

1. SBPF Conservation Commission 04/02/20

Documents:

[SBPF CONSERVATION COMMISSION MEETING PACK 04\\_2\\_20.PDF](#)



Projects:\21597\2013 Emergency Project\2015 Order of Conditions and Compliance

PRINCIPALS

March 24, 2020

Theodore A Barten, PE  
Margaret B Briggs  
Dale T Raczynski, PE  
Cindy Schlessinger  
Lester B Smith, Jr

Mr. Paul Murphy  
Building Commissioner, Town of Nantucket  
2 Fairgrounds Road  
Nantucket, MA 02554

Robert D O'Neal, CCM, INCE  
Michael D Howard, PWS  
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AJ Jablonowski, PE  
Stephen H Slocomb, PE  
David E Hewett, LEED AP  
Dwight R Dunk, LPD  
David C Klinch, PWS, PMP  
Maria B Hartnett

**Subject: Request for Emergency Work Approval Pursuant to Emergency Order No. 1  
Temporary Moratorium on All Construction Projects on Nantucket | Baxter  
Road and Sconset Bluff Storm Damage Prevention Project**

Dear Mr. Murphy,

On behalf of the Siasconset Beach Preservation Fund ("SBPF"), the co-sponsor of the above referenced project, we respectfully request that the Town of Nantucket allow critical emergency maintenance of the geotubes and sand template (coastal engineering structure or "CES") to proceed during this unprecedented time. By way of a background, the Town of Nantucket Public Works and SBPF jointly proposed the Baxter Road and Sconset Bluff Storm Damage Prevention Project in 2013 to protect certain homes, Baxter Road, and public utilities in the road from damage resulting from erosion and loss during intense coastal storms. The existing CES was initially constructed under Emergency permits issued by the Nantucket Conservation Commission and the Massachusetts Department of Environmental Protection in the winter of 2013/2014 to protect public health and safety, to avoid the loss of certain homes on Baxter Road, Baxter Road itself (safety) and public infrastructure (public health). If this project is lost due to lack of maintenance that emergency will once again exist.

ASSOCIATES

Richard M Lampeter, INCE  
Geoff Starsiak, LEED AP BD+C  
Marc Bergeron, PWS, CWS  
Alyssa Jacobs, PWS  
Holly Carlson Johnston  
Brian Lever

Maintenance of this CES is needed to ensure it remains functional to protect public health and safety. SBPF requests this limited activity be authorized to protect Baxter Road, certain homes on Baxter Road, and public infrastructure in the road. The bluff at the ends meets the imminent threat criteria established by the Town, can be authorized as "Emergency Work," is consistent with a state defined Essential Service, and measures will be implemented to avoid the spread of the COVID19 virus on Nantucket.

3 Mill & Main Place, Suite 250  
Maynard, MA 01754  
www.epsilonassociates.com

It is the minimum work necessary to prevent damage to persons or property and/or to ensure the habitability of existing residential structures until such time as the Order is lifted.

978 897 7100

FAX 978 897 0099

Further, the Town's Order provides that the Town will, on a case-by-case basis, review requests for exceptions to the temporary construction moratorium. If the Town does not agree that this request qualifies as Emergency Work, SBPF requests an exception from the temporary construction moratorium given the imminent need to maintain the CES.

Attached is supplemental information that provides more detailed project information to put this request into context and provide you with greater details.

### **Summary Request and Supporting Information**

1. The CES was installed under emergency permits issued by the MassDEP and Nantucket Conservation Commission to prevent impending loss of homes, the public road, and public infrastructure.
2. CES maintenance is required to prevent a failure, which could result in a loss of houses, the road, and infrastructure.
3. Nearly the entire length of the CES geotubes are exposed, i.e. not covered by sand. See attached photos. This leaves the CES vulnerable to damage and undermining by wave action. More importantly maintenance work is critical to protect the structural stability of the CES and especially needed at the northerly exposed end return to avoid over wash and bank erosion at this vulnerable location.
4. The following works needs to be done to prevent that result.
  - ◆ Reconstruct the ramp at Hoicks Hollow so that equipment can access the CES for this maintenance or repair any emergency storm related damage; and
  - ◆ Maintain the CES by re-covering exposed geotubes and placing sand at the end returns.

This request is for the minimum actions necessary and does not include other aspects of normal project maintenance that is not deemed an emergency at this time.

5. The following procedures will be used to protect workers and comply with social distancing procedures to minimize the spread of COVID19 on Nantucket. These include:
  - ◆ The work force will be limited to no more than three workers, less than the 10-person gathering defined in the State Order.
  - ◆ One worker will be an equipment operator located inside an enclosed cab.
  - ◆ One or two workers (including a supervisor) on foot will maintain a 10-foot or more distance from each other while they direct the equipment operator and collect any man-made debris that may be present in the sand template.
  - ◆ One project coordinator will inspect the work site a reasonable intervals and will maintain a 10-foot or more distance from staff during inspections.
  - ◆ No off-island workers, equipment or materials are required to perform this work.
  - ◆ Work can be completed in about five workdays.

In conclusion, SBPF requests this limited activity be authorized to protect Baxter Road, certain homes on Baxter Road, and public infrastructure in the road. As described above, the bluff at the ends meets the imminent threat criteria established by the Town, can be authorized as "Emergency Work," is consistent with a state defined Essential Service, and measures will be implemented to avoid the spread of the COVID19 virus on Nantucket. The attached materials provide supplemental information to support this request.

Town of Nantucket Planning and Land Use Services Department  
March 24, 2020

3

Please contact me via email at [ddunk@epsilonassociates.com](mailto:ddunk@epsilonassociates.com) or at 781.710.7305. You may also contact Attorney Cohen at [Steven@Cohenlegal.net](mailto:Steven@Cohenlegal.net) or 508.228.0337 or 508.221.3152.

Sincerely,  
EPSILON ASSOCIATES, INC.



Dwight R. Dunk, LPD, PWS, BCES  
Principal

encl. Baxter Road and Sconset Bluff Storm Damage Prevention Project – Emergency Work Request | Supplemental Information

cc: J. Posner, SBPF  
S. Cohen, Cohen & Cohen Law, PC  
G. Wood, Rubin & Rudman LLP  
William Pittman, Chief of Police  
C. Elizabeth Gibson, Town Manager  
J. Carlson, Natural Resources Department

## **BAXTER ROAD AND SCONSET BLUFF STORM DAMAGE PREVENTION PROJECT EMERGENCY WORK REQUEST | SUPPLEMENTAL INFORMATION**

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On behalf of the Siasconset Beach Preservation Fund (“SBPF”), the co-sponsor of the Baxter Road and Sconset Bluff Storm Damage Prevention Project, we provide this supplemental information to support the request to allow critical maintenance of the geotubes and sand template (coastal engineering structure or “CES”) to proceed during the COVID19 construction moratorium order. By way of a background, the Town of Nantucket Public Works and SBPF jointly proposed the Baxter Road and Sconset Bluff Storm Damage Prevention Project in 2012/2013 to protect certain homes, Baxter Road, and public utilities in the road from damage resulting from erosion and loss during intense coastal storms. The existing CES was initially constructed in the winter of 2013/2014 to protect public health and safety, to avoid the loss of certain homes on Baxter Road, Baxter Road itself (safety) and public infrastructure (public health).

### **Background of Existing CES**

This initial three tier CES was constructed in accordance with an Emergency Order (“EC”) issued by the Nantucket Conservation Commission and Massachusetts Department of Environmental protection (“MassDEP”), on December 19, 2013, copy attached, following a determination by the MassDEP and the Nantucket Conservation Commission that an emergency condition was present. The EC was extended by the MassDEP in January 2014. In the January 2014 extension by MassDEP it was determined that the allowed work was *“necessary to abate the present threat to public safety from storm damage to buildings, Baxter Road, and water infrastructure.”* In coming to that determination, the MassDEP stated that it did the following: *“applied criterion at 310 CMR 10.30(3) which provides that a coastal engineering structure ‘shall be permitted’ to protect homes constructed prior to 1978 from storm damage. This regulation creates an exception to the general rule that precludes the installation of hard armoring of coastal banks. Based on the facts presented in this requires, this exception applies to the homes identified in the area subject to the emergency.”*

In the 2014 EC, the MassDEP further found that the EC did *“not go farther than necessary to protect these homes and essential public infrastructure serving the homes. In making this determination, the Department considered the specific facts presented by the proponents including without limitation, the proximity of the homes and infrastructure to the edge of the coastal bank, the ability of the four geotubes to withstand a significant storm event and the threat posed by successive storm events.”*

Importantly, the EC emphasized the importance of sand cover as mitigation and ongoing beach nourishment. The EC set out a specific mitigation nourishment plan that remained in effect pending the issuance of the 2015 OOC.

Further, in 2013, the Town determined that an imminent threat to Baxter Road is present at all sections of Baxter Road within 65 feet from the top of the Coastal Bank, and homes within 25 feet from the top of Coastal Bank. This is the current condition that remains at the northerly end (105 Baxter Road) and southerly end (85 Baxter Road) of the CES.

As prescribed in the emergency procedures, the EC was replaced in 2015 with an Order of Conditions (“OOC”) issued by the Nantucket Conservation Commission after a full public hearing process, copy attached. The OOC requires maintenance of the CES, including the re-covering of exposed tubes and end returns with sand after erosion events to ensure that the CES performs as designed, i.e. to protect Baxter Road from erosion and loss of public infrastructure in the road – and in turn the public safety and health.

### **Emergency Work Request Pursuant to Emergency Order No. 1**

SBPF submits this request pursuant to the Town’s Emergency Order No.1 – Temporary Moratorium on all Construction Projects on Nantucket (“Town Order”). The Town Order suspended all regular activity at construction sites. However, the Town Order does not prevent Emergency Work if approved by the Town of Nantucket Planning and Land Use Services Department. The Town Order defines Emergency Work as the *“minimum work necessary to prevent damage to persons or property and/or to ensure the habitability of existing residential structures until such time as the Order is lifted.”* Such Emergency Work includes, but is not limited to, and as relevant here, *“work which ensures the reliability of transportation network”* and *“other work necessary to render occupied residential building fully habitable.”*

This request for Emergency Work is limited to two activities:

- ◆ Reconstructing the ramp at Hoicks Hollow so that equipment can access the CES for this maintenance or repair any emergency storm related damage; and
- ◆ Maintaining the CES by re-covering exposed geotubes and placing sand at the end returns.

First, the existing CES is critical to protect Baxter Road, a part of the Town’s transportation network, from erosion to avoid the washout and loss of Baxter Road as well as the public infrastructure within the road in order to prevent damage to persons or property. Whereas this CES requires ongoing maintenance to ensure its functionality per the 2013 EC and the 2015 OOC, we respectfully request this critical maintenance work be allowed to proceed immediately. As stated above, the 2013 MassDEP EC found that sand nourishment and maintenance was necessary for the emergency, and required that this be ongoing as part of the EC and as part of the future 2015 OOC. Therefore, since the MassDEP, as part of the EC, determined that sand nourishment and maintenance were emergency measures, such work should also be considered “Emergency Work” per the Town Order.

Further, this work is critical to maintain the structural stability of the CES and especially needed at the northerly exposed end return to avoid overwash and bank erosion at this vulnerable location. As witnessed in the winter of 2012/2013, a single coastal storm eroded up to 40 feet of unprotected bank. The CES is in place to avoid that from happening again; however, CES maintenance is required for the CES to function as designed to protect the road and infrastructure from damage during an intense coastal storm. Catastrophic damage to the CES exposes the road to damage or loss and would likely preclude it from being re-constructed to provide ongoing protection of Baxter Road.

Please see the attached photos that depict the current condition of the CES. The Sconset Bluff lost upwards of 40 feet in the winter of 2012/2013. A loss 25 to 40 feet at this time would result in the bluff encroaching on the edge of the road, would threaten the structural stability of the road, and would disrupt the town's transportation network.

Second, the existing CES is also critical to render occupied residential buildings fully habitable and to prevent damages to persons or property. As stated above, the MassDEP, in the 2013 EC, which was an emergency order, found that the allowed work was "necessary to abate the present threat to public safety from storm damage to buildings, Baxter Road, and water infrastructure." The homes were therefore a part of the EC. As stated, the MassDEP in the EC further found that the EC did "not go farther than necessary to protect these homes and essential public infrastructure serving the homes. In making this determination, the Department considered the specific facts presented by the proponents including without limitation, the proximity of the homes and infrastructure to the edge of the coastal bank, the ability of the four geotubes to withstand a significant storm event and the threat posed by successive storm events."

For the above reasons, SBPF's proposed reconstruction and maintenance work to protect Baxter Road, associated public infrastructure, and certain homes meet the Order's definition of "Emergency Work" because such work is the minimum work necessary to prevent damage to persons or property and/or to ensure the habitability of existing residential structures until such time as the Order is lifted.

Further, the Town's Order provides that in addition to "Emergency Work," the Town will, on a case-by-case basis, review requests for exceptions to the temporary construction moratorium. Although the work proposed by SBPF falls squarely into the definition of "Emergency Work," in the event that the Town disagrees, SBPF requests an exception from the temporary construction moratorium given the imminent need to maintain the CES.

### **Emergency Work Request Complies with the Commonwealth's COVID-19 Order No. 13 COVID-19 Essential Services as defined by the Commonwealth**

On March 23, 2020, Governor Baker issued an emergency order, COVID-19 Order No. 13, that required all businesses and organization that do not provide "COVID-19 Essential Services" to close their physical workplaces and facilities to workers, customer and the public as of March 24, 2020 at noon until April 7, 2020 at noon. Also released was a document that identified "COVID-19 Essential Services." This document identifies those services that may continue during the COVID19-Order No. 13 that closes certain workplaces and prohibits gatherings of more than 10 people. In this document, the following is considered an essential service: *"Workers who support the operation, inspection, and maintenance of essential public works facilities and operations, including roads and bridges, water and sewer main breaks, fleet maintenance personnel, construction of critical or strategic infrastructure, traffic signal maintenance, emergency location services for buried utilities, maintenance of digital systems infrastructure supporting public works operations, and other emergent issues ..."*

It is our opinion that maintenance of the CES is critical to maintain Baxter Road by re-covering the exposed tubes and end returns because their exposure creates an emergent issue. Re-covering the end

returns is especially urgent because wave runup and wash over at the end returns can cause sand to wash out from behind the CES, and exacerbate bluff erosion at these two locations identified and imminent threats to erosion and roadway damage. Therefore, the work proposed should be considered an essential service.

### **Mitigation Measures**

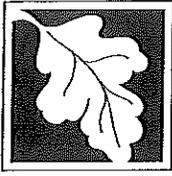
Means and measures to perform this required maintenance will be performed in a manner to protect workers and comply with social distancing procedures to minimize the spread of COVID19 on Nantucket. These include:

- ◆ The work force will be limited to no more than three workers, less than the 10-person gathering defined in the State Order.
- ◆ One worker will be an equipment operator located inside an enclosed cab.
- ◆ One or two workers (including a supervisor) on foot will maintain a 10-foot or more distance from each other while they direct the equipment operator and collect any man-made debris that may be present in the sand template.
- ◆ One project coordinator will inspect the work site a reasonable intervals and will maintain a 10-foot or more distance from staff during inspections.
- ◆ No off-island workers, equipment or materials are required to perform this work.
- ◆ Work can be completed in about five work days.

In conclusion, SBPF requests this limited activity be authorized to protect Baxter Road, certain homes on Baxter Road, and public infrastructure in the road. As described above, the bluff at the ends meets the imminent threat criteria established by the Town, can be authorized as “Emergency Work,” is consistent with a state defined Essential Service, and measures will be implemented to avoid the spread of the COVID19 virus on Nantucket.

### **Attachments:**

EC dated December 19, 2013  
OOC SE48-2824  
March 2020 Site Photos



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

**WPA Emergency Certification Form**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40  
AND THE NANTUCKET WETLANDS BYLAW CHAPTER 136

**A. Emergency Information**

**Important:**  
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Issuance From: Nantucket Conservation Commission  
Issuing Authority

1. Site Location: 91-105 Baxter Road

2. Reason for Emergency:  
Eroding Coastal Bank

3. Applicant to perform work: Town of Nantucket/Siasconset Beach Preservation Fund

4. Public agency to perform work or public agency ordering the work to be performed:  
Board of Selectmen/Department of Public Works

5. Date of Site Visit: 12/17/2013 Start Date: 12/19/13 End Date\*: 1/18/14

\* no later than 30 days from start date or 60 days in the case of an Immediate Response Action approved by DEP to address an oil/hazardous material release.

6. Work to be allowed\*:  
See attached

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\* May not include work beyond that necessary to abate the emergency.

**B. Signatures**

Certified to be an Emergency by this Issuing Authority.

