

Permit Number: 163

Status: Approved 10/26/2020

Permit Type: Scientific Research

Permit Start: 11/02/2020

Permit Expiration: 12/01/2020

Project Title: Jupiter Cable Geophysical and Geotechnical Site Investigation

Applicant: Cameron Fisher; cfisher@48northsolutions.com; 909 NE Boat Street, Seattle, WA 98105

Project Summary

The project involves geophysical and geotechnical site investigations to identify the sub-bottom profile below the Study Area using 2 methodologies: a non-invasive Electronic Resistivity Tomography (ERT) survey and a subsurface survey. The ERT lines will be laid on the beach surface. Each ERT transect will be laid down three times, gathering three different recordings. The subsurface survey will collect data on the soils tensile strength using a core sample. The core sample will be taken using a 3/4-ton truck with geotechnical sample equipment mounted to the rear of the vehicle. The truck will access the Study Area via a public beach access point located 630 feet south of the Study Area. Work is expected to occur over a five-day period between November 2-December 1st, depending on weather and ocean conditions and other restrictions. On-site investigation will occur between 8 am and 5 pm only. Areas of disturbance in the Study Area will be restored to pre-sampling condition.

See detailed project description, attached.

Area of Study

The study is proposed in an approximately 335-foot by 65-foot area of beach located adjacent to Tax Lot 3200 in Township 4 South, Range 11 West, Section 1 DD, Tillamook County (Study Area). The Study Area is located between the higher high and lower low water marks.

See maps of study area, attached.

19 Conditions

| Condition | Condition Description |
|-----------|---|
| 1 | All activities shall comply with applicable federal, state, and local laws, regulations, and ordinances. Any necessary federal, state, or local permits shall be obtained prior to the beginning of the activity. Copies of those permits must be provided to the Park Manager before work begins. |
| 2 | The Permittee assumes full responsibility and liability for any damages or injury to any member of the public arising out of the activity, including personal injury and property damage, and for any damage to park property. |
| 3 | The Permittee shall indemnify and hold harmless the State of Oregon, its Parks and Recreation Commission and members thereof, the State Parks and Recreation Department, and its officer, agents, and employees against any and all damages, claims, or causes of action arising from or in connection with the activity. |
| 4 | The study shall be completed only in those areas identified in and approved through this permit. |
| 5 | For activities on the ocean shore, a special drive-on-beach permit is needed for any areas closed to motor vehicles. |
| 6 | The Permittee shall carry a copy of this permit at all times while on OPRD managed or owned property, and must be able to show the permit to OPRD staff upon request. |
| 7 | The Permittee shall submit a summary of the information gathered to the Park Manager where the investigations took place, and to the OPRD Stewardship Section in Salem, Oregon. The Department further requires that the Permittee shall provide to the Department any materials published because of this permit. |
| 8 | The Permittee shall contact the Park Manager(s) at least 24 hours prior to each occurrence of the permitted activity. |
| 9 | OPRD reserves the right to cancel this permit for any reason. |
| 10 | The permittee assumes full responsibility and liability for damages or injury to any member of the public arising out of the activity or use, including personal injury and property damage, and for any damage to ocean shore resources, including natural and cultural resources. |
| 11 | There shall be an hourly rate assessment of \$20 (minimum four hours) for each employee required by the department to be on site to monitor and/or assist in the permitted activities, beyond normal ranger duties. |
| 12 | The permittee shall conduct all operations within the permit area in a manner which protects natural and cultural resources, protects water quality, and does not contribute to erosion or growth of noxious weeds. |
| 13 | Any signage, markers or inscription shall be free-standing and shall be removed immediately following the research project. No signage, markers or inscription shall be attached to any State Park properties, including State Park highway signs. Any signage, markers or inscription posted designating project and location on public or private property, including highways signs, requires permission from property owner, business or specific Governmental agency and shall be removed immediately following the research project completion. Barriers, signage, and safety cones on the beach shall be removed at the end of each day. |
| 14 | The permittee or participants shall not: Pick, cut, mutilate, trim, uproot, or remove any living vegetation; dig up or remove any sand, soil, and rock, historical or fossil materials other than those explicitly allowed in the permit. |
| 15 | Permittee shall immediately notify emergency services, including park staff, in the case of any leak (e.g., fuel, oil, hydraulic fluids) or other unplanned event. |

