	24/20	12 - 14	5		Same as above, 1/2" fine Sand seams at 12.5', 12.8', &		
13				7		13.5', moderately mottled, stiff, wet, ML-CL	PP = 6,500 psf	
				7			to 7,000 psf	
14				6				
15								
	S-7	24/24	15 - 17	WOH		Gray Silty CLAY, 2" fine Sand seam at 16'+/-, soft, wet,	MC = 26.5%	15' +/-
16				1		CL	PP = 2,000 psf	
				2			to 3,000 psf	
17				2				
18								
19								
20								
	UT-1	30/26	20 - 22.5	PUSH		Gray Silty CLAY, occasional black Organic streaks, very	LL = 32	
21				▼		soft, wet, CL	PI = 9	
							MC = 37.5%	
22								
				▼				

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Bedrock Joints Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Project:	Horticulture Greenhouse	Boring #:	**B-1**
Location:	SMCC Midcoast Campus	Project #:	24056
City, State:	Brunswick, Maine	Sheet:	2 of 3
		Chkd by:	CWC

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	67 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Site Plan Prepared by Arcadia Designworks, Dated April 2024
Summit Staff:	C. Sullivan, E.I.	Date started: 4/30/2024	Date Completed: 4/30/2024

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9500 VTR	Diameter:	2"OD/1.5"ID
Method:	3" Casing	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
4/30/2024	6.4 ft	61 ft +/-	Measured in open hole after drilling

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
23	FIELD VANES							GLACIAL MARINE DEPOSIT
			Tip of Vane					
24	FV-1		24			S_u = 350 psf, $S_{u(r)}$ = 75 psf (7 ft-lbs, 1.5 ft-lbs)		
25								
26	FV-2		26			S_u = 350 psf, $S_{u(r)}$ = 100 psf (7 ft-lbs, 2 ft-lbs)		
27								
28	FV-3		28			S_u = 375 psf, $S_{u(r)}$ = 100 psf (7.5 ft-lbs, 2 ft-lbs)		
29								
30	FV-4		30			S_u = 400 psf, $S_{u(r)}$ = 100 psf (8 ft-lbs, 2 ft-lbs)		
31								
32	FV-5		32			S_u = 450 psf, $S_{u(r)}$ = 100 psf (9 ft-lbs, 2 ft-lbs)		
33								
34	FV-6		34			S_u = 550 psf, $S_{u(r)}$ = 125 psf (11 ft-lbs, 2.5 ft-lbs)		
35								
36	FV-7		36			S_u = 550 psf, $S_{u(r)}$ = 100 psf (11 ft-lbs, 2 ft-lbs)		
37								
38	FV-8		38			S_u = 650 psf, $S_{u(r)}$ = 125 psf (13 ft-lbs, 2.5 ft-lbs)		
39								
40	FV-9		40			S_u = 700 psf, $S_{u(r)}$ = 175 psf (14 ft-lbs, 3.5 ft-lbs)		
41								
42						Vane push refusal at 41.2' on probable Silt-Sand seam		41.2'
43						Solid stem rod probe to refusal ↓		
44					24+/-	Anticipated strata change based on increased resistance		43.3' PRESUMED GLACIAL TILL

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Bedrock Joints Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-1**

Project:	Horticulture Greenhouse	Project #:	24056
Location:	SMCC Midcoast Campus	Sheet:	3 of 3
City, State:	Brunswick, Maine	Chkd by:	CWC

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	67 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Site Plan Prepared by Arcadia Designworks, Dated April 2024
Summit Staff:	C. Sullivan, E.I.	Date started: 4/30/2024	Date Completed: 4/30/2024

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9500 VTR	Diameter:	2"OD/1.5"ID
Method:	3" Casing	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
4/30/2024	6.4 ft	61 ft +/-	Measured in open hole after drilling

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
45						Solid stem rod probe to refusal		PRESUMED GLACIAL TILL
46								
47								
48								
49					19+/-	End of Exploration at 48.3', Spear Tip Refusal on Probable Bedrock		48.3' PROBABLE BEDROCK
50								
51								
52								
53								
54								
55								
56								
57								
58								
59								
60								
61								
62								
63								
64								
65								
66								

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SUMMIT GEOENGINEERING SERVICES

SOIL BORING LOG

Boring #: **B-2**

Project: Horticulture Greenhouse | Project #: 24056
Location: SMCC Midcoast Campus | Sheet: 1 of 2
City, State: Brunswick, Maine | Chkd by: CWC

Drilling Co: Summit Geoengineering Services
Driller: A. Manzella
Summit Staff: C. Sullivan, E.I.
Boring Elevation: 69 ft +/-
Reference: Estimated from Site Plan Prepared by Arcadia Designworks, Dated April 2024
Date started: 4/30/2024 Date Completed: 4/30/2024

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9500 VTR	Diameter:	2"OD/1.5"ID
Method:	3" Casing	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
4/30/2024	7.3 ft	62 ft +/-	Measured in open hole after drilling

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	SP-1	12/12	0 - 1	PUSH		6" Bituminuous Pavement		PAVEMENT
1				↓	69+/-			0.5'
	S-1	24/20	1 - 3	9		Brown medium-fine SAND, little-some Gravel, trace-little Silt, compact, damp, SP to SP-SM		GRANULAR FILL
2				15				
				13		Brown fine SAND, little Gravel, trace Silt, compact, damp, SP		2'
3				13				
	S-2	24/16	3 - 5	4		Brown fine SAND, trace Silt, slightly mottled from 4'-5', compact, damp, SP		
4				7				
				5				
5				6				
	S-3	24/16	5 - 7	2		Same as above, moderately-heavily mottled, very loose-loose, wet, SP		
6				2				
				1	63+/-	Dark brown Organic SILT, occasional Organic fibers &	MC = 47.4%	5.7'
7				1		fine Sand seams, soft, moist-wet, OL	Org. Matter: 20.6%	ORGANIC DEPOSITS
	S-4	24/20	7 - 9	2		Same as above, occasional Organic & wood fibers,	MC = 47.1%	
8				2		4" gray fine Sand seam at 8.2'+/-, soft, wet, OL	Org. Matter: 22.7%	
				2				
9				2				
					60+/-			9' +/-
10								GLACIAL MARINE
	S-5	24/18	10 - 12	1		Olive brown fine Sandy SILT, little Clay, occasional		DEPOSIT
11				3		Organic fibers, soft, wet, ML		
				4		Gray SILT, trace fine Sand, occasional fine Sand seams,	MC = 25.7%	10.8'
12				6		slightly mottled, firm, wet, ML		
13								
14								
15								
	UT-1	30/0	15 - 17.5	PUSH		No Recovery		
16				↓				
17				↓				
18								
						Attempted field vane at 19', vane push refusal at 18'		
19						on probable Sand-Silt seam		
20								
21	FIELD VANES							
			Tip of Vane					
22	F-1		22			S_u = 400 psf, $S_{u(r)}$ = 100 psf (8 ft-lbs, 2 ft-lbs)		

