Geotechnical Engineering Report

F

APPENDIX

GEOTECHNICAL ENGINEERING REPORT
HIPPO HARVEST DEVELOPMENT
2370 SHORE ROAD
HOLLISTER, CALIFORNIA

September 5, 2025
(Revised September 29, 2025)

Prepared for:

Mr. Kevin Burg
Hippo Harvest
807 Shotwell Street #1
San Francisco, CA 94110

Prepared by:

Earth Systems Pacific
500 Park Center Drive
Hollister, CA 95023

Copyright © 2025

EARTH SYSTEMS
500 Park Center Drive, #1 | Hollister, CA 95023 | (831) 637-2133 | www.earthsystems.com

September 5, 2025 File No.: 307356-001
(Revised September 29, 2025)

Mr. Kevin Burg
Hippo Harvest
807 Shotwell Street #1
San Francisco, CA 94110

PROJECT: HIPPO HARVEST DEVELOPMENT
2370 SHORE ROAD
HOLLISTER, CALIFORNIA

SUBJECT: Geotechnical Engineering Report - Revised

REFS.: Proposal to Prepare a Geotechnical Engineering Report, 2370 Shore Road Hollister, California by Earth Systems Pacific, dated August 15, 2025

Geotechnical Investigation Design Phase, 2370 Shore Road, Hollister, San Benito County, California, by Butano Geotechnical Engineering Inc, dated February 18, 2025

Dear Mr. Burg:

In accordance with the authorization of the above referenced proposal, Earth Systems Pacific (Earth Systems) has prepared this geotechnical engineering report for use in the development of design-level soil engineering recommendations for the proposed Hippo Harvest facility in Hollister, California. This report includes the results of our subsurface exploration and laboratory testing which formed the basis of our conclusions and presents preliminary recommendations related to the geotechnical engineering aspects of the project site.

We appreciate the opportunity to have provided services for this project and look forward to working with you again. Please contact this office if there are any questions concerning this report.

Sincerely,

Earth Systems Pacific

Brett Faust, CEG 2386
Senior Geologist/VP



Tyler Brown, PE C92495
Project Engineer



Doc. No.: 2509-009.SER.REV1/lc

TABLE OF CONTENTS

1.0 INTRODUCTION 1
Site Setting 1
Site Description 1
Planned Development 1
Scope of Services 2

2.0 GEOLOGIC AND SEISMIC SETTINGS 4

3.0 FIELD INVESTIGATION AND LABORATORY TESTING 5
Subsurface Exploration 5
General Subsurface Profile 5
Laboratory Testing 6

4.0 DATA ANALYSIS SUBSURFACE SOIL CLASSIFICATION 6
Seismic Design Parameters 6
Liquefaction 7

5.0 CONCLUSIONS 8
Site Suitability 8
Soil Expansion Potential 8
Organic Content 9
Foundations 9
Site Preparation and Grading 9
Static Settlement 9
Groundwater 9
Seismicity 10

6.0 RECOMMENDATIONS 10
Site Preparation and Grading 10
Processing Building Foundations 14
Hoop Greenhouse Foundations 15
Slab-on-Grade Construction 16
Retaining Wall Foundations 17
Exterior Flatwork 19
Light Pole Foundations 20
Flexible Pavement Sections 21
Concrete (PCC) Pavements 22
Utility Trench Backfills and Drainage Trenches 23
Management of Site Drainage and Finish Improvements 23
Geotechnical Observation and Testing 24

7.0 CLOSURE 26

TABLE OF CONTENTS
(CONTINUED)

FIGURES

Figure 1 – Site Vicinity Map
Figure 2 – Boring Location Map

APPENDIX A

Logs of Soil Borings (Earth Systems) (6)
Logs of Soil Boring (Butano) (11)

APPENDIX B

Laboratory Testing Results

1.0 INTRODUCTION

Site Setting

The subject site is a relatively flat, irregularly shaped area consisting of two parcels encompassing approximately 78-acres that will be developed into a Hippo Harvest facility on Shore Road in Hollister, California. Hippo Harvest is a controlled environment agriculture (CEA) company that leverages plant science, machine learning and robotics to sustainably grow vegetables in greenhouse environments. The project site has a latitude of 36.94113°N, and longitude of 121.45234°W. The general location of the site is shown on the Site Vicinity Map (Figure 1).

Site Description

The approximately 78-acre site is located northwest of the City of Hollister in a rural region of San Benito County. The site is bounded by Shore Road to the south, Frazier Lake Road to the west, and agricultural farmland with rural residences to the east and north. The subject area for this project is primarily used for agricultural purposes, with the property having an existing residential structure and associated outbuildings on the southeastern corner of the subject site with open agricultural farmland throughout the remainder of the parcel.

Planned Development

Based on the review of the preliminary plan set provided via correspondence, we understand a series of new greenhouse hoop structures will be situated throughout the southern half of the site. A new processing building will be constructed in the middle portion of the proposed development area. It is our understanding that the greenhouses will have an at-grade concrete floor slab and hoop structures. The greenhouses are not habitable structures thus they will not be designed to meet the California Building Code requirements. The processing building will be utilized for commercial occupancy. The southern portion of the processing building will include loading docks. We assume that the proposed hoops for the greenhouse buildings will be supported on conventional spread footing. The proposed greenhouse building will have an at-grade concrete floor slab capable of supporting the loads of robots and light vehicles which will be used for agricultural operations. Site grading plans were not available for review when this report was prepared but it is our understanding that the grading operation will involve cuts and fills on the order of 2 to 3 feet. It is our understanding that new asphaltic concrete paved roads

will be constructed to connect the processing building to the street and around the processing building. Concrete pavement will be constructed within the docking bay area. Light poles will be installed along the perimeter of the pavement areas and near the processing building.

In addition, a series of water tanks are proposed between the western side of the processing building and the western greenhouse hoop structures as well as southeast of the proposed pavement areas. It is our understanding that the design of these water tanks will be addressed at a later date and are not included in the scope of work for this report.

Scope of Services

The scope of work for the geotechnical engineering report included:

- Review of a Geotechnical Investigation Design Phase report prepared by Butano for the site, dated February 18, 2025.
- A general site reconnaissance by our Staff Geologist to evaluate the access conditions and mark the boring locations prior to contacting Underground Services Alert, as required by law. The purpose of this exercise was to minimize the chances of drilling through existing utility lines.
- Additional exploration of subsurface soil and groundwater conditions from a geotechnical engineering standpoint.
- Laboratory testing of the selected soil samples collected during the subsurface exploration to measure some of the geotechnical engineering properties.
- Engineering evaluation/analysis of the subsurface data collected from the site.
- Preparation of this report which includes site description, proposed site development plans, scope of our services, methodology and results of our subsurface exploration and laboratory testing, conclusions of the study, and geotechnical recommendations for proposed development. The analysis and engineering recommendations presented in the following sections of this report are based on our understanding of the proposed development and our experience with projects of a similar nature.

The report and recommendations are intended to comply with the considerations of Section 1803.1 of the California Building Code (CBC), 2022 Edition, and common geotechnical engineering practice in this area at this time under similar conditions.

Preliminary geotechnical recommendations for site preparation and grading, foundations, exterior flatwork, utility trenches, site drainage management, and geotechnical observation and testing are presented to guide the development of project plans and specifications. It is our intent that this report be used by the client to form the geotechnical basis of the design of the project as described herein, and in the preparation of plans and specifications.

Analyses of the soil for permeability rates, mold or other microbial content, corrosion potential, asbestos, lead, radioisotopes, hydrocarbons, or other chemical properties are beyond the scope of this report. This report does not address issues in the domain of contractors such as, but not limited to, site safety, loss of volume due to stripping of the site, shrinkage of soils during compaction, excavatability, shoring, temporary slope angles, and construction means and methods. Ancillary features such as Low Impact Development (LID) and Best Management Practices (BMP) improvements, temporary access roads, fences, light poles, signage, and nonstructural fills are not within our scope and are also not addressed.

To verify that pertinent issues have been addressed and to aid in conformance with the intent of this report, it is requested that final grading and foundation plans be submitted to this office for review. In the event that there are any changes in the nature, design, or locations of improvements, or if any assumptions used in the preparation of this report prove to be incorrect, the conclusions and recommendations contained herein should not be considered valid unless the changes are reviewed, and the conclusions of this report are verified or modified in writing by the geotechnical engineer. The criteria presented in this report are considered preliminary until such time as they are verified or modified in writing by the geotechnical engineering in the field during construction.

2.0 GEOLOGIC AND SEISMIC SETTINGS

A review of geological literature indicated that the site is underlain by (Qa) alluvial pebble gravel, sand and clay of valley areas (Dibblee, T.W., Minch, and J.A., 2006, "Geologic Map of the San Felipe Quadrangle, Santa Clara & San Benito Counties, California"). We also reviewed "Relative Liquefaction Susceptibility Map for the Hollister Area", by Rosenberg (1998). The site lies outside the map boundaries. It is our opinion that liquefaction susceptibility will be high in the areas of shallow groundwater table. The site lies outside areas deemed susceptible to landsliding in the Hollister area.

