

EXHIBIT I

Geotechnical Engineering Study



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**GEOTECHNICAL ENGINEERING STUDY
NOLL POINTE
EAST OF NORTHEAST LINCOLN ROAD AND MARANATHA LANE NORTHEAST
POULSBO, WASHINGTON**

ES-10258



Geotechnical Engineering



Environmental Services



Earthwork Observation & Testing

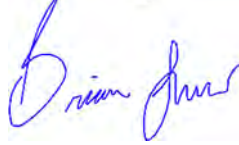


CESCL & Stormwater Services

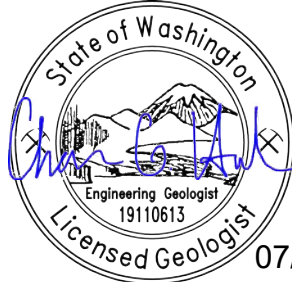
esnw.com

PREPARED FOR
Entitle Fund Five, LLC

January 27, 2025
Updated July 29, 2025



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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 site-wide 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 not 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 Not 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 not 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 not building-envelope or mold specialists.*



GEOPROFESSIONAL
BUSINESS
ASSOCIATION

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January 27, 2025
Updated July 29, 2025
ES-10258

JKM Holdings, LLC
PO Box 188
Puyallup, Washington 98371

Attention: Geoff Sherwin

Greetings:

Earth Solutions NW, LLC (ESNW) is pleased to present this geotechnical report regarding the proposed residential development. Based on the results of our investigation, the project is considered feasible from a geotechnical standpoint. Our field observations indicate that the site area is underlain primarily by glacial till soils consisting mainly of silty sand. Groundwater was not encountered within the explored depth of the test pit locations during the December 2024 fieldwork.

Based on the results of our investigation, it is our opinion that the proposed residential homes can be supported on conventional spread and continuous foundation systems that are supported directly on competent native soil, recompacted native soil, or new structural fill that is placed and compacted directly on competent native soil. Based on our observations, competent native soil considered suitable for direct foundation support is anticipated to begin at a depth of about two to three feet below the existing ground surface. In general, where loose or unsuitable soil conditions are exposed at foundation subgrade elevations, compaction of the soil to the specifications of structural fill or overexcavation and replacement with suitable structural fill will be necessary.

In our opinion, on-site infiltration should be considered infeasible from a geotechnical standpoint. Further discussion and rationale regarding infiltration infeasibility is provided in this report.

This report provides geotechnical analyses and recommendations for the proposed residential development. The opportunity to be of service to you is appreciated. If you have any questions regarding the content of this geotechnical engineering study, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC



Brian C. Snow, L.G.
Senior Project Geologist

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**GEOTECHNICAL ENGINEERING STUDY
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INTRODUCTION

General

This geotechnical engineering study (study) was prepared for the proposed residential development to be constructed east of the intersection of Northeast Lincoln Road and Maranatha Lane Northeast, in Poulsbo, Washington. As part of our scope of services, the following tasks were completed:

- Subsurface exploration to characterize the soil and groundwater conditions.
- Laboratory testing of representative soil samples collected on site.
- Infiltration feasibility evaluation based on field observations and laboratory analyses.
- Engineering analyses and recommendations for the proposed construction.
- Preparation of this report.

Project Description

Per the referenced preliminary site plan, the project is pursuing the development of 69 residential lots, open space tracts, a stormwater detention tract, access roads, utilities, and associated infrastructure improvements. Site grading is anticipated to include cuts and/or fills of up to about 10 feet to establish level design elevations. We assume that retaining walls will be incorporated into the final design to accommodate grade transitions across the site. Stormwater management is currently proposed via a detention pond located within the northern extent of the project area.

At the time of report submission, specific building load values were not available for review; however, we anticipate the proposed residential structures will be two to three stories in height and constructed with relatively lightly loaded wood framing atop conventional foundation systems. Based on our experience with similar developments, we estimate perimeter footing loads of about 2 to 3 kips per linear foot and slab-on-grade loads of about 150 pounds per square foot (psf) will be incorporated into the final design.

If the above design assumptions either change or are incorrect, ESNW should be contacted to review the recommendations provided in this report. ESNW should also be contacted to review the final design to confirm that our geotechnical recommendations have been incorporated.

SITE CONDITIONS

Surface

The subject site is located east of the intersection of Northeast Lincoln Road and Maranatha Lane Northeast, in Poulsbo, Washington. The approximate site location is depicted on Plate 1 (Vicinity Map). The site consists of one tax parcel (Kitsap County Parcel No. 13260110182008) and totals about 15.05 acres of undeveloped and heavily forested land. Readily available Kitsap County topographic data indicates that site topography is undulating to gently sloping; an estimated 55 feet of total topographic relief occurs within the parcel boundaries.

The referenced site plan indicates a wetland is present in the central site area depression. The site is also mapped within Category I and II critical aquifer recharge areas, per county mapping resources.

Subsurface

An ESNW representative observed, logged, and sampled the excavation of 12 test pits within accessible site areas on December 12, 2024. The test pits were completed using a trackhoe and operator retained by ESNW. The purpose of the test pits was to assess and classify site soils and shallow groundwater conditions across the project area. The maximum exploration depth was approximately 14 feet below the existing ground surface (bgs).

The approximate locations of the test pits are depicted on Plate 2 (Subsurface Exploration Plan). Please refer to the exploration logs provided in Appendix A for a more detailed description of subsurface conditions. Representative soil samples collected at the exploration locations were analyzed in general accordance with Unified Soil Classification System (USCS) and United States Department of Agriculture (USDA) methods and procedures. The laboratory test results are provided in Appendix B.

Topsoil and Fill

Topsoil was encountered within the upper approximate 6 to 18 inches of existing grades. The topsoil was characterized by a dark brown hue, minor root intrusions, and trace organic matter.

Fill was not encountered at the test pit locations during the December 2024 field exploration.

Native Soil

Underlying topsoil, native soils were characterized primarily as silty sand (USCS: SM). The upper approximate two to three feet of existing grades were characterized as loose to medium dense. Thereafter, native soils were encountered in a dense to very dense condition and continued as such to the terminus of each test pit location. An isolated variation (silt soils) was locally encountered; however, silty sand should be considered the primary soil type underlying the site. The in-situ moisture content of the native soils was characterized as moist to wet at the time of the test pit exploration.

Geologic Setting

The referenced geologic map resource indicates that the site area is underlain by glacial till deposits (Qvt). These soils are characterized as a mostly dense sandy diamict. The online WSS resource identifies Kapowsin gravelly ashy loam and Poulsbo gravelly sandy loam across the site area. Both soil series are associated with glacial moraines (and terraces for the Poulsbo series); however, Kapowsin series soils are derived from glacial drift overlying glaciomarine soils, and Poulsbo series soils are derived from basal till. Based on the observed conditions, site soils are considered representative of glacial till soils in accordance with local mapping designations.

Groundwater

Groundwater was not encountered within the explored depths of the test pits during the December 2024 fieldwork. Groundwater is common within glacially derived deposits and may be exposed within site excavations at depth, particularly during the wet season. Groundwater seepage rates and elevations may fluctuate depending on many factors, including precipitation duration and intensity, the time of year, and soil conditions. In general, groundwater flow rates are higher during the winter, spring, and early summer months.

Geologically Hazardous Areas Review

The subject project area was evaluated for the presence of geologically hazardous areas in general accordance with Poulsbo Municipal Code (PMC) Chapter 16.20, Section 400. As part of this evaluation, ESNW also reviewed the referenced geological hazard areas map maintained by the City of Poulsbo. Geologically hazardous areas in Poulsbo are categorized as either geologically hazardous areas or areas of geologic concern. Based on the conditions observed during the December 2024 exploration, review of the PMC, and review of the geologic hazardous areas map, it is our opinion that neither geologically hazardous areas nor areas of geologic concern (as defined by the PMC) are present within the site vicinity.

DISCUSSION AND RECOMMENDATIONS

General

Based on the results of our investigation, construction of the proposed residential development is feasible from a geotechnical standpoint. The primary geotechnical considerations associated with the proposed project include earthwork, temporary excavations, subgrade preparation, foundation support, and drainage recommendations.

Site Preparation and Earthwork

Site preparation activities will likely consist of installing temporary erosion control measures, establishing grading limits, and performing site stripping. Subsequent earthwork activities will involve mass site grading and installation of infrastructure and stormwater management improvements.

Temporary Erosion Control

The following temporary erosion and sediment control (TESC) Best Management Practices (BMPs) should be considered:

- Temporary construction entrances and drive lanes, consisting of at least six inches of quarry spalls, should be considered to both minimize off-site soil tracking and provide stable surfaces at site entrances. Placing geotextile fabric underneath the quarry spalls will provide greater stability, if needed.
- Silt fencing should be placed around appropriate portions of the site perimeter.
- When not in use, soil stockpiles should be covered or otherwise protected to reduce the potential for soil erosion, especially during periods of wet weather.
- Temporary measures for controlling surface water runoff, such as interceptor trenches, sumps, or interceptor swales, should be installed prior to beginning earthwork activities.
- Dry soils disturbed during construction should be wetted to minimize dust and airborne soil erosion.

