## 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

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** 



# 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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# **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.

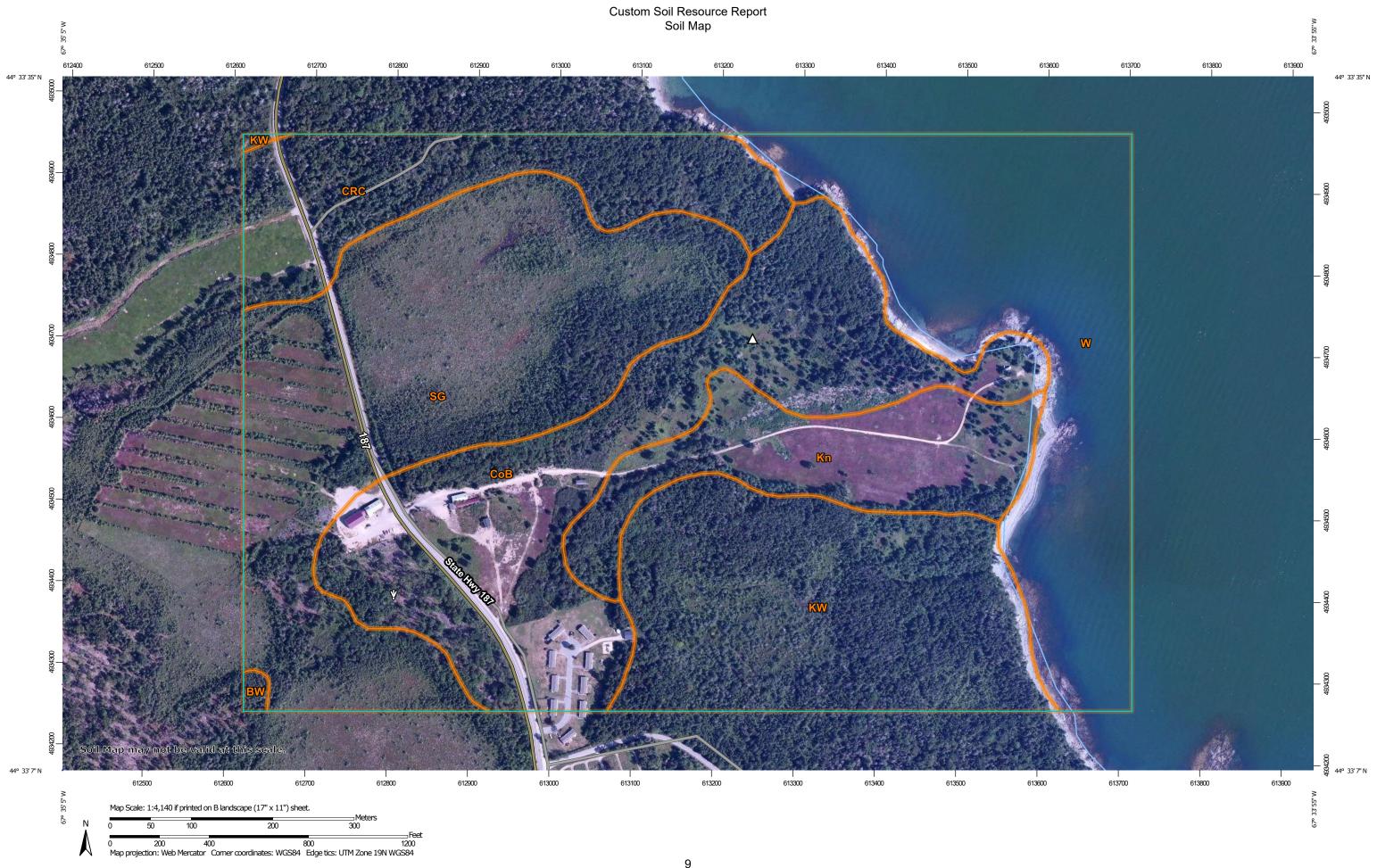
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree 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.



	MAP LEGEND			MAP INFORMATION
	terest (AOI) Area of Interest (AOI)	W 0	Spoil Area Stony Spot	The soil surveys that comprise your AOI were mapped at 1:24,000.
Soils	Soil Map Unit Polygons Soil Map Unit Lines	00 V	Very Stony Spot Wet Spot	Warning: Soil Map may not be valid at this scale.
	Soil Map Unit Points Point Features	۵ ••	Other Special Line Features	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
0 2	÷		Streams and Canals	scale.
¥ ♦	Clay Spot Closed Depression	Transportation +++ Rails Interstate Highways US Routes Major Roads	Please rely on the bar scale on each map sheet for map measurements.	
*	Gravel Pit Gravelly Spot		US Routes Major Roads	Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)
0 1	Landfill Lava Flow	Backgrour	Local Roads	Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts
<u>له</u>	Marsh or swamp Mine or Quarry	Aerial Photography	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.	
0	Miscellaneous Water Perennial Water			This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.
~ +	Rock Outcrop Saline Spot			Soil Survey Area: Washington County Area, Maine Survey Area Data: Version 21, Sep 16, 2019
· ··	Sandy Spot Severely Eroded Spot			Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.
<b>◇</b> ≫	Sinkhole Slide or Slip			Date(s) aerial images were photographed: Jul 29, 2010—Aug 21, 2010
ø	Sodic Spot			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 Symbol	Map Unit Name	Acres in AOI	Percent of AOI		
BW	Bucksport and Wonsqueak mucks, 0 to 2 percent slopes	0.4	0.2%		
СоВ	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%		
КW	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 Legend**

# **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: 9I59 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: 9I58 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: S. W. Cole Engineering, Inc. 37 Liberty Drive Bangor, ME 04401 Tel: (207) 848-5714



## Geotechnical Engineering

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

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19-1758.3 S

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.

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

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

<u>Glacial Till</u>: 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.



<u>Bedrock</u>: 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 ( $\Omega$ m) at spread KFM.R1A (1 foot A-spacing) to 8,130  $\Omega$ m 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	1/2 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	0.2-second Spectral	1-second Spectral										
(PGA)	Acceleration (Ss)	Acceleration (S1)										
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 12inches 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.

<u>Granular Borrow</u>: 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														
	Under Water (Wet Subgrade)	Above Water (Dry Subgrade)												
12 inch	100	100												
3 inch	Portion Passir	ng 3 inch Sieve												
#40	0 to 70	0 to 70												
#200	0 to 7	0 to 20												

<u>Structural Fill</u>: 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									
1/4 inch	25 to 90									
#40	0 to 30									
#200	0 to 6									

<u>Crushed Stone</u>: 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.

<u>Underdrain Sand</u>: 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.

<u>Reuse of Site Soils</u>: 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.

<u>Placement and Compaction</u>: 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.

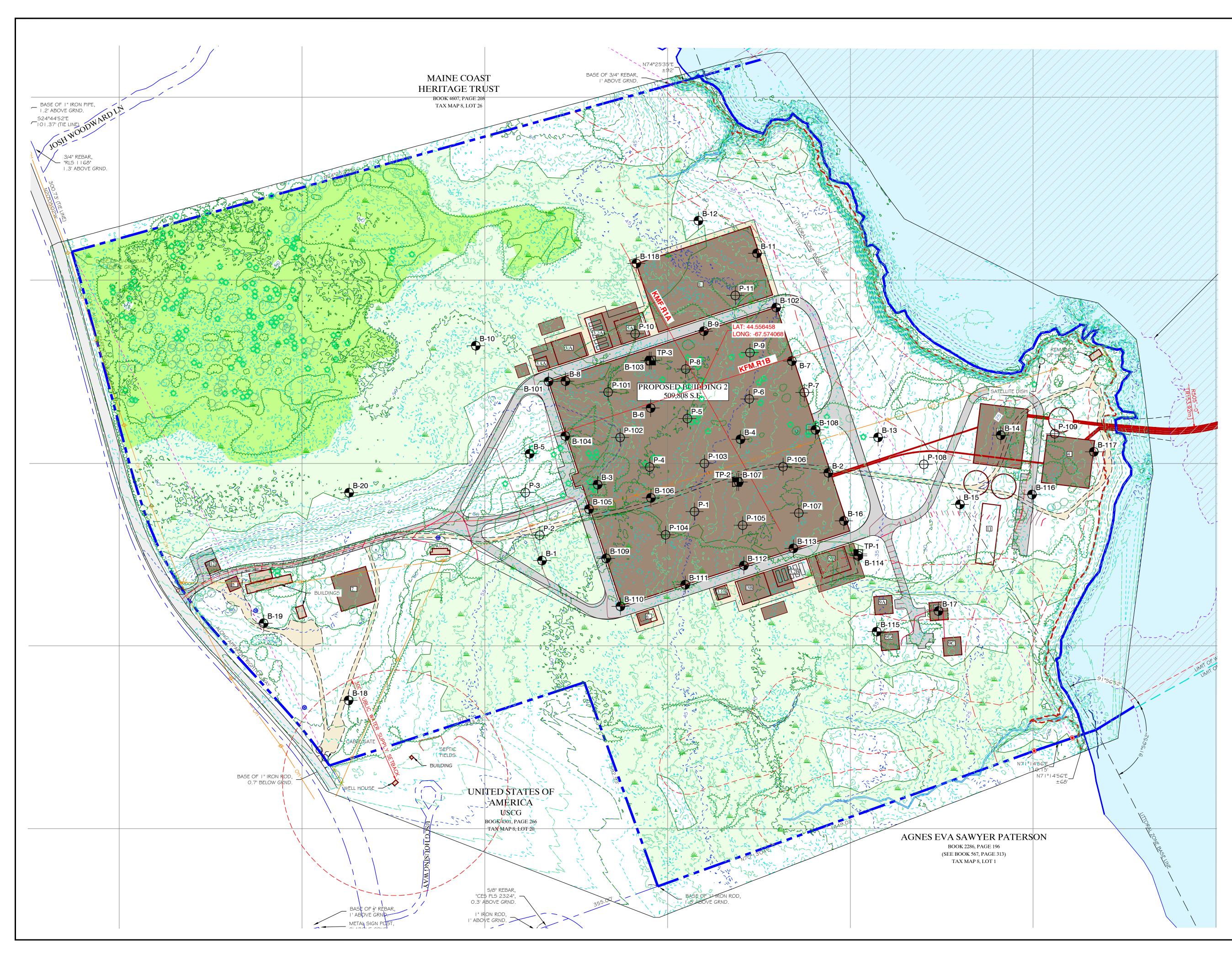
Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

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

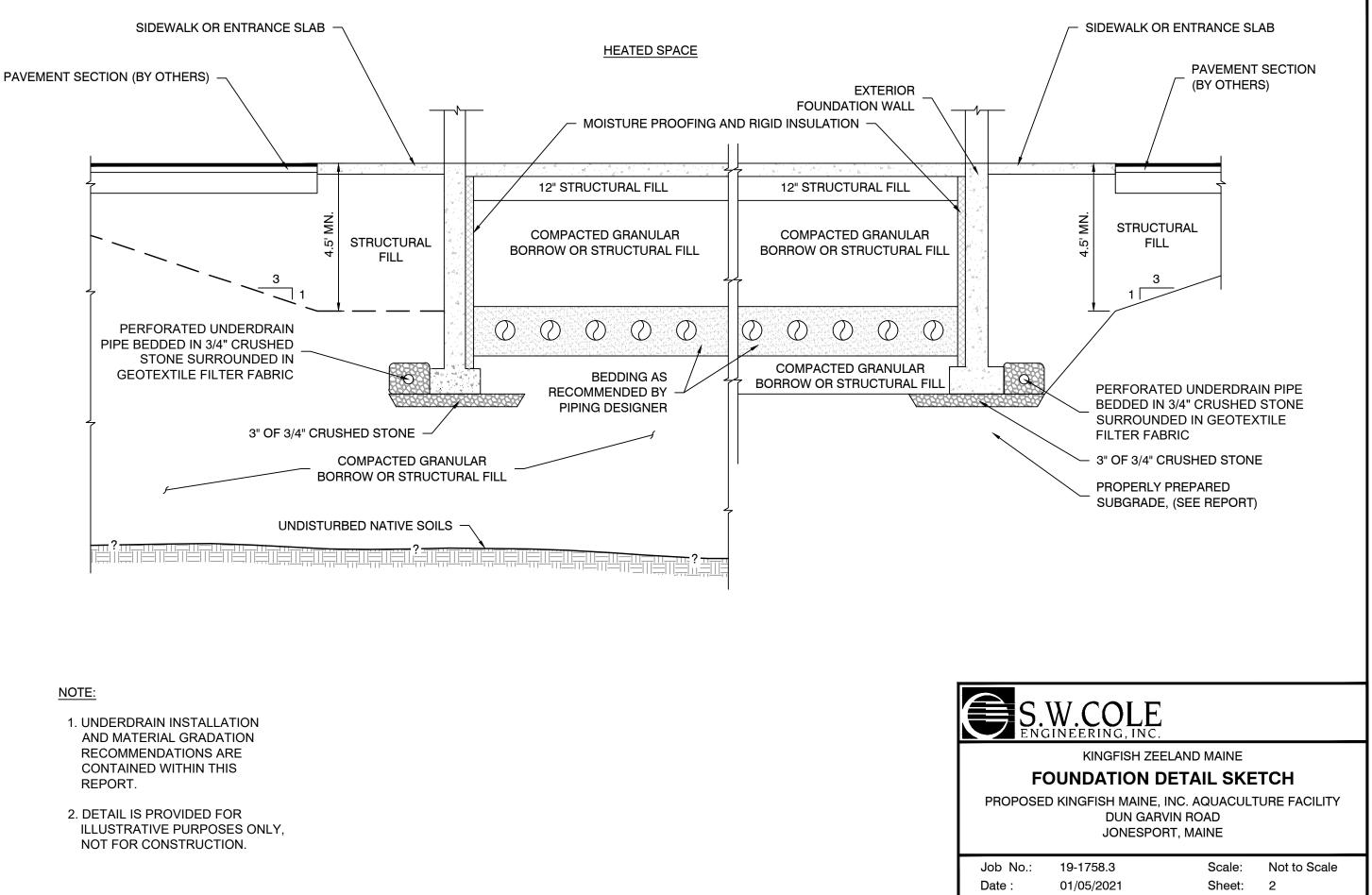
- APPROXIMATE PROBE LOCATION
- APPROXIMATE TEST PIT LOCATION

APPROXIMATE RESISTIVITY TEST SPREAD WITH GPS LOCATED CENTER POINT

# NOTES:

- 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.
- 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.

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				Feet							
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	S.W	COLE									
		KINGFISH ZE	ELAND MAINE								
	EXPLO	ORATION	LOCATION	PLAN							
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Job	o No.: 19	-1758.3	Scale:	1" = 120	)'						





# APPENDIX C

# Exploration Logs, Refusal Summary Sheet and Key

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	ng Info												
					cation Pla orations,			DN (FT): 51. Kevin Hanso			TOTAL DEPTH (FT): 16.5 LO DRILLING METHOD: Cased Boring	OGGED BY: Bre	ndan Auth
					rich D-50			D/OD: N/A/N			SAMPLER: Standard Split-Spoon	<u>,</u>	
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			CY FACT					DROP (inch):	30 /	/ 30			
			THS (ft):	_	Soils wet	below 5' -	+/-						
	RAL NO		er Level			D = Split S	Snoon Sam	nle Pen :	= Pen	etration Length	WOR = Weight of Rods $S_v = Fie$	eld Vane Shear Strer	ath kins/sa ft
	YMBOLS:	∑ At ∑ At	t time of D	on c			Valled Tub Core Samp	e Sample Rec. = ble bpf =	= Rec Blows		WOH = Weight of Hammer $q_{u}$ = UnRQD = Rock Quality Designation $Ø$ = Frid		ve Strength, kips/sq.ft.
					SAMPI	E INFO	RMATIO	N	g				
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 <sub>2</sub> 0 Depth	Remarks
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-			3D	N	5-7	24/18	5-6-6-6			Nied	ium dense, brown Silty fine SAND		
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	-									meta	amorphosed, mafic, VOLCANIC ROCK	,	
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-	- 15				15.2					joint	s (Edmunds Formation)		
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Fluctuat	tions of gr	oundwa	ater may o present at	ccui	r due to								D 464
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KEY TO	O NOTES YMBOLS:	<u>Wate</u> ⊈ At ⊈ At	e <u>r Level</u> time of Dr Completic ter Drilling	on of	g f Drilling	D = Split S U = Thin W R = Rock ( V = Field \	alled Tube	e Sample Rec. = ble bpf = E	Rec Blows	tration LengthWOR = Weight of Rods $S_v$ = Field Vane Shear Strength, kips/sq.ft.overy LengthWOH = Weight of Hammer $q_u$ = Unconfined Compressive Strength, kips/sqis per FootRQD = Rock Quality Designation $\emptyset$ = Friction Angle (Estimated)te per FootPID = Photoionization DetectorN/A = Not Applicable
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-	-		2D	X	2-4	24/20	12-13- 12-14			2.0 Medium dense, brown SAND, some silt and gravel
40	- 5 - - -		3D	X	5-7	24/20	7-6-5- 10	w =5.2 %		5.0 Medium dense, brown SAND, some silt, trace gravel
- 35 — -	- 10 -		4D	V	10-12	24/20	6-8-11- 11			
-	- - -		5D	$\left  \right\rangle$	12-14	24/20	10-46- 43-50			
30 — - -	- 15 - - -		6D	X	15-17	24/12	3-6-10- 30			15.0 Medium dense, brown Gravelly SAND, some silt
- 25 - -	- - - 20 - -		1R 2R 3R 4R		19-19.8 19.8- 20.1 20.1- 21.5 21.5- 25.5	10/8 4/4 17/13 48/30	0 0 59 47	qu = 22,550 psi Unit Weight = 185.3 pcf		<ul> <li>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)</li> </ul>
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other fa		those p	iter may oc present at t de.							BORING NO.: <b>B-102</b>

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bounda be grad made a Fluctua other fa	ary betw dual. Wa at times ations of	een s ater le and ι grou an th	oil typ evel re under ndwat ose p	ent approx bes, trans adings ha condition ter may o resent at e.	ition ave l is sta ccur	is may been ated. · due to					Auger Refusal at 11.7 fea (Probable Bedrock)		BORING	NO.:	B-103	

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Definition         Device for the control of the										
LOCATION: See Exploration Location Pan       ELEVATION (F): S2.4 +/-       TOTAL DEFT (HT): 2.2       LOBORD 19: Brindin Auf         RO TYPE: Track Mounted Detricin D-0       AUGER IDCO: 2.14 in /5 58 in       TOTAL DEFT (HT): 2.2       LOBORD 19: Brindin Auf         MAMRER TYPE: Audomatic       HAMMER DROP (Inch): 30       Common Pan       Sandrad Split Spool       Sandrad Split Spool         MAMRER TYPE: Audomatic       HAMMER DROP (Inch): 30       Common Pan       Common Pan       Common Pan         MAMRER TYPE: Audomatic       HAMMER DROP (Inch): 30       Common Pan       Common Pan       Common Pan         MAREE LYPE: LOCATION (F): See Transmitter Cherrend       How Pan       Common Pan       Common Pan       Common Pan         MAREE LYPE: LOCATION (F): See Transmitter Cherrend       Common Pan       Pan Pan Pan Pan Pan Pan       Pan Pan Pan Pan Pan Pan       Pan Pan Pan Pan Pan Pan Pan Pan Pan Pan		ENGINEERI	NG, INC.		Dun	Garvin Road	l, Jonesport, Maine	D/	ATE FINISH:	10/26/2020
With Long Tuning       D: Bill Spont Sample       Pn: - Preventation Lunging       WOR - Weight of Roads (all point sample)       No Work of relations (all point sample)       No Work of relationsample)       No	LOCATION: DRILLING CO. RIG TYPE: HAMMER TYP HAMMER EFF WATER LEVE	See Exploration Location F : S. W. Cole Exploration rack Mounted Diedrich D- F: Automatic ICIENCY FACTOR: 0.99 L DEPTHS (ft): No free	s, LLC DRILL 50 AUGE 50 HAMM 5 HAMM	ER: Kevin Hansc R ID/OD: 2 1/4 ir IER WEIGHT (Ibs)	:om 1 / 5 : :14	5/8 in 40	DRILLING METHOD: Hollow SAMPLER: Standard Split-	w Stem Aug Spoon	er	
Elev.       Depth       Caling       Sample       How	KEY TO NOTES	<u>Water Level</u> ⊈ At time of Drilling <b>▼</b> At Completion of Drilling	U = Thin Walled R = Rock Core S	Tube Sample Rec. = Sample bpf =	= Rec Blows	covery Length s per Foot	WOH = Weight of Hammer RQD = Rock Quality Designation	$q_{U} = UnconfiØ = Friction$	ned Compressi Angle (Estimate	e Strength, kips/s
Image: stratute to the segment approximate             Stratute to the segment approximate		SAM	PLE INFORMA	TION	D					
Staffadion lines regressent approximate  Terrifadion lines regressent		Pen. Sample g Dept	h Rec. Cou	unt Field / Lab r Test Data	Graphic Lo		Description &			Remarks
(Probable Bedrock)		1D 0-2				0.5 Med		ND, some		
Statification lines represent approximate			1 1	ļ.					1 1	
boundary between soil types, transitions may be gradual. Water level readings have been										
	boundary betwee be gradual. Wate made at times ar Fluctuations of gr other factors thar	en soil types, transitions may er level readings have been nd under conditions stated. roundwater may occur due to n those present at the time								B-105