The site is located within a seismically active region of California. A trace of the Calaveras fault is mapped crossing the southeast corner of the parcel. The center of the property where the processing building is planned is located approximately 1,000 feet northwest of the Calaveras (So) fault, 3.5 miles northeast of the Sargent fault, and 7.8 miles northeast of the San Andreas fault (Creeping). Using information from recent earthquakes, improved mapping of active faults, and a new model for estimating earthquake probabilities, the 2014 Working Group on California Earthquake Probabilities updated the 30 years earthquake forecast for California. A summary of the significant faults in the near vicinity of the site and their probabilities of exceeding an earthquake of magnitude 6.7 within 30 years is presented below.

Major Active Faults

Fault	Distance from Site (miles)	Probability of $M_w \geq 6.7$ within 30 Years[1]
Calaveras (So)	0.2 (SE)	17%
Sargent	3.5 (SW)	<1%
San Andreas (Santa Cruz Mountains)	7.8 (SW)	16%

[1] Working Group on California Earthquake Probabilities, 2014

3.0 FIELD INVESTIGATION AND LABORATORY TESTING

Subsurface Exploration

Earth Systems explored subsurface conditions at the site by drilling six borings on August 21, 2025. The borings were drilled using a B-24 truck-mounted drilling rig using 8-inch diameter hollow stem augers. Soils encountered in the borings were classified and logged by our staff geologist in general accordance with the Unified Soil Classification System (ASTM D 2488-17). The soil cuttings generated during the drilling process were used to backfill the boreholes soon after the last sample was collected. The boring logs show soil description including: color, major and minor components, USCS classification, changes in soil conditions with depth, moisture content, consistency, sample type, sampling depths and laboratory test results. Copies of the logs of soil borings from both Earth Systems and Butano Geotechnical Engineering are included in Appendix A. The approximate locations of the boring locations for both Earth Systems and Butano are shown on the Boring Location Map (Figure 2).

General Subsurface Profile

The subsurface profile generally consisted of a mixture of sand, clay, silt, and random mixtures thereof, which corresponds to the alluvial soil conditions mapped at the site by Dibblee, T.W., Minch, and J.A. (2008). Soil classifications appeared consistent throughout the surficial areas of the borings.

Boring 1 revealed the presence of soft silty clay and loose clayey sand to approximately 7 feet below ground surface (bgs) underlain by soft lean clay to the maximum depth of 15 feet bgs. Borings 2 and 3 revealed very loose to loose silty sand and clayey sand underlain by loose to medium dense poorly graded sands to the maximum depth of 13.5 feet bgs and 10 feet bgs for borings 2 and 3 respectively. Boring 4 revealed loose silty sand to approximately 5.5 feet bgs underlain by soft to firm sandy silty clay to about 9 feet bgs and underlain by loose to medium dense silty sand the maximum depth of 10 feet bgs. Boring 5 revealed soft to firm silty clay to lean clay to the maximum depth of 15 feet bgs. Boring 6 revealed loose to medium dense silty sand to poorly graded sand to approximately 12 feet bgs underlain by soft lean clay to the maximum depth of 15 feet bgs.

Groundwater was encountered during the field investigation in borings B-2, B-3, B-4, B-5, and B-6 at depths of 10 feet, 8 feet, 9.5 feet, 7 feet, and 8 feet, respectively. It should be noted that depth to groundwater may fluctuate seasonally and could be higher during and after the rainy season. Fluctuations in the level of subsurface water can occur due to variations in rainfall, temperature, and recharge, and groundwater levels should not be considered constant. Variations in rainfall, temperature, and other factors may affect water levels, and therefore depths to groundwater should not be considered constant. According to San Benito County Water District's 2024 Annual Groundwater Report, groundwater elevation in the site vicinity is about 100 feet (65 feet below ground surface). As such, groundwater levels encountered in the borings appear to not be representative of regional groundwater levels and possibly indicate perched groundwater conditions at the site.

Laboratory Testing

As the borings were drilled, soil samples were obtained using a tube-lined barrel sampler (ASTM D 3550-01 (2007)). Selected samples of the soil were tested for moisture-density (ASTM D 2937-17) and organic content (ASTM D 2974). Copies of the laboratory test results are included in Appendix B.

4.0 DATA ANALYSIS SUBSURFACE SOIL CLASSIFICATION

Based on the review of the subsurface data collected as a part of our subsurface exploration and our review of published geologic literature, the site is classified as Site Class D ("stiff soil") as defined by Table 20.3-1 of the ASCE 7-16. The 2022 CBC parameters are based on the assumption that the building will conform to ASCE 7-16 11.4.8 - Exception No. 2.

Seismic Design Parameters

The following seismic design parameters represent the general procedure as outlined in Section 1613 of the 2022 CBC and in ASCE 7-16. The values determined below are based on maps referenced in ASCE 7-16 and were obtained using the Office of Statewide Health Planning and Development Seismic Design Maps Web Application (OSHPD).

Summary of Seismic Parameters - CBC 2022

(Site Coordinates 36.94113° N, 121.45234° W)

Parameter	Design Value
Site Class	D
Mapped Short Term Spectral Response Parameter, (S_s)	2.290g
Mapped 1-second Spectral Response Parameter, (S_1)	0.855g
Site Coefficient, (F_a)	1
Site Coefficient, (F_v)	1.7[1]
Site Modified Short Term Response Parameter, (S_{Ms})	2.290g
Site Modified 1-second Response Parameter, (S_{M1})	1.453g[1]
Design Short Term Response Parameter, (S_{Ds})	1.526g
Design 1-second Response Parameter, (S_{D1})	0.968g[1]

[1] The 2022 parameters are based on the assumption that the buildings will conform to ASCE 7-16 11.4.8 - Exception No. 2.

[2] The 2022 CBC Fv parameter shall only be used for calculation of Ts. (ASCE Table 11.4-2, Supplement 1, Note a)

Liquefaction

Soil liquefaction is a phenomenon where saturated granular soils undergo a substantial loss of strength due to increased pore water pressure resulting from cyclic stress applications induced by earthquakes or other vibrations. In this process, the soil acquires mobility sufficient to permit both vertical and horizontal movements, which may result in significant deformations. Soils most susceptible to liquefaction are loose, uniformly graded, fine-grained sands. In addition, recent literature indicates that fine grained soils may also be susceptible to liquefaction or cyclic strain softening. Examples of highly susceptible fine-grained soil include “non-plastic silts and clayey silts of low plasticity (PI<12) at high water content to liquid limit ratios (w_c/LL>0.85).” Examples of soils moderately susceptible to liquefaction include “clayey silts and silty clays of moderate plasticity (12<PI<18) at natural water content and Liquid Limits ratios (w_c/LL) greater than 0.80” (Bray and Sancio, 2006). It is generally acknowledged that liquefaction will not affect surface improvements if these deposits are located at a depth greater than 50 feet below the ground surface. In the deeper deposits, the greater overburden pressure is sufficient to prevent liquefaction effects from occurring.

Earth Systems did not perform any engineering analysis to evaluate liquefaction potential at the site. Butano Geotechnical Engineering, estimated total liquefaction related settlement of 1.5 inches and a differential settlement of 0.75 inches. Assuming the presence of elevated groundwater table elevations, it is our opinion that the liquefaction induced settlement estimates by Butano are reasonable for the site conditions.

Lateral Spreading

Liquefaction induced lateral spreading is a phenomenon in which the gently sloping ground displaces laterally because of pore pressure build-up or liquefaction in a shallow subsurface layer during an earthquake. This phenomenon is also observed when a flat ground with liquefiable underlying deposits is adjacent to an open face such as channel bank or approach embankment. Based on Butano's analysis, there is no near open slope face at the site, therefore it is the opinion of Butano that the potential for lateral spreading to occur at the site is low. Based on our site observations, we agree with Butano's assessment.

5.0 CONCLUSIONS

Site Suitability

The subject site is suitable for the proposed agricultural development from a geotechnical engineering standpoint, provided the recommendations included in this report are followed. The primary geotechnical concern at the site is the loose sandy, silty, and clayey soils near the existing ground surface throughout the site.

Soil Expansion Potential

Based on the review of the subsurface conditions encountered in our soil borings drilled at the site, the near surface soils are judged to have a low shrinkage/swelling potential and measures other than moisture conditioning and compacting the soil are not considered necessary to mitigate soil expansion.

Organic Content

Bulk samples were obtained during the subsurface investigation to evaluate the organic content as a percentage of the soil by weight. Based on the review of the organic content samples tested, the near surface soil are judged to have a low organic content. Results of organic content testing are included in Appendix B.

Foundations

The proposed hoop greenhouse buildings, the processing building, and retaining walls may be each supported on conventional spread/strip footings. Details of the foundation recommendations are included in the following sections of the report.

Site Preparation and Grading

Grading plans were not available during the preparation of this report. The results of our subsurface exploration indicate that the near surface soils at the site consist of loose sandy and soft silty to clayey soils at the near surface of the existing ground, followed by loose to medium dense sands and soft to stiff clays within the upper 10 feet. Based on the presence of loose or soft soils near the existing ground surface, we recommend an over-excavation program for the new greenhouse buildings, processing building, exterior flatwork, and pavement areas. Additional information can be found in the Site Preparation and Grading section.