Additional TESC BMPs, as specified by the project civil engineer and indicated on the plans, should be incorporated into construction activities. TESC BMPs may be modified during construction as site conditions require and as approved by the site erosion control lead.

Excavations and Slopes

Based on the soil conditions observed at the test pit locations, the following allowable temporary slope inclinations, as a function of horizontal to vertical (H:V) inclination, may be used. The applicable Federal Occupational Safety and Health Administration and Washington Industrial Safety and Health Act soil classifications are also provided:

- | | |
|---|------------------------------|
| • Areas exposing groundwater seepage | 1.5H:1V (Type C) |
| • Loose to medium dense soil | 1.5H:1V (Type C) |
| • Dense to very dense native soil (hardpan) | 0.75H to 1H:1V (Type A to B) |

The presence of perched groundwater may cause localized sloughing of temporary slopes. An ESNW representative should be contacted to observe temporary and permanent slopes to confirm the slope inclinations are suitable for the exposed soil conditions and to provide additional excavation and slope recommendations, as necessary. If the recommended temporary slope inclinations cannot be achieved, temporary shoring may be necessary to support excavations. Permanent slopes should be planted with vegetation to enhance stability and to minimize erosion and should maintain a gradient of 2H:1V or flatter.

Structural Fill

Structural fill is defined as compacted soil placed in foundation, slab-on-grade, roadway, permanent slope, retaining wall, and utility trench backfill areas. Structural fill placed and compacted during site grading activities should meet the following specifications and guidelines:

- | | |
|----------------------------------|-------------------------------|
| • Structural fill material | Granular soil |
| • Moisture content | At or slightly above optimum |
| • Relative compaction (minimum) | 95 percent (Modified Proctor) |
| • Loose lift thickness (maximum) | 12 inches |

The existing soil may not be suitable for use as structural fill unless the soil is at (or slightly above) the optimum moisture content at the time of placement and compaction. The existing soils are moisture sensitive and may be difficult to use as structural fill during periods of wet weather. Soil shall not be placed dry of the optimum moisture content and should be evaluated by ESNW during construction. With respect to underground utility installations and backfill, local jurisdictions may dictate the soil type(s) and compaction requirements. Unsuitable material or debris must be removed from structural areas where encountered.

Slope Fill

Structural fill within sloping areas (where a “sloping area” is defined as an area inclined at 15 percent or steeper) should be placed on a level bench as depicted on Plate 3 (Slope Fill Detail). Benches must be “keyed” into the slope and subsequently filled and compacted with suitable structural fill before continuing to the next bench. Sloping finish grades should be “overbuilt” using a bench-style fill and cut to the design gradient to ensure a compacted slope face is maintained. ESNW should be contacted during construction to observe structural fill placement to confirm subgrade conditions and provide additional drainage recommendations, as necessary.

In-situ and Imported Soil

Based on the conditions observed during the subsurface exploration, the on-site soil is highly moisture sensitive. Successful use of the on-site soil as structural fill will largely be dictated by the moisture content at the time of placement and compaction. Remedial measures (likely aeration or cement treatment) may be necessary as part of site grading and earthwork activities. If the on-site soil cannot be successfully compacted, the use of imported soil may be necessary. In our opinion, a contingency should be provided in the project budget for the export of soil that cannot be successfully compacted as structural fill, particularly if earthwork operations take place during periods of extended rainfall activity. In general, soils with fines contents greater than 5 percent typically degrade rapidly when exposed to periods of rainfall.

Imported soil intended for use as structural fill should consist of a well-graded, granular soil with a moisture content that is at (or slightly above) the optimum level. During wet weather conditions, imported soil intended for use as structural fill should consist of a well-graded, granular soil with a fines content of 5 percent or less (where the fines content is defined as the percent passing the Number 200 sieve, based on the minus three-quarter-inch fraction).

Wet Season Grading

Earthwork activities that occur during the wet season may require additional measures to protect both structural subgrades and soil intended for use as structural fill. Site-specific recommendations can be provided at the time of construction and may include leaving cut areas several inches above design subgrade elevations, covering working surfaces with crushed rock, protecting structural fill soil from adverse moisture conditions, and additional TESC recommendations. ESNW can assist in obtaining a wet season grading permit if required by the governing jurisdiction.

Subgrade Preparation

Foundations should be constructed on competent native soil or structural fill placed directly on competent native soil. Loose or unsuitable soil conditions encountered below areas of footing and slab elements should be recompact or overexcavated and restored as recommended both in this study and by ESNW during construction. Uniform compaction of the foundation and slab subgrade areas will establish a relatively consistent subgrade condition below the foundation and slab elements. ESNW should be contacted to observe the foundation and slab subgrade prior to placing formwork. Supplementary recommendations for subgrade improvement can be provided at the time of construction and would likely include further mechanical compaction effort and/or overexcavation and replacement with suitable structural fill.

Foundations

Based on our findings, the proposed single-family residences can be constructed on conventional continuous and spread footing foundations that bear upon competent native soil, recompact native soil, or new structural fill that is placed and compacted directly on competent native soil. Based on our observations, competent native soil considered suitable for support of the proposed structures will likely be encountered beginning at a depth of about two to three feet bgs. Where loose or unsuitable soil conditions are exposed at foundation subgrade elevations, compaction of the soil to the specifications of structural fill or overexcavation and replacement with suitable structural fill will be necessary.

Provided the structures will be supported as described above, the following parameters may be used for design of the new foundations:

- Allowable soil bearing capacity 2,500 psf
- Passive earth pressure 300 pcf
- Coefficient of friction 0.40

A one-third increase in the allowable soil bearing capacity can be assumed for short-term wind and seismic loading conditions. The passive earth pressure and coefficient of friction values include a safety factor of 1.5. With structural loading as expected, total settlement in the range of one inch is anticipated, with differential settlement of about one-half inch. Most of the anticipated settlement should occur during construction as dead loads are applied.

Retaining Walls

Retaining walls must be designed to resist earth pressures and applicable surcharge loads. The following parameters may be used for retaining wall design:

- Active earth pressure (unrestrained condition) 35 pcf
- At-rest earth pressure (restrained condition) 55 pcf
- Traffic surcharge* (passenger vehicles) 70 psf (rectangular distribution)
- Passive earth pressure 300 pcf
- Coefficient of friction 0.40
- Seismic surcharge 8H psf**

* Where applicable.

** Where H equals the retained height (in feet).

The passive earth pressure and coefficient of friction values include a safety factor of 1.5. Additional surcharge loading from adjacent foundations, sloped backfill, or other loads should be included in the retaining wall design.

Retaining walls should be backfilled with free-draining material that extends along the height of the wall and a distance of at least 18 inches behind the wall. The upper 12 inches of the wall backfill may consist of a less permeable soil, if desired. Drainage should be provided behind retaining walls such that hydrostatic pressures do not develop. If drainage is not provided, hydrostatic pressures should be included in the wall design. A perforated drainpipe should be placed along the base of the wall and connected to an approved discharge location. A typical retaining wall drainage detail is provided on Plate 4.

Seismic Design

The 2021 International Building Code (2021 IBC) recognizes ASCE 7-16 (formally known as the Minimum Design Loads and Associated Criteria for Buildings and Other Structures manual) for seismic design, specifically with respect to earthquake loads. Based on the soil conditions encountered at the test pit locations, the parameters and values provided below are recommended for seismic design per the 2021 IBC.

Parameter	Value
Site Class	C*
Mapped short period spectral response acceleration, S_s (g)	1.354
Mapped 1-second period spectral response acceleration, S_1 (g)	0.477
Short period site coefficient, F_a	1.2
Long period site coefficient, F_v	1.5
Adjusted short period spectral response acceleration, S_{MS} (g)	1.634
Adjusted 1-second period spectral response acceleration, S_{M1} (g)	0.716
Design short period spectral response acceleration, S_{DS} (g)	1.083
Design 1-second period spectral response acceleration, S_{D1} (g)	0.477

* Assumes very dense soil conditions, encountered to a maximum depth of 14 feet bgs during the December 2024 field exploration, remain very dense to at least 100 feet bgs. Based on our experience with the project geologic setting (glacial till) across the Puget Sound region, soil conditions are likely consistent with this assumption.

Liquefaction is a phenomenon where saturated or loose soil suddenly loses internal strength and behaves as a fluid. This behavior is in response to increased pore water pressures resulting from an earthquake or another intense ground shaking. In our opinion, site susceptibility to liquefaction may be considered very low to negligible. The absence of a uniformly established, shallow groundwater table and the relatively consistent density of the native soils were the primary bases for this opinion.