							BORING LOG							<b>B-106</b> 1 of 1
E		C	XX	11	$\mathbb{C}\mathbb{C}$	I F		LIENT: King	fish	Zeeland Mair	10	SHEET:	T NO.	19-1758.3
	-	U	<b>.</b> VV					ROJECT: Ki	ng F	Fish Maine, In	c. Aquaculture Facility	DATE ST	_	10/29/2020
		EN	IGIN	ΕI	ERIN	G,IN(					Jonesport, Maine	DATE FI	NISH:	10/29/2020
	ng Info				cation Pla	- I		<b>ON (ET):</b> 40	2' +/			.OGGED BY:	Kovin	Hanaaam
					orations,			ON (FT): <u>49.</u> : Kevin Hanso			TOTAL DEPTH (FT): 14.9 L DRILLING METHOD: Hollow Stem		Revin	Tianscom
					rich D-50			D/OD: 2 1/4 in			SAMPLER: Standard Split-Spoon			
	IER TYP							R WEIGHT (lbs)	-		CASING ID/OD: N/A /N/A	ORE BARR	EL: <u>N//</u>	4
					0.995			R DROP (inch):	30					
	RAL NO		ΗS (π):	<u> </u>	to free wa	iter obser	ved, satt	rated below 5'						
KEY T	O NOTES		er Level			D = Split S	Spoon San	nple Pen. :	= Per	netration Length	WOR = Weight of Rods S <sub>v</sub> = Fi	eld Vane Shea	ar Strengt	h, kips/sq.ft.
AND S	YMBOLS:	🗴 At	time of D Completion ter Drilling	on c	of Drilling		Core Sam		Blow	covery Length s per Foot ute per Foot	RQD = Rock Quality Designation Ø = Fr	nconfined Con iction Angle (E Not Applicable	stimated)	Strength, kips/sq.ft.
					SAMPL	E INFO	RMATIC	N	D D					
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	vpe	Depth (ft)	Pen./ Rec.	Blow Count or	Field / Lab Test Data	Graphic Log		Sample Description & Classification	H₂0 Depth		Remarks
			1.0.			(in)	RQD	T CSt Data	Q					
	-		1D		0-2	24/24	2-2-2-4		-	0.4 Tops				
	F			X							e, gray Silty fine SAND e, brown Silty fine SAND	[		
	-		2D	E	2-4	24/21	10-14-				e, brown Silly line SAND			
	_			IV	2-4	27/21	10-14-			2.3 Mediu	um dense, brown fine Sandy SILT			
				$\wedge$										
45 -	ſ													
-	- 5		3D		5-7	24/24	5-8-10-							
	-			X			11			5.7 Mediu	um dense, brown Silty fine SAND			
	-			$\mu$										
-														
40 -	f													
	- 10		4D		10-11.5	18/18	18-26-			10.2 Dens	e, brown Silty SAND and GRAVEL w	ith		
	ł			Ň			45			cobbl				
	-				]									
-														
35 -	f													
				-							Auger Refusal at 14.9 feet			
											(Probable Bedrock)			
bounda	ation lines	n sòil ty	pes, trans	sitior	ns may									
be grad made a	lual. Wate It times an	r level r d under	eadings ha	ave is st	been ated.									
Fluctua other fa	tions of gr ctors than	oundwa those p	iter may o present at	ccu	r due to							BORING	NO ·	B-106
measur	rements w	ere mad	je.			1								D-100

						~ -				BORI	NG LOG	BORING SHEET:	NO.: _	<b>B-107</b> 1 of 1	
		S	$\Delta \lambda$	(	$\mathbb{C}$		-	CLIENT: King	gfish	Zeeland Ma	ine	PROJEC	T NO.	19-1758.3	
	7										nc. Aquaculture Facility	DATE S	TART:	10/28/2020	
		EN	IGIN.	ΕĿ	ERIN	G, IN C	<b>-</b> .	LOCATION: _	Dun	Garvin Road	l, Jonesport, Maine	DATE F	NISH:	10/28/2020	
LOCAT DRILLI RIG TY HAMM HAMM WATE	ING CO.: YPE: IER TYP IER EFF R LEVEI	See Ex           S. V           ack M           E: Au           CIENC           DEP1	ploration V. Cole E ounted D itomatic	Expl Died	cation Pla orations, rich D-50 0.995 Soils wet l	LLC [	orille Auger Hamme Hamme	TION (FT):42. R: _Kevin Hanso ID/OD:2 1/4 i R WEIGHT (Ibs) R DROP (inch):	com n / 5 ): _14	5/8 in 40	DRILLING METHOD:         Hollow Stem           SAMPLER:         Standard Split-Spoon	Auger	DGGED BY: Jeff McElroy Auger DRE BARREL: <u>N/A</u>		
	RAL NO		<u> </u>												
AND S	O NOTES YMBOLS:	∑ At ∑ At	er Level time of Di Completio ter Drilling	on o	g f Drilling		Valled T Core Sa	ube Sample Rec. mple bpf =	= Rec Blows	etration Length covery Length s per Foot ite per Foot	WOH = Weight of Hammer $q_U = Ur$ RQD = Rock Quality Designation $\emptyset$ = Fri	eld Vane She aconfined Cor ction Angle (E Not Applicable	npressive Estimated	Strength, kips/sq.ft.	
					SAMPL	E INFO	RMAT	ION	Fog						
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blov Cour or RQE	nt Field / Lab Test Data	Graphic Lo		Sample Description & Classification	H₂0 Depth		Remarks	
-			1D	$\mathbb{N}$	0-2	24/17	1-2-3	-4		Тор	soil				
-	ł			X							lium dense, red-brown Gravelly SAND, e silt				
40 -	ł		2D	H	2-4	24/20	9-11	_		5011	esiit				
	Ļ			Ŋ	27		12-1								
	L			$\wedge$											
-	ſ														
-	- 5		3D	$\nabla$	5-7	24/20	6-6-1	0-		5.0 Med	lium dense, brown SAND, trace silt				
-	ł			X			10								
35 —	Ļ			$\square$											
00										7.8 Mod					
-	ſ									IVIEU	lium dense, brown Silty Gravelly SANE cial Till)	)			
-	-									, ,	,				
-	- 10		4D	$\square$	10-12	24/20	10-1	5-							
-	-			X	-	-	14-9								
30 -	ļ			Δ											
											Auger Refusal at 12.4 feet				
											(Probable Bedrock)				
hounda	rv hetwee	n soil ty	ent approx pes, trans	ition	is may										
be grad made a	ual. Wate t times an	r level re d under	eadings have condition iter may o	ave l s sta	been ( ated.										
other fa	ctors than	those p	present at	ccur the	due to time							BORING	NO ·	B-107	
measur	ements w	ere ma	de.			1						DOKING	INU.:	D-10/	

		C	W	11	$\sim c$					BORING LOG	BORING NO.: SHEET: PROJECT NO.	<b>B-108</b> 1 of 1 19-1758.3
	ラ			FI		G,IN(	F	ROJECT: K	ing F	ish Maine, Inc. Aquaculture Facility	DATE START:	10/29/2020
						G, INV		OCATION: _[	Dun	Garvin Road, Jonesport, Maine	DATE FINISH:	10/29/2020
LOCA <sup>®</sup> DRILL	ING CO.	See Ex	ploration V. Cole E	Expl	cation Pla orations, rich D-50	LLC	DRILLER	ON (FT):38. :Kevin Hanso D/OD:2 1/4 ii	com	DRILLING METHOD: Hollow Stem	<b>DGGED BY:</b> <u>Kevi</u> Auger	n Hanscom
HAMM WATE	IER TYP IER EFF R LEVEI RAL NO	CIENC	Y FACT		-		HAMMEF	R WEIGHT (lbs) R DROP (inch):		0.0 CASING ID/OD: <u>N/A /N/A</u> CO	DRE BARREL: <u>N</u>	I/A
	O NOTES YMBOLS:	∑ At ∑ At	er Level time of D Completi ter Drilling	on o		D = Split S U = Thin V R = Rock V = Field V	Valled Tub Core Sam	ple Sample Rec. =	= Rec Blows	vorery LengthWOH = Weight of Hammer $q_U$ = Unper FootRQD = Rock Quality DesignationØ = Friction	ld Vane Shear Streng confined Compressiv tion Angle (Estimate ot Applicable	e Strength, kips/sq.ft.
				_	SAMPL		RMATIC	N .	- Bo	Sample		
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Test Data	Graphic Log	Sample Description & Classification	H <sub>2</sub> 0 Depth	Remarks
	-		1D	X	0-2	24/10	1-2-2-2			0.5 Topsoil Loose, brown Silty fine to medium SAND		
- 35	-		2D	X	2-4	24/12	2-3-4-5			2.5 Medium dense, brown fine to medium SAN trace silt	<del>,</del>	
	- 5		3D	X	5-7	24/19	5-11- 11-13					
30 –	- - - -									9.1 Dense brown Silty Gravelly SAND with		
	- 10 -		4D	X	10-12	24/20	25-37- 40-36			9.1 Dense, brown Silty Gravelly SAND with cobbles		
25 -	- - -									12.5 Medium dense, gray Silty fine SAND		
-	- 15		- 5D		15-15.3		50/3"					
				_	(	/	,	J		Auger Refusal at 15.3 feet (Probable Bedrock)		
bounda be grad made a	ation lines ry betwee lual. Wate It times an tions of gr	n soil ty r level n d under	pes, trans eadings har condition	ave sition s sta	ns may been ated.							
other fa	ctors than rements w	those p	present at								BORING NO .:	B-108

BORING / WELL 19-1758.3.GPJ SWCE TEMPLATE.GDT 1/2/21

											BORIN	NG LOG		BORING N	IO.: _	B-109
	6		C	W	10		ТГ							SHEET:	NO -	1 of 1
	=	-	J	).W			ノレト		LIENT: King			ne nc. Aquaculture Facility		PROJECT	_	<u>19-1758.3</u> 10/26/2020
			ΕN	IGIN	ΕE	RIN	G,IN(					I, Jonesport, Maine		DATE STA	-	10/26/2020
	منالانه	a lofa	rmoti.									,			-	
LO	CAT		See Ex	ploration				ELEVATIO	<b>DN (FT):</b> 50'	+/-		<b>TOTAL DEPTH (FT):</b> <u>5.0</u>	LO	GGED BY:	Brend	dan Auth
				V. Cole E					Kevin Hanso			DRILLING METHOD: Hollo		Auger		
				ounted D utomatic	ledri	ich D-50			0/OD: 2 1/4 ir WEIGHT (lbs):			SAMPLER: <u>Standard Split</u> CASING ID/OD: N/A /N/A		ORE BARREI	_: N//	Δ
			-	CY FACT	OR:	0.995			DROP (inch):	-	10		00		<u>IN//</u>	<u>n</u>
							Free wate	r observe	d at 1.3'	-						
		AL NO														
		NOTES MBOLS:	∑ At ▼ At	<u>er Level</u> t time of Di t Completio fter Drilling	on of	Drilling	D = Split S U = Thin V R = Rock ( V = Field \	Valled Tub Core Samp	e Sample Rec. = ble bpf =	= Rec Blows	etration Length overy Length s per Foot te per Foot	WOR = Weight of Rods WOH = Weight of Hammer RQD = Rock Quality Designation PID = Photoionization Detector	q <sub>U</sub> = Uno Ø = Frict	d Vane Shear confined Comp tion Angle (Est ot Applicable	ressive	Strength, kips/sq.ff
						SAMPL	E INFO	RMATIO	N	D						
EI	ev.	Depth	Casing				Den /	Blow		Graphic Log		Sample		H₂0		<b>D</b>
	ft)	(ft)	Pen. (bpf)	Sample	, ype	Depth	Pen./ Rec.	Count	Field / Lab Test Data	aphi		Description & Classification		Depth		Remarks
				No.		(ft)	(in)	or RQD	rest Data	ğ						
				1D	$\mathbf{M}$	0-2	24/12	1-2-7-		$\square$	Тор	soil				
	+				X			16				lium dense, brown Silty SAND,	some	Σ		
	+			2D	H	2-4	24/6	8-20-		-	2.0 Den	se, brown Silty fine SAND				
1	1				M	∠-4	24/0	34-56			Den	SO, DIOWH SHLY IIIC SAND				
					$\mathbb{N}$											
	T															
4	5	- 5		3D		5-5	0/0	25/0"		1		Auger Refusal at 5.0 fee	t			
												(Probable Bedrock)				
bou be	undary gradu	betwee al. Wate	n soil ty r level r	ent approx pes, trans eadings ha	itions ave b	s may een		_	_	_	_		_		_	
Flu	ctuatio	ons of gr	oundwa	r condition ater may or	ccur	due to							r			<b></b>
5 me		tors thar ments w		present at de.	uie (i	ше								BORING N	10.:	B-109

		1								BORING LOG	BORING SHEET:	NO.: _	<b>B-110</b> 1 of 1
	)	S				) LE g, in c	d PF	ROJECT: Ki	ng F	Zeeland Maine sh Maine, Inc. Aquaculture Facility Sarvin Road, Jonesport, Maine	DATE ST	ART:	19-1758.3 10/26/2020 10/26/2020
LOCA DRILL RIG T HAMM HAMM WATE GENE	ING CO. YPE: _T IER TYP IER EFF	See         Ex           rack         M           rack         M           E:         Au           ICIENC         DEP1           ICES:         ICES:	ploration V. Cole E ounted D itomatic /	Explo liedr / Aut OR:	orations, ich D-50 tomatic 0.995 oils wet b	LLC D A H	RILLER: UGER ID AMMER AMMER /-	N (FT):49. _Kevin Hanso /OD:N/A / N WEIGHT (Ibs); DROP (inch):	:om I/A : <u>14</u> 30	DRILLING METHOD:       Cased Boring         SAMPLER:       Standard Split-Spoon         0 / 140       CASING ID/OD:       4 in / 4 1/2 in       C         30       Cased Boring       C       C	-	EL: <u>NC</u>	2
	YMBOLS:	∑ At ∑ At	time of D	on of	g f Drilling		alled Tube	Sample Rec. = le bpf =	= Rec Blows	wery LengthWOH = Weight of Hammer $q_U = Ur$ per FootRQD = Rock Quality Designation $\emptyset$ = Fri	nconfined Com	pressive	Strength, kips/sq.
Elev. (ft)	Depth (ft)	Casing Pen.	Sample	e e	SAMPL Depth	E INFOF	RMATION Blow Count	N Field / Lab	Graphic Log	Sample Description &	H₂0 Depth		Remarks
	(11)	(bpf)	No.	Typ	(ft)	Rec. (in) 24/16	or RQD 1-1-2-6	Test Data	Grap	Classification Forest Duff			
-	-		2D	X	2-4	24/16	11-11- 14-15			0.7 Medium dense, brown SAND, some grave and silt			
45 -	- 5 - 5		3D	$\left[ \right]$	5-7		3-3-7-8			5.0 Medium dense, gray Sandy SILT, some gravel			
40 -	- - - 10		1R 2R 3R		7-8 8-8.9 8.9-12	12/10 11/8 37/34	0 45 62			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)	c		
-	-									with DIORITE intrusion			
										Bottom of Exploration at 12.0 feet			
bounda be grad made a	iry betwee lual. Wate at times an	n soil ty r level ro d under	ent approx pes, trans eadings ha	ition: ave b s sta	s may been ited.								
Fluctua other fa	tions of gr	oundwa those p	ater may o present at	ccur	due to						BORING	NO.:	B-110

										BORIN	NG LOG		BORING N	10.: _	B-111
E	2	C	W	10	$\gamma $	ТГ	7						SHEET:	NO -	1 of 1
	-		.W					CLIENT: King			ne nc. Aquaculture Facility		PROJECT DATE ST/	-	19-1758.3
		ΕN	GIN	ΕE	ERIN	G,IN(					, Jonesport, Maine	_	DATE ST		10/26/2020 10/26/2020
Desility											,	_			
LOCA		See Exp	oloration		ation Pla			ION (FT):45.			<b>TOTAL DEPTH (FT):</b> 8.0		GGED BY:	Brend	dan Auth
					orations, rich D-50			R: Kevin Hanso D/OD: 2 1/4 in		5/8 in	DRILLING METHOD: Hollow Si SAMPLER: Standard Split-Spo		uger		
	IER TYP			leui				R WEIGHT (lbs)			CASING ID/OD: N/A /N/A		RE BARRE	L: N/	A
			Y FACT	OR:	0.995			R DROP (inch):	-						
			'HS (ft):	S	Soils wet	below 5' +	-/-								
	RAL NO		er Level			D = Split S	noon Sa	mole Pen	= Pen	etration Length	WOR = Weight of Rods S <sub>v</sub>	= Field	Vane Shear	Strengt	h kins/sa ft
	YMBOLS:	∑ At ∑ At	time of D	on of	g f Drilling		alled Tu	be Sample Rec.	= Rec Blow		WOH = Weight of Hammer $q_U$ RQD = Rock Quality Designation $\emptyset$ =	= Unco = Friction		ressive	Strength, kips/sq.ft
					SAMPL	E INFO	RMATIO	ON	0						
Elev.	Depth	Casing		Π		<b>D</b> (	Blow		Graphic Log		Sample		H₂0		
(ft)	(ft)	Pen. (bpf)	Sample No.	ype	Depth	Pen./ Rec.	Count	Field / Lab	aphi		Description & Classification		Depth		Remarks
			No.		(ft)	(in)	or RQD	Test Data	Q						
-	1		1D	$\mathbf{N}$	0-2	24/12	1-2-3-7	7		Fore	st Duff				
-	F			X							ium dense to dense, red-brown Gr	avelly			
	-		2D	H	2-4	24/18	8-19-			SAN	D, some silt				
	Ļ			Ŋ	2-4	24/10	30-19								
	L			$\wedge$											
-															
40 -	- 5		3D	$\square$	5-7	24/16		-		5.0 Med	ium dense, brown fine SAND, so	ne sil	t		
· ·	-			X			6								
	-			Д											
											Auger Refusal at 8.0 feet				
											(Probable Bedrock)				
Stratific	ation lines	repres	ent approx	kimat	te										
bounda be grad	ry betwee ual. Wate	n soil ty r level re	pes, trans eadings ha	ition: ave b	s may been										
made a Fluctua	t times an tions of gr	d under oundwa	condition	s sta ccur	ated. due to							_			
other fa		those p	present at										Boring N	Ю.:	B-111