Static Settlement

Based on our understanding of the proposed development, and because the building loads are anticipated to be low to moderate, anticipated static settlements of the structures supported on foundations designed and constructed per the recommendations included in this report are on the order of 1 inch with a differential settlement of ½ inch.

Groundwater

Groundwater/freewater was encountered during the field investigation in Borings B-2, B-3, B-4, B-5, and B-6 at depths of 10 feet, 8 feet, 9.5 feet, 7 feet, and 8 feet, respectively. Variations in rainfall, temperature,and other factors may affect water levels, and therefore groundwater levels should not be considered constant. Groundwater is not expected to have an adverse effect on the construction or performance of the planned development.

Seismicity

The San Francisco Bay area is recognized by geologists and seismologists as one of the most seismically active regions in the United States. The significant earthquakes in this area are generally associated with crustal movement along well-defined, active fault zones which regionally trend in a northwesterly direction. Although research on earthquake prediction has greatly increased in recent years, seismologists cannot predict when and where an earthquake will occur. Nevertheless, on the basis of current technology, it is reasonable to assume that the proposed field upgrades will be subjected to at least one moderate to severe earthquake during its lifetime. During such an earthquake, except on the southeast site corner, the hazards from fault offset on the site is low, but strong shaking of the site is likely to occur and, therefore, the project should be designed in accordancewith the seismic design provisions of the latest California Building Code. It should be understood that the California Building Code seismic design parameters are not intended to prevent structural damage during an earthquake, but to reduce damage and minimize loss of life.

6.0 RECOMMENDATIONS

Site Preparation and Grading

General Site Preparation

1. The site should be prepared for grading by removing vegetation, large roots, debris, and other potentially deleterious materials from areas to receive improvements. Existing utility lines that will not be serving the proposed development should be either removed or abandoned. The appropriate method of utility abandonment will depend upon the type and depth of the utility. Recommendations for abandonment can be made as necessary.

2. Ruts or depressions, abandoned and/or buried debris, and remnants of the former use of the site that are discovered during site grading should be removed and properly cleaned out down to undisturbed native soil. The bottoms of the resulting depressions should be scarified and cross-scarified at least 8-inches in depth, moisture conditioned and recompacted. The sides of the deeper depressions should be laid back and the fill material should be keyed into the sides

as the layers are being placed. The depressions should then be backfilled with approved, compacted, moisture conditioned structural fill, as recommended in other sections of this report.

3. The site grading plans were not available when this report was prepared. Due to the presence of loose sandy and soft silty, clayey soils, a program of over-excavation and backfilling is recommended. Over-excavation on the order of 18 inches from the proposed grade elevation within the greenhouse building footprints, processing building footprint, exterior flatwork, and pavement areas should be anticipated. This over-excavation and recompaction should extend a minimum of 5 feet beyond each hoop greenhouse and processing building perimeter and a minimum 1 foot beyond the exterior edges of the exterior flatwork and pavement. The exposed ground should be inspected by the Geotechnical Engineer to determine the need for additional excavation work prior to the start of grading work. Following the over-excavation process to 18 inches below the bottom of the proposed subgrade, the top 8 inches of soil from the bottom of the over-excavated areas should be scarified, moisture conditioned to slightly over optimum moisture content, and recompacted a minimum relative compaction of 90 percent, unless noted otherwise. If uneven terrain is present within the greenhouse or processing building pad areas, the scarified soil should be spread evenly across the proposed pad areas prior to recomapction. The over-excavated soil may then be either replaced with non-expansive imported fill or mixed with cement. Any recompacted soil should be placed back in thin 6 to 8 inch lifts, moisture conditioned to slightly over optimum moisture content, and compacted to the desired grade at a minimum relative compaction of 90 percent within the hoop greenhouse structures, processing building, and exterior flatwork areas and a minimum relative compaction of 92 percent for any vehicle pavement areas.

4. In-lieu of the removal and replacement of the top 18 inches of the native soil, the top 18 inches of soil could be mixed with cement, moisture conditioned and compacted in place. For the pavement and building subgrade preparation under the hoop structures, processing building, exterior flatwork, and pavement areas, the upper 18 inches of soil below the planned subgrade elevation can be cement-treated. The percentage of cement should be determined on the basis of achieving a minimum unconfined compression strength of 300 psi. The laboratory testing used to measure appropriate percentage of cement should be performed in accordance with ASTM D1557-12 and tested using ASTM D1633-17. For preliminary planning purposes, a spread rate of 5-percent cement by dry unit weight of soil, taken as 110 pcf can be assumed. The cement treatment and compaction operations should be performed by a contractor experienced in soil-stabilization. The mixed soil should be compacted to a minimum of 92 percent relative compaction. The cement treatment operation should be performed under full-time observations of our field representative. Prior to performing the cement treatment operation, the site should be rough-graded to ±1 inch of the final pad subgrade elevations. The cement treated soil should be compacted to a minimum of 92 percent relative compaction at slightly over-optimum moisture content and tested by a representative of Earth Systems.

5. Organic soil or soil contaminated with debris will not be suitable for use as structural fill and should be removed from the site or stockpiled for use in landscape areas.

6. Site clearing and backfilling operations should be conducted under the field observation of the Geotechnical Engineer. The Geotechnical Engineer should be notified at least 48 hours prior to commencement of grading operations.

Compaction Recommendations

1. In general, prior to placing fill, the top 8 inches of underlying native soil in areas proposed to receive fill, exterior flatwork or new structures should be scarified, moisture conditioned to slightly over optimum moisture content, and recompacted to the recommended relative compaction presented below, unless noted otherwise. This scarification operation should be performed at locations designated for proposed structural fill, at-grade concrete floor slabs, exterior flatwork, foundations, and pavement areas.

2. Recompacted native soils and fill soils should be compacted to a minimum relative compaction of 90 percent of maximum dry density at a moisture content that is slightly above optimum. Imported fill material should be compacted to a minimum of 90 percent relative compaction at slightly over optimum moisture content.

Fill Recommendations

1. Structural fill is defined herein as a native or import fill material which, when properly compacted, will support foundations, pavements, and other fills. The on-site native soil that is free of debris, organics, and other deleterious material, may be used as structural fill.

2. Should any import fill be utilized at the site for the building pad, the import soil should meet the following criteria:

    a. Be coarse grained and have a plasticity index of less than 15 and/or an expansion index less than 20;

    b. Be free of organics, debris or other deleterious material;

    c. Have a maximum rock size of 3 inches; and

    d. Contain sufficient clay binder to allow for stable foundation and utility trench excavations.

3. A sample of the soil proposed to be imported to the site should be submitted at least 5 working days before being transported to the site for evaluation by the Geotechnical Engineer. During importation to the site the material should be further reviewed on an intermittent basis.

Processing Building Foundations

1. The processing buildings may be supported by conventional spread/strip footings bearing in firm native soil. Any isolated spread footings should be at least 2 feet wide and should be embedded 2 feet below the lowest adjacent grade. Any strip footings should be embedded 2 feet below the lowest adjacent grade. Due to the presence of loose soils below the footings, we recommend that the top three (3) feet of the native soil below the bottom of any spread or strip footings be removed and replaced with compacted Class II aggregate base, conforming with Section 26-1.02B of the Caltrans Standard Specifications conforming with Section 26-1.02B of the Caltrans Standard Specifications, the aggregate baserock layer should extend a minimum of 1 foot beyond the dimensions of the footings and the baserock should be placed in layers (not exceeding 1 foot in loose rock thickness) where each layer is compacted to a minimum relative compaction of 90 percent prior to placing the next layer on top. The footings should be reinforced as directed by the architect/engineer.

2. Footings constructed in accordance with the previously provided recommendations may be designed using a maximum allowable bearing capacity of 2,000 psf dead plus live load. This value may be increased by one-third when transient loads such as wind or seismicity are included. Using these criteria, long term total and differential foundation settlements are expected to be on the order of 1 inch and ½ inch, respectively.

3. The footing excavations should be observed by the Geotechnical Engineer prior to placement of formwork or reinforcement.

4. Resistance to lateral loads should be calculated based on a passive equivalent fluid pressure of 250 pcf and a friction factor of 0.30. Passive and frictional resistance can be combined in the calculations without reductions. These values are based on the assumption that backfill adjacent to foundations is compacted to the grading specifications discussed above.

Hoop Greenhouse Foundations

1. The greenhouse hoop buildings may be supported by conventional spread/strip footings bearing in firm native soil. Any isolated spread footings should be at least 2 feet wide and should be embedded 2 feet below the lowest adjacent grade. Any strip footings should be embedded 2 feet below the lowest adjacent grade. Due to the presence of loose soils below the footings, we recommend that the top three (3) feet of the native soil below the bottom of any spread or strip footings be removed and replaced with compacted Class II aggregate base, conforming with Section 26-1.02B of the Caltrans Standard Specifications conforming with Section 26-1.02B of the Caltrans Standard Specifications, the aggregate baserock layer should extend a minimum of 1 foot beyond the dimensions of the footings and the baserock should be placed in layers (not exceeding 1 foot in loose rock thickness) where each layer is compacted to a minimum relative compaction of 90 percent prior to placing the next layer on top. The footings should be reinforced as directed by the architect/engineer.