| Condition | Condition Description |
|-----------|--|
| 16 | Permittee shall keep a copy of the Traffic and Public Access Plan, the Signage Plan, and the Emergency Response Plan at the site at all times work is being conducted. In addition, Permittee is responsible for ensuring that all persons engaged in the research are familiar with the plans prior to initiating the project. |
| 17 | Operations are confined to daylight hours: no earlier than 7 AM and no later than 6 PM. The scientific research activities shall be limited to weekdays during the month of November, excluding Thanksgiving. No work shall occur on Thanksgiving or on weekends. |
| 18 | This activity shall at no time block public beach access, nor entirely restrict the public's north/south movement along the beach. However, with adequate flaggers, the permittee may kindly request public cooperation for very temporary detainment while laying down or removing equipment. This activity shall at no time completely block public access to or along the beach except for the minimum required safety zone around project equipment. |
| 19 | Prior to initiating any operations on the beach, the applicant shall provide the department proof of current liability insurance coverage which names the State of Oregon, its Parks and Recreation Department, its Parks and Recreation Commission, and the officers, agents, and employees thereof as additional insureds. The insurance coverage shall have limits of not less than \$1,000,000 per incident/\$2,000,000 aggregate. |

SCIENTIFIC RESEARCH AND COLLECTION PERMIT PROPOSAL

GEOPHYSICAL & GEOTECHNICAL SITE INVESTIGATION JUPITER SUBMARINE CABLE TIERRA DEL MAR, OREGON

October 21, 2020

Rev. 1

Principal Investigator: Gary Ernest
SubCom, LLC
250 Industrial Way West
Eatontown, NJ 07724

Table of Contents

| | |
|---|----------|
| 1. INTRODUCTION | 1 |
| 1.1 Principal and Project Investigators | 1 |
| 2. PROJECT SUMMARY | 2 |
| 3. METHOD OF INVESTIGATION | 4 |
| 3.1 Electrical Resistivity Tomography | 4 |
| 3.2 Subsurface Sampling | 6 |
| 3.3 Offshore Seismic Reflection Profiling | 8 |
| 4. METHOD OF COLLECTION | 9 |
| 5. MINIMIZATION MEASURES AND BEST MANAGEMENT PRACTICES | 9 |
| 6. PROJECT DURATION | 9 |

List of Tables

| | |
|--|----------|
| Table 1: Project Investigators | 1 |
| Table 2: ERT Specifications | 4 |
| Table 3: Soil Parameters to be Assessed | 8 |

List of Figures

| | |
|---|----------|
| Figure 1: Vicinity Map | 1 |
| Figure 2: Study Area | 2 |
| Figure 3: Access Map | 3 |
| Figure 4: Geologic Map | 3 |
| Figure 5: Representative ERT Installation | 5 |
| Figure 6: ERT Transects within Study Area | 6 |
| Figure 7: Representative ERT Installation | 6 |
| Figure 8: Example of Geotechnical Rig | 7 |
| Figure 9: Approximate Subsurface Sample Location within Study Area | 7 |
| Figure 10: Typical Core Sample Remains | 8 |

Abbreviations

| Abbreviation | Description |
|--------------|-----------------------------------|
| ERT | Electrical Resistivity Tomography |
| HDD | Horizontal Directional Drilling |
| SPT | Standard Penetration Test |

1. INTRODUCTION

Edge Cable USA Holdings, LLC (“Applicant”) seeks a Scientific Research and Collection Permit to perform supplemental geophysical and geotechnical investigations to support the ongoing Horizontal Direction Drilling (HDD) effort to install a sub-oceanic steel bore pipe in Tierra Del Mar, approximately 2 miles north of Pacific City, in Tillamook County (Figure 1). This bore is the supporting infrastructure for the installation of the international subsea telecommunications cable, the Jupiter Cable System.

The scope of the proposed geophysical and geotechnical surveys consists of a combination of marine and terrestrially based techniques designed to augment the existing survey data as well as the actual drill records from recent HDD activity.

For the purpose of this Scientific Research and Collection Permit proposal, the “Study Area” will only refer to a 335-foot by 65-foot area of beach in the Tierra del Mar region (Figure 2). We have included details of offshore activities for information purposes only and are not seeking OPRD review of the marine investigation.