Slab-on-Grade Floors

Slab-on-grade floors should be supported on firm and unyielding subgrades consisting of competent native soil or compacted, firm, and unyielding structural fill. Unstable or yielding areas of the subgrade should be recompacted or overexcavated and replaced with suitable structural fill prior to slab construction.

A capillary break consisting of a minimum of four inches of free-draining crushed rock or gravel should be placed below the slab. The free-draining material should have a fines content of 5 percent or less, which is defined as the percent passing the Number 200 sieve, based on the minus three-quarter-inch fraction. In areas where slab moisture is undesirable, installation of a vapor barrier below the slab should be considered. If used, the vapor barrier should consist of a material specifically designed to function as a vapor barrier and should be installed in accordance with the manufacturer's specifications.

Utility Support and Trench Backfill

In our opinion, the on-site soil will generally be suitable for support of utilities. Remedial measures may be necessary in some areas to provide support for utilities, such as overexcavation and replacement with structural fill or placement of geotextile fabric. Groundwater seepage may be encountered within utility excavations, and caving of trench walls may occur where groundwater is encountered. Depending on the time of year and conditions encountered, dewatering or temporary trench shoring may be necessary during utility excavation and installation.

The on-site soil may not be suitable for use as structural backfill throughout utility trench excavations unless the soil is at (or slightly above) the optimum moisture content at the time of placement and compaction. Moisture conditioning of the soil may be necessary at some locations prior to use as structural fill. Each section of the utility lines must be adequately supported in the bedding material. Utility trench backfill should be placed and compacted to the structural fill specifications previously detailed in this report or to the applicable specifications of the presiding jurisdiction.

Preliminary Pavement Sections

The performance of site pavements is largely related to the condition of the underlying subgrade. To ensure adequate pavement performance, the subgrade should be in a firm and unyielding condition when subjected to proof rolling with a loaded dump truck. Structural fill in pavement areas should be compacted to the specifications previously detailed in this report. Soft, wet, or otherwise unsuitable or yielding subgrade conditions will require remedial measures, such as overexcavation and/or placement of thick crushed rock or structural fill sections, prior to pavement.

We anticipate new pavement sections will be subjected primarily to passenger vehicle traffic. For lightly loaded pavement areas subjected primarily to passenger vehicles, the following preliminary pavement sections may be considered:

- A minimum of two inches of hot-mix asphalt (HMA) placed over four inches of crushed rock base (CRB).
- A minimum of two inches of HMA placed over three inches of asphalt-treated base (ATB).

For relatively high volume, heavily loaded pavements areas subjected to occasional truck traffic, the following preliminary asphalt pavement sections may be considered:

- A minimum of three inches of hot-mix asphalt (HMA) placed over six inches of crushed rock base (CRB).
- A minimum of three inches of HMA placed over four and one-half inches of asphalt-treated base (ATB).

ESNW must be contacted to confirm that subgrade conditions below the pavement section are firm and unyielding prior to placement of CRB. As necessary, supplemental recommendations for achieving subgrade stability and drainage can be provided. If on-site roads are constructed with an inverted crown, additional drainage measures will be recommended to assist in maintaining road subgrade and pavement stability.

Final pavement design recommendations, including recommendations for heavy traffic areas, access roads, and frontage improvement areas, can be provided once final traffic loading has been determined. Road standards utilized by the governing jurisdiction may supersede the recommendations provided in this report. It is recommended that the HMA, ATB, and CRB materials conform to WSDOT specifications. All soil base material should be compacted to a relative compaction of 95 percent, based on the laboratory maximum dry density as determined by ASTM D1557.

Drainage

Groundwater seepage will likely be encountered within site excavations, particularly if earthwork takes place during the wet season. Temporary measures to control surface water runoff and groundwater during construction would likely involve passive elements, such as interceptor trenches, interceptor swales, and sumps. ESNW should be consulted during preliminary grading to identify areas of seepage and provide recommendations to reduce the potential for seepage-related instability. Finish grades must be designed to direct surface drain water away from structures and slopes. Water must not be allowed to pond adjacent to structures or slopes. In our opinion, a foundation drain should be installed along building perimeter footings. A typical foundation drain detail is provided on Plate 5.

Infiltration Feasibility

In our opinion, infiltration potential within the dense to very dense glacial till deposits (silty sand) is considered negligible. The near-surface, loose to medium dense soil horizon (weathered till) may possess a limited infiltration capacity. However, following site stripping and mass-earthwork preparation, this horizon will likely be altered or removed to the extent that would render it unsuitable for infiltration purposes. On this basis, on-site infiltration should be considered infeasible from a geotechnical standpoint.

Soil Physical and Chemical Suitability for Treatment

In accordance with the requirements of the 2019 Stormwater Management Manual for Western Washington (SWMMWW), representative soil samples were analyzed for cation exchange capacity (CEC) and organic content (OC). The purpose of the testing was to preliminarily evaluate if the existing native topsoil possesses the necessary physical and chemical suitability for stormwater runoff treatment. The results of the laboratory testing are outlined in the table below and provided on the exploration logs provided in Appendix A.

Test Pit ID	Sample Depth (ft)	OC (%)	CEC (meq/100 g)
TP-1	0.5	7.4	20.6
TP-6	0.5	21	25.7
TP-8	0.5	5.0	12.9
TP-11	0.5	6.3	20.6

The 2019 SWMMWW lists the following thresholds for treatment soil: CEC must be at least 5 meq per 100 g of dry soil, and OC must be at least 1.0 percent.

Preliminary Detention Pond Considerations

From a geotechnical standpoint, construction of a detention pond for site stormwater management is considered feasible. We understand that a pond facility is currently being evaluated within the northern extent of the project area. Based on our nearby test pit explorations, glacial till soils are expected to be encountered within the pond excavation.

Depending on the exposed condition present throughout the pond bottom subsequent to excavation, a pond liner may be deemed necessary. As such, an ESNW representative should be requested on site during pond excavation activities to confirm the condition of the exposed soil characteristics along the pond bottom. If a liner is considered necessary, a geomembrane, earthen material, or other liner application will likely be suitable. Also, depending on the exposed groundwater condition throughout the pond excavation, buoyant forces with respect to liner application may also need to be considered.

LIMITATIONS

This study has been prepared for the exclusive use of JKM Holdings, LLC, and its representatives. The recommendations and conclusions provided in this study are professional opinions consistent with the level of care and skill that is typical of other members in the profession currently practicing under similar conditions in this area. A warranty is neither expressed nor implied. Variations in the soil and groundwater conditions observed at the exploration locations may exist and may not become evident until construction. ESNW should reevaluate the conclusions provided in this study if variations are encountered.