										BORING LOG		RING NO.: EET:	<b>B-112</b> 1 of 1
Ę	ラ			( E E		) Le g, i n (		PROJECT: Ki	ng F	Zeeland Maine ish Maine, Inc. Aquaculture Facility Garvin Road, Jonesport, Maine	PR		. <u>19-1758.</u> : <u>10/26/202</u>
.OCAT DRILLI RIG TY IAMM IAMM VATEF SENEF	ING CO. YPE: <u>T</u> IER TYP IER EFF R LEVEI RAL NOT	See Exp rack Mo E: Au ICIENC L DEPT TES:	Dioration V. Cole E Dounted Di tomatic Y FACTO THS (ft):	xplo iedr	orations, ich D-50 0.995 oils wet	LLC [ ] / / / / below 5' -	DRILLEF AUGER HAMME HAMME +/-	ION (FT):40.4 R: _Kevin Hansc ID/OD: _2 1/4 ir R WEIGHT (Ibs): R DROP (inch):	com n / 5 : : <u>1</u> 4 30	DRILLING METHOD:       Hollow Ster         5/8 in       SAMPLER:       Standard Split-Spoon         0       CASING ID/OD:       N/A /N/A	m Auge I CORE I	BARREL:	N/A
	O NOTES YMBOLS:	⊈ At ⊈ At	er <u>Level</u> time of Dr Completic ter Drilling	on of	) Drilling	D = Split S U = Thin V R = Rock V = Field V	Valled Tu Core San	be Sample Rec. = nple bpf =	= Rec Blows	very LengthWOH = Weight of Hammer $q_U = U$ per FootRQD = Rock Quality Designation $\emptyset = F$	Unconfin	ed Compress	ngth, kips/sq.ft. ive Strength, kips ed)
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	SAMPL Depth (ft)	E INFO	RMATIC Blow Count or RQD	t Field / Lab Test Data	Graphic Log	Sample Description & Classification		H₂0 Depth	Remarks
40 —	- - -		1D	X	0-2	24/18	3-1-6-	6		Forest Duff 1.0 Medium dense, brown Gravelly SAND, so gravel and silt	ome		
- - 35 — -	- 5		3D	X	2-4 5-7	24/18	8-8-16 19 8-13- 12-9			<sup>15.0</sup> Medium dense, brown Sandy SILT			
- - 30 — -	- - - - -		4D	X	10-12	24/24	3-5-7-	7		10.0 Medium dense, brown fine SAND, some silt with occasional silt layers	e		
- - 25 — -	- - - - -		5D	X	15-17	24/18	8-7-13 14	-					
- - 20 — -	- - - 20		6D	X	20-22	24/20	3-5-19 50	)-		with some gravel			
	1	<u> </u>				<u> </u>	<u> </u>			Auger Refusal at 22.9 feet (Probable Bedrock)			
oundar be gradu nade at fluctuat other fac	ry betwee ual. Wate t times an tions of gr	n soil ty r level re id under oundwa i those p	ent approx pes, transi eadings ha conditions ter may oc present at t	tions ive b s sta ccur	s may been ited. due to						RO	RING NO.:	B-112

			TT	τ,		<b>.</b>				E	BORIN	IG LOG		ORING N HEET:	0.: _	<b>B-113</b> 1 of 1
		5	W			)LE	<b>⊣</b> `	CLIENT: King						ROJECT	_	19-1758.3
						G,IN(		-				nc. Aquaculture Facility		ATE STA	-	10/28/2020
									Jun	G	barvin Roau,	, Jonesport, Maine	D	ATE FIN	эп: _	10/28/2020
LOCA <sup>®</sup> DRILL	ING CO.	See Ex : _S. V	ploration V. Cole E	Expl	cation Pla orations,	LLC	DRILLE	TION (FT):38.1 R:Kevin Hanso	com			TOTAL DEPTH (FT):21.2 DRILLING METHOD:Hollow S	tem Aug	GED BY: ger	Jeff M	lcElroy
				Died	rich D-50			ID/OD: 2 1/4 in				SAMPLER: Standard Split-Spo				<u></u>
			utomatic		0.995			R WEIGHT (lbs) R DROP (inch):	-		)	CASING ID/OD: N/A /N/A	COR	EBARREL	.: <u>N//</u>	4
						r observe			00							
	RAL NO															
	O NOTES YMBOLS:	∑ At ▼ At	<u>er Level</u> t time of D t Completi fter Drilling	on c		D = Split S U = Thin V R = Rock V = Field V	Valled To Core Sa	ube Sample Rec. = mple bpf =	= Rec Blow	cov /s p	tration Length very Length per Foot e per Foot	WOH = Weight of Hammer q <sub>L</sub> RQD = Rock Quality Designation Ø	= Uncont = Friction		ressive	n, kips/sq.ft. Strength, kips/sq.ft.
					SAMPL	E INFO	RMATI	ON								
Elev.	Depth	Casing		Τ	-		Blow		, ĽÓ			Sample		H <sub>2</sub> 0		
(ft)	(ft)	Pen. (bpf)	Sample No.	Type	( 7	Pen./ Rec. (in)	Cour or RQE	t Field / Lab Test Data	Graphic Log			Description & Classification		Depth		Remarks
_			1D	N	0-2	24/19	1-2-2-	3	$\vdash$	+	0.5 Tops	oil e, red-brown Gravelly SAND, son	o oilt	~		
				Ŵ							LOOS	e, red-blown Gravelly SAND, son	ie siit			
-	1		2D		2-4	24/19	4-5-12	2-								
-	4			X			16			4	2.5 Medi	um dense, brown SAND, trace sil	t			
35 -				$\square$												
	- 5		3D	$\mathbf{N}$	5-7	24/14	10-6-0	6-			5.5 Modi			_		
-	1			X			8				iviedi	um dense, Sandy SILT				
-	-			$\mu$								th numerous cobbles				
-											wit	In numerous cooples				
30 -																
	Ē									ę		um dense, varved Sandy SILT an	d fine			
-	- 10		4D		10-12	24/24	3-3-8-	6			SAN	D				
-	-			X												
-	1			$\square$												
	1															
25 -	Γ															
25 -	}															
-	- 15		5D		15-17	24/24	7-8-9	_								
-	1			Ŋ	13-17	24/24	13	-								
				$ \rangle$												
	Γ															
-	}									+.	18.0 Dens	se, probable brown Silty Gravelly	SAND	-		
20 -	4											cobbles (Glacial Till)				
-	- 20		_													
2 2 -	1		D		20-20	0/0	25/0									
5	r	1	1	_	I	I	1		1			Auger Refusal at 21.2 feet				
												(Probable Bedrock)				
,																
5																
Stratific	ation line	s repres	ent appro	xime	ite	1										
bounda	ry betwee	n sòil ty	pes, trans	sitior	is may											
made a	t times ar	d unde	r condition ater may o	is st	ated.											
other fa		those	present at										В	ORING N	0.:	B-113

			TT.	T						BORING LOG	BORING I SHEET:		<b>B-114</b> 1 of 2
	ラ	ΕN		E E	ERIN	) G,IN(	<b></b>   PF	ROJECT: Ki	ng F	Zeeland Maine sh Maine, Inc. Aquaculture Facility arvin Road, Jonesport, Maine	PROJECT DATE ST DATE FIN	<b>ART</b> : 1	9-1758. 0/27/202 0/27/202
.ocat Rilli Rig Ty Iamm Iamm Vater	ING CO. (PE: ER TYP ER EFF	See         Exp           :         _S. V           rack M           E:         _Au           ICIENC           DEPT	ploration V. Cole ounted [ itomatic CY FACT	Explo Diedr / Au <b>OR:</b>	0.995		DRILLER: AUGER ID HAMMER HAMMER	DN (FT):36' Kevin Hansc /OD:N/A / N WEIGHT (Ibs): DROP (inch):	:om I/A : <u>1</u> 4	DRILLING METHOD:         Cased Borin           SAMPLER:         Standard Split-Spoon           0/140         CASING ID/OD:         4 in / 4 1/2 in         C	OGGED BY:		Auth
KEY TO	O NOTES YMBOLS:	<u>Wate</u> ⊈ At <b>⊈</b> At	er Level time of D Complet ter Drilling	ion o	g f Drilling	U = Thin V R = Rock	Spoon Sam Valled Tube Core Samp Vane Shear	e Sample Rec. = le bpf =	= Rec Blows	very LengthWOH = Weight of Hammer $q_U = U_U$ per FootRQD = Rock Quality DesignationØ = Fri	eld Vane Shear nconfined Com ction Angle (Es Not Applicable	pressive Stre	
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	a Type	SAMPL Depth (ft)	E INFO Pen./ Rec. (in)	RMATION Blow Count or RQD	N Field / Lab Test Data	Graphic Log	Sample Description & Classification	H <sub>2</sub> 0 Depth	Re	marks
35 —	-		1D 2D		0-2 2-4	24/12	2-5-10- 10 8-10- 19-22			0.5 Forest Duff Medium dense, red-brown Gravelly SAND trace silt	,		
	- - 5 -		3D	Å	5-7	24/18	8-13- 16-19			5.0 Medium dense, brown fine SAND, trace s	silt		
- - 25 — -	- 10 		4D	X	10-12	24/20	8-6-5-6						
- 20 — -	- 15 		5D	X	15-17	24/20	2-2-4-5	w =21.3 %					
- - 15 — -	- - 20 -		6D	X	20-22	24/20	1-4-4-3			with some gravel			
- - 10 —	- - 25 -		7D	X	25-27	24/20	4-5-6-7						
oundar e gradu nade at luctuat	ation lines ry betwee ual. Wate t times an tions of gr	n soil ty r level re d under oundwa	pes, trans eadings h conditior	sition ave t ns sta occur	s may been ated. due to				<u>I</u>	(Continued Next Page)	BORING		3-114

	S	W. GINE	CC Ceri	DL NG,IN		PROJECT: Ki	fish . ng F	Zeeland Maine sh Maine, Inc. Aquaculture Facility	SHEET: PROJEC <sup>-</sup> DATE ST	T NO ART:	<b>B-114</b> 2 of 2 19-1758.3 10/27/2020 10/27/2020
Depth (ft)	Casing Pen. (bpf)	Sample	n Dep	th Pen./ Rec.	Blow Count	Field / Lab	raphic Log	Sample Description & Classification	H₂0 Depth		Remarks
- 30		1R 2R	30. 31.:	24/3 2- 60/59	RQD 70	qu = 19,250 psi Unit Weight = 169.1 pcf		cored through cobbles from 28.2 to 30.2 feet			
	(ft) - 30	Depth (ft) Casing Pen. (bpf)	Depth (ft) Casing Pen. (bpf) Sample No. 1R - 30 2R	Depth Casing Pen. (bpf) Sample No. (ft) Casing Pen. SAM (ft) Casing Pen. No. (ft) Casing Pen. (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft)	Depth (ft)Casing Pen. (bpf)Sample Sample No.Depth Pen./ (ft)Pen./ Rec. (in)- 301R28.8- 30.824/3 30.8- 302R31.2- 36.260/59	SAMPLE INFORMATIO       Depth (ft)     Casing Pen. (bpf)     Sample g     Depth (ft)     Pen. / Rec. (in)     Blow Count or RQD       - 30     1R     28.8- 30.8     24/3 30.8     24/3 30.9     70	PROJECT: Ki DOCATION: Casing Pen. (ft)Depth (ft)Casing Pen. (bpf)Sample g Pen. No.Depth (ft)Pen./ Rec. (in)Blow Count or RQDField / Lab Test Data- 301R28.8- 30.824/3 30.824/3 21.2- 36.2970	SAMPLE INFORMATION       Organization         Casing Pen. (tp)       Sample of the pen. (tp)       Depth (ft)       Pen. / Rec. (in)       Blow Count or RQD       Field / Lab Test Data       organization         - 30       1R       28.8- 30.8       24/3 30.8       70       qu = 19,250 psi Unit Weight = 100 psi pci for for the pen prime prima prime prima prime prime prime prime prima prima prime	DOUNTING LOG         SUPERINGENER         Depth Casing Pen, (tr)       SAMPLE INFORMATION         Depth (tr)       Sample Pen, (tr)       Sample (tr)       Pen, (tr)       <	SAMPLE INFORMATION (ft)       Biow (ft)       Field / Lab (ft)       0 (ft)       Field / Lab (ft)       0 (ft)       0 (ft)       Sample (ft)       Depth (ft)       Pen./ (ft)       Biow (ft)       Field / Lab (ft)       0 (ft)       0 (ft)       0 (ft)       0 (ft)       Pen./ (ft)       Biow (ft)       Field / Lab (ft)       0 (ft)       <	SAMPLE INFORMATION       CLIENT: Kingfish Zeeland Maine PROJECT: King Fish Maine, Inc. Aquaculture Facility Location: Dun Garvin Road, Jonesport, Maine       PROJECT NO. DATE START: DATE START: DATE FINISH:         Depth (ft)       Sample g No.       Depth (ft)       Pen / Rec. (n)       Blow Count RQD       Field / Lab Test Data       0 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9

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-114

										BORIN	NG LOG		BORING N SHEET:	NO.: _	<b>B-115</b> 1 of 1
		S	$\mathbf{X}$	(	$\mathbb{C}\mathbb{C}$		-	CLIENT: King	fish	Zeeland Mai	ne		PROJECT	' NO.	19-1758.3
	$\overline{}$										nc. Aquaculture Facility		DATE ST		10/29/2020
		ΙΕΝ	GIN	Εt	ERIN	G, ING	<u> </u>	OCATION: _[	Dun	Garvin Road	, Jonesport, Maine		DATE FIN	IISH:	10/29/2020
	ng Info FION: _			Loc	cation Pla	in I	ELEVAT	ION (FT): 35.8	8' +/-		TOTAL DEPTH (FT): 21.2	LC	GGED BY:	Kevin	Hanscom
					orations,			R: Kevin Hanso				v Stem /	Auger		
				)ied	rich D-50			D/OD: 2 1/4 ir			SAMPLER: Standard Split-S				
	ER TYP				0.995			R WEIGHT (lbs): R DROP (inch):		10	CASING ID/OD: N/A /N/A		ORE BARRE	L: <u>N//</u>	4
								urated below 10							
	RAL NO			_			,								
	O NOTES YMBOLS:	∑ At ∑ At	er <u>Level</u> time of D Completi ter Drilling	on o	ig of Drilling		Valled Tu Core San	be Sample Rec. = ple bpf =	= Rec Blows	etration Length overy Length s per Foot te per Foot	WOR = Weight of Rods WOH = Weight of Hammer RQD = Rock Quality Designation PID = Photoionization Detector	q <sub>∪</sub> = Uno Ø = Fric	ld Vane Shear confined Comp tion Angle (Es ot Applicable	oressive	Strength, kips/sq.ft.
					SAMPL	E INFO	RMATIO	ON	5						
Floy	Donth	Casing		Т			Blow		Graphic Log		Sample		H₂0		
Elev. (ft)	Depth (ft)	Pen. (bpf)	Sample No.	e le	Depth	Pen./ Rec.	Count		phic		Description & Classification		Depth		Remarks
		()	No.	F	(ft)	(in)	or RQD	Test Data	Gra		Classification				
			1D	+	0-2	24/12	2-6-10	_			oil				
35 —	-			Ŋ	0-2		6	-		10.4	e, gray Silty fine SAND				
-				$\mathbb{N}$						Med	ium dense, brown fine to mediu	m SANI	D,		
	Γ		2D	$\overline{\mathbf{N}}$	2-4	24/18	7-11-			trace	silt				
-	-			X			16-21								
-	-			$\mu$	4										
-	- 5										ium dense, brown SAND and G	RAVEL	,		
20			3D	$\mathbb{N}$	5-7	24/21	11-16			5.5 Med		<u> </u>			
30 -	-			IX			16-15			Ivied	ium dense, gray Silty fine SANE	J			
-	-			$\mu$	4										
-	-														
	Γ														
-	-														
-	- 10		4D		10-12	24/20	7-9-9-								
25 -			40	N	10-12	24/20	10								
				Μ											
	-			F											
-	-														
-	Ļ														
										14.5 Den	se, gray Silty SAND and GRAV	=1			
	- 15		5D	$\overline{\Lambda}$	15-17	24/18	21-34			Den					
20 -	-			X			26-31								
-	-			$\square$											
	F									18.0 Den:	se, gray Silty fine SAND				
 1	-														
-	- 20														
15 –			6D	X	20-21.2	14/8	8-30-								
	Γ			<u> </u>	N						Auger Refusal at 21.2 feet				
											(Probable Bedrock)				
1															
2															
bounda	ry betwee	n sòil ty	ent approz pes, trans	ition	ns may										
be grad made a	ual. Wate t times an	r level n d under	eadings ha	ave is sta	been ated.										
Fluctua	tions of gr	oundwa	ater may o present at	ccur	r due to							I	DODULO		D 445
	ements w												BORING N	NO.:	B-115

		S			CC	) LE			fish	BORING LOG Zeeland Maine ish Maine, Inc. Aquaculture Facility	BORING NO.: SHEET: PROJECT NO DATE START	1 of 1 19-1758.3
	ng Info	rmatio	on							Garvin Road, Jonesport, Maine	DATE FINISH	
DRILL RIG T` HAMN HAMN	ING CO. YPE: _⊤ IER TYP IER EFF	: <u>S.</u> V rack Me E: <u>Au</u> ICIENC	V. Cole E ounted D itomatic	Expl Died	cation Pla lorations, lrich D-50 :	LLC [ / 	DRILLER: AUGER II HAMMER HAMMER	ON (FT):         19.           :         Kevin Hansc           D/OD:         2 1/4 ir           :         WEIGHT (lbs):           :         DROP (inch):	:om 1 / 5 : :14	DRILLING METHOD:         Hollow Stem           5/8 in         SAMPLER:         Standard Split-Spoon	OGGED BY: <u>Je</u> Auger ORE BARREL:	· · · · · · · · · · · · · · · · · · ·
KEY T	RAL NO O NOTES YMBOLS:	<u>Wate</u> ⊻ At ▼ At	er Level time of D Completi ter Drilling	on c	ng of Drilling		Valled Tub Core Sam	e Sample Rec. = ple bpf =	= Rec Blows	very LengthWOH = Weight of Hammer $q_U$ = Urper FootRQD = Rock Quality DesignationØ = Fri	eld Vane Shear Stre aconfined Compress ction Angle (Estimat Not Applicable	ive Strength, kips/sq.ft.
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type		E INFO Pen./ Rec. (in)	RMATIO Blow Count or RQD	N Field / Lab Test Data	Graphic Log	Sample Description & Classification	H₂0 Depth	Remarks
· ·	-		1D 2D		0-2 2-4	24/21	1-5-10- 11 8-7-8-8			Topsoil 0.7 Medium dense, red-brown Gravelly SAND, some silt		
- 15 –	  5		3D	X	5-7	24/19	3-6-10- 10			3.0 Medium dense, brown SAND, trace silt and gravel	1	
10 -	-  			Λ						6.2 Medium dense, brown Gravelly Silty SANE	)	
.	10  		4D		10-12	24/12	10-10- 10-17	w =11.3 %				
5 -	  15 		5D	X	15-16.4	17/12	9-17- 50/5"					
					I					Auger Refusal at 16.8 feet (Probable Bedrock)		
bounda be grad made a Fluctua other fa	ation lines ry betwee lual. Wate t times ar tions of gr actors thar	n soil ty r level re ounder oundwa	pes, trans eadings har condition iter may o present at	itior ave is st ccu	ns may been ated. r due to						BORING NO.:	B-116

BORING / WELL 19-1758.3.GPJ SWCE TEMPLATE.GDT 1/2/21

		S		E E R			- PF		fish ng F	Zeeland Mai ïsh Maine, Ir	ne nc. Aquaculture Facility , Jonesport, Maine		BORING N SHEET: PROJECT DATE ST DATE FIN	" NO ART: _	<b>B-117</b> 1 of 1 19-1758.3 10/28/2020 10/28/2020
Loca Drill Rig t Hamn Hamn Wate	LING CO YPE: _] MER TYI MER EFI	See Ex .: <u>S. V</u> rack M PE: <u>Au</u> FICIENC EL DEP	on_ ploration V. Cole E lounted Di utomatic CY FACTC THS (ft):	xplora edrich DR: _0	tions, L n D-50 ).995	<u>LC</u>   H	Driller: Auger ID Iammer Iammer	DN (FT): <u>16.6</u> Kevin Hansc /OD: <u>2 1/4 ir</u> WEIGHT (Ibs): DROP (inch):	om 1 / 5 ! 14	5/8 in	TOTAL DEPTH (FT): 5.2 DRILLING METHOD: Holic SAMPLER: Standard Split- CASING ID/OD: N/A /N/A	w Stem	DGGED BY: Auger DRE BARRE		
	O NOTES SYMBOLS	: ⊻ Ai ▼ Ai	<u>er Level</u> t time of Dr t Completic fter Drilling	n of Dr	l rilling F	J = Thin W R = Rock (	poon Sam /alled Tube Core Samp /ane Shear	e Sample Rec. = le bpf = I	Rec Blows	etration Length overy Length s per Foot te per Foot	WOR = Weight of Rods WOH = Weight of Hammer RQD = Rock Quality Designation PID = Photoionization Detector	q <sub>u</sub> = Un Ø = Fric	Id Vane Shear confined Comp tion Angle (Es lot Applicable	oressive	Strength, kips/sq.ft
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type D	epth (ft)	Pen./ Rec. (in)	RMATIO Blow Count or RQD	N Field / Lab Test Data	Graphic Log		Sample Description & Classification		H₂0 Depth		Remarks
15 -	- - - - - -		1D 2D	X	0-2 2-4	24/21 24/20	1-2-6- 12 11-26- 27-16			1.5 Med 2.5 Dens	ium dense, light brown Silty S ium dense, dark brown Sandy se, red-brown Silty SAND se, brown Silty Gravelly SAND	SILT			
	- 5			× 5	5-5.3	3/2	\_50/3" <i>[</i>				Auger Refusal at 5.2 fee (Probable Bedrock)	t			
bounda be grad made a Fluctua other fa	ary betwe dual. Wat at times a ations of g	en soil ty er level r nd unde roundwa n those j	ent approx pes, transi eadings ha r conditions ater may oc present at t de.	tions m ve beei s stated cur due	n 1. e to								BORING I	NO.:	B-117