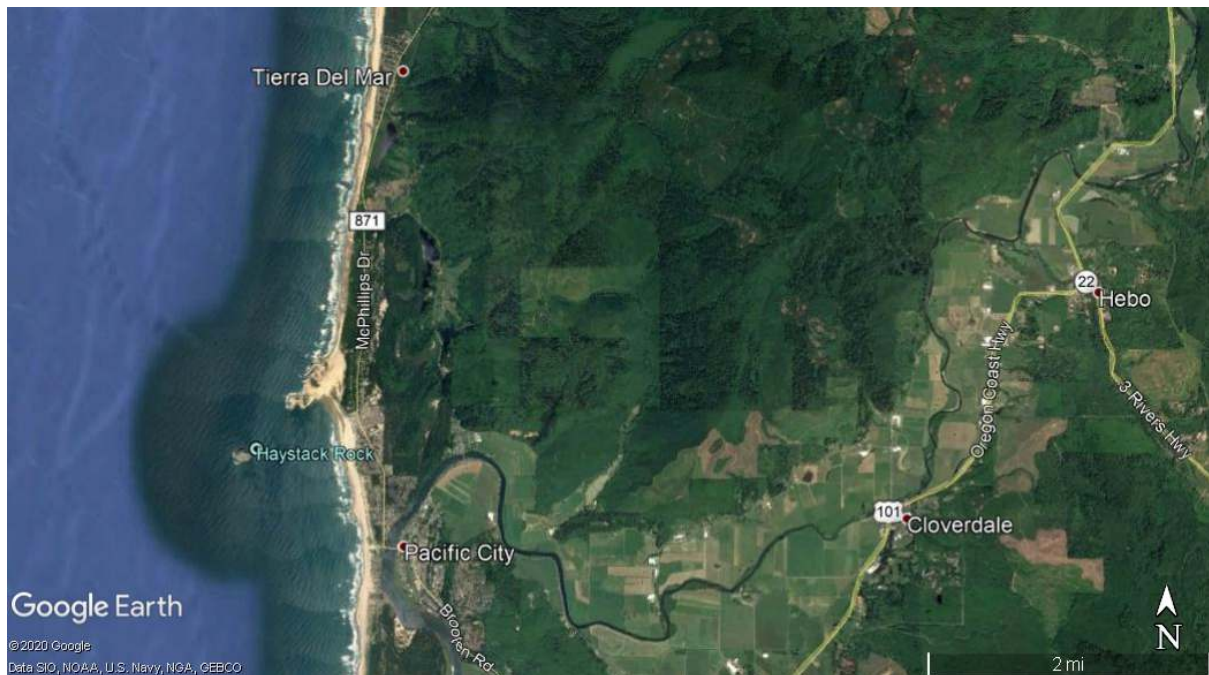


Figure 1: Vicinity Map

1.1 Principal and Project Investigators

A list of investigators are presented in Table 1.

Table 1: Project Investigators

| Name | Role | Company |
|---------------------|------------------------|-----------------|
| Gary Ernest | Principal Investigator | SubCom LLC |
| Ron Kibort | Onsite Supervisor | Maritech |
| Tsamis Loukas | Senior Surveyor | Maritech |
| Paul Grant | Senior Surveyor | Maritech |
| Pavlos Sotiropoulos | Geophysicist | Maritech |
| Spyridon Maroulakis | Geophysicist | Maritech |
| Eirini Simou | Surveyor | Maritech |
| Stephen Eagar, PE | Engineer | Central Geotech |

Erik Fulmer
Mitch Friedman

Staff Geologist
Senior Geotechnical Technician

Central Geotech
Central Geotech



Figure 2: Study Area

2. PROJECT SUMMARY

The requested Scientific Research and Collection Permit is for the “Jupiter Cable Geophysical and Geotechnical Site Investigation”. The dates of the study are proposed from between November 2 December 1. This date range allows for any weather or other logistical delay. These supplemental surveys, are being conducted on behalf of Applicant to be better informed the resulting data to support the Applicant’s ongoing HDD work for the installation of the Jupiter Submarine Fiber Optic Cable.

The purpose of these surveys is to identify the subbottom profile below the Study Area. The results of the surveys will allow for an improved understanding of the geology within the drill profile and support any updates to the construction plans. Specifically, the surveys will provide data identifying unfavorable sediment layers (e.g., rock, boulders, and/or interchanging soils) and allow HDD engineers to compare previous drill efforts with data gathered during this investigation. This will allow engineers to adjust the proposed drill plan, as necessary. Potential areas for improvement may include, but are not limited to, the verification of drill tools to be utilized, anticipated adjustment to drill fluid amounts, and drilling approach to the Punch-Out hole (if the hard areas are deemed unavoidable).