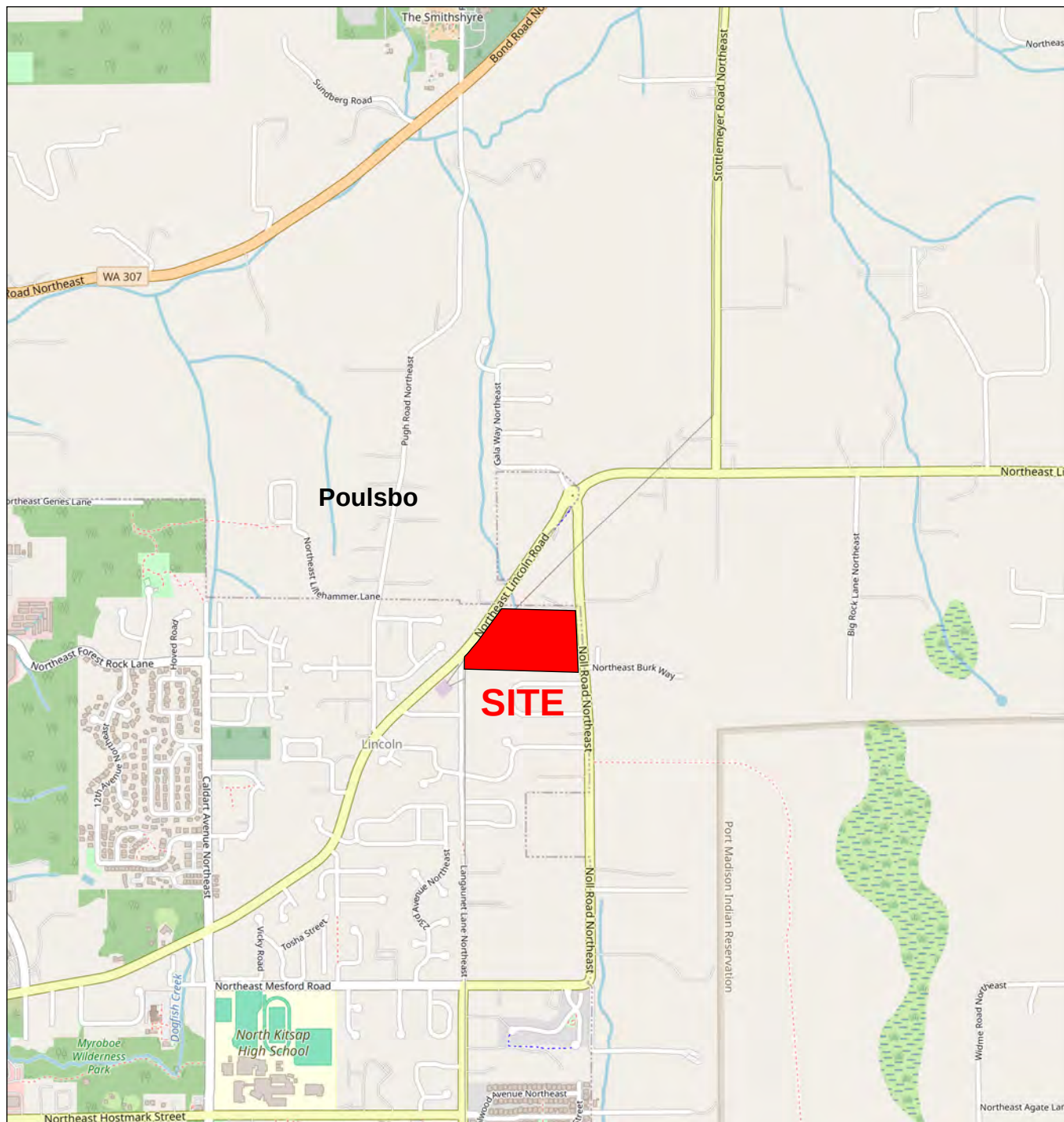
Additional Services

ESNW should have an opportunity to review final project plans with respect to the geotechnical recommendations provided in this report. ESNW should also be retained to provide testing and consultation services as needed during design and construction phases of the project.

REFERENCES

The following documents and maps were reviewed as part of the preparation of this study:

- 2019 Stormwater Management Manual for Western Washington
- Chapter 16.20 of the Poulsbo Municipal Code
- Geologic Map of the Suquamish 7.5' Quadrangle and Part of the Seattle North 7.5' x 15' Quadrangle, Kitsap County, Washington, prepared by Ralph Haugerud and Kathy Goetz Troost, 2011
- Geological Hazards Areas Map, maintained by the City of Poulsbo, Washington, effective June 28, 2017
- Site Plan, prepped by KPFF Consulting Engineers, undated
- Soil Survey of Kitsap County Area, Washington, by Carl J. McMurphy, USDA Soil Conservation Service, issued September 1980
- Web Soil Survey (WSS), maintained by the Natural Resources Conservation Service (NRCS) under the United States Department of Agriculture (USDA)



Reference:
Kitsap County, Washington
OpenStreetMap.org



NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.

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Geotechnical Engineering
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Vicinity Map Noll Pointe Poulsbo, Washington

Drawn MRS

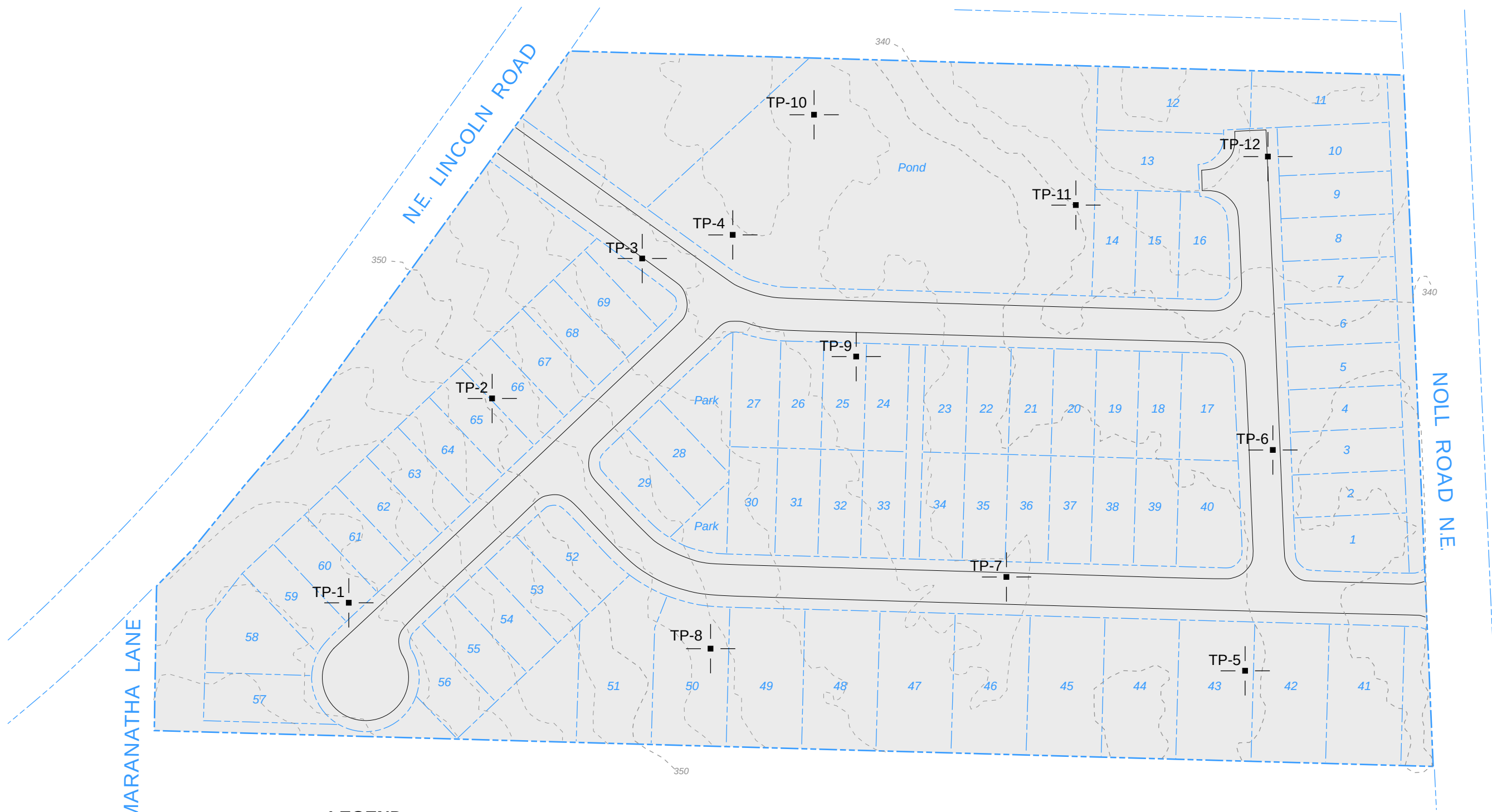
Date 07/24/2025

Proj. No. 10258

Checked BCS

Date July 2025

Plate 1



LEGEND

TP-1 | — Approximate Location of ESNW Test Pit, Proj. No. ES-10258, Dec. 2024

Subject Site

10 Proposed Lot Number

NORTH

0 50 100 200

1"=100' Scale in Feet

NOTE: The graphics shown on this plate are not intended for design purposes or precise scale measurements, but only to illustrate the approximate test locations relative to the approximate locations of existing and / or proposed site features. The information illustrated is largely based on data provided by the client at the time of our study. ESNW cannot be responsible for subsequent design changes or interpretation of the data by others.

NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.

Subsurface Exploration Plan
Noll Pointe
Poulsbo, Washington

Geotechnical Engineering
Environmental Services
Earthwork Observation & Testing
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Drawn
MRS

