SECTION 11: Soils

Kingfish Maine proposes to construct an enclosed recirculating aquaculture system (RAS) facility with multiple buildings, together with adjunct facilities and equipment on a property at 9 Mason Bay Road in Jonesport. Soils onsite are suitable for development as required in chapter 376, 'Soil Type Standard of the Site Location Law'. It is requested that the requirement for a High Intensity Soil Survey be waived. This request is predicated on the developed data set developed for the project by soils investigations as outlined herein.

Kingfish Maine has retained geotechnical engineers and soil scientists to assess soil information for the subject property for the purposes of determining suitability and limitations for the development of the RAS project. These investigations focused on the utilizable portions of the property. In addition, natural resources were identified and characterized, which identified additional soils characteristics in the wetland areas, as noted below.

A NRCS Soil Resource Report was obtained for the project. Soil types are identified therein as sands and sand loams in areas other than the wetland and peatland in the northerly section of the property.

Geotechnical investigations were performed by SW Cole Engineering in 2020. Soil types are mainly sands described in the geotechnical assessments as fluvial soils. This is consistent and associated with coastal geomorphology, and are suitable for construction. In addition, hydric soils are present in the wetlands onsite. These investigations have identified soils which are suitable for construction, and adequate depths of overburden for the project work to be pursued by conventional means.

A number of machine dug and hand dug test pits for wastewater disposal were also performed. A septic design has been completed for the proposed wastewater disposal areas, and those designs and further test pit data are enumerated in Section 17.

Mapping of the investigations performed are appended to this application. Maps are drawn at scales of 1"=100' for explorations and test pits and at other scales.

Appended to this section are the NRCS soil survey, the geotechnical investigation report which includes logs for borings and probes performed onsite, as well as test pit logs from hand dug test pits from the onsite wastewater disposal investigation.

APPENDIX 11A

NRCS Soil Survey

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Washington County Area, Maine

Kingfish Maine

December 20, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

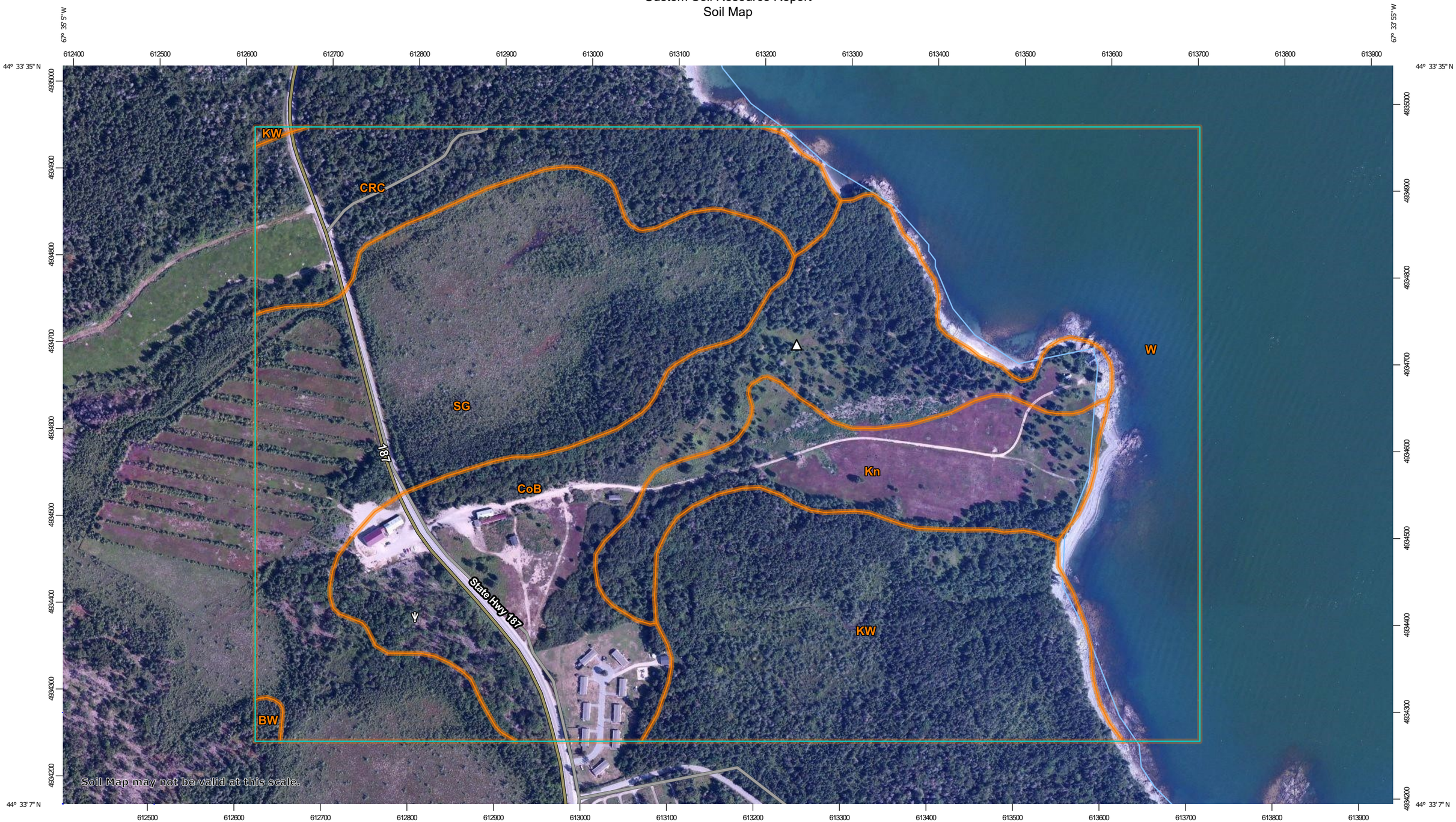
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:4,140 if printed on B landscape (17" x 11") sheet.

N

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Washington County Area, Maine
Survey Area Data: Version 21, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 29, 2010—Aug 21, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BW	Bucksport and Wonsqueak mucks, 0 to 2 percent slopes	0.4	0.2%
CoB	Colton gravelly sandy loam, 3 to 8 percent slopes	39.4	20.6%
CRC	Colton-Adams complex, 3 to 15 percent slopes	18.2	9.5%
Kn	Kinsman sand	16.2	8.4%
KW	Kinsman-Wonsqueak association, 0 to 3 percent slopes	31.6	16.5%
SG	Sebago and Moosabec soils	48.5	25.3%
W	Water	37.3	19.5%
Totals for Area of Interest		**191.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not

mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Washington County Area, Maine

BW—Bucksport and Wonsqueak mucks, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2ty70
Elevation: 0 to 1,770 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Bucksport and similar soils: 48 percent
Wonsqueak and similar soils: 41 percent
Minor components: 11 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bucksport

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material and/or woody organic material

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 25 inches: muck
Oa3 - 25 to 45 inches: muck
Oa4 - 45 to 65 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water storage in profile: Very high (about 21.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Wonsqueak

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material over loamy till

Typical profile

Oa1 - 0 to 8 inches: muck
Oa2 - 8 to 32 inches: muck
2Cg - 32 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Very high (about 18.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Peacham, very stony

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Brayton, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Telos, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Croghan

Percent of map unit: 1 percent
Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

CoB—Colton gravelly sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2yjfp
Elevation: 10 to 2,000 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Colton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Outwash deltas
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy-skeletal glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: gravelly sandy loam
Bs - 7 to 14 inches: gravelly loamy sand
BC - 14 to 24 inches: very gravelly coarse sand
C - 24 to 65 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Adams
Percent of map unit: 10 percent
Landform: Outwash deltas
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Sheepscot
Percent of map unit: 3 percent
Landform: Outwash deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Croghan
Percent of map unit: 2 percent
Landform: Outwash deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

CRC—Colton-Adams complex, 3 to 15 percent slopes

Map Unit Setting
National map unit symbol: 2w40h
Elevation: 10 to 2,000 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Colton and similar soils: 50 percent

Adams and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Kames, eskers
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy-skeletal glaciofluvial deposits

Typical profile

Oe - 0 to 4 inches: moderately decomposed plant material
E - 4 to 6 inches: gravelly sandy loam
Bs - 6 to 14 inches: gravelly loamy sand
BC - 14 to 24 inches: very gravelly coarse sand
C - 24 to 65 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Adams

Setting

Landform: Kames, eskers
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits

Typical profile

Oe - 0 to 4 inches: moderately decomposed plant material
E - 4 to 6 inches: loamy sand
Bs - 6 to 21 inches: sand
BC - 21 to 27 inches: sand
C - 27 to 65 inches: sand

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Croghan

Percent of map unit: 7 percent
Landform: Kames, eskers
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Sheepscot

Percent of map unit: 4 percent
Landform: Kames, eskers
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Nicholville

Percent of map unit: 3 percent
Landform: Eskers
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Kinsman

Percent of map unit: 1 percent
Landform: Kames, eskers
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: Yes

Kn—Kinsman sand

Map Unit Setting

National map unit symbol: 9l59
Elevation: 10 to 2,100 feet
Mean annual precipitation: 30 to 55 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 70 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Kinsman and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kinsman

Setting

Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

Oa - 0 to 4 inches: highly decomposed plant material
H1 - 4 to 8 inches: sand
H2 - 8 to 42 inches: sand
H3 - 42 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 14.17 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Wonsqueak
Percent of map unit: 10 percent
Landform: Swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Croghan
Percent of map unit: 7 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Nicholville
Percent of map unit: 4 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Peacham
Percent of map unit: 4 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

KW—Kinsman-Wonsqueak association, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 9l58
Elevation: 10 to 2,100 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 80 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition
Kinsman and similar soils: 45 percent

Wonsqueak and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kinsman

Setting

Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

Oa - 0 to 4 inches: highly decomposed plant material
H1 - 4 to 8 inches: sand
H2 - 8 to 42 inches: sand
H3 - 42 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 14.17 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Description of Wonsqueak

Setting

Landform: Swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Organic material

Typical profile

Oa1 - 0 to 8 inches: muck
Oa2 - 8 to 30 inches: muck
Cg - 30 to 65 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 13.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Sheepscot

Percent of map unit: 5 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Croghan

Percent of map unit: 5 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Scantic

Percent of map unit: 3 percent
Landform: Marine terraces, river valleys
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Marine Terrace Flat (F144BY001ME)
Hydric soil rating: Yes

Bucksport

Percent of map unit: 3 percent
Landform: Swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Roundabout

Percent of map unit: 2 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf

Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Kinsman, stones and boulders > 0.1 percent
Percent of map unit: 1 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Lamoine
Percent of map unit: 1 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

SG—Sebago and Moosabec soils

Map Unit Setting
National map unit symbol: 9l6d
Elevation: 10 to 2,100 feet
Mean annual precipitation: 18 to 55 inches
Mean annual air temperature: 34 to 46 degrees F
Frost-free period: 80 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition
Sebago and similar soils: 50 percent
Moosabec and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sebago

Setting
Landform: Bogs
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Organic material

Typical profile
Oa1 - 0 to 12 inches: mucky peat

Oa2 - 12 to 65 inches: mucky peat

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water storage in profile: Very high (about 20.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Description of Moosabec

Setting

Landform: Raised bogs
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fibrist organic material

Typical profile

Oi - 0 to 65 inches: peat

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 20.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Bucksport

Percent of map unit: 5 percent
Landform: Swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf

Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Wonsqueak

Percent of map unit: 5 percent
Landform: Swamps
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: Yes

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Lakes

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APPENDIX 11B

Geotechnical Report

REPORT

19-1758.3 S

January 5, 2021

Explorations, Geotechnical Engineering Services & Soil Resistivity Testing

Proposed Aquaculture Facility
Kingfish Maine, Inc.
Dun Garvin Road
Jonesport, ME

Prepared For:
Kingfish Zeeland Maine
c/o: Gartley & Dorsky Engineering & Surveying
Attention: William T. Lane, P.E., Vice President
P.O. Box 1031
Camden, ME 04843

Prepared By:
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S.W.COLE ENGINEERING, INC.

- *Geotechnical Engineering*
- *Construction Materials Testing and Special Inspections*
- *GeoEnvironmental Services*
- *Test Boring Explorations*

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January 5, 2021

Kingfish Zeeland Maine
c/o: Gartley & Dorsky Engineering & Surveying
Attention: William T. Lane, P.E., Vice President
P.O. Box 1031
Camden, ME 04843

Subject: Explorations, Geotechnical Engineering Services & Soil Resistivity Testing
Proposed Aquaculture Facility
Kingfish Maine, Inc.
Dun Garvin Road
Jonesport, ME

Dear Bill:

In accordance with our Proposal dated September 29, 2020, we have performed explorations, a geotechnical evaluation and soil resistivity testing for the subject project. This report summarizes our findings and geotechnical recommendations and its contents are subject to the limitations set forth in Appendix A.

S. W. Cole Engineering, Inc. (S.W.COLE) previously performed a geotechnical investigation and submitted a Preliminary Geotechnical Report, dated March 23, 2020, which has been superseded by this report.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain additional subsurface information at the site in order to develop design geotechnical recommendations relative to foundations and earthwork associated with the proposed construction. Our scope of services included completion of eighteen test boring, nine ledge probes and three test pit explorations, soil resistivity testing, geotechnical laboratory testing, a geotechnical analysis of the subsurface findings and preparation of this report.

1.2 Site and Proposed Construction

The site is located on Dun Garvin Road in Jonesport, Maine. The site generally consists of undeveloped areas with several small structures from previous development. The site includes open field area bordered by moderate to heavily wooded areas. The site is generally bisected by an existing gravel surfaced roadway. The site is bound along the eastern extent by the Atlantic Ocean. Based on the provided topographical information, the site for the proposed development generally slopes downward from west to east, from about elevation 65 to 35 feet.

We understand development plans call for construction of an aquaculture facility to produce Dutch Yellowtail fish. Based on the Site Plan, dated December 14, 2020, from Gartley & Dorsky Engineering & Surveying (Gartley & Dorsky), we understand the main building, identified as Building 2, will include a structure on the order of 509,808 square feet (SF). We understand current design concepts for Building 2 include a Finish Floor Elevation (FFE) at elevation 55 feet. We understand grow-out tanks are proposed within Building 2 and will be founded at the on-grade slab elevation. We anticipate the foundations will extend up to 10 feet below the proposed FFE to allow for plumbing and utilities below on-grade slabs. We understand Building 1 is proposed directly north of building 2 and will include a structure on the order of 55,000 SF. We understand current design concepts for Building 1 include a FFE at elevation 54 feet. We understand the buildings will include multi-level, steel-framed construction with spread footing foundations and on-grade and elevated slabs.

Additionally, smaller ancillary structures associated with the facility are proposed along the northern and southern extents. We understand a pump station associated with the intake and outlet pipes is proposed to the east of the buildings, adjacent to the Atlantic Ocean. Additionally, we understand access drives and parking areas are proposed adjacent to the building structures.

Existing grades within the footprints of Buildings 1 and 2 generally slope downward from west to east from about elevation 62 to 36 feet requiring tapered cuts approaching 7 feet and tapered fills approaching 20 feet to achieve proposed FFE. Additionally, based on the proposed foundations extending to depths of about 10 feet below FFE, cuts on the order of 17 feet will be required to achieve proposed bottom of foundation grades. Details regarding structural loading are unknown at this time.

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

2.0 EXPLORATION AND TESTING

2.1 Explorations

2.1.1 Current Explorations

Eighteen test borings (B-101 through B-118) and 9 ledge probes (P-101 through P-109) were made at the site from October 26 to 29, 2020 by S. W. Cole Explorations, LLC. Three test pits (TP-1 through TP-3) were made at the site on November 23, 2020 to perform in-situ thermal resistivity testing. The test pits were made by Hanscom Construction, Inc. of Marshfield, Maine working under subcontract to S.W.COLE. The exploration locations were selected by Gartley & Dorsky and S.W.COLE. The explorations were established in the field by S.W.COLE using a sub-meter mapping grade GPS unit.

The approximate exploration locations are shown on the “Exploration Location Plan” attached in Appendix B. Logs of the explorations, a refusal summary sheet and a key to the notes and symbols used on the logs are attached in Appendix C. The elevations shown on the exploration logs and refusal summary sheet were interpolated from existing ground contours as shown on the “Exploration Location Plan”.

2.1.2 Prior Explorations

S.W.COLE performed a geotechnical investigation and submitted a Preliminary Geotechnical Report, dated March 23, 2020. The approximate location of our prior explorations, including twenty test borings (B-1 through B-20) and eleven ledge probes (P-1 through P-11), are shown on the “Exploration Location Plan” attached in Appendix B. Logs of the prior explorations are attached in Appendix C.

2.2 Testing

The explorations were drilled using hollow-stem auger and cased wash-boring techniques. The soils were sampled at 2 to 5 foot intervals using a split spoon sampler and Standard Penetration Testing (SPT) methods. SPT blow counts are shown on the logs. Upon encountering bedrock, test borings B-101, B-102, B-110 and B-114 were advanced about 5 feet into bedrock using NQ2 rock core drilling techniques.

Soil and rock core samples obtained from the explorations were returned to our laboratory for further classification and testing. Rock core unit weight and unconfined compression testing was performed on two samples of the obtained rock core; results are presented on the boring logs. Four grain size analyses tests were performed on selected soil samples; results are attached in Appendix D. Moisture content testing was performed on four samples; results are presented on the boring logs.

S.W.COLE performed Wenner Array soil resistivity testing services at the site. The testing was performed in general accordance with ASTM G57 and IEEE 81-1983 methods along one test spread location. The approximate test lines were located in the field by S.W.COLE using a mapping grade Trimble GPS receiver and are shown on the "Exploration Location Plan".

Field measurements of thermal resistivity were made at three test pit locations utilizing a KD2 Pro thermal property analyzer. Results of the thermal resistivity testing are shown on the test pit logs attached in Appendix C.

3.0 SUBSURFACE CONDITIONS

3.1 Soil and Bedrock

3.1.1 Current Explorations

Underlying a surficial layer of topsoil or forest duff, the test borings encountered a soils profile generally consisting of fluvial soils mantling probable bedrock or fluvial soils overlying glacial till mantling probable bedrock. The principal strata encountered are summarized below.