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Bedrock Joints Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

SOIL BORING LOG

SUMMIT GEOENGINEERING SERVICES

Project:	Horticulture Greenhouse	Boring #:	B-2
Location:	SMCC Midcoast Campus	Project #:	24056
City, State:	Brunswick, Maine	Sheet:	2 of 2
		Chkd by:	CWC

Drilling Co:	Summit Geoengineering Services	Boring Elevation:	69 ft +/-
Driller:	A. Manzella	Reference:	Estimated from Site Plan Prepared by Arcadia Designworks, Dated April 2024
Summit Staff:	C. Sullivan, E.I.	Date started: 4/30/2024	Date Completed: 4/30/2024

DRILLING METHOD		SAMPLER	
Vehicle:	AMS Track	Length:	24" SS
Model:	9500 VTR	Diameter:	2"OD/1.5"ID
Method:	3" Casing	Hammer:	140 lb
Hammer Style:	Auto	Method:	ASTM D1586

ESTIMATED GROUND WATER DEPTH

Date	Depth	Elevation	Reference
4/30/2024	7.3 ft	62 ft +/-	Measured in open hole after drilling

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	Elev. (ft.)	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
23	FIELD VANES							GLACIAL MARINE DEPOSIT
			Tip of Vane					
24	FV-2		24			S_u = 300 psf, $S_{u(r)}$ = 100 psf (6 ft-lbs, 2 ft-lbs)		
25								
26	FV-3		26			S_u = 350 psf, $S_{u(r)}$ = 100 psf (7 ft-lbs, 2 ft-lbs)		
27								
28	FV-4		28			S_u = 350 psf, $S_{u(r)}$ = 150 psf (7 ft-lbs, 3 ft-lbs)		
29								
30	FV-5		30			S_u = 500 psf, $S_{u(r)}$ = 175 psf (10 ft-lbs, 3.5 ft-lbs)		
31								
32						Solid stem rod probe to refusal		
33								
34								
35								
*48						*Change in depth scale		
49								
50								
51					19+/-	Anticipated strata change based on increased resistance		49.8' PRESUMED GLACIAL TILL
52								
53								
*58						*Change in depth scale		
59								
60					10+/-	End of Exploration at 58.8', Spear Tip Refusal on Probable Bedrock		58.8' PROBABLE BEDROCK

Granular Soils		Cohesive Soils		% Composition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487
0-4	V. Loose	<2	V. soft	
5-10	Loose	2-4	Soft	< 5% Trace
11-30	Compact	5-8	Firm	5-15% Little
31-50	Dense	9-15	Stiff	15-30% Some
>50	V. Dense	16-30	V. Stiff	> 30% With
		>30	Hard	

NOTES: PP = Pocket Penetrometer, MC = Moisture Content
LL = Liquid Limit, PI = Plastic Index, FV = Field Vane Test
Su = Undrained Shear Strength, Su(r) = Remolded Shear Strength

Bedrock Joints
Shallow = 0 to 35 degrees
Dipping = 35 to 55 degrees
Steep = 55 to 90 degrees

Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches
Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200

Soil Moisture Condition
Dry: S = 0%
Humid: S = 1 to 25%
Damp: S = 26 to 50%
Moist: S = 51 to 75%
Wet: S = 76 to 99%
Saturated: S = 100%

CPT EXPLORATION COVER SHEET

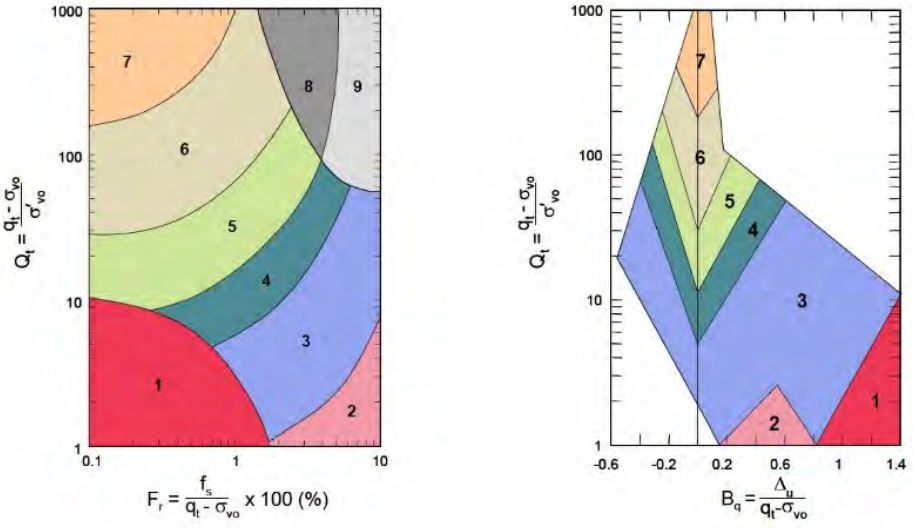
Piezocone penetration test (CPT) is performed by a cone on the end of a series of rods pushed into the ground at a constant rate (2 cm/s) to obtain near continuous measurements of soil parameters. Parameters obtained during the CPT test include cone tip resistance, sleeve friction, and piezocone pore pressure per ASTM D5778 and shear wave velocity per ASTM D7400. These parameters are presented graphically on the CPT log.

CPT Data Symbols:

q_c = Tip Resistance	u_2 = Pore Pressure	q_t = Total Resistance
f_s = Sleeve Friction	v_s = Shear Wave Velocity	c_h = Coefficient of Consolidation

Soil Behavior Type:

Soil behavior type is interpreted from CPT data as one of 9 soil behavior types published by Robertson et al. 1990, shown below. Each soil behavior type (SBT) is assigned a color which correlates to the SBT plot on the CPT log.