										BORING LOG	BORING NO. SHEET:	: <b>B-118</b> 1 of 1
		S	W	1(	$\neg \bigcirc$	N F	$\overline{}$	CLIENT: King	fish	Zeeland Maine		
	フ				ERIN		- I I I			sh Maine, Inc. Aquaculture Facility	DATE STAR	
		IEN	GIN	Εſ	2 K I IN	G, IN C	<u> </u>	OCATION: _[	Dun	Garvin Road, Jonesport, Maine		<b>1</b> : 10/29/2020
LOCA		See Ex	ploration		cation Pla			<b>ON (FT):</b> 46.			.OGGED BY: Ke	evin Hanscom
					orations,			Kevin Hanso		DRILLING METHOD: Hollow Sten	Auger	
			utomatic	Jiea	rich D-50			D/OD: <u>2 1/4 in</u> R WEIGHT (Ibs)			ORE BARREL:	N/A
HAMN	IER EFF		CY FACT			H	HAMMER	R DROP (inch):				
			THS (ft):	Ţ	0 ft wat	ter at grou	und surfa	ace				
	RAL NO		er Level			D = Split S	Snoon Sar	nnle Pen :	= Pen	etration Length WOR = Weight of Rods $S_v = F$	eld Vane Shear Stre	enath kins/sa ft
AND S	YMBOLS:	∑ At ▼ At	t time of D	on o	g f Drilling	U = Thin V	Valled Tul Core Sarr	ple Sample Rec.	= Rec Blows	worry Length         WOH = Weight of Hammer $q_U = U$ per Foot         RQD = Rock Quality Designation         Ø = Fit		sive Strength, kips/sq.ft.
					SAMPL	E INFO	RMATIC	N	бc			
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	H₂0 Depth	Remarks
	-		1D		0-2	24/7	WOH-		-	Topsoil	<u> </u>	
45 -	ŀ			X			WOH- 4-6			1.0 Medium dense to loose, brown Silty Grave		
	-		20	А	24	24/22				SAND	, in y	
	_		2D	N	2-4	24/22	8-18- 23-20					
				$\wedge$								
-	ſ											
	- 5		3D	$\nabla$	5-7	24/24	3-2-1-3	3				
40 -	ł			X								
	-		4D	$\mathbb{H}$	7-9	24/24	3-3-5-5	5		7.0 Medium dense, brown Gravelly SAND, so	me	
	-			X						7.5 silt		
	-			μ						Loose, gray Sandy SILT, trace clay		
	- 10											
			5D	M	10-12	24/24	2-3-2-3	3				
35 -	1			Μ								
	f											
	ł											
	-								-	14.0 Loose, gray Silty fine SAND		
	- 15		6D		15-17	24/24	WOR-					
30 -	-			X	10 11		WOR- 18-23			16.0 Medium dense, gray Gravelly Silty SAND		
	_			Δ			10-23			(Glacial Till)		
	_											
	「											
	- 20		7D	X	20-21.1	13/13	12-13-					
<u>نا</u>	<u> </u>						50/1"			Auger Refusal at 21.1 feet		
										(Probable Bedrock)		
L L												
2												
2.00												
6												
bounda	ry betwee	n soil ty	ent appro: /pes, trans	sition	is may							
be grad made a	ual. Wate t times ar	r level r id under	eadings h r condition	ave l is sta	been ated.							
other fa		those p	ater may o present at								BORING NO.	: B-118
measu	Cinents W	cie illa	u <del>.</del> .			1						2.10

							BORING LOG					BORING N SHEET:	<b>B- 1</b> 1 of 1	
E		C	XI/	CC	N F	С	-IENT: Gartl	ev 8	Dorsky End	ineering & Surveying		PROJECT	NO.	19-1758.1
	7									Maine, Inc. Aquaculture Facili		DATE ST	_	2/5/2020
		EN	GINE	LEKIN	G,INC.		DCATION: 9	Dur	n Garvin Roa	ad, Jonesport, ME		DATE FIN	ISH: _	2/5/2020
LOCA <sup>®</sup> DRILL RIG T	ING CO.:	See Exp S. V ack M	oloration I /. Cole Ex ounted Di	Location Pla xplorations, edrich D-50	LLC DRI	LLER: GER ID	N (FT):51.9 _Kevin Hansco /OD:2 1/4 in WEIGHT (Ibs):	om   / 5 5	5/8 in	TOTAL DEPTH (FT): 2.5 DRILLING METHOD: Hollow SAMPLER: Standard Split-S CASING ID/OD: N/A /N/A	v Stem Av poon	GGED BY: uger RE BARRE		
НАММ	IER EFFI	CIENC	Y FACTO	DR: 0.98	HAI	MMER	DROP (inch):	30						
	R LEVEL		• •		water observ	ed								
				'W, refusal		on Samr	ole Pen =	Pon	atration Length	WOR = Weight of Rods	S = Field	Vane Shear	Strength	kins/sa ft
KEY TO NOTES AND SYMBOLS:       Water Level X Att me of Drilling X At Completion of 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 <sub>v</sub> = Field Vane Shear Strength, kips/sq.ft.													Strength, kips/sq.ft.	
				SAMPL	E INFORM	IATION	N	Б Б						
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	e Depth ⊢ (ft)	Rec.	Blow Count or RQD	Field / Lab Test Data	Graphic Log		Sample Description & Classification		H₂0 Depth		Remarks
			1D	0-2	24/9 1-	-1-4-8			0.4 ─ Very orga	loose, dark brown, Sandy SILT	with	r I		
50	1- 1-			Й					Loos	e to medium dense, dark brown D, some gravel	, Silty			
										Auger Refusal at 2.5 feet (Probable Bedrock)				
bounda be grad made a Fluctua	ry betwee ual. Wate t times an tions of gr	n soil ty r level re d under oundwa		tions may ve been s stated. cur due to							-			
other fa	ctors than	those p	resent at the	ne time								BORING N	10.:	B- 1

	_									BORING LOG	BORING		B-2
S.W.COLE Engineering, inc.							- P	ROJECT: Pr	ey & opo:	Dorsky Engineering & Surveying ed Kingfish Maine, Inc. Aquaculture Facility Garvin Road, Jonesport, ME	SHEET: PROJEC DATE ST DATE FI		1 of 1 19-1758.1 2/4/2020 2/4/2020
Jocat Drilli Rig ty Hamm Hamm Vatef Genef	NG CO. (PE: _T ER TYP ER EFF R LEVEI RAL NO	See         Exp           rack         Model           rack         Model           E:         Au           ICIENC         DEPT           TES:         ICIES:	bloration /. Cole I bunted I tomatic Y FACT 'HS (ft):	Explo Diedr	2 6.5 ft	LLC [ / H H	DRILLER: AUGER II IAMMER IAMMER	DN (FT):38.4 :Kevin Hansc D/OD:2 1/4 ir 2 WEIGHT (lbs): 2 DROP (inch):	om / 5 <u>1</u> 2 30	DRILLING METHOD: Hollow Stem. /8 in SAMPLER: Standard Split-Spoon CASING ID/OD: N/A /N/A Co	Auger	f: <u>Todd</u>	۱ <u>ــــــــــــــــــــــــــــــــــــ</u>
	) NOTES (MBOLS:	∑ At ▼ At	<u>r Level</u> time of D Completi ter Drilling	ion o	g f Drilling	D = Split S U = Thin V R = Rock ( V = Field \	valled Tub Core Sam	e Sample Rec. = ple bpf = I	Rec	very Length         WOH = Weight of Hammer $q_u$ = Unper Foot           RQD = Rock Quality Designation         Ø = Friction	onfined Co	mpressive : Estimated)	n, kips/sq.ft. Strength, kips
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	u Type	SAMPL Depth (ft)	E INFO Pen./ Rec. (in)	Blow Count or	N Field / Lab Test Data	Graphic Log	Sample Description & Classification	H <sub>2</sub> 0 Deptf		Remarks
	-		1D		0-2	24/24	RQD 11-8-7- 7			Loose, dark brown, Sandy SILT with organi 0.8 and roots Medium dense, rusty brown, SAND, some s 2.5 Medium dense, light brown, SAND, trace si trace gravel	.ilt		
	- 5		2D	X	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	X	10-12	24/24	7-9-10- 18			with brown silty fine sand layers 11.7 Very dense, brown, Gravelly SAND, some s with occasional cobbles	ilt		
25 — - -	- - 15 -		4D	X	15-16.9	23/23	19-30- 29- 50/5"			16 7			
						-				Probable weathered bedrock Auger Refusal at 17.0 feet (Probable Bedrock)	/	-	
ooundar be gradu nade at Fluctuat other fac	ation lines betwee ual. Wate t times an ions of gr ctors than ements w	n soil ty r level re d under oundwa those p	bes, trans eadings h conditior ter may o resent at	ave to state	s may been ated. due to						BORING	NO.:	B- 2

											RING N		B- 3
		S				G, IN G		ROJECT: Pr	tley &	Dorsky Engineering & Surveying PR ed Kingfish Maine, Inc. Aquaculture Facility DA	EET: OJECT TE STA	NO. 19 ART: 2	1 of 1 9-1758.1 2/5/2020 2/5/2020
Locat Drilli Rig Ty Hamm Hamm Watei	ING CO.: (PE: IER TYPI IER EFFI R LEVEL	See Exp : S. W rack Mo E: Au ICIENC - DEPT	oloration V. Cole E ounted D	iedri	-	LLC [ / H	ELEVATIC DRILLER: AUGER ID HAMMER	N (FT): _Kevin Hanso /OD:2 1/4 ir WEIGHT (Ibs): DROP (inch):	9' Su com n / 5 { : _14	Veyed TOTAL DEPTH (FT): 11.7 LOGGI DRILLING METHOD: Hollow Stem Auge 18 in SAMPLER: Standard Split-Spoon	ED BY:	Todd Sek	
KEY TO	RAL NOT O NOTES YMBOLS:	<u>Wate</u> ⊻ At ▼ At	er Level time of Dr Completio ter Drilling	on of	) Drilling	U = Thin V R = Rock	poon Sam Valled Tube Core Samp Vane Shear	Sample Rec. = le bpf =	= Rec Blows	tration Length         WOR = Weight of Rods $S_v$ = Field Vale           very Length         WOH = Weight of Hammer $q_u$ = Unconfir           per Foot         ROD = Rock Quality Designation         Ø = Friction A           per Foot         PID = Photoionization Detector         N/A = Not Ap	ned Comp Angle (Est	ressive Stre	
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	SAMPL Depth (ft)	E INFOI Pen./ Rec. (in)	RMATION Blow Count or	N Field / Lab Test Data	Graphic Log	Sample Description & Classification	H₂0 Depth	Rer	narks
- 50 — - - - 45 —	  5  		1D 2D	X	0-2	24/20	RQD 2-1-1-8 6-6-8-7			Loose, dark brown, Sandy SILT with organics     Loose, rusty brown, fine to medium SAND,     some silt     Medium dense, brown, Gravelly SAND, some     silt with occasional cobbles     Medium dense, brown, fine to medium     SAND, some silt, with clayey silt layers	· · · ·		
-	- - 10		3D	$\mathbb{N}$	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)			
boundar be grade made at Fluctuat other fa	ry betweer ual. Water t times an tions of gr	n soil ty r level re d under oundwa those p	ent approx pes, transi eadings ha conditions ter may oc present at t de.	tions ive b s sta ccur	s may een ted. due to					ВО	RING N	10.:	B- 3

										BORING LOG	BORING		B- 4
VE		C	VV)	1		ТГ					SHEET:		1 of 1
	-		W			)LE				Dorsky Engineering & Surveying	PROJEC		
						G,IN(				ed Kingfish Maine, Inc. Aquaculture Facility	DATE S	_	2/4/2020
			GIN			0,110		UCATION: 9	Du	Garvin Road, Jonesport, ME	DATE F	INISH:	2/4/2020
Locat Drilli Rig Ty Hamm Hamm Watei	NG CO.: ′PE:⊺r ER TYPI ER EFFI	See Exp S. V rack Mo E: Au CIENC . DEPT	oloration V. Cole E ounted D	iedr	orations, ich D-50 0.98	LLC [ / H	ORILLER: AUGER II IAMMER	DN (FT):43.4 :Kevin Hansc D/OD:2 1/4 ir WEIGHT (Ibs): DROP (inch):	om 1 / 5 { 14	DRILLING METHOD:         Hollow Stem           /8 in         SAMPLER:         Standard Split-Spoon	DGGED BY Auger DRE BARR		
	) NOTES (MBOLS:	∑ At ∑ At	er <u>Level</u> time of Dr Completic ter Drilling	on of	) Drilling	D = Split S U = Thin V R = Rock ( V = Field \	alled Tub Core Sam	e Sample Rec. = ble bpf =	= Rec Blows	very Length         WOH = Weight of Hammer $q_U$ = Un           per Foot         RQD = Rock Quality Designation         Ø = Frid		mpressive ( Estimated)	, kips/sq.ft. Strength, kips/sq.t
					SAMPL	E INFO	RMATIO	N					
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	H₂0 Depth	, I	Remarks
			10		0.0	04/20				Lagan dark brown Candy Oll T with			
-			1D	$\mathbb{N}$	0-2	24/20	2-2-4-7			Loose, dark brown, Sandy SILT, with $0.8 - \sqrt{100}$ organics, roots	Å		
_	-			Δ						Medium dense, rusty brown, SAND, some silt, trace gravel			
40 —	-									3.0 Medium dense, brown, fine to medium SAND, trace silt, trace gravel	Ā		
-	- 5		2D	X	5-7	24/21	5-6-8-9			5.0 Medium dense, brown, Clayey SILT with si fine sand seams	ty		
- 35 —	-									7.5 Medium dense, brown, fine to medium SAND, trace silt			
-	- - 10		3D	$\left[ \right]$	10-12	24/8	18-22- 20-38			9.7 Dense, brown, Gravelly SILT and SAND wi cobbles (Glacial Till)	th		
30 —	-												
			I	1		I	I	1		Auger Refusal at 14.3 feet (Probable Bedrock)			
boundar be gradu made at Fluctuat	y between ual. Waten times an ions of gro	n soil ty r level re d under oundwa	ent approx pes, transi eadings ha conditions ter may or	itions ave b s sta ccur	s may been ited. due to								
	ctors than ements w		present at t de.	tne t	ime						BORING	NO.:	B- 4

										BORI	NG LOG		BORING SHEET:	NO.: _	<b>B- 5</b> 1 of 1
l		C	W	1	$\neg \cap$	N F		LIENT: Gart	lev 8	& Dorsky En	gineering & Surveying		PROJEC	T NO.	19-1758.1
			<b>. vv</b>								Maine, Inc. Aquaculture Fac	ilitv	DATE S	_	2/5/2020
		EN	IGINI	ΕE	ERIN	G,IN(	· · · •		<u> </u>		ad, Jonesport, ME		DATE FI	-	2/5/2020
LOCA DRILI RIG T		See Ex : <u>S</u> V rack M	ploration V. Cole E ounted D	xpl	cation Pla orations, rich D-50		ORILLER: AUGER II	<b>DN (FT):</b> <u>62.</u> Kevin Hansc <b>D/OD:</b> <u>2 1/4 ir</u>	om 1 / 5	5/8 in	TOTAL DEPTH (FT): 17.1 DRILLING METHOD: Hollo SAMPLER: Standard Split-	w Stem / Spoon			Sekera
	MER TYP	-						WEIGHT (lbs)		40	Casing ID/OD: N/A /N/A	co	ORE BARR	EL: <u>N//</u>	Α
						ł	HAMMER	DROP (inch):	30						
			THS (ft):		⊈ 9 n										
KEY 1	O NOTES SYMBOLS:	<u>Wate</u> ⊻ At ▼ At	er Level time of Dr Completio	on o	g f Drilling	U = Thin V R = Rock		e Sample Rec. = ble bpf =	= Rec Blows	etration Length covery Length s per Foot ite per Foot	WOR = Weight of Rods WOH = Weight of Hammer RQD = Rock Quality Designation PID = Photoionization Detector	q <sub>∪</sub> = Uno Ø = Fric	confined Cor	npressive (stimated)	h, kips/sq.ft. Strength, kips/sq.ft. )
					SAMPL	E INFO	RMATIO	N	Log						
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Lo		Sample Description & Classification		H₂0 Depth		Remarks
	-		1D	M	0-2	24/11	2-4-10- 15				se, dark brown, Sandy SILT wit roots	h organi	cs		
60 -				Å			15			1.0 Loos grav Med	se, rusty brown, SAND, some s				
	- - - 5		0.0		5.7	04/47	40.40								
55 -	-		2D	X	5-7	24/17	16-18- 17-14			6.7 Med	lium dense, brown, fine Sandy	SILT			
	- - -									8.0 Med	lium dense, brown, fine SAND,	some sil	lt ⊻		
	- 10  -  -		3D		10-12	24/18	8-13- 15-16								
50 -	- - - -										lium dense, brown, Gravelly Sil		)		
	- - 15 -		4D	X	15-16.2	14/13	18-19- 25/2"			16.2	occasional cobbles (Glacial Til	1)			
	_									Prot	bable weathered bedrock				
19-11/001:01-0 0WOLF 1EMIL FAIL: 001 0/24/20											Auger Refusal at 17.1 fee (Probable Bedrock)	t			
											,				
j j															
S															
5															
<u>.</u>															
Stratifi	cation line	s repres	ent approx	kima	ite										
bound be gra	ary betwee dual. Wate	en soil ty er level n	pes, transi eadings ha	ition ave l	is may been										
Fluctua	ations of g	roundwa	r condition ater may or	ccur	due to							1			
measu	actors thai irements v		present at de.	ule	ume								BORING	NO.:	B- 5