Signatures:

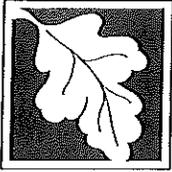
Ernest S. ... (Opposed)  
Chairman (or designee)

12/18/2013  
Date

[Signature]  
Blank Only (Opposed)  
Kevin Johnson

Andy ...  
Michelle ...

A copy of this form must be provided to the appropriate DEP Regional Office.



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands  
**WPA Emergency Certification Form**  
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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**C. General Conditions**

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Emergency Certification or subject to enforcement action.
2. This Emergency Certification does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of property rights.
3. This Emergency Certification does not relieve the applicant or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. Any work conducted beyond that described above, and any work conducted beyond that necessary to abate the emergency, shall require the filing of a Notice of Intent.
5. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Emergency Certification at reasonable hours to evaluate compliance with this Certification, and may require the submittal of any data deemed necessary by the Conservation Commission or the Department for that evaluation.
6. This Emergency Certification shall apply to any contractor or any other person performing work authorized under this Certification.
7. No work may be authorized beyond 30 days from the date of this certification without written approval of the Department.

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**D. Special Conditions**

*See attached*

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**E. Appeals**

The Department may, on its own motion or at the request of any person, review: an emergency certification issued by a conservation commission and any work permitted thereunder; a denial by a conservation commission of a request for emergency certification; or the failure by a conservation commission to act within 24 hours of a request for emergency certification. Such review shall not operate to stay the work permitted by the emergency certification unless the Department specifically so orders. The Department's review shall be conducted within seven days of: issuance by a conservation commission of the emergency certification; denial by a conservation commission of the emergency certification; or failure by a conservation commission to act within 24 hours of a request for emergency certification. If certification was improperly granted, or the work allowed thereunder is excessive or not required to protect the health and safety of citizens of the Commonwealth, the Department may revoke the emergency certification, condition the work permitted thereunder, or take such other action as it deems appropriate.

**FINDINGS and ADDITIONAL CONDITIONS**  
Massachusetts Wetlands Protection Act (MGL Chapter 131, Section 40)  
Town of Nantucket Wetlands Bylaw (Chapter 136)

Address: 91-105 Baxter Road  
Applicant: Town of Nantucket and Siasconset Beach Preservation Fund  
Filing Date: December 17, 2013  
Date Hearing Closed: December 18, 2013  
Date Emergency Certified: December 18, 2013

**Permit Overview:**

This certification allows for a three geotextile tube coastal engineering structure with sand cover to be installed on a Coastal Beach and Coastal Bank.

**Additional Findings:**

1. The Commission finds that the proximity of the road to the eroding Coastal Bank is in imminent danger and is an emergency.
2. The Commission finds that the failure of the public way and damage of the public utilities to be a risk to public health and safety.
3. The Commission finds that the project as designed is necessary to abate the emergency situation.

**In addition to the General Conditions contained elsewhere in this document, the Commission includes the following Special Conditions pursuant to MGLCh131s40 and the Town of Nantucket Wetlands Protection Bylaw, Chapter 136:**

18. All work shall be performed in accordance with the Site and Work Description contained within the Emergency Certification request and plan notes set out on the plan of record, provided project narratives, and protocols.
19. The sand cover is to be maintained in accordance with the narrative provided during the emergency period.
20. The applicant shall be required to comply with the attached conditions as issued by MassDEP.

**Special Conditions for Siasconset Beach Preservation Fund Emergency Certification for 91-105 Baxter Road:**

1. This Emergency Certification authorizes the installation of 900 linear feet of 4 layers of sand filled Geotubes as shown on the referenced plans. The SBPF also proposes the placement of 14.3 cubic yards per linear foot of sand. The Department, however, requires the initial placement of 18 cubic yards per linear foot of sand for mitigation purposes. Ongoing beach nourishment shall be in accordance with condition 8 below.
2. All sand used to fill and cover the Geotubes shall be imported from an off-site source and shall be compatible with the existing beach sediments.
3. The sand-filled Geotubes shall be tapered into the beach/bank at the southern and northern ends to minimize end effects.
4. Within 30 days of this certification, the SBPF shall file a Notice of Intent in order to (a) install and maintain the Geotubes and (b) incorporate mitigation (beach nourishment) into the proposed project design. The SBPF shall diligently pursue and obtain a Final Order of Condition under the Wetlands Protection Act for ongoing beach nourishment and other appropriate mitigation as deemed necessary.
5. The SBPF shall be responsible for the retrieval and proper disposal of all geotextile products associated with this emergency project in the event wave action and erosion destroys or otherwise causes damage to the Geotube system.
6. This Emergency Certification does not relieve the applicant/owner from complying with the Town of Nantucket Wetland Bylaw.
7. The beach shall continue to be monitored through the ongoing quarterly surveying program conducted by Woods Hole Group.
8. Sand mitigation will be at a rate of 22 cubic yards per linear foot in accordance with the following schedule:
  - a. Provide initial cover of 18 cubic yards per linear foot immediately following construction (December 2013). The reason for this is to provide the initial cover and to provide a large upfront volume of sand while observing how the entire system performs into the first months of installation.
  - b. January through March 2014: Provide the remaining four cubic yards per linear foot on an as-needed basis.
  - c. Annual in April starting in 2014: Provide additional sand to obtain a minimum of 12 cubic yards per linear foot of sand cover. Twelve cubic yards per linear foot is the minimum sand volume required to provide the desired two minimum feet of cover. If some portion of the previous year's sand is in place at the time of April nourishment then the volume needed to get to 12 cubic yards per linear foot will be provided, with the remaining sand added in November. For example, if 10 cubic yards per linear foot of sand is needed in April to meet the 12 cubic yard minimum, then the remaining two cubic yards will be added in November instead of April.
  - d. Annually in November starting in 2014; Add an additional six cubic yards per linear foot plus any excess volume left over from April requirement. The reason for this is to ensure that the bulk of the mitigation volume is available in November for potential mobilization during winter storms.
  - e. Annually November through March: Add the remaining four cubic yards per linear foot on an as-needed basis, in accordance with the replenishment trigger presented in our November 12, 2013 letter. If the 22 cubic yards per linear foot volume is not placed in its entirety before March 1, the balance of the sand will be placed on March 1.
  - f. End volumes will be replaced and nourished on the same schedule as outlined above. Delivery tickets from sand supplier will be provided to the Department and Conservation Commission to document the total volume of sand provided.



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

## WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40  
And the Town of Nantucket Wetlands Bylaw Chapter 136

Provided by MassDEP:  
SE48- 2824  
MassDEP File #

eDEP Transaction #  
Nantucket  
City/Town

### A. General Information

1. From: Nantucket  
Conservation Commission

2. This issuance is for  
(check one): a.  Order of Conditions b.  Amended Order of Conditions

3. To: Applicant:

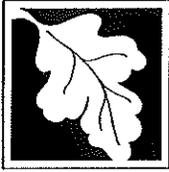
a. First Name Siasconset Beach Preservation Fund b. Last Name \_\_\_\_\_  
c. Organization \_\_\_\_\_  
d. Mailing Address Po Box 2279  
Nantucket MA 02584  
e. City/Town f. State g. Zip Code

4. Property Owner (if different from applicant):

a. First Name \_\_\_\_\_ b. Last Name \_\_\_\_\_  
c. Organization See attached Property Owners( Town of Nantucket & property owners 87-105 Baxter Rd)  
d. Mailing Address \_\_\_\_\_  
e. City/Town \_\_\_\_\_ f. State \_\_\_\_\_ g. Zip Code \_\_\_\_\_

5. Project Location:

a. Street Address 87-105 Baxter Road b. City/Town Nantucket  
48 & 49 48-8, 48-21,48-22,48-19,48-18,48-17,48-15,49-8.  
c. Assessors Map/Plat Number \_\_\_\_\_ d. Parcel/Lot Number \_\_\_\_\_  
Latitude and Longitude, if known: 41°16'36.748"N 69°57'40.559"W  
d. Latitude e. Longitude



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

**WPA Form 5 – Order of Conditions**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40  
And the Town of Nantucket Wetlands Bylaw Chapter 136

Provided by MassDEP:  
SE48- 2824  
MassDEP File #

eDEP Transaction #  
Nantucket  
City/Town

**A. General Information (cont.)**

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):  
Nantucket 1702  
a. County b. Certificate Number (if registered land)

c. Book d. Page

7. Dates: 08/14/15 09/30/2015 09/30/2015  
a. Date Notice of Intent Filed b. Date Public Hearing Closed c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):  
Plan view of slope stabilization/ Typical geotube section and drainage improvement plan and profile  
a. Plan Title Ocean & Coastal Consultants Joseph R. Marrone Structural  
b. Prepared By 03/12/2013 & 08/13/15 c. Signed and Stamped by 1" =40' & 1/8"=1'  
d. Final Revision Date e. Scale

f. Additional Plan or Document Title g. Date

**B. Findings**

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

- a.  Public Water Supply
- b.  Land Containing Shellfish
- c.  Prevention of Pollution
- d.  Private Water Supply
- e.  Fisheries
- f.  Protection of Wildlife Habitat
- g.  Groundwater Supply
- h.  Storm Damage Prevention
- i.  Flood Control
- j.  Wetland Scenic Views (bylaw)
- k.  Recreation (Bylaw)

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

**Approved subject to:**

- a.  the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.



**WPA Form 5 – Order of Conditions**

**B. Findings (cont.)**

Denied because:

- b.  the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**
- c.  the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**
3.  Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) \_\_\_\_\_ a. linear feet

**Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)**

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. <input type="checkbox"/> Bank	_____ a. linear feet	_____ b. linear feet	_____ c. linear feet	_____ d. linear feet
5. <input type="checkbox"/> Bordering Vegetated Wetland	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
6. <input type="checkbox"/> Land Under Waterbodies and Waterways	_____ a. square feet _____ e. c/y dredged	_____ b. square feet _____ f. c/y dredged	_____ c. square feet	_____ d. square feet
7. <input type="checkbox"/> Bordering Land Subject to Flooding	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
Cubic Feet Flood Storage	_____ e. cubic feet	_____ f. cubic feet	_____ g. cubic feet	_____ h. cubic feet
8. <input type="checkbox"/> Isolated Land Subject to Flooding	_____ a. square feet	_____ b. square feet		
Cubic Feet Flood Storage	_____ c. cubic feet	_____ d. cubic feet	_____ e. cubic feet	_____ f. cubic feet
9. <input type="checkbox"/> Riverfront Area	_____ a. total sq. feet	_____ b. total sq. feet		
Sq ft within 100 ft	_____ c. square feet	_____ d. square feet	_____ e. square feet	_____ f. square feet
Sq ft between 100-200 ft	_____ g. square feet	_____ h. square feet	_____ i. square feet	_____ j. square feet

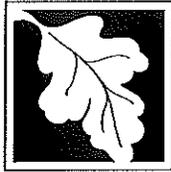


**WPA Form 5 – Order of Conditions**

**B. Findings (cont.)**

**Coastal Resource Area Impacts:** Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. <input type="checkbox"/> Land Under the Ocean	_____	_____		
	a. square feet	b. square feet		
	_____	_____		
	c. c/y dredged	d. c/y dredged		
12. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. <input checked="" type="checkbox"/> Coastal Beaches	<sup>37,000 (perm)/35,000 (temp)</sup> _____	_____	<sup>~21,000 cy annual mitigation</sup> _____	_____
	a. square feet	b. square feet	c. nourishment	d. nourishment
14. <input type="checkbox"/> Coastal Dunes	_____	_____	_____	_____
	a. square feet	b. square feet	c. nourishment	d. nourishment
15. <input checked="" type="checkbox"/> Coastal Banks	950 _____	_____		
	a. linear feet	b. linear feet		
16. <input type="checkbox"/> Rocky Intertidal Shores	_____	_____		
	a. square feet	b. square feet		
17. <input type="checkbox"/> Salt Marshes	_____	_____	_____	_____
	a. square feet	b. square feet	c. square feet	d. square feet
18. <input type="checkbox"/> Land Under Salt Ponds	_____	_____		
	a. square feet	b. square feet		
	_____	_____		
	c. c/y dredged	d. c/y dredged		
19. <input type="checkbox"/> Land Containing Shellfish	_____	_____	_____	_____
	a. square feet	b. square feet	c. square feet	d. square feet
20. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	_____	_____		
	a. c/y dredged	b. c/y dredged		
21. <input checked="" type="checkbox"/> Land Subject to Coastal Storm Flowage	<sup>37,000 (perm)/35,000 (temp)</sup> _____	_____		
	a. square feet	b. square feet		



Massachusetts Department of Environmental Protection  
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**WPA Form 5 – Order of Conditions**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40  
And the Town of Nantucket Wetlands Bylaw Chapter 136

Provided by MassDEP:  
SE48- 2824  
MassDEP File #

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Nantucket  
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**B. Findings (cont.)**

22.  Restoration/Enhancement \*:

\_\_\_\_\_ a. square feet of BVW

\_\_\_\_\_ b. square feet of salt marsh

23.  Stream Crossing(s):

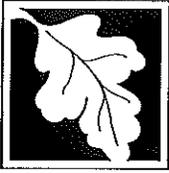
\_\_\_\_\_ a. number of new stream crossings

\_\_\_\_\_ b. number of replacement stream crossings

**C. General Conditions Under Massachusetts Wetlands Protection Act**

**The following conditions are only applicable to Approved projects.**

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
  - a. the work is a maintenance dredging project as provided for in the Act; or
  - b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on **09/30/18** unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.



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Bureau of Resource Protection - Wetlands

## WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40  
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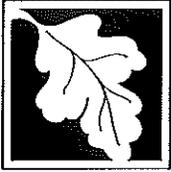
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### C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.
10. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,  

"Massachusetts Department of Environmental Protection" [or, "MassDEP"]  
"File Number            SE48- 2824 "
11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.



Massachusetts Department of Environmental Protection  
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## WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40  
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### C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

#### NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. **The work associated with this Order (the "Project") is (1)  is not (2)  subject to the Massachusetts Stormwater Standards. If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:**

a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:

- i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;
- ii.* as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;
- iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;
- iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;
- v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.



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## WPA Form 5 – Order of Conditions

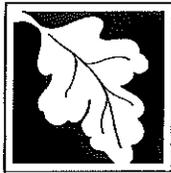
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40  
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### C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

- c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: *i.*) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and *ii.*) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.
- d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.
- e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 18(f) through 18(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 18(f) through 18(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.
- f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.



Massachusetts Department of Environmental Protection  
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## WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40  
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### C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

- g) The responsible party shall:
1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
  2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
  3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.
- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.
- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

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**WPA Form 5 – Order of Conditions**

**D. Findings Under Municipal Wetlands Bylaw or Ordinance**

- 1. Is a municipal wetlands bylaw or ordinance applicable?  Yes  No
- 2. The Nantucket Conservation Commission hereby finds (check one that applies):

- a.  that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

1. Municipal Ordinance or Bylaw

2. Citation

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

- b.  that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

1. Municipal Ordinance or Bylaw

2. Citation

- 3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):

Please view additional findings and conditions page(s)

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Town of Nantucket, Massachusetts  
**WPA Form 5 – Order of Conditions**  
The Town of Nantucket Bylaw Chapter 136

DEP File Number:

SE48-2824  
Provided by DEP

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## B1. Additional Conditions

The Town of Nantucket Conservation Commission has found it necessary to include these additional conditions as a standard part of every Order. If the condition applies, then the corresponding box will be checked:

- 1. Pursuant to General Condition Number 8, this Order of Conditions must be registered with the Registry of Deeds for Nantucket, and proof of recording shall be submitted to the Commission prior to the commencement of any work approved in this Order.
- 2. No work approved under this Order shall take place until all administrative appeal periods from the Order have elapsed, or, if an appeal has been filed, until all proceedings have been completed.
- 3. The landowner, applicant, and/or the contractor will notify the Commission in writing five days prior to the start of work. The letter shall state the name, address, and telephone number of the project supervisor who will be responsible for insuring onsite compliance with this Order. (All erosion/sedimentation control devices shall be installed BEFORE the start of work.)
- 4. Prior to any activity at the site, a snow fence, siltation fence or a line of straw bales shall be staked as shown on the plan of record. After the fence or straw bales are installed, notice shall be given to the Nantucket Conservation Commission. **No work shall begin on the site for 72 hours after said notice is given; so as to allow Commission members time to inspect all siltation devices.** The snow fence, siltation fence, or straw bale line erected to prevent siltation, erosion, filling of the wetland, and trap windblown debris during construction, will also serve as a limit of the activity for work crews. It shall remain in good repair during all phases of construction, and it shall not be removed until all soils are stabilized and revegetated or until permission to remove it is given by the Commission.
- 5. An as-built plan, signed and stamped by a registered professional engineer or land surveyor in the Commonwealth of Massachusetts, and having the same scale as the final approved plans, shall be submitted to the Commission at the same time as a written request for a Certificate of Compliance, and shall specify how, if at all, the completed plan differs from the final approved plan. The as-built plan shall include, but not be limited to, the following: any/culvert inverts for inflow and outfalls; pipe slope, size, and composition; location of any other drainage structures and their composition; limits of fill or alteration; location of all structures and pavement within 100 feet of the wetland; the edge of the wetland; the grade contours within 100 feet of the wetland.
- 6. Members, employees, and agents of the Commission shall have the right to enter and inspect the premises to evaluate compliance with the conditions and performance standards stated in this Order, the Massachusetts Wetlands Protection Act, and pertinent Massachusetts regulations (310CMR10:00 through 10:99). The Commission may require the submittal of any data deemed necessary by the Commission for that evaluation.
- 7. The applicant, owners, successors, or assignees shall be responsible for maintaining any on-site drainage structures and outfalls, assuring the lasting integrity of vegetative cover on the site, and monitoring of site activities so as to prevent erosion, siltation, sedimentation, chemical contamination, or other detrimental impact to any on-site or off-site resource area. It shall be the responsibility of the property owner of record to ensure compliance with the maintenance conditions required by this Order.



