Foundation Design, P.C.

SOIL • BEDROCK • GROUNDWATER

July 3, 2024

The Fowler Family Trust
6176 Hunters Drive
Farmington, New York 14425

Attention: Jim Fowler

Reference: 6240 Pheasant Crossing
Farmington, New York
Hand Hole summary and Geotechnical Consultation, 4906.1

Dear Mr. Fowler:

This letter presents our supplemental assessment of the (geotechnical) feasibility of constructing a new residence on Parcel C after direction from the Town Planning Board concerning on site investigation. We had previously walked the site in August of 2023 and then again in May of 2024 to check for signs of slope instability and, in May, reviewed the current Venezia survey with the conceptual building layout and generalized soils mapping. Both earlier assessments have been submitted previously. More recently, we again walked the site and performed four hand holes to confirm the subsurface soils conditions. Based on this updated information we remain confident that the site can reasonably support construction of a new residence. As described below, the new residence can be situated directly at the top of the slope with little to no setback.

The potential house location is now defined as at the top of a 20 foot to 24 foot tall slope. The ground surface in this area is approximately elevation 630 to 634. The gradient of this slope is about 5H on 2V. While this is somewhat steep it would not be excessively steep for the appropriate soil type/conditions. Soil conservation service mapping indicates that the soils are Palmyra and Howard soils, consisting of gravel and sand. Our hand holes showed eight to twelve inches of topsoil over firm brown damp to moist native soil. The native soil was generally sandy with portions gravel and silt. We performed two sieve analysis tests on gallon-size bag samples. These classify the soil as ML in the Unified Soil Classification System. We noted a few cobbles on the ground surface. Such large aggregate were not necessarily included in the field sample but would only add to the overall stability of the hillside. These descriptions reasonably correlate with the anticipated Palmyra and Howard soils in terms of slope stability/integrity. This new, field data confirms our earlier judgement about the stability of the soil.

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Furthermore, now that the house location has been roughly defined by the setback limits, we can discuss the required lower level/slab elevation in more detail. The basic Residential Code requirement is that the foundations be set at an elevation such that the separation from the face of the slope is greater than or equal to one third of the height of the slope (H/3). For this slope height that would be about eight feet. As Geotechnical Engineers who have analyzed the specific soils conditions herein we feel that the Code requirements are fairly conservative. Nevertheless and sticking to the basic Code requirements, if we assume that the lower (basement) level of the structure is at elevation 525 we see that the horizontal separation from the basement to the face of the slope is about 15 feet, well over the Code requirement. If the slab was raised up as high as elevation 528, the subslab footings would still have the required horizontal separation from the face of the slope. While this is subject to final site grading design you can see that there are numerous combinations of location and elevation that will satisfy this basic Code requirement.

At this point we can continue to conclude that, geotechnically, this is a 'buildable lot'.

Let me know if you need us to further assess the situation.

Sincerely,

FOUNDATION DESIGN, P.C.

James M. Baker, P.E.
President

Enc.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are <u>not</u> final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are <u>Not</u> Covered