Topsoil and Forest Duff: The test borings encountered about 0.5 to 1 foot of surficial topsoil or forest duff generally consisting of loose sandy silt with organics.

Fluvial Soils: Underlying the topsoil, the test borings encountered fluvial soils generally consisting of loose to dense sand and gravel with varying portions of silt.

Glacial Till: Underlying the fluvial soils, test borings B-104, B-107, B-113, B-114 and B-118 encountered medium dense to dense glacial till soils generally consisting of silty sand with varying portions of gravel and cobbles.

Bedrock: All test boring and probe explorations were terminated on refusal surfaces (probable bedrock) at depths ranging from about 2 to 32 feet. A refusal summary sheet is attached in Appendix C.

Upon encountering bedrock, test borings B-101, B-102, B-110 and B-114 were advanced about 5 feet into bedrock using NQ2 rock core drilling techniques. The bedrock consisted of gray volcanic rock of the Edmunds Formation. The Rock Quality Designation (RQD) value for the bedrock core ranged from 0 to 75 percent correlating to a Rock Mass Quality (RMQ) of very poor to good.

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

3.1.2 Prior Explorations

S.W.COLE completed a geotechnical investigation at the site in February 2020. The previous explorations encountered similar subsurface conditions, generally consisting of fluvial soils mantling probable bedrock or fluvial soils overlying glacial till mantling probable bedrock. Logs of the prior explorations are attached in Appendix C.

3.2 Groundwater

Free water was observed in test borings B-109, B-113 and B-118 at depths ranging from the ground surface to about 11 feet. The soils were observed wet to saturated in test borings B-101 through B-104, B-106, B-107, B-110 through B-112 and B-114 through B-117 below depths of about 5 to 15 feet. Groundwater likely becomes perched on the relatively impervious silty native soils and bedrock encountered at the test borings. Long term groundwater information is not available. It should be anticipated that groundwater levels will fluctuate, particularly in response to periods of snowmelt and precipitation, as well as changes in site use and the adjacent tidal Atlantic Ocean.

3.3 Thermal Resistivity

Field measurements of thermal resistivity were made at three test pit locations (TP-1 through TP-3) utilizing a KD2 Pro thermal property analyzer. Thermal resistivity is dependent on material type, density, and moisture content, and will vary accordingly in field tests. Field thermal resistivity measurements at test pits TP-1, TP-2 and TP-3 were 61.03, 82.06 and 75.39°C - cm / W, respectively. Results of the thermal resistivity testing are shown on the test pit logs attached in Appendix C.

3.4 Electrical Resistivity

S.W.COLE performed one field soil electrical resistivity test spread at the site on November 5, 2020. The approximate location of the test spread is shown on the "Exploration Location Plan," attached in Appendix B.

Field soil electrical resistivity testing was performed using the fixed-center Wenner Array method with an AGI SuperSting R1 resistivity meter. The electrical resistivity testing was performed at two mutually perpendicular test lines (KFM.R1A and KFM.R1B) at one fixed-center location within the central portion of the site. Maximum A-spacing for the mutually perpendicular test lines were 300 feet. Instrument settings included automatic current and voltage settings and the use of interference compensation settings (for power at 60 Hz), which helps to minimize interferences to testing from nearby electrical fields. The apparent resistivity testing results are tabulated and graphed on the Resistivity Computation Data Sheets included as Appendix E.

As shown on the Resistivity Computation Data Sheets, the apparent resistivity ranged from approximately 2,105 ohm-meters (Ωm) at spread KFM.R1A (1 foot A-spacing) to 8,130 Ωm at spread KFM.R1B (100 foot A-spacing). The apparent resistivity at the test spreads generally show similar trends. Variations in apparent resistivity between test locations and spread locations are interpreted as being due to variations in surficial and bedrock geology, moisture content and depth to water, and proximal unknown interferences.

The resistivity data meets our data collection quality guidelines. The resistivity data should be reviewed by a grounding design engineer, in combination with the boring logs, to confirm that they are acceptable for the design of the grounding grid. It should be noted that these apparent resistivity measurements may be higher during drier seasonal conditions.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

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

- Relatively shallow bedrock was encountered within the western portion of Building 2. The probable bedrock was generally encountered about 1 to 5 feet above the

proposed bottom of footing grade in the area. We anticipate the bedrock will require blasting for excavation. Blasting should be controlled to reduce overblast; all loose and over-blasted bedrock must be removed beneath the proposed building footprint.

- Spread footings should bear on at least 3 inches of compacted Crushed Stone overlying new compacted fill soils or undisturbed, native soils. On-grade floor slabs should bear on at least 12-inches of properly compacted Structural Fill overlying properly prepared subgrades.

- Subgrades across the site will consist of moisture sensitive fluvial and glacial till soils. Earthwork and grading activities should occur during drier, non-freezing months of late Spring, Summer and Fall. Rubber tired construction equipment should not operate directly on the exposed native soils. Excavation of bearing surfaces should be completed with a smooth-edged bucket to lessen subgrade disturbance.

- Imported Granular Borrow, Structural Fill and Crushed Stone will be required for construction. The native soils are unsuitable for reuse below the proposed buildings or as backfill for foundations; however, may be suitable for reuse below paved and landscape areas, provided they are at a compactable moisture content at the time of construction.

4.2 Site and Subgrade Preparation

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

Following stripping and grubbing of the site, we anticipate blasting will be required to achieve proposed bottom of foundation grades in the western portion of Building 2. We recommend that blasting for bedrock removal be controlled to within 1 foot below footing subgrade elevation for the proposed building. We understand the tanks will require below grade piping, which may require deeper blasting depths. Loose and over-blasted bedrock should be removed beneath the building footprint after blasting. Crushed Stone should be thoroughly worked into the bedrock surface to choke any voids or fractures in the bedrock.

Subgrade soils which become disturbed due to blasting should be removed and replaced with compacted Structural Fill.

We recommend excavations to subgrade in soil be performed with a smooth-edged bucket to lessen disturbance of subgrade soils. We recommend footings be founded on 3 inches of compacted Crushed Stone overlying undisturbed native soils or new compacted fill soils.

4.3 Excavation and Dewatering

Excavation work will generally encounter surficial organics, topsoil, forest duff, fluvial soils, glacial till, and bedrock. The native soils are moisture sensitive and can experience substantial strength loss if subjected to construction traffic and excavation activities, particularly when wet or thawing. Care must be exercised during construction to limit disturbance of the bearing soils. Earthwork and grading activities should occur during drier, non-freezing Spring, Summer and Fall seasons. Rubber tired construction equipment should not operate directly on the native soils when wet or thawing. Final cuts to subgrade in soil should be performed with a smooth-edged bucket to help reduce soil disturbance.

Based on the subsurface findings, we anticipate blasting will be required for bedrock removal. We recommend a licensed blasting contractor be engaged to provide bedrock removal. Pre-blast surveys should be completed on surrounding structures, water supply wells and infrastructure prior to commencing blasting activities. Vibrations from construction should be controlled below threshold limits of 0.5 in/sec for structures, water supply wells and infrastructure within 500 feet of the project site. More restrictive vibration limits may be warranted in specific cases with sensitive equipment, historic structures or artifacts on-site or within close proximity.

Groundwater was encountered in the current borings at depths ranging from the existing ground surface to depths of about 15 feet. Open excavations shallower than about 5 to 10 feet appear feasible with conventional sump and pump dewatering techniques. Deeper excavations, such as for over-excavations and utilities, may require sheetpiling and dewatering systems for groundwater cutoff and control. Controlling the water levels to at least 1 foot below planned excavation depths will help stabilize subgrades during construction. Excavations must be properly shored or sloped in accordance with OSHA trenching regulations to prevent sloughing and caving of the sidewalls during construction.

The design and planning of excavations, excavation support systems, and dewatering is the responsibility of the contractor.

4.4 Foundations and Walls

Foundations for the proposed buildings should be cast on 3 inches of compacted Crushed Stone overlying undisturbed native fluvial or glacial till soils, compacted Granular Borrow or clean, sound bedrock. For foundations bearing on properly prepared subgrades, we recommend the following geotechnical parameters for design consideration:

Geotechnical Parameters for Spread Footings and Foundation Walls	
Design Frost Depth	4.5 feet
Net Allowable Soil Bearing Pressure	3 ksf
Base Friction Factor	0.35
Total Unit Weight of Backfill	130 pcf (compacted Structural Fill)
At-Rest Lateral Earth Pressure Coefficient	0.5 (compacted Structural Fill)
Internal Friction Angle of Backfill	32° (compacted Structural Fill)
Total Post-Construction Settlement	1 inch or less
Differential Post-Construction Settlement	½ inch or less

Based on the subsurface findings, we interpret the site soils to correspond to Seismic Soil Site Class D according to IBC 2015/ASCE 7-05. We recommend the following seismic design parameters:

RECOMMENDED SEISMIC DESIGN PARAMETERS		
Peak Ground Acceleration (PGA)	0.2-second Spectral Acceleration (S_s)	1-second Spectral Acceleration (S_1)
0.124 g	0.22 g	0.063 g

NOTE: Seismic design parameters from OSHPD accessed December, 31, 2020. (https://seismicmaps.org/)

Liquefaction is typically observed in saturated deposits of loose sands and non-plastic silts subjected to ground shaking most commonly from earthquakes. The foundation soils at the site typically consist of medium dense fluvial soils overlying glacial till soils mantling bedrock. Therefore, based on the soils present and the recommended Granular Borrow fill soils, we assess the risk of seismically induced liquefaction occurring at the site is low. Additionally, we assess the risk of seismically induced settlement occurring at the site is low.

4.5 Foundation Drainage

We recommend an underdrain system be installed on the outside edge of perimeter footings. The underdrain pipe should consist of 4-inch diameter, perforated SDR-35 foundation drain pipe bedded in Crushed Stone and wrapped in non-woven geotextile fabric such as Mirafi 180N or equivalent. The underdrain pipe must have a positive gravity outlet protected from freezing, clogging and backflow. Surface grades should be sloped away from the building for positive surface water drainage. A general foundation detail sketch is attached in Appendix B.

4.6 Slab-On-Grade

On-grade floor slabs in heated areas may be designed using a subgrade reaction modulus of 120 pci (pounds per cubic inch) provided the slab is underlain by at least 12-inches of compacted Structural Fill placed over properly prepared subgrades. The structural engineer or concrete consultant must design steel reinforcing and joint spacing appropriate to slab thickness and function.

The presence of shallow bedrock beneath proposed buildings increases the risk of radon intrusion in the building. We recommend a qualified radon consultant be consulted to provide design of a sub-slab radon venting system and positive building pressurization, as needed for indoor air quality.

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

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

4.7 Entrance Slabs, Sidewalks and Exterior Slabs

Entrance slabs, sidewalks and exterior slabs must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and entrances. We recommend that non-frost susceptible Structural Fill be provided to a depth of at least 4.5 feet below the top of entrance slabs, sidewalks, and exterior slabs. This thickness of Structural Fill should extend the full width of the entrance slab, sidewalk and exterior slabs or outward at least 4.5 feet, whichever is greater, thereafter transitioning up to the bottom of the adjacent sidewalk or pavement gravels at a 3H:1V or flatter slope. General details of this frost transition zone are attached in Appendix B.

4.8 Embankment Construction

Based on the provided plan, we understand cuts and fills will be needed to achieve finish grade for the building and paved areas. Based on the existing grade, we understand tapered cuts of up to 7 feet and tapered fills of up to 20 feet are anticipated to achieve proposed FFE. Fill slopes should be constructed as level benches, which are overbuilt to facilitate compaction. The final slope face should be constructed by cutting back into the compacted core prior to placing slope surface materials. Embankments constructed on existing soil slopes steeper than 3H:1V should be keyed into the existing ground surface and built with continuous level benches. Embankments constructed on existing soil slopes flatter than 3H:1V may be constructed without keying and continuous benching.

Soil slopes will be susceptible to surface erosion, slumping and sloughing, particularly during heavy rain and freeze/thaw events. We recommend slope faces be covered with topsoil and seed. Topsoil and seed should be installed, as soon as practicable, to create a vegetated mat over the entire surface of the slope. Slopes that are steeper than 2H:1V should be covered with an erosion control fabric. Slopes steeper than 1.5H:1V should be covered with geotextile fabric and rip-rap. We do not recommend slopes steeper than 1H:1V. If areas where surface water is concentrated and discharged over the slope are proposed, we recommend covering the slope with rip-rap placed over a layer of Structural Fill and a woven filter fabric.

4.9 Backfill and Compaction

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

Granular Borrow: Backfill for over-excavations and fill to raise grades in building and paved areas should be sand or silty sand meeting the gradation requirements of 2020 Maine Department of Transportation (MaineDOT) Standard Specification 703.19 Granular Borrow as given below:

Granular Borrow		
Sieve Size	**Percent Finer by Weight**	
	Under Water (Wet Subgrade)	Above Water (Dry Subgrade)
12 inch	100	100
3 inch	Portion Passing 3 inch Sieve	
#40	0 to 70	0 to 70
#200	0 to 7	0 to 20

Structural Fill: Fill to repair soft areas, backfill for foundations, slab base material and material below exterior entrances and sidewalks should be clean, non-frost susceptible sand and gravel meeting the gradation requirements for Structural Fill as given below

Structural Fill	
Sieve Size	**Percent Finer by Weight**
4 inch	100
3 inch	90 to 100
¼ inch	25 to 90
#40	0 to 30
#200	0 to 6

Crushed Stone: Crushed Stone, used below foundations and for underdrain aggregate, should meet the requirements of 2020 MaineDOT Standard Specification 703.13 Crushed Stone 3/4-Inch.

Underdrain Sand: Sand used as backfill around below slab utilities and piping should be clean, free-draining sand meeting the requirements of 2020 MaineDOT Standard

Specification 703.22 Underdrain Backfill Material Type B or as recommended by the Utility Designer.

Reuse of Site Soils: The native soils are unsuitable for reuse as fill in the building areas, but may be suitable for re-use in landscape or paved areas, provided they are at a compactable moisture content at the time of construction. If used, the soils should be dried and placed as the lower lifts of fill.

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

4.10 Weather Considerations

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

4.11 Design Review and Construction Testing

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

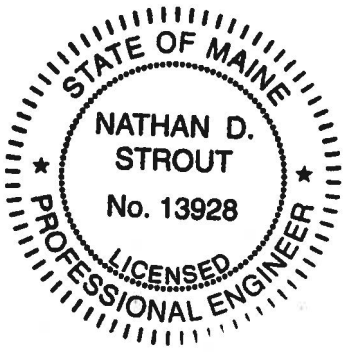
A construction materials testing and special inspections program should be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to provide geotechnical observations during earthwork and foundation activities as well as testing and special inspections of soil, concrete, steel, spray-applied fireproofing and asphalt construction materials.

5.0 CLOSURE

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

Sincerely,

S. W. Cole Engineering, Inc.



Nathan D. Strout, P.E.
Geotechnical Engineer

NDS:tjb

Appendix A
Limitations

This report has been prepared for the exclusive use of Kingfish Zeeland Maine for specific application to the proposed Kingfish Maine, Inc. Aquaculture Facility on Dun Garvin Road in Jonesport, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

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

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

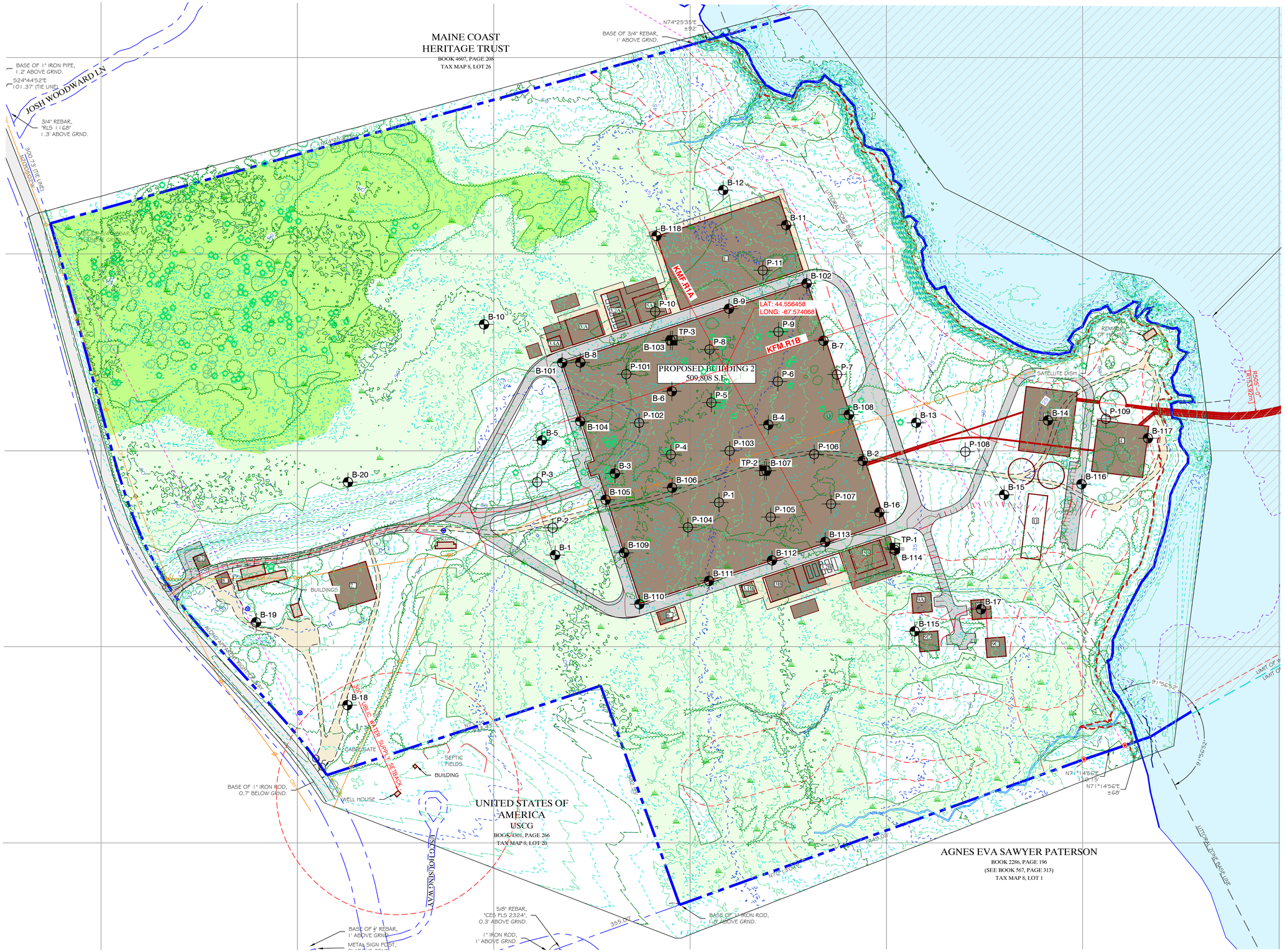
Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