Town of Nantucket, Massachusetts  
**WPA Form 5 – Order of Conditions**  
The Town of Nantucket Bylaw Chapter 136

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**B1. Additional Conditions (cont.)**

- 8. This document shall be included in all construction contracts and subcontracts dealing with the work proposed and shall supersede other contract requirements.
- 9. A complete copy of this permit, including its drawings, Special Conditions, and any Amendments shall be available at the work site whenever work is being performed. The permittee shall provide a copy of this permit to all contractors, subcontractors, and other personnel performing work relating to this project in order to assure full knowledge and compliance with the permit's terms and conditions.
- 10. Natural vegetation between the wetland edge and upland edge of the Undisturbed Buffer shall be left intact. Within 48 hours of project completion, weather permitting, all disturbed areas shall be replanted as previously approved by the Commission. There shall be at least a 25-foot undisturbed buffer on the upland side of the wetland boundary, unless otherwise specified by this Order. This shall be an ongoing Condition that shall survive the expiration of this permit and shall be so noted on the Certificate of Compliance.
- 11. To minimize adverse effects on wildlife and water resources, the use of any pesticide or fertilizer requires explicit permission to be granted by the Commission. This shall be an ongoing Condition that shall survive the expiration of this permit, and shall be so noted on the Certificate of Compliance.
- 12. In all cases, no part of any structure, including decks, stairs, cantilevers, etc., may be closer than 50 feet from the approved wetland boundary unless otherwise specified in this Order. This shall be an ongoing Condition that shall survive the expiration of this permit and shall be so noted on the Certificate of Compliance.
- 13. Any refuse material found on the site shall be disposed of at an approved landfill and in no case may these materials be buried or disposed of in or near a wetland.
- 14. This Order of Conditions shall apply to any successor in interest or successor in control of the property.
- 15. No underground petroleum product storage tanks are allowed within 100 feet of any wetland or within any velocity (V) flood zone as indicated on the most recent FEMA floodplain maps.
- 16. No work under this Order of Conditions may proceed until the applicant has filed all necessary permits and applications with:  
Board of Health, ZBA, HDC, Building Inspector, Army Corps of Engineers, DEP, Waterways, MNH, etc.
- 17. All construction and alterations must comply with the above referenced plans and the Conditions of this Order. Any changes intended to be made in the plans or in the work shall require the applicant to file a new Notice of Intent, or to inquire of the Commission in writing whether the change is substantial enough to require a new filing. No change in plan or work under this filing is permissible without a new Notice of Intent, or permission from the Commission.

**FINDINGS and ADDITIONAL CONDITIONS**  
Massachusetts Wetlands Protection Act (MGL Chapter 131, Section 40)  
Town of Nantucket Wetlands Bylaw (Chapter 136)

Address: 87-105 Baxter Road  
Assessor's Map and Parcel: 48-8, 14, 14.1, 15, 17, 18, 19, 21, 22, 35  
Property Owner: Town of Nantucket  
Applicant: Siasconset Beach Preservation Fund (SBPF)  
DEP File Number: SE 48-2824  
Filing Date: 8/14/2015  
Date Hearing Closed: 9/10/2015  
Date Orders Issued: 9/30/2015  
Plan of Record Information: Baxter Road Stabilization Project (2 Sheets), dated 3/12/2013, Final revision of 9/9/2015, stamped by Joseph R. Marrone, P.E.

**Permit Overview:**

This order is issued and permits the Project, being the ongoing maintenance of an existing three tiers of sand-filled geotubes along 87-105 Baxter Road, installation of a fourth tier of geotubes along lots 91, 93, 97 and 99, installation of smaller geotextile tubes as returns on the ends of the structure, planting of vegetation and ongoing maintenance, sand mitigation and nourishment on a Coastal Bank, Coastal Beach, Land Under the Ocean and Land Subject to Coastal Storm Flowage. A drainage system is permitted under this Order which is within the Coastal Bank its associated buffer zone and the buffer zone to a Bordering Vegetated Wetland.

**Project Proposal:**

The Order of Conditions is based on information submitted in the Notice of Intent dated 8/14/2015, its attachments, follow-up information submitted on behalf of SBPF to the Conservation Commission, and the plan of record. The Commission also considered and relied upon other pertinent supplemental information including and not limited to:

- Original Filing Package dated 8/14/2015
- Plan of Record and previous revisions
- Property owner assents
- Construction Dates of Baxter Road Properties by SBPF
- Sconset Beach Velocity Dissipator, dated 8/27 by Haley & Aldrich
- Geotube Return (2 sheets), dated 8/17/15 and stamped by Joseph F. Marrone, P.E.
- Photos submitted by Ian Golding 9/2/2015
- Letter from Nantucket Land Council, dated 9/2/2015
- Submission from Sharon VanLieu dated 9/3/2015
- Letter from Epsilon Associates, Inc. dated 9/8/2015
- Letter from COWI, dated 9/9/2015
- Letter from Dr. Robert Young, dated 9/9/2015
- Letter from Nantucket Land Council, dated 9/10/2015
- Letter from Nantucket Coastal Conservancy, dated 9/10/2015

Siasconset Beach Preservation Fund – Geotube Project, SE48-2824, 87-105 Baxter Road

- Letter from Quidnet Squam Association dated 9/10/2015
- The record from DEP File Number SE48-2610 as shown below:
  - Original Filing Package by the Town of Nantucket (TON) and the Siasconset Beach Preservation Fund (SBPF), dated 10/23/2013
  - 2014-5-14 NLC Submission
  - 2014-5-14 Van Lieu Submission
  - 2014-5-14 Roggeveen Quidnet Squam Submission
  - 2014-5-14 Atherton Submission
  - 2014\_5\_9 SBPF Submission
  - 2014\_5\_9 SBPF Submission Regulatory Compliance
  - 2014-5-2 Trillos Submission
  - 2014\_4\_30 Van Lieu Submission
  - Sconset Presentation 2014-4-30
  - 2014\_4\_28 Sconset Bluff Updated Returns Plans
  - 2014\_4\_25 SBPF Submission
  - 2014\_4\_2 Ian Golding Submission
  - Applied Coastal 2013\_11\_8
  - Baxter Road Homeowners 2013\_11\_12
  - Case Study 2013\_10\_30
  - Cottage and Castle 2014\_2\_17
  - DPW Submission 2013\_11\_13
  - Enforcement Order 2014\_2\_5
  - FishTec Inc 2014\_2\_12
  - Flint Industries 2014\_2\_18
  - Jim OConnell Letter 2013\_11\_4
  - Kopelman and Paige 2013\_11\_13
  - Mary Wawro Submission 2013\_11\_6
  - Memo from Ocean and Coastal Consulting 2013\_12\_6
  - Milone and MacBroom 2013\_10\_25 Attachments
  - Milone and MacBroom 2013\_10\_25 Narrative and Plans
  - Milone and MacBroom 2013\_11\_1
  - Milone and MacBroom 2013\_11\_05
  - Milone and MacBroom 2013\_11\_19
  - Milone and MacBroom 2013\_12\_03
  - Milone and MacBroom 2013\_12\_03\_Nantucket\_PlanSet
  - Milone and MacBroom Letter 2013\_11\_12
  - Milone and MacBroom Plans 2013\_10\_30
  - Nantucket Land Council and Applied Coastal 2013\_11\_1
  - Nantucket Land Council Letter 2014\_2\_18
  - NLC 2013\_11\_01
  - NLC Submission 2014\_3\_28
  - Notice of Intent Application
  - Posner Letter 2013\_11\_18

Siasconset Beach Preservation Fund – Geotube Project, SE48-2824, 87-105 Baxter Road

- Quidnet Squam 2013\_11\_19
- Roggeveen Submission 2013\_10\_30
- SBPF- ASBUILT-JAN-30-2014
- SBPF Letter 2014\_2\_12
- SBPF Letter 2014\_3\_28
- SBPF Submission 2013\_11\_1
- SBPF Submission 2013\_11\_6
- SBPF Submittal 2014\_3\_19
- Submission from D.Anne Atherton
- USACE 2014\_2\_4

**Additional Findings:**

1. The Commission finds that the areas subject to regulation are coastal beach, coastal bank, land subject to coastal storm flowage, land under the ocean, bordering vegetated wetland and their associated buffer zones.
2. The Commission finds that the property is not located within Priority Habitat of Rare Species or Estimated Habitat of Rare Wildlife as defined by the Massachusetts Natural Heritage and Endangered Species Program.
3. The Commission finds that coastal beach is determined to be significant to storm damage prevention, flood control and protection of wildlife habitat as defined by the Commonwealth of Massachusetts Wetlands Protection Act (MGL Chapter 131§40) as those definitions are made applicable to this Order of Conditions by section 1.02 of the Nantucket Wetlands Protection Regulations.
4. The Commission finds that coastal bank is determined to be significant to storm damage prevention, and flood control because it supplies sediment to the coastal beach as defined by the Commonwealth of Massachusetts Wetlands Protection Act (MGL Chapter 131§40) as those definitions are made applicable to this Order of Conditions by section 1.02 of the Nantucket Wetlands Protection Regulations.
5. The Commission finds that coastal bank is determined to be significant to storm damage prevention, and flood control because it is a vertical buffer to storm waters as defined by the Commonwealth of Massachusetts Wetlands Protection Act (MGL Chapter 131§40) as those definitions are made applicable to this Order of Conditions by section 1.02 of the Nantucket Wetlands Protection Regulations.
6. The Commission finds that the coastal beach is significant to the protection of the following interests: flood control, erosion control, storm damage prevention, fisheries, shellfish, wildlife, recreation and wetland scenic views as defined by the Town of Nantucket Wetlands Protection Bylaw (Chapter 136).
7. The Commission finds that the coastal bank is significant to the protection of the following interests: flood control, erosion control, storm damage prevention, wildlife, and wetland scenic views as defined by the Town of Nantucket Wetlands Protection Bylaw (Chapter 136).
8. The Commission finds that the land subject to coastal storm flowage is significant to the protection of the following interests: flood control, erosion control, storm damage prevention, wildlife, and water quality as defined by the Town of Nantucket Wetlands Protection Bylaw (Chapter 136).

9. The Commission recognizes this particular coastal beach and coastal bank exist in an integrated system of resource areas in a highly dynamic coastal environment and that that coastal bank is comprised of mixed glacial till material with locally perched groundwater.
10. The Commission recognizes that the coastal bank is subject to significant erosion due to wave action, overland storm water erosion and groundwater flow/discharge.
11. The Commission finds that the presence of beach and benthic invertebrates and micro-organisms within the beach and benthic environment is essential to the function of the beach and benthic ecosystem and the protection of wildlife.
12. The Commission finds that the Project is proposed to protect pre-1978 buildings and essential public infrastructure providing access and utilities for such.
13. The Commission finds that the Project is water dependent because direct access to the coastal bank and coastal beach is required to achieve the purpose of the Project, which is to stabilize the coastal bank, provide erosion control, storm damage prevention and flood control, which cannot be done outside of the coastal bank and coastal beach resource areas.
14. The Commission finds that these dwellings and infrastructure are in danger, due to erosion of the coastal bank.
15. The Commission finds that the existing portion of this Project was undertaken as an emergency project to protect public health and safety, with the condition that the Applicant return to the Commission to seek an Order of Conditions after the emergency was abated.
16. Since a three-tier geotextile structure has already been in place for two winter storm seasons and MassDEP has found that it can be maintained so as to minimize adverse effects and to protected jurisdictional resource areas, the Commission finds that the Project should continue to be maintained and that regular monitoring and reporting will be necessary to determine the effectiveness of the project for this distinct project area.
17. Based on the following:
  - a. The record presented,
  - b. The proposed monitoring and mitigation plan,
  - c. Certain findings by MassDEP in its Superseding Order of Conditions which is part of the record herein,
  - d. The desire to impose performance standards and monitoring and mitigation protocols not otherwise available in an emergency order,
  - e. The approval of the Project by MassDEP on a temporary basis, with significant mitigation and monitoring protocols, and with established failure criteria,
  - f. That the continued control of the erosion in this location is currently necessary to abate the certified emergency, and that in this particular location, continued maintenance of this Project is warranted under the circumstances, as conditioned.
18. Therefore, the Commission finds that the Project can be expanded with returns and maintained, as provided, on a temporary basis, with conditions and controls specified in the conditions section below. In making the above finding, the

Siasconset Beach Preservation Fund – Geotube Project, SE48-2824, 87-105 Baxter Road

Commission relies on the representation of the Applicant that, subject to receiving an appropriate Order of Conditions which is not appealed, the Applicant will not seek to expand the length or time of the Project approval, until after January 1, 2018, and that the construction of a longer length or longer term project shall not start until September 1, 2018, which will allow the Commission the opportunity to observe and assess the effectiveness and impacts of the Project for five storm seasons. The Commission will make its best efforts to review and decide such an application within 120 days. It is understood that the Applicant may apply for localized alterations to the Project as may be appropriate based on site conditions, and may apply for any alteration or expansion necessary to address any emergencies.

**In addition to the General Conditions contained elsewhere in this document, the Commission includes the following Special Conditions pursuant to the Town of Nantucket Wetlands Protection Bylaw, Chapter 136:**

19. This order permits the continued maintenance of the existing 852 ± foot long 3-tier geotube structure along 87-105 Baxter Road and the installation of a fourth tier of geotubes across the existing system but limited to the area fronting along 91, 93, 97 and 99 Baxter Road. The applicant is also permitted to construct returns as described in the December 19, 2014 MassDEP Superseding Order of Conditions and as further modified in the plan of record dated 9/9/2015 and may also plant vegetation above the geotubes and returns, including the filling of gullies and rivulets as approved by the Conservation Commission on February 18, 2015. This Order approves the Geotubes as a temporary installation for a period of three years, with the option for the proponents to request an extension of the term for a maximum of three additional years in accordance with the provisions set out herein.
20. Notice of work commencement shall be given to the Nantucket Conservation Commission (“NCC” or the “Commission”) and the Massachusetts Department of Environmental Protection (“Department”) at least 48 hours prior to the commencement of work.
21. Prior to installation of the fourth tier of Geotubes on lots 91, 93, 97, 99 and returns, SBPF shall ascertain the width of the beach seaward of the existing Geotubes to determine whether there is sufficient beach width landward of mean high water (MHW) to conduct activities associated with the installation of the fourth tier and returns in accordance with the proposed construction methodology. In the event the beach is not sufficiently wide to allow Geotube installation in accordance with the proposed construction methodology, SBPF shall submit an alternative construction methodology for the Nantucket Conservation Commission and Department's review and approval. SBPF shall provide copies of such materials submitted to the Department to NCC.
22. Prior to installation of the fourth tier of Geotubes on lots 91, 93, 97, 99 and returns, SBPF shall mark the MHW line with surveyed stakes, obtain Global Positioning System (GPS) coordinates along the MHW line and shall maintain the

Siasconset Beach Preservation Fund – Geotube Project, SE48-2824, 87-105 Baxter Road