			TT	1/							NG LOG	BORING SHEET:	_	<b>B- 6</b> 1 of 1
K	ラ					G,IN		PROJECT: P	ropo	sed Kingfish	gineering & Surveying Maine, Inc. Aquaculture Facility ad, Jonesport, ME	PROJEC DATE ST DATE FI	ART:	19-1758.1 2/4/2020 2/4/2020
	ng Info TION:			Loc	ation Pla	an I		ON (FT):				 OGGED BY:		
	ING CO.							Kevin Hanse		<b>5</b> /0 :	DRILLING METHOD: Hollow Stem	Auger		
	YPE: _⊺ IER TYP			Jean	1011 D-50			D/OD: <u>2 1/4 i</u> R WEIGHT (Ibs)			SAMPLER:         Standard Split-Spoon           CASING ID/OD:         N/A /N/A         C	ORE BARR	EL: N/A	4
	IER EFF						HAMMEI	R DROP (inch):	30					
	R LEVEI		THS (ft):	7	2 10.8 ft									
KEY TO	O NOTES YMBOLS:	<u>Wate</u> ⊻ At ▼ At	er <u>Level</u> time of D Completi ter Drilling	on o		D = Split S U = Thin V R = Rock V = Field	Valled Tu Core Sarr	ple Sample Rec.	= Rec Blows	etration Length overy Length s per Foot te per Foot	WOH = Weight of Hammer $q_U$ = Ur RQD = Rock Quality Designation $\emptyset$ = Fri	eld Vane Shea confined Con ction Angle (E lot Applicable	npressive stimated)	Strength, kips/sq.ft.
					SAMPI	LE INFO	RMATIC	DN .						
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD		Graphic Log		Sample Description & Classification	H <sub>2</sub> 0 Depth		Remarks
50 -	-		1D	M	0-2	24/15	2-1-4- 10				se, dark brown, Sandy SILT with organ roots	ics <sub>F</sub>		
.	-			Ň						Loos	se, light gray fine to medium SAND, so	me		
.	-			H						silt Med	lium dense, rusty brown, SAND, some	]		
	-										trace gravel lium dense, brown, fine to medium			
	-									SAN	ID, some silt, with clayey silt layers			
<u>.</u>	- 5		2D	H	5-7	24/10	8-14-							
45 -	1			X	0.1		19-17				se to medium dense, brown, Sandy Sl e gravel with cobbles (Glacial Till)	_T,		
· ·	-			Δ						3011	e graver with cobbles (Glacial Till)			
· ·														
-	1													
.														
40 -	- 10 		3D	$\square$	10-12	24/24	8-9-9- 14					l⊻		
	-			Ň								-		
	-			Н										
	-													
	·										Auger Refusal at 13.6 feet (Probable Bedrock)	•		
											(			
1														
1														
Stratific	ation line:	s repres	ent approx	xima	te	1								
bounda be grad	iry betwee lual. Wate	n soil ty r level r	pes, trans eadings h	ition ave t	s may been									
Fluctua	t times ar tions of gr totors thar	oundwa	ater may o	ccur	due to									
measur	rements w	ere ma	de.									BORING	NO.:	B- 6

											BORI	NG LOG		BORING	NO.: _	B-7
			C	W	1	$\neg \bigcirc$	I I		IENT: Gart	lev 8	& Dorsky En	gineering & Surveying		SHEET: PROJEC		<u>1 of 1</u> 19-1758.1
		7	J	<b>.</b> VV								Maine, Inc. Aquaculture Fac	ility	DATE S	-	2/5/2020
			ΕN	IGINI	ΕE	ERIN	G,IN(			- · · ·		ad, Jonesport, ME		DATE FI	-	2/5/2020
	illing CATIO				Loc	cation Pla	n E		<b>DN (FT):</b> 42.2	2' Su	rveved	<b>TOTAL DEPTH (FT):</b> 12.0	] L0	GGED BY	- : Todd	Sekera
						orations,			Kevin Hansc			DRILLING METHOD: Hollo			. 1000	
RIG	TYPE	: <u>Tr</u>	ack Mo	ounted D	ied	rich D-50			/OD: 2 1/4 ir		5/8 in	SAMPLER: Standard Split-	Spoon	-		
			-	Itomatic					WEIGHT (lbs):		40	CASING ID/OD: N/A /N/A	cc	ORE BARR	EL: <u>N//</u>	۹
							ł	HAMMER	DROP (inch):	30						
	NERAL			"HS (ft):		≗ on										
	Y TO NO D SYME		⊻ At ▼ At	er Level time of Dr Completio ter Drilling	on o	g f Drilling	U = Thin V R = Rock	Spoon Sam Valled Tube Core Samp Vane Shear	Sample Rec. = le bpf = l	= Rec Blows	etration Length overy Length s per Foot ite per Foot	WOR = Weight of Rods WOH = Weight of Hammer RQD = Rock Quality Designation PID = Photoionization Detector	q <sub>∪</sub> = Unc Ø = Frict		npressive Estimated)	h, kips/sq.ft. Strength, kips/sq.ft )
$\vdash$				-		SAMPL	E INFO	RMATIO	N	0						
Ele		epth	Casing					Blow		c Log		Sample		H,0		
(ft		(ft)	Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Count or RQD	Field / Lab Test Data	Graphic		Description & Classification		Depth		Remarks
	-			1D	1/	0-2	24/12	3-3-5-8			Loo	se, dark brown, Sandy SILT wit	h organio	cs		
	Ļ				X						0.5 Loo	se, rusty brown, fine to medium le silt, trace gravel				
					Д						4.0	lium dense to very dense, brow	'n			
40	7											velly Silty SAND				
	f															
	ł															
	L	5														
	1			2D	M	5-7	24/20	28-39- 30-26	w =6.4 %							
	Ŧ				Ŵ			00 20								
35	5				Р						7.0 Mer	lium dense, brown, fine to med	ium			
	L											ND, trace silt		I⊥		
	-															
	ł															
	+	10		3D	$\vdash$	10-10.9	11/10	7-25/5"								
	L				Д	10 10.0	11/10	1 20/0			10.6 Mec	lium dense, brown, Gravelly Sil	ty SAND	Г		
	-										10.9 (Gla	icial Till)				
												bable weathered bedrock Auger Refusal at 12.0 fee	۰t	/		
												(Probable Bedrock)				
21210																
Ū -																
5																
9-1/58																
				ent approx pes, transi												
be g mad z Fluc	radual. le at tim	Water nes an	r level re d under	eadings ha	ave l s sta	been ated.										
othe mea		s than	those p	present at									[	BORING	NO.:	B-7

										BORI	NG LOG	BORIN	NG NO.: _	<b>B- 8</b> 1 of 1
			X	1(	$\mathbb{C}$	N F		LIENT: Gar	tley &	& Dorsky Eng	gineering & Surveying		ECT NO.	19-1758.1
	フ					G,IN		ROJECT: P	ropo	sed Kingfish	Maine, Inc. Aquaculture Facility	DATE	START:	2/5/2020
		EN	GIN	ΕE	2 K I N	G, IN		OCATION: _	9 Du	n Garvin Ro	ad, Jonesport, ME	DATE	FINISH:	2/5/2020
	ng Info TION: S			Loc	ation Pla	an I	ELEVATI	<b>ON (FT):</b> 50'	Surv	veyed	<b>TOTAL DEPTH (FT):</b> 16.5 L		BY: Todd	Sekera
DRILL	ING CO.	S. V	V. Cole I	Explo	orations,	LLC	DRILLER	: Kevin Hanso	com		DRILLING METHOD: Hollow Stem	Auger		
	<b>YPE</b> : <u>T</u>			Diedr	rich D-50			D/OD: 2 1/4 in			SAMPLER: Standard Split-Spoon			
	IER TYP IER EFF			00	0.00			R WEIGHT (lbs)	-		CASING ID/OD: N/A /N/A C	ORE BA	RREL: <u>N/</u>	Δ
	R LEVE							R DROP (inch):	30					
	RAL NO		- ( -)											
	O NOTES YMBOLS:	∑ At ∑ At		ion of		U = Thin V R = Rock	Core Sam	ple Sample Rec. bpf =	= Rec Blows	s per Foot	WOH = Weight of Hammer $q_U = Ur$ RQD = Rock Quality Designation $\emptyset = Frid$	confined (	e (Estimated)	Strength, kips/sq.ft.
		¥ Af	ter Drilling	g	SAMPI		Vane Shea			ute per Foot	PID = Photoionization Detector N/A = N	Not Applica		
Elev.	Depth	Casing					Blow		- Č		Sample	н	_0	
(ft)	(ft)	Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Count or RQD	Field / Lab Test Data	Graphic Log		Description & Classification		pth	Remarks
			1D	М	0-2	24/13	1-			Very	loose, organics with roots			
· ·	+			X			WOH-				loose, dark brown, Sandy SILT, trace			
	Ļ			Д							el with organics and roots ium dense, brown, SAND, some silt,			
											e gravel			
	Ť											<u> </u>		
· ·	+									4.0 Med	ium stiff consistency, brown, Clayey			
45 -	- 5										, with silty fine sand seams			
			2D	М	5-7	24/13	2-3-6-							
· ·	t			Ň			14			- C E				
· ·	+			А						6.5 Med silt	ium dense, brown, Gravelly SAND, so	ne		
	Ļ													
											se to medium dense, brown, fine SANE e silt	),		
· ·	Ť													
40 -	- 10		3D	Н	10-12	24/23	5-8-5-5							
	Ļ			W	10 12	24/20								
				Μ										
·	t			H										
	+													
	L										se, brown, Silty SAND, some gravel wi	th		
										OCCa	asional cobbles (Glacial Till)			
35 -	15		4D	М	15-16	12/12	17-62							
<b>I</b> .	+			А										
	1		I			1		1	-		Auger Refusal at 16.5 feet		I	
											(Probable Bedrock)			
5														
i														
1														
Ohr-HP	ation !!-		ont o		10	1								
bounda	ation lines ry betwee lual. Wate	n soil ty	pes, trans	sition	s may									
made a	t times ar	d under	· conditior	ns sta	ated.									
other fa	ctors than rements w	those p	present at									BORIN	IG NO.:	B- 8

										BORING LOG		RING N	-
Ę	Ì					DLE G,ING	PI	ROJECT: Pr	ley &	Dorsky Engineering & Surveying ed Kingfish Maine, Inc. Aquaculture Facility Garvin Road, Jonesport, ME	PR	IEET: OJECT ATE STA ATE FIN	ART: 2/4/202
-OCAT DRILLI RIG TY HAMM HAMM WATEF GENEF	ING CO. (PE: <u>T</u> ER TYP ER EFF R LEVEL RAL NOT	See Exp : S. W rack Mo E: Au ICIENC L DEPT TES:	bloration /. Cole I bunted I tomatic Y FACT HS (ft):	Explo Diedr		LLC [ ) / / H	DRILLER: AUGER ID HAMMER HAMMER	DN (FT):48.2 Kevin Hansc )/OD:2 1/4 in WEIGHT (Ibs): DROP (inch):	om 1 / 5 ! 14 30	DRILLING METHOD: Hollow Ste /8 in SAMPLER: Standard Split-Spoor 0 CASING ID/OD: N/A /N/A	m Auge 1 CORE	BARRE	Todd Sekera
	O NOTES YMBOLS:	⊻ At ▼ At	<u>r Level</u> time of D Completi er Drilling	ion of	Drilling	U = Thin V R = Rock	Spoon Sam Valled Tube Core Samp Vane Shear	e Sample Rec. = ble bpf = I	Rec Blows	wery LengthWOH = Weight of Hammer $q_u =$ per FootRQD = Rock Quality Designation $\emptyset = I$	Unconfir Friction A	ned Com	r Strength, kips/sq.ft. pressive Strength, kips timated)
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	E INFOI Pen./ Rec. (in)	RMATIO Blow Count or RQD	N Field / Lab Test Data	Graphic Log	Sample Description & Classification		H₂0 Depth	Remarks
- - 45 —	-		1D		0-2	24/19	4-6-15- 12			<ul> <li>Loose, dark brown, Sandy SILT with organd roots</li> <li>Medium dense, rusty brown, SAND, som silt, some gravel</li> <li>2.5 Medium dense, brown, fine to medium SAND, trace silt</li> </ul>			
	- 5 - 5		2D	X	5-7	24/22	11-14- 14-18			5.0 Medium dense, brown, fine SAND, some with clayey silt layers	e silt	Į	
40	- - - 10 -		3D	X	10-12	24/24	7-8-11- 14						
35	- - - 15 -		4D	X	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)			
oundar oe gradu nade at fluctuation other fac	ation lines ry betwee ual. Wate t times an tions of gr ctors than ements w	n soil typ r level re id under oundwa	bes, trans adings h conditior ter may o resent at	ave t ave t s sta	s may been ited. due to							DRING	NO.: <b>B-9</b>

			TT	т /						BORING LOG	BORING		<b>B-10</b> 1 of 1
E	フ			E E		G,IN		ROJECT: Pr	opos	Dorsky Engineering & Surveying ed Kingfish Maine, Inc. Aquaculture Facility Garvin Road, Jonesport, ME	PROJEC DATE S DATE F	-	19-1758. 2/5/2020 2/5/2020
Drilling LOCATIC DRILLING RIG TYPI HAMMEF HAMMEF WATER I GENERA KEYTON	DN: <u>S</u> G CO.: E: <u>Tr</u> R TYPE R EFFI LEVEL	See Exp ack Mo E: Au CIENC DEPT ES:	bloration /. Cole   bunted [ tomatic Y FACT	Explo Diedr	0.98 0.98 0.95 ft	LLC [	DRILLER: AUGER ID HAMMER	DN (FT):51. Kevin Hansc VOD:2 1/4 ir WEIGHT (Ibs): DROP (inch):	om 1 / 5 { 14 30	DRILLING METHOD:       Hollow Stem         8 in       SAMPLER:       Standard Split-Spoon         CASING ID/OD:       N/A /N/A       C	OGGED B' Auger ORE BARI	REL: <u>N//</u>	A
AND SYM		∑ At ∑ At	time of D	ion of	) Drilling	U = Thin V R = Rock		e Sample Rec. = le bpf =	= Rec Blows	very LengthWOH = Weight of Hammer $q_u = U_u$ ber FootRQD = Rock Quality Designation $\emptyset$ = Fri		ompressive (Estimated)	Strength, kips
	Depth (ft)	Casing Pen. (bpf)	Sample No.	a Type	SAMPL Depth (ft)	E INFO	RMATIOI Blow Count or RQD	N Field / Lab Test Data	Graphic Log	Sample Description & Classification	H <sub>2</sub> 0 Dept		Remarks
- 50 -			1D	X	0-2	24/15	2-2-2-3			Loose, dark brown, SILT with organics and roots Loose, rusty brown, SAND, some silt			
	5		00			04/04				<ul> <li>Medium dense, brown, SAND, some silt, trace gravel</li> <li>Medium etiff consistency, brown, Clayer, S</li> </ul>	 		
45 — -			2D	X	5-7	24/21	3-4-8-8			Medium stiff consistency, brown, Clayey S with silty fine sand partings     Action of the sand partings     Medium dense, brown, fine SAND, some s     Medium dense, brown, Gravelly Silty SAN     (Glacial Till)	ilt		
										Auger Refusal at 7.9 feet (Probable Bedrock)			
						I							
Stratificatio	on lines	represent soil type	ent appro	ximat	e								

		1									BORING NO		
VE		C	W	11	$\neg \bigcirc$	ТГ						1 of	
E	-	D	$\mathbf{W}$			DLF G,ING							
		ΕN	IGIN	ΕE	ERIN	G.INC			_		DATE STAI	-	
			ann			а, ш		OCATION:	9 Du	Garvin Road, Jonesport, ME	DATE FINIS	SH: 2/5/2	020
LOCAT DRILLI RIG TY HAMM HAMM	ING CO.:	See Exp : <u>S. V</u> rack Mo E: <u>Au</u> CIENC	ploration V. Cole E ounted D itomatic	Explo Diedr		LLC [ A H	RILLER UGER I IAMMEF	ON (FT):1. L: _Kevin Hanso D/OD:2 1/4 ii R WEIGHT (Ibs) R DROP (inch):	com n / 5 : : 14	DRILLING METHOD:         Hollow Stem Au           B in         SAMPLER:         Standard Split-Spoon	-	Todd Sekera	
GENE	RAL NOT	TES:											
	O NOTES YMBOLS:	⊻ At ▼ At	er Level time of D Completion ter Drilling	on of	g f Drilling	D = Split S U = Thin W R = Rock ( V = Field \	alled Tub Core Sam	ple Sample Rec.	= Rec Blows	ery LengthWOH = Weight of Hammer $q_U$ = Uncoer FootRQD = Rock Quality Designation $\emptyset$ = Friction	nfined Compre	trength, kips/sq. essive Strength, nated)	
					SAMPL	E INFOR	RMATIC	DN	g				
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	H₂0 Depth	Remark	S
			1D		0-2	24/24	1-2-9-			Loose, dark brown, Sandy SILT with organics			
-				M	0-2	27/27	12			Loose, light gray fine to medium SAND, some			
40 —				Μ						.2 silt	_1		
-	-			Н						Medium dense, rusty brown, fine to medium SAND, some silt			
	-												
-													
-										7	_ ⊻		
-	- 5		2D	$\square$	5-7	24/14	8-15-8	_		Medium dense, brown, fine to medium			
				IVI	•		6			SAND, some silt, with sandy gravel layers and clayey silt layers			
35 —	-			Μ									
_	-			Н									
	_												
-													
_	-												
	- 10		20	H	10 11 0	10/10	7.0						
-			3D	X	10-11.3	16/16	7-9- 25/4"						
30 -	-			Р						1.3 Prohable bedrock	_		
	-									<sup>1.3</sup> Probable bedrock			
										Auger Refusal at 12.3 feet			
										(Probable Bedrock)			
	ation lines												
be grad made a	ry betweer ual. Wate t times an	r level re d under	eadings ha	ave t is sta	been ated.								
other fa	tions of gr ctors than	those p	present at							Г	BORING NO	D.: <b>B-1</b>	1
measur	ements w	ere ma	de.									<b>D</b> -1	

	$\sim$										BORING	NO.:	B-12
K	)						PI	ROJECT: Pr	ley 8 opos	Dorsky Engineering & Surveying ed Kingfish Maine, Inc. Aquaculture Facility	SHEET: PROJEC DATE S DATE FI		1 of 1 19-1758.1 2/5/2020 2/5/2020
LOCAT DRILLI RIG TY HAMM HAMM WATE	ING CO. YPE: _T IER TYP IER EFF R LEVEI	See Ex : _S. V rack M E: _AL ICIENC L DEPT	ploration V. Cole E ounted D	iedri	orations, ich D-50 0.98	LLC D A B	RILLER: UGER ID AMMER	DN (FT):42. Kevin Hansc )/OD:2 1/4 ir WEIGHT (Ibs): DROP (inch):	om 1 / 5 5 : 14	DRILLING METHOD:         Hollow Stem A           8 in         SAMPLER:         Standard Split-Spoon	GGED BY		
KEY TO	RAL NO D NOTES YMBOLS:	<u>Wate</u> ⊻ At ▼ At	er Level time of Dr Completic ter Drilling	on of	l Drilling	D = Split S U = Thin W R = Rock ( V = Field V	alled Tube	e Sample Rec. = ble bpf =	= Reco Blows	very Length WOH = Weight of Hammer $q_{ij}$ = Unce ber Foot RQD = Rock Quality Designation Ø = Fricti	nfined Con	npressive (stimated)	n, kips/sq.ft. Strength, kips/sq.ft.
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.		SAMPL Depth (ft)	E INFOF Pen./ Rec. (in)	RMATIO Blow Count or RQD	N Field / Lab Test Data	Graphic Log	Sample Description & Classification	H₂0 Depth		Remarks
40			1D	X	0-2	24/20	1-1-3-7			<ul> <li>Loose, dark brown, Sandy SILT, with organics and roots</li> <li>Loose becoming medium dense, rusty brown fine to medium SAND, some silt</li> <li>Medium dense, brown, Gravelly SAND, som silt</li> </ul>			
	5  		2D	X	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)			
	otion !!-			ime									
boundat be grad made a Fluctuat other fa	ry betwee ual. Wate t times ar tions of gr	n soil ty r level ro od under oundwa	ent approx pes, transi eadings ha conditions ter may or present at t de.	tions ive b s stat	s may een ted. due to					[	BORING	NO.:	B-12