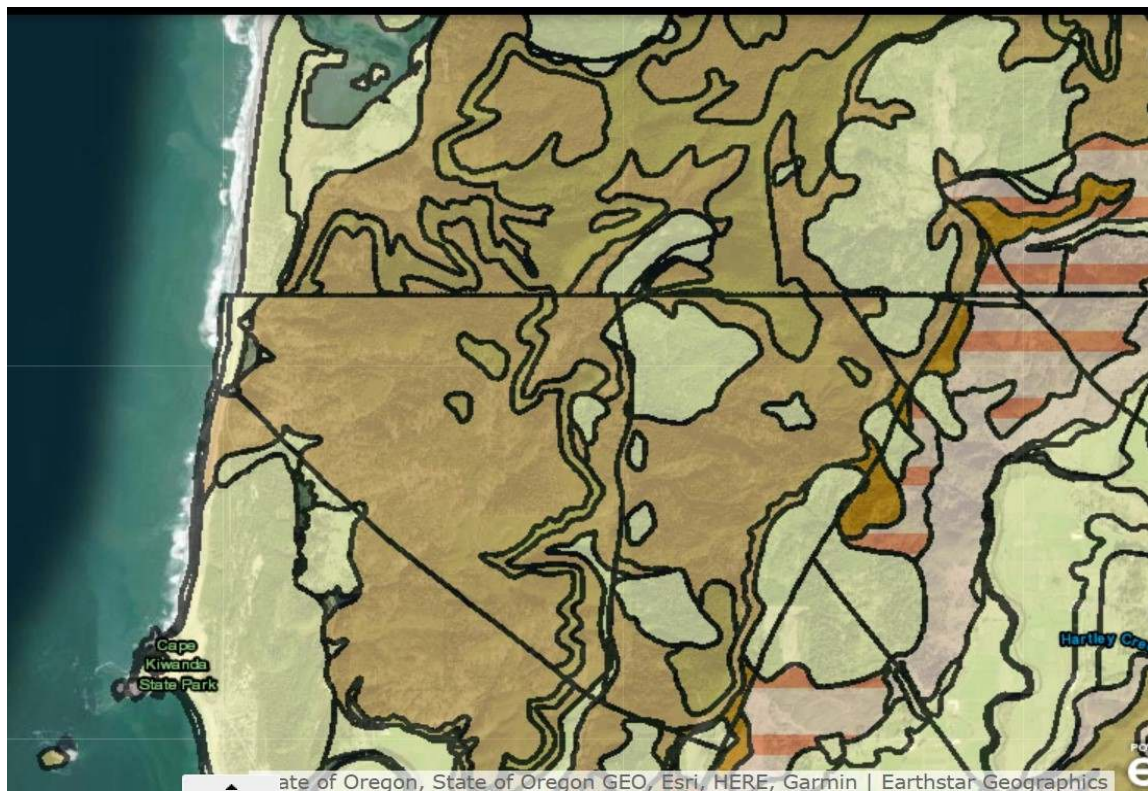
The investigation will be performed in the 335-foot by 65-foot Study Area located on the beach, adjacent Lot 3200 in Tillamook County (Figure 2). All sampling will take place within the Study Area, between the Higher High and Lower Low Water Marks.

The Study Area will be accessed either by foot or by one (1) to two (2) vehicles via a public beach access point 630 feet south of the Study Area (Figure 3). The public is authorized to drive on the beach in vicinity of Tax Lot 3200. The vehicle(s) accessing the beach for this project will be similar to a ¾-ton truck.



Figure 3: Access Map

The geological conditions of the Study Area are generally characterized as a formation related to Aeolian sediments (i.e., deposits of unconsolidated sediments that includes alluvium, colluvium, river and coastal terrace, landslide, glacial, eolian, beach, lacustrine, playa and pluvial lake deposits, and outburst flood deposits left by the Missoula and Bonneville floods) (Quaternary Surficial Deposits). The adjacent terrestrial areas, outside the Study Area are formations related to marine sedimentary rocks (Tuffaceous marine sedimentary rocks; Eocene/Oligocene).



Key: ■ Keasey-Alsea Group ■ Quaternary Surficial Deposits ■ Nestucca-Hamlet Group ■ Elkton-Yamhill Group
■ Columbia River Basalt Group ■ Yachats-Tillamook Group

Figure 4: Geologic Map

3. METHOD OF INVESTIGATION

3.1 Electrical Resistivity Tomography

The non-invasive Electrical Resistivity Tomography (ERT) survey will be utilized within the Study Area to measure the electric potential-differences between a series of dispersed electrodes that generate a subsurface electrical current.

Table 2 provides standard ERT specifications. Figure 5 shows ERT cables and electrodes. A total of three (3) ERT transects will be placed within the Study Area (Figure 6). ERT lines will be laid on the beach surface, spaced on a 30-foot center lines. Each ERT transect will be laid down three times, gathering three different recordings. Vertical electrodes will be hand forced up to 18 inches into the ground within the Study Area. Electrodes are equally spaced along the ERT line (Figure 7). Additional electrodes may be added and hand placed just beneath the surface of the sand within the Study Area, if required. Each electrode pair can serve as both a source and a receiver, resulting in tens-of-thousands of unique data points collective during the three-dimensional survey. The results of the ERT will provide information of the vertical geomorphic boundaries to better understand the existing stratigraphy.