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

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

APPENDIX B

Figures



LEGEND:

- APPROXIMATE BORING LOCATION
- APPROXIMATE PROBE LOCATION
- APPROXIMATE TEST PIT LOCATION
- APPROXIMATE RESISTIVITY TEST SPREAD WITH GPS LOCATED CENTER POINT

NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=120' SCALE PLAN OF THE SITE ENTITLED "SKETCH PLAN," PREPARED BY GARTLEY & DORSKY ENGINEERING & SURVEYING, DATED 11/04/2020.
2. BORINGS B-1 THROUGH B-20 WERE LOCATED AND GROUND SURFACE ELEVATIONS ESTABLISHED IN THE FIELD BY SURVEY BY GARTLEY & DORSKY AND PROVIDED ON THE ABOVE REFERENCED PLAN.
3. PROBES P-1 THROUGH P-11 WERE LOCATED IN THE FIELD BY GPS SURVEY BY S. W. COLE ENGINEERING, INC. (S.W.COLE) USING A MAPPING GRADE TRIMBLE GPS RECEIVER. GROUND SURFACE ELEVATIONS WERE DETERMINED BY LINEAR INTERPOLATION FROM LIDAR CONTOUR DATA.
4. BORINGS B-101 THROUGH B-118 AND PROBES P-101 THROUGH P-109 WERE LOCATED IN THE FIELD BY GPS SURVEY BY S.W.COLE USING A MAPPING GRADE TRIMBLE GPS RECEIVER. GROUND SURFACE ELEVATIONS WERE DETERMINED BY LINEAR INTERPOLATION FROM LIDAR CONTOUR DATA.
5. TEST PITS TP-1 THROUGH TP-3 WERE LOCATED IN THE FIELD BY MEASUREMENTS FROM BORING LOCATIONS.
6. RESISTIVITY CENTER POINT WAS LOCATED IN THE FIELD BY GPS SURVEY BY S. W. COLE ENGINEERING, INC. USING A MAPPING GRADE TRIMBLE GPS RECEIVER.
7. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
8. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.

0 120 240 Feet

NO.	DATE	DESCRIPTION	BY
2	01/04/2021	DESIGN PHASE REPORT SUBMISSION	CEM
1	09/21/2020	PROPOSED DESIGN PHASE BORINGS	CEM
0	03/23/2020	PRELIMINARY REPORT SUBMISSION	CEM

S.W.COLE ENGINEERING, INC.

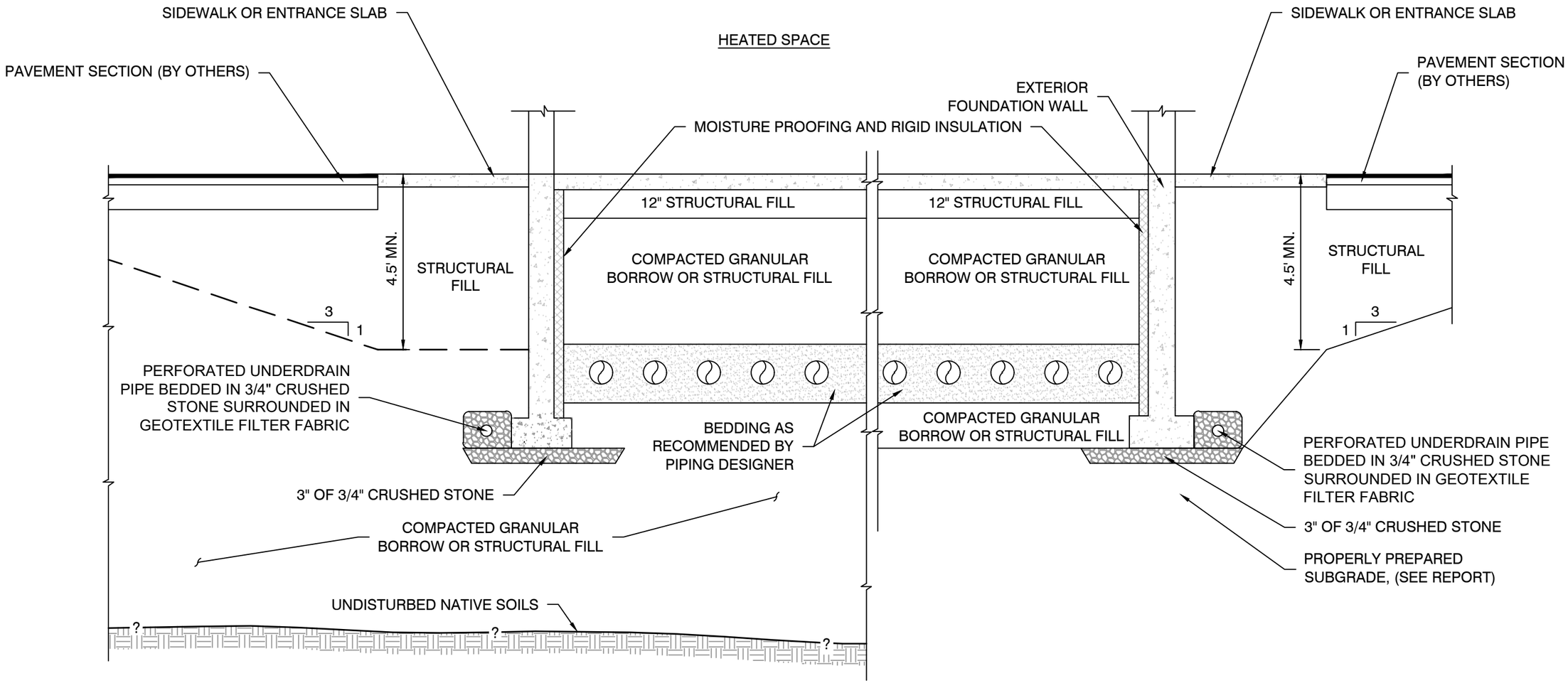
KINGFISH ZEELAND MAINE

EXPLORATION LOCATION PLAN

PROPOSED KINGFISH MAINE, INC. AQUACULTURE FACILITY
DUN GARVIN ROAD
JONESPORT, MAINE

Job No.: 19-1758.3 Scale: 1" = 120'
Date : 03/23/2020 Sheet: 1

K:\2019\19-1758.3\CAD\Drawings\19-1758.3 EP.dwg, 1/4/2021 11:02:17 AM, 1:1, CEM, S. W. Cole Engineering, Inc.



NOTE:

1. UNDERDRAIN INSTALLATION AND MATERIAL GRADATION RECOMMENDATIONS ARE CONTAINED WITHIN THIS REPORT.

2. DETAIL IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY, NOT FOR CONSTRUCTION.

S.W.COLE ENGINEERING, INC.

KINGFISH ZEELAND MAINE

FOUNDATION DETAIL SKETCH

PROPOSED KINGFISH MAINE, INC. AQUACULTURE FACILITY
DUN GARVIN ROAD
JONESPORT, MAINE

Job No.:	19-1758.3	Scale:	Not to Scale
Date :	01/05/2021	Sheet:	2

APPENDIX C

Exploration Logs, Refusal Summary Sheet and Key

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-101
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/26/2020
DATE FINISH: 10/26/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 51.4' +/-
TOTAL DEPTH (FT): 16.5
LOGGED BY: Brendan Auth
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: N/A / N/A
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic
HAMMER WEIGHT (lbs): 140 / 140
CASING ID/OD: 4 in / 4 1/2 in
CORE BARREL: NQ2
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30 / 30
WATER LEVEL DEPTHS (ft): Soils wet below 5' +/-
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
50			1D		0-2	24/14	1-2-9-9			0.5 Forest Duff Medium dense, red-brown Gravelly SAND, some silt		
			2D		2-4	24/6	12-14-15-19					
	5		3D		5-7	24/18	5-6-6-6			5.0 Medium dense, brown Silty fine SAND		
45												
	10		4D		10-11	12/10	10-50					
40			1R		11.5-13.5	24/24	63			11.0 11.5 Bedrock, advanced by rollercone 11 to 11.5 feet Gray, very slightly weathered, contact metamorphosed, mafic, VOLCANIC ROCK, joints at 0°, 30°, 40°, 50°, 75°, 85° from horizontal, slight iron oxide staining along joints (Edmunds Formation)		
			2R		13.5-15.2	20/19	75					
	15		3R		15.2-16.5	16/8	0					
35										Bottom of Exploration at 16.5 feet		

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

BORING LOG

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-102
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/27/2020
DATE FINISH: 10/27/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 44.7' +/-
TOTAL DEPTH (FT): 25.5
LOGGED BY: Brendan Auth
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: N/A / N/A
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic
HAMMER WEIGHT (lbs): 140 / 140
CASING ID/OD: 4 in / 4 1/2 in
CORE BARREL: NQ2
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30 / 30
WATER LEVEL DEPTHS (ft): Soils wet below 10' +/-
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D	D	0-2	24/14	1-2-2-5			Forest Duff		
										0.5 Medium dense, red-brown Gravelly SAND, some silt		
			2D	D	2-4	24/20	12-13-12-14			2.0 Medium dense, brown SAND, some silt and gravel		
40	5		3D	D	5-7	24/20	7-6-5-10	w =5.2 %		5.0 Medium dense, brown SAND, some silt, trace gravel		
35	10		4D	D	10-12	24/20	6-8-11-11					
			5D	D	12-14	24/20	10-46-43-50					
30	15		6D	D	15-17	24/12	3-6-10-30			15.0 Medium dense, brown Gravelly SAND, some silt		
			1R	R	19-19.8	10/8	0			19.0 Bedrock; gray, very slightly weathered, slightly contact metamorphosed, mafic, VOLCANIC ROCK, joints at 0°, 5°, 15°, 25°, 50° from horizontal, slight iron oxide staining along joints (Edmunds Formation)		
25	20		2R	R	19.8-20.1	4/4	0					
			3R	R	20.1-21.5	17/13	59					
			4R	R	21.5-25.5	48/30	47	qu = 22,550 psi Unit Weight = 185.3 pcf				
20	25											

Bottom of Exploration at 25.5 feet

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

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-103
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/29/2020
DATE FINISH: 10/29/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 50.1' +/-
TOTAL DEPTH (FT): 11.7
LOGGED BY: Kevin Hanscom
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): caved at 5', no free water observed, saturated below 5'
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/13	1-6-21-30			0.4 Topsoil Dense, brown SAND and GRAVEL with cobbles, trace silt		
										3.8 Medium dense, brown Silty fine SAND, some gravel		
45	5		2D		5-7	24/18	6-13-13-13					
40	10		3D		10-11.7	20/18	4-16-16-50/2"					

Auger Refusal at 11.7 feet
(Probable Bedrock)

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

BORING LOG

CLIENT:	Kingfish Zeeland Maine
PROJECT:	King Fish Maine, Inc. Aquaculture Facility
LOCATION:	Dun Garvin Road, Jonesport, Maine

BORING NO.:	**B-104**
SHEET:	1 of 1
PROJECT NO.	19-1758.3
DATE START:	10/26/2020
DATE FINISH:	10/26/2020

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 61.6' +/- **TOTAL DEPTH (FT):** 16.8 **LOGGED BY:** Brendan Auth

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Kevin Hanscom **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Track Mounted Diedrich D-50 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:** N/A

HAMMER EFFICIENCY FACTOR: 0.995 **HAMMER DROP (inch):** 30

WATER LEVEL DEPTHS (ft): Soils wet below 15' +/-

GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
60			1D		0-1.5	18/8	10-15-15-50/0"			0.5 Topsoil Medium dense, red-brown Gravelly SAND, some silt		
										3.0 Medium dense, brown Silty fine SAND		
	5		2D		5-7	24/18	15-14-19-20					
55												
	10		3D		10-11.5	18/18	54-44-50	w =3.7 %		10.0 Very dense, brown Silty Gravelly SAND with cobbles (Glacial Till)		
50												
	15		4D		15-15.5	6/6	50					
45												

Auger Refusal at 16.8 feet
(Probable Bedrock)

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

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-105
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/26/2020
DATE FINISH: 10/26/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 52.4' +/-
TOTAL DEPTH (FT): 2.2
LOGGED BY: Brendan Auth
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free water observed
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D	D	0-2	24/16	1-2-5-30			0.5 Topsoil Medium dense, brown Gravelly SAND, some silt		

Auger Refusal at 2.2 feet
(Probable Bedrock)

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

BORING LOG

CLIENT:	Kingfish Zeeland Maine
PROJECT:	King Fish Maine, Inc. Aquaculture Facility
LOCATION:	Dun Garvin Road, Jonesport, Maine

BORING NO.:	**B-106**
SHEET:	1 of 1
PROJECT NO.	19-1758.3
DATE START:	10/29/2020
DATE FINISH:	10/29/2020

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 49.2' +/- **TOTAL DEPTH (FT):** 14.9 **LOGGED BY:** Kevin Hanscom

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Kevin Hanscom **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Track Mounted Diedrich D-50 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:** N/A

HAMMER EFFICIENCY FACTOR: 0.995 **HAMMER DROP (inch):** 30

WATER LEVEL DEPTHS (ft): no free water observed, saturated below 5'

GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/24	2-2-2-4			0.4 Topsoil 0.8 Loose, gray Silty fine SAND Loose, brown Silty fine SAND		
			2D		2-4	24/21	10-14-10-10			2.3 Medium dense, brown fine Sandy SILT		
45	5		3D		5-7	24/24	5-8-10-11			5.7 Medium dense, brown Silty fine SAND		
40	10		4D		10-11.5	18/18	18-26-45			10.2 Dense, brown Silty SAND and GRAVEL with cobbles		
35												

Auger Refusal at 14.9 feet
(Probable Bedrock)

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

BORING LOG

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-107
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/28/2020
DATE FINISH: 10/28/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 42.1' +/-
TOTAL DEPTH (FT): 12.4
LOGGED BY: Jeff McElroy
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): Soils wet below 6' +/-
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/17	1-2-3-4			Topsoil		
										0.7 Medium dense, red-brown Gravelly SAND, some silt		
40			2D		2-4	24/20	9-11-12-12					
	5		3D		5-7	24/20	6-6-10-10			5.0 Medium dense, brown SAND, trace silt		
35										7.8 Medium dense, brown Silty Gravelly SAND (Glacial Till)		
	10		4D		10-12	24/20	10-15-14-9					
30												

Auger Refusal at 12.4 feet
(Probable Bedrock)

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

BORING NO.: B-107

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-108
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/29/2020
DATE FINISH: 10/29/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 38.7' +/-
TOTAL DEPTH (FT): 15.3
LOGGED BY: Kevin Hanscom
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): no free water observed
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/10	1-2-2-2			0.5 Topsoil Loose, brown Silty fine to medium SAND		
			2D		2-4	24/12	2-3-4-5			2.5 Medium dense, brown fine to medium SAND, trace silt		
35	5		3D		5-7	24/19	5-11-11-13					
30	10		4D		10-12	24/20	25-37-40-36			9.1 Dense, brown Silty Gravelly SAND with cobbles		
										12.5 Medium dense, gray Silty fine SAND		
25	15		5D		15-15.3	3/3	50/3"			Auger Refusal at 15.3 feet (Probable Bedrock)		

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

BORING NO.: B-108

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-109
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/26/2020
DATE FINISH: 10/26/2020

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 50' +/- **TOTAL DEPTH (FT):** 5.0 **LOGGED BY:** Brendan Auth
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Kevin Hanscom **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:** N/A
HAMMER EFFICIENCY FACTOR: 0.995 **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): ▽ 1.3 ft Free water observed at 1.3'
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/12	1-2-7-16			Topsoil		
										0.7 Medium dense, brown Silty SAND, some gravel	▽	
			2D		2-4	24/6	8-20-34-56			2.0 Dense, brown Silty fine SAND		
45	5		3D		5-5	0/0	25/0"			Auger Refusal at 5.0 feet (Probable Bedrock)		

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

BORING LOG

CLIENT:	Kingfish Zeeland Maine
PROJECT:	King Fish Maine, Inc. Aquaculture Facility
LOCATION:	Dun Garvin Road, Jonesport, Maine

BORING NO.:	**B-110**
SHEET:	1 of 1
PROJECT NO.	19-1758.3
DATE START:	10/26/2020
DATE FINISH:	10/26/2020

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 49.1' +/- **TOTAL DEPTH (FT):** 12.0 **LOGGED BY:** Brendan Auth

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Kevin Hanscom **DRILLING METHOD:** Cased Boring

RIG TYPE: Track Mounted Diedrich D-50 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:** NQ2

HAMMER EFFICIENCY FACTOR: 0.995 **HAMMER DROP (inch):** 30 / 30

WATER LEVEL DEPTHS (ft): Soils wet below 2' +/-

GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/16	1-1-2-6			Forest Duff		
										0.7 Medium dense, brown SAND, some gravel and silt		
			2D		2-4	24/16	11-11-14-15					
45												
	5		3D		5-7	24/12	3-3-7-8			5.0 Medium dense, gray Sandy SILT, some gravel		
			1R		7-8	12/10	0			7.0 Bedrock; gray, very slightly weathered, contact metamorphosed, mafic, VOLCANIC ROCK, joints at 5°-20°, 30°, 80° from horizontal, slight iron oxide staining along joints (Edmunds Formation)		
			2R		8-8.9	11/8	45					
40			3R		8.9-12	37/34	62					
	10									... with DIORITE intrusion		