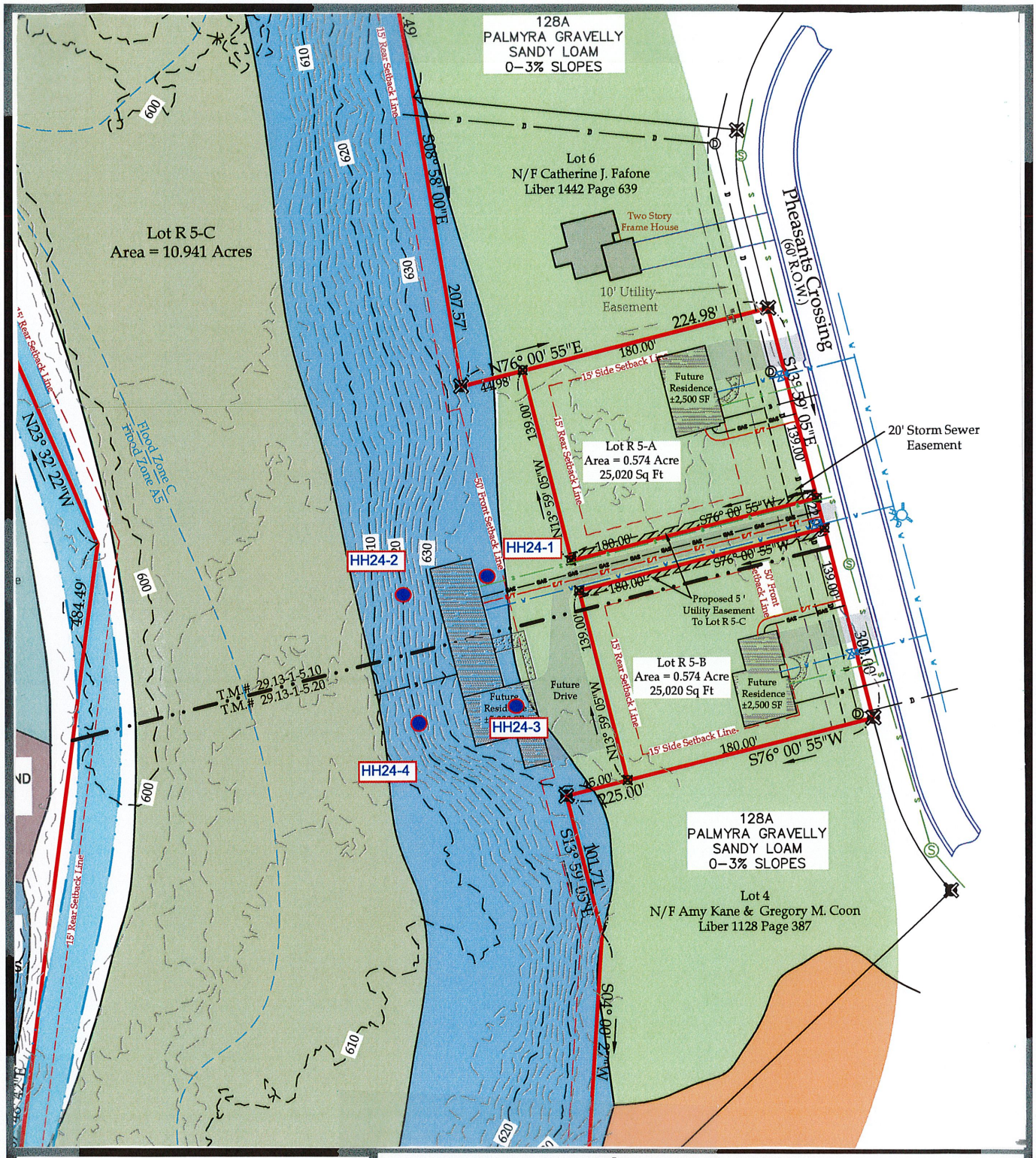
The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will <u>not</u> of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are <u>not</u> building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org



Foundation Design, P.C.

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Pheasant Crossing

Lot R5-A and R5-B, Pheasants Crossing Subdivision, Farmington, NY 14425

Handhole Location Plan

Adapted from: Venezia Professional Land Surveyors site plan "Lot R5-A and R5-B, Pheasants Crossing Subdivision Tract" dated 4/28/2023

CHECKED BY: JMB
DRAWN BY: LSK
Scale: 1" = 100'
DATE: 6/27/24
JOB NO.: 4906.0

Foundation Design, P.C.

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July 2, 2024

The Fowler Family Trust
6176 Hunters Drive
Farmington, New York 14425

Attention: Jim Fowler

Reference: 6240 Pheasant Crossing
Farmington, New York
Laboratory Test Results, 4906.1

Dear Mr. Fowler:

Foundation Design, P.C. is pleased to present the following results of the laboratory testing performed on the referenced project. The testing was performed in accordance with the following ASTM test methods:

2	Sieve Analysis	ASTM D-1140

We appreciate the opportunity to provide these testing services and look forward to hearing from you again in the near future.