2. Footings constructed in accordance with the previously provided recommendations may be designed using a maximum allowable bearing capacity of 2,000 psf dead plus live load. This value may be increased by one-third when transient loads such as wind or seismicity are included. Using these criteria, long term total and differential foundation settlements are expected to be on the order of 1 inch and ½ inch, respectively.

3. The footing excavations should be observed by the Geotechnical Engineer prior to placement of formwork or reinforcement.

4. Resistance to lateral loads should be calculated based on a passive equivalent fluid pressure of 250 pcf and a friction factor of 0.30. Passive and frictional resistance can be combined in the calculations without reductions. These values are based on the assumption that backfill adjacent to foundations is compacted to the grading specifications discussed above.

Slab-on-Grade Construction

1. Slabs-on-grade should have a minimum thickness of 4 full inches and be reinforced as directed by the architect/engineer.

2. In areas where moisture transmitted from the subgrade would be undesirable, or where moisture sensitive materials will be stored directly on the slab, a vapor retarder of 15 mil minimum thickness should be placed between the bottom of the slab and the soil subgrade below.

3. The vapor retarder should comply with ASTM Standard Specification E 1745-17 and the latest recommendations of ACI Committee 302. The vapor retarder should be installed in accordance with ASTM Standard Practice E 1643-18a. Care should be taken to properly lap and seal the vapor retarder, particularly around utilities, and to protect it from damage during construction. A sand layer above the vapor retarder is optional.

4. It is not recommended to place a sand layer over the vapor retarder. However, if sand, gravel or other permeable material is to be placed over the vapor retarder, the material over the vapor retarder should be only lightly moistened and not saturated prior to casting. Excess water above the vapor retarder would increase the potential for moisture damage to floor coverings. Recent studies, including those by ACI Committee 302, have concluded that excess water above the vapor retarder would increase the potential for moisture damage to floor coverings and could increase the potential for mold growth or other microbial contamination.

These studies also concluded that it is preferable to eliminate the sand layer and place the slab in direct contact with the vapor retarder, particularly during wet weather construction. Should you plan to place concrete directly over the vapor membrane, we recommend the use of a 15-mil thick vapor membrane because it provides enhanced protection against rips and tears. However, placing the concrete directly on the vapor retarder would require special attention to using the proper vapor retarder, concrete mix design, and finishing and curing techniques.

5. When concrete slabs are in direct contact with vapor retarders, the concrete water to cement (w/c) ratio must be correctly specified to control bleed water and plastic shrinkage and cracking. The concrete w/c ratio for this type of application is typically in the range of 0.45 to 0.50. The concrete should be properly cured to reduce slab curling and plastic shrinkage cracking. Concrete materials, placement, and curing methods should be specified by the architect/engineer.

Retaining Wall Foundations

1. It is our understanding that loading dock will be constructed at the southern end of the processing building. The loading dock walls should be supported by conventional strip footings. The footings should have minimum depths of 24 inches below lowest adjacent grade and should bear on three (3) feet of compacted Class II aggregate base, conforming with Section 26-1.02B of the Caltrans Standard Specifications conforming with Section 26-1.02B of the Caltrans Standard Specifications, the baserock should be placed in layers (not exceeding 1 foot in loose rock thickness) where each layer is compacted to a minimum relative compaction of 90 percent prior to placing the next layer on top. The footing reinforcement should be as required by the design engineer. The footing excavations should be observed by the Geotechnical Engineer prior to placement of framework or reinforcing steel and should be moisture conditioned to close any desiccation cracks prior to concrete placement.

2. The dock wall footings thus constructed should be designed using a maximum allowable bearing capacity of 2,000 psf dead plus live load. This value may be increased by one-third when transient loads such as wind or seismicity are included. Using these criteria, long term total and differential settlements are expected to be on the order of ½ inch.

3. Resistance to lateral loads should be calculated based on a passive equivalent fluid pressure of 250 pcf and a friction factor of 0.3. Passive and frictional resistance can be combined in the calculations without reductions. These values are based on the assumption that backfill adjacent to foundations is properly compacted.

4. Lateral earth pressures for wall design should be based on the following parameters:

   At-rest equivalent fluid pressure (level backfill, drained) ……55 pcf
   At-rest equivalent fluid pressure (level backfill, undrained) ……85 pcf

5. The dock wall footings should be designed to withstand lateral pressures from surcharge loads placed on the floors behind the walls. The lateral pressure from the surcharge loads should be taken as a uniform load on the wall using one-half the applied load.

6. If seismic forces are to be considered in the retaining wall design, the seismic increment of earth pressure should be 10H pounds per square foot, where H is the height of the retained soil. The seismic pressure should be applied uniformly for the entire height of the retained soil.

7. In order to provide proper drainage, an import drain rock blanket should be placed behind the retaining walls. The drain rock blanket should be at least 12 inches wide and extend along the entire length of the retaining wall. The drain rock blanket should extend from the top of the footing to within 2 feet of the top of the wall backfill. The upper 2 feet of backfill over the drainage medium should

consist of native soil, compacted to at least 90 percent of maximum dry density, to reduce the flow of surface drainage into the wall drain system. The drain rock blanket should be separated from the backfill soil using a permeable synthetic fabric conforming to Caltrans Standard Specifications, Section 96-1.02B, Class A. Permeable material should conform to Section 68-2.02F(3), Class 2 of the Caltrans Standard Specifications. Alternatively, ¾-inch drain rock wrapped in filter fabric may be used. Manufactured synthetic drains such as Miradrain or Enkadrain may be used in lieu of drain rock and should be installed in accordance with the recommendations of the manufacturer. A 4-inch diameter, perforated/horizontal pipe should be placed at the bottom of the drain blanket/synthetic drains with perforations down. The pipe should discharge to an approved discharge point beyond and down slope of the wall. Provisions should be made to remove surface water or water collected behind the retaining walls.

8. Retaining wall backfill should be placed in thin, moisture conditioned lifts, compacted to a minimum of 90 percent of maximum dry density, as tested by the Geotechnical Engineer.

9. The architect/engineer should bear in mind that retaining walls by their nature are flexible structures, and the flexibility can often cause cracking in surface coatings. Where walls are to be plastered or will otherwise have a finish surface applied, this flexibility should be considered in determining the suitability of the surfacing material, spacing of horizontal and vertical joints, connections to structures, etc.

10. Retaining walls in areas where intrusion of moisture would be undesirable, should be waterproofed in accordance with the specifications of the architect/engineer.

Exterior Flatwork

1. Exterior flatwork should have a minimum thickness of 4 full inches and should be reinforced as directed by the architect/engineer. If needed, a 4-inch thick layer may be used below the flatwork because it is easier to level and provides a firm base.

2. Assuming that movement (i.e., 1/4-inch or more) of exterior flatwork beyond the structure is acceptable, the flatwork should be designed to be independent of the building foundations. The flatwork should not be doweled to foundations, and a separator should be placed between the two.

3. Prior to placement of the concrete, the soils surface in the flatwork area should be at or above optimum moisture content as necessary, and no desiccation cracks should be present.

4. To reduce shrinkage cracks in concrete, the concrete aggregates should be of appropriate size and proportion, the water/cement ratio should be low, the concrete should be properly placed and finished, contraction joints should be installed, and the concrete should be properly cured. Concrete materials, placement and curing specifications should be at the direction of the designer; ACI 302.1R-04 and ACI 302.2R-04 are suggested as resources for the designer in preparing such specifications.

Light Pole Foundations

1. The light poles may be supported on drilled, cast-in-place, reinforced concrete piers. A representative from Earth Systems should be present during pier drilling to verify that the piers extend to the proper depth. The piers should be a minimum 24 inches in diameter and extend at least 6 feet below the finished grade. The piers may be designed for a skin friction of 350 psf, with an increase of one-third when considering wind and seismic loading.

2. To resist lateral loads, a passive equivalent fluid pressure of 250 pcf may be used and should be applied over a tributary width of one pier diameter. The upper two (2) feet of penetration should be disregarded in skin friction and lateral calculations when the piers are located on the descending slope and 1 foot when located on level ground.

Flexible Pavement Sections

1. The asphalt pavement design sections were developed using the State of California Highway Design Manual, Chapter 630-Flexible Pavement. If the soil subgrade below the pavement is prepared in accordance with our previous recommendations to cement-treat the top 18 inches, an R-Value 50 may be used for the design. Determination of the appropriate Traffic Index (TI) for each area to be paved is the province of the design engineer. The calculated Asphalt Concrete (AC) and aggregate base (AB) thicknesses are for compacted subgrade material. Normal Caltrans construction tolerances should apply. The aggregate base should conform to Caltrans Class 2.