- stakes throughout the duration of construction. GPS coordinates shall be submitted to the Department and the NCC within 2 weeks of collection.
23. Any sand within the Geotubes or sand placed on top of the fourth tier shall not be considered to be part of the mitigation amount required yearly by the project.
  24. The staked position of the MHW line shall serve as a limit of work throughout the duration of construction. No work is allowed seaward of the MHW line under this OOC.
  25. All sand used for mitigation or to fill and cover the Geotubes shall be imported from an off-site source and shall be compatible with the existing bank and beach sediments.
  26. As proposed, the sand-filled Geotube returns, fourth tier of geotubes and returns on the fourth tier of geotubes shall be installed in a manner to form closure between the existing Geotubes and the adjacent bluff without excavation into the coastal bank. All beach sand excavated to install the returns shall remain on the beach and shall be used to restore the beach following construction.
  27. The ongoing beach monitoring/survey program currently conducted by the Woods Hole Group shall continue. The monitoring program shall be conducted on a quarterly basis for the first 3 years in order to timely identify beach impacts that may be attributable to the Geotubes and to assess whether the mitigation program is adequate. Beach profiles shall be taken on a quarterly basis along the 44 proposed profile lines. Beach profiles shall be taken from the top of the coastal bank, coastal dune or Geotube seaward to the -5 foot MLW contour. Beach profile data and analysis shall be submitted to the Department and the NCC within 30 days of completion of the quarterly survey. Following 3 years of quarterly surveys, SBPF may request to amend the Order of Conditions to alter the monitoring program.
  28. As proposed, offshore (bathymetric) profiles shall be taken each spring and fall. GPS locations shall be taken along each transect with the coordinates provided. These transects shall be reused for each survey to cover the same areas. Offshore profiles shall be taken out to the -25 foot to -35 foot MLW92 contour or 2,000 to 3,000 feet offshore, whichever is greater. The bathymetric survey transects shall overlap the beach profiles (no gaps) and the tide gage used during the survey shall be surveyed into the same datum as the beach profiles. Bathymetry profile data and analysis shall be submitted to the Department and NCC within 30 days of completion of the survey. Photographs and/or video shall be taken along the transects within the project area and the area directly adjacent to the project area. The underwater video shall be able to characterize the bottom sediments, species present and relative abundance including the calculating of the percent cobble where appropriate.
  29. An annual assessment report summarizing the beach and bathymetric profile monitoring program, including habitat and substrate sampling, and the invertebrate sampling from the approved protocol shall be submitted to the Department and the NCC each year. This report shall, at a minimum, provide an analysis of beach changes including volumetric changes between surveyed transects, assess location of the top of coastal bank and estimate bank retreat over the previous 12 months and calculate bank volume loss in the project area and 300 feet to the north and south. In addition, the report shall recommend any necessary
- Siasconset Beach Preservation Fund – Geotube Project, SE48-2824, 87-105 Baxter Road

- changes to the beach nourishment program for the Conservation Commission's review and approval. The report will also evaluate shoreline change within the area covered by the quarterly transects.
30. This annual report shall include presentation to the Commission at a regularly scheduled public meeting of the Commission to discuss the data included and what conditions and impacts are being seen as part of the project.
  31. Post-Storm monitoring reports shall be submitted following all significant storms. A storm will be considered "significant" if there are sustained winds over 40 mph over at least a 6 hour period according to NOAA's National Climate Data Center, Nantucket Memorial Airport station. The post-storm monitoring report shall include, at a minimum, photo-documentation of the condition of the Geotubes and nourishment sand within the project area, estimate of the volume of sand lost from the sand template, estimate of the beach level in front of the Geotubes to determine if replenishment is needed, estimate of volume of sand (if necessary) and schedule for delivery, identification of the location of any exposed geotextile or of any repair required to the geotextile, and visual observation of the ends of the Geotubes to determine if flanking is occurring. Such reports shall be submitted to the Department and the NCC as soon as possible following all significant storms but no later than 7 days from the end of the storm.
  32. Sand mitigation shall be at a rate of 22 cubic yards per linear foot (cy/lf) per year in accordance with the following schedule:
    - a. Provide the required sand cover during and/or immediately following construction of the fourth tier and returns. Sand cover volume shall be in accordance with the following schedule.
    - b. Annually in April: Provide additional sand and/or adjust the existing template to obtain a minimum two foot cover over the Geotubes to protect them from UV degradation. The volume of any sand placed in April shall be recorded and counted towards the annual 22 cy/lf requirement.
    - c. Annually in September-November: Place an additional volume of sand, to ensure a substantial portion of the sand template volume (10-15 cy/lf) is available at the onset of the winter storm season. Throughout the winter, place additional sand on an as-needed basis, in accordance with the replenishment trigger in the Milone & MacBroom November 12, 2013 letter (i.e., if half the vertical height of the lowest Geotube is exposed, place a minimum of 2 cy/lf). If the balance of the 22 cy/lf volume is not placed in its entirety before March 1, the balance of the sand will be placed by March 31.
    - d. Delivery tickets from sand supplier shall be provided annually to the Department and the NCC to document the total volume of sand provided on a yearly basis.
  33. If there is not adequate space to provide the entire mitigation volume within the project area footprint, then any remaining sand shall be placed in a berm at the toe of the coastal bank and landward of MHW within 300 feet of the ends of the Geotubes upon notice to the Commission demonstrating that placement within the project area is not possible. Any additional sand placed outside of the project area shall be equally distributed to the areas north and south of the project area.

34. Failure of SBPF to conduct the actions set out in subsections (a) to (f) herein shall constitute a project failure ("failure criteria") if not performed within the stipulated timeframes or within such other reasonable periods of time as determined by the Commission in the event of a delay in performance outside the control of SBPF, or if there are unmitigated adverse impacts from the project. The "failure criteria" include:
- a. Failure to provide the sand mitigation as required herein.
  - b. Failure to conduct the shoreline monitoring and post-storm monitoring as required herein.
  - c. Failure to repair and/or replace damaged geotextile tubes in a timely manner. If repair or replacement cannot be accomplished within 30 days from the date of the damage, SBPF shall notify the Department and the NCC before 30 days have elapsed and provide a repair schedule for Department review and approval.
  - d. Excessive loss in updrift or downdrift beach cross section that can be attributed to the project. If the quarterly monitoring program identifies excessive loss to the adjacent shoreline (compared to historical data) that may be attributable to the project, then SBPF shall provide notice to the Department and the NCC within 30 days of the completion of the quarterly survey. Upon such notice the procedures set forth in the SOC for such circumstances shall apply.
  - e. Failure to maintain adequate beach width in front of the Bank. If the beach in the project area erodes so that the position of MHW migrates landward to the seaward edge of the second tier of geotextile tubes for any two consecutive quarterly surveys, then within 30 days of completion of the second quarterly survey SBPF shall provide notice to the Department and the NCC.
  - f. Failure to maintain a walkable beach in front of the Geotubes. It shall be a failure if the beach on the seaward side of the coastal bank is not passable by foot and has narrowed by a greater percentage in comparison to the widths of nearby and adjacent beaches up-drift and down-drift, including those beaches in front of other forms of erosion control, for the majority of two consecutive quarters, considering storms, tides, and similar conditions. It is understood that the portion of the beach in front of the geotubes is by definition narrower than nearby unprotected beaches because the geotubes and the sand template covers the back of the beach. In calculating whether the beach has narrowed disproportionately the distance will be measured from Mean High Water to the natural toe of the bluff which in some locations is buried behind the erosion protection system. Upon such a failure SBPF, shall provide notice to the Department and the NCC within 30 days.
  - g. Failure to maintain all required insurance, permits and licenses.
  - h. Failure to meet reporting requirements or good faith effort to provide required reporting.
35. Should any of the failure criteria be met, the Applicant shall schedule an appearance before the Conservation Commission at its next available hearing.

The Commission shall review the failure and determine how the Applicant shall act to address it.

36. In the event removal of the Geotubes is ordered, then the geotextile fabric shall be cut, removed and properly disposed of. Following removal of the geotextile fabric, sand from the Geotubes shall be spread along the beach landward of MHW. SBPF and the Town shall maintain the escrow fund in place as of the date of this OOC to ensure the availability of funds to pay for the removal of the Geotubes. Lack of adequate funds in the escrow account shall not negate SBPF's requirement for Geotube removal.
  37. SBPF shall be responsible for the retrieval and proper disposal of all geotextile products associated with this project in the event wave action and erosion destroys or otherwise causes damage to the Geotube system.
  38. This OOC approves the operation and connection of the previously installed coastal bank drainage system on 91 Baxter Road in accordance with the plan dated 9/9/2015.
  39. As proposed, exposed areas on the face of the coastal bank, other than the upper 5-7 feet, may be stabilized using biodegradable erosion control blankets planted with beach grass and/or other indigenous coastal vegetation. The erosion control blankets and plantings shall be installed with hand tools with workers repelling down the bank face.
  40. All construction refuse shall be removed from the site and disposed of in compliance with all local, State, and Federal laws and regulations.
  41. Approval for the project is for three years, with the option to request a three-year extension upon expiration of the initial three-year term. The applicant shall not apply for a long term or long length expansion of the Project prior to January 1, 2018 and shall not begin construction of such until after September 1, 2018. The Applicant may apply for localized alterations to the Project as may be appropriate based on site conditions, and may apply for any alteration or expansion necessary to address an emergency or imminent danger.
  42. All access for construction or maintenance vehicles along the beach to the project area shall be from the Hoick's Hollow access to the South. That access shall be blocked off and maintained at all times to prevent other vehicles from entering the beach area. The applicant shall get a written sign off from the Natural Resources Coordinator on a bi-weekly basis from April 1st to September 15th to use vehicles on the beach. The sign-off will serve to confirm the presence or absence of any protected species within the project area or route of travel to and from the project area. That gate shall be repaired within 48 hours of any damage.
  43. The use of small vehicles, such as a beach buggy, to inspect or repair the Geotubes and sand cover is permitted, provided the Natural Resources Coordinator sign-off described herein is obtained.
  44. The Town of Nantucket as an assenting property owner and SBPF as the applicant shall provide the Commission with updates every six months on the status of the efforts to relocate alternative access and public utilities' infrastructure at the northern end of Baxter Road.
  45. Upon completion of the initial construction of the project as permitted, a partial Certificate of Compliance shall be requested. A stamped as-built plan and a statement from a Professional Engineer or a Professional Land Surveyor
- Siasconset Beach Preservation Fund – Geotube Project, SE48-2824, 87-105 Baxter Road

registered in the Commonwealth of Massachusetts certifying compliance with the plans and conditions of this Order shall accompany the request for a partial Certificate of Compliance.

46. Upon relocation of Baxter Road the applicant shall appear before the Commission to discuss if the Geotubes in front of land not containing pre-1978 structures shall be removed and returns installed, in keeping with those shown on the plan of record, on the remaining Geotube structure. This shall take place within 90 days of the relocation of Baxter Road.
47. The returns constructed on the fourth tier of Geotubes shall be contained on the parcels that are allowed to contain the fourth tier.
48. Should the quarterly surveys show an accelerated rate of coastal retreat within the entire survey area SBPF shall be required to demonstrate that those impacts are not attributed to this project.
49. The applicant shall be required to provide a copy of the required insurances by the License Agreement dated December 13, 2013 between the Town of Nantucket, SBPF, and private property owners.
50. Groundwater levels within the Bordering Vegetated Wetlands adjacent to the drainage system and Baxter Road shall be taken at the beginning, middle and end of the growing season to determine if the drainage system is having an adverse impact to the vegetated wetlands. If there is a change in groundwater deemed significant by the Commission they may call for the discontinuation or removal of the system.
51. A yearly report on the performance of the drainage system is to provide to the Commission. The report shall include the area serviced by the drainage system, and the maximum amount of water that entered the system during a storm event.
52. A list of all sand sources currently being used shall be provided to the Commission. Should an additional source be added or change a sieve analysis demonstrating compatible material shall be provided to the Commission for review and approval prior to the installation of any material.
53. The ability of SBPF to conduct the actions set out in subsections (a) to (f) herein shall constitute a project success ("success criteria") if performed within the stipulated timeframes or within such other reasonable periods of time as determined by the Commission in the event of a delay in performance outside the control of SBPF. The "success criteria" include:
  - a. The ability to provide the sand mitigation as required herein.
  - b. Completion, presentation and review of all the shoreline monitoring and post-storm monitoring as required herein.
  - c. Successful repair and/or replace of damaged geotextile tubes in a timely manner.
  - d. No excessive loss in updrift or downdrift beach cross section that can be attributed to the project. Including taking proper action as directed by the Commission to address any impacts show be the reporting requirements herein
  - e. Maintenance of adequate beach width in front of the Bank as defined through the reporting requirements and reviewed by the Commission.
  - f. Maintenance of a walk able beach in front of the Geotubes at high tide. It is understood that the portion of the beach in front of the geotubes is by

Siasconset Beach Preservation Fund – Geotube Project, SE48-2824, 87-105 Baxter Road

definition narrower than nearby unprotected beaches because the geotubes and the sand template covers the back of the beach.

- g. No excessive loss of the area subject to protection by the project.
- 54. A copy of the license as approved by the Board of Selectmen shall be provided to the Commission. Prior to any extension or revision of this project a copy of the valid license to allow the project and the duration of the license to be long enough to cover the project as proposed shall be provided to the Commission.
- 55. All surveyed elevations shall be shown in the NAVD 88 datum plane to match the datum of the current FEMA flood mapping, or a conversion factor shall be provided from the published data to the NAVD 88 datum plane.
- 56. A summer sample of the invertebrate life within the beach from three locations in the project area, three locations within the area between the project and the Hoicks Hollow access, three samples to be taken to the north of Hoick's Hollw, and three samples to be taken south of Codfish Park and compared to determine impacts on the invertebrate community of the Coastal Beach. The samples shall be taken along the existing surveyed transects and locations of the samples shall be provided to the Commission. Prior to the taking of the samples a protocol of the sampling shall be provided to the Commission for review and approval.
- 57. All raw survey data shall be made available to the Commission and public.
- 58. The Commission will require an independent peer review of the data and reporting. Any cost incurred by the peer review shall be paid by the applicant. All reviewers shall be agreed upon by the Commission and the applicant.
- 59. A daily work log documenting all project activity shall be filed with the Commission as part of each quarterly report.

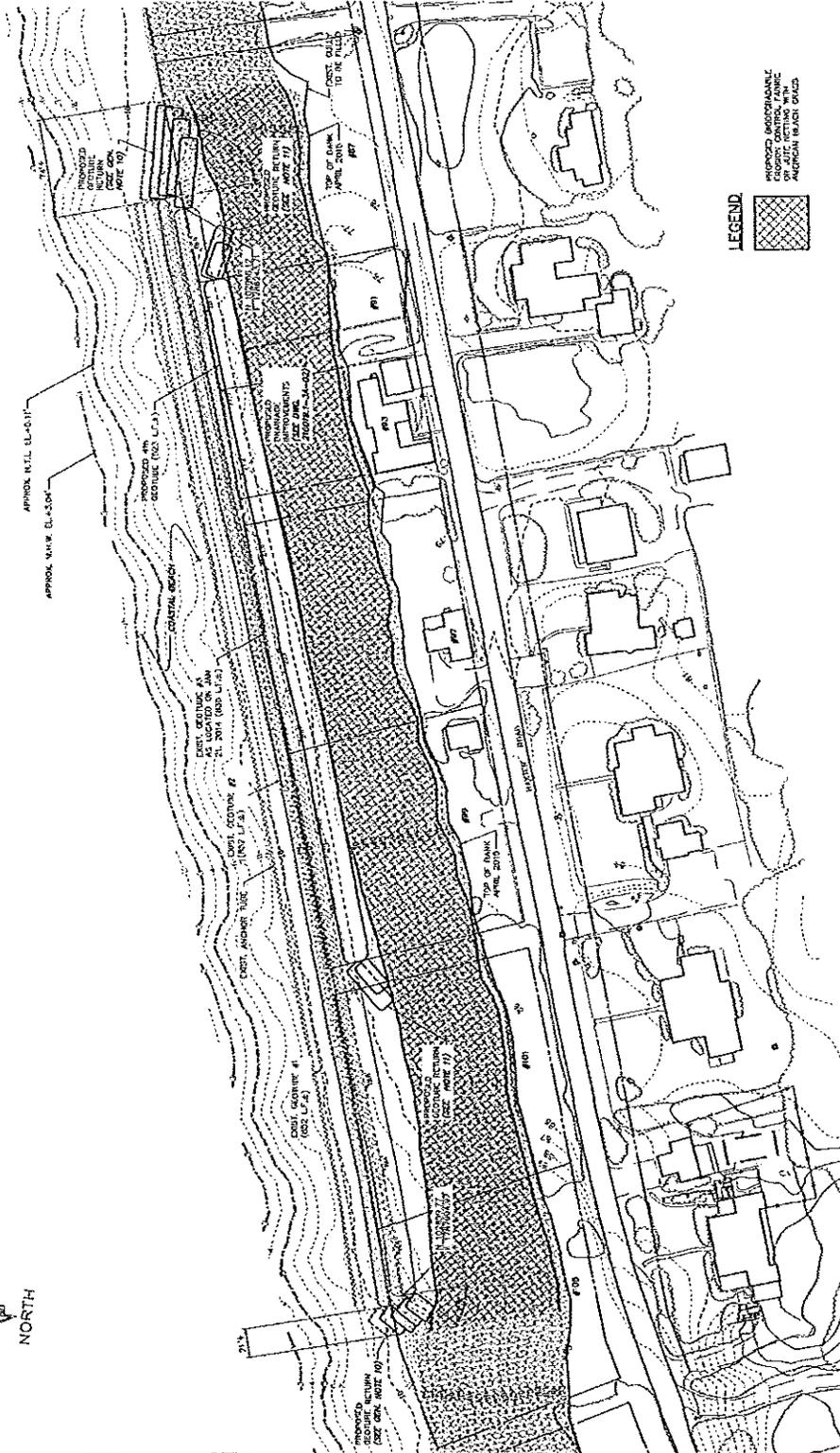
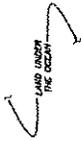
## **WAIVERS UNDER THE NANTUCKET WETLANDS BYLAW/REGULATIONS**

Waivers are required to Section 2.01 (B)(7), 2.02 (B)(2), 2.05(B)(1) that no new bulkheads, coastal revetments, groins or other coastal engineering structures shall be permitted to protect structures constructed or substantially improved, after 8/1978 except for public infrastructures. Bulkheads and groins maybe rebuilt only if the Commission determines that there is no environmentally better way to control an erosion problem, including in appropriate cases the moving of then threatened buildings and/or public infrastructure. Section 2.01 (B)(8) that water dependent projects shall be designed and performed so as to cause no adverse effects on wildlife, erosion control, marine fisheries, shellfish beds, storm damage prevention, flood control, recreation and aquatic vegetation. Section 2.05(B)(3) that all projects shall be restricted to activity as determined by the Conservation Commission to have no adverse effect on bank height, bank stability, wildlife habitat, vegetation, wetland scenic view or the use of a bank as a sediment source. Section 2.10(B)(1) that the work shall not reduce the ability of the land to absorb and contain flood waters, or to buffer inland areas from flooding and wave damage. The Commission finds that the current project as proposed and partially constructed is designed and conditioned to not have an adverse impact on the interests protected by these regulations. The regular monitoring, mitigation and reporting shall provide the Commission a way to carefully observe the function and impacts that the project is having and to make on-going decisions as to the future actions taken in regards to this project. The Commission also finds that given the current state of the existing structure, which was designed to abate the declared emergency, and to properly monitor and mitigate the existing structure that there are no reasonable alternatives that allow the project to proceed in compliance with the regulations. Therefore the Commission grants a waiver under Section 1.03(F)(3)(a) of the Nantucket Wetland Protection Regulations.