Bottom of Exploration at 12.0 feet

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

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-111
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/26/2020
DATE FINISH: 10/26/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 45.1' +/-
TOTAL DEPTH (FT): 8.0
LOGGED BY: Brendan Auth
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): Soils wet below 5' +/-
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/12	1-2-3-7			Forest Duff		
										0.9 Medium dense to dense, red-brown Gravelly SAND, some silt		
			2D		2-4	24/18	8-19-30-19					
40	5		3D		5-7	24/16	7-7-10-6			5.0 Medium dense, brown fine SAND, some silt		

Auger Refusal at 8.0 feet
(Probable Bedrock)

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

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-112
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/26/2020
DATE FINISH: 10/26/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 40.8' +/-
TOTAL DEPTH (FT): 22.9
LOGGED BY: Brendan Auth
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): Soils wet below 5' +/-
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
40			1D		0-2	24/18	3-1-6-6			Forest Duff		
										1.0 Medium dense, brown Gravelly SAND, some gravel and silt		
			2D		2-4	24/18	8-8-16-19					
	5		3D		5-7	24/18	8-13-12-9			5.0 Medium dense, brown Sandy SILT		
35												
	10		4D		10-12	24/24	3-5-7-7			10.0 Medium dense, brown fine SAND, some silt with occasional silt layers		
30												
	15		5D		15-17	24/18	8-7-13-14					
25												
	20		6D		20-22	24/20	3-5-19-50			.. with some gravel		
20												

Auger Refusal at 22.9 feet
(Probable Bedrock)

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

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-113
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/28/2020
DATE FINISH: 10/28/2020

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 38.8' +/- | **TOTAL DEPTH (FT):** 21.2 | **LOGGED BY:** Jeff McElroy
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Kevin Hanscom | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50 | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic | **HAMMER WEIGHT (lbs):** 140 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:** N/A
HAMMER EFFICIENCY FACTOR: 0.995 | **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): Free water observed at 11.5 feet
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/19	1-2-2-3			0.5 Topsoil Loose, red-brown Gravelly SAND, some silt		
			2D		2-4	24/19	4-5-12-16			2.5 Medium dense, brown SAND, trace silt		
35	5		3D		5-7	24/14	10-6-6-8			5.5 Medium dense, Sandy SILT ... with numerous cobbles		
30	10		4D		10-12	24/24	3-3-8-6			9.0 Medium dense, varved Sandy SILT and fine SAND		
25	15		5D		15-17	24/24	7-8-9-13			18.0 Dense, probable brown Silty Gravelly SAND with cobbles (Glacial Till)		
20	20		D		20-20	0/0	25/0"			Auger Refusal at 21.2 feet (Probable Bedrock)		

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

BORING LOG

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-114
SHEET: 1 of 2
PROJECT NO. 19-1758.3
DATE START: 10/27/2020
DATE FINISH: 10/27/2020

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 36' +/- | **TOTAL DEPTH (FT):** 36.2 | **LOGGED BY:** Brendan Auth
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Kevin Hanscom | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted Diedrich D-50 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:** NQ2
HAMMER EFFICIENCY FACTOR: 0.995 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): Soils wet below 15' +/-
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
35			1D		0-2	24/12	2-5-10-10			0.5 Forest Duff Medium dense, red-brown Gravelly SAND, trace silt		
			2D		2-4	24/12	8-10-19-22					
30	5		3D		5-7	24/18	8-13-16-19			5.0 Medium dense, brown fine SAND, trace silt		
25	10		4D		10-12	24/20	8-6-5-6					
20	15		5D		15-17	24/20	2-2-4-5	w =21.3 %				
15	20		6D		20-22	24/20	1-4-4-3			... with some gravel		
10	25		7D		25-27	24/20	4-5-6-7					

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

(Continued Next Page)

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-114
SHEET: 2 of 2
PROJECT NO. 19-1758.3
DATE START: 10/27/2020
DATE FINISH: 10/27/2020

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1R		28.8-30.8	24/3				28.8 Probable Silty Gravelly SAND (Glacial Till) ... cored through cobbles from 28.2 to 30.2 feet		
5	30		2R		31.2-36.2	60/59	70	qu = 19,250 psi Unit Weight = 169.1 pcf		31.2 Bedrock; gray, very slightly weathered, contact metamorphosed, mafic, VOLCANIC ROCK, joints at 0°-10°, 40°, 50° from horizontal, slight iron oxide staining along joints (Edmunds Formation)		
0	35									Bottom of Exploration at 36.2 feet		

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

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-115
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/29/2020
DATE FINISH: 10/29/2020

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 35.8' +/- | **TOTAL DEPTH (FT):** 21.2 | **LOGGED BY:** Kevin Hanscom
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Kevin Hanscom | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50 | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic | **HAMMER WEIGHT (lbs):** 140 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:** N/A
HAMMER EFFICIENCY FACTOR: 0.995 | **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): no free water observed, saturated below 10'
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
35			1D	D	0-2	24/12	2-6-10-6			0.4 Topsoil 1.0 Loose, gray Silty fine SAND Medium dense, brown fine to medium SAND, trace silt		
			2D	D	2-4	24/18	7-11-16-21					
	5		3D	D	5-7	24/21	11-16-16-15			4.2 Medium dense, brown SAND and GRAVEL, trace silt 5.5 Medium dense, gray Silty fine SAND		
30												
	10		4D	D	10-12	24/20	7-9-9-10					
25												
	15		5D	D	15-17	24/18	21-34-26-31			14.5 Dense, gray Silty SAND and GRAVEL		
20										18.0 Dense, gray Silty fine SAND		
	20		6D	D	20-21.2	14/8	8-30-50/2"					
15										Auger Refusal at 21.2 feet (Probable Bedrock)		

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

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-116
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/28/2020
DATE FINISH: 10/28/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 19.1' +/-
TOTAL DEPTH (FT): 16.8
LOGGED BY: Jeff McElroy
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): Soils wet below 10' +/-
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/21	1-5-10-11			Topsoil		
										0.7 Medium dense, red-brown Gravelly SAND, some silt		
			2D		2-4	24/20	8-7-8-8					
15										3.0 Medium dense, brown SAND, trace silt and gravel		
	5		3D		5-7	24/19	3-6-10-10					
										6.2 Medium dense, brown Gravelly Silty SAND		
10												
	10		4D		10-12	24/12	10-10-10-17	w =11.3 %				
5												
	15		5D		15-16.4	17/12	9-17-50/5"					

Auger Refusal at 16.8 feet
(Probable Bedrock)

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

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-117
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/28/2020
DATE FINISH: 10/28/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 16.6' +/-
TOTAL DEPTH (FT): 5.2
LOGGED BY: Jeff McElroy
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): Soils wet below 5' +/-
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/21	1-2-6-12			Topsoil		
										0.6 Medium dense, light brown Silty SAND		
15										1.5 Medium dense, dark brown Sandy SILT		
			2D		2-4	24/20	11-26-27-16			2.5 Dense, red-brown Silty SAND		
										3.5 Dense, brown Silty Gravelly SAND		
	5		3D		5-5.3	3/2	50/3"			Auger Refusal at 5.2 feet (Probable Bedrock)		

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

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Kingfish Zeeland Maine
PROJECT: King Fish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

BORING NO.: B-118
SHEET: 1 of 1
PROJECT NO. 19-1758.3
DATE START: 10/29/2020
DATE FINISH: 10/29/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 46.2' +/-
TOTAL DEPTH (FT): 21.1
LOGGED BY: Kevin Hanscom
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.995
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): ▼ 0 ft water at ground surface
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/7	WOH-WOH-4-6			Topsoil	▼	
45										1.0 Medium dense to loose, brown Silty Gravelly SAND		
			2D		2-4	24/22	8-18-23-20					
	5		3D		5-7	24/24	3-2-1-3					
40												
			4D		7-9	24/24	3-3-5-5			7.0 Medium dense, brown Gravelly SAND, some silt		
										7.5 Loose, gray Sandy SILT, trace clay		
	10		5D		10-12	24/24	2-3-2-3					
35												
										14.0 Loose, gray Silty fine SAND		
	15		6D		15-17	24/24	WOR-WOR-18-23					
30										16.0 Medium dense, gray Gravelly Silty SAND (Glacial Till)		
	20		7D		20-21.1	13/13	12-13-50/1"					

Auger Refusal at 21.1 feet
(Probable Bedrock)

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

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B- 1
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/5/2020
DATE FINISH: 2/5/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 51.9' Surveyed
TOTAL DEPTH (FT): 2.5
LOGGED BY: Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.98
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free water observed
GENERAL NOTES: Offset 3' W, refusal at 3.0'

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
50			1D		0-2	24/9	1-1-4-8			0.4 Very loose, dark brown, Sandy SILT with organics Loose to medium dense, dark brown, Silty SAND, some gravel		

Auger Refusal at 2.5 feet
(Probable Bedrock)

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

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B- 2
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/4/2020
DATE FINISH: 2/4/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 38.4' Surveyed
TOTAL DEPTH (FT): 17.0
LOGGED BY: Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.98
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): ▽ 6.5 ft
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/24	11-8-7-7			Loose, dark brown, Sandy SILT with organics and roots		
										0.8 Medium dense, rusty brown, SAND, some silt		
										2.5 Medium dense, light brown, SAND, trace silt, trace gravel		
35	5		2D		5-7	24/20	7-9-8-8	w =17.7 %		5.5 Medium dense, light brown, fine to medium SAND, trace silt	▽	
30	10		3D		10-12	24/24	7-9-10-18			with brown silty fine sand layers		
										11.7 Very dense, brown, Gravelly SAND, some silt with occasional cobbles		
25	15		4D		15-16.9	23/23	19-30-29-50/5"					
										16.7 Probable weathered bedrock		

Auger Refusal at 17.0 feet
(Probable Bedrock)

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

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B- 3
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/5/2020
DATE FINISH: 2/5/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 52.9' Surveyed
TOTAL DEPTH (FT): 11.7
LOGGED BY: Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.98
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): ▽ 4.5 ft
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/20	2-1-1-8			Loose, dark brown, Sandy SILT with organics		
										0.6 Loose, rusty brown, fine to medium SAND, some silt		
										2.0 Medium dense, brown, Gravelly SAND, some silt with occasional cobbles		
50											▽	
	5		2D		5-7	24/18	6-6-8-7			4.5 Medium dense, brown, fine to medium SAND, some silt, with clayey silt layers		
45												
	10		3D		10-11.8	22/14	15-20-32-25/4"			9.3 Dense, brown, Gravelly Silty SAND with occasional cobbles (Glacial Till)		

Auger Refusal at 11.7 feet
(Probable Bedrock)

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

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B- 4
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/4/2020
DATE FINISH: 2/4/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 43.8' Surveyed
TOTAL DEPTH (FT): 14.3
LOGGED BY: Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.98
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): ▽ 3.9 ft
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/20	2-2-4-7			Loose, dark brown, Sandy SILT, with organics, roots		
										0.8 Medium dense, rusty brown, SAND, some silt, trace gravel		
										3.0 Medium dense, brown, fine to medium SAND, trace silt, trace gravel	▽	
40	5		2D		5-7	24/21	5-6-8-9			5.0 Medium dense, brown, Clayey SILT with silty fine sand seams		
										7.5 Medium dense, brown, fine to medium SAND, trace silt		
35	10		3D		10-12	24/8	18-22-20-38			9.7 Dense, brown, Gravelly SILT and SAND with cobbles (Glacial Till)		
30												

Auger Refusal at 14.3 feet
(Probable Bedrock)

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

BORING LOG

CLIENT:	Gartley & Dorsky Engineering & Surveying
PROJECT:	Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION:	9 Dun Garvin Road, Jonesport, ME

BORING NO.:	**B- 5**
SHEET:	1 of 1
PROJECT NO.	19-1758.1
DATE START:	2/5/2020
DATE FINISH:	2/5/2020

Drilling Information

LOCATION:	See Exploration Location Plan	**ELEVATION (FT):**	62.4' Surveyed	**TOTAL DEPTH (FT):**	17.1
LOGGED BY:	Todd Sekera	**DRILLING CO.:**	S. W. Cole Explorations, LLC	**DRILLER:**	Kevin Hanscom
DRILLING METHOD:	Hollow Stem Auger	**RIG TYPE:**	Track Mounted Diedrich D-50	**AUGER ID/OD:**	2 1/4 in / 5 5/8 in
SAMPLER:	Standard Split-Spoon	**HAMMER TYPE:**	Automatic	**HAMMER WEIGHT (lbs):**	140
CASING ID/OD:	N/A /N/A	**CORE BARREL:**	N/A	**HAMMER EFFICIENCY FACTOR:**	0.98
HAMMER DROP (inch):	30	**WATER LEVEL DEPTHS (ft):**	▽ 9 ft		

GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/11	2-4-10-15			0.5 Loose, dark brown, Sandy SILT with organics and roots		
										1.0 Loose, rusty brown, SAND, some silt, trace gravel		
60										Medium dense, brown, Gravelly SAND, some silt with cobbles		
	5		2D		5-7	24/17	16-18-17-14					
										6.7 Medium dense, brown, fine Sandy SILT		
55										8.0 Medium dense, brown, fine SAND, some silt	▽	
	10		3D		10-12	24/18	8-13-15-16					
50												
										13.7 Medium dense, brown, Gravelly Silty SAND with occasional cobbles (Glacial Till)		
	15		4D		15-16.2	14/13	18-19-25/2"					
										16.2 Probable weathered bedrock		

Auger Refusal at 17.1 feet
(Probable Bedrock)

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

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B- 6
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/4/2020
DATE FINISH: 2/4/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 50.5' Surveyed
TOTAL DEPTH (FT): 13.6
LOGGED BY: Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.98
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): ▽ 10.8 ft
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
50			1D		0-2	24/15	2-1-4-10			0.3 Loose, dark brown, Sandy SILT with organics and roots 0.6 Loose, light gray fine to medium SAND, some silt		
	5									Medium dense, rusty brown, SAND, some silt, trace gravel 2.9 Medium dense, brown, fine to medium SAND, some silt, with clayey silt layers		
45			2D		5-7	24/10	8-14-19-17			5.5 Dense to medium dense, brown, Sandy SILT, some gravel with cobbles (Glacial Till)		
	10											
40			3D		10-12	24/24	8-9-9-14				▽	

Auger Refusal at 13.6 feet
(Probable Bedrock)

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

BORING LOG

CLIENT:	Gartley & Dorsky Engineering & Surveying
PROJECT:	Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION:	9 Dun Garvin Road, Jonesport, ME

BORING NO.:	B- 7
SHEET:	1 of 1
PROJECT NO.	19-1758.1
DATE START:	2/5/2020
DATE FINISH:	2/5/2020

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 42.2' Surveyed **TOTAL DEPTH (FT):** 12.0 **LOGGED BY:** Todd Sekera

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Kevin Hanscom **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Track Mounted Diedrich D-50 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:** N/A

HAMMER EFFICIENCY FACTOR: 0.98 **HAMMER DROP (inch):** 30

WATER LEVEL DEPTHS (ft): ▽ 8 ft

GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/12	3-3-5-8			0.5 Loose, dark brown, Sandy SILT with organics Loose, rusty brown, fine to medium SAND, some silt, trace gravel		
40										1.8 Medium dense to very dense, brown, Gravelly Silty SAND		
	5		2D		5-7	24/20	28-39-30-26	w =6.4 %				
35										7.0 Medium dense, brown, fine to medium SAND, trace silt	▽	
	10		3D		10-10.9	11/10	7-25/5"			10.6 Medium dense, brown, Gravelly Silty SAND (Glacial Till) 10.9 Probable weathered bedrock		

Auger Refusal at 12.0 feet
(Probable Bedrock)

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

BORING NO.: B- 7

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B- 8
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/5/2020
DATE FINISH: 2/5/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 50' Surveyed
TOTAL DEPTH (FT): 16.5
LOGGED BY: Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.98
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): ▽ 3 ft
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/13	1-WOH-1-6			Very loose, organics with roots		
										0.8 Very loose, dark brown, Sandy SILT, trace gravel with organics and roots		
										1.5 Medium dense, brown, SAND, some silt, trace gravel	▽	
45	5		2D		5-7	24/13	2-3-6-14			4.0 Medium stiff consistency, brown, Clayey SILT, with silty fine sand seams		
										6.5 Medium dense, brown, Gravelly SAND, some silt		
										8.0 Loose to medium dense, brown, fine SAND, some silt		
40	10		3D		10-12	24/23	5-8-5-5					
										13.3 Dense, brown, Silty SAND, some gravel with occasional cobbles (Glacial Till)		
35	15		4D		15-16	12/12	17-62					

Auger Refusal at 16.5 feet
(Probable Bedrock)

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

BORING LOG

CLIENT:	Gartley & Dorsky Engineering & Surveying
PROJECT:	Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION:	9 Dun Garvin Road, Jonesport, ME

BORING NO.:	**B- 9**
SHEET:	1 of 1
PROJECT NO.	19-1758.1
DATE START:	2/4/2020
DATE FINISH:	2/4/2020

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 48.2' Surveyed **TOTAL DEPTH (FT):** 19.0 **LOGGED BY:** Todd Sekera

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Kevin Hanscom **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Track Mounted Diedrich D-50 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:** N/A

HAMMER EFFICIENCY FACTOR: 0.98 **HAMMER DROP (inch):** 30

WATER LEVEL DEPTHS (ft): ▽ 7.4 ft

GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/19	4-6-15-12			0.4 Loose, dark brown, Sandy SILT with organics and roots; Medium dense, rusty brown, SAND, some silt, some gravel		
45										2.5 Medium dense, brown, fine to medium SAND, trace silt		
	5		2D		5-7	24/22	11-14-14-18			5.0 Medium dense, brown, fine SAND, some silt with clayey silt layers	▽	
40												
	10		3D		10-12	24/24	7-8-11-14					
35												
	15		4D		15-17	24/16	24-25-26-23	w =8.8 %		14.3 Dense, brown Gravelly Silty SAND with cobbles (Glacial Till)		
30												