										BORING LOG		G NO.: _	<b>B-13</b>
E	5			E E		) <b>LE</b> g,in(	PI	ROJECT: Pr	ley &	Dorsky Engineering & Surveying ed Kingfish Maine, Inc. Aquaculture Facility Garvin Road, Jonesport, ME	DATE	CT NO. START: FINISH:	1 of 1 19-1758. 2/4/2020 2/4/2020
LOCAT DRILLI RIG TY HAMM HAMM NATEI	ING CO.	See Exp : S. W rack Mo E: Au ICIENC L DEPT	Dioration V. Cole E Dunted D tomatic Y FACTO	iedr		LLC [ / H	ORILLER: AUGER ID HAMMER	DN (FT):35. _Kevin Hansc )/OD:2 1/4 ir WEIGHT (Ibs): DROP (inch):	om 1 / 5 : : 14	DRILLING METHOD:         Hollow Stem           8 in         SAMPLER:         Standard Split-Spoon	Auger	3 <b>Y</b> : <u>Todd</u>	
	O NOTES YMBOLS:	⊈ At ⊈ At	er <u>Level</u> time of Di Completio ter Drilling	on o	g f Drilling	U = Thin V R = Rock	Spoon Sam Valled Tube Core Samp Vane Shear	e Sample Rec. = ble bpf =	= Rec Blows	very LengthWOH = Weight of Hammer $q_U = U$ per FootRQD = Rock Quality Designation $\emptyset$ = Fr	nconfined C	ompressive (Estimated	h, kips/sq.ft. Strength, kips )
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	SAMPL Depth (ft)	E INFO Pen./ Rec. (in)	RMATIO Blow Count or RQD	N Field / Lab Test Data	Graphic Log	Sample Description & Classification	H <sub>2</sub> Dep		Remarks
35 — - -			1D	X	0-2	24/21	4-3-5-3			Loose, dark brown, Sandy SILT with organ and roots Loose, light gray fine to medium SAND, so silt Loose, rusty brown, SAND, some silt 3.0 Dense, brown, Gravelly SAND, some silt, some cobbles			
- 30 — -	- 5		2D	X	5-7	24/19	26-20- 17-16			5.6 Dense becoming medium dense, light bro fine to medium SAND, trace silt	<u>wn,</u> ⊻		
- 25 — -	- - - - - - - -		3D	X	10-12	24/24	5-8-9- 13						
- 20 — -	- - - - - - - - - -		4D	X	15-17	24/5	14-17- 22-29			13.0 Dense, brown, Silty Gravelly SAND with cobbles			
- - 15 —	- - - 20		5D	X	20-20.4	5/4	60/5"			19.5 Probablr weathered volcanic bedrock (Edmunds Formation)			
	4	1	<u> </u>			1	1	1	1	Auger Refusal at 21.6 feet (Probable Bedrock)	I		
ooundar oe grad nade at fluctuat	ation lines ry betwee lual. Wate t times ar tions of gr	n soil typer r level re d under oundwa	pes, trans adings hat condition	ition ave t s sta ccur	s may been ated. due to							G NO.:	B-13

			TT	τ,	~~					BORI	NG LOG	BOR	ING NO.: _	<b>B-14</b> 1 of 1
	=		.W			)Lt					gineering & Surveying Maine, Inc. Aquaculture Facility	-	JECT NO.	19-1758.1 2/4/2020
		ΕN	IGIN	ΕE	ERIN	G,IN					ad, Jonesport, ME	-	E FINISH:	2/4/2020
	ng Info													
			ploration V. Cole E					ON (FT): 23.		rveyed	TOTAL DEPTH (FT): 14.1 I DRILLING METHOD: Hollow Sten		BY: Todd	Sekera
RIGT	<b>YPE</b> : <u></u>	rack M	ounted D			)	AUGER I	D/OD: 2 1/4 i	n / 5		SAMPLER: Standard Split-Spoon			
	IER TYP IER EFF		utomatic CY FACT	OR:	0.98			R WEIGHT (lbs) R DROP (inch):	-	10	CASING ID/OD: <u>N/A /N/A</u>	CORE BA	ARREL: <u>N/</u>	Α
WATE	R LEVE	_ DEP1	THS (ft):					. ,						
KEY TO	RAL NO	Wate	er Level			D = Split S				etration Length			Shear Strengt	
AND S	YMBOLS:	👤 At	t time of D Completion fter Drilling	on o		U = Thin V R = Rock V = Field	Core Sam		Blows	overy Length s per Foot ite per Foot	RQD = Rock Quality Designation Ø = Fi		le (Estimated	e Strength, kips/sq.ft. )
				_	SAMPI		RMATIC	DN	- Bo		Comple			
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		H₂0 lepth	Remarks
			1D	M	0-2	24/19	2-4-9- 10				se, dark brown, Sandy SILT with organ			
	-			Ň						Med	lium dense, rusty brown, SAND, some	silt		
	-			H										
20 -	-										lium dense, light brown, fine to mediu	n		
20 -	-									SAN	ID, trace silt, trace gravel			
-	- 5		2D	$\nabla$	5-7	24/16	5-7-7-9	)						
-	-			X										
	-			μ										
-	-													
15 -	-											7	Z	
-	- 10		3D		10-12	24/19	5-6-6-6	5					<u>-</u>	
-	-			X										
-	-			μ										
-	-									13.0 Pro	vn Gravelly SAND, some silt			
10 -	-									ВЮ	•			
											Auger Refusal at 14.1 feet (Probable Bedrock)			
bounda	ry betwee	n soil ty	ent approx	ition	is may									
made a	t times ar	id under	eadings har condition ater may o	is sta	ated.									
other fa		those p	present at									BOR	ING NO.:	B-14

	~									BORING LOG	BORIN		B-15
E		C	II	11	$\gamma $					Dorsky Engineering & Surveying	SHEET:1 of 7 PROJECT NO. 19-175		
	-	J	. VV		し	ノレロ				ed Kingfish Maine, Inc. Aquaculture Facility	_	START:	<u>19-1758.</u> 2/4/2020
		ΕN	GIN	ΕE	ERIN	G,IN(				Garvin Road, Jonesport, ME		-	2/4/2020
									וויי י			INIST: _	2/4/2020
Jocat Drilli Rig Ty Hamm Hamm Natef	NG CO.	See Ex : _S. V rack M E: _AL ICIENC L DEPT	oloration V. Cole I ounted E tomatic Y FACT	Explo Diedi		LLC [	DRILLER: AUGER ID HAMMER	N (FT):27 _Kevin Hansc /OD:2 1/4 ir WEIGHT (Ibs): DROP (inch):	:om 1 / 5 ! : _14	DRILLING METHOD:         Hollow Ste           /8 in         SAMPLER:         Standard Split-Spoo	0		
KEY TO	O NOTES YMBOLS:	<u>Wate</u> ⊻ At ▼ At	er <u>Level</u> time of D Completi ter Drilling	ion o	g f Drilling	U = Thin V R = Rock	Spoon Sam Valled Tube Core Samp Vane Shear	Sample Rec. =	= Rec Blows	very LengthWOH = Weight of Hammer $q_{\cup} =$ per FootRQD = Rock Quality Designation $\emptyset =$	Field Vane Sh Unconfined Co Friction Angle = Not Applicat	ompressive (Estimated)	Strength, kips
					SAMPL	E INFO	RMATIO	N	5				
Elev.	Depth	Casing			-		Blow		ĽČ	Sample	H,C	,	
(ft)	(ft)	Pen. (bpf)	Sample No.	Type a	Depth (ft)	Pen./ Rec. (in)	Count or RQD	Field / Lab Test Data	Graphic Log	Description & Classification	Dep		Remarks
-			1D		0-2	24/20	3-3-4-5			Loose, dark brown, Sandy SILT, with 0.6 \ organics	г		
_	[			Д						Loose, rusty brown, SAND, some silt	/		
25 —	-									3.0 Loose to medium dense, light brown, fin medium SAND, trace silt, trace gravel	e to		
_	- 5									inculum SAND, trace Sill, trace yravel			
-			2D	M	5-7	24/19	4-5-6-7						
-	-			Δ									
20	 												
-	- 10		3D		10-12	24/18	5-5-6-5				¥		
-	1 			Д									
15	-												
-	- 15		4D		15-17	24/24	2-3-5-5						
-	-			X	10-17	27/24	2-0-0-0						
10 —	-    -												
-	20												
-			5D	M	20-22	24/24	2-2-4-5						
5 —	-												
	<u> </u>									Auger Refusal at 23.5 feet (Probable Bedrock)			
oundar	ation lines	n soil ty	pes, trans	sition	s may					(			
nade at	ual. Wate t times ar tions of gr	nd under	conditior	ns sta	ated.								
			present at			1						G NO.:	B-15

CLIENT: Gartiey & Dorsky Engineering & Sunsying         PROJECT NO. 19-1728: DATE STATE: Proceed Kingfish Maine, Inc. Aquaculture Facility         CATION: See Exploration Location Plan         ELEVATION (F): 37.5 Surveyed DRULER: Kein Hanscom         TOTAL DEPTH (FT): 23.7 LOGGED BY: Todd Sekera MUMBER TYPE: Advanable         Mathematication Plan         ELEVATION (FT): 37.5 Surveyed MUMBER TYPE: Advanable         Mathematication Plan         HEAVION (FT): 37.5 Surveyed MUMBER TYPE: Advanable         Mathematication Plan         HEAVION (FT): 37.5 Surveyed MUMBER TYPE: Advanable         Mathematication Plan         HEAVION (FT): 37.5 Surveyed MUMBER TYPE: Advanable       COGGED BY: Todd Sekera         Mathematication Plan       LEVENTOR: Call Advanable         Mathematication Plan       Advanable         Mathematication Plan       LEVENTOR: Call Advanable         Mathematication Plan       Call Advanable         Mathematication       Call Mathematication         Mathematication         Mathematication         Colspan="2">Call Advanable         Mathematication <th></th> <th>BORING LOG</th> <th>BORIN</th> <th>G NO.: _</th> <th><b>B-16</b></th>											BORING LOG	BORIN	G NO.: _	<b>B-16</b>
Product or model in the second of the s	V=		C	W	11		T							
ENDINFERSION         LOCATION:         Submark         Date FINISH:         24/2020           Alling Information         ELEVATION (Str. Epiporation Location Ram BLUNC CC: 3. W. Cole Exploration LLD         ELEVATION (ST: 127.5 Sturveyed TYPE: Track Lands Detection Co.)         TOTAL DEPTH (TT):		-	J J	. VV									-	
Decknow         Decknow <t< td=""><td></td><td></td><td>ΕN</td><td>GIN</td><td>ΕE</td><td>RIN</td><td>G.ING</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td></t<>			ΕN	GIN	ΕE	RIN	G.ING						-	
CARTON: Set Exploration Location Plan.         Classifier of the Mark Discrete Discrete Plan Plan Plan Plan Plan Plan Plan Plan										י Du		DATE		2/4/2020
WBONNESS:     A time of billing to provide a state of the constraint of the	Locat Drilli Rig Ty Hamm Hamm Natef	ION: <u></u> NG CO.: PE: <u>T</u> ER TYPI ER EFFI R LEVEL	See Exp : _S. V rack Me E: _Au ICIENC L DEPT	ploration V. Cole E ounted D itomatic	Explo Viedr	orations, ich D-50 0.98	LLC [ / H	ORILLER: AUGER II IAMMER	Kevin Hansc D/OD: 2 1/4 ir WEIGHT (Ibs)	:om 1 / 5 : :14	DRILLING METHOD:         Hollow Stem           /8 in         SAMPLER:         Standard Split-Spoon	Auger		
Oright         Case of (th)         SAMPLE INFORMATION (th)         Sample Remarks         Depth (th)         Sample Remarks         Depth (th)         Remarks           0         10         0.2         24/16         0-2-2.4         Book         Field / Lab (n)         Depth (n)         Depth         Perc./ (n)			∑ At ∑ At	time of D Completion	on of	) Drilling	U = Thin V R = Rock (	Valled Tub Core Samp	e Sample Rec. = ble bpf =	= Rec Blows	wery Length         WOH = Weight of Hammer $q_u$ = Uno           per Foot         RQD = Rock Quality Designation         Ø = Fric	onfined C	ompressive (Estimated)	Strength, kips/s
10       0.2       24/16       6-2.24			¥ A											
10       0.2       24/16       6-2.24	Elev.	Denth			Π			Blow		12		H <sub>2</sub>	0	
10       0.2       24/16       6-2.24	(ft)				be e			Count		1phi				Remarks
10       10       0.2       24/16       6-2.2.4       Lose, fully brown, Sandy SiLT with organics         15       20       5.7       24/2       5-8-9-8       0.3       Medium dense, light brown, fine to medium SAND, trace silt, trace gravel       V         10       30       10-12       24/24       2.7-6-11       10.0       Loses, brown, fine Sandy SiLT         10       30       10-12       24/24       2.7-6-11       10.0       Loses, brown, fine Sandy SiLT         10       -       -       -       -       -       -       -         10       -       -       -       -       -       -       -         10       -       -       -       -       -       -       -         10.6       -       -       -       -       -       -       -         10.6       -       -       -       -       -       -       -       -         12       -       -       11       -       <				No.	F	(ft)			Test Data	Gra	CiassincaliOn			
10       30       10       12       24/2       5-89-8       10.0       Loose, trusty brown, SAND, some silt         10       30       10       12       24/2       5-89-8       10.0       Loose, brown, fine Sandy Sill T         10       30       10       12       24/24       2.7-6-       10.0       Loose, brown, fine Sandy Sill T         10.6       Medium dense, brown, fine Sandy Sill T       10.6       Medium dense, brown, fine to medium SAND, trace silt       SAND, trace silt         10       30       10.12       24/24       2.7-6-       10.6       Medium dense, brown, fine Sandy Sill T         10.6       Medium dense, brown, fine bornedium SAND, trace silt       10.5       Very dense to dense, brown, fine to medium SAND, some silt with oobbles         0       0       15-17       24/18       12.31-       15.5       Very dense to dense, brown, Gravelly SAND, some silt with oobbles         0       0       20.22       24/16       15.20-       23.2       Probable weathered bedrock         Attrace silt 23.7 feet         (Probable Bedrock         Attrace silt 23.7 feet         (Probable Bedrock         (Probable Bedrock				45	+	0.0	04/40			-				
16       10       10       10       10       10       10.0       Loose, rusty brown, SAND, some silt         10       30       10.12       24/2       5-8-9-8       10.0       Loose, brown, fine Sandy SiLT         10.0       10.0       Loose, brown, fine Sandy SiLT       10.0       Loose, brown, fine Sandy SiLT         10.0       Loose, brown, fine Sandy SiLT       10.6       Medium dense, brown, fine to medium         5       20       50       15.17       24/18       12.31         15.5       Very dense to dense, brown, fine to medium       SAND, trace silt       Interference of the second	-			טי	M	0-2	24/16	º-2-2-4			and reate	s		
16       10 <td< td=""><td>_</td><td>-</td><td></td><td></td><td>١<u>٨</u></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	_	-			١ <u>٨</u>									
1       1		-			Ц									
Image: Same site of the second state of the secon	35 —													
Image: Solution of the second approximate management and constrained at the second and constant data constant approximate management and the second state.     SAND, trace silt, frace gravel     Image: Solution of the second state.       Image: Solution of the second approximate management and constant and const		-								$\vdash$	3.0 Medium dense. light brown, fine to medium			
1       20       5.7       24/2       5.8-9.8         10       30       10-12       24/24       2.7-6-         11       10.0       Loose, brown, fine Sandy SiLT         10       10.0       Loose, brown, fine Sandy SiLT         10       10.1       24/24       2.7-6-         11       10.6       Medium dense, brown, fine to medium         SAND, trace slit       10.6         10       40       15-17         24/18       12.31-         15.5       Very dense to dense, brown, Gravelly SAND, some slit with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some slit with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some slit with cobbles         12.2.2       Probable weathered bedrock         Auger Refusal at 23.7 feet (Probable Bedrock)	-	_												
1       20       5.7       24/2       5.8-9.8         10       30       10-12       24/24       2.7-6-         11       10.0       Loose, brown, fine Sandy SiLT         10       10.0       Loose, brown, fine Sandy SiLT         10       10.1       24/24       2.7-6-         11       10.6       Medium dense, brown, fine to medium         SAND, trace slit       10.6         10       40       15-17         24/18       12.31-         15.5       Very dense to dense, brown, Gravelly SAND, some slit with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some slit with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some slit with cobbles         12.2.2       Probable weathered bedrock         Auger Refusal at 23.7 feet (Probable Bedrock)	_										-			
and     and <td></td> <td>- 5</td> <td></td> <td>20</td> <td>H</td> <td>F 7</td> <td>24/2</td> <td>5000</td> <td></td> <td></td> <td></td> <td>Į₽</td> <td></td> <td></td>		- 5		20	H	F 7	24/2	5000				Į₽		
10       30       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       10.6       Medium dense, brown, fine to medium         15       4D       15-17       24/18       12-31-       15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         16       5D       20-22       24/16       15-20-       23-2       Probable weathered bedrock         Auger Refusal at 23.7 feet (Probable Bedrock)         Capital developmenter may occur due to the refusal at 23.7 feet (Probable Bedrock)	-			20		0-1	24/2	<del>ວ-</del> ອ-ອ-ອ						
10       30       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       10.6       Medium dense, brown, fine to medium         15       4D       15-17       24/18       12-31-       15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         16       5D       20-22       24/16       15-20-       23-2       Probable weathered bedrock         Auger Refusal at 23.7 feet (Probable Bedrock)         Capital developmenter may occur due to the refusal at 23.7 feet (Probable Bedrock)		-			١ <u>۸</u>									
10       30       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       10.6       Medium dense, brown, fine to medium         15       4D       15-17       24/18       12-31-       15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         16       5D       20-22       24/16       15-20-       23-2       Probable weathered bedrock         Auger Refusal at 23.7 feet (Probable Bedrock)         Capital developmenter may occur due to the refusal at 23.7 feet (Probable Bedrock)		_			Д									
10       30       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       10.6       Medium dense, brown, fine to medium         15       4D       15-17       24/18       12-31-       15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         16       5D       20-22       24/16       15-20-       23-2       Probable weathered bedrock         Auger Refusal at 23.7 feet (Probable Bedrock)         Capital developmenter may occur due to the refusal at 23.7 feet (Probable Bedrock)	30 —													
3D       10-12       24/24       2-7-6-       10-6       Loose, brown, fine Sandy SLI         10-6       Medium dense, brown, fine to medium       SAND, trace sit         10-7       15       4D       15-17       24/18       12-31-         10-7       20       5D       20-22       24/16       15-20-         15       5D       20-22       24/16       15-20-       23-2         15       5D       20-22       24/16       15-20-       23-2         15       5D       20-22       24/16       15-20-       23-2         15       Very dense to dense, brown, Gravely SAND, some silt with cobbies       Auger Refusal at 23.7 feet (Probable Bedrock)         atification lines represent approximate undary between sol types, transitions may produle the ending may be been characterized bedrock to be receingt and the time of the ending may be been characterized bedrock to be receingt and the time of the ending may be been characterized bedrock to be receingt and the time of the ending may be been characterized bedrock to be receingt and the time of the ending may be been characterized be been characterized bedrock to be receingt and the time of the ending may be been characterized be been characteriz		-												
3D       10-12       24/24       2-7-6-       10-6       Loose, brown, fine Sandy SLI         10-6       Medium dense, brown, fine to medium       SAND, trace sit         10-7       15       4D       15-17       24/18       12-31-         10-7       20       5D       20-22       24/16       15-20-         15       5D       20-22       24/16       15-20-       23-2         15       5D       20-22       24/16       15-20-       23-2         15       5D       20-22       24/16       15-20-       23-2         15       Very dense to dense, brown, Gravely SAND, some silt with cobbies       Auger Refusal at 23.7 feet (Probable Bedrock)         atification lines represent approximate undary between sol types, transitions may produle the ending may be been characterized bedrock to be receingt and the time of the ending may be been characterized bedrock to be receingt and the time of the ending may be been characterized bedrock to be receingt and the time of the ending may be been characterized bedrock to be receingt and the time of the ending may be been characterized be been characterized bedrock to be receingt and the time of the ending may be been characterized be been characteriz	-													
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All and a set of down, me to medium SAND, trace slit SAND, trace	_	-		3D	M	10-12	24/24				LOUSE, DIOWIT, IITIE Sality SILT			
15       4D       15-17       24/18       12-31- 33-34         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         16.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         16.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         17.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles		-			١XI									
4D       4D       15-17       24/18       12-31- 33-34       15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         4D       4D       4D       4D       15-17       24/18       12-31- 33-34         4D       4D       4D       4D       15-17       24/18       12-31- 20       15.5         Very dense to dense, brown, Gravelly SAND, some silt with cobbles       5D       20-22       24/16       15-20- 21-23         4D       4D       4D       15-20- 21-23       23.2       Probable weathered bedrock         Auger Refusal at 23.7 feet (Probable Bedrock)         atfication lines represent approximate undary between soll types, transitions may gradual. Water level readings have been deat times and under conditions stated, challows of groundwater may occur due to er factors than those present at the time       Expension Curve       Expension Curve	-	_			$\square$									
4D       4D       15-17       24/18       12-31- 33-34       15.5       Very dense to dense, brown, Gravelly SAND, some silt with cobbles         4D       4D       4D       4D       15-17       24/18       12-31- 33-34         4D       4D       4D       4D       15-17       24/18       12-31- 20       15.5         Very dense to dense, brown, Gravelly SAND, some silt with cobbles       5D       20-22       24/16       15-20- 21-23         4D       4D       4D       15-20- 21-23       23.2       Probable weathered bedrock         Auger Refusal at 23.7 feet (Probable Bedrock)         atfication lines represent approximate undary between soll types, transitions may gradual. Water level readings have been deat times and under conditions stated, challows of groundwater may occur due to er factors than those present at the time       Expension Curve       Expension Curve	25 —													
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alfication lines represent approximate undary between soil types, transitions may gradual. Water level readings have been deal times and under conditions stated. teta times and under conditions stated.	-			4D	M	15-17	24/18			<u> </u>	15.5 Venu dense to donce, brown, Croughly CANIC			
alfication lines represent approximate undary between soil types, transitions may gradual. Water level readings have been de at times and under conditions stated. Ictuations of groundwater may occur due to ler factors that those present at the time		-			X			00-04			very dense to dense, brown, Graveny SAM	,		
a     b     b     b     b     c <td>-</td> <td>_</td> <td></td> <td></td> <td><math>\square</math></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	-	_			$\square$									
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atification lines represent approximate undary between soil types, transitions may gradual. Water level readings have been de at times and under conditions stated. iccutations of groundwater may occur due to ler factors than those present at the time	-				$\mathbb{N}$									
atification lines represent approximate undary between soil types, transitions may gradual. Water level readings have been de at times and under conditions stated. iccutations of groundwater may occur due to ler factors than those present at the time	15 -	-			Н									
Auger Refusal at 23.7 feet (Probable Bedrock) atification lines represent approximate undary between soil types, transitions may gradual. Water level readings have been ade at times and under conditions stated. Ictuations of groundwater may occur due to ler factors than those present at the time		_												
(Probable Bedrock) atification lines represent approximate undary between soil types, transitions may gradual. Water level readings have been ade at times and under conditions stated. icituations of groundwater may occur due to ler factors than those present at the time P. 16	-										23.2 Probable weathered bedrock			
undary between soil types, transitions may gradual. Water level readings have been ade at times and under conditions stated. cicutations of groundwater may occur due to ler factors than those present at the time											Auger Refusal at 23.7 feet (Probable Bedrock)	_		
Ide at times and under conditions stated. Incluations of groundwater may occur due to ler factors than those present at the time	undar gradu	y betweer al. Wate	n soil ty r level re	pes, trans eadings ha	itions ave b	s may een								
	ade at uctuat	times an ions of gr	id under oundwa	condition	s sta ccur	ited. due to								
					the ti	ime						BORIN	g no.:	B-16