Summary of Pavement Sections

R-Value of 50

Traffic Index	Asphaltic Concrete (AC) inches	Class II Aggregate Base (AB) inches
5.0	3	4
5.5	3	4
6.0	3½	4
6.5	3½	4½
7.0	4	4½
7.5	4½	5
8.0	4½	6
8.5	5	6
9.0	5½	6½

2. The upper 18 inches of cement-treated subgrade soil should be compacted to a minimum 92 percent of maximum dry density. The aggregate base should be compacted to a minimum 95 percent of maximum dry density. The subgrade and base should be firm and unyielding when proof-rolled with heavy, rubber-tired equipment prior to paving. The pavement subgrade soils should be periodically moistened as necessary prior to placement of the aggregate base to maintain the soil moisture content near optimum.

3. Pavement longevity will be enhanced if the surface grade drains away from the edges of the pavement. Finished AC surfaces should slope toward drainage facilities at 2 percent where practicable, but in no case, should water be allowed to pond.

4. Cutoff walls below curbs and around landscape islands may be used to extend the life of the pavement by reducing irrigation water and runoff that seeps into the aggregate base. Where utilized, cutoff walls should extend through the aggregate base to penetrate a minimum of 3 inches into the subgrade soils.

5. To reduce migration of surface drainage into the subgrade, maintenance of the paved areas is critical. Any cracks that develop in the AC should be promptly sealed.

Concrete (PCC) Pavements

1. Portland Cement Concrete (PCC) pavements in automobile parking areas should be at least 5 inches thick.

2. Reinforcing of the concrete is optional. The concrete should have a minimum modulus of rupture of 450 psi. Construction joints should be doweled. The concrete pavement sections should be underlain by a minimum of 4 inches of compacted Class 2 aggregate base. Below the aggregate base, the upper 18 inches of subgrade soil should be cement-treated and compacted to a minimum 92 percent of maximum dry density. A modulus of subgrade reaction of 450 pci may be assumed in the design of the concrete pavements.

3. Cutoff walls below curbs and around landscape islands may be used to extend the life of the pavement by reducing irrigation water and runoff that seeps into the aggregate base. Where utilized, cutoff walls should extend through the aggregate base to penetrate a minimum of 3 inches into the subgrade soils.

Utility Trench Backfills and Drainage Trenches

1. A select, noncorrosive, easily compacted material, should be used as the bedding and shading immediately around utility pipes. The on-site site soils may be used for trench backfill above the select material.

2. Trench backfill in the upper 8 inches of subgrade beneath pavement areas should be compacted to a minimum of 95 percent of maximum dry density at a moisture content above optimum moisture content and the aggregate base courses should be compacted to a minimum 95 percent of maximum dry density at a moisture content above optimum. Trench backfill in other areas should be compacted to a minimum of 90 percent of maximum dry density at a moisture content above optimum moisture content. Jetting of utility trench backfill should not be allowed.

3. Parallel trenches excavated in the area under foundations defined by a plane radiating at a 45-degree angle downward from the bottom outer edge of the footing should be avoided, if possible. Trench backfill within this zone, if necessary, should consist of Controlled Density Fill (Flowable Fill).

4. Where utility trenches extend under perimeter foundations, the trenches should be backfilled entirely with approved native soil compacted to a minimum of 90 percent of maximum dry density at a moisture content above optimum. The zone of approved fill soil should extend to a minimum distance of 2 feet on both sides of the foundation. If utility pipes pass through sleeves cast into the perimeter foundation, the annulus between the pipes and sleeves should be completely sealed.

Management of Site Drainage and Finish Improvements

1. Unpaved ground surfaces should be finish graded to direct surface runoff away from sitedevelopments at a minimum 5 percent grade for a minimum distance of 10 feet. If this is not practical due to the terrain or other site features, swales with improved surfaces should be provided to divert drainage away from improvements. The landscaping should be planned and installed to maintain proper surface drainage conditions.

2. Runoff from driveways, walk areas, planter drains, and other improvements should discharge in a non-erosive manner away from foundations, pavements, and other improvements. The downspouts may discharge on to splash blocks that direct the flow away from the foundation.

3. Stabilization of surface soils, particularly those disturbed during construction, by vegetation or other means during and following construction is essential to protect the site from erosion damage. Care should be taken to establish and maintain vegetation.

4. Open areas adjacent to exterior flatwork should be irrigated or otherwise maintained so that constant moisture conditions are created throughout the year. Irrigation systems should be controlled to the minimum levels that will sustain the vegetation without saturating the soil.

Geotechnical Observation and Testing

1. It must be recognized that the recommendations contained in this report are based on alimited number of borings and rely on continuity of the subsurface conditions encountered.

2. It is assumed that the Geotechnical Engineer will be retained to provide consultation during the design phase, to interpret this report during construction, and to provide construction monitoring in the form of testing and observation.

3. Unless otherwise stated, the terms "compacted" and "recompacted" refer to soils placed in level lifts not exceeding 8 inches in loose thickness and compacted to a minimum of 90 percent of maximum dry density. The standard tests used to define maximum dry density and field density should be ASTM D 1557-12 and ASTM D 6938-17a, respectively, or other methods acceptable to the Geotechnical Engineer and jurisdiction.

4. "Moisture conditioning" refers to adjusting the soil moisture to slightly over optimum moisture content prior to application of compactive effort. If the soils are overly moist so that they become unstable, or if the recommended compaction cannot be readily achieved, drying the soil to optimum moisture content or just above may be necessary. Placement of gravel layers or geotextiles may also be necessary to help stabilize unstable soils. The Geotechnical Engineer should be contacted for recommendations for mitigating unstable soils.

5. At a minimum, the following should be provided by the Geotechnical Engineer:
    - Review of final grading and foundation plans
    - Professional observation during site preparation, grading, and foundation excavation
    - Oversight of soil compaction testing during grading
    - Oversight of soil special inspection during grading.

6. Special inspection of grading should be provided as per Section 1705.6 and Table 1705.6 of the CBC; the soils special inspector should be under the direction of the Geotechnical Engineer. In our opinion, the following operations should be subject to *continuous* soils special inspection:
    - Scarification and recompaction
    - Over-excavation to the recommended depth
    - Fill placement and compaction

7. In our opinion, the following operations may be subject to *periodic* soils special inspection, subject to approval by the Building Official:
    - Site preparation
    - Compaction of utility trench backfill
    - Compaction of subgrade under the interior slabs

- Compaction of aggregate base under footings
- Observation of foundation excavation
- Building pad moisture conditioning

8. It will be necessary to develop a program of quality control prior to beginning grading. It is the responsibility of the owner, contractor, or project manager to determine additional inspection items required by the architect/engineer or the governing jurisdiction.

9. The locations and frequencies of compaction tests should be as per the recommendations of the Geotechnical Engineer at the time of construction. The recommended test locations and frequencies may be subject to modification by the Geotechnical Engineer based upon soil and moisture conditions encountered, the size and type of equipment used by the contractor, the general trend of the compaction test results, and other factors.

10. A preconstruction conference among a representative of the owner, the Geotechnical Engineer, soils special inspector, the architect/structural engineer, and contractors is recommended to discuss planned construction procedures and quality control requirements. Earth Systems should be notified at least 48 hours prior to beginning grading operations.

7.0 CLOSURE

This report is valid for conditions as they exist at this time for the type of project described herein. Our intent was to perform the investigation in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the locality of this project at this time under similar conditions. No representation, warranty, or guarantee is either expressed or implied. This report is intended for the exclusive use by the client as discussed in the Scope of Services section. Application beyond the stated intent is strictly at the user's risk.

If changes with respect to the project type or location become necessary, if items not addressed in this report are incorporated into plans, or if any of the assumptions stated in this report are not correct, Earth Systems should be notified for modifications to this report. Any items not specifically addressed in this report should comply with the CBC and the requirements of the governing jurisdiction.