Auger Refusal at 19.0 feet
(Probable Bedrock)

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

BORING NO.: **B- 9**

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B-10
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/5/2020
DATE FINISH: 2/5/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 51.3' Surveyed
TOTAL DEPTH (FT): 7.9
LOGGED BY: Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.98
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): ▽ 4.5 ft
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
50			1D		0-2	24/15	2-2-2-3			0.6 Loose, dark brown, SILT with organics and roots Loose, rusty brown, SAND, some silt		
										3.0 Medium dense, brown, SAND, some silt, trace gravel	▽	
	5		2D		5-7	24/21	3-4-8-8			5.1 Medium stiff consistency, brown, Clayey SILT with silty fine sand partings		
45										6.2 Medium dense, brown, fine SAND, some silt		
										7.0 Medium dense, brown, Gravelly Silty SAND (Glacial Till)		
										Auger Refusal at 7.9 feet (Probable Bedrock)		

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

BORING NO.: B-10

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B-11
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/5/2020
DATE FINISH: 2/5/2020

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 41.4' Surveyed | **TOTAL DEPTH (FT):** 12.3 | **LOGGED BY:** Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Kevin Hanscom | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50 | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic | **HAMMER WEIGHT (lbs):** 140 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:** N/A
HAMMER EFFICIENCY FACTOR: 0.98 | **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): ▽ 4.4 ft
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
40			1D		0-2	24/24	1-2-9-12			0.4 Loose, dark brown, Sandy SILT with organics Loose, light gray fine to medium SAND, some silt 1.2 Medium dense, rusty brown, fine to medium SAND, some silt	▽	
	5		2D		5-7	24/14	8-15-8-6			4.7 Medium dense, brown, fine to medium SAND, some silt, with sandy gravel layers and clayey silt layers		
35												
	10		3D		10-11.3	16/16	7-9-25/4"			11.3 Probable bedrock		
30												

Auger Refusal at 12.3 feet
(Probable Bedrock)

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

BORING LOG

CLIENT:	Gartley & Dorsky Engineering & Surveying
PROJECT:	Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION:	9 Dun Garvin Road, Jonesport, ME

BORING NO.:	**B-12**
SHEET:	1 of 1
PROJECT NO.	19-1758.1
DATE START:	2/5/2020
DATE FINISH:	2/5/2020

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 42.1' Surveyed **TOTAL DEPTH (FT):** 8.6 **LOGGED BY:** Todd Sekera

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Kevin Hanscom **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Track Mounted Diedrich D-50 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:** N/A

HAMMER EFFICIENCY FACTOR: 0.98 **HAMMER DROP (inch):** 30

WATER LEVEL DEPTHS (ft): ▽ 4 ft

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Drilling
▼ At Completion of Drilling
▼ After Drilling

D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear

Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot

WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
Ø = Friction Angle (Estimated)
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
40			1D		0-2	24/20	1-1-3-7			0.4 Loose, dark brown, Sandy SILT, with organics and roots Loose becoming medium dense, rusty brown, fine to medium SAND, some silt		
	5									3.0 Medium dense, brown, Gravelly SAND, some silt	▽	
35			2D		5-7	24/15	14-14-18-18			6.0 Dense, brown, Gravelly Silty SAND with occasional cobbles (Glacial Till)		

Auger Refusal at 8.6 feet
(Probable Bedrock)

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

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B-13
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/4/2020
DATE FINISH: 2/4/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 35.5' Surveyed
TOTAL DEPTH (FT): 21.6
LOGGED BY: Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.98
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): ▽ 7.5 ft
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
35			1D		0-2	24/21	4-3-5-3			0.6 Loose, dark brown, Sandy SILT with organics and roots		
										1.0 Loose, light gray fine to medium SAND, some silt		
										Loose, rusty brown, SAND, some silt		
										3.0 Dense, brown, Gravelly SAND, some silt, some cobbles		
30	5		2D		5-7	24/19	26-20-17-16					
										5.6 Dense becoming medium dense, light brown, fine to medium SAND, trace silt	▽	
25	10		3D		10-12	24/24	5-8-9-13					
										13.0 Dense, brown, Silty Gravelly SAND with cobbles		
20	15		4D		15-17	24/5	14-17-22-29					
										19.5 Probablr weathered volcanic bedrock (Edmunds Formation)		
15	20		5D	☒	20-20.4	5/4	60/5"					

Auger Refusal at 21.6 feet
(Probable Bedrock)

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

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B-14
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/4/2020
DATE FINISH: 2/4/2020

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 23.7' Surveyed | **TOTAL DEPTH (FT):** 14.1 | **LOGGED BY:** Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Kevin Hanscom | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50 | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic | **HAMMER WEIGHT (lbs):** 140 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:** N/A
HAMMER EFFICIENCY FACTOR: 0.98 | **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): ▽ 9.5 ft
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/19	2-4-9-10			0.4 Loose, dark brown, Sandy SILT with organics Medium dense, rusty brown, SAND, some silt		
20										3.0 Medium dense, light brown, fine to medium SAND, trace silt, trace gravel		
	5		2D		5-7	24/16	5-7-7-9					
15											▽	
	10		3D		10-12	24/19	5-6-6-6					
10										13.0 Brown Gravelly SAND, some silt		

Auger Refusal at 14.1 feet
(Probable Bedrock)

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

BORING LOG

CLIENT:	Gartley & Dorsky Engineering & Surveying
PROJECT:	Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION:	9 Dun Garvin Road, Jonesport, ME

BORING NO.:	**B-15**
SHEET:	1 of 1
PROJECT NO.	19-1758.1
DATE START:	2/4/2020
DATE FINISH:	2/4/2020

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 27.7' Surveyed **TOTAL DEPTH (FT):** 23.5 **LOGGED BY:** Todd Sekera

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Kevin Hanscom **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Track Mounted Diedrich D-50 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:** N/A

HAMMER EFFICIENCY FACTOR: 0.98 **HAMMER DROP (inch):** 30

WATER LEVEL DEPTHS (ft): ▽ 10 ft

GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/20	3-3-4-5			0.6 Loose, dark brown, Sandy SILT, with organics Loose, rusty brown, SAND, some silt		
25										3.0 Loose to medium dense, light brown, fine to medium SAND, trace silt, trace gravel		
	5		2D		5-7	24/19	4-5-6-7					
20												
	10		3D		10-12	24/18	5-5-6-5				▽	
15												
	15		4D		15-17	24/24	2-3-5-5					
10												
	20		5D		20-22	24/24	2-2-4-5					
5												

Auger Refusal at 23.5 feet
(Probable Bedrock)

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

BORING LOG

CLIENT:	Gartley & Dorsky Engineering & Surveying
PROJECT:	Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION:	9 Dun Garvin Road, Jonesport, ME

BORING NO.:	**B-16**
SHEET:	1 of 1
PROJECT NO.	19-1758.1
DATE START:	2/4/2020
DATE FINISH:	2/4/2020

Drilling Information

LOCATION:	See Exploration Location Plan	**ELEVATION (FT):**	37.5' Surveyed	**TOTAL DEPTH (FT):**	23.7
LOGGED BY:	Todd Sekera	**DRILLING CO.:**	S. W. Cole Explorations, LLC	**DRILLER:**	Kevin Hanscom
DRILLING METHOD:	Hollow Stem Auger	**RIG TYPE:**	Track Mounted Diedrich D-50	**AUGER ID/OD:**	2 1/4 in / 5 5/8 in
SAMPLER:	Standard Split-Spoon	**HAMMER TYPE:**	Automatic	**HAMMER WEIGHT (lbs):**	140
CASING ID/OD:	N/A /N/A	**CORE BARREL:**	N/A	**HAMMER EFFICIENCY FACTOR:**	0.98
HAMMER DROP (inch):	30	**WATER LEVEL DEPTHS (ft):**	▽ 5 ft		

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling

D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear

Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot

WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/16	6-2-2-4			Loose, dark brown, Sandy SILT with organics and roots		
										0.8 Loose, rusty brown, SAND, some silt		
35										3.0 Medium dense, light brown, fine to medium SAND, trace silt, trace gravel		
	5		2D		5-7	24/2	5-8-9-8				▽	
30												
	10		3D		10-12	24/24	2-7-6-11			10.0 Loose, brown, fine Sandy SILT		
										10.6 Medium dense, brown, fine to medium SAND, trace silt		
25												
	15		4D		15-17	24/18	12-31-33-34			15.5 Very dense to dense, brown, Gravelly SAND, some silt with cobbles		
20												
	20		5D		20-22	24/16	15-20-21-23					
15										23.2 Probable weathered bedrock		
										Auger Refusal at 23.7 feet (Probable Bedrock)		

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

BORING LOG

CLIENT:	Gartley & Dorsky Engineering & Surveying
PROJECT:	Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION:	9 Dun Garvin Road, Jonesport, ME

BORING NO.:	**B-17**
SHEET:	1 of 1
PROJECT NO.	19-1758.1
DATE START:	2/4/2020
DATE FINISH:	2/4/2020

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 28.9' Surveyed | **TOTAL DEPTH (FT):** 15.0 | **LOGGED BY:** Todd Sekera

DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Kevin Hanscom | **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Track Mounted Diedrich D-50 | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic | **HAMMER WEIGHT (lbs):** 140 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:** N/A

HAMMER EFFICIENCY FACTOR: 0.98 | **HAMMER DROP (inch):** 30

WATER LEVEL DEPTHS (ft): ▽ 5.5 ft

GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/17	5-1-1-3			Very loose, dark brown, Sandy SILT with organics and roots		
										0.7 Very loose, rusty brown, SAND, some silt, trace gravel		
										3.0 Medium dense, brown, SAND, trace silt, trace gravel		
25												
	5		2D		5-7	24/14	6-8-8-9				▽	
										5.5 Medium dense, light brown, fine to medium SAND, trace silt		
20												
	10		3D		10-12	24/22	13-18-17-14			with brown, fine sandy silt seams		
										12.3 Dense, brown, Gravelly SAND, some silt with cobbles		
15												
	15									14.6 Probable weathered bedrock		

Auger Refusal at 15.0 feet
(Probable Bedrock)

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

BORING LOG

CLIENT: Gartley & Dorsky Engineering & Surveying
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: 9 Dun Garvin Road, Jonesport, ME

BORING NO.: B-18
SHEET: 1 of 1
PROJECT NO. 19-1758.1
DATE START: 2/5/2020
DATE FINISH: 2/5/2020

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 61.5' Surveyed
TOTAL DEPTH (FT): 22.0
LOGGED BY: Todd Sekera
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Kevin Hanscom
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Diedrich D-50
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic
HAMMER WEIGHT (lbs): 140
CASING ID/OD: N/A /N/A
CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: 0.98
HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): ▽ 8 ft
GENERAL NOTES:

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

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/16	3-3-4-8			0.3 Loose, dark brown, Silty SAND with organics 0.8 Loose, light gray Silty SAND Medium dense, rusty brown SAND, some silt, some gravel		
60										3.0 Medium dense, brown Clayey Sandy SILT, some gravel with cobbles (Glacial Till)		
	5		2D		5-7	24/24	6-6-7-19					
55											▽	
	10		3D		10-12	24/24	10-13-16-15					
50												
	15		4D		15-17	24/24	8-9-8-9					
45												
	20		5D		20-22	24/21	10-11-11-12					
40										Bottom of Exploration at 22.0 feet		

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

BORING LOG

CLIENT:	Gartley & Dorsky Engineering & Surveying
PROJECT:	Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION:	9 Dun Garvin Road, Jonesport, ME

BORING NO.:	**B-19**
SHEET:	1 of 1
PROJECT NO.	19-1758.1
DATE START:	2/5/2020
DATE FINISH:	2/5/2020

Drilling Information

LOCATION:	See Exploration Location Plan	**ELEVATION (FT):**	65' Surveyed	**TOTAL DEPTH (FT):**	22.0
LOGGED BY:	Todd Sekera	**DRILLING CO.:**	S. W. Cole Explorations, LLC	**DRILLER:**	Kevin Hanscom
DRILLING METHOD:	Hollow Stem Auger	**RIG TYPE:**	Track Mounted Diedrich D-50	**AUGER ID/OD:**	2 1/4 in / 5 5/8 in
SAMPLER:	Standard Split-Spoon	**HAMMER TYPE:**	Automatic	**HAMMER WEIGHT (lbs):**	140
CASING ID/OD:	N/A /N/A	**CORE BARREL:**	N/A	**HAMMER EFFICIENCY FACTOR:**	0.98
HAMMER DROP (inch):	30	**WATER LEVEL DEPTHS (ft):**	▽ 6.8 ft		
GENERAL NOTES:					

KEY TO NOTES AND SYMBOLS: Water Level; ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling

D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear

Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot

WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/8	1-5-9-19			0.3 Loose, dark brown, Silty SAND with organics 0.8 Loose, light gray Silty SAND Medium dense, rusty brown SAND, some silt		
										2.0 Dense to medium dense, brown, Gravelly SAND, some silt with cobbles (Glacial Till)		
60	5		2D		5-7	24/10	15-16-19-23				▽	
55	10		3D		10-12	24/24	9-11-11-12					
										14.5 Medium dense, brown, Silty fine SAND		
50	15		4D		15-16.5	18/18	17-35-60			15.3 Very dense, brown, Silty Sandy GRAVEL with cobbles		
										19.0 Medium dense, brown, Sandy SILT, some gravel with occasional cobbles (Glacial Till)		
45	20		5D		20-22	24/24	10-11-11-10					

Bottom of Exploration at 22.0 feet

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

BORING LOG

CLIENT:	Gartley & Dorsky Engineering & Surveying
PROJECT:	Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION:	9 Dun Garvin Road, Jonesport, ME

BORING NO.:	**B-20**
SHEET:	1 of 1
PROJECT NO.	19-1758.1
DATE START:	2/5/2020
DATE FINISH:	2/5/2020

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 50.4' Surveyed | **TOTAL DEPTH (FT):** 16.8 | **LOGGED BY:** Todd Sekera

DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Kevin Hanscom | **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Track Mounted Diedrich D-50 | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic | **HAMMER WEIGHT (lbs):** 140 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:** N/A

HAMMER EFFICIENCY FACTOR: 0.98 | **HAMMER DROP (inch):** 30

WATER LEVEL DEPTHS (ft): ▽ 4 ft

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level; ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling

D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear

Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot

WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
50			1D		0-2	24/9	1-WOH-1-3			Very loose, organics with roots		
										1.0 Very loose, dark brown, Sandy SILT, with organics and roots		
										1.5 Loose, brown, Silty SAND, some gravel		
										2.0 Medium dense, brown, Gravelly Silty SAND, with numerous cobbles	▽	
	5											
45			2D		5-7	24/15	2-5-9-9			5.0 Medium dense, brown, fine Sandy SILT		
										6.0 Medium dense, brown, Silty SAND, some gravel		
										9.0 Dense, brown Gravelly Silty SAND		
	10											
40			3D		10-12	24/22	11-16-19-23			11.5 Dense, brown, Gravelly Sandy SILT with numerous cobbles (Glacial Till)		
	15											
35			4D		15-15.9	11/11	8-25/5"			15.9 Probable weathered bedrock		

Auger Refusal at 16.8 feet
(Probable Bedrock)

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

TEST PIT LOGS

CLIENT: Kingfish Zeeland Maine
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

PROJECT NO.: 19-1758.3
LOGGED BY: Nate Strout
CONTRACTOR: Hanscom Construction, Inc.
EQUIPMENT: Deere 310G Backhoe

TEST PIT TP-1

DATE: 11/23/2020 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 42.1' +/- **COMPLETION DEPTH (FT):** 4.0
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil					
		0.5 Red-brown Gravelly SAND, trace silt				3-	Thermal Resistivity = 82.06°C-cm/W

Bottom of Exploration at 4.0 feet

TEST PIT TP-2

DATE: 11/23/2020 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 36' +/- **COMPLETION DEPTH (FT):** 4.0
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil					
		0.7 Red-brown SAND, some gravel and silt					
		... becoming brown				3-	Thermal Resistivity = 82.06°C-cm/W

Bottom of Exploration at 4.0 feet

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

KEY TO NOTES AND SYMBOLS:
Water Level
▽ At time of Digging
▼ At Completion of Digging
▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT LOGS

CLIENT: Kingfish Zeeland Maine
PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility
LOCATION: Dun Garvin Road, Jonesport, Maine

PROJECT NO.: 19-1758.3
LOGGED BY: Nate Strout
CONTRACTOR: Hanscom Construction, Inc.
EQUIPMENT: Deere 310G Backhoe

TEST PIT TP-3

DATE: 11/23/2020 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 50.1' +/- **COMPLETION DEPTH (FT):** 4.5
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil					
		0.6 Red-brown SAND and GRAVEL, trace silt					
		2.0 Brown Silty SAND, some gravel with occasional cobbles				3-	Thermal Resistivity = 75.39°C-cm/W

Bottom of Exploration at 4.5 feet

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

KEY TO NOTES AND SYMBOLS:
Water Level
▽ At time of Digging
▼ At Completion of Digging
▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

S.W.COLE ENGINEERING, INC.