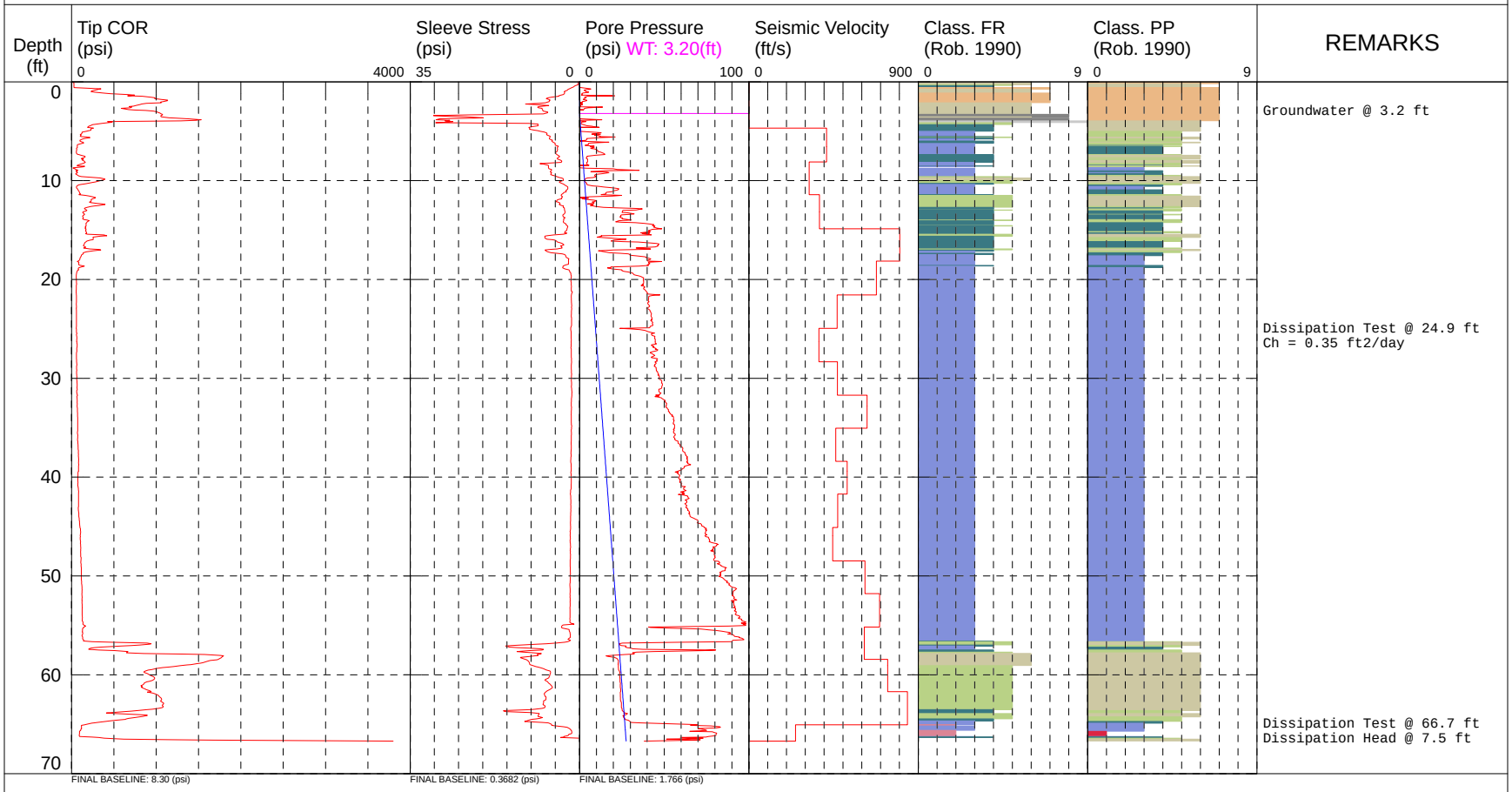
Zone	Soil Behavior Type
1	Sensitive, Fine Grained
2	Organic Soils-Peats
3	Clays; Clay to Silty Clay
4	Silt Mixtures; Clayey Silt to Silty Clay
5	Sand Mixtures; Silty Sand to Sandy Silt
6	Sands; Clean Sands to Silty Sands
7	Gravelly Sand to Sand
8	Very Stiff Sand to Clayey Sand*
9	Very Stiff Fine Grained*

*Overconsolidated or Cemented

CPT-1

COMPANY: Summit Geoengineering Services
OPERATOR: S. Floyd
CREW: C. Sullivan, E.I.
CLIENT: Arcadia Designworks
CLIENT REP: Patric Santerre

TEST DATE: Tue 30/Apr/2024
TEST ID: CPT-1
PROJECT: 24056
SITE: Horticulture Greenhouse
LOCATION: SMCC Midcoast Campus, Brunswick, ME