Table 2: Standard ERT Specifications

| Resistivity Meter Specification | |
|--|---|
| Instrument | ABEM Terrameter LS |
| Resistivity | YES |
| Induced Polarization | YES |
| Self-Potential | YES |
| measuring channels | 4 |
| Galvanic isolated measuring channels | YES |
| IP time windows | Arbitrary user defined (in post processing) |
| Memory | >1 500 000 |
| Temporary range | -4 to 122 °F (operation) |
| Display | 8.4" active TFT Colour LCD |
| Graphical user interface | YES |
| Communication | USB and Ethernet |
| Weight [kg] | 26 pounds |
| Measures | 15" x 8" x 13" |
| Battery | 12V, 8Ah |
| External power | 12V DC |
| Remote Control | YES |
| IP Standard | Time Domain Chargeability |
| Real Time Kinematic Global Positioning Systems (RTK-GPS) | Built-in or external via USB |
| Marine Application Towed array | YES |
| Marine Application fixed array | YES |
| Transmitter | |
| Output power (Watts) | ± 5 Volts and ± 600 Volts |
| Output current [mA] | Max 20 or 2500 |
| Constant Current | YES |
| Output current accuracy | <0.4% |

| Resistivity Meter Specification | |
|---------------------------------|--|
| Max output voltage | ± 600 Volts |
| Cycle time resistivity | user defined |
| Cycle time IP | user defined |
| Instant polarity change | YES |
| Receiver | |
| Input voltage range | ± 5 Volts and ± 600 Volts |
| Input impedance | Selectable 20 or 200 MW (5 Volts) 300 kW (600 Volts) |
| A/D-conversion | 24bit |
| Accuracy resistivity | 0.2 % typical |
| Dynamic range | >124 decibels |
| Resolution | 3nV at 1 second integer |
| | SP, Power Line Freq, digital signal processing |
| Full waveform storage | YES |
| Multi-electrode type | Built-in relay switch. External switch box(es) for large layouts |
| Typical imaging layout | 4x21, 4x16 or 2x32 |
| Max. no. of electrodes | 16,320 |
| Take-out distance | 1.5, 3, 6, 15, 33, 65, 90 feet, or as user defined |
| Multiple Gradient Array | YES |
| Roll-along | 4 cable system recommended, other available |



Figure 5: ERT Cables and Electrodes

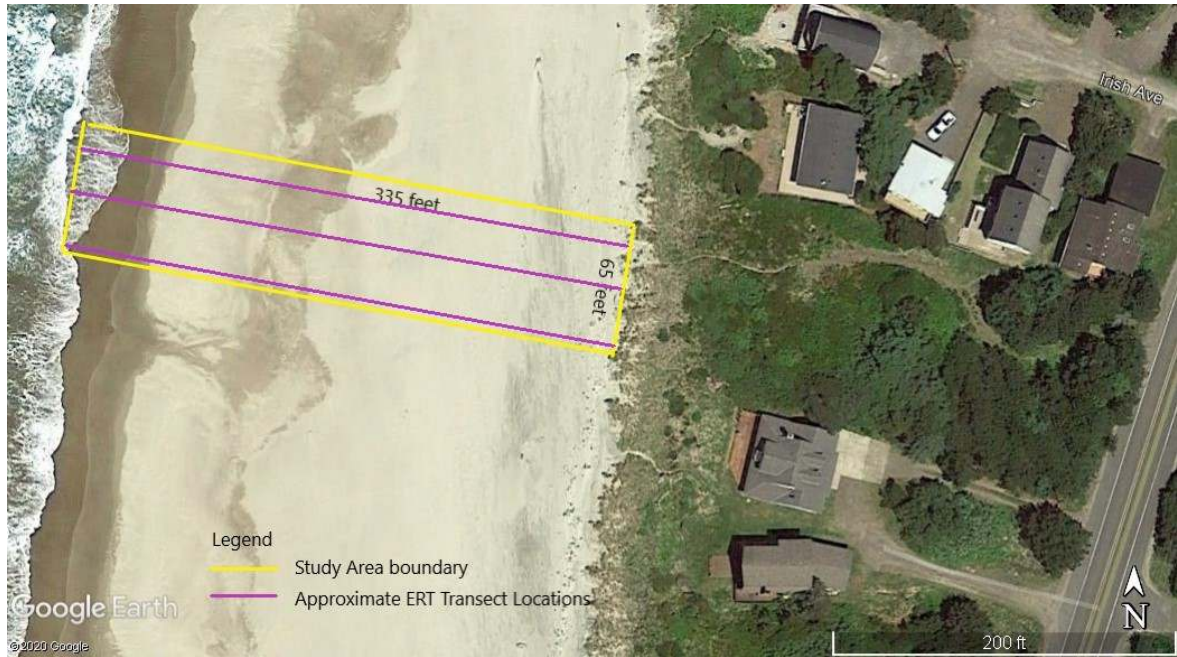


Figure 6: ERT Transects within Study Area



Figure 7: Representative ERT Installation

3.2 Subsurface Sampling

In addition to the ERT method of investigation described in Section 3.1 above, the project will involve subsurface sampling within the Study Area to collect data on the soils tensile strength. A soil core will be extracted using a $\frac{3}{4}$ -ton utility truck with geotechnical sample equipment mounted at the rear of the vehicle (Figure 8).