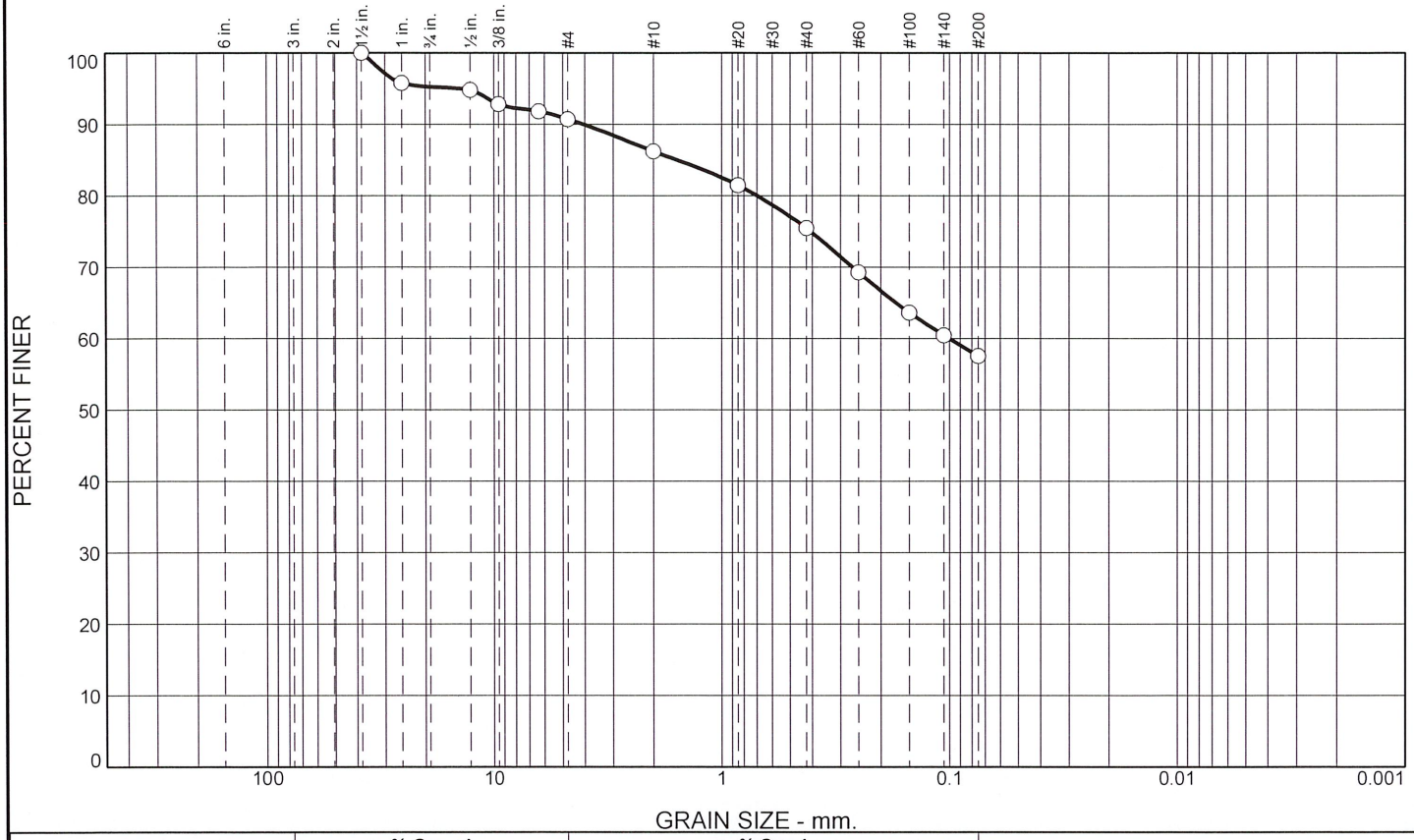
Sincerely,

FOUNDATION DESIGN, P.C.

Ryan Radford, P.E.
Vice President

Particle Size Distribution Report

ASTM D422 & D1140



% +3"	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
0	5	4	5	11	17	58

Test Results (ASTM D422 & D1140)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1.5"	100			
1"	96			
1/2"	95			
3/8"	93			
1/4"	92			
#4	91			
#10	86			
#20	81			
#40	75			
#60	69			
#100	64			
#140	60			
#200	58			

* (no specification provided)

Material Description

ML: Light brown sandy silt per ASTM D-2488

Atterberg Limits

PL= LL= PI=

Classification

USCS= AASHTO=

Test Remarks

Test performed on 620.83 grams of oven dried sample

Source of Sample: TP24-1 **Depth:** 1'6"
Sample Number: S-1 **Sample Date:** 07/02/2024

Foundation Design, P.C.