REMARKS

Groundwater @ 3.2 ft

Dissipation Test @ 24.9 ft
Ch = 0.35 ft2/day

Dissipation Test @ 66.7 ft
Dissipation Head @ 7.5 ft

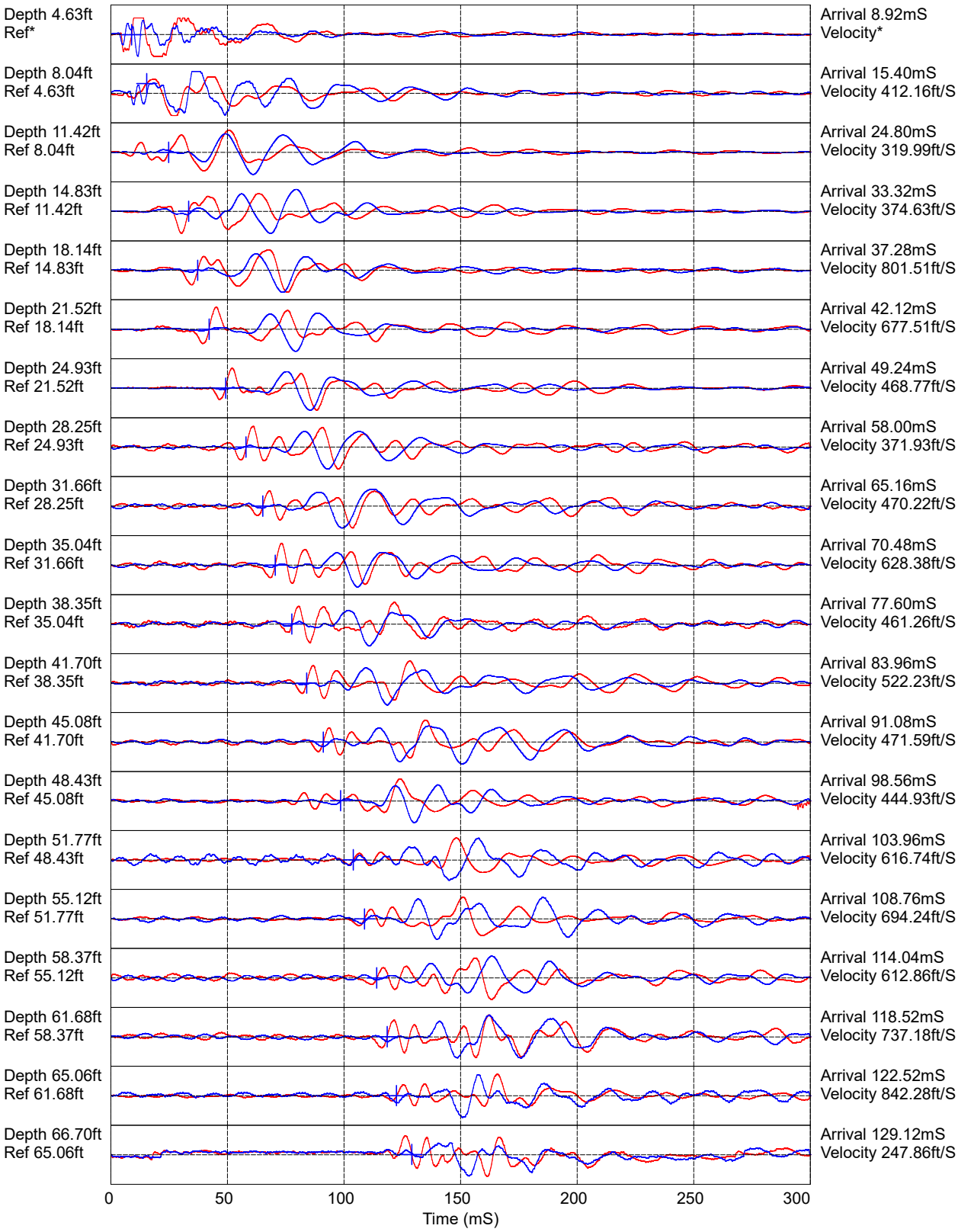
TOTAL DEPTH: 66.705 ft

PROBE ID: 4544.104XX

1 Sensitive, fine grained
2 Organic soils - peats
3 Clays - clay to silty clay
4 Silt mixtures - clayey silt to silty clay
5 Sand mixtures - silty sand to sandy silt
6 Sands - clean sand to silty sand
7 Gravelly sand to sand
8 Very stiff sand to clayey sand **
9 Very stiff, fine grained **

*SBT: Robertson 1990; **Overconsolidated or Cemented; *SBT/SPT CORRELATION: UBC-1983

TEST ID: CPT-1



Hammer to Rod String Distance (ft): 4.92
* = Not Determined

PROBE ID: 4544.104XX

APPENDIX C

LABORATORY TEST RESULTS

SUMMIT
GEOENGINEERING SERVICES

Laboratory Determination of Water (Moisture) Content of Soil ASTM D2216

PROJECT NAME:	Horticulture Greenhouse	PROJECT #:	24056
PROJECT LOCATION:	SMCC Midcoast Campus, Brunswick, ME	DRYING METHOD:	Oven Dried
CLIENT:	Arcadia Designworks	DESCRIPTION:	Glacial Marine
SOURCE:	Borings	TECHNICIAN:	Colleen Sullivan, E.I.
COLLECTION DATE:	04/30/24	TESTING DATE:	05/06/24

Location	Sample No.	Depth	Moisture Content	Remarks
B-1	S-2b	4.2' - 5'	42.6%	Organic Silt, Organic fibers (MEL)
B-1	S-3	5' - 7'	43.4%	Organic Silt, Organic fibers (MEL)
B-1	S-4	7' - 9'	28.5%	Silty Sand, Organic fibers (MEL)
B-1	S-5	10' - 12'	23.5%	Silt-Clay
B-1	S-6	12' - 14'	23.8%	Silty Clay
B-1	S-7	15' - 17'	26.5%	Silty Clay
B-1	UT-1	20' - 22.5'	37.5%	(Atterberg Limit)
B-2	S-3b	5.7' - 7'	47.4%	Organic Silt, Organic fibers (MEL)
B-2	S-4	7' - 9'	47.1%	Organic Silt, Organic fibers (MEL)
B-2	S-5b	10.8' - 12'	25.7%	Silt, Organic fibers

REMARKS:

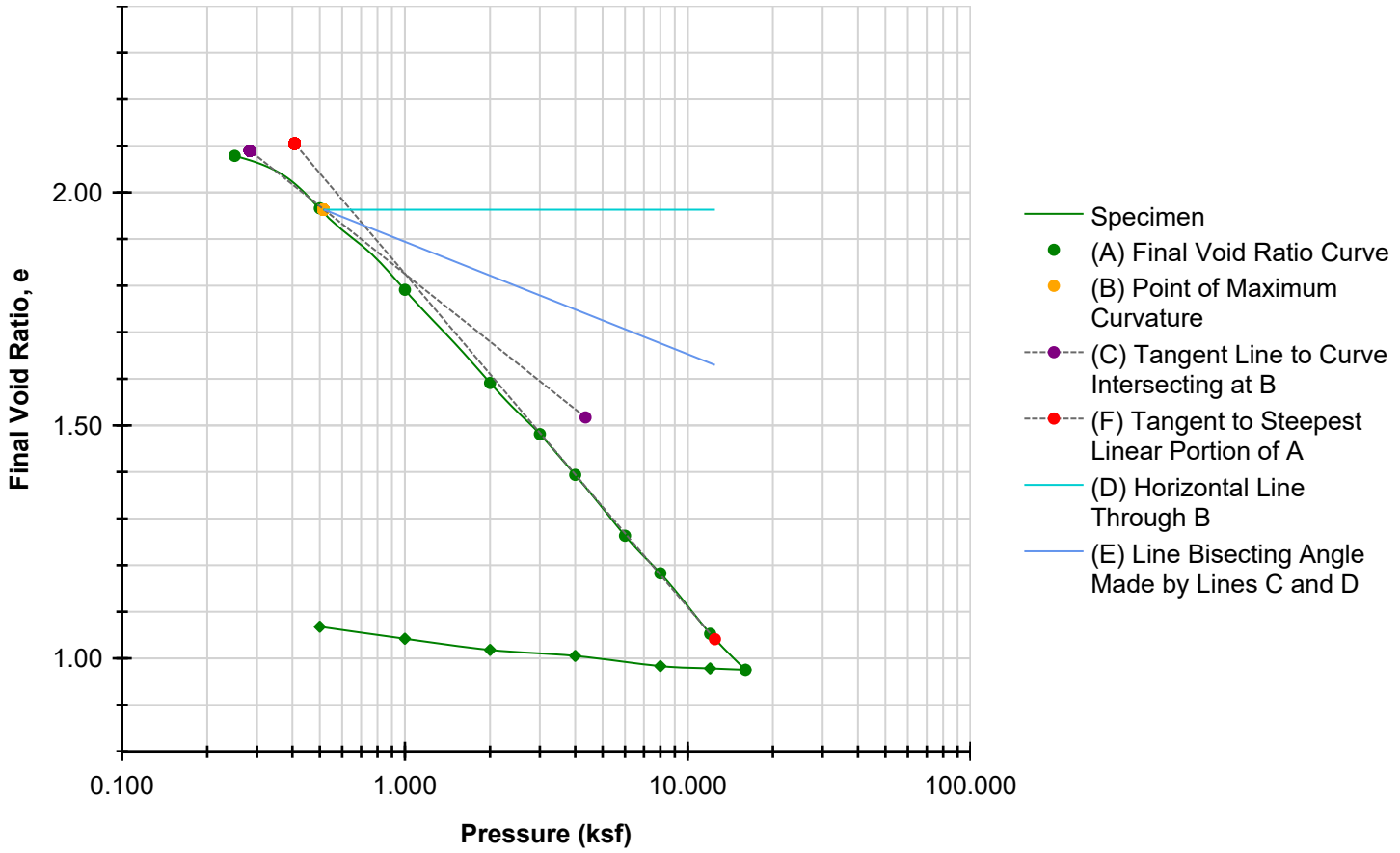
Mailing: PO Box 515, Gardiner, ME 04345
Office: 210 Maine Avenue, Farmingdale, ME 04344