19-1758.3 S

Refusal Summary Sheet

Exploration Number	Approximate Exploration Elevation (feet)	Apparent Bedrock Depth BGS (feet)	Approximate Apparent Bedrock Elevation (feet)
B-1	51.9	2.5	49.4
B-2	38.4	16.7	21.7
B-3	52.9	11.7	41.2
B-4	43.8	14.3	29.5
B-5	62.4	16.2	46.2
B-6	50.5	13.6	36.9
B-7	42.2	10.9	31.3
B-8	50.0	16.5	33.5
B-9	48.2	19.0	29.2
B-10	51.3	7.9	43.4
B-11	41.4	11.3	30.1
B-12	42.1	8.6	33.5
B-13	35.5	19.5	16.0
B-14	23.7	14.1	9.6
B-15	27.7	23.5	4.2
B-16	37.5	23.2	14.3
B-17	28.9	14.6	14.3
B-18	61.5	>22	N/A
B-19	65.0	>22	N/A
B-20	50.4	15.9	34.5
B-101	51.4	11.0	40.4
B-102	44.7	19.0	25.7
B-103	50.1	11.7	38.4
B-104	61.6	16.8	44.8
B-105	52.4	2.2	50.2
B-106	49.2	14.9	34.3
B-107	42.1	12.4	29.7
B-108	38.7	15.3	23.4
B-109	50.0	5.0	45.0
B-110	49.1	7.0	42.1
B-111	45.1	8.0	37.1
B-112	40.8	22.9	17.9
B-113	38.8	21.2	17.6
B-114	36.0	31.2	4.8
B-115	35.8	21.2	14.6
B-116	19.1	16.8	2.3
B-117	16.6	5.2	11.4
B-118	46.2	21.1	25.1

S.W.COLE ENGINEERING, INC.

19-1758.3 S

Refusal Summary Sheet

Exploration Number	Approximate Exploration Elevation (feet)	Apparent Bedrock Depth BGS (feet)	Approximate Apparent Bedrock Elevation (feet)
P-1	45.3	11.2	34.1
P-2	53.7	6.5	47.2
P-3	63.0	16.4	46.6
P-4	49.4	10.6	38.8
P-5	50.0	11.2	38.8
P-6	44.2	11.1	33.1
P-7	41.3	13.5	27.8
P-8	49.8	10.5	39.3
P-9	46.0	13.9	32.1
P-10	47.8	20.3	27.5
P-11	46.2	12.8	33.4
P-101	50.5	13.8	36.7
P-102	55.0	15.2	39.8
P-103	45.6	12.1	33.5
P-104	48.4	12.5	35.9
P-105	41.1	14.4	26.7
P-106	40.3	16.9	23.4
P-107	39.3	23.0	16.3
P-108	31.4	18.2	13.2
P-109	18.6	10.5	8.1

Note:
Elevations as obtained from the "Exploration Location Plan".
Apparent competent bedrock is interpreted to occur from auger refusal.
BGS = Below Ground Surface

KEY TO THE NOTES & SYMBOLS
Test Boring and Test Pit Explorations

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

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

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

Description of Stratified Soils

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

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

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

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

APPENDIX D

Laboratory Test Results

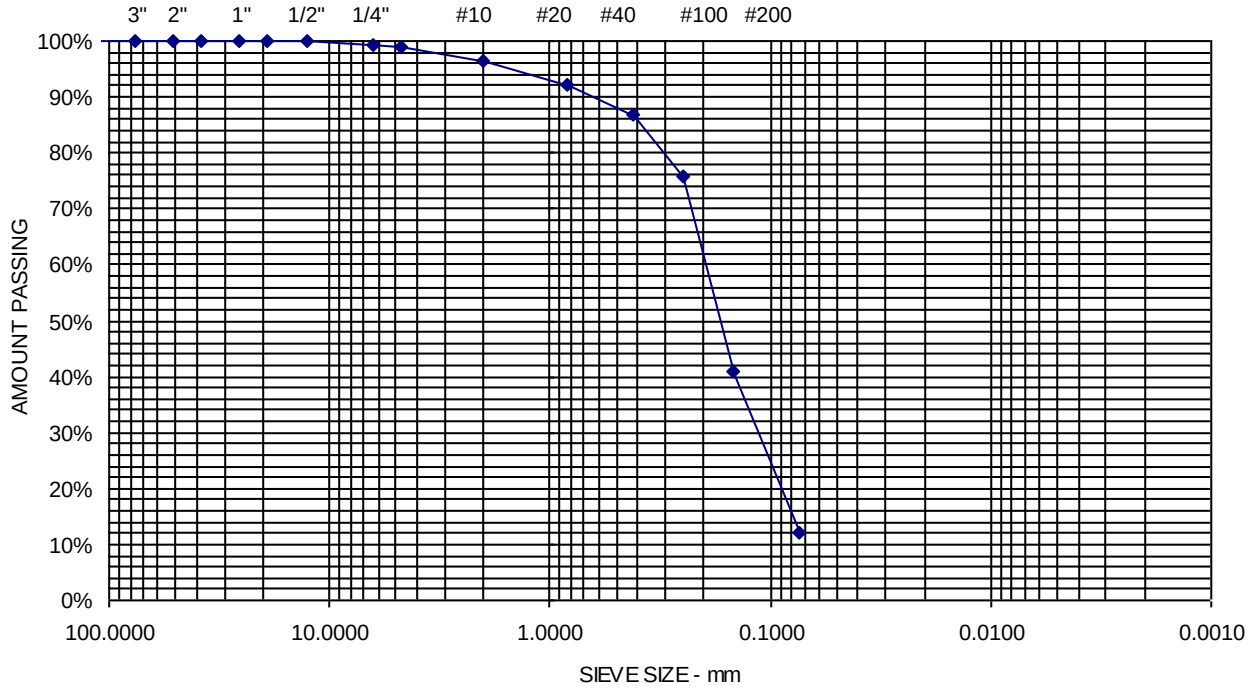
S.W.COLE ENGINEERING, INC.

Report of Gradation

ASTM C-117 & C-136

Project Name	JONESPORT ME - PROPOSED KINGFISH MAINE AQUACULTURE FACILITY - DESIGN PHASE - GEOTECHNICAL ENGINEERING	Project Number	19-1758.3
Client	KINGFISH ZEELAND MAINE	Lab ID	26484B
Exploration	**3D**	Date Received	11/18/2020
Material Source	**B-102, 5-7 FEET**	Date Completed	11/19/2020
		Tested By	BAXTER HUGHES

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150	**6"**	**100**	
125	**5"**	**100**	
100	**4"**	**100**	
75	**3"**	**100**	
50	**2"**	**100**	
38.1	**1-1/2"**	**100**	
25.0	**1"**	**100**	
19.0	**3/4"**	**100**	
12.5	**1/2"**	**100**	
6.3	**1/4"**	**99**	
4.75	**No. 4**	**99**	1.2% Gravel
2.00	**No. 10**	**96**	
850	**No. 20**	**92**	
425	**No. 40**	**87**	86.9% Sand
250	**No. 60**	**76**	
150	**No. 100**	**41**	
75	**No. 200**	**11.9**	11.9% Fines



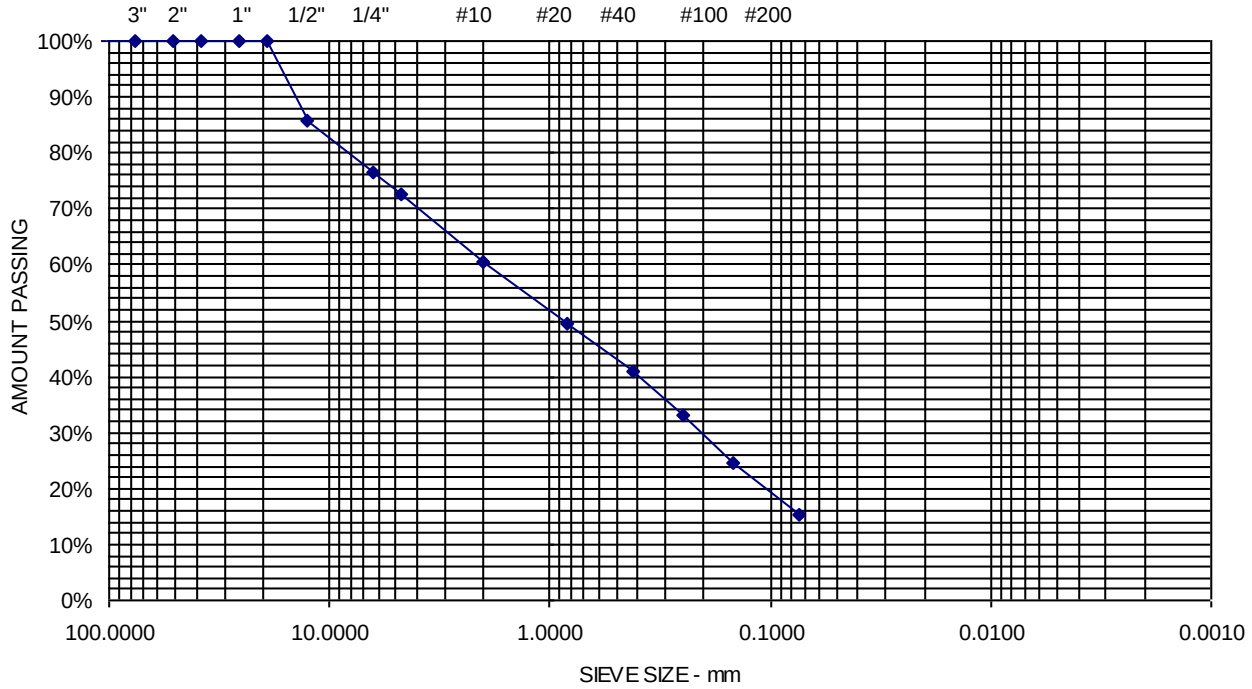
Comments:

Report of Gradation

ASTM C-117 & C-136

Project Name	JONESPORT ME - PROPOSED KINGFISH MAINE AQUACULTURE FACILITY - DESIGN PHASE - GEOTECHNICAL ENGINEERING	Project Number	19-1758.3
Client	KINGFISH ZEELAND MAINE	Lab ID	26485B
Exploration	**3D**	Date Received	11/18/2020
Material Source	**B-104, 10-12 FEET**	Date Completed	11/19/2020
		Tested By	DEAN MALLETT

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150	**6"**	**100**	
125	**5"**	**100**	
100	**4"**	**100**	
75	**3"**	**100**	
50	**2"**	**100**	
38.1	**1-1/2"**	**100**	
25.0	**1"**	**100**	
19.0	**3/4"**	**100**	
12.5	**1/2"**	**86**	
6.3	**1/4"**	**76**	
4.75	**No. 4**	**72**	27.5% Gravel
2.00	**No. 10**	**61**	
850	**No. 20**	**49**	
425	**No. 40**	**41**	57.3% Sand
250	**No. 60**	**33**	
150	**No. 100**	**25**	
75	**No. 200**	**15.1**	15.1% Fines



Comments:

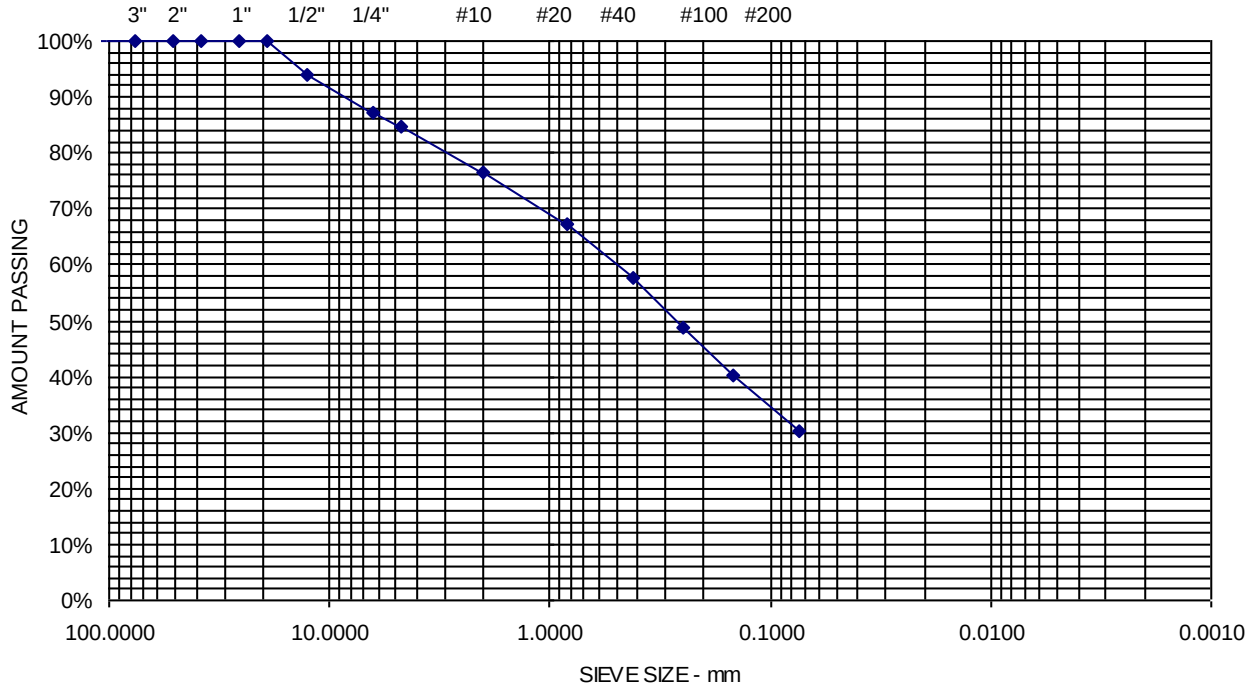
S.W.COLE ENGINEERING, INC.

Report of Gradation

ASTM C-117 & C-136

Project Name	JONESPORT ME - PROPOSED KINGFISH MAINE AQUACULTURE FACILITY - DESIGN PHASE - GEOTECHNICAL ENGINEERING	Project Number	19-1758.3
Client	KINGFISH ZEELAND MAINE	Lab ID	26486B
Exploration	**4D**	Date Received	11/18/2020
Material Source	**B-116, 10-12 FEET**	Date Completed	11/19/2020
		Tested By	DEAN MALLETT

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150	**6"**	**100**	
125	**5"**	**100**	
100	**4"**	**100**	
75	**3"**	**100**	
50	**2"**	**100**	
38.1	**1-1/2"**	**100**	
25.0	**1"**	**100**	
19.0	**3/4"**	**100**	
12.5	**1/2"**	**94**	
6.3	**1/4"**	**87**	
4.75	**No. 4**	**85**	15.2% Gravel
2.00	**No. 10**	**77**	
850	**No. 20**	**67**	
425	**No. 40**	**58**	54.6% Sand
250	**No. 60**	**49**	
150	**No. 100**	**40**	
75	**No. 200**	**30.2**	30.2% Fines



Comments:

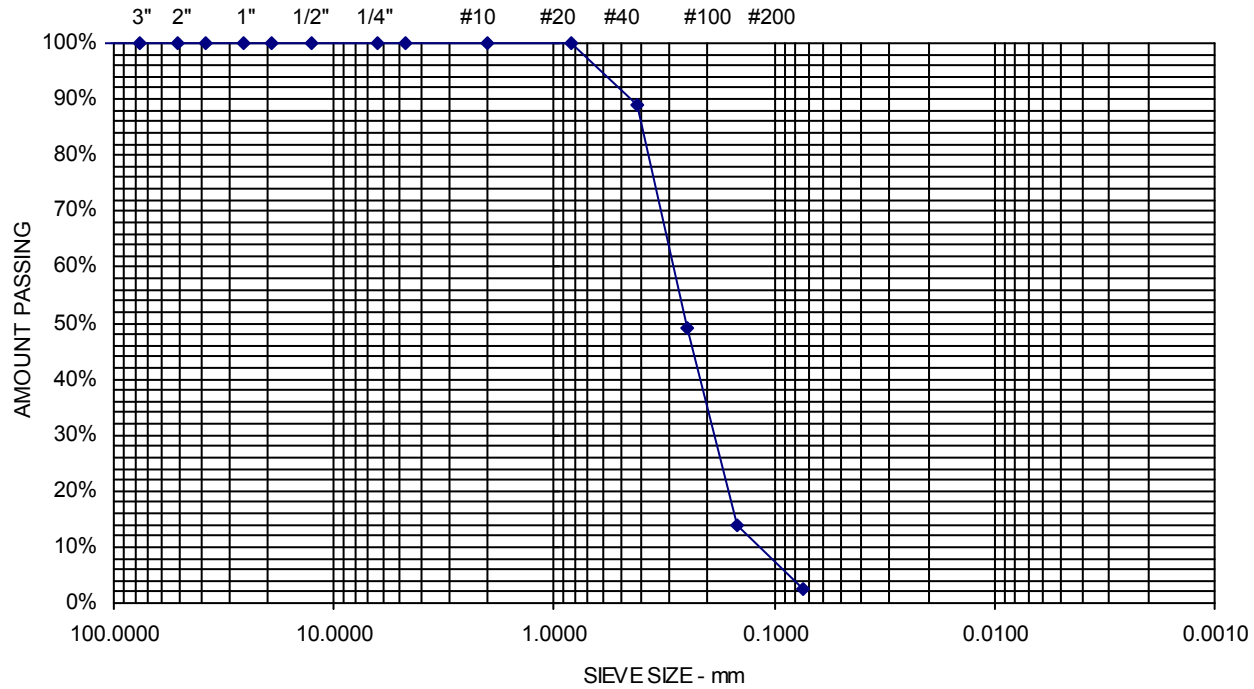
S.W.COLE ENGINEERING, INC.

Report of Gradation

ASTM C-117 & C-136

Project Name	JONESPORT ME - PROPOSED KINGFISH MAINE AQUACULTURE FACILITY - DESIGN PHASE - GEOTECHNICAL ENGINEERING	Project Number	19-1758.3
Client	KINGFISH ZEELAND MAINE	Lab ID	26588B
Exploration	**5D**	Date Received	1/2/2021
Material Source	**B-114, 15-17 FEET**	Date Completed	1/3/2021
		Tested By	THOMAS HIGGINS

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150	**6"**	**100**	
125	**5"**	**100**	
100	**4"**	**100**	
75	**3"**	**100**	
50	**2"**	**100**	
38.1	**1-1/2"**	**100**	
25.0	**1"**	**100**	
19.0	**3/4"**	**100**	
12.5	**1/2"**	**100**	
6.3	**1/4"**	**100**	
4.75	**No. 4**	**100**	0% Gravel
2.00	**No. 10**	**100**	
850	**No. 20**	**100**	
425	**No. 40**	**89**	97.5% Sand
250	**No. 60**	**49**	
150	**No. 100**	**14**	
75	**No. 200**	**2.5**	2.5% Fines



Comments:

APPENDIX E

Electrical Resistivity Test Results

S.W.COLE ENGINEERING, INC.