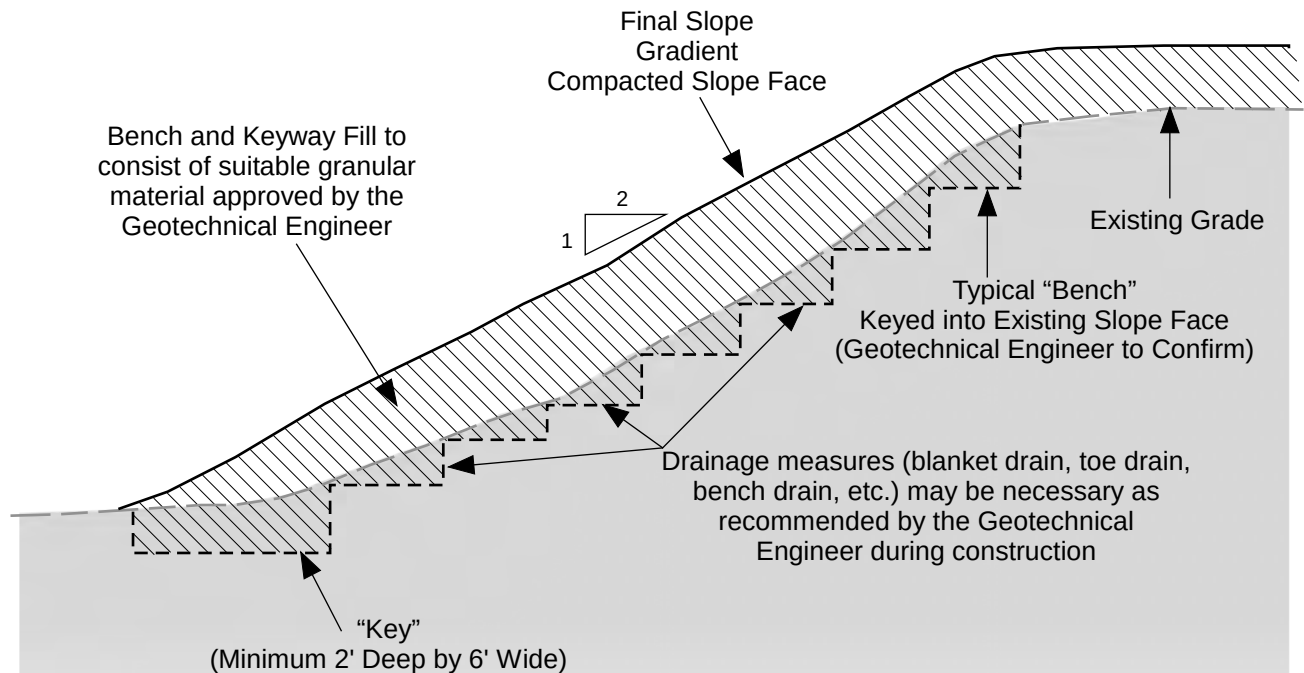
Checked
BCS

Date
07/25/2025

Proj. No.
10258

Plate
2

SCHEMATIC ONLY - NOT TO SCALE
NOT A CONSTRUCTION DRAWING



NOTES:

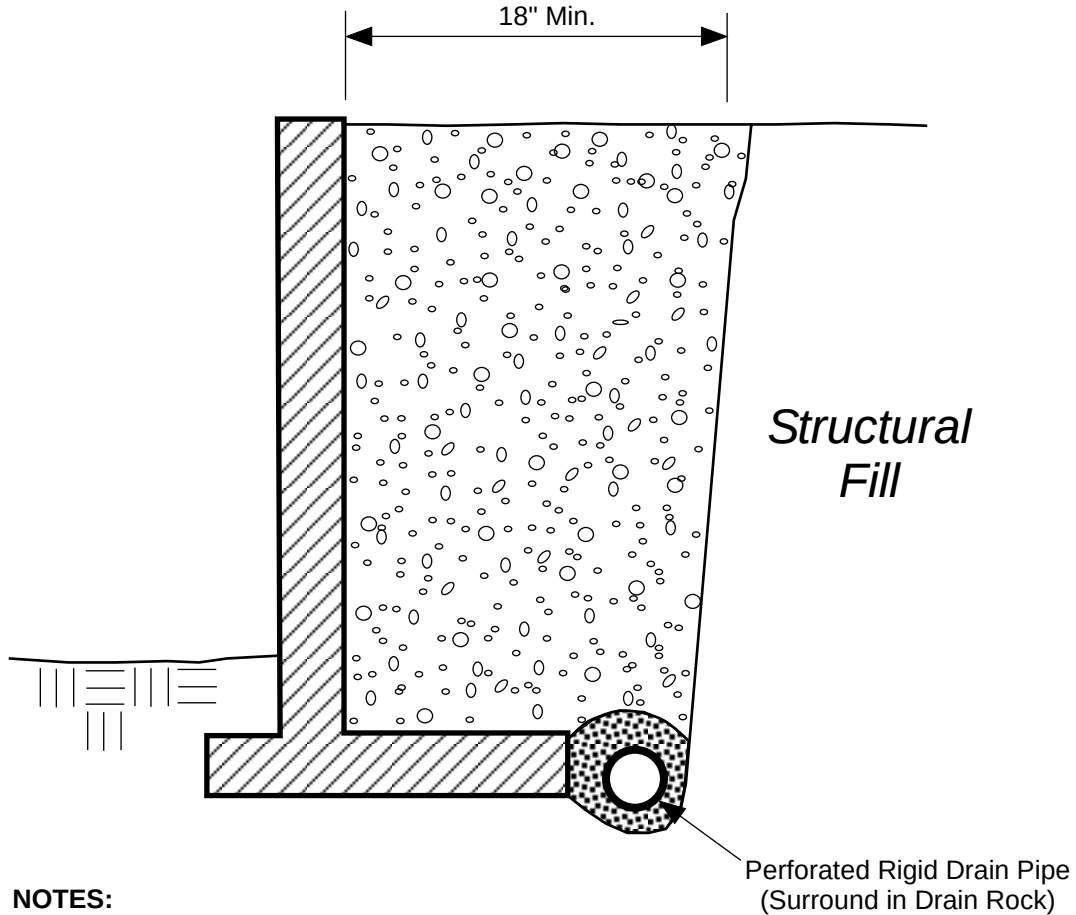
- Slope should be stripped of topsoil and unsuitable materials prior to excavating Keyway or benches.
- Benches will typically be equal to a bulldozer blade width of approximately 8 feet but shall be at least 4 feet.
- Final slope gradient should be 2H : 1V.
- Final slope face should be densified by over-building with compacted fill and trimming back to shape or by compaction with a bulldozer or vibratory drum roller.
- Planting or hydroseeding slope face with a rapid growth deep-rooted vegetative mat will reduce erosion potential of slope area.
- Use of pegged-in-place jute matting or geotechnical fabric will help maintain the seed and mulch in place until the root system has an opportunity to germinate.
- Structural fill should be placed in thin loose lifts not exceeding 12 inches in thickness. Each lift should be compacted to no less than the degree specified in the "Site Preparation and Earthwork" section of this report. No additional lift should be placed until compaction is achieved.

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Slope Fill Detail
Noll Pointe
Poulsbo, Washington

Drawn MRS	Date 07/24/2025	Proj. No. 10258
Checked BCS	Date July 2025	Plate 3



NOTES:

- Free-draining Backfill should consist of soil having less than 5 percent fines. Percent passing No. 4 sieve should be 25 to 75 percent.
- Sheet Drain may be feasible in lieu of Free-draining Backfill, per ESNW recommendations.
- Drain Pipe should consist of perforated, rigid PVC Pipe surrounded with 1-inch Drain Rock.

SCHEMATIC ONLY - NOT TO SCALE
NOT A CONSTRUCTION DRAWING

LEGEND:



Free-draining Structural Backfill



1-inch Drain Rock



Geotechnical Engineering
Environmental Services
Earthwork Observation & Testing
CESCL & Stormwater Services

Retaining Wall Drainage Detail
Noll Pointe
Poulsbo, Washington

Drawn MRS

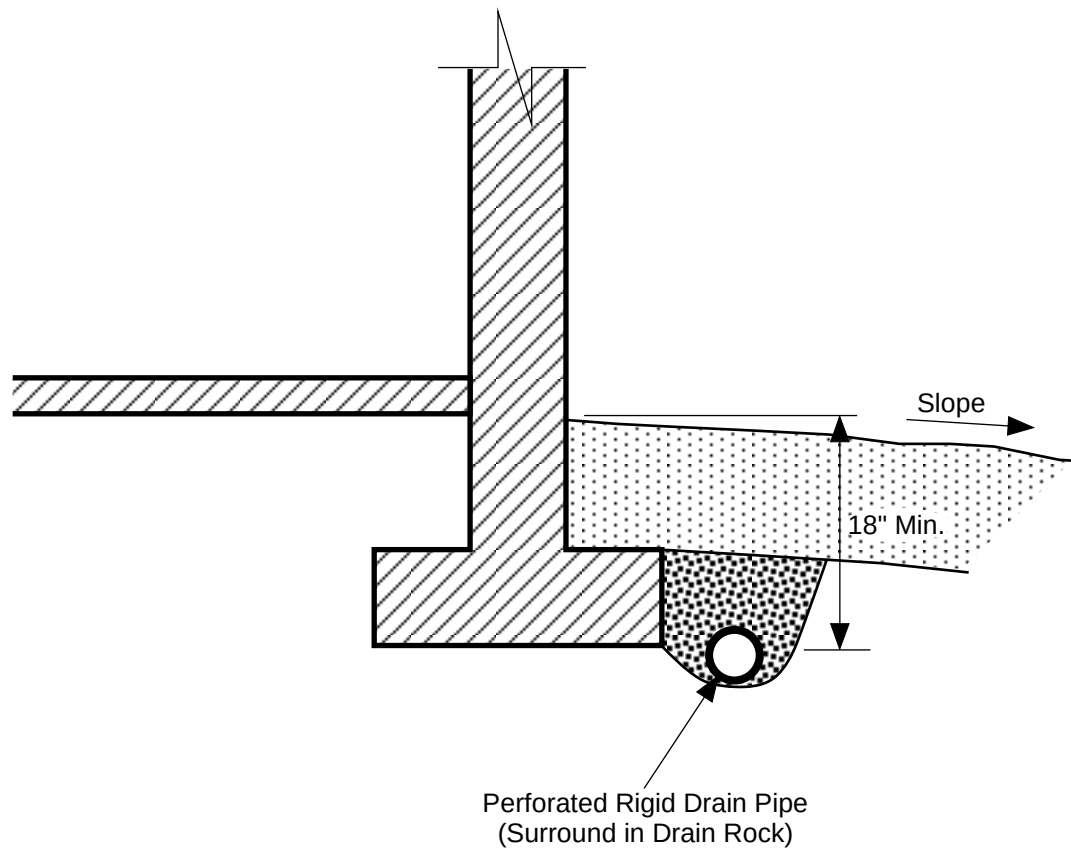
Date 07/24/2025

Proj. No. 10258

Checked BCS

Date July 2025

Plate 4

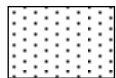


NOTES:

- Do NOT tie roof downspouts to Footing Drain.
- Surface Seal to consist of 12" of less permeable, suitable soil. Slope away from building.

SCHEMATIC ONLY - NOT TO SCALE
NOT A CONSTRUCTION DRAWING

LEGEND:



Surface Seal: native soil or other low-permeability material.



1-inch Drain Rock



Geotechnical Engineering
Environmental Services
Earthwork Observation & Testing
CESCL & Stormwater Services

Footing Drain Detail
Noll Pointe
Poulsbo, Washington

Drawn MRS

Date 07/24/2025

Proj. No. 10258

Checked BCS

Date July 2025

Plate 5

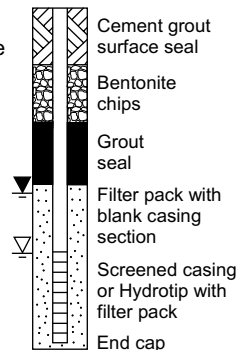
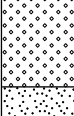
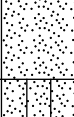
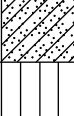
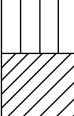
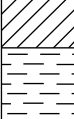
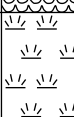
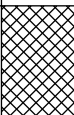
Appendix A

Subsurface Exploration Logs

ES-10258

Subsurface conditions on site were explored on December 12, 2024, by excavating 12 test pits using a trackhoe and operator retained by ESNW. The approximate locations of the subsurface explorations are illustrated on Plate 2 of this study. The test pit logs are provided in this Appendix. The test pits were excavated to depths of about 7 to 14 feet bgs.

The final logs represent the interpretations of the field logs and the results of laboratory analyses. The stratification lines on the logs represent the approximate boundaries between soil types. In actuality, the transitions may be more gradual.

Coarse-Grained Soils - More Than 50% Retained on No. 200 Sieve	Gravels - More Than 50% of Coarse Fraction Retained on No. 4 Sieve		GW	Well-graded gravel with or without sand, little to no fines	Moisture Content Dry - Absence of moisture, dusty, dry to the touch Damp - Perceptible moisture, likely below optimum MC Moist - Damp but no visible water, likely at/near optimum MC Wet - Water visible but not free draining, likely above optimum MC Saturated/Water Bearing - Visible free water, typically below groundwater table	Symbols 																														
			GP	Poorly graded gravel with or without sand, little to no fines																																
			GM	Silty gravel with or without sand																																
			GC	Clayey gravel with or without sand																																
	Sands - 50% or More of Coarse Fraction Passes No. 4 Sieve		SW	Well-graded sand with or without gravel, little to no fines																																
			SP	Poorly graded sand with or without gravel, little to no fines																																
			SM	Silty sand with or without gravel																																
			SC	Clayey sand with or without gravel																																
		Fine-Grained Soils - 50% or More Passes No. 200 Sieve	Silt and Clays Liquid Limit Less Than 50				ML	Silt with or without sand or gravel; sandy or gravelly silt	Terms Describing Relative Density and Consistency Coarse-Grained Soils: <table><tr><td><u>Density</u></td><td><u>SPT blows/foot</u></td></tr><tr><td>Very Loose</td><td>< 4</td></tr><tr><td>Loose</td><td>4 to 9</td></tr><tr><td>Medium Dense</td><td>10 to 29</td></tr><tr><td>Dense</td><td>30 to 49</td></tr><tr><td>Very Dense</td><td>≥ 50</td></tr></table> Fine-Grained Soils: <table><tr><td><u>Consistency</u></td><td><u>SPT blows/foot</u></td></tr><tr><td>Very Soft</td><td>< 2</td></tr><tr><td>Soft</td><td>2 to 3</td></tr><tr><td>Medium Stiff</td><td>4 to 7</td></tr><tr><td>Stiff</td><td>8 to 14</td></tr><tr><td>Very Stiff</td><td>15 to 29</td></tr><tr><td>Hard</td><td>≥ 30</td></tr></table>	<u>Density</u>	<u>SPT blows/foot</u>	Very Loose	< 4	Loose	4 to 9	Medium Dense	10 to 29	Dense	30 to 49	Very Dense	≥ 50	<u>Consistency</u>	<u>SPT blows/foot</u>	Very Soft	< 2	Soft	2 to 3	Medium Stiff	4 to 7	Stiff	8 to 14	Very Stiff	15 to 29	Hard	≥ 30	Test Symbols & Units Fines = Fines Content (%) MC = Moisture Content (%) DD = Dry Density (pcf) Str = Shear Strength (tsf) PID = Photoionization Detector (ppm) OC = Organic Content (%) CEC = Cation Exchange Capacity (meq/100 g) LL = Liquid Limit (%) PL = Plastic Limit (%) PI = Plasticity Index (%)
				<u>Density</u>			<u>SPT blows/foot</u>																													
Very Loose	< 4																																			
Loose	4 to 9																																			
Medium Dense	10 to 29																																			
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Soft	2 to 3																																			
Medium Stiff	4 to 7																																			
Stiff	8 to 14																																			
Very Stiff	15 to 29																																			
Hard	≥ 30																																			
	CL	Clay of low to medium plasticity; lean clay with or without sand or gravel; sandy or gravelly lean clay																																		
	OL	Organic clay or silt of low plasticity																																		
Silt and Clays Liquid Limit 50 or More		MH	Elastic silt with or without sand or gravel; sandy or gravelly elastic silt																																	
		CH	Clay of high plasticity; fat clay with or without sand or gravel; sandy or gravelly fat clay																																	
		OH	Organic clay or silt of medium to high plasticity																																	
Highly Organic Soils		PT	Peat, muck, and other highly organic soils																																	
Fill		FILL	Made Ground	Classifications of soils in this geotechnical report and as shown on the exploration logs are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates, and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D2487 and D2488 were used as an identification guide for the Unified Soil Classification System.																																

PROJECT NUMBER ES-10258

PROJECT NAME Noll Pointe

DATE STARTED 12/12/24 COMPLETED 12/12/24

GROUND ELEVATION _____

EXCAVATION CONTRACTOR NW Excavating

LATITUDE 47.74642 LONGITUDE -122.61656

LOGGED BY BCS CHECKED BY CGH

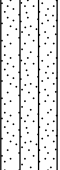
GROUND WATER LEVEL:

NOTES _____

▽ AT TIME OF EXCAVATION _____

SURFACE CONDITIONS Forest

AFTER EXCAVATION _____

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
	GB	MC = 27.5 OC = 7.4 CEC = 20.6	TPSL		Dark brown TOPSOIL -abundant small roots to ~3' -probed 24"
				1.5	
					Brown silty SAND, loose, moist
					-iron oxide staining -becomes gray, very dense, weakly cemented -probed 1"
	GB	MC = 14.7 Fines = 27.7	SM		[USDA Classification: slightly gravelly sandy LOAM]
5					
	GB	MC = 8.5			
				7.0	

Test pit terminated at 7.0 feet below existing grade. No groundwater encountered during excavation. No caving observed.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.

PROJECT NUMBER ES-10258

PROJECT NAME Noll Pointe

DATE STARTED 12/12/24 COMPLETED 12/12/24

GROUND ELEVATION _____

EXCAVATION CONTRACTOR NW Excavating

LATITUDE 47.74698 LONGITUDE -122.61595

LOGGED BY BCS CHECKED BY CGH

GROUND WATER LEVEL:

NOTES _____

▽ AT TIME OF EXCAVATION _____

SURFACE CONDITIONS Forest

AFTER EXCAVATION _____

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
			TPSL		Dark brown TOPSOIL -root intrusions to ~3'
				1.0	
					Brown silty SAND, loose, moist to wet -probed 14"
					-becomes gray, very dense, weakly cemented -probed 0"
	GB	MC = 16.1	SM		
5					
					-decreasing cementation -becomes moist
	GB	MC = 10.9		7.5	

Test pit terminated at 7.5 feet below existing grade. No groundwater encountered during excavation. No caving observed.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.