Reviewed By: ELS

Summit Geoengineering Services
210 Maine Avenue
Farmingdale, Maine 04344
207-446-3360

Final Voids [Log]

ASTM D2435



Preconsolidation Stress (ksf)	0.717	**Cc**	0.711	**Cr**	0.059

	BEFORE	AFTER			
			Liquid Limits	0	**Test Date** 5/6/2024
Moisture (%)	66.5	57.7	**Plastic Limits**	0	
Dry Density (pcf)	47.4	63.9			
Saturation (%)	73.8	103.1			
Void Ratio	2.16	1.34	**Specific Gravity**	2.4	ASSUMED

Sample Description	Dark brown Organic SILT, frequent Organic fibers, occasional fine Sand lenses, soft, moist,			
Project Number	24056	**Depth (ft)**	4.2' - 7'	**Remarks**
Sample Number	S-2b+3	**Boring Number**	B-1	
Project	Horticulture Greenhouse			
Client	Arcadia Designworks			
Location	SMCC Midcoast Campus, Brunswick, ME			

SUMMIT
GEOENGINEERING SERVICES

THIN WALLED TUBE SAMPLING - ASTM D1587

PROJECT NAME:	Horticulture Greenhouse	PROJECT #:	24056
PROJECT LOCATION:	SMCC Midcoast Campus, Brunswick, ME	CLIENT:	Arcadia Designworks
COLLECTION DATE:	4/30/2024	SAMPLE #:	UT-1
TEST DATE:	5/9/2024	TECHNICIAN:	Colleen Sullivan, E.I.

Test Boring Information

Boring Number: B-1
Drilling Method: Direct Push
Drilling Tooling: 3-inch Casing
Sampling Method: Tube Push

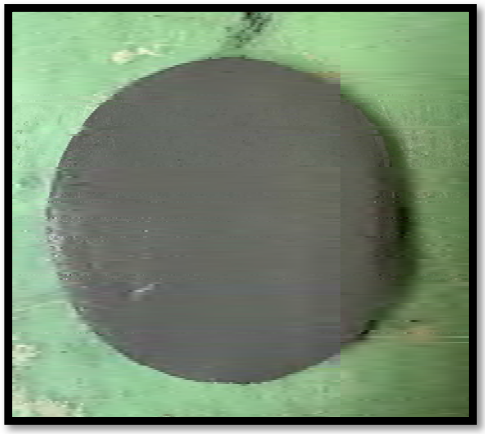
Sample Information

Tube Length: 30"
Recovery: 26"
Tube Diameter: 2.5"
Depth: 20' - 22.5'

Trial / Specimen Number	Moisture Content	Unit Weight	Torvane
1	37.6%	122 pcf	300 psf
2	36.5%	120 pcf	200 psf
3	38.7%	121 pcf	300 psf
Average	37.6%	121 pcf	260 psf

Visual Description (ASTM D2488):

Gray Silty CLAY, occasional black Organic streaks, very soft, wet, CL



Photograph of cross sectional sample view.

Photograph of longitudinal sample view.

REMARKS:

Reviewed By: ELS

Mailing: PO Box 515, Gardiner, ME 04345
Office: 210 Maine Avenue, Farmingdale, ME 04344

SUMMIT
GEOENGINEERING SERVICES

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS - ASTM D2166

PROJECT NAME:	Horticulture Greenhouse	PROJECT #:	24056
PROJECT LOCATION:	SMCC Midcoast Campus, Brunswick, ME	CLIENT:	Arcadia Designworks
COLLECTION DATE:	4/30/2024	TECHNICIAN:	Colleen Sullivan, E.I.
TEST DATE:	5/9/2024	CHECKED BY:	Erika Stewart, P.E.

Sample & Testing Information

Boring Number:	B-1	**Trimming Method:**	Tube	
Sample Number:	UT-1	**Liquid Limit (LL):**	32	
Sample Depth:	20' - 22.5'	**Plasticity Index (PI):**	9	
Sample Type:	Shelby Tube	**Rate of Strain:**	0.1	in/min
Sample State:	Intact	**H/D Ratio:**	2.2	

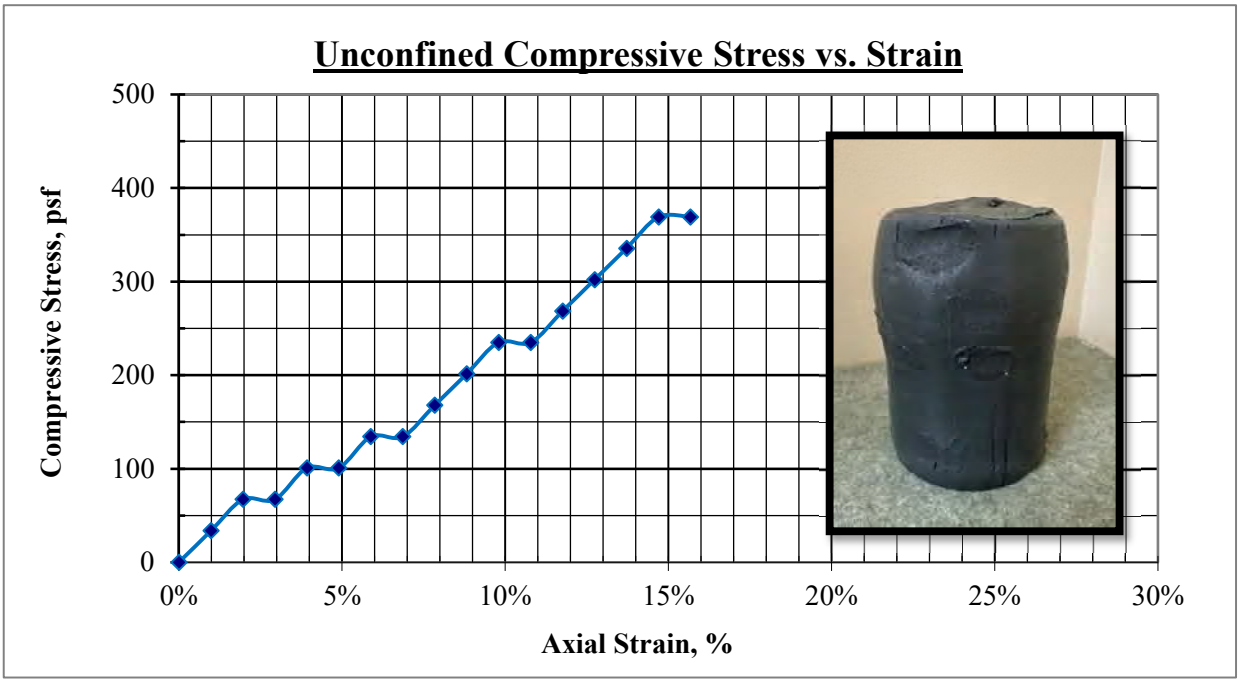
Sample Height:	5.10	in	**Sample Mass:**	705.4 g
Sample Diameter:	2.34	in	**Moisture Content:**	38.7%
Sample Volume:	21.87	in^3	**Moist Unit Weight:**	123 pcf
Cross Sectional Area:	4.29	in^2	**Dry Density:**	89 pcf