**Property Owners and Title Information**  
**DEP File Number SE48-2824**  
**87-105 Baxter Road**

Map	Parcel	Street Address	Owner Name	Title Reference
48	8	Sconset Bluff	Town of Nantucket	C-19103
49	8	87 Baxter Road	Samuel Furrow and Ann Furrow	Book 839, Page 295
48	22	91 Baxter Road	Daniel L. Korengold, Trustee	Book 1352, Page 45
48	21	93 Baxter Road	Steven T. Freeman and Erin P. Freeman	Book 1069, Page 97
48	19	97 Baxter Road	Lawrence C. McQuade and Margaret O. McQuade	C-17087
48	18	99 Baxter Road	Ann B. Furrow	C-20681
48	17	101 Baxter Road	101 Baxter Road, LLC	Book 1427, Page 341
48	15	105 Baxter Road	Marilee Brill Matteson, Trustee	C-25689

# ATLANTIC OCEAN



## GENERAL NOTES

1. BASE MAPS AND INFORMATION SHOWN HEREON IS FROM AN AERIAL PHOTOGRAPHY TAKEN BY COLLETT, INC. ON JULY 15, 1988. THE PHOTOGRAPHY WAS PROVIDED BY COLLETT, INC. ASSOCIATES, INC. FOR SITE PLAN AND DESIGN AND CONSTRUCTION, INC.
2. LOCATION OF GEOTEC, AS SHOWN ON THE AERIAL PHOTOGRAPHY, IS LOCATED ON THE EAST SIDE OF THE ROAD, APPROXIMATELY 100 FEET FROM THE CENTERLINE OF THE ROAD. THE LOCATION IS SHOWN AS A DOTTED LINE ON THE PLAN.
3. THE LOCATION OF GEOTEC, AS SHOWN ON THE AERIAL PHOTOGRAPHY, IS LOCATED ON THE EAST SIDE OF THE ROAD, APPROXIMATELY 100 FEET FROM THE CENTERLINE OF THE ROAD. THE LOCATION IS SHOWN AS A DOTTED LINE ON THE PLAN.
4. LOCATION OF GEOTEC #1, AND THE ANCHOR TUBE ARE SHOWN ON THE PLAN. THE ANCHOR TUBE IS TO BE INSTALLED AT THE LOCATION SHOWN ON THE PLAN. THE ANCHOR TUBE IS TO BE INSTALLED AT THE LOCATION SHOWN ON THE PLAN.
5. VERTICAL CURVE, SHOWN HEREON IS IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, AS SET FORTH IN NOTE 2.
6. REFERENCE IS MADE TO EMERGENCY CERTIFICATION NUMBER 17-0203 AND TO MASSDOT-SUBMITTANT SUBMITTAL ON 12/10/2013.
7. PRIOR TO CONSTRUCTION OF THE EMERGENCY CERTIFICATION NUMBER 17-0203 AND TO MASSDOT-SUBMITTANT SUBMITTAL ON 12/10/2013, THE LOCATION OF GEOTEC, AS SHOWN ON THE AERIAL PHOTOGRAPHY, IS LOCATED ON THE EAST SIDE OF THE ROAD, APPROXIMATELY 100 FEET FROM THE CENTERLINE OF THE ROAD. THE LOCATION IS SHOWN AS A DOTTED LINE ON THE PLAN.
8. AN UPDATE QUANTITY WAS PROVIDED BY WOODS HOLE GROUP ON APRIL 2, 2014 IN THE ACCOUNT OF THE LOCATION OF GEOTEC, AS SHOWN ON THE AERIAL PHOTOGRAPHY, IS LOCATED ON THE EAST SIDE OF THE ROAD, APPROXIMATELY 100 FEET FROM THE CENTERLINE OF THE ROAD. THE LOCATION IS SHOWN AS A DOTTED LINE ON THE PLAN.
9. AN UPDATE QUANTITY WAS PROVIDED BY WOODS HOLE GROUP ON APRIL 2, 2014 IN THE ACCOUNT OF THE LOCATION OF GEOTEC, AS SHOWN ON THE AERIAL PHOTOGRAPHY, IS LOCATED ON THE EAST SIDE OF THE ROAD, APPROXIMATELY 100 FEET FROM THE CENTERLINE OF THE ROAD. THE LOCATION IS SHOWN AS A DOTTED LINE ON THE PLAN.
10. REFERENCED TO THE EMERGENCY CERTIFICATION NUMBER 17-0203 AND TO MASSDOT-SUBMITTANT SUBMITTAL ON 12/10/2013, THE LOCATION OF GEOTEC, AS SHOWN ON THE AERIAL PHOTOGRAPHY, IS LOCATED ON THE EAST SIDE OF THE ROAD, APPROXIMATELY 100 FEET FROM THE CENTERLINE OF THE ROAD. THE LOCATION IS SHOWN AS A DOTTED LINE ON THE PLAN.
11. PROPOSED BUILDING FOOTPRINTS BETWEEN TIE 2 AND A WALL TO BE CONSTRUCTED BETWEEN TIE 2 AND TIE 3, SHALL BE CONSTRUCTED WITHIN THE EXISTING BEACH GRATES AND BEING LIFTING INTO EXISTING DRAINAGE.

GRAPHIC SCALES  
CHECK GRAPHIC SCALES BEFORE USING

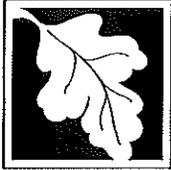
1" = 40'-0" 0 40 FT.

This drawing and the information contained herein are the property of Ocean and Coastal Consultants, Inc. and shall remain the property of Ocean and Coastal Consultants, Inc. No part of this drawing shall be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without the prior written permission of Ocean and Coastal Consultants, Inc. This drawing is for the use of the client only. It is not to be used for any other purpose without the prior written permission of Ocean and Coastal Consultants, Inc.

FOR PERMITTING PURPOSES ONLY

		<b>SCANSET BEACH PRESERVATION FUND</b> 18 Scanset Road, Nantucket, MA 02554		<b>OCEAN AND COASTAL CONSULTANTS</b> Ocean and Coastal Consultants, Inc. 470 Union Street, Suite A, Nantucket, MA 02554 Phone: 508-558-1234 Fax: 508-558-1235		<b>BAXTER ROAD STABILIZATION PROJECT</b> DRAWING NO. 210191-3A-01	
PROJECT NO.	SHEET NO.	TOTAL SHEETS	DATE	DESCRIPTION	DATE	BY	CHECKED
210191-3A-01	7	7	12/10/2013	BAXTER ROAD STABILIZATION PROJECT	12/10/2013	J. WOODS	J. WOODS





Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

**WPA Form 5 – Order of Conditions**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40  
And the Town of Nantucket Wetlands Bylaw Chapter 136

Provided by MassDEP:  
SE48- 2824  
MassDEP File #

eDEP Transaction #  
Nantucket  
City/Town

**E. Signatures**

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

09/30/2015

1. Date of Issuance

Please indicate the number of members who will sign this form.

7

This Order must be signed by a majority of the Conservation Commission.

2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

*Ernest Steinauer*  
Ernest Steinauer  
*Joseph Topham*  
Joseph Topham  
*Ashley Erisman*  
Ashley Erisman

*Andrew Bennett*  
Andrew Bennett  
*Ben Champoux*  
Ben Champoux  
*Ian Golding*  
Ian Golding  
*David LaFleur*  
David LaFleur

by hand delivery on

by certified mail, return receipt requested, on

09/30/2015

Date

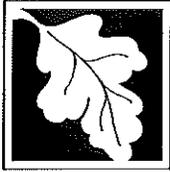
Date

**F. Appeals**

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request of Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

### WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40  
And the Town of Nantucket Wetlands Bylaw Chapter 136

Provided by MassDEP:  
SE48- 2824  
MassDEP File #

eDEP Transaction #  
Nantucket  
City/Town

## G. Recording Information

Prior to commencement of work, this Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Conservation Commission

Please be advised that the Order of Conditions for the Project at:

Project Location

MassDEP File Number

Has been recorded at the Registry of Deeds of:

County

Book

Page

for: Property Owner

and has been noted in the chain of title of the affected property in:

Book

Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant



**Photo 1: View of northern end of Template facing south.**



**Photo 2: View of northern end return – note loss of sand at the return.**

**Baxter Road and Sconset Bluff Storm Damage Prevention Project | Nantucket, MA**



**Photo 3: View of northern end of Template facing south – note extent of exposed geotubes.**



**Photo 4: View of exposed geotubes facing north.**

**Baxter Road and Sconset Bluff Storm Damage Prevention Project | Nantucket, MA**



**Photo 5: Located where three layers of geotubes are exposed.**



**Photo 6: View of southern end facing north.**

## Joanne Dodd

---

**From:** Jeff Carlson  
**Sent:** Thursday, April 2, 2020 10:08 AM  
**To:** Joanne Dodd  
**Subject:** FW: Construction Moratorium Work Request  
**Attachments:** Construction Moratorium Work Request.pdf

Jeff Carlson  
Natural Resources Coordinator  
Town of Nantucket  
2 Bathing Beach Road  
Nantucket, MA 02554  
508-228-7230

---

**From:** Pittman, William [wpittman@police.nantucket-ma.gov]  
**Sent:** Wednesday, March 25, 2020 11:52 AM  
**To:** Dwight Dunk; Paul Murphy; Jeff Carlson; Town Manager  
**Cc:** Josh Posner (jposner@risingtidellc.net); 'Steven@Cohenlegal.net'; Glenn Wood - Rubin and Rudman LLP (gwood@rubinrudman.com); Joanne Dodd; Sergeants; William Pittman  
**Subject:** RE: Construction Moratorium Work Request

Dear Mr. Dunk,

The Emergency Management Team has reviewed your request for a waiver from the Town's Emergency Order No. 1. We find that the work as you have described does appear to fall under the exceptions to the ban. We urge you to minimize the work as much as you can. We also urge your workers to be in compliance with CDC and OSHA guidelines for infectious disease prevention.

Please consider this e-mail as a waiver to perform the work as you described in the attached document. We urge you to complete the work within the scope and timeline you articulated in the request.

Good Luck.

William J. Pittman  
Emergency Management Director  
Town of Nantucket  
4 Fairgrounds Road  
Nantucket, MA 02554

(508) 228-1212

---

**From:** Dwight Dunk [mailto:DDunk@epsilonassociates.com]  
**Sent:** Tuesday, March 24, 2020 10:04 PM  
**To:** pmurphy@nantucket-ma.gov; Jeff Carlson (JCarlson@nantucket-ma.gov) <JCarlson@nantucket-ma.gov>; TownManager@nantucket-ma.gov; Pittman, William <wpittman@police.nantucket-ma.gov>  
**Cc:** avorce@nantucket-ma.gov; Josh Posner (jposner@risingtidellc.net) <jposner@risingtidellc.net>; 'Steven@Cohenlegal.net' <Steven@Cohenlegal.net>; Glenn Wood - Rubin and Rudman LLP (gwood@rubinrudman.com)

<gwood@rubinrudman.com>; Joanne Dodd (jdodd@nantucket-ma.gov) <jdodd@nantucket-ma.gov>

**Subject:** Construction Moratorium Work Request

Mr. Murphy *et al.*,

Attached please accept our written request, attached, to allow needed maintenance work to occur in Sconset during the Town's construction moratorium period.

Please contact me or Attorney Steven Cohen with any questions.

Regards,  
Dwight

**Dr. Dwight R. Dunk, PWS, BCES** | Principal

**Epsilon Associates, Inc.**

3 Mill & Main Place, Suite 250

Maynard, Massachusetts 01754

978.897.7100 | 978.461.6226 (direct) | 781.710.7305 (mobile)

[ddunk@epsilonassociates.com](mailto:ddunk@epsilonassociates.com) | [www.epsilonassociates.com](http://www.epsilonassociates.com)

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## Joanne Dodd

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**From:** danneatherton@comcast.net  
**Sent:** Thursday, April 2, 2020 8:34 AM  
**To:** Jeff Carlson; Joanne Dodd  
**Subject:** SUBMISSION FOR TODAY'S CONCOM MEETING  
**Attachments:** 4.1.20 Memo re EO General Condition #7.pdf; QUESTIONS WITH PHOTOS 4.2.20.pdf

TO: JEFF AND JOANNE

FROM: D. ANNE/NCC TEAM

RE: SUBMISSION FOR TODAY'S CONCOM MEETING

PLEASE SEE ATTACHED

In regard to the special ConCom meeting to be held at 5:00 today, we are submitting two documents for the record.

One is a memorandum re the non-compliance of SBPF with General Condition #7 (the use of unclean fill) of the Order of Conditions for the geotubes.

The second are questions (and photos) re the apparent violation of the cease-and-desist provision in the Enforcement Order issued by the Commission on December 13, 2019.

As we understand it, these are **\*\*two separate issues\*\***.

Again, to reiterate: the two questions before the Commission are

one, is non-compliance with General Condition #7 of the Order of Conditions (OOC) for the project (use of unclean fill) and how to remediate that and impose penalties?

two, does the work performed late last week under the so-called Waiver issued by the Town constitute a violation of the cease-and-desist provision of the Enforcement Order and, if yes, what to do about it?

Do not hesitate to contact us with any questions or request for further information.

Thank you, Jeff and Jo, and the entire Commission, for your attention to this matter.

Best regards,

D. Anne

ATTACHMENTS (2): MEMORANDUM AND QUESTIONS



[www.savenantucketbeaches.org](http://www.savenantucketbeaches.org)

[info@savenantucketbeaches.org](mailto:info@savenantucketbeaches.org)

PO Box 2050 | Nantucket, MA | 02584

D. Anne Atherton, Administrative Coordinator

TO: Members, Nantucket Conservation Commission and Administrator Carlson  
FROM: The Nantucket Coastal Conservancy Coordinating Committee  
RE: Enforcement Order (EO) re **General Condition #7** Issued to SBPF (December 11, 2019)

**NOTE: The matter addressed in this memorandum is separate from the work on the geotube project that was performed late last week (March 26 and 27) in apparent violation of the cease-and-desist requirement of this EO (issued in December 2019).**

Since the issuance of the above-cited EO in December, the Commission has been dealing with the challenge of remediating the violation (**failing to meet General Condition #7 of the Order of Conditions** issued for this project: the use of unclean fill) that caused this enforcement action. As these discussions come to closure, we would like to **recommend that the Commission consider taking the following five (5) specific actions** in closing the Order.