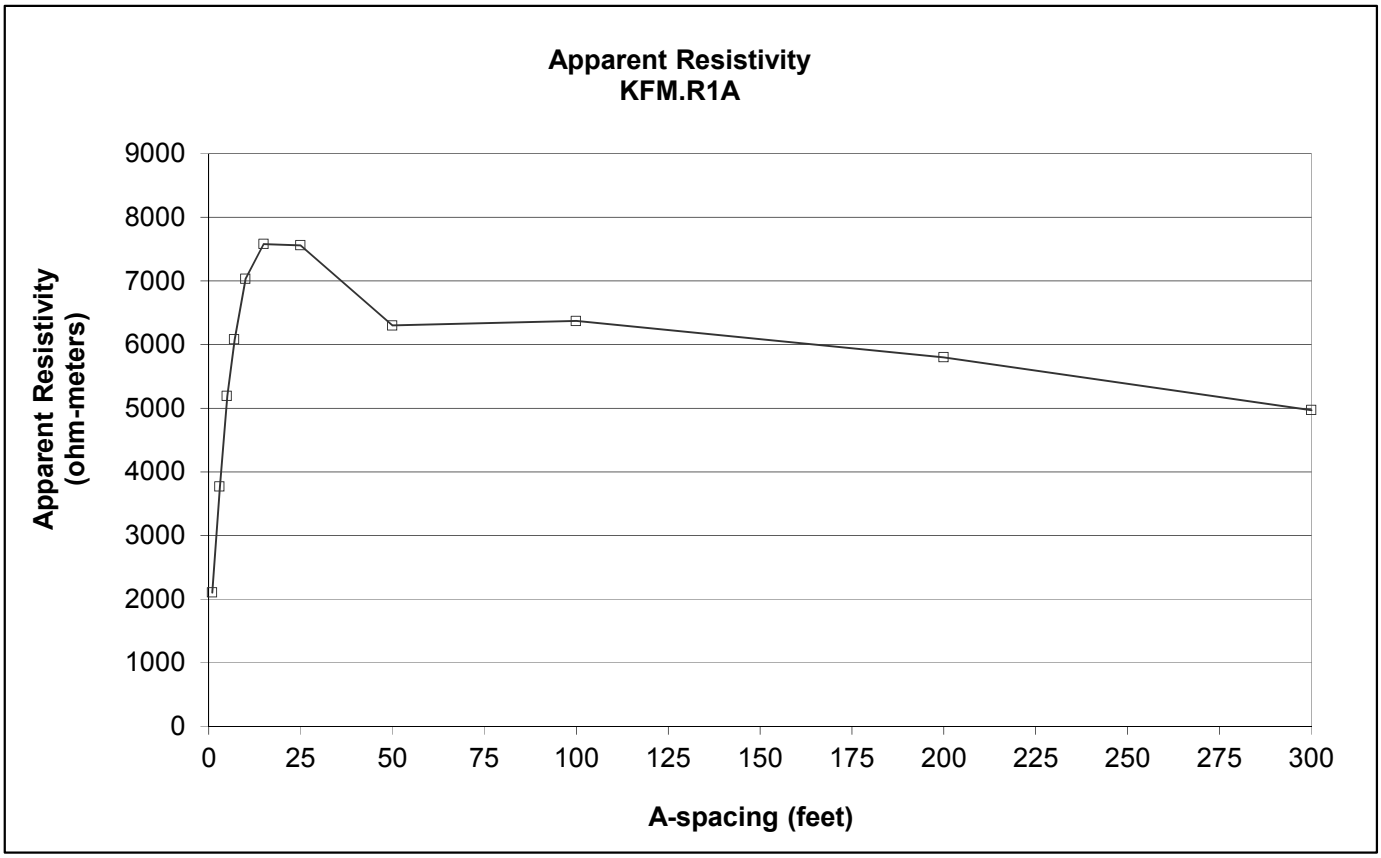
RESISTIVITY COMPUTATION DATA SHEET
Wenner Configuration
Fixed Center

Project #: 19-1758.3
Site: Proposed Kingfish Maine, Inc. Aquaculture Facility
Spread No.: KFM.R1A
Orientation: 347° Magnetic

Date: 11/05/2020
Mid point GPS Coordinates: See Exploration Location Plan
Instrument: AGI SuperSting R1

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	V mV	Resistance (v/I) Ω	Apparent Resistivity (ohm-meters)	% Error
1	0.5	1.5	2	2100	1050.0	2105	0.1
3	1.5	4.5	2	1312	656.0	3770	0.0
5	2.5	7.5	2	1084	542.0	5190	0.0
7	3.5	10.5	2	908	454.0	6080	0.0
10	5.0	15.0	2	734	367.0	7030	0.0
15	7.5	22.5	2	528	264.0	7580	0.0
25	12.5	37.5	26	4108	158.0	7560	0.0
50	25.0	75.0	33	2171	65.8	6300	0.0
100	50.0	150.0	42	1399	33.3	6370	0.0
200	100.0	300.0	47	710	15.1	5800	0.0
300	150.0	450.0	54	467	8.6	4970	0.0

Geomean	5,412
Min	2,105
Max	7,580
Median	6,080
Std. Dev.	1,648



S.W.COLE ENGINEERING, INC.

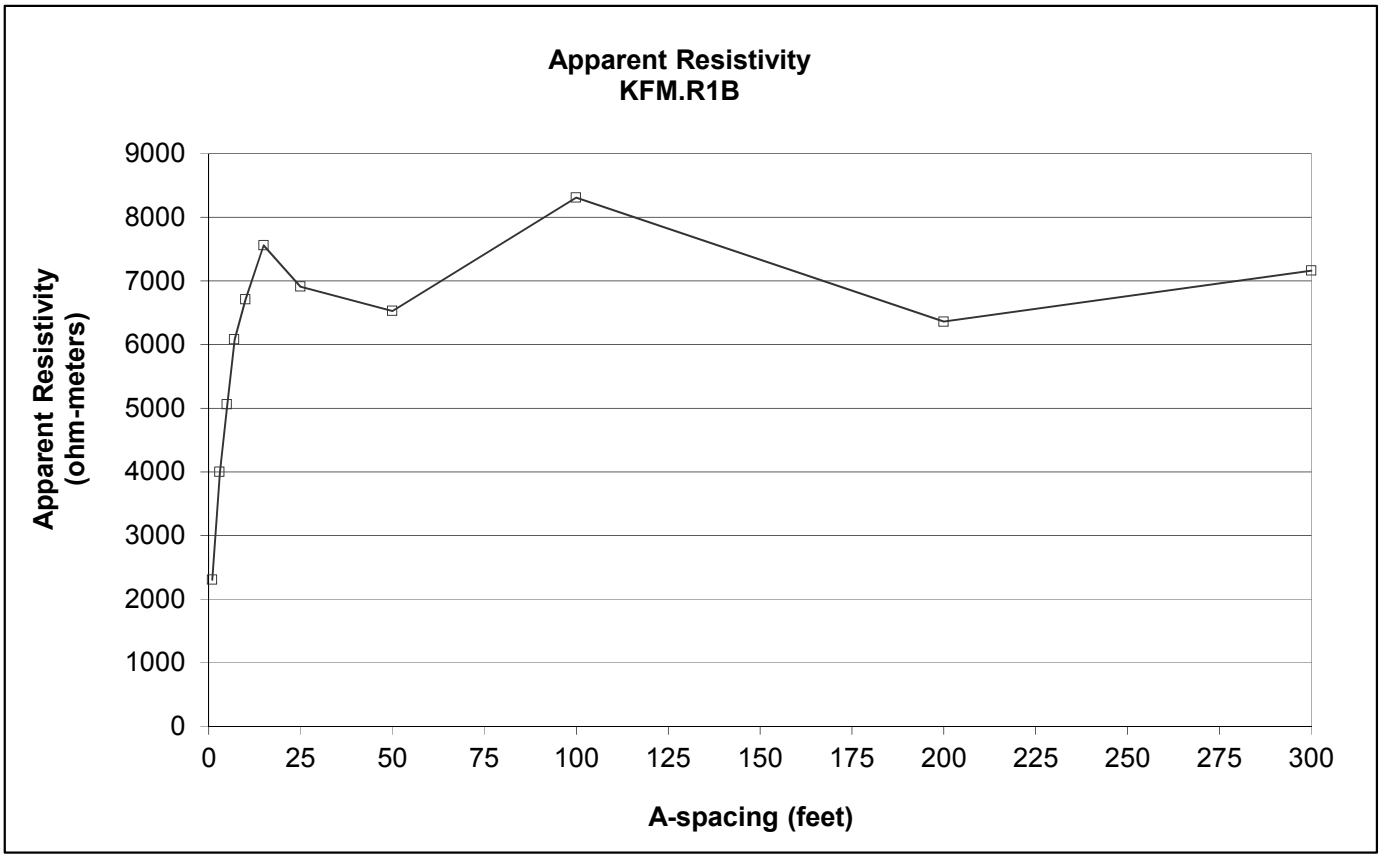
RESISTIVITY COMPUTATION DATA SHEET
Wenner Configuration
Fixed Center

Project #: 19-1758.3
Site: Proposed Kingfish Maine, Inc. Aquaculture Facility
Spread No.: KFM.R1B
Orientation: 88° Magnetic

Date: 11/05/2020
Mid point GPS Coordinates: See Exploration Location Plan
Instrument: AGI SuperSting R1

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	V mV	Resistance (v/I) Ω	Apparent Resistivity (ohm-meters)	% Error
1	0.5	1.5	2	2300	1150.0	2305	0.0
3	1.5	4.5	2	1394	697.0	4000	0.0
5	2.5	7.5	2	1056	528.0	5060	0.0
7	3.5	10.5	2	908	454.0	6080	0.0
10	5.0	15.0	2	702	351.0	6710	0.0
15	7.5	22.5	2	526	263.0	7560	0.0
25	12.5	37.5	2	288	144.0	6910	0.0
50	25.0	75.0	42	2864	68.2	6530	0.0
100	50.0	150.0	46	1996	43.4	8310	0.0
200	100.0	300.0	32	531	16.6	6360	0.0
300	150.0	450.0	52	650	12.5	7160	0.0

Geomean	5,791
Min	2,305
Max	8,310
Median	6,530
Std. Dev.	1,712



APPENDIX 11C

Test Pit Data Report

Gartley & Dorsky
ENGINEERING SURVEYING

January 6, 2020

Megan Sorby
Tom Sorby
Kingfish Maine, Inc.

via email: megan@kingfish-maine.com
tom@kingfish-maine.com

RE: Subsurface Wastewater Disposal Soil Investigation **Project 2019-412**
Kingfish Maine RAS Facility

Dear Megan and Tom:

We write to summarize the investigation work performed at your request at the proposed Kingfish Maine RAS facility site at 9 Dun Garvin Road, Jonesport. We have determined that suitable soils are present and will provide opportunities to site and install wastewater disposal systems. We base our understanding of the disposal requirements on current plans, and understand the final design sizing and scale will be dependent on clarification of the overall project scope.

SOILS INVESTIGATION

Natalie Marceau, licensed soils scientist and licensed site evaluator, screened the ~95 acre property to identify and characterize the locations of soils suitable for onsite wastewater disposal. Natalie performed onsite work to site and observe machine dug test pits at the property on December 23, 2019. Test pits, numbered from 1 to 15, were excavated and logs have been prepared to describe the conditions encountered. These logs represent moderately varying conditions, and indicate consistent and suitable soils across the portions of the site that will be available for siting disposal system(s). An exception to this condition was identified at Test Pit 10, which appears to be located where prior earthwork and filling have occurred. Owing to this disturbance, use of this location is dependent on adjacent conditions and would require further investigation to establish its suitability. The test pits were field located using submeter grade GPS mapping equipment, and have been annotated on the previously prepared base map. When the boundary survey and topographic map is generated by our surveyors, test pit location information will be added to that plan. Test pit 5 and Test pit 6 were excavated in the southerly portion of the property, and are relatively close to the adjacent Coast Guard housing facility's well. This well is presently not registered as a public water supply, according to information provided by state Drinking Water Program staff. It had been regulated as one in the past, but its status was revised. A minimum separation of 100 feet is required from any well to any new disposal field. If the adjacent well was still a public water supply, the separation requirement would increase to 300 feet.

SYSTEM SIZING REVIEW

For onsite wastewater disposal requirements, domestic demand (non-process wastewater) is expected from employee use and staff housing. From information you have provided, staffing level is understood to be projected as 70 to 100 employees. Staff housing is understood to be several housing units, approximately 4 dwellings. Based on this planned level of development, the design flow prescribed by the Maine Subsurface Wastewater Disposal Rules is roughly approximated as 3,000 to 3,500 gallons per day.

CONCEPTUAL DESIGN

The soil profiles identified indicate that in the locations where suitable soils exist, the sizing factor for system design is predominantly 2.6 square feet per gallon per day. The sizing factor for test pit 6 is 3.3 square feet per gallon per day. System sizing varies, depending on whether the design incorporates state approved proprietary disposal units to reduce footprint. The identified sizing factors indicates a probable range of disposal field sizing of 10,000 square feet down to 3,000 square feet (exclusive of fill slopes), depending on which system type is incorporated into the design.

SUMMARY

We have observed soil profiles of suitable conditions and in sufficient varied locations to conclude that adequate soils exist on the property to support onsite subsurface wastewater disposal for the enumerated facility in conformance with applicable regulations.

Enclosed herewith are test pit logs in the prescribed format per Maine Department of Human Services, Division of Health Engineering. Also enclosed is the referenced plan. We appreciate your interest. If you have any questions, please feel free to contact us at (207) 236-4365.

Very truly yours,
Gartley & Dorsky, Engineering & Surveying Inc.

William T. Lane, P.E.
Vice President

Natalie Marceau, S.S., S.E.
Environmental Scientist

cc: Sune Moeller, Kingfish Zeeland

enclosures: Base Map
Test Pit Logs

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

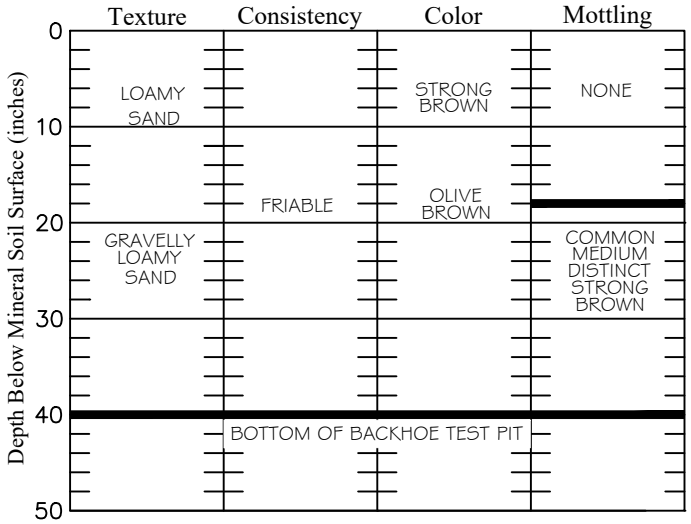
Department of Human Services
Division of Health Engineering
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
JONESPORT	DUN GARVAN ROAD	KINGFISH MAINE, INC.

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 1 ■ Test Pit □ Boring

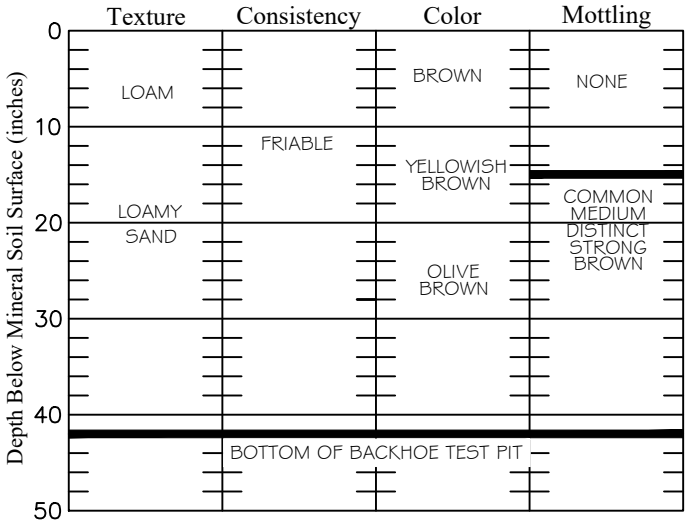
0 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
6 Profile / C Condition	±2 %	18"	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Observation Hole 2 ■ Test Pit □ Boring

1 " Depth of Organic Horizon Above Mineral Soil

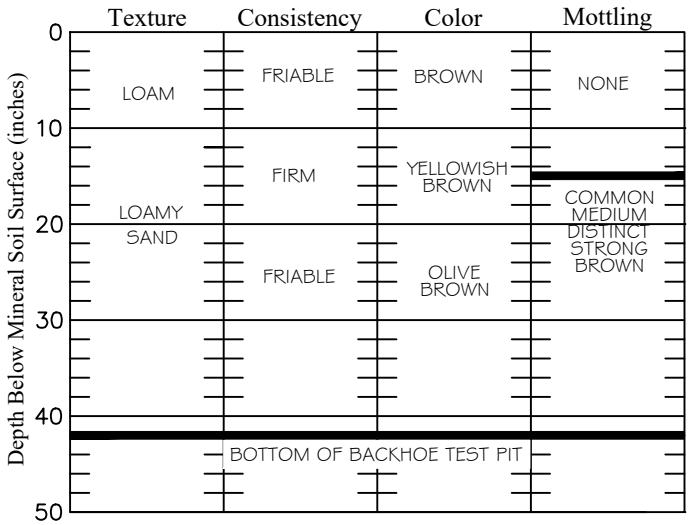


Soil Classification	Slope	Limiting Factor	
5 Profile / C Condition	±2 %	15"	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 3 ■ Test Pit □ Boring