Sample Description & Classification

Gray Silty CLAY, occasional black Organic streaks, very soft, wet, CL

Test Results

Unconfined Compressive Strength:	360	psf	**Strain at Failure:**	15%
Shear Strength:	180	psf	**Failure Type:**	Bulge



REMARKS:

Mailing: PO Box 515, Gardiner, ME 04345
Office: 210 Maine Avenue, Farmingdale, ME 04344

SUMMIT
GEOENGINEERING SERVICES

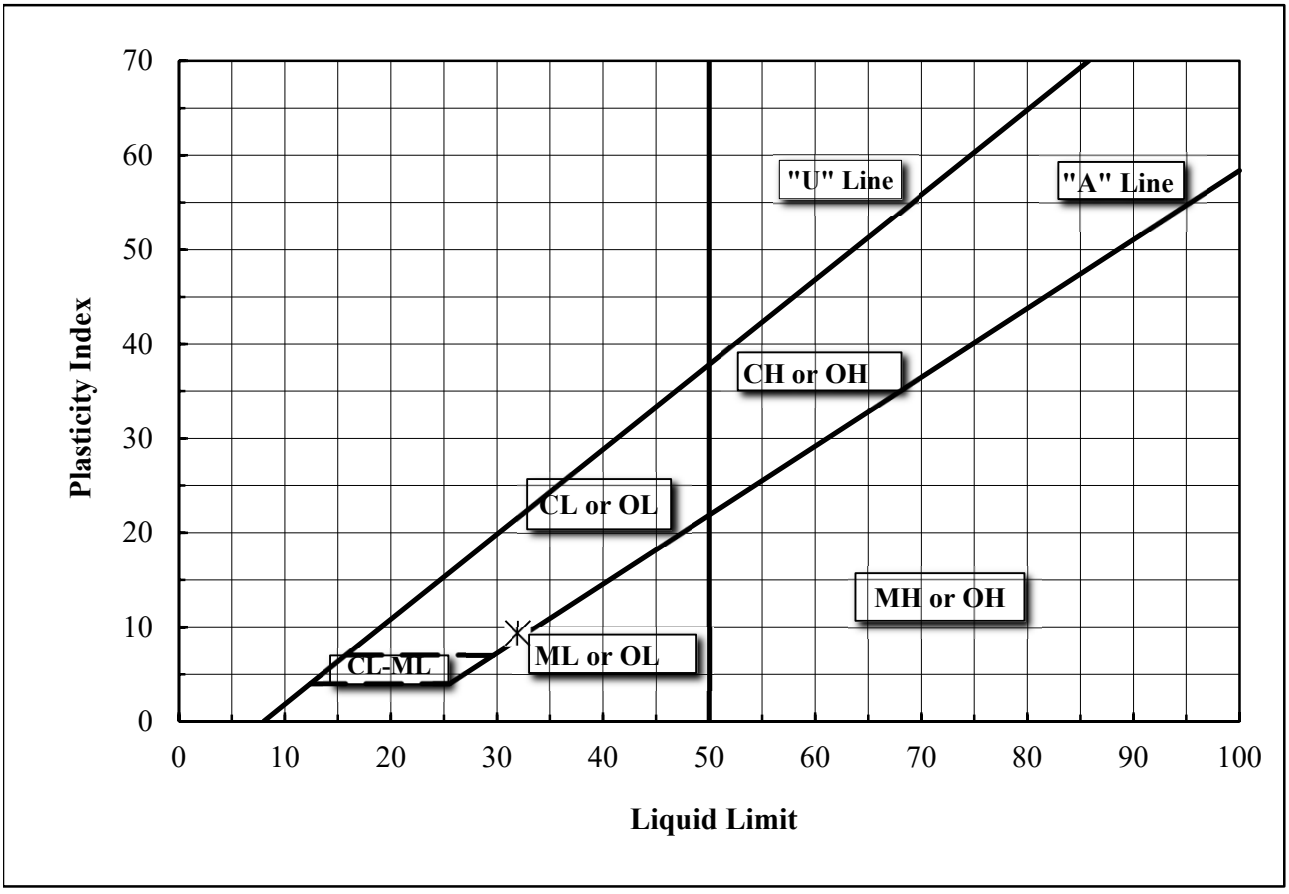
ATTERBERG LIMIT TEST - ASTM D4318

Method "A" (Multi-point)

PROJECT NAME:	Horticulture Greenhouse	PROJECT NUMBER:	24056
LOCATION:	SMCC Midcoast Campus, Brunswick, ME	SAMPLE NUMBER:	UT-1
CLIENT:	Arcadia Designworks	DEPTH:	20' - 22.5'
TEST DATE:	5/9/2024	TECHNICIAN:	Colleen Sullivan, E.I.

DATA

Source	Depth	LL	PL	PI	Classification
B-1	20' - 22.5'	32	23	9	Gray Silty CLAY, occasional black Organic streaks, CL



Notes: Moisture Content = 37.5%

Reviewed By: ELS

Mailing: PO Box 515, Gardiner, ME 04345
Office: 210 Maine Avenue, Farmingdale, ME 04344

Maine Environmental Laboratory

Report of Analyses

One Main Street, Yarmouth, ME 04096 Tel.: 207-846-6569 FAX: 207-846-9066 Email: melab@mel-lab.com

Colleen Sullivan
Summit Geoengineering Services
210 Maine Ave.
Farmingdale, ME 04344

May 10, 2024

Report ID:	17370-240510-0911	Sample ID:	24056 B-1,5-2b 4.2'-5'
Batch ID:	SME 17370	Sample date:	04/30/24 12:00
Date received:	05/02/24	Sample matrix:	SU
Project ID:	Horticulture Greenhouse	Laboratory ID:	240502K001