**ONE: The financial penalties should be severe.**

Evidence indicates that the nature of this violation was egregious. The unclean mitigation material used during fall 2019 for this project (according to information provided by the permit holder, approximately 4,000 cubic yards) was not only replete with construction debris, but was also found to be contaminated with bacteria, namely coliform and fecal coliform. This information (about the debris-filled material) was brought to the Commission not by the permit holder but rather by concerned citizens. This EO was the fifth (5) EO to be issued to the permit holder in relation to this project since its installation. (Past violations include: one, unpermitted installation of PVC piping on the face of the bluff during installation; two, unpermitted construction work performed below the MHW mark during installation; three, unpermitted use of certain material to cap the geotubes during installation; four, failure to meet reporting requirements (quarterly reports as well as underwater video bathymetry reports); and five, the use of unclean fill.) Last, and perhaps most important, the property on which the project is located is NOT owned by the permit holder, but is **public property**. For these reasons alone, the violation should result in a sizeable monetary penalty.

**TWO: The Commission should request that the permit holder voluntarily amend the current Order of Conditions (OCC) for this project in regard to the characteristics of mitigation material to be used for the duration of the permit (that is, until September 2021).**

It is unacceptable that dirt from excavation sites and other sources be used for this purpose going forward. Clearly the grain-analysis-only Best Management Practices (BMP) of DEP (as contained in the current OCC) are not adequate for Nantucket's beaches, the hallmark of our environment and driver of our economy. Any future mitigation material should be compatible with the surrounding beach and bluff; compatibility should include matching in terms of color. Only **\*\*good sand\*\*** should be used. (As Commissioner Topham has noted a number of times, these improved guidelines should be used for all erosion-control projects on Nantucket that require mitigation.)

**THREE: The Commission should require that the permit holder identify and get approval for one year of mitigation sand in advance.**

The Commission should impose a requirement that one-year of mitigation sand that meets the amended requirements must be identified and pre-approved in advance. The mitigation program is essential to the project: the material to be used (in such a large volume) is far too critical not to plan ahead for its quantity and its quality. Clearly, clean sand is getting more and more difficult to obtain, and the cost is soaring, especially on-island.

**FOUR: The removal plan for the geotubes should be updated and fully funded in case it is needed in the future.**

It is our understanding that during previous permitting processes for this project a removal plan for the geotubes was developed and funds for it were put in escrow. This plan should be updated (to ensure it is shovel-ready) and should be reviewed by the Commission. The permit holder should also provide evidence that the funds necessary for removal are adequate for today's costs and are held in escrow by the Town.

**FIVE: The Commission should communicate the facts and its concerns about the project to the Select Board and recommend that serious thought be given to terminating the Memorandum of Understanding (MOU) entered into between the permit holder and the Town in 2013.**

Perhaps the reality is that it is simply neither practical nor prudent to continue with this project, given its environmental impacts. The geotubes were always meant to be temporary. They were installed over six years ago to abate an emergency. That emergency has been abated. There are now feasible alternatives to hard armoring over 900 feet of bluff and public beach, as well as continuing a mitigation program that is proving to be increasingly unsustainable.

The time has come for the Commission to communicate seriously and frankly with the members of the Select Board about this project. As owners of the property who issued the license to the applicants for use of the public land for this purpose, **the Select Board looks to the Commission for guidance.**

Understandably, the serious negative impacts of this project were never anticipated back in 2013. Provision #11 of the MOU between the parties allows either party (the Town or the permit holder) to terminate the agreement if it "determines that it is not practical nor prudent to proceed with the project."

Has time come to consider this option?

April 1, 2020

SOME BASIC QUESTIONS RE ISSUANCE OF WAIVER BY TOWN TO THE SIASCONSET BEACH PRESERVATION FUND (SBPF) UNDER EMERGENCY ORDER NO. 1 AND THE SUBSEQUENT WORK PERFORMED

**Most immediate:**

- Exactly what did SBPF request?
- Did SBPF discuss their request for permission to resume work with any ConCom Commissioner or with Jeff Carlson? If yes, with whom and what response did they receive?
- Did Chief Pittman discuss the request with anyone from the ConCom? If yes, with whom and what response did he receive?
- Does Chief Pittman have the authority to override the ConCom's cease-and-desist provision of the Enforcement Order issued to SBPF by the ConCom on December 13, 2019? If no, will the ConCom now find SBPF has violated the cease-and-desist provision of the Enforcement Order? And, what will the ConCom do in response to that violation?
- What will the ConCom do in response to SBPF's pushing "gray" sand onto the beach and hence into the littoral system?

**For the future:**

- In general, when must Chief Pittman consult the ConCom before ordering waivers?
- Has the ConCom been informed of TON policy regarding waivers from the emergency orders? If yes, what has the ConCom been told?
- What can the ConCom do to prevent such problems in the future?

**ADDITIONAL QUESTIONS about the work performed at Hoicks Hollow [see attached photos]:**

- Has the scope of work performed by SBPF at the Hoicks Hollow public entrance to the beach ever been formally permitted? If yes, when?
- Was material brought from off-site for this work at any time after the issuance of Emergency Order No 1? At any time since the cease-and desist order? If so, what was the source? Was the sediment used for the work performed last week at Hoicks Hollow pre-approved? Did it meet any specific criteria? If so, what and when?

**ADDITIONAL QUESTIONS about the work performed on the geotubes and surroundings [see attached photos]:**

- SBPF has said it performed work "scraping" the template. What does "scraping" the template mean?
- Was any material brought from off-site to the bluff for this work? If yes, from where? Was it pre-approved? What criteria did it meet?
- Was any of the sediment in the template pushed over (or did any fall over) the side of the geotubes and onto the beach during the work performed?



3.31.20



3.31.20







3.31.20



3.30.20





Projects:\21597\

**PRINCIPALS**

March 17, 2020

Theodore A Barten, PE  
Margaret B Briggs  
Dale T Raczynski, PE  
Cindy Schlessinger  
Lester B Smith, Jr  
Robert D O'Neal, CCM, INCE  
Michael D Howard, PWS  
Douglas J Kelleher  
AJ Jablonowski, PE  
Stephen H Slocomb, PE  
David E Hewett, LEED AP  
Dwight R Dunk, LPD  
David C Klinch, PWS, PMP  
Maria B Hartnett

Mr. Jeff Carlson  
Natural Resources Director, Town of Nantucket  
Conservation Commission Office  
2 Bathing Beach Road  
Nantucket, MA 02554

***Via Electronic Mail and U.S. Mail***

**Subject: DEP File No. SE48-2824 - Template Sand Supplemental Sampling Results**

Dear Mr. Carlson:

On behalf of the Siasconset Beach Preservation Fund ("SBPF"), Epsilon Associates Inc. ("Epsilon") submits the attached Supplemental Sand Sampling Report in response to the Nantucket Conservation Commission's ("Commission") request for additional sand sampling at the March 4, 2020. We share the Commission's focus on assuring that the sand used to re-cover the geotubes is both adequate and meets compatibility and environmental requirements set by the Commission. The purpose of the additional sand sampling was to:

- 1) document changes in total coliform ("TC") over time,
- 2) determine if fecal coliform ("FC") is a constituent of TC, and if FC is present at what proportion is FC to TC,
- 3) compare template sand to background samples, and
- 4) compare bacteria counts across the beach profile.

The request for this additional information was to determine if sand can be pushed off the template to re-cover exposed geotubes and return to contributing sand from the template into the littoral drift system.

The results of this supplemental sampling show template sand is generally consistent with the literature and what we expected as we discussed at the March 4 meeting:

978 897 7100

FAX 978 897 0099

3 Mill & Main Place, Suite 250  
Maynard, MA 01754  
www.epsilonassociates.com

- The template sand is essentially no different than background sand in unrelated and natural bluff locations in terms of bacteria and nutrients. TCs are naturally occurring soil bacteria found in topsoil, plants or other fine-grained soil materials.
- There was a precipitous drop in TC counts in template sand from January 2020 to March 2020.

Given that the testing results are clear and show that TC counts on the template are dropping in sampled locations, but are also present in dune sand and the bank at Hoicks Hollow. These results demonstrate that the template sand is similar to native sand, and given the pressing need to have sand covering the geotubes and available in storm events, our plan is to re-start template operations to re-cover exposed geotubes with template sand in compliance with the requirements in the Order of Conditions (“OOC”). In addition, we will collect and remove any man-made materials from the template as they become exposed, consistent with the active monitoring discussed during the December 18, 2019 Commission meeting. SBPF’s desire and intent is to remain in compliance with the OOC, and to ensure that there is sand available to the system, without undue risk or impact. If you determine that further action or communication is needed before we proceed with that plan, please contact us before Friday March 20, 2020.

Following is a summary of the Supplemental Sand Sampling Report prepared by OHI Engineering, Inc. (“OHI”) and attached hereto. The Supplemental Sand Sampling Report presents more detailed description of the sampling program and results.

#### **TEMPLATE SAND COMPARED TO BACKGROUND SAND**

Background samples were collected at Hoicks Hollow to the north as a site which experiences more human activity (to represent human exposure), and sand from the dune at 53 Baxter Road was selected as a natural setting with little to no human activity. Bacteria results are presented below.

**Table 1. Background Sand Bacteria Data**

<b>Location</b>	<b>TC (MPN/g)</b>	<b>FC (MPN/g)</b>
Hoicks Hollow Bank	10.86	<0.2
53 Baxter Road Dune	90.97	53.39

The surface sand at Hoicks Hollow is similar to the template sand with TC counts in the tens of counts per gram. The natural sand in the dune to the south (TC about 90 counts per gram) is also similar to higher than TC counts in template sand. The FC counts in the

natural dune sand however are significantly higher than those measured in the template sand – on the order of **ten times higher than that observed in the highest template sand sample** (53.39 MPN/g vs. 3.28 MPN/g at 4S). The natural dune sand also had the highest measured TKN concentration of all samples collected in March. These data suggest the template sand is generally consistent with or has lower bacterial load than background sand.

### CHANGES IN TOTAL COLIFORM (“TC”) OVER TIME

The sample locations selected were those with the highest TC counts from the January sampling round. The data shows a precipitous decline (die-off) in TC on the template from January to March sampling rounds, see Table 2 below. This is consistent with what we expected to observe, a die-off in harsh coastal conditions.

**Table 2. Summary of Template Sand Bacteria Counts**

	Grey Sand (MPN/g)				Tan Sand (MPN/g)			
	5		8		3		4	
<b>TC</b>	1,540.67		1,598.53		537.95		91.11	
<b>FC</b>	-		-		-		-	
	5S	5D	8S	8D	3S	3D	4S	4D
<b>TC</b>	16.91	3.28	21.97	90.94	91.25	0.79	158.17	9.23
<b>FC</b>	<0.2	1.69	<0.2	0.79	2.28	<0.2	3.28	2.26

S = shallow sample

D = deep sample

The January samples were generally collected at depth thus the most relevant comparisons are the January samples to March deep samples. In all samples (grey and tan) we observe a two to three order of magnitude decline in TC counts, except for sample 4 to sample 4D which exhibits a one order of magnitude difference. Likewise, we see over to two orders of magnitude declines in grey sand TC from March surface samples to January samples; lower declines are observed in the tan sand, however those samples had significantly lower counts in January than the grey sand.

### FECAL COLIFORM PRESENT IN TEMPLATE SAND

Table 2 above documents that FC is present and is a constituent of TC, however at very low numbers. Note that 0.2 is the detection limit such that a <0.2 means less than

detection but likely not zero. For all TC counts in the tens and hundreds per gram FC is two orders of magnitude lower than TC, except at 3S where it is only one order of magnitude below TC.

This suggests that FC is a very low proportion of TC in the source sand, and reported FC counts in grey sand (samples 5 and 8) are lower than FC counts in tan sand (samples 3 and 4)

### **BACTERIAL COUNTS CHANGE ACROSS THE BEACH PROFILE**

The data show essentially no detects (<0.2 MPN/g) in the beach samples in March. Because the samples were collected after the March 6 – 8 storm and the template sand previously present at the toe of slope was washed away, no determination can be made about bacteria counts across the beach profile.

### **SUMMARY**

At the request of the Commission, SBPF retained OHI to re-sample template sand, collect background sand samples and re-sample beach sand to determine if the template sand is suitable for re-covering exposed geotubes with ultimate transport to the littoral drift system. The above summary focusses on bacteria because it was the primary analyte of concern by the Commission during the March 4, 2020 public meeting. The attached report discusses all analytes. The results of this supplemental sampling in consistent with the literature referenced in the initial report and discussed during the March 4, 2020 meeting, as well as what we and Mr. Berman hypothesized – that exposure to harsh coastal conditions will lead to a die off of bacteria in the sand.

Based on this supplemental analysis, we demonstrate that: the weathered template sand is generally similar to the background sand, i.e. the bacteria load in template sand is generally consistent with the Hoicks Hollow sand and much lower in terms of FC than natural dune sand; the bacteria in the template sand declines (dies off) over time in this harsh coastal environment; and the FC is a very low proportion of TC, with grey sand containing lower overall FC counts than tan sand. Therefore, we conclude the template sand poses no significant risk to human health as compared to background conditions and poses no substantial difference to the environment (receiving waters and littoral drift system) than background sand sources analyzed from the Hoicks Hollow bank and dunes to the south.

The need to sample sand arose during the December 18, 2019 public meeting during which SBPF and the Commission were discussing methods to remove man-made materials from template sand. That method involved enhanced monitoring during

Mr. Jeff Carlson  
Nantucket Conservation Commission  
March 17, 2020

5 of 5

template grading and hand removal of man-made material as it becomes exposed. The Commission requested chemical and biological testing of template to make sure the sand would not harm the environment – the beach and adjacent waters – before it could be used for template maintenance. The results of the initial sampling and this supplemental sampling show the template sand is not contaminated by anthropogenic constituents, and the weathered sand is similar to the background sand in terms of bacteria and nutrients. Thus, we have demonstrated the weathered template sand may be used for template maintenance with no harm to the environment. Resumption of template maintenance to re-cover exposed geotubes and deliver sand is proposed.

Again, based on these results, we plan to resume template maintenance using template sand to re-cover exposed geotubes starting next week. During template maintenance, SBPF's contractor will follow the protocol discussed during the December 18, 2019 public meeting, that involves enhanced monitoring and removal of man-made debris in the template sand. We believe that this action is within the existing Orders and respectfully request that Mr. Jeff Carlson, Director of the Nantucket Natural Resources Department, contact us if any further action is desired or required prior to resumption of template maintenance. Please contact me via email at [ddunk@epsilonassociates.com](mailto:ddunk@epsilonassociates.com) or at 781.710.7305. You may also contact attorney Cohen at [Steven@Cohenlegal.net](mailto:Steven@Cohenlegal.net) or 508.228.0337 or 508.221.3152.

Sincerely,  
EPSILON ASSOCIATES, INC.



Dwight R. Dunk, LPD, PWS, BCES  
Principal

encl.

cc: Nantucket Select Board  
J. Posner, SBPF  
S. Cohen, Cohen & Cohen Law, PC  
G. Wood, Rubin & Rudman, LLC

**SUPPLEMENTAL SAND SAMPLING REPORT  
SIASCONSET BEACH PRESERVATION FUND  
SIASCONSET, MA  
March 17, 2020**

***INTRODUCTION***

OHI Engineering, Inc. (OHI) prepared a Supplemental Sand Sampling Report for sands used at the Siasconset Beach Preservation Fund (SBPF) coastal bank erosion control project in Siasconset, MA (see **Figure 1 – Site Locus**). The Supplemental Sampling was conducted in accordance with the Supplemental Sampling Plan prepared for Epsilon Associates, Inc. on behalf of the SBPF and submitted to Nantucket Conservation Commission (NCC) on March 6, 2020.

The supplemental sampling work was conducted on Monday March 9, 2020. This report summarizes the work conducted and results thereof.

***SUMMARY OF INITIAL SAND SAMPLING REPORT***

The *Initial Report* included the following summary of findings:

1. VOCs, PAHs or TPH were not detected at concentrations above the laboratory's method detection limits.
2. Metal concentrations were consistent with natural soil and were below RCS-1 standards suggesting this material would be suitable for use on a residential lot.
3. Nitrate/Nitrite, TKN, Phosphorus, Phosphate, and pH in typical (tan) sand and grey sand were similar based on the MassDEP Similar Soils Guidance.
4. Total Coliform (TC) in grey sand were higher than that observed in the tan sand. This is not considered a health threat because there is no ingestion exposure pathway for TC in sand. Fecal Coliform (FC) (if present) is expected to be two to four orders of magnitude lower than TC. Mixing and spreading the grey sand with the tan sand will lead to increased die-off from desiccation, UV exposure and salt exposure.