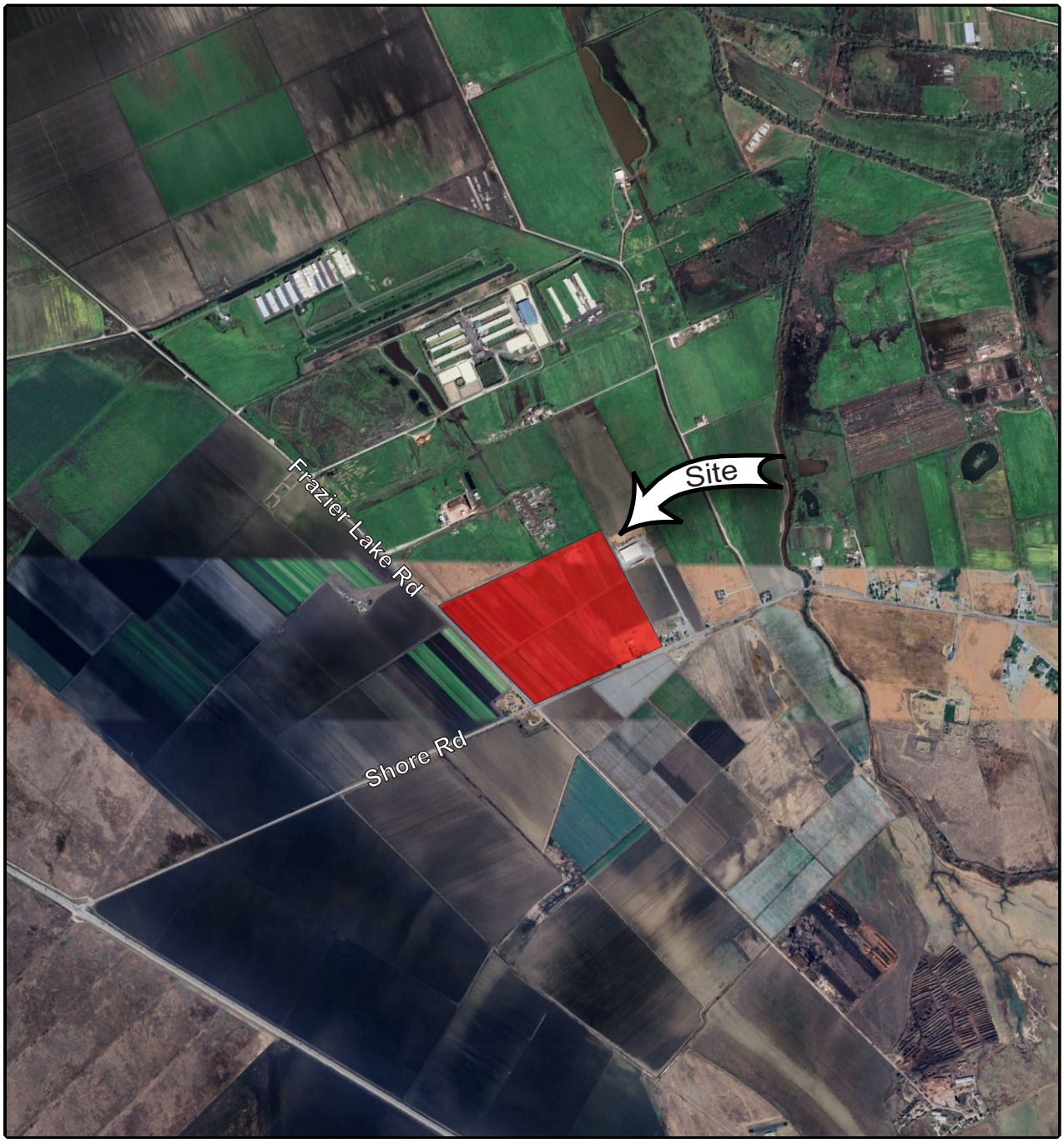
The preliminary recommendations of this report are based upon the geotechnical conditions encountered during the investigation and may be augmented by additional requirements of the architect/engineer, or by additional recommendations provided by Earth Systems based on conditions exposed at the time of construction.

This document, the data, conclusions, and recommendations contained herein are the property of Earth Systems. This report should be used in its entirety, with no individual sections reproduced or used out of context. Copies may be made only by Earth Systems, the client, and his authorized agents for use exclusively on the subject project. Any other use is subject to federal copyright laws and the written approval of Earth Systems.

FIGURES

Figure 1 – Site Vicinity Map
Figure 2 – Boring Location Map

Figure 1



Approximate Site Location

2000 0 2000 4000

Approximate Scale in Feet

Base: Google Earth (2025)

EARTH SYSTEMS	**Hippo Harvest GER** **2370 Shore Road** **Hollister, California**	**Site Vicinity Map** **File No.: 307356-001**

Figure 2



Base: Google Earth (2025)

EARTH SYSTEMS	Hippo Harvest GER 2370 Shore Road Hollister, California	**Boring Location Map** File No.: 307356-001

APPENDIX A

Logs of Soil Borings (Earth Systems) (6)

Logs of Soil Boring (Butano) (11)

Earth Systems Pacific

BORING LOG LEGEND

SAMPLE / SUBSURFACE WATER SYMBOLS	GRAPH. SYMBOL
CALIFORNIA MODIFIED	
STANDARD PENETRATION TEST (SPT)	
SHELBY TUBE	
BULK	
SUBSURFACE WATER DURING DRILLING	
SUBSURFACE WATER AFTER DRILLING	

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

MAJOR DIVISIONS	GROUP SYMBOL	TYPICAL DESCRIPTIONS	GRAPH. SYMBOL
COARSE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS LARGER THAN #200 SIEVE SIZE)	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
	GP	POORLY GRADED GRAVELS, OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES	
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES	
	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
	SP	POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES	
	SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES	
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES	
FINE GRAINED SOILS (HALF OR MORE OF MATERIAL IS SMALLER THAN #200 SIEVE SIZE)	ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

OBSERVED MOISTURE CONDITION

DRY	SLIGHTLY MOIST	MOIST	VERY MOIST	WET (SATURATED)

CONSISTENCY

COARSE GRAINED SOILS			FINE GRAINED SOILS		
BLOWS/FOOT		DESCRIPTIVE TERM	BLOWS/FOOT		DESCRIPTIVE TERM
SPT	CA SAMPLER		SPT	CA SAMPLER	
0-10	0-16	LOOSE	0-2	0-3	VERY SOFT
11-30	17-50	MEDIUM DENSE	3-4	4-7	SOFT
31-50	51-83	DENSE	5-8	8-13	MEDIUM STIFF
OVER 50	OVER 83	VERY DENSE	9-15	14-25	STIFF
			16-30	26-50	VERY STIFF
			OVER 30	OVER 50	HARD

GRAIN SIZES

U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENING		
# 200	# 40	# 10	# 4	3/4"	3"	12"

SILT & CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

TYPICAL BEDROCK HARDNESS

MAJOR DIVISIONS	TYPICAL DESCRIPTIONS
EXTREMELY HARD	CORE, FRAGMENT, OR EXPOSURE CANNOT BE SCRATCHED WITH KNIFE OR SHARP PICK; CAN ONLY BE CHIPPED WITH REPEATED HEAVY HAMMER BLOWS
VERY HARD	CANNOT BE SCRATCHED WITH KNIFE OR SHARP PICK; CORE OR FRAGMENT BREAKS WITH REPEATED HEAVY HAMMER BLOWS
HARD	CAN BE SCRATCHED WITH KNIFE OR SHARP PICK WITH DIFFICULTY (HEAVY PRESSURE); HEAVY HAMMER BLOW REQUIRED TO BREAK SPECIMEN
MODERATELY HARD	CAN BE GROOVED 1/16 INCH DEEP BY KNIFE OR SHARP PICK WITH MODERATE OR HEAVY PRESSURE; CORE OR FRAGMENT BREAKS WITH LIGHT HAMMER BLOW OR HEAVY MANUAL PRESSURE
SOFT	CAN BE GROOVED OR GOUGED EASILY BY KNIFE OR SHARP PICK WITH LIGHT PRESSURE, CAN BE SCRATCHED WITH FINGERNAIL; BREAKS WITH LIGHT TO MODERATE MANUAL PRESSURE
VERY SOFT	CAN BE READILY INDENTED, GROOVED OR GOUGED WITH FINGERNAIL, OR CARVED WITH KNIFE; BREAKS WITH LIGHT MANUAL PRESSURE

TYPICAL BEDROCK WEATHERING

MAJOR DIVISIONS	TYPICAL DESCRIPTIONS
FRESH	NO DISCOLORATION, NOT OXIDIZED
SLIGHTLY WEATHERED	DISCOLORATION OR OXIDATION IS LIMITED TO SURFACE OF, OR SHORT DISTANCE FROM, FRACTURES: SOME FELDSPAR CRYSTALS ARE DULL
MODERATELY WEATHERED	DISCOLORATION OR OXIDATION EXTENDS FROM FRACTURES, USUALLY THROUGHOUT; Fe-Mg MINERALS ARE "RUSTY", FELDSPAR CRYSTALS ARE "CLOUDY"
INTENSELY WEATHERED	DISCOLORATION OR OXIDATION THROUGHOUT; FELDSPAR AND Fe-Mg MINERALS ARE ALTERED TO CLAY TO SOME EXTENT, OR CHEMICAL ALTERATION PRODUCES IN SITU DISAGGREGATION
DECOMPOSED	DISCOLORATION OR OXIDATION THROUGHOUT, BUT RESISTANT MINERALS SUCH AS QUARTZ MAY BE UNALTERED; FELDSPAR AND Fe-Mg MINERALS ARE COMPLETELY ALTERED TO CLAY

drafting/masters/Boring Log Legend121714.dwg

EARTH SYSTEMS

Boring B-1

LOGGED BY: J. Woodard
RIG TYPE: Mobile B-24
AUGER TYPE: 8" Hollow Stem Auger

FILE NO.: 307356-001
DATE: 8/21/2025

Hippo Harvest GER
2370 Shore Road
Hollister, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	CL-ML		SANDY SILTY CLAY; dark brown, moist, soft, trace fine brown-buff sand	0.5 - 4.5	BAG A	○				
1										
2	SC		CLAYEY SAND; brown, moist, loose, fine grained sand, mottled dark brown with yellowish brown						4	
				1.5 - 2.0	1-1	■	98.4	11.4	4	
				2.0 - 2.5	1-2	■			4	
3										
4	CL-ML		SANDY SILTY CLAY; olive brown with gray, moist to slightly wet, soft, fine grained sand						2	
				3.5 - 4.0	1-3	■			2	1.0
				4.0 - 4.5	1-4	■			3	
5										
6			- medium stiff, some yellowish brown fine grained sand						2	
				5.5 - 6.0	NR				3	
				6.0 - 6.5	1-5	■			4	1.0
7										
8	CL		LEAN CLAY; light grayish brown, moist, medium stiff						3	
									3	
				8.0 - 8.5	1-6	■			6	
9										
10			- poor recovery - sample collected from cuttings at 9 to 10 feet	9.0 - 10.0	1-7					
11										
12										
13			- blueish gray, soft						2	
				12.5 - 13.0	1-8	■			2	0.5
				13.5 - 14.0	1-9	■			3	
14									2	
			- wet						2	
15				14.5 - 15.0	1-10	■			2	0.5
			Boring terminated at 15 feet below ground surface (bgs). Groundwater was not encountered to the maximum depth of drilling.							
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ▭ Shelby ● SPT ○ Bulk Sample ▽ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