Parameter	Results	Units	Date Analyzed	Time Analyzed	LOQ	Method	Tech
Moisture	42.58	%	05/03/24	16:00	0.01	SM2540G	AD
Organic Matter	19.87	%	05/07/24	13:34	0.01	D2947	AD

Notes:

Maine Environmental Laboratory

Report of Analyses

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Colleen Sullivan
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210 Maine Ave.
Farmingdale, ME 04344

May 10, 2024

Report ID:	17370-240510-0911	Sample ID:	24056 B-1,5-3 5'-7'
Batch ID:	SME 17370	Sample date:	04/30/24 12:00
Date received:	05/02/24	Sample matrix:	SU
Project ID:	Horticulture Greenhouse	Laboratory ID:	240502K002

Parameter	Results	Units	Date Analyzed	Time Analyzed	LOQ	Method	Tech
Moisture	43.39	%	05/03/24	16:00	0.01	SM2540G	AD
Organic Matter	18.92	%	05/07/24	13:34	0.01	D2947	AD

Notes:

Maine Environmental Laboratory

Report of Analyses

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Colleen Sullivan
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Farmingdale, ME 04344

May 10, 2024

Report ID:	17370-240510-0911	Sample ID:	24056 B-1,5-4 7'-9'
Batch ID:	SME 17370	Sample date:	04/30/24 12:30
Date received:	05/02/24	Sample matrix:	SU
Project ID:	Horticulture Greenhouse	Laboratory ID:	240502K003

Parameter	Results	Units	Date Analyzed	Time Analyzed	LOQ	Method	Tech
Moisture	28.51	%	05/03/24	16:00	0.01	SM2540G	AD
Organic Matter	4.26	%	05/07/24	13:34	0.01	D2947	AD

Notes:

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Colleen Sullivan
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May 10, 2024

Report ID:	17370-240510-0911	Sample ID:	24056 B-2,5-3b 5.7'-7'
Batch ID:	SME 17370	Sample date:	04/30/24 15:00
Date received:	05/02/24	Sample matrix:	SU
Project ID:	Horticulture Greenhouse	Laboratory ID:	240502K004

Parameter	Results	Units	Date Analyzed	Time Analyzed	LOQ	Method	Tech
Moisture	47.38	%	05/03/24	16:00	0.01	SM2540G	AD
Organic Matter	20.60	%	05/07/24	13:34	0.01	D2947	AD

Notes:

Maine Environmental Laboratory

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Colleen Sullivan
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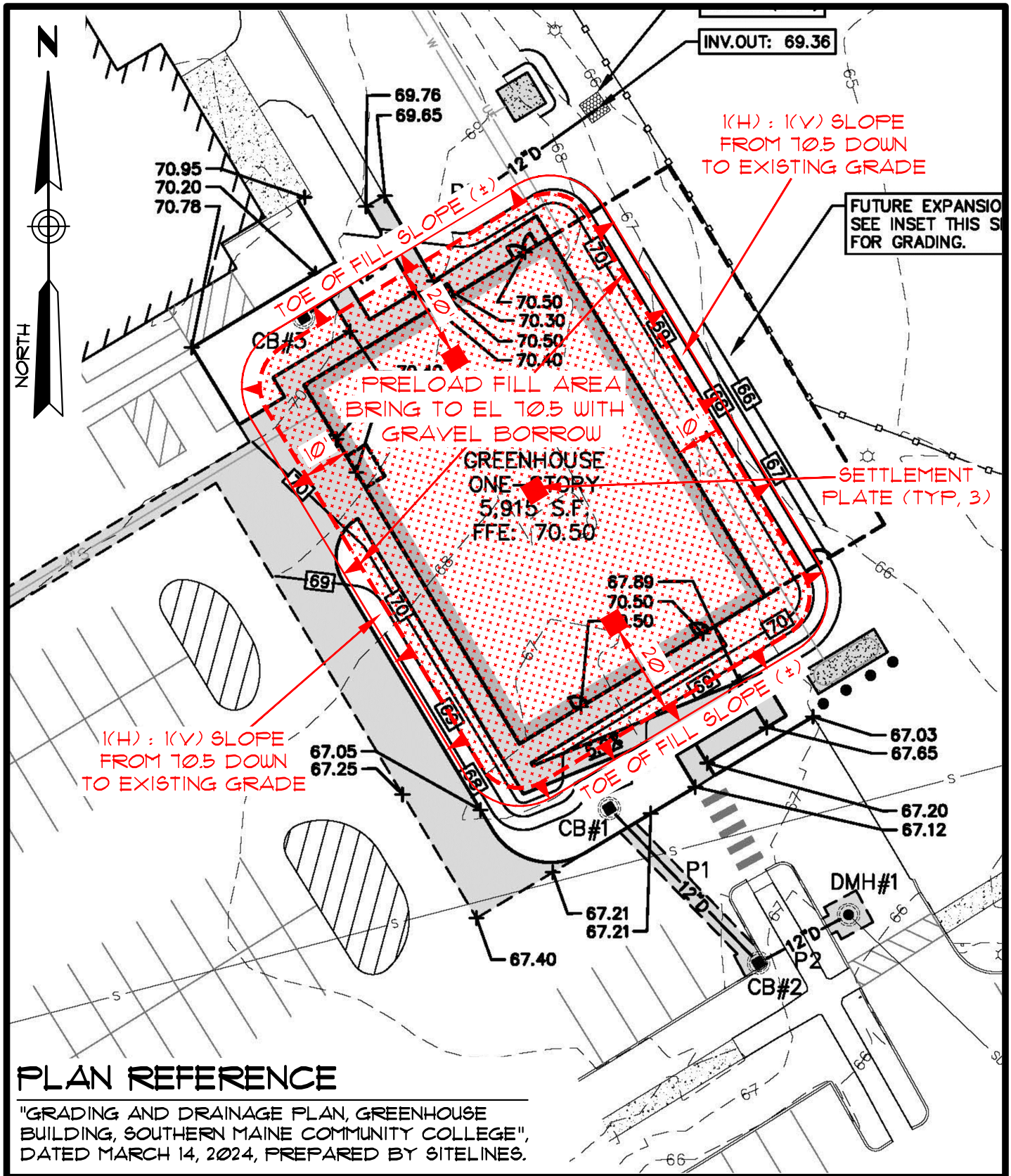
Farmingdale, ME 04344

May 10, 2024

Report ID:	17370-240510-0911	Sample ID:	24056 B-2,5-4 7'-9'
Batch ID:	SME 17370	Sample date:	04/30/24 15:00
Date received:	05/02/24	Sample matrix:	SU
Project ID:	Horticulture Greenhouse	Laboratory ID:	240502K005

Parameter	Results	Units	Date Analyzed	Time Analyzed	LOQ	Method	Tech
Moisture	47.12	%	05/03/24	16:00	0.01	SM2540G	AD
Organic Matter	22.68	%	05/07/24	13:34	0.01	D2947	AD

Notes:



PLAN REFERENCE

"GRADING AND DRAINAGE PLAN, GREENHOUSE BUILDING, SOUTHERN MAINE COMMUNITY COLLEGE", DATED MARCH 14, 2024, PREPARED BY SITELINES.