Applicant seeks approval to conduct one (1) subsurface core sample at the location shown in Figure 9. The core sample will be up to 120 feet deep and may take up to 3 days to drill, depending on ground conditions. The core sample will be placed adjacent the drill for testing (see example in Figure 11).

At the end of each day, the drill rods will be detached, core hole capped and covered, and all equipment removed from the beach area. Sediment samples will be collected at 6 to 9 feet intervals (cohesive and noncohesive units) along the core sample.



Figure 8: Example of Geotechnical Rig



Figure 9: Approximate Subsurface Sample Location within Study Area



Figure 10: Typical Core Sample Remains

Subsurface sampling will be conducted using a standard penetration test (SPT). The SPT is an in-situ dynamic penetration test designed to provide information on the geotechnical engineering properties of soil (Table 3).

Table 3: Soil Parameters to be Assessed

| CLAYS | SANDS |
|----------------------------|----------------------------|
| Particle Size Distribution | Particle Size Distribution |
| Atterberg Limit | Relative Density |
| Water Content | Bulk Unit Weight |
| Bulk Unit Weight | Cohesion |
| Undrained Shear Strength | Friction Angle |

For all “harder” rock units that fail SPT tests, representative unconfined compression tests will be taken offsite and assessed at a laboratory (see Section 4 for more detail). The SPT testing allows for a better understanding of the soils tensile strength. Knowing this will support the planning when selecting drill bits for the future HDD operation.

During the sampling effort, the Study Area will be coned and roped off with “Caution Tape” to limit access by the public. One person will be responsible for flagging and ensuring that the public avoids the roped off area and routes around it. Public access around the Study Area will be provided throughout the entire investigation. Once the subsurface samples are collected, the material removed by the geotechnical sample equipment will be replaced within the sample hole and the surface of the Study Area will be returned to its pre-investigation topography (Figure 10). No beach vegetation will be disturbed.

3.3 Offshore Seismic Reflection Profiling

The Offshore Seismic Reflection Profiling is outside the scope of this permit application. However, it will be conducted concurrent to the terrestrial investigation occurring within the Study Area. This offshore

profiling will be done by either towing or mounting the equipment to a research vessel. A sound source will emit acoustic energy in timed intervals behind a research vessel to identify boundaries between various geologic layers with different acoustic impedances.

4. METHOD OF COLLECTION

The only method of investigation that will result in collection of physical samples is the SPT described under Section 3.2. Compression soil samples will be collected every 6 to 9 feet from the subsurface sample core. The core sample will be taken using a mid-size utility truck with geotechnical sampling equipment mounted at the rear. The harder rock units that fail SPT tests will be shipped to a laboratory for assessment. Laboratory details to be provided at a later date. The soil profile collected during the SPT sampling will be returned to their original sourced area. The surface of the Study Area will be returned to its pre-investigation topography following completion of the investigation.

5. SPECIES TO BE INVESTIGATED AND/OR COLLECTED

No species will be investigated and/or collected as part of this study.

6. MINIMIZATION MEASURES AND BEST MANAGEMENT PRACTICES

- The Oregon Parks and Recreation Department, Oregon Department of State Lands, and Tillamook County will be notified prior to onsite activities commencing.
- Safe area(s) will be identified around the work areas within the Study Area . Safety cones and/or caution tape will be used to delineated the investigation area.
- All onsite investigators will wear safety, high visible personal protective equipment.
- An onsite supervisor will be responsible for the implementation of all onsite safety protocols and responsible for safety during all onsite operations.
- The onsite supervisor will be the immediate point of contact throughout the investigation.
- All areas of disturbance will be restored to pre-sampling conditions. The core hole will be backfilled with material extracted.
- Public access around the Study Area will be maintained throughout the investigation.
- During work hours, the Study Area will be sign posted, notifying the public a scientific investigation is being conducted.

7. PROJECT DURATION

This scientific investigation is proposed to occur over a 5-day period. Depending on weather conditions and/or other logistical delays, the investigation will occur between November 2 and December 1, 2020. All onsite investigations will occur between 7 am and 5 pm only.