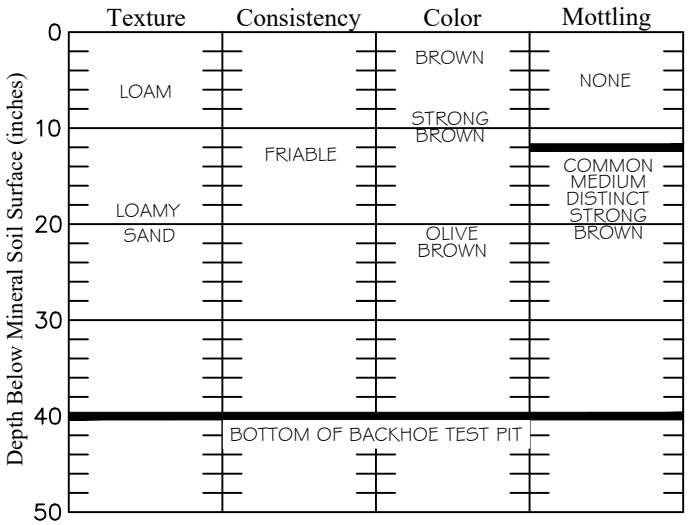
1 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
5 Profile / C Condition	±2 %	15"	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Observation Hole 4 ■ Test Pit □ Boring

1 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
5 Profile / D Condition	±2 %	12"	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Natalie Marcoux — Site Evaluator Signature

411 — SE #

12/23/19 — Date

H:\Land Projects 3\19412\Drawings\19412 TP data.dwg

PROJ. NO.: 2019-412

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

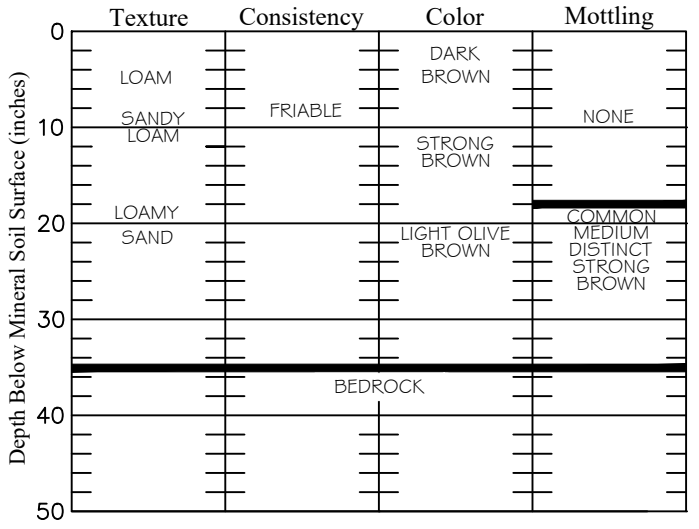
Department of Human Services
Division of Health Engineering
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
JONESPORT	DUN GARVAN ROAD	KINGFISH MAINE, INC.

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 5 ■ Test Pit □ Boring

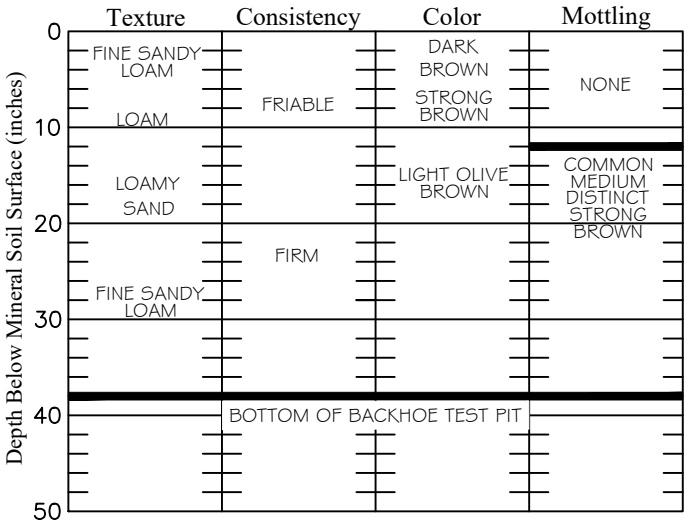
1 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
5 Profile / C Condition	±2 %	18 "	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Observation Hole 6 ■ Test Pit □ Boring

1 " Depth of Organic Horizon Above Mineral Soil

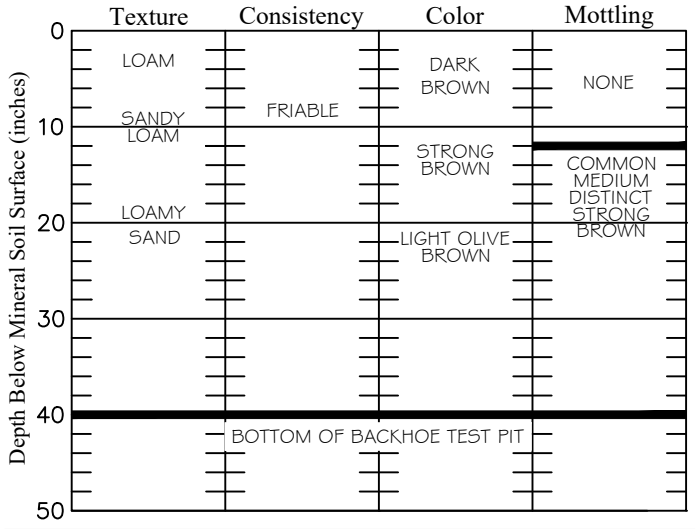


Soil Classification	Slope	Limiting Factor	
7 Profile / D Condition	±2 %	12 "	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 7 ■ Test Pit □ Boring

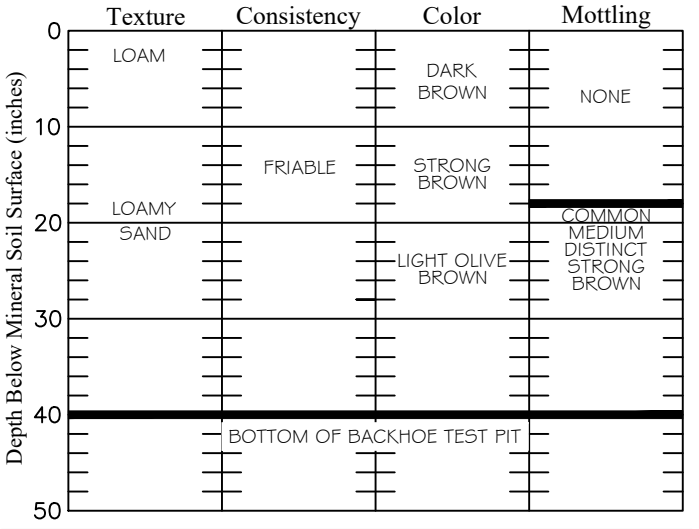
1 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
5 Profile / D Condition	±2 %	12 "	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Observation Hole 8 ■ Test Pit □ Boring

1 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
5 Profile / C Condition	±2 %	18 "	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Natalie Marcoux — Site Evaluator Signature

411 — SE #

12/23/19 — Date

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PROJ. NO.: 2019-412

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

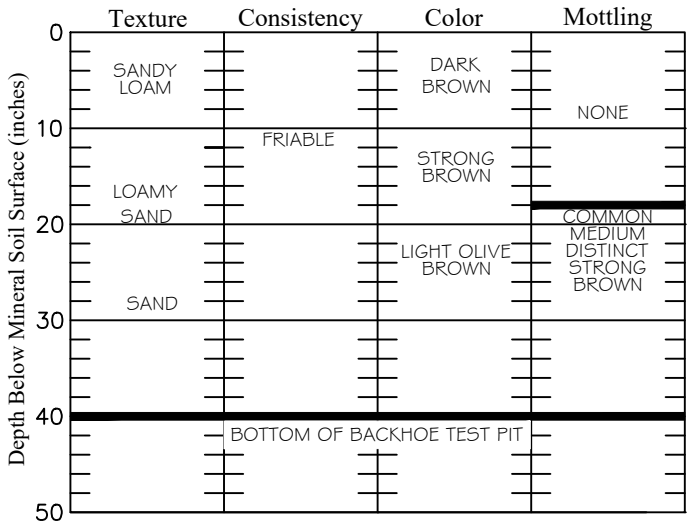
Department of Human Services
Division of Health Engineering
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
JONESPORT	DUN GARVAN ROAD	KINGFISH MAINE, INC.

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 9 ■ Test Pit □ Boring

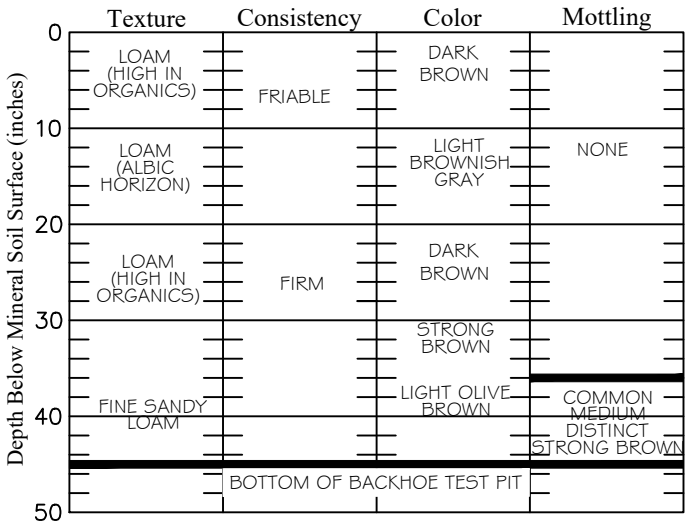
1 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
5 Profile / C Condition	±2 %	18 "	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Observation Hole 10 ■ Test Pit □ Boring

±28 " Depth of Organic Horizon Above Mineral Soil

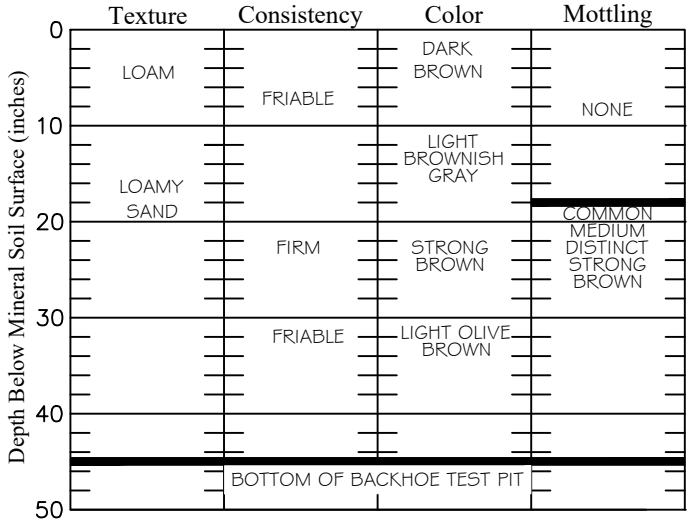


Soil Classification	Slope	Limiting Factor	
5 Profile / E Condition	±2 %	±6" BELOW DEEP ORGANIC HORIZONS	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 11 ■ Test Pit □ Boring

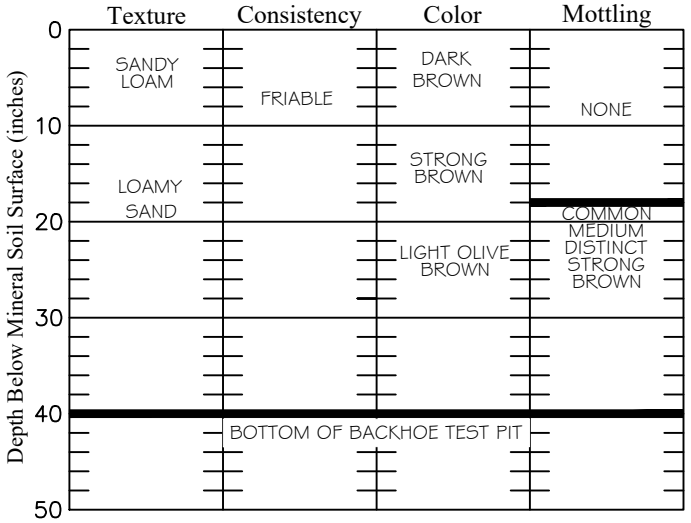
1 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
5 Profile / C Condition	±2 %	18 "	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Observation Hole 12 ■ Test Pit □ Boring

1 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
5 Profile / C Condition	±2 %	18 "	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Natalie Marcoux — Site Evaluator Signature

411 — SE #

12/23/19 — Date

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PROJ. NO.: 2019-412

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

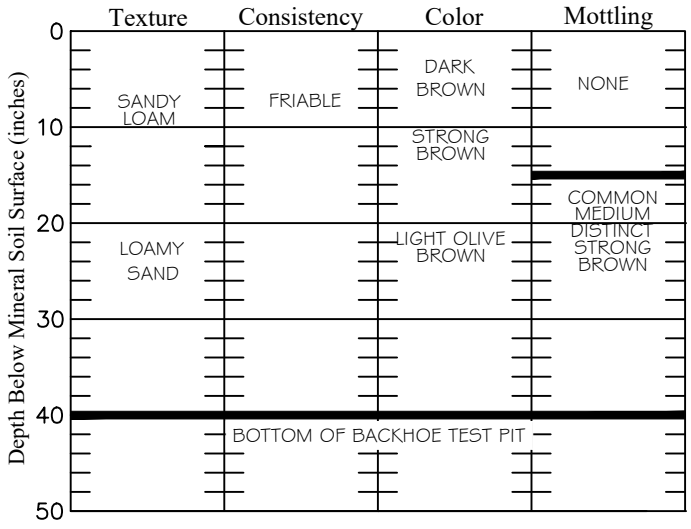
Department of Human Services
Division of Health Engineering
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
JONESPORT	DUN GARVAN ROAD	KINGFISH MAINE, INC.

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 13 ■ Test Pit □ Boring

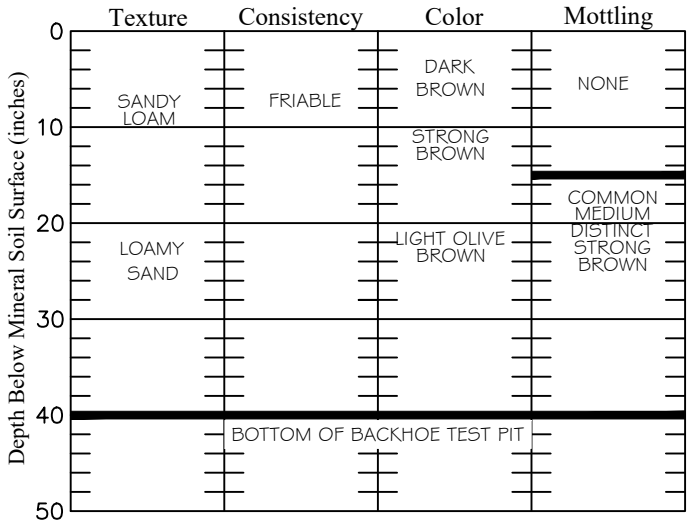
1 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
5 Profile / C Condition	±2 %	15 "	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Observation Hole 14 ■ Test Pit □ Boring

1 " Depth of Organic Horizon Above Mineral Soil

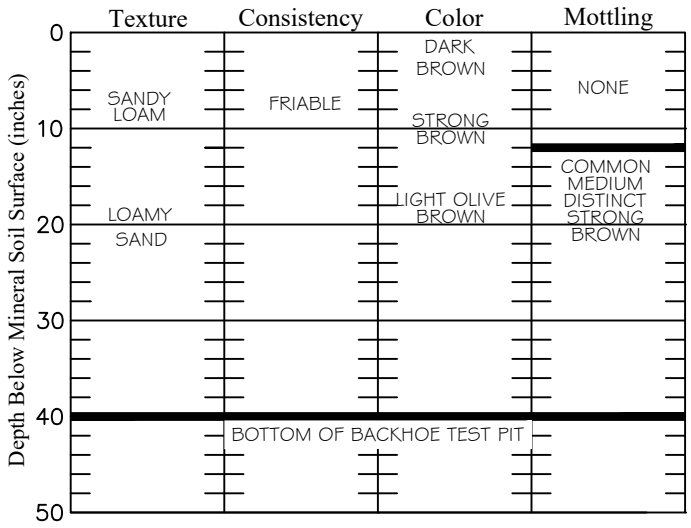


Soil Classification	Slope	Limiting Factor	
5 Profile / C Condition	±2 %	15 "	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION

Observation Hole 15 ■ Test Pit □ Boring

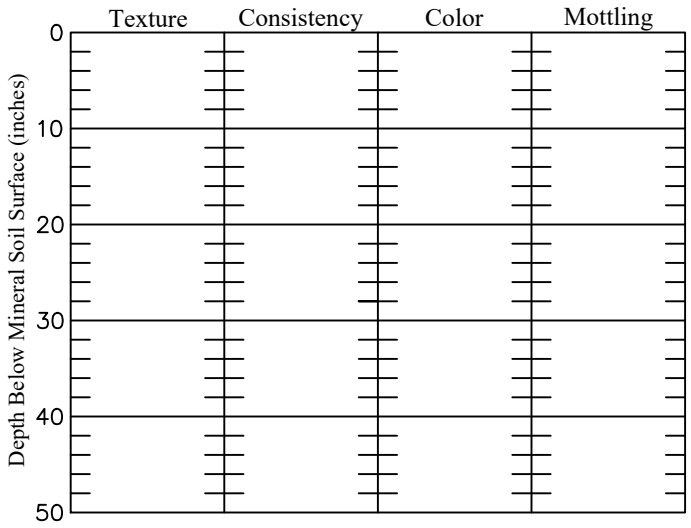
2 " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
4 Profile / D Condition	±2 %	12 "	■ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Observation Hole _____ □ Test Pit □ Boring

_____ " Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
_____ Profile / _____ Condition	_____ %	_____ "	□ Ground Water □ Restrictive Layer □ Bedrock □ Pit Depth

Natalie Marceau — Site Evaluator Signature

411 — SE #

12/23/19 — Date

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PROJ. NO.: 2019-412