***DISCUSSION OF SAND SAMPLING REPORT***

The *Initial Report* was discussed at the public meeting held by the NCC on Wednesday March 4, 2020. The NCC expressed their concern regarding the TC findings as well as the Nitrogen and Phosphorus findings described in the *Initial Report*. While Mr. Berman (the Commission's peer reviewer) accepted much of the findings in the *Initial Report*, Mr. Berman requested additional sampling before any sand might be pushed off the Template and onto the beach. He indicated that General Chemistry and Chemical Constituents were not of concern, and had comments regarding biological constituents.

## ***PURPOSE***

The purpose of this Supplemental Sand Sampling was to obtain additional information in response to the NCC and Mr. Berman comments. The focus was to determine the presence of FC as a constituent of TC, examine the effect of weathering (exposure to sun and wind) on TC counts, and compare Template sand to background.

## ***SAMPLE COLLECTION***

Sand sampling was conducted on and in front of the Template as well as on the bluff / dune, toe of the bluff, and beach both north and south of the Template. Four samples each of the typical tan sand and grey sand were collected from the Template. Two each of the tan and grey sand were collected at a shallow depth (0 – 12” below ground surface “bgs”) and two were collected at a deeper depth of 4 – 5’ bgs. The sample locations were chosen to correspond with previous high detections from the January sampling event. The deep and shallow samples on the Template were collected to compare and gauge the effects of weathering (shallow samples) on the total coliform counts to protected sand (deep samples).

Four beach sand samples were collected at the toe of the Template in line with the Template samples. Four samples were collected between the toe of slope (BEACH) and mean high water (MHW) mark in front of the Template, in line with the previous beach and intertidal samples.

Two locations are identified as background locations. One at 53/55 Baxter Road in a natural setting. Three samples were collected between 0 - 12” bgs, one each on the dune, toe of the dune, and beach sand above the mean high tide line. The second set was collected at the Hoick’s Hollow beach ramp to characterize an area with more intense human use. Three sand samples were collected between 0 – 12” bgs, one each on the bluff, at the toe of the bluff and on the beach between the toe and mean high water line.

A total of 22 samples were collected.

## ***SAMPLE ANALYSES***

Sand samples were placed in pre-cleaned laboratory containers, labelled, logged and delivered under Chain-of-Custody procedures to Alpha Analytical Laboratories, an independent Massachusetts-certified analytical laboratory. Samples were analyzed for the following:

### Biological Constituents

- Total Coliform (TC) and Fecal Coliform (FC)
- Grain Size
- Moisture Content
- Nitrates/Nitrite
- Total Kjeldahl Nitrogen (TKN)
- Phosphorus
- Phosphate

Laboratory analyses were selected to determine if significant variations in the analytes noted above are apparent between the typical (tan) sand and the grey sand used as backfill on the Template, potential effects of weathering, and with background conditions.

### ***SAND SAMPLING ANALYTICAL RESULTS***

The laboratory data was collated and tabulated. **Table 1A** provides data for the entire sampling event plus the January sampling locations that were resampled for reference. **Table 1B** provides data for the tan, grey, and background dune sand. **Table 1C** provides data for beach and toe of the dune samples. **Table 1D** provides data for intertidal and mean high water samples.

Nitrate/Nitrite, TKN, Phosphorus, and Phosphate were relatively consistent between all Template and beach samples. The dune sample collected at 53 Baxter Road as a background sample exhibited the highest concentration of TKN and FC. The background samples were consistent with levels of TC and nutrient concentrations detected on the Template in this latest sampling round. Overall, concentrations of TC have decreased dramatically in the Template sand since the January sampling event, which demonstrates the fate of the Template sand bacteria; it dies off in the harsh coastal conditions. However, counts are expected to fluctuate with bird and wildlife migration along the Template and beach areas.

FC was detected in five of the Template sand samples and one of the dune background samples. The FC counts are as follows:

- Ledge-3A (Tan-S) 2.26 Most Probable Number per gram (MPN/g);
- Ledge-4A (Tan-S) 3.26 MPN/g;
- Ledge-4A (Tan-D) 2.26 MPN/g;
- Ledge-5A (Grey-D) 1.69 MPN/g;
- Ledge-8A (grey-D) 0.79 MPN/g; and,
- 53-Dune 53.39 MPN/g.

FC results of the Template sand were consistent between the grey and tan sand samples, and were also consistent with the background sample (53-Dune).

During the first round of sampling in January, the beach samples were collected near the toe of the Template. In some locations grey sand had eroded onto the beach, and the beach samples included the grey sand. It is likely that the higher TC concentrations in the beach samples were due to the grey sand. Considerable erosion took place to both the toe of the Template and the banks on either side of the Template since the January event. Sample locations along the toe of the Template with the highest TC concentrations in January were resampled in March with no detections of TC and FC. The March 6 – 8 storm event caused significant erosion, including eroding grey sand from the beach. Beach sampling results, which were conducted after the storm, indicate that there was no residual effect from the grey sand. The March data demonstrates that transport of grey sand off of the Template and into the littoral drift system will eventually dissipate with little or no residual effects to the beach sand.

## ***DISCUSSION***

In the first round of sampling, TC was the only analyte where a significant difference was identified between the grey sand and tan sand on the Template. As discussed in the *Initial Report*, FCs are a subgroup of TC that are present in the gut and feces of warm-blooded animals. Because the primary exposure pathway is ingestion, most information regarding FC relates to its presence in drinking water supplies or in recreational water bodies where incidental ingestion may occur. Little information is available about TC and FC in soils. Most of the literature on this topic is related to field experiments to determine fate and transport of sewage sludge or manure used to amend soils for agricultural purposes. From those sources, FC counts are typically several orders of magnitude lower than TC counts. Based on the supplemental sampling data, FC counts are in fact orders of magnitude lower than the TC counts, when detected at all.

Additionally, we previously identified that FC have poor survival rates in the environment, due to ultraviolet light, temperature, desiccation, and lack of nutrients. Factors contributing to faster decline were drought, soil texture and sandy soils, which are less hospitable than loamy soils, and salt concentration. The results presented in this Supplement Sampling Report document significant decline in TC in template sand and very low FC counts, when detected.

Given these data and the results of the recent sampling event, the FC and TC counts in Template sand, the vast majority of the bacteria present are non-FC. The recent sampling results further show that the TC has been weathered in just two months from greater than 1598 MPN/g to below the laboratory detection limits in some areas. We continue to recommend the following course of action:

- 1) Reclaimed sand from the source of the grey sand should no longer be used.
- 2) The grey sand should be spread and mixed with tan sand on the Template. Mixing and spreading the grey sand on the Template will decrease silt content, allow the sand mix to dry more effectively subjecting the bacteria to desiccation, and subjecting the bacteria to ultraviolet radiation from the sun.
- 3) Pushing sand off the top of the Template onto the side slope will cause mixing, and will aerate and de-compact the sand allowing it to more effectively dry out and desiccate bacteria, and increased sunlight (UV) exposure to further reduce TC in the sand.
- 4) Erosion of sand from the Template onto the beach will continue to expose the sand to increased UV and increased salt concentrations to further reduce TC.

***SUMMARY***

This Report was prepared to provide results of the Supplemental Sand Sampling Plan conducted at the SBPF Erosion Control Project in response to the Commission's direction at the March 4, 2020 public meeting. A total of 22 sand samples were collected and analyzed for a variety of biological and general chemistry parameters as detailed above. After review of the data, the following may be concluded regarding the sand placed on the Template in the fall of 2019:

1. TC counts since January have decreased by two to three orders of magnitude in all areas. FC in Template sand, when present, as a constituent of TC is present at low levels consistent with background data obtained from the bank at Hoicks Hollow and well below that in sand on the dune in front of 53 Baxter Road. Mixing and spreading the grey sand with the tan sand will lead to increased die-off from desiccation, UV exposure and salt exposure.
2. Nitrate/Nitrite, TKN, Phosphorus, and Phosphate in Template sand have remained consistent with previous sampling. The tan and grey sand are still considered similar based on the MassDEP Similar Soils Guidance.

Recommendations presented will help reduce coliform counts.

## **REFERENCES**

Massachusetts Contingency Plan (MCP) 310 CMR 40.0000

MassDEP Technical Update Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil (2016)

MassDEP WSC#13-500 Similar Soils Provision Guidance

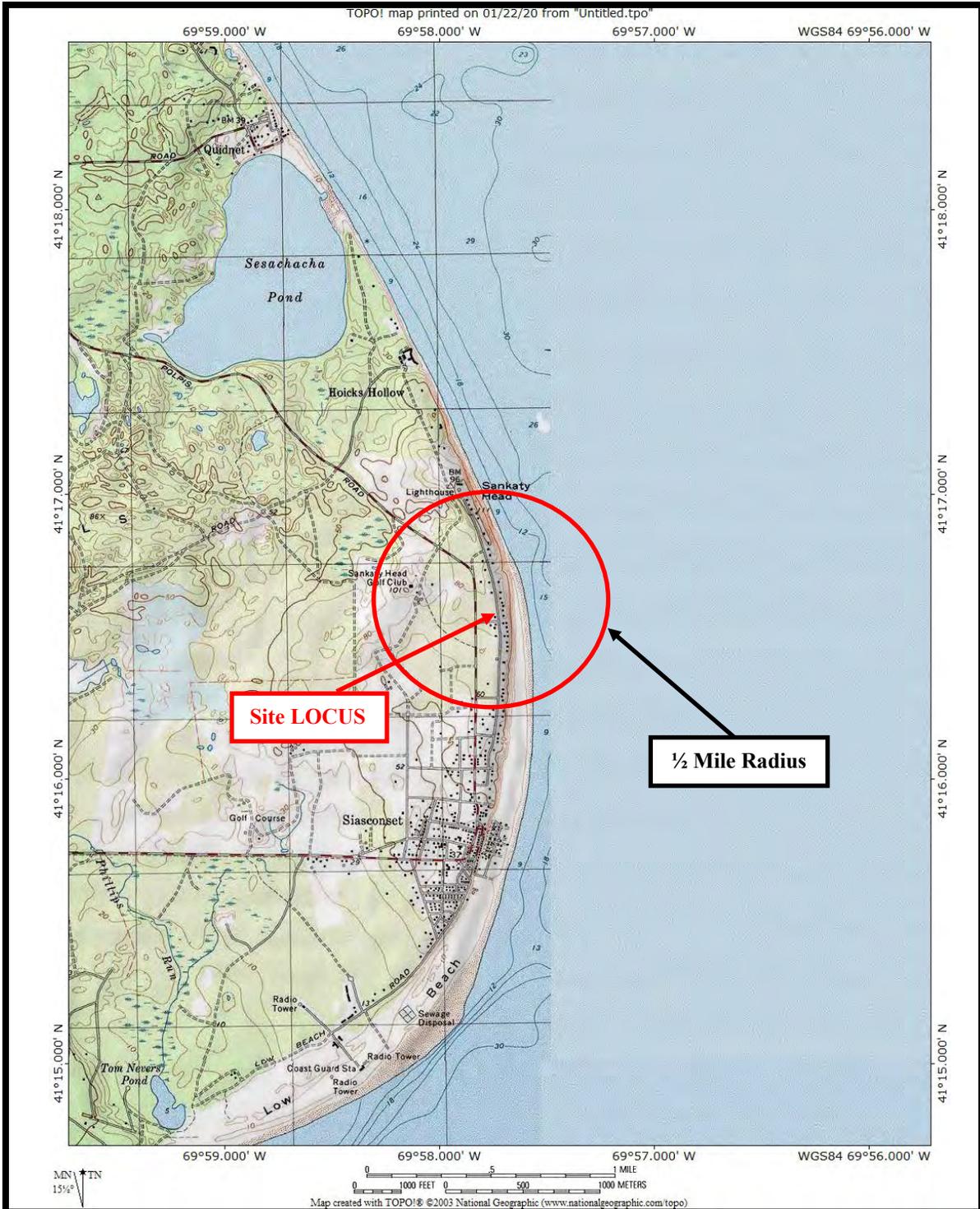
Edmonds, R.L. (Oct. 1976). Survival of Coliform Bacteria in Sewage Sludge Applied to a Forest Clearcut and Potential Movement into Groundwater. *Applied and Environmental Microbiology*, Vol. 32, No. 4, 537-546.

Chandler, D.S., Craven, J.A. (1978). Environmental factors affecting *Escherichia coli* and *Salmonella typhimurium* numbers on land used for effluent disposal. *Australian Journal of Agricultural Research*, 29, 577-585.

García-Orenes, F., Roldán, A., Guerrero, C., Mataix-Solera, J., Navarro-Pedreño, J., Gómez, I., Mataix-Beneyto, J. (2007). *Waste Management*, 1815-1819.

Park, Y., Pachepsky, Y., Shelton, D., Jeong, J., and Whelan, G. (May 2016). Survival of Manure-borne *Escherichia coli* and Fecal Coliforms in Soil: Temperature Dependence as Affected by Site-Specific Factors. *Journal of Environmental Quality*, 949-957.

# *FIGURES*



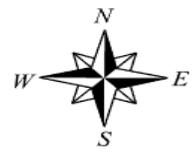
**Site Locus**

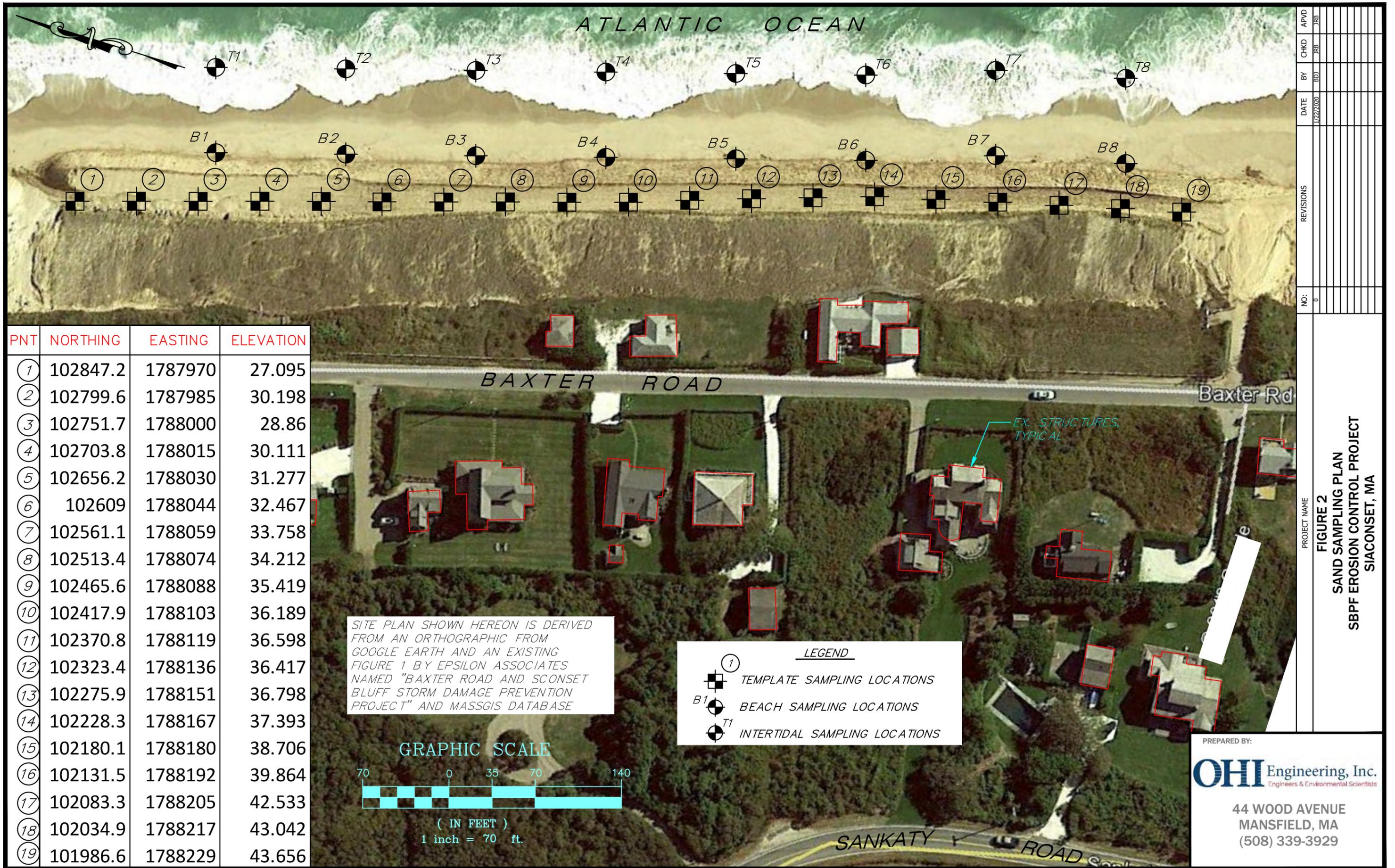
**Figure 1**

**'Sconset Bluff  
Siasconset, Massachusetts**

**OHI** Engineering, Inc.  
Engineers & Environmental Scientists

44 Wood Avenue · Mansfield, MA



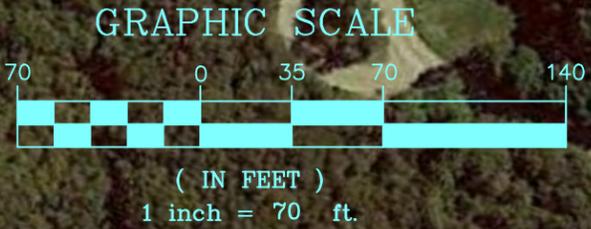


PNT	NORTHING	EASTING	ELEVATION
①	102847.2	1787970	27.095
②	102799.6	1787985	30.198
③	102751.7	1788000	28.86
④	102703.8	1788015	30.111
⑤	102656.2	1788030	31.277
⑥	102609	1788044	32.467
⑦	102561.1	1788059	33.758
⑧	102513.4	1788074	34.212
⑨	102465.6	1788088	35.419
⑩	102417.9	1788103	36.189
⑪	102370.8	1788119	36.598
⑫	102323.4	1788136	36.417
⑬	102275.9	1788151	36.798
⑭	102228.3	1788167	37.393
⑮	102180.1	1788180	38.706
⑯	102131.5	1788192	39.864
⑰	102083.3	1788205	42.533
⑱	102034.9	1788217	43.042
⑲	101986.6	1788229	43.656