PROJECT NUMBER ES-10258

PROJECT NAME Noll Pointe

DATE STARTED 12/12/24 COMPLETED 12/12/24

GROUND ELEVATION _____

EXCAVATION CONTRACTOR NW Excavating

LATITUDE 47.74732 LONGITUDE -122.61543

LOGGED BY BCS CHECKED BY CGH

GROUND WATER LEVEL:

NOTES _____

▽ AT TIME OF EXCAVATION _____

SURFACE CONDITIONS Forest

AFTER EXCAVATION _____

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
			TPSL		Dark brown TOPSOIL
				1.0	
					Brown silty SAND, loose, moist to wet
	GB	MC = 17.2			-becomes gray, very dense, weakly cemented
5					
	GB	MC = 18.6			-decreasing cementation
			SM		
	GB	MC = 7.2 Fines = 29.2			-becomes moist [USDA Classification: slightly gravelly sandy LOAM]
10					
	GB	MC = 7.7			
				14.0	

Test pit terminated at 14.0 feet below existing grade. No groundwater encountered during excavation. No caving observed.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.

PROJECT NUMBER ES-10258

PROJECT NAME Noll Pointe

DATE STARTED 12/12/24 COMPLETED 12/12/24

GROUND ELEVATION _____

EXCAVATION CONTRACTOR NW Excavating

LATITUDE 47.74744

LONGITUDE -122.61508

LOGGED BY BCS

CHECKED BY CGH

GROUND WATER LEVEL:

NOTES _____

▽ AT TIME OF EXCAVATION _____

SURFACE CONDITIONS Forest

AFTER EXCAVATION _____

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
			TPSL		Dark brown TOPSOIL
				1.0	
					Brown silty SAND, loose, moist
	GB	MC = 13.6			-probed 12"
					-becomes gray, very dense, weakly cemented
					-probed 1"
5					
	GB	MC = 8.4			
			SM		
10					
	GB	MC = 8.8			
	GB	MC = 8.5 Fines = 26.7			
				13.0	

[USDA Classification: slightly gravelly sandy LOAM]

Test pit terminated at 13.0 feet below existing grade. No groundwater encountered during excavation. No caving observed.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.

Geotechnical Engineering
Environmental Services
Earthwork Observation & Testing
CESCL & Stormwater Services

PROJECT NUMBER ES-10258

PROJECT NAME Noll Pointe

DATE STARTED 12/12/24 COMPLETED 12/12/24

GROUND ELEVATION _____

EXCAVATION CONTRACTOR NW Excavating

LATITUDE 47.74694 LONGITUDE -122.61298

LOGGED BY BCS CHECKED BY CGH

GROUND WATER LEVEL:

NOTES _____

▽ AT TIME OF EXCAVATION _____

SURFACE CONDITIONS Forest

AFTER EXCAVATION _____

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
	GB	MC = 61.8 OC = 21 CEC = 25.7	TPSL	0.8	Dark brown TOPSOIL
					Brown silty SAND, loose, moist
	GB	MC = 11.9 Fines = 18.5			-becomes gray, very dense, weakly cemented [USDA Classification: gravelly loamy SAND]
5			SM		
	GB	MC = 11.4		8.0	

Test pit terminated at 8.0 feet below existing grade. No groundwater encountered during excavation. No caving observed.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.

PROJECT NUMBER ES-10258

PROJECT NAME Noll Pointe

DATE STARTED 12/12/24 COMPLETED 12/12/24

GROUND ELEVATION _____

EXCAVATION CONTRACTOR NW Excavating

LATITUDE 47.74667 LONGITUDE -122.61413

LOGGED BY BCS CHECKED BY CGH

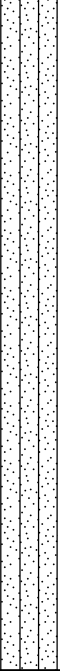
GROUND WATER LEVEL:

NOTES _____

▽ AT TIME OF EXCAVATION _____

SURFACE CONDITIONS Forest

AFTER EXCAVATION _____

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
			TPSL		Dark brown TOPSOIL
				1.0	
					Brown silty SAND, loose, moist
					-probed 14"
					-heavy iron oxide staining
					-becomes gray, dense to very dense, weakly cemented
	GB	MC = 10.2			
5					
			SM		
					[USDA Classification: slightly gravelly sandy LOAM]
	GB	MC = 7.2 Fines = 24.9			
10					
	GB	MC = 7.9			
				11.0	

Test pit terminated at 11.0 feet below existing grade. No groundwater encountered during excavation. No caving observed.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.

PROJECT NUMBER ES-10258

PROJECT NAME Noll Pointe

DATE STARTED 12/12/24 COMPLETED 12/12/24

GROUND ELEVATION _____

EXCAVATION CONTRACTOR NW Excavating

LATITUDE 47.74641 LONGITUDE -122.61512

LOGGED BY BCS CHECKED BY CGH

GROUND WATER LEVEL:

NOTES _____

▽ AT TIME OF EXCAVATION _____

SURFACE CONDITIONS Forest

AFTER EXCAVATION _____

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
	GB	MC = 19.6 OC = 5 CEC = 12.9	TPSL	1.0	Dark brown TOPSOIL
	GB	MC = 14.0			Brown silty SAND, loose, moist -probed 16"
5			SM		-becomes gray, very dense, weakly cemented
	GB	MC = 10.0		8.0	

Test pit terminated at 8.0 feet below existing grade. No groundwater encountered during excavation. No caving observed.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.

PROJECT NUMBER ES-10258

PROJECT NAME Noll Pointe

DATE STARTED 12/12/24 COMPLETED 12/12/24

GROUND ELEVATION _____

EXCAVATION CONTRACTOR NW Excavating

LATITUDE 47.74715 LONGITUDE -122.61461

LOGGED BY BCS CHECKED BY CGH

GROUND WATER LEVEL:

NOTES _____

▽ AT TIME OF EXCAVATION _____

SURFACE CONDITIONS Forest

AFTER EXCAVATION _____

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
			TPSL		Dark brown TOPSOIL -probed 6"
			SM		Brown silty SAND, medium dense, moist
				2.0	
			ML		Gray SILT, dense, wet
	GB	MC = 35.4			-heavy iron oxide staining -trace fine organic fibers
				4.0	
5			SM		Gray silty SAND, very dense, moist to wet
					-weakly cemented
	GB	MC = 16.2 Fines = 40.0			[USDA Classification: slightly gravelly fine sandy LOAM]
					-becomes moist
10	GB	MC = 12.5			
				10.0	

Test pit terminated at 10.0 feet below existing grade. No groundwater encountered during excavation. No caving observed.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.

Geotechnical Engineering
Environmental Services
Earthwork Observation & Testing
CESCL & Stormwater Services

PROJECT NUMBER ES-10258 PROJECT NAME Noll Pointe
DATE STARTED 12/12/24 COMPLETED 12/12/24 GROUND ELEVATION _____
EXCAVATION CONTRACTOR NW Excavating LATITUDE 47.74753 LONGITUDE -122.61373
LOGGED BY BCS CHECKED BY CGH GROUND WATER LEVEL: _____
NOTES _____ ∇ AT TIME OF EXCAVATION _____
SURFACE CONDITIONS Forest AFTER EXCAVATION _____

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					
	GB	MC = 23.8 OC = 6.3 CEC = 20.6	TPSL	0.8	Dark brown TOPSOIL
					Brown silty SAND, medium dense, moist to wet
					-probed 8"
					-becomes gray, very dense, weakly cemented
5	GB	MC = 13.8	SM		-heavy iron oxide staining to 8'
					-becomes moist
10	GB	MC = 11.2		10.0	

Test pit terminated at 10.0 feet below existing grade. No groundwater encountered during excavation. No caving observed.