		1								BORI	NG LOG	BOR SHEI	ING NO.: _	<b>B-17</b> 1 of 1
E		C	W	1	$\neg \cap$			IFNT: Gart	lev 8	& Dorsky End	gineering & Surveying			19-1758.1
	-		<b></b>		し						Maine, Inc. Aquaculture Facility		E START:	2/4/2020
		ΕN	IGINI	ΕE	ERIN	G,IN(			<u> </u>		ad, Jonesport, ME		E FINISH:	2/4/2020
LOCA		See Ex	ploration					DN (FT):		rveyed			BY: Todd	Sekera
			V. Cole E					Kevin Hanso		=	DRILLING METHOD: Hollow Stem	Auger		
			ounted D	ied	rich D-50			/OD: <u>2 1/4 ir</u>			SAMPLER: <u>Standard Split-Spoon</u>		ARREL: N//	•
HAMM	ER EFF		utomatic CY FACT( THS (ft):					WEIGHT (lbs): DROP (inch):	-		Casing ID/OD: <u>N/A /N/A</u> C	ORE BA	ARREL: <u> \//</u>	A
KEY TO	RAL NO D NOTES YMBOLS:	<u>Wat</u> e ⊈ At	er Level t time of Dr		g	U = Thin V	Spoon Sam Valled Tube Core Samp	e Sample Rec. =	= Rec	etration Length overy Length s per Foot	WOH = Weight of Hammer q <sub>u</sub> = U	nconfined	Shear Strengt Compressive	Strength, kips/sq.ft
	1		fter Drilling		-	V = Field	Vane Shear	mpf =		te per Foot		Not Appli		
				_	SAMPL	E INFO	RMATIO	N	- 6		Sample			
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		Description & Classification	D	H <sub>2</sub> 0 bepth	Remarks
			1D	1/	0-2	24/17	5-1-1-3		1	Very	loose, dark brown, Sandy SILT with			
-	+			X							nics and roots / loose, rusty brown, SAND, some silt,			
-	_			Д							e gravel			
-	1									3.0 Med	lium dense, brown, SAND, trace silt, tr	ace		
25 —	-									grav	rel			
_	- 5													
	- 3		2D	$\nabla$	5-7	24/14	6-8-8-9			5.5 Mod		<u> </u>	Z	
-	-			X						ivieu	lium dense, light brown, fine to mediur ID, trace silt	n		
-	1			$\square$							,			
-	1													
20 -	-													
_	10													
	- 10		3D	$\nabla$	10-12	24/22	13-18-							
-	-			X			17-14							
-				$\square$						with	brown, fine sandy silt seams			
										12.3 Den	se, brown, Gravelly SAND, some silt v	vith		
-	-									cobl				
15 —	4													
									<b> </b>	14.6 Prot	bable weathered bedrock			
	<u> </u>		1	-			1	I			Auger Refusal at 15.0 feet	ــــــــــــــــــــــــــــــــــــــ	I	
											(Probable Bedrock)			
Obr-117	ation "		ont	der-	10	1								
bounda be grad	ry betwee ual. Wate	en soil ty er level r	ent approx pes, transi eadings ha	ition ave l	is may been									
made a Fluctua	t times ar tions of gr	nd under roundwa	r condition: ater may or	s sta ccur	ated. r due to									
	ctors than ements w		present at de.	the	time							BOR	ing no.:	B-17
									-					

		G								BORING LOG	BORIN	: _	<b>B-18</b> 1 of 1
E	ラ			E E		G, INC. CLIENT: _Gartley & Dorsky Engineering & Surveying PROJECT: Proposed Kingfish Maine, Inc. Aquaculture Facility LOCATION: _9 Dun Garvin Road, Jonesport, ME						CT NO START: _ FINISH:	19-1758.1 2/5/2020 2/5/2020
LOCAT DRILLI RIG TY HAMM HAMM WATE	ING CO.: (PE: IER TYPI IER EFFI	See         Exp           :         _S. V           rack M           E:         _Au           ICIENC           DEPT	oloration V. Cole E ounted D	Explo iedr	orations, ich D-50 0.98	LLC [ / H	ORILLER AUGER II IAMMER	ON (FT): 61.3 : Kevin Hansc D/OD: 2 1/4 ir R WEIGHT (Ibs): R DROP (inch):	om 1 / 5 { 14	DRILLING METHOD:         Hollow Stem           //8 in         SAMPLER:         Standard Split-Spoon		Y: <u>Todd \$</u>	
KEY TO	O NOTES YMBOLS:	<u>Wate</u> ⊈ At <b>⊈</b> At	er <u>Level</u> time of Dr Completio ter Drilling	on of	g f Drilling	D = Split S U = Thin V R = Rock ( V = Field \	alled Tub Core Sam	e Sample Rec. = ple bpf =	= Rec Blows	worry Length         WOH = Weight of Hammer $q_U$ = Unit           per Foot         RQD = Rock Quality Designation         Ø = Frict	confined C	(Estimated)	, kips/sq.ft. Strength, kips/sq.f
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	SAMPL Depth (ft)	E INFOR Pen./ Rec. (in)	RMATIC Blow Count or RQD	N Field / Lab Test Data	Graphic Log	Sample Description & Classification	H₂( Dep		Remarks
60 —	-		1D	X	0-2	24/16	3-3-4-8			0.3 Loose, dark brown, Silty SAND with organic 0.8 Loose, light gray Silty SAND Medium dense, rusty brown SAND, some s some gravel			
- - 55 —	- - - - - - -		2D	X	5-7	24/24	6-6-7- 19			3.0 Medium dense, brown Clayey Sandy SILT, some gravel with cobbles (Glacial Till)			
- - - 50 —	- - - - - - - -		3D	X	10-12	24/24	10-13- 16-15				Ţ		
- - 45 —	- - - - - - - -		4D	X	15-17	24/24	8-9-8-9						
- - 40 —	- - - 20 -		5D	$\left \right\rangle$	20-22	24/21	10-11- 11-12						
										Bottom of Exploration at 22.0 feet			
boundat be grad made a Fluctuat	ry betwee ual. Wate t times an tions of gr	n soil ty r level re d under oundwa	ent approx pes, transi eadings ha condition ter may op present at	ition: ave t s sta ccur	s may been ited. due to								
	ements w										BORIN	:NO ق	B-18

				<b>v</b>	~ ~					BORING	LOG		DRING N IEET:	<b>o</b> .: <b>B-19</b> 1 of 1
	Dilling Information				P	ROJECT: Pr	opos	k Dorsky Engineeri sed Kingfish Maine n Garvin Road, Jor	e, Inc. Aquaculture Facility	DATE START:		NO. 19-1758. RT: 2/5/2020		
LOCAT DRILLI RIG TY HAMM HAMM WATE GENEI	TION: <u></u> ING CO. YPE: <u>T</u> IER TYP IER EFF R LEVEI RAL NO	See Exp : S. W rack Mo E: Au ICIENC L DEPT TES:	bloration V. Cole E bunted D tomatic Y FACT HS (ft):	Expl Died	2 6.8 ft	LLC [ / H H	DRILLER: AUGER IE IAMMER IAMMER	DN (FT):65' Kevin Hansc D/OD:2 1/4 ir WEIGHT (Ibs): DROP (inch):	om / 5 : <u>1</u> 2 30	DRIL 5/8 in SAMI 0 CASI	LING METHOD: Hollow Ster PLER: Standard Split-Spoor NG ID/OD: N/A /N/A	m Auge CORE	er BARREL	
	O NOTES YMBOLS:	⊽ At ▼ At	er <u>Level</u> time of D Completi ter Drilling	on o	g f Drilling	U = Thin V R = Rock (	Spoon Sam Valled Tube Core Samp Vane Shea	e Sample Rec. = ble bpf = I	Rec	overy Length WOH s per Foot RQD	$H = Weight of Hammer q_U = V$ = Rock Quality Designation $\emptyset = F$	Unconfin Friction	ned Comp	Strength, kips/sq.ft. ressive Strength, kips imated)
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	-	E INFOR Pen./ Rec. (in)	RMATIO Blow Count or RQD	N Field / Lab Test Data	Graphic Log		Sample Description & Classification		H₂0 Depth	Remarks
-	-		1D	X	0-2	24/8	1-5-9- 19			0.8 Loose, ligh Medium de	k brown, Silty SAND with orga t gray Silty SAND ense, rusty brown SAND, some nedium dense, brown, Gravelly	/ e silt	r r	
- - 60 — - -	- 5		2D	X	5-7	24/10	15-16- 19-23				ne silt with cobbles (Glacial Til		¥	
- 55	- - 10 -		3D	X	10-12	24/24	9-11- 11-12							
- - 50 — - -	- - - - -		4D	X	15-16.5	18/18	17-35- 60				ense, brown, Silty fine SAND e, brown, Silty Sandy GRAVEL es		-	
- 45 — -	- - 20		5D	X	20-22	24/24	10-11- 11-10				ense, brown, Sandy SILT, som occasional cobbles (Glacial T		_	
	L	<u> </u>	<u> </u>	<u> </u>					<u> </u>	 Botto	om of Exploration at 22.0 feet			
bounda be grad made a	ation lines ry betwee ual. Wate t times an	n soil ty r level re d under	pes, trans eadings ha	ition ave l is sta	s may been ated.									
other fa	tions of gr ctors than rements w	those p	resent at	the t	due to time							BC	oring N	o.: <b>B-19</b>

										BORI	NG LOG		NG NO.: _	B-20
1E		S	W	1(	$^{\sim}$	N F		LIENT: Gar	tley a	& Dorsky End	gineering & Surveying	SHEE	ECT NO.	<u>1 of 1</u> 19-1758.1
	7					G,IN					Maine, Inc. Aquaculture Facility	DATE	START:	2/5/2020
		EN	GIN	ΕE	KIN	G, IN	<u> </u>	OCATION:	9 Du	n Garvin Ro	ad, Jonesport, ME	DATE	FINISH:	2/5/2020
	ng Info TION: S			Loc	ation Pla	in l	ELEVATI	<b>ON (FT):</b> 50.	4' Si	irveved	TOTAL DEPTH (FT): 16.8 L	OGGED	BY: Todd	Sekera
	ING CO.							: Kevin Hanso			DRILLING METHOD: Hollow Stem		<u></u>	
	<b>YPE</b> : <u>T</u>			Diedri	ich D-50			<b>D/OD:</b> 2 1/4 i			SAMPLER: Standard Split-Spoon			
	IER TYP IER EFF	-			0.08			R WEIGHT (lbs) R DROP (inch):			CASING ID/OD: N/A /N/A C	ORE BA	RREL: <u>N/A</u>	4
	R LEVEI					·								
GENE	RAL NO	TES:												
	O NOTES YMBOLS:	∑ At ∑ At	er Level time of D Completi ter Drilling	on of	) Drilling	D = Split S $U = Thin V$ $R = Rock$ $V = Field Y$	Valled Tub Core Sam	ple Sample Rec. ple bpf =	= Rec Blow	netration Length covery Length s per Foot ute per Foot	WOH = Weight of Hammer $q_U = Ur$ RQD = Rock Quality Designation $\emptyset = Fri$	nconfined	e (Estimated)	Strength, kips/sq.ft.
		-				E INFO		•						
Elev.	Depth	Casing		Т		Dere (	Blow		Graphic Log		Sample		H <sub>2</sub> 0	
(ft)	(ft)	Pen. (bpf)	Sample No.	) ype	Depth (ft)	Pen./ Rec.	Count or	Field / Lab Test Data	aphi		Description & Classification	De	epth	Remarks
			1.10.	ľ	(11)	(in)	RQD	1 Col Dala	ō					
50 -	-		1D	М	0-2	24/9	1- WOH-				loose, organics with roots			
· ·	-			Μ			1-3				v loose, dark brown, Sandy SILT, with nics and roots	Г		
	-			Ħ							se, brown, Silty SAND, some gravel			
	-										lium dense, brown, Gravelly Silty SANI numerous cobbles	D,		
	-									, vitil		Σ	7	
45 -	- 5		2D	$\vdash$	5-7	24/15	2-5-9-9			5.0 Med	ium dense, brown, fine Sandy SILT			
45 -	]			Ŋ	0.						· · · · ·			
				Δ						grav	lium dense, brown, Silty SAND, some el			
· ·	-													
	-													
.	-									9.0 Den	se, brown Gravelly Silty SAND			
40 -	- 10		3D	Н	10-12	24/22	11-16-							
	-			X			19-23							
				Δ						11.5 Den	se, brown, Gravelly Sandy SILT with			
· ·	-									num	erous cobbles (Glacial Till)			
	-													
	+													
35 -	- 15		4D	$\mathbb{H}$	15-15.9	11/11	8-25/5'							
55	-			А						15.9 Prot	bable weathered bedrock			
											Auger Refusal at 16.8 feet			
											(Probable Bedrock)			
bounda	ation lines	n sòil ty	pes, trans	sitions	s may									
be grad made a	lual. Wate It times ar tions of gr	r level re d under	eadings had condition	ave b is sta	een ted.									
other fa	ctors than rements w	those p	present at	the ti	ime							BORI	NG NO.:	B-20



# **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

		_ LOCATION: _ See Explor			COMPL	ETIC	ON DEPTH	<b>i (FT):</b> <u>4.0</u>
Depth (feet)	Graphic Log	"HS (FT): <u>No free water obs</u>	Stratum Description	H <sub>2</sub> 0 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil						
		0.5 Red-brown Grave	Ily SAND, trace silt					
-	1							
-	-							
-	-						3-	Thermal Resistivit = 82.06°C-cm/W
			Bottom of Exploration at 4.0 feet					
			TEST PIT TP-2					
	EVEL DEPT	LOCATION: See Explor THS (FT): No free water obs				EIIC		1 (FT): <u>4.0</u>
Depth	Graphic Log		Stratum Description	H <sub>2</sub> 0	Sample No.	Type	Sample Depth	Field / Lab
(feet)	5	Topsoil		Depth	NO.	-	(ft)	Test Data
		ropson						
-		0.7 Red-brown SAND	), some gravel and silt					
-								
		becoming brow	'n					
-	1						3-	Thermal Resistivit = 82.06°C-cm/W
			Bottom of Exploration at 4.0 feet					
0. 15								
Stratificatio		the second se						
soil types, have been	transitions man made at time	sent approximate boundary between ay be gradual. Water level readings s and under conditions stated. ater may occur due to other factors	KEY TO NOTES AND SYMBOLS:     Water Level	ket Penetro	meter Strer	ngth, I	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

	ATE:	1/23/2020 /EL DEPT		ation Location Plan	ST PIT TP-3 SURFACE ELEVATION (FT): 50.1' +, REMARKS:	I	COMPL	ETIC	N DEPTH	(FT): <u>4.5</u>
	Depth (feet)	Graphic Log			Description	H₂0 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
			Topsoil							
-	-		<sup>0.6</sup> Red-brown SAND	and GRAVEL, tra	ace silt					
-	+		2.0 Brown Silty SAND	, some gravel wit	h occasional cobbles	_				
	_								2	Thermal Resistivity
									3-	= 75.39°C-cm/W
-	-									
				Bottom of Expl	oration at 4.5 feet					
07/10/2										
3WCE -										
0.01										
0.00.1										
= S - F	oil types, tra ave been m fluctuations	ansitions ma ade at times of groundwa	ent approximate boundary between y be gradual. Water level readings s and under conditions stated. ater may occur due to other factors time measurements were made.	KEY TO NOTES AND SYMBOLS:	Water Level $q_p = F$ $\checkmark$ At time of Digging $\checkmark$ At Completion of Digging $\checkmark$ After Digging	Pocket Penetro	meter Stren	gth, k	ips/sq.ft.	