EARTH SYSTEMS

Boring B-2

LOGGED BY: J. Woodard
RIG TYPE: Mobile B-24
AUGER TYPE: 8" Hollow Stem Auger

FILE NO.: 307356-001
DATE: 8/21/2025

Hippo Harvest GER
2370 Shore Road
Hollister, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	SM		SILTY SAND; grayish brown, slightly moist, fine grained sand, trace coarse gravel							
1				1.5 - 5.0	BAG B	◯			2	
2			- olive gray / brown, moist, loose, fine to medium grained sand	1.5 - 2.0	2-1	■	93.5	8.4	3	
				2.0 - 2.5	2-2	■			2	
3									3	
4			- olive brown	3.5 - 4.0	2-3	■			2	
				4.0 - 4.5	2-4	■			3	
5									5	
6				5.5 - 6.0	2-5	■			6	
				6.0 - 6.5	2-6	■			7	
7									4	
8	SP		POORLY GRADED SAND WITH SILT; grayish brown, wet, loose, fine grained sand	7.5 - 8.0	2-7	■			5	
				8.0 - 8.5	2-8	■			4	
9										
10			- groundwater encountered ▼							
11										
12			- no recovery, sand catcher added						4	
			- flowing sands	12.5 - 13.0	2-9	■			5	
13				13.0 - 13.5	2-10	■			4	
14			Boring terminated at 13.5 feet below ground surface (bgs). Groundwater was encountered at 10 feet below ground surface.							
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ▭ Shelby ● SPT ◯ Bulk Sample ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

EARTH SYSTEMS

Boring B-3

LOGGED BY: J. Woodard
RIG TYPE: Mobile B-24
AUGER TYPE: 8" Hollow Stem Auger

FILE NO.: 307356-001
DATE: 8/21/2025

Hippo Harvest GER
2370 Shore Road
Hollister, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0 - 1	SC		CLAYEY SAND; dark brown, slightly dry to moist, fine grained sand							
1 - 2	SM		SILTY SAND; light olive brown to buff, moist, loose, fine to medium grained sand, mottled with dark brown clayey sand	1.5 - 4.0	BAG C	◯			6	
				1.5 - 2.0	3-1	■	100.3	9.4	6	
				2.0 - 2.5	3-2	■			6	
3 - 4									4	
				3.5 - 4.0	3-3	■			5	
				4.0 - 4.5	3-4	■			7	
5 - 6									4	
	SP		POORLY GRADED SAND with SILT to SILTY SAND; grayish brown, moist, loose, fine to medium grained sand	5.5 - 6.0	3-5	■			6	
				6.0 - 6.5	3-6	■			5	
7			- no recovery, sand catcher added						3	
8			- groundwater encountered ▼	7.5 - 8.0	3-7	■			4	
				8.0 - 8.5	3-8	■			7	
9									5	
				9.0 - 9.5	3-9	■			7	
10			- medium dense	9.5 - 10.0	3-10	■			10	
11 - 12			Boring terminated at 10 feet below ground surface (bgs). Groundwater was encountered at 8 feet below ground surface.							
13 - 14										
15 - 16										
17 - 18										
19 - 20										
21 - 22										
23 - 24										
25 - 26										

LEGEND: ■ 2.5" Mod Cal Sample ▭ Shelby ● SPT ◯ Bulk Sample ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

EARTH SYSTEMS

Boring B-4

LOGGED BY: J. Woodard
RIG TYPE: Mobile B-24
AUGER TYPE: 8" Hollow Stem Auger

FILE NO.: 307356-001
DATE: 8/21/2025

Hippo Harvest GER
2370 Shore Road
Hollister, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	SM		SILTY SAND; brown to yellowish brown, slightly moist, fine grained sand, some dark brown mottling in upper 2.5 feet	1.0 - 5.0	BAG D	◯			4	
2			- fine to medium grained sand	1.5 - 2.0	4-1	■	99.6	12.9	3	
			- loose	2.0 - 2.5	4-2	■			3	
3									3	
4			- no mottling, fine grained sand	3.5 - 4.0	4-3	■			3	
				4.0 - 4.5	4-4	■			4	
5									3	
6	CL-ML		SANDY SILTY CLAY; olive gray with dark brown, moist, medium stiff, fine grained sand	5.5 - 6.0	4-5	■			2	
				6.0 - 6.5	4-6	■			5	1.25
7									2	
8			- iron staining						1	
			- soft	8.0 - 8.5	4-7	■			4	
9			- groundwater encountered at 9.5 feet ▼						4	
	SM		SILTY SAND; brown, moist, loose to medium dense, fine to medium grained sand	9.0 - 9.5	4-8	■			7	
10				9.5 - 10.0	4-9	■			8	
11			Boring terminated at 10 feet below ground surface (bgs). Groundwater was encountered at 9.5 feet below ground surface.							
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ▭ Shelby ● SPT ◯ Bulk Sample ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

EARTH SYSTEMS

Boring B-5

LOGGED BY: J. Woodard
RIG TYPE: Mobile B-24
AUGER TYPE: 8" Hollow Stem Auger

FILE NO.: 307356-001
DATE: 8/21/2025

Hippo Harvest GER
2370 Shore Road
Hollister, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	CL-ML		SILTY CLAY with SAND; dark brown, moist, fine grained sand							
1				1.0 - 4.0	BAG E	◯				
									2	
2			- olive brown to yellowish brown, medium stiff	1.5 - 2.0	5-1	■	97.1	18.5	3	1.5
				2.0 - 2.5	5-2	■			3	
3										
									2	
4				3.5 - 4.0	5-3	■			2	1.5
			- soft	4.0 - 4.5	5-4	■			3	
5										
									2	
6				5.5 - 6.0	NR				3	
			- medium stiff	6.0 - 6.5	NR				4	
7			- groundwater encountered ▼							
			- no recovery, added sand catcher						3	
8				7.5 - 8.0	5-5	■			3	
			- wet	8.0 - 8.5	5-6	■			6	
9										
10										
11										
12	CL		LEAN CLAY; blueish gray, moist to wet, medium stiff						2	
				12.5 - 13.0	5-7	■			2	0.75
13				13.0 - 13.5	5-8	■			4	
									2	
14	SC		CLAYEY SAND; blueish gray, very moist, loose, fine grained sand	14.0 - 14.5	5-9	■			6	
				14.5 - 15.0	5-10	■			5	
15										
16			Boring terminated at 15 feet below ground surface (bgs). Groundwater was encountered at 7 feet below ground surface.							
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ▭ Shelby ● SPT ◯ Bulk Sample ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

EARTH SYSTEMS

Boring B-6

LOGGED BY: J. Woodard
RIG TYPE: Mobile B-24
AUGER TYPE: 8" Hollow Stem Auger

FILE NO.: 307356-001
DATE: 8/21/2025

Hippo Harvest GER
2370 Shore Road
Hollister, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	SM		SILTY SAND; brown to yellowish brown, slightly moist, fine to medium grained sand	1.0 - 5.0	BAG F	○			2	
2			- moist, loose	1.5 - 2.0	6-1	■	92.0	11.5	3	
				2.0 - 2.5	6-2	■			4	
4				3.5 - 4.0	6-3	■			3 4	
				4.0 - 4.5	6-4	■			4	
6	SP		POORLY GRADED SAND; grayish brown, wet, loose, fine to medium grained sand	5.5 - 6.0	6-5				4	
				6.0 - 6.5	6-6				6	
8			- no recovery, sand catcher added - groundwater encountered ▼ - medium dense	8.0 - 8.5	6-7	■			5 6 11	
12	CL		LEAN CLAY; blueish gray, moist to wet, soft, some iron staining						1 2	
				13.0 - 13.5	6-8	■			2	1.0
14				14.0 - 14.5	6-9	■			2 3	
15			- medium stiff	14.5 - 15.0	6-10	■			3	
			Boring terminated at 15 feet below ground surface (bgs). Groundwater was encountered at 8 feet below ground surface.							