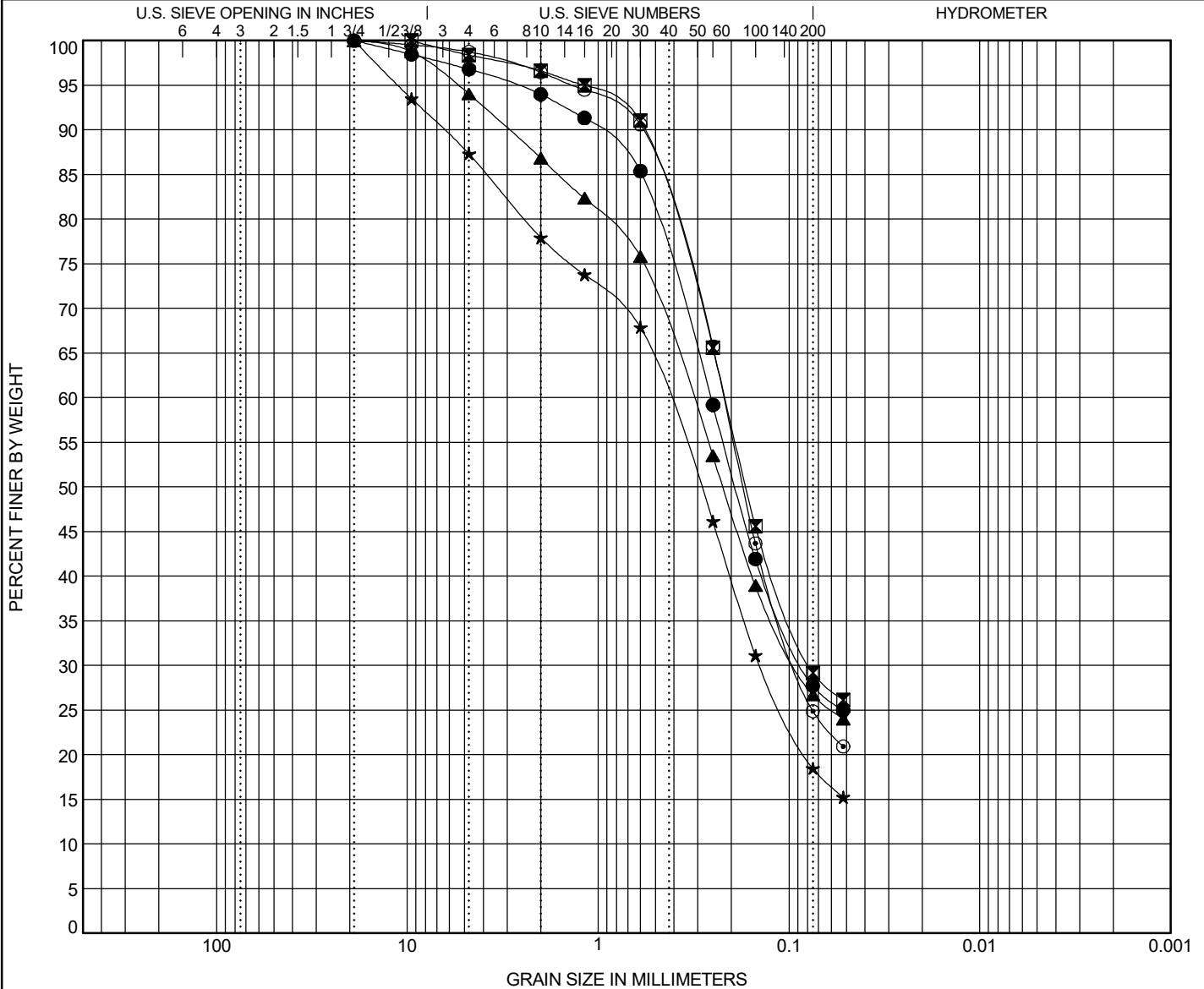
LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.

Appendix B
Laboratory Test Results
ES-10258

GRAIN SIZE DISTRIBUTION

PROJECT NUMBER ES-10258

PROJECT NAME Noll Pointe



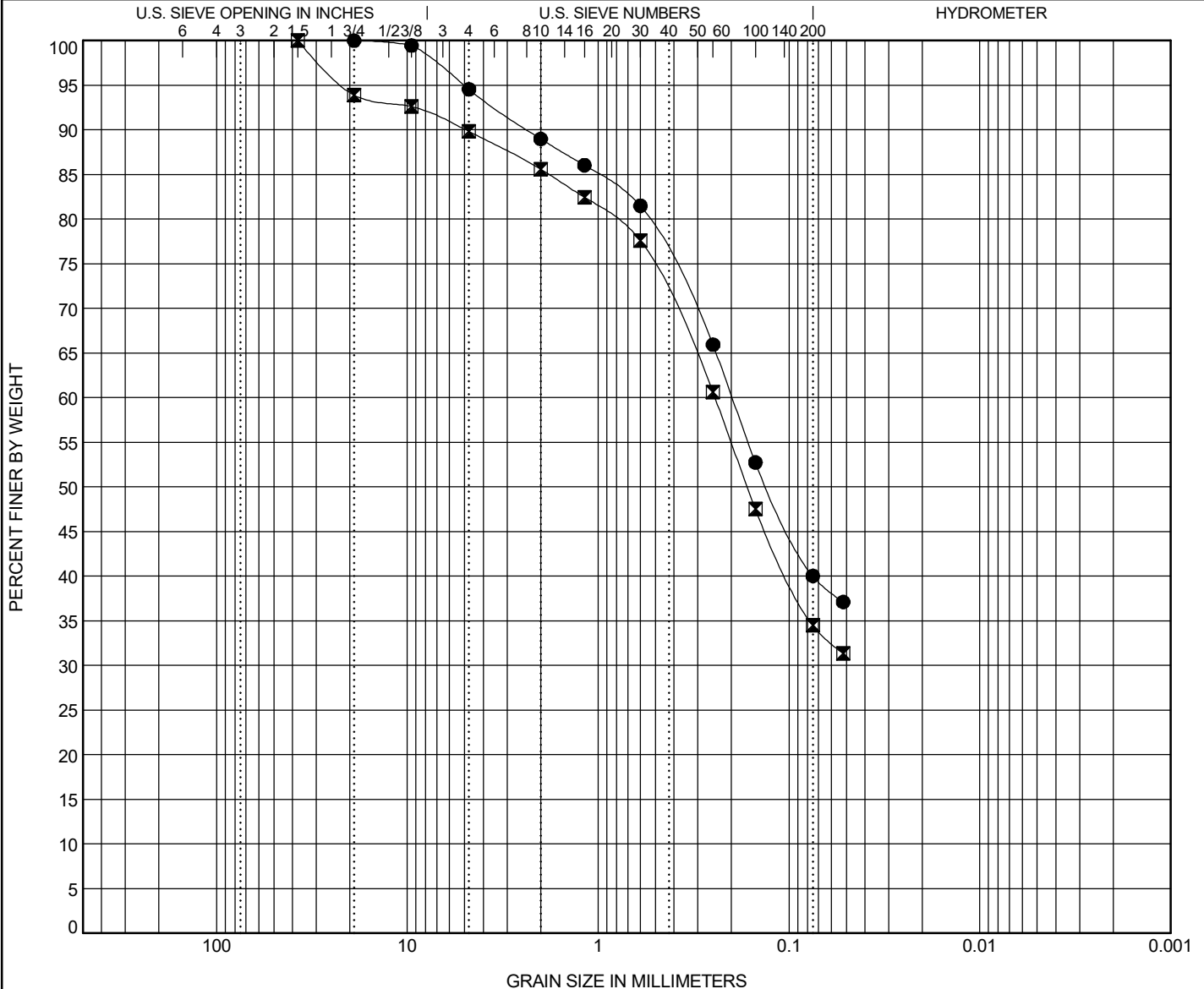
COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification			Classification							Cc	Cu
●	TP-01	4.00ft.	USDA: Gray Slightly Gravelly Sandy Loam. USCS: SM.								
⊠	TP-03	9.00ft.	USDA: Gray Slightly Gravelly Sandy Loam. USCS: SM.								
▲	TP-04	13.00ft.	USDA: Gray Slightly Gravelly Sandy Loam. USCS: SM.								
★	TP-06	3.00ft.	USDA: Gray Gravelly Loamy Sand. USCS: SM.								
⊙	TP-07	6.00ft.	USDA: Gray Slightly Gravelly Sandy Loam. USCS: SM.								
Specimen Identification			D100	D60	D30	D10	LL	PL	PI	%Silt	%Clay
●	TP-01	4.0ft.	19	0.257	0.084					27.7	
⊠	TP-03	9.0ft.	9.5	0.217	0.078					29.2	
▲	TP-04	13.0ft.	19	0.323	0.09					26.7	
★	TP-06	3.0ft.	19	0.437	0.141					18.5	
⊙	TP-07	6.0ft.	19	0.219	0.091					24.9	

GRAIN SIZE DISTRIBUTION

PROJECT NUMBER ES-10258

PROJECT NAME Noll Pointe



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification			Classification							Cc	Cu
●	TP-09	7.00ft.	USDA: Gray Slightly Gravelly Fine Sandy Loam. USCS: SM.								
☒	TP-10	8.00ft.	USDA: Gray Slightly Gravelly Fine Sandy Loam. USCS: SM.								
Specimen Identification			D100	D60	D30	D10	LL	PL	PI	%Silt	%Clay
●	TP-09	7.0ft.	19	0.199						40.0	
☒	TP-10	8.0ft.	37.5	0.244						34.5	