# **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



### **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)
- qu unconfined compressive strength, kips/sq. ft. laboratory test
- S<sub>v</sub> field vane shear strength, kips/sq. ft.
- L<sub>v</sub> lab vane shear strength, kips/sq. ft.
- q<sub>p</sub> unconfined compressive strength, kips/sq. ft. pocket penetrometer test
- O organic content, percent (dry weight basis)
- W<sub>L</sub> liquid limit Atterberg test
- W<sub>P</sub> 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.
- $\gamma_T$  total soil weight
- $\gamma_{\rm B}$  buoyant soil weight

### Description of Proportions:

### **Description of Stratified Soils**

		Parting:	0 to 1/16" thickness
Trace:	0 to 5%	Seam:	1/16" to 1/2" thickness
Some:	5 to 12%	Layer:	1⁄2" to 12" thickness
"Y"	12 to 35%	Varved:	Alternating seams or layers
And	35+%	Occasional:	one or less per foot of thickness
With	Undifferentiated	Frequent:	more than one per foot of thickness

**REFUSAL:** <u>Test Boring Explorations</u> - 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:** <u>Test Pit Explorations</u> - 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

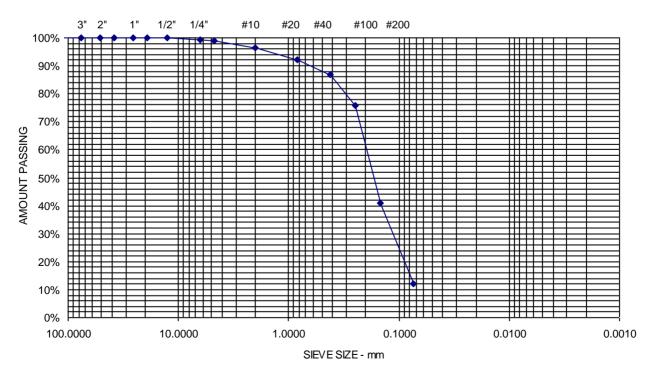


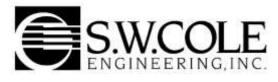
ASTM C-117 & C-136

Project Name	JONESPORT ME - PROPOSED KINGFISH MAINE AQUACULTURE FACILITY - DESIGN PHASE - GEOTECHNICAL ENGINEERING
Client	KINGFISH ZEELAND MAINE
Exploration	3D
Material Source	B-102, 5-7 FEET

Project Number	19-1758.3
Lab ID	26484B
Date Received	11/18/2020
Date Completed	11/19/2020
Tested By	BAXTER HUGHES

<u>STANDARD</u> DESIGNATION (mm/µm)	<u>SIEVE SIZE</u>	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



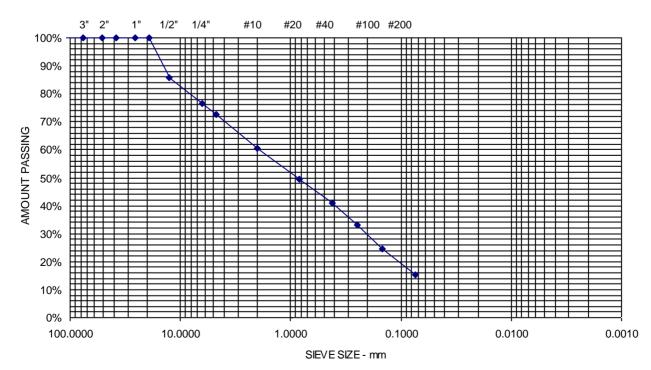


ASTM C-117 & C-136

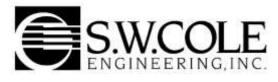
Project Name	JONESPORT ME - PROPOSED KINGFISH MAINE AQUACULTURE FACILITY - DESIGN PHASE - GEOTECHNICAL ENGINEERING
Client	KINGFISH ZEELAND MAINE
Exploration	3D
Material Source	B-104, 10-12 FEET

Project Number	19-1758.3
Lab ID	26485B
Date Received	11/18/2020
Date Completed	11/19/2020
Tested By	DEAN MALLETT

<u>STANDARD</u> DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%	2
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:

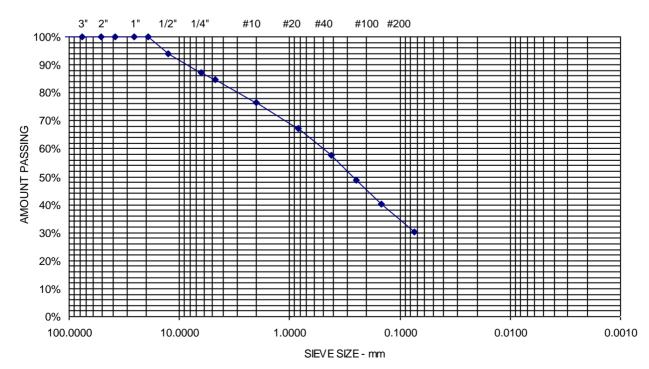


ASTM C-117 & C-136

Project Name	JONESPORT ME - PROPOSED KINGFISH MAINE AQUACULTURE FACILITY - DESIGN PHASE - GEOTECHNICAL ENGINEERING
Client	KINGFISH ZEELAND MAINE
Exploration	4D
Material Source	B-116, 10-12 FEET

Project Number	19-1758.3
Lab ID	26486B
Date Received	11/18/2020
Date Completed	11/19/2020
Tested By	DEAN MALLETT

<u>STANDARD</u> DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	1
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



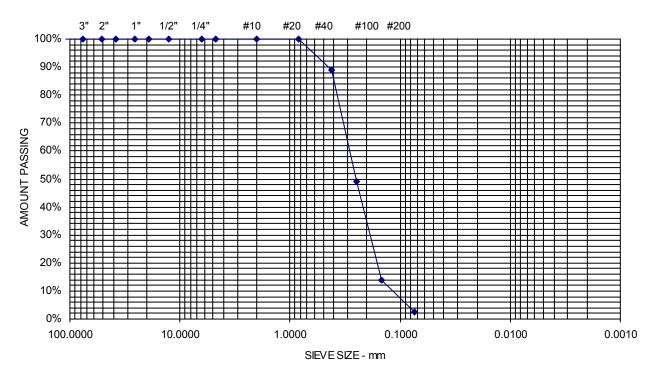


ASTM C-117 & C-136

Project NameJONESPORT ME - PROPOSED KINGFISH MAINE AQUACULTURE<br/>FACILITY - DESIGN PHASE - GEOTECHNICAL ENGINEERINGClientKINGFISH ZEELAND MAINEExploration5DMaterial SourceB-114, 15-17 FEET

Project Number	19-1758.3
Lab ID	26588B
Date Received	1/2/2021
Date Completed	1/3/2021
Tested By	THOMAS HIGGINS

<u>STANDARD</u> DESIGNATION (mm/µm)	<u>SIEVE SIZE</u>	AMOUNT PASSING (%	1
450	<b>.</b>	400	
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



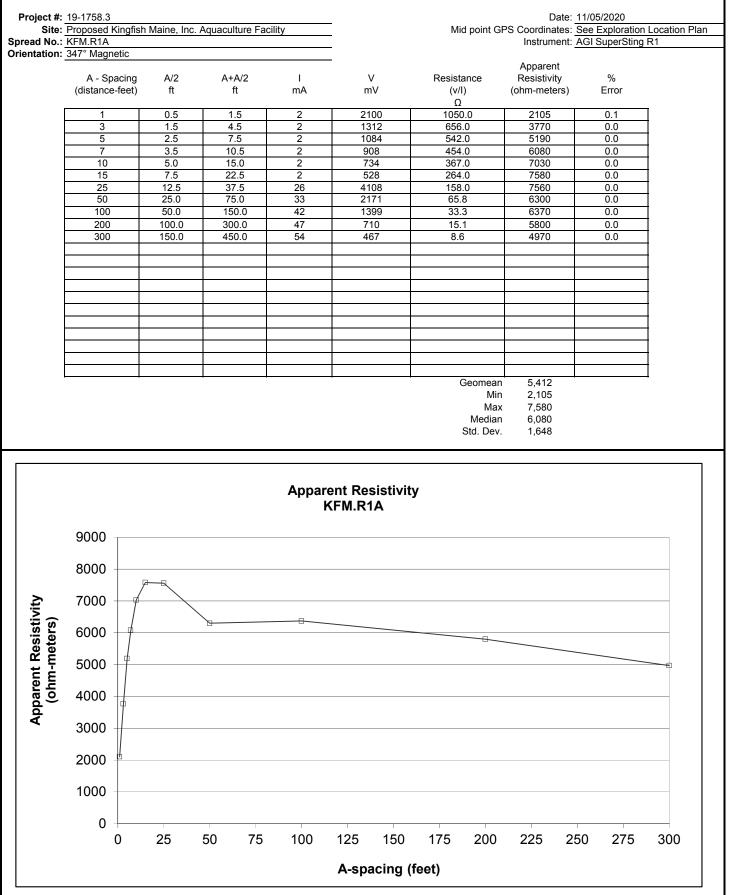
## APPENDIX E

# **Electrical Resistivity Test Results**



#### RESISTIVITY COMPUTATION DATA SHEET Wenner Configuration

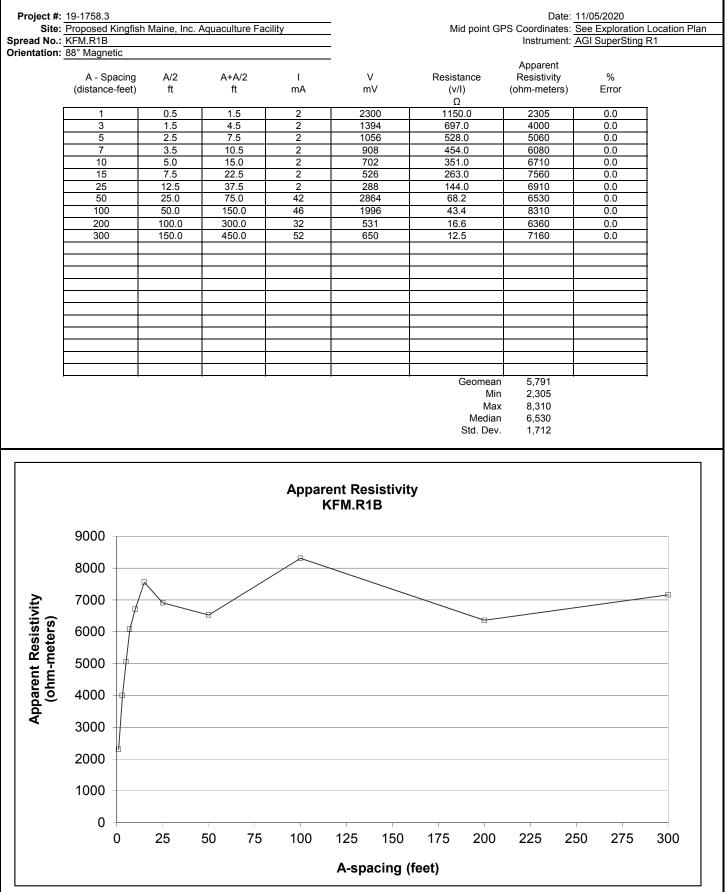
Fixed Center





#### RESISTIVITY COMPUTATION DATA SHEET Wenner Configuration

Fixed Center



# APPENDIX 11C

Test Pit Data Report





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 Kingfish Maine RAS Facility

**Project 2019-412** 

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

cc: Sune Moeller, Kingfish Zeeland

enclosures: Base Map Test Pit Logs Natale Morean

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



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 DESC	RIPTION AND CLASSIFICATI	ION
Observation Hole ■ Test Pit Bo ○ " Depth of Organic Horizon Above Min		Test Pit ☐ Boring of Organic Horizon Above Mineral Soil
Texture Consistency Color M	Mottling 0 Texture	Consistency Color Mottling
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	NONE LOAM LOAM LOAM LOAM LOAM LOAMY LO	BROWN     NONE       FRIABLE     YELLOWISH       BROWN     COMMON       MEDIUM     DISTINCT       STRONG     BROWN       OLIVE     BROWN       BROWN     BROWN
Observation Hole <u>3</u> Test Pit <u>B</u>	oring Observation Hole	Test Pit 🔲 Boring
" Depth of Organic Horizon Above Min		of Organic Horizon Above Mineral Soil
LOAM FRIABLE BROWN	aver	Consistency     Color     Mottling       BROWN     NONE       STRONG     NONE       FRIABLE     BROWN       FRIABLE     COMMON       MEDIUM     DISTINCT       STRONG     STRONG       BROWN     DISTINCT       BROWN     BROWN       BROWN     BROWN
	1   1         1 2/23/19           SE #         Date	Page 1 of 4 HHE-200 Rev. 8/01

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JONESPORT	DUN GARV		KINGFISH MAINE, INC.
		D CLASSIFICATI	
			6
" Depth of Organic Horizon Above M	ineral Soil	Depth o	f Organic Horizon Above Mineral Soil
0 Texture Consistency Color	Mottling		Consistency Color Mottling
		FINE SANDY	- BROWN - NONE -
10 SANDY FRIABLE STRONG	NONE		FRIABLE STRONG NONL
	NOWE NOW NOW Surface (inches)		LIGHT OLIVE COMMON -
	COMMON S	20 SAND	BROWN DISTINCT STRONG BROWN
SAND LIGHT OLIVE	DISTINCT STRONG BROWN		
	MEDIUM DISTINCT STRONG BROWN H USTRONG H BROWN H USTRONG H H USTRONG H USTRONG H H H USTRONG H H H H H H H	30 FINE SANDY	
			: + + +
10 SANDY FRIABLE SANDY FRIABLE BROWN BROWN LOAM STRONG BROWN LOAM LOAM STRONG BROWN LOAM LOAM LOAM BROWN LOAM BROWN LOAM LOAM LOAM BROWN LOAM LOAM LOAM LOAM BROWN LOAM LOAM LOAM LOAM LOAM LOAM LOAM BROWN LOAM	Denth Below	40	BOTTOM OF BACKHOE TEST PIT
	Dent		
			- + + +
50     Soil Classification     Slope     Limiting      Ground W	ater	50 Soil Classification Slo	ppe Limiting Ground Water
$5 C \pm 2\%$	1 11		Factor Restrictive Layer
Profile Condition <u>18</u> " Dit Depth	[] []	Profile Condition	$\underline{12"}  \square \text{ Pit Depth}$
SOIL DES	CRIPTION ANI	D CLASSIFICATI	
		Observation Hole	
" Depth of Organic Horizon Above M			f Organic Horizon Above Mineral Soil
Tenten Consistency Color			· ·
O Texture Consistency Color	Mottling	0 Texture	Consistency Color Mottling
			- + + -
			DARK DARK NONE
			PRIABLE STRONG BROWN
			DARK     DARK       BROWN     NONE       FRIABLE     STRONG       BROWN     COMMON       MEDIUM
			DARK       BROWN       NONE       FRIABLE       STRONG       BROWN       COMMON       MEDIUM       MEDIUM
	NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NOTIONE		DARK     DARK       BROWN     NONE       FRIABLE     STRONG       BROWN     COMMON       MEDIUM
	NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NOTIONE		DARK     DARK       BROWN     NONE       FRIABLE     STRONG       BROWN     COMMON       MEDIUM
	NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NOTIONE		FRIABLE STRONG COMMON
Dark BROWN 10 20 40 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		10 LOAM 10 LOAMY 20 SAND 40	DARK     DARK       BROWN     NONE       FRIABLE     STRONG       BROWN     MEDIUM       DISTINCT     DISTINCT       BROWN     STRONG       BROWN     BROWN
LOAM SANDY FRIABLE DARK BROWN LOAM LOAM LOAM LOAM LOAM BROWN BROWN LOAM LOAM LOAM BROWN BROWN LOAM LOAM LOAM BROWN LOAM LOAM LOAM LOAM LOAM BROWN BROWN LOAM	NONE   NO	10 LOAM 10 LOAMY 20 SAND 30 40 50	DARK       BROWN       FRIABLE       STRONG       BROWN       COMMON       MEDIUM       DISTINCT       STRONG       BROWN
LOAM SANDY SANDY FRIABLE DARK BROWN BROWN LOAM LOAM LOAM LOAM STRONG BROWN LIGHT OLIVE BROWN BROWN LIGHT OLIVE BROWN	NONE   NO	10 LOAM 10 LOAMY 20 SAND 30 40 50 Soil Classification	PRIABLE STRONG BROWN NONE FRIABLE STRONG BROWN LIGHT OLIVE BROWN B
LOAM SANDY FRIABLE COAM SANDY FRIABLE DARK BROWN BROWN LOAM LOAM LOAM LOAM STRONG BROWN LOAM LOAM LOAM BROWN LOAM LOAM LOAM BROWN LOAM STRONG BROWN LOAM LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN LOAM STRONG BROWN BROWN SOUL	NONE   NO	10 LOAM 10 LOAMY 20 SAND 30 40 50 Soil Classification	DARK       BROWN       FRIABLE       STRONG       BROWN       COMMON       MEDIUM       DISTINCT       STRONG       BROWN       BROWN </td
LOAM LOAM SANDY FRIABLE DARK BROWN DARK BROWN DARK BROWN DARK BROWN LIGHT OLIVE BROWN LIGHT OLIVE BROWN SAND LIGHT OLIVE BROWN BROWN DARK DARK	NONE   NO	10 LOAM 10 20 LOAMY 20 SAND 30 40 50 Soil Classification 5 C ±	DARK         BROWN         NONE         FRIABLE         STRONG         BROWN         COMMON         MEDIUM         DISTINCT         DISTINCT         BROWN
LOAM SANDY FRIABLE DARK BROWN DARK BROWN DARK BROWN STRONG BROWN LIGHT OLIVE BROWN SAND LOAMY LOAMY LOAMY LOAMY LOAMY SAND LOAMY BROWN BROWN BROWN BROWN BROWN STRONG BROWN DARK BROWN BROWN COAMY SAND LIGHT OLIVE BROWN BROWN BROWN BROWN COAMY SAND LIGHT OLIVE BROWN BROWN BROWN BROWN BROWN BROWN BROWN BROWN BROWN BROWN BROWN COAMY SAND LIGHT OLIVE BROWN	NONE   NO	10 LOAM 10 20 LOAMY 20 SAND 30 40 50 Soil Classification 5 C ±	DARK         BROWN         NONE         FRIABLE         STRONG         BROWN         COMMON         MEDIUM         DISTINCT         DISTINCT         BROWN

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Town, City, Plantation	Street,	Owner's Name			
JONESPORT DUN GARVAN ROAD			KINGFISH MAINE, INC.		
SOIL DESCRIPTION AND CLASSIFICATION					
Observation Hole       9       ■ Test Pit       Boring       Observation Hole       ■ Test Pit       Boring                 " Depth of Organic Horizon Above Mineral Soil       ±28       " Depth of Organic Horizon Above Mineral Soil					
Texture Consistency Colo		Texture	Consistency Color Mottling		
SANDY LOAM SANDY LOAM FRIABLE STROM BROW SAND LOAMY SAND LOAMY SAND LOAMY SAND LIGHT C BROW SAND LIGHT C BROW SAND SAND LIGHT C BROW SAND SAND LIGHT C BROW SAND	VN NONE	LOAM (HIGH IN ORGANICS) 10 LOAM (ALBIC (ALBIC HORIZON) 20 LOAM (HIGH IN ORGANICS) 40 FINE SANDY 50 Soil Classification	PRIABLE       DARK         BROWN       BROWN         BROWNISH       NONE         BROWNISH       NONE         GRAY       BROWN         FIRM       DARK         BROWN       BROWN         LIGHT OLIVE       COMMON         BROWN       DISTINCT         STRONG       DISTINCT         STRONG BROWN       DISTINCT         STRONG BROWN       DISTINCT         STRONG BROWN       DISTINCT         STRONG BROWN       BISTINCT         STRONG BROWN       DISTINCT         STRONG BROWN       BISTINCT         STRONG BROWN       BISTINCT         STRONG BROWN       BISTINCT         STRONG BROWN       BISTINCT         STRONG BROWN       BISTRONG BROWN         BOTTOM OF BACKHOE TEST PIT       STRONG BROWN         BELOW DEEP ORGANIC HORIZONS       BELOW DEEP ORGANIC HORIZONS		
SOIL DESCRIPTION AND CLASSIFICATION					
Observation Hole        Test Pit       Boring       Observation Hole2        Test Pit       Boring          "       Depth of Organic Horizon Above Mineral Soil        "       Depth of Organic Horizon Above Mineral Soil					
0 Texture Consistency Cold		0 Texture	Consistency Color Mottling		
$5 C \pm 2\%$	NONE NONE T IISH Y COMMON MEDIUM JG DISTINCT N STRONG BROWN	50 Soil Classification	FRIABLE       DARK BROWN       NONE         STRONG BROWN       COMMON MEDIUM MEDIUM DISTINCT         LIGHT OLIVE       DISTINCT         BROWN       STRONG         BROWN       BROWN         BROWN       STRONG         BROWN       BROWN         LIGHT OLIVE       DISTINCT         BROWN       STRONG         BROWN       BROWN         BROWN       BROWN		
Natalia Marcan Site Evaluator Signature	4     se #	2/23/   9 Date	Page 3 of 4 HHE-200 Rev. 8/01		

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PROJ. NO.: 2019-412

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JONESPORT	DUN GA	RVAN ROAD	KINGFISH MAINE, INC.		
SOIL DESCRIPTION AND CLASSIFICATION					
Observation Hole3       ■ Test Pit Boring       Observation Hole4       ■ Test Pit Boring         I       " Depth of Organic Horizon Above Mineral Soil       I       " Depth of Organic Horizon Above Mineral Soil					
$5 C \pm 2\%$	K NONE	Debth Below Mineral Soli Soil Classification	Consistency     Color     Mottling       DARK     NONE       FRIABLE     BROWN     NONE       STRONG     BROWN       BROWN     COMMON       MEDIUM     MEDIUM       BROWN     DISTINCT       BROWN     STRONG       BROWN     STRONG       BROWN     BROWN       BROWN     BROWN       BROWN     BROWN       BROWN     STRONG       BROWN     STRONG       BROWN     BROWN       BROWN     BROWN       BROWN     BROWN       BROWN     BROWN       BROWN     BROWN		
	DIL DESCRIPTION A	ND CLASSIFICATI	ON		
Observation Hole5 Test Pit Boring         " Depth of Organic Horizon Above Mineral Soil		Observation Hole			
$\  -4 - D -   \pm 2\% \ _{10}$	K NONE NONE NONE NONE NONE NONE NONE NON	Depth Below Mineral Soil Surface (inches)	Consistency     Color     Mottling		