LEGEND: ■ 2.5" Mod Cal Sample ▭ Shelby ● SPT ○ Bulk Sample ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B1 (1 of 2)
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 16, 2025	Method of Drilling:	8-inch Diameter Hollow Stem Augers
Logged By:	GB		Truck Mounted Drill Rig

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Swell Pressure(psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL	☒	☒	Dark brown Lean CLAY stiff, moist	23	13	105.1	19.0	53				
		☒		Tan, stiff, very moist, with seams of Silty SAND	9	7		28.7					
5	ML	☒		Grades to a Sandy SILT, medium dense, very damp, non-plastic, very fine sand ▽	19	11	97.2	27.3		73			
10	CH	☒		Gray Fat CLAY, soft to firm, saturated	2	2		42.0					
15		☒		some interbedded lenses of clayey sand	4	3		36.1					
20	CL	☒		Gray Sandy Lean CLAY, stiff, fine sand	8	7		25.5					
25		☒			4	4		35.3					
30		☒			8	9		28.6					
35													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B1 (2 of 2)
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 16, 2025	Method of Drilling:	8-inch Diameter Hollow Stem Augers
Logged By:	GB		Truck Mounted Drill Rig

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
40	CL			Gray Sandy Lean CLAY, stiff, saturated	7	8		37.0					
45				Boring terminated at a depth of 41 1/2 feet. Goundwater was recorded at a depth of 9 feet after drilling.									
50													
55													
60													
65													
70													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B2
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 16, 2025	Method of Drilling:	6-inch Diameter Solid Stem Augers
Logged By:	AJ		Truck Mounted Drill Rig

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL			Dark brown Lean CLAY, stiff, moist	20	12	103.5	16.6					
				Tan, very moist	8	7		27.3					
5	ML			Tan Sandy SILT, loose, wet, low plasticity, very fine sand	4	3	97.0	27.3		59			
10	CL			Gray Lean CLAY, firm, saturated	4	3	79.8	43.6					
15				stiff	13	9	109.5	37.8					
20				Boring terminated at a depth of 16 1/2 feet. Groundwater measured at a depth of 8 feet after drilling.									
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B3
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 16, 2025	Method of Drilling:	6-inch Diameter Solid Stem Augers
Logged By:	AJ		Truck Mounted Drill Rig

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL			Gray Clayey SAND, loose, moist	14	8	95.0	24.0					
				seam of tan Silty SAND, loose, damp	8	6		24.2					
5	ML			Tan Sandy SILT, loose, saturated, very fine sand, non-plastic	11	8		29.3		71			
10	CL			Gray Lean CLAY, soft, saturated	2	1		41.5					
15				Boring terminated at a depth of 11 1/2 feet. Groundwater measured at a depth of 5 1/2 feet after drilling.									
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B4
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 16, 2025	Method of Drilling:	6-inch Diameter Solid Stem Augers
Logged By:	AJ		Truck Mounted Drill Rig

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	ML	☒		Tan Sandy SILT, firm, moist, slightly plastic, very fine sand	13	7	102.5	21.1					
	CL	☐		Tan Lean CLAY, stiff, moist	11	8		25.5					
5	ML	☐		Grades back to a Sandy SILT, (no recovery), loose ▽	6	4							
10	CL	☐		Dark gray Lean CLAY, soft, saturated	2	1		41.2					
15				Boring terminated at a depth of 11 1/2 feet. Groundwater measured at a depth of 7 feet after drilling.									
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B5
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 17, 2025	Method of Drilling:	6-inch Diameter Solid Stem Augers
Logged By:	GB		Tractor Mounted Drill Rig

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL			Brown Sandy Lean CLAY, firm, moist	6	4		13.6					
	SM			Tan Silty SAND, loose, damp, fine sand	15	5	96.5	10.9					
5				loose	9	7		15.6					
				medium dense, saturated	14	11		27.6					
10													
				Boring terminated at a depth of 12 feet. Groundwater measured at a depth of 8 1/2 feet after drilling.									
15													
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B6
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 17, 2025	Method of Drilling:	6-inch Diameter Solid Stem Augers
Logged By:	GB		Tractor Mounted Drill Rig

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	SM			Brown Silty SAND, loose, damp	7	5		7.7					
					12	4		8.3					
5					7	5		12.2					
	ML			Tan Sandy SILT, loose, saturated, slightly plastic, very fine sand	10	8		27.5		62			
10				Boring terminated at a depth of 9 1/2 feet. Groundwater measured at a depth of 7 feet after drilling.									
15													
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B7
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 17, 2025	Method of Drilling:	6-inch Diameter Solid Stem Augers
Logged By:	GB		Tractor Mounted Drill Rig

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL			Dark brown Lean CLAY, firm, moist	8	6		17.8	25				
				Tan, stiff	15	8	96.2	24.4			4690		
5				firm, trace fine sand	7	5		29.6					
	ML			grades to a tan Sandy SILT, firm, saturated, moderately plastic ▽	7	5		32.3					
10													
15				Boring terminated at a depth of 12 feet. Groundwater measured at a depth of 9 feet after drilling.									
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B8
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 17, 2025	Method of Drilling:	6-inch Diameter Solid Stem Augers
Logged By:	GB		Tractor Mounted Drill Rig

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL			Dark brown Lean CLAY, firm, moist	7	5		19.0					
					17	6	102.4	21.3					
	ML			Grades to a tan Sandy SILT, loose, damp,									
5				non-plastic	9	7		24.7		65			
				loose, saturated ▽	6	4		35.1					
10				Boring terminated at a depth of 9 1/2 feet. Groundwater measured at a depth of 9 feet after drilling.									
15													
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B9
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 17, 2025	Method of Drilling:	6-inch Diameter Solid Stem Augers
Logged By:	GB		Tractor Mounted Drill Rig

2" Ring Sample; 2.5" Ring Sample; Terzaghi Split Spoon Sample; Bulk Sample

Perched Water Table; Static Water Table; Water Encountered During Drilling

Change in Soil Classification; Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL			Tan Lean CLAY, firm, moist	8	6		24.7					
				stiff	15	8	100.6	23.4			1560		
	ML			grades to a Sandy SILT, loose, minor plasticity,									
5				very fine sand	8	6		26.6					
	SM			grades to a Silty SAND, loose, saturated	10	8		31.9					
10				Boring terminated at a depth of 9 1/2 feet. Groundwater measured at a depth of 7 feet after drilling.									
15													
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B10
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 17, 2025	Method of Drilling:	6-inch Diameter Solid Stem Augers
Logged By:	GB		Tractor Mounted Drill Rig

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL			Tan Sandy Lean CLAY, stiff, moist, very fine sand	7	5		17.9					
	ML			grades to a Sandy SILT, firm, slightly plastic	12	7	91.5	22.9					
5					8	5		28.4					
	SM			grades to a gray Silty SAND, medium dense, saturated	15	8		26.6					
10				Boring terminated at a depth of 9 1/2 feet. Groundwater measured at a depth of 6 1/2 feet. after drilling.									
15													
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	24-261-SB	Boring:	B11
Project:	2370 Shore Road	Location:	See Figure B-2
		Elevation:	
Date:	January 22, 2025	Method of Drilling:	3-inch diameter hand auger
Logged By:	GB		

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL			Tan Sandy Lean CLAY, stiff, moist, very fine sand									
	ML		X	grades to a Sandy SILT, firm, slightly plastic										
5				Boring terminated at a depth of 3 1/2 feet. Groundwater not encountered during drilling.									
10													
15													
20													
25													
30													
35													

APPENDIX B

Laboratory Testing Results

Hippo Harvest

307356-001

WATER, ASH, AND ORGANIC CONTENT TEST RESULTS

ASTM D 2974

Method Used: A

September 5, 2025

Ash Content Furnace Temp: 440°C

Tested by: JW

Burn Duration: 4hr

SAMPLE ID	DEPTH feet	MOISTURE CONTENT, %	ASH CONTENT, %	ORGANIC CONTENT, %
1-1b	N/A	17	98.7	1.3
2-1b	N/A	7	98.9	1.1
3-1b	N/A	8	98.9	1.1
4-1b	N/A	14	98.9	1.1
5-1b	N/A	21	97.7	2.3

Hippo Harvest 307356-001

BULK DENSITY TEST RESULTS

ASTM D 2937-17 (modified for ring liners)

August 28, 2025

BORING NO.	DEPTH feet	MOISTURE CONTENT, %	WET DENSITY, pcf	DRY DENSITY, pcf
B1-1	1.5 - 2.0	11.4	109.7	98.4
B2-1	1.5 - 2.0	8.4	101.4	93.5
B3-1	1.5 - 2.0	9.4	109.7	100.3
B4-1	1.5 - 2.0	12.9	112.4	99.6
B5-1	1.5 - 2.0	18.5	115.0	97.1
B6-1	1.5 - 2.0	11.5	102.6	92.0