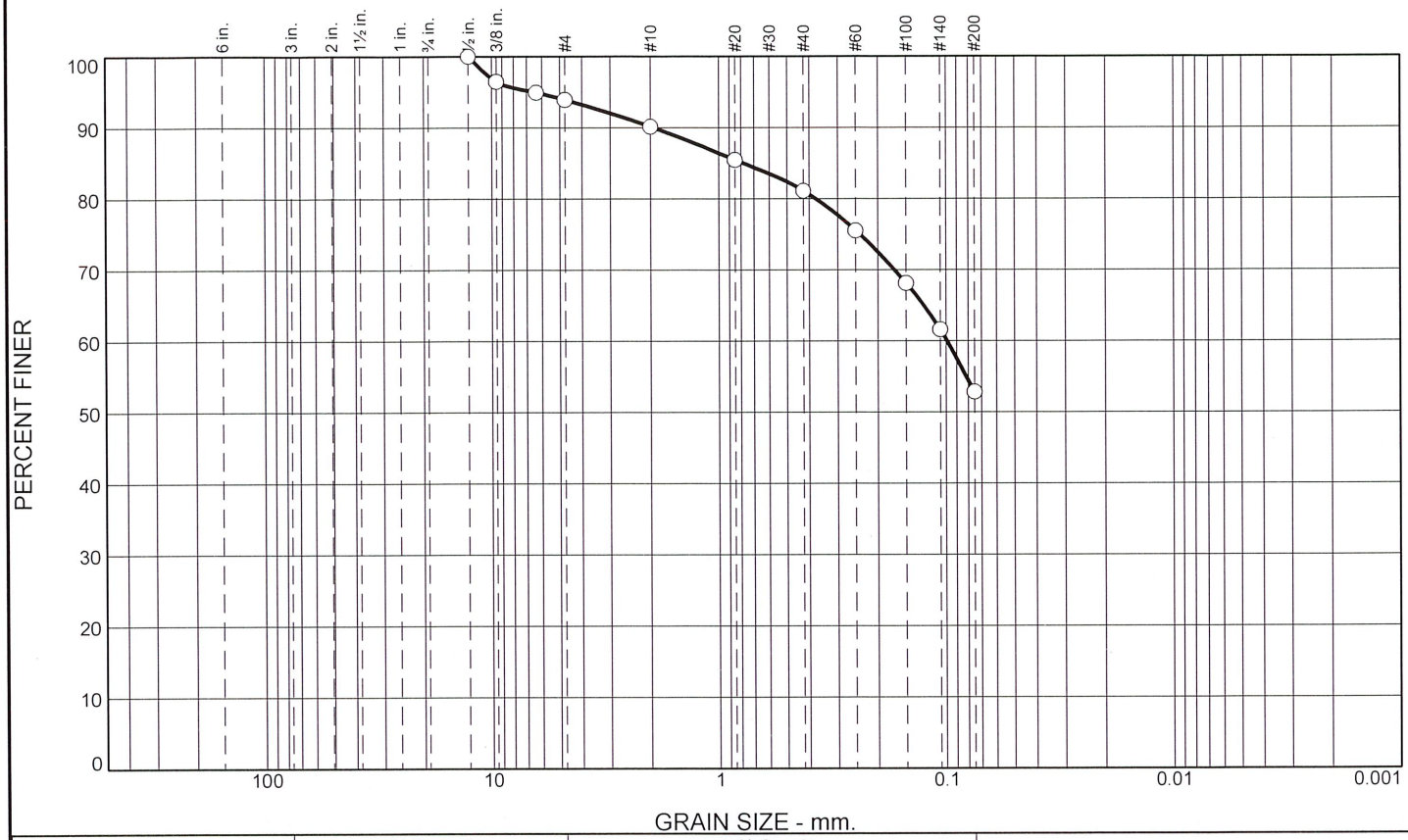
Client: The Fowler Family Trust, 6176 Hunters Dr, Farmington, NY
Project: 6240 Pheasant Crossing, Farmington, NY

Project No: 4906.1 **Figure**

Tested By: ZW **Checked By:** RJR

Particle Size Distribution Report

ASTM D422 & D1140



% +3"	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
0	0	6	4	9	28	53

Test Results (ASTM D422 & D1140)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1/2"	100			
3/8"	96			
1/4"	95			
#4	94			
#10	90			
#20	85			
#40	81			
#60	76			
#100	68			
#140	62			
#200	53			

* (no specification provided)

Material Description

ML: Light red-brown sandy silt per ASTM D-2488

Atterberg Limits

PL= LL= PI=

Classification

USCS= AASHTO=

Test Remarks

Test performed on 571.52 grams of oven dried sample

Source of Sample: TP24-2 **Depth:** 2'
Sample Number: S-1

Sample Date: 07/02/2024

Foundation Design, P.C.

Client: The Fowler Family Trust, 6176 Hunters Dr, Farmington, NY
Project: 6240 Pheasant Crossing, Farmington, NY

Project No: 4906.1 **Figure**

Tested By: ZW **Checked By:** RJR

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(585) 458-0824
www.foundationdesignpc.com

JOB Fowler, # 4906

SHEET NO. _____ OF _____

CALCULATED BY JAE DATE 6/26/11

CHECKED BY _____ DATE _____

SCALE _____