PRELOAD PLAN

HORTICULTURE GREENHOUSE

SMCC MIDCOAST CAMPUS - BRUNSWICK, ME

PREPARED FOR

ARCADIA DESIGNWORKS

DATE: 10-15-2024	DRAWN BY: KRF	CHECKED BY: CRS
JOB: 24056.1	SCALE: 1" = 30'	FILE: 24056.1 PRELOAD

OFFICE: 210 MAINE AVENUE
FARMINGDALE, MAINE
TEL.: (207) 446-3360

MAIL: P.O. BOX 515
GARDINER, ME 04345

SUMMIT
GEOENGINEERING SERVICES
www.summitgeoeng.com

CONSTRUCTION, SETUP, AND PLACEMENT

1) STRIP ORGANIC TOPSOIL, BRUSH, AND FROZEN GROUND FROM WITHIN THE PRELOAD FILL AREA.
2) LEVEL AREA OF PLATE AND PLACE PLATE AT THE SELECTED LOCATIONS, LEVEL, AND PLACE BACKFILL ON THE PLATE TO STABILIZE IT.
3) NOTE THE DATE THE SETTLEMENT PLATE WAS INSTALLED.

INSTRUMENT SETUP AND INITIAL READINGS

1) THE SURVEY INSTRUMENT SHOULD BE SET UP IN THE SAME LOCATION FOR ALL READINGS. SET UP SHOULD BE OUTSIDE THE PRELOAD FILL AREA.
2) THE INITIAL READING SHOULD BE TAKEN ON THE TOP OF THE STEEL PIPE IMMEDIATELY AFTER PLACEMENT OF THE STABILIZING FILL ON THE PLATE. PLACE A MARK WHERE THE SURVEY ROD WAS HELD. RECORD THIS AS THE INITIAL PLATE ELEVATION. READINGS SHALL BE TAKEN TO THE NEAREST 0.01 FT. RECORD THE GROUND SURFACE AT THE PLATE.
3) A REFERENCE BENCHMARK AND BACKUP BENCHMARK SHOULD BE SET OUTSIDE OF THE PRELOAD FILL AREA. ALL READINGS SHALL BE REFERENCED TO THE BENCHMARK.

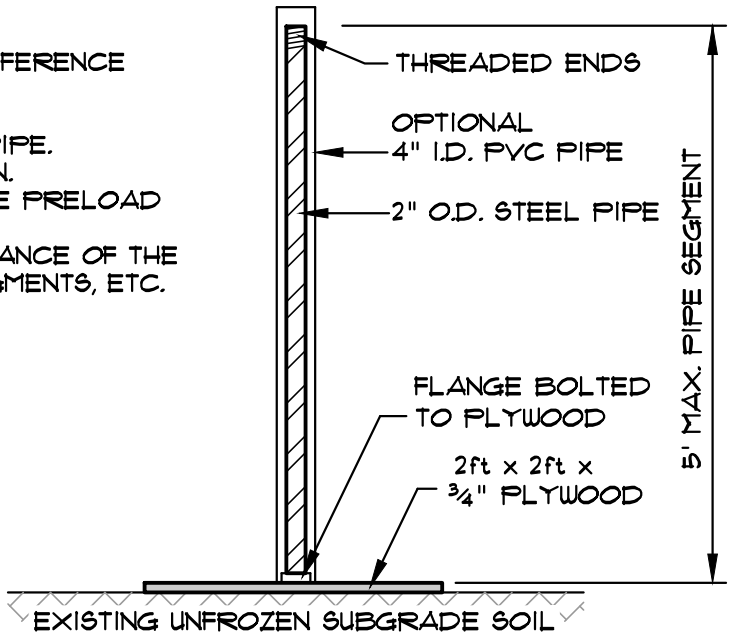
PLACEMENT OF FILL

1) PLACE THE PRELOAD FILL AS DIRECTED IN THE GEOTECHNICAL REPORT. COMPACTION IS NOT NECESSARY WHERE THE PRELOAD FILL WILL BE REMOVED.
2) AS THE PRELOAD FILL REACHES THE TOP OF THE PIPE ADDITIONAL STEEL PIPES SHALL BE INSTALLED. PRIOR TO INSTALLING THE NEXT LENGTH OF STEEL PIPE TAKE A READING ON THE TOP OF EXISTING PIPE SEGMENT. THEN TAKE A READING ON THE TOP OF THE NEW SEGMENT. TAKE A READING ON THE SURFACE OF THE FILL WHEN READING THE SETTLEMENT PLATE PIPE.
3) CONTINUE PLACING BACKFILL AND ADDING NEW PIPE SEGMENTS UNTIL THE PRELOAD FILL IS COMPLETED. NOTE THE DATE THAT THE FILL WAS COMPLETED.
4) CARE SHOULD BE TAKEN WHEN BACKFILLING AROUND THE PIPE. THE PIPE AND/OR SLEEVE SHALL BE PAINTED OR OTHERWISE MARKED AND/OR BARRICADED. IF THE PIPE IS DISTURBED IT SHOULD BE ABANDONED. AFTER STRAIGHTENING TAKE AN ELEVATION READING ON THE TOP OF THE PIPE AND MAKE A NOTE IT WAS ADJUSTED.

SETTLEMENT MONITORING

THE FOLLOWING INFORMATION SHALL BE RECORDED, AT A MINIMUM, FOR EACH READING:

A) THE INSTRUMENT READERS NAME.
B) THE DATE OF THE READING.
C) THE BACK SIGHT READING TO THE REFERENCE BENCHMARK.
D) THE FORESIGHT TO THE PIPE RIM.
E) THE ELEVATION OF THE TOP OF THE PIPE.
F) THE ADDITION OF A NEW PIPE SECTION.
G) THE APPROXIMATE ELEVATION OF THE PRELOAD BACKFILL.
H) ANY COMMENTS REGARDING DISTURBANCE OF THE PIPE, THE ADDITION OF NEW PIPE SEGMENTS, ETC.



SETTLEMENT PLATE DETAIL

SETTLEMENT PLATE DETAIL

HORTICULTURE GREENHOUSE

SMCC MIDCOAST CAMPUS - BRUNSWICK, ME

PREPARED FOR

ARCADIA DESIGNWORKS

DATE: 10-14-2024	DRAWN BY: KRF	CHECKED BY: CRS
JOB: 24056.1	NOT TO SCALE	FILE: 24056.1 PRELOAD

OFFICE: 210 MAINE AVENUE
FARMINGDALE, MAINE
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