TRAFFIC AND PUBLIC ACCESS PLAN

- All investigator vehicle traffic will enter the public beach access area from the north along Sandlake Road, turning right onto the beach. Upon entering the beach, all vehicles will proceed north to the Study Area.
- All onsite activities will be conducted during low tide. When the tide rises, a steel 3 ½-inch cap will be added to the subsurface sampling hole. This will remain in place throughout the high tide period. Tide tables have been reviewed and site investigation will be timed according to NOAA Tide Prediction tables to South Beach, Oregon. Based on these tables (see attached), field investigations occur from November 9 to 13. All field investigations will begin no earlier than 7 am. Subsurface sampling will stop based on the level of the tide at the time.
- During subsurface sampling, only the immediate area surrounding the sampling equipment within the Study Area will be restricted and clearly defined by safety cones and/or caution tape. No other section of the Study Area or ocean shore will be cordoned off, thereby allowing a free-flow of public movement.
- The area(s) where the investigation is being conducted, including the one (1) subsurface sample and the Electrical Resistivity Tomography (or ERT) survey, will be clearly identified using a combination of safety cones and/or caution tape.
- During times when/if a large portion of the beach is cordoned off within the Study Area (e.g., when conducting ERT), a two-way pedestrian corridor and one one-way vehicle corridor will be maintained at the east end of the Study Area throughout the course of the investigation (see green lines in Traffic Site Plan figure). Each pedestrian pathway within the corridor will be approximately 6 feet wide. The vehicle corridor will be approximately 10 feet wide. The directions of each pedestrian pathway will be clearly identified at both the north and south entrances. A flagger will coordinate vehicle traffic through the vehicle corridor.
- The creation of both two-way pedestrian corridor and one-way vehicle corridor will avoid possible wait times for public to move in the north-south direction along this portion of the beach.
- If a vehicle approaches the Study Area during the ERT sampling activity, onsite investigators will direct vehicles through the dedicated 10-foot wide vehicle corridor. Investigator(s) will coordinate north and south vehicle movement through the corridor.
- If the ERT survey is occurring at a location where a vehicle cannot pass immediately, an investigator will temporarily stop the vehicle for no longer than 10 minutes, until the ERT sampling is complete. Upon completion of the sampling, the safety cones and/or caution tape will be removed to allow the vehicle access through the Study Area.
- High visibility cones and caution tape will be placed around all sampling equipment.
- During daylight periods, the restricted area will be minimized to the greatest extent possible to allow for unrestricted public access. All survey equipment will be consolidated into one area of the beach, allowing public unrestricted north-south access

through the area. Survey equipment will be removed from the beach at the end of each day and no area will have restricted access.

- At the completion of activities each day, the investigation team will gather all safety cones and caution tape, removing it from the ocean shore. A steel 3 ½-inch cap will be screwed onto the top of the temporary subsurface sampling pipe to seal this pipe during the high tide.



NOAA Tide Predictions

South Beach, OR,2020

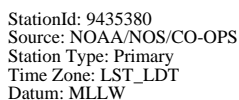
The NOAA Tide Predictions application provides predictions in both graphical and tabular formats, with many user selected options, for over 3000 stations broken down by key areas in each state. Users can also access stations via the Google map interface. Additional information can be found in the help page.

Station Types: The NOAA Tide Predictions application provides predictions from 2 distinct categories of stations at over 3000 locations:

Harmonic - The predicted height values for Harmonic stations are conducted by combining the harmonic constituents into a single tide curve.

Subordinate - The high and low height values for Subordinate stations are obtained by means and differences, and ratios applied to the full harmonic constant predictions at a specific Harmonic station (a Reference station).

Disclaimer: The official Tide prediction tables are published annually on October 1, for the following calendar year. Tide predictions generated prior to the publishing date of the official tables are subject to change. The predictions from the web based NOAA Tidal Predictions are based upon the latest information available as of the date of your request. Tide predictions generated may differ from the official published predictions if information for the station requested has been updated since the publishing date of the official published tables.

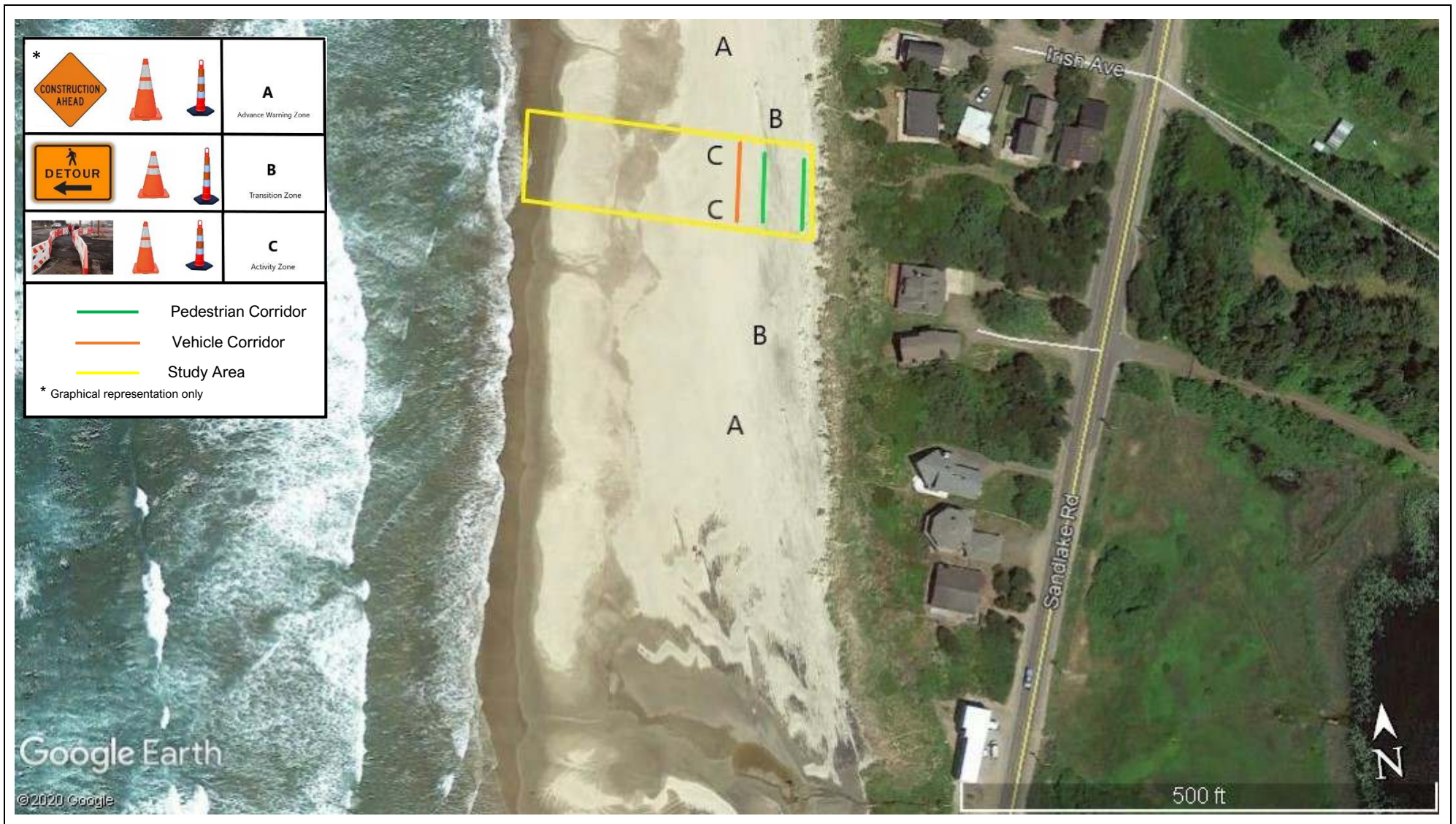


Times and Heights of High and Low Waters

Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

SIGNAGE PLAN

- *Zone “A” – Advance Warning Zone:* Signs will be placed approximately 150 feet north and south of the Study Area notifying the public of the project activities. Signs will state “Study Area Ahead”, or something similar. Signs will include a copy of the Scientific Permit attached to it and Investigator contact information.
- *Zone “B” – Transition Zone:* Detour signs will be placed approximately 30 to 50 feet north and south of the Study Area identifying the paths around the Study Area, directing pedestrians to the pedestrian corridors. Signs will include detour notifications and black arrows identifying the pedestrian routes.
- *Zone “C” – Activity Zone:* Signs will be placed at the north and south entrances of the pedestrian corridor, with arrows to identifying access routes around the Study Area. These corridors will be marked with caution tape and safety cones.



Traffic and Public Access Plan and Signage Plan Map

EMERGENCY RESPONSE PLAN

The investigators will fuel, maintain, and store vehicles and will store construction materials off the beach. None of these activities will occur on the beach.

Spill Prevention

Spill prevention and containment materials shall be maintained and be readily accessible at vehicle staging area. Potential spill during the investigation would only originate from the truck or the core sampling equipment on the truck. No other spill sources would be present.

Spill & Incident Reporting

If petroleum products, chemicals, or any other deleterious materials are discharged into the environment, the discharge will be promptly reported to the Oregon Emergency Response Service (OERS, 1-800-452-0311). In addition, any unplanned events will be reported to Oregon Parks and Recreation Department, Oregon Department of State Lands, Oregon Department of Environmental Quality, and other appropriate parties. Containment and cleanup will begin immediately and be completed as soon as practicable.

Corrective Actions

Immediately following the detection of the inadvertent release, containment and clean-up operations shall commence. For releases on the beach, investigators shall use spill kit to prevent fluid from migrating or flowing from the immediate area of the discharge. If the volume released is too small for containment measures, the receiving area will be allowed to dry naturally. If there is a threat to a sensitive resource, or a threat to public safety, survey work will cease immediately until a plan to proceed is discussed with Oregon Department of Parks and Recreation. Additional berms may be constructed around the subsurface sample area as directed by the Principal Investigator to prevent release of materials into the adjacent ocean.

The clean-up shall commence after the release is contained. Clean-up shall include removal of all visible fluid located in accessible areas. Removal methods will vary based on the volume of the release and the site-specific conditions. Removal equipment may include shovels and buckets. After removal of the released fluid(s), the release area will be returned as close to the original condition as possible.