SITE PLAN SHOWN HEREON IS DERIVED FROM AN ORTHOGRAPHIC FROM GOOGLE EARTH AND AN EXISTING FIGURE 1 BY EPSILON ASSOCIATES NAMED "BAXTER ROAD AND SCONSET BLUFF STORM DAMAGE PREVENTION PROJECT" AND MASSGIS DATABASE

**LEGEND**

- ① TEMPLATE SAMPLING LOCATIONS
- B1 BEACH SAMPLING LOCATIONS
- T1 INTERTIDAL SAMPLING LOCATIONS

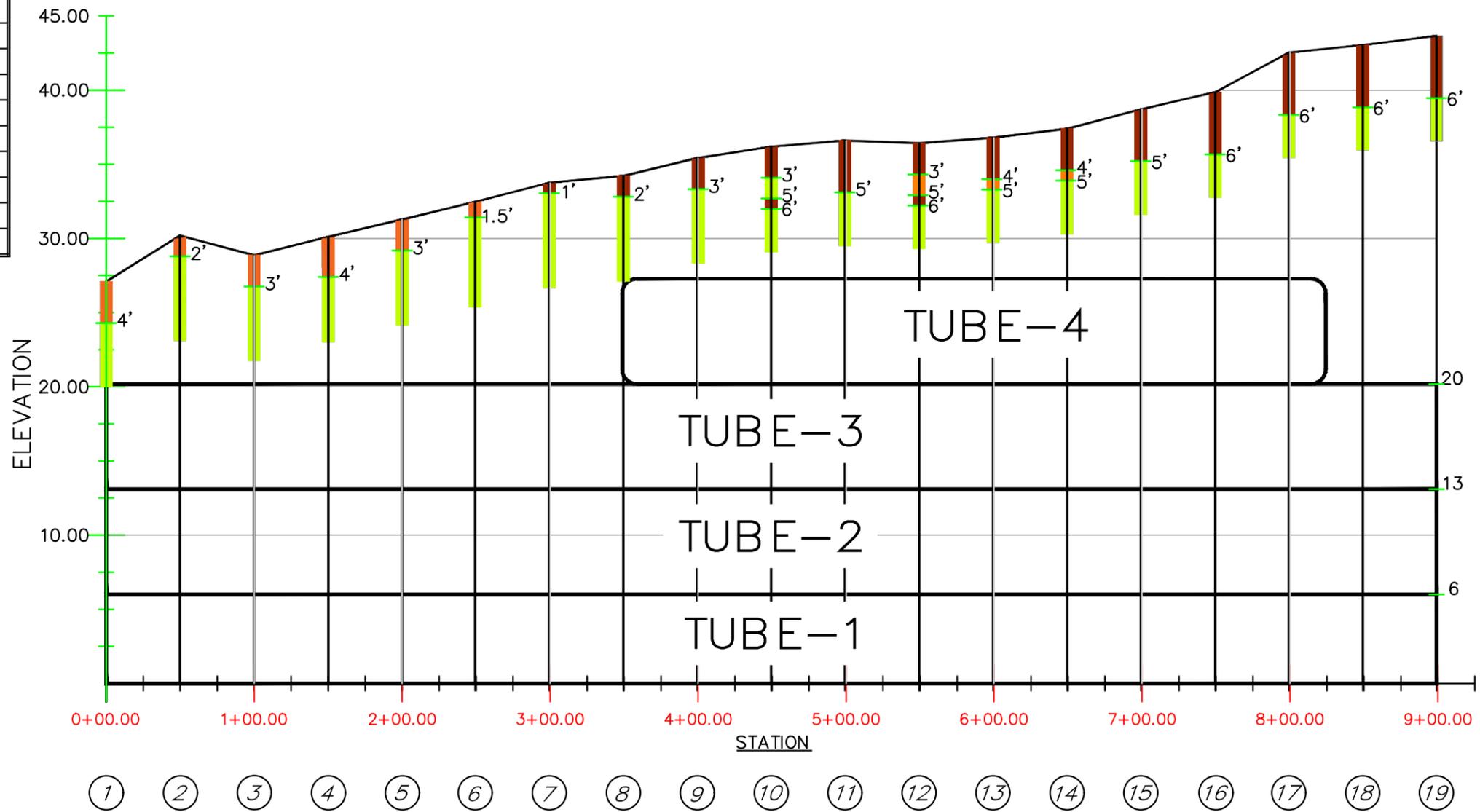


NO:	REVISIONS	DATE	BY	CHKD	APVD

PROJECT NAME  
**FIGURE 2**  
**SAND SAMPLING PLAN**  
**SBPF EROSION CONTROL PROJECT**  
**SIACONSET, MA**

PREPARED BY:  
**OHI Engineering, Inc.**  
Engineers & Environmental Scientists  
 44 WOOD AVENUE  
 MANSFIELD, MA  
 (508) 339-3929

Sample ID	Location	Depth (Ft)
Ledge-1 (TAN)	Boring-1	5-6
Ledge-2 (TAN)	Boring-3	5-6
Ledge-3 (TAN)	Boring-5	5-6
Ledge-4 (TAN)	Boring-7	3-4
Ledge-5 (TAN)	Boring-8	3-4
Ledge-6 (TAN)	Boring-9	5-6
Ledge-7 (TAN)	Boring-11	7-8
Ledge-8 (TAN)	Boring-14	7-8
Ledge-1 (GREY)	Boring-7	0-1
Ledge-2 (GREY)	Boring-8	1-2
Ledge-3 (GREY)	Boring-10	5-6
Ledge-4 (GREY)	Boring-12	2-3
Ledge-5 (GREY)	Boring-13	2-3
Ledge-6 (GREY)	Boring-16	5-6
Ledge-7 (GREY)	Boring-17	4-5
Ledge-8 (GREY)	Boring-19	4-5



**SECTION OF TEMPLATE SAMPLING LOCATIONS & DEPTHS**

**HORIZONTAL SCALE: 1"=90'**

**VERTICAL SCALE: 1"=9'**

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NO.	REVISIONS	DATE	BY	CHKD	APVD
0		1/22/2020	BDJ	JRB	JRB

PROJECT NAME  
**FIGURE 3  
SAND SAMPLING SECTION & DEPTHS  
SBPF EROSION CONTROL PROJECT  
SIACONSET, MA**

# *TABLES*

Table 1A - Supplemental Sand Sampling Data - Total Plus Previous Reference Location

Siasconset Beach Preservation Fund  
Siasconset, Massachusetts

SAMPLE ID						LEDGE-3 (TAN)	LEDGE-3A (Tan-S)	LEDGE-3A (Tan-D)	LEDGE-4 (TAN)	LEDGE-4A (Tan-S)	LEDGE-4A (Tan-D)	LEDGE-5 (GREY)	LEDGE-5A (GREY-S)	LEDGE-5A (GREY-D)
SAMPLING DATE						7-Jan-20	9-Mar-20	9-Mar-20	7-Jan-20	9-Mar-20	9-Mar-20	7-Jan-20	9-Mar-20	9-Mar-20
	Freq	Min	Max	Mean	Units									
<b>General Chemistry</b>														
Solids, Total	30	82.7	98.2	93.5	%	94	92.8	93.4	93.9	92.2	94	91.3	88.7	93.2
% Sand	30	76.4	99.7	92.1	%	---	86.1	85.3	---	86.5	88.6	---	82.1	76.4
% Fines	30	0.1	21.6	1.3	%	---	4.5	4	---	4.2	3.4	---	7	6.1
Moisture	30	1.8	17.3	5.0	%	---	7.2	6.6	---	7.8	6	---	11.3	6.8
pH (H)	30	6.9	7.3	7.1	SU	7	---	---	6.9	---	---	7	---	---
Nitrogen, Nitrate/Nitrite	8	0.9	2.0	1.0	mg/kg	<i>1</i>	1.1	<i>1</i>	<i>0.89</i>	<i>1</i>	<i>1</i>	<i>1</i>	1.1	1.4
Nitrogen, Total Kjeldahl	10	1.0	2000.0	128.4	mg/kg	130	180	<i>1</i>	<i>140</i>	230	<i>1</i>	260	330	260
Phosphorus, Total	30	12.0	380.0	81.0	mg/kg	120	180	140	100	260	190	230	280	380
Phosphate, Total	30	36.0	1200.0	249.4	mg/kg	360	560	440	310	820	580	710	870	1200
<b>Microbiological Analysis</b>														
Coliform, Fecal (MPN)	6	0.8	53.4	3.3	MPN/gm	---	2.26	< 0.2	---	3.26	2.26	---	< 0.2	1.69
Coliform, Total (MPN)	19	0.4	1588.9	48.9	MPN/gm	537.95	91.25	0.79	91.11	158.17	9.23	1540.67	16.91	3.26

Notes:

Results in *Italics* were not detected at the detection limit shown.

Results in **Bold** were detected at the concentration shown.

SAMPLE ID						LEDGE-8 (GREY)	LEDGE-8A (GREY-S)	LEDGE-8A (GREY-D)	BEACH-2	BEACH-2A	BEACH-3	BEACH-3A	BEACH-5	BEACH-5A	BEACH-8	BEACH-8A
SAMPLING DATE						8-Jan-20	9-Mar-20	9-Mar-20	7-Jan-20	9-Mar-20	7-Jan-20	9-Mar-20	7-Jan-20	9-Mar-20	7-Jan-20	9-Mar-20
	Freq	Min	Max	Mean	Units											
<b>General Chemistry</b>																
Solids, Total	30	82.7	98.2	93.5	%	93.2	91.9	92.2	96.6	97.6	95.4	82.7	90.3	97.9	87.2	97.6
% Sand	30	76.4	99.7	92.1	%	---	76.4	86.7	---	99.4	---	99.7	---	99.2	---	99.6
% Fines	30	0.1	21.6	1.3	%	---	21.6	5.6	---	0.6	---	0.3	---	0.1	---	0.4
Moisture	30	1.8	17.3	5.0	%	---	8.1	7.8	---	2.4	---	17.3	---	2.1	---	2.4
pH (H)	30	6.9	7.3	7.1	SU	7.1	---	---	7.3	---	7.1	---	7	---	7.3	---
Nitrogen, Nitrate/Nitrite	8	0.9	2.0	1.0	mg/kg	2	1	1	0.98	0.92	0.89	1.1	1	1	1.1	0.99
Nitrogen, Total Kjeldahl	10	1.0	2000.0	128.4	mg/kg	180	170	310	160	130	150	170	160	130	110	150
Phosphorus, Total	30	12.0	380.0	81.0	mg/kg	340	180	190	34	58	64	12	140	21	90	26
Phosphate, Total	30	36.0	1200.0	249.4	mg/kg	1000	560	580	100	180	200	36	440	65	280	81
<b>Microbiological Analysis</b>																
Coliform, Fecal (MPN)	6	0.8	53.4	3.3	MPN/gm	---	< 0.2	0.79	---	< 0.2	---	< 0.2	---	< 0.2	---	< 0.2
Coliform, Total (MPN)	19	0.4	1588.9	48.9	MPN/gm	>=1598.53	21.97	90.94	340.37	< 0.2	278.43	< 0.2	1588.86	< 0.2	>=1590.55	< 0.2

**Notes:**

Results in *Italics* were not detected at the detection limit shown.

Results in **Bold** were detected at the concentration shown.

SAMPLE ID						MHW-2A	MHW-3A	MHW-5A	MHW-8A	HH-Dune	HH-Toe	HH-Beach	53-Dune	53-Toe	53-Beach
SAMPLING DATE						9-Mar-20	9-Mar-20	9-Mar-20	9-Mar-20	9-Mar-20	9-Mar-20	9-Mar-20	9-Mar-20	9-Mar-20	9-Mar-20
	Freq	Min	Max	Mean	Units										
						<b>General Chemistry</b>									
Solids, Total	30	82.7	98.2	93.5	%	96	96.2	97	95.2	94.3	89	98.2	90.1	98.2	97.5
% Sand	30	76.4	99.7	92.1	%	99.6	99.5	99.2	99.5	96.1	96.5	99.6	79.6	99.7	99.7
% Fines	30	0.1	21.6	1.3	%	0.4	0.5	0.8	0.5	2	1.1	0.4	2.7	0.3	0.3
Moisture	30	1.8	17.3	5.0	%	4	3.8	3	4.8	5.7	11	1.8	9.9	1.8	2.5
pH (H)	30	6.9	7.3	7.1	SU	---	---	---	---	---	---	---	---	---	---
Nitrogen, Nitrate/Nitrite	8	0.9	2.0	1.0	mg/kg	0.92	0.88	0.93	0.97	0.89	1	0.88	1	---	---
Nitrogen, Total Kjeldahl	10	1.0	2000.0	128.4	mg/kg	150	150	150	140	160	150	140	2000	130	150
Phosphorus, Total	30	12.0	380.0	81.0	mg/kg	19	53	26	58	51	71	51	110	73	18
Phosphate, Total	30	36.0	1200.0	249.4	mg/kg	59	160	80	180	160	220	160	330	220	55
						<b>Microbiological Analysis</b>									
Coliform, Fecal (MPN)	6	0.8	53.4	3.3	MPN/gm	< 0.2	< 0.19	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	53.39	< 0.2	< 0.2
Coliform, Total (MPN)	19	0.4	1588.9	48.9	MPN/gm	< 0.2	< 0.19	< 0.2	< 0.2	10.86	< 0.2	< 0.2	90.97	0.4	< 0.2

**Notes:**

Results in *Italics* were not detected at the detection limit shown.

Results in **Bold** were detected at the concentration shown.

Table 1B - Sand Sampling Data - Template Sand - Ledge

Siasconset Beach Preservation Fund  
Siasconset, Massachusetts

	SAMPLE ID	SAMPLING DATE	Solids, Total	%Sand	% Fines	Moisture	pH	Nitrate/Nitrite	Total Kjeldahl	Phosphorus	Phosphate	Coliform, Fecal	Coliform, Total
	TAN	LEDGE-1 (TAN)	7-Jan-20	93.7	---	---	---	6.8	1	100	120	360	---
LEDGE-2 (TAN)		7-Jan-20	92.2	---	---	---	6.9	0.98	260	140	440	---	3.39
LEDGE-3 (TAN)		7-Jan-20	94	---	---	---	7	1	130	120	360	---	537.95
LEDGE-3A (Tan-S)		9-Mar-20	92.8	86.1	4.5	7.2	---	1.1	180	180	560	2.28	91.25
LEDGE-3A (Tan-D)		9-Mar-20	93.4	85.3	4	6.6	---	1	1	140	440	< 0.2	0.79
LEDGE-4 (TAN)		7-Jan-20	93.9	---	---	---	6.9	0.89	140	100	310	---	91.11
LEDGE-4A (Tan-S)		9-Mar-20	92.2	86.5	4.2	7.8	---	1	230	260	820	3.26	158.17
LEDGE-4A (Tan-D)		9-Mar-20	94	88.6	3.4	6	---	1	1	190	580	2.26	9.23
LEDGE-5 (TAN)		7-Jan-20	92.8	---	---	---	7	1.1	140	150	460	---	53.89
LEDGE-6 (TAN)		7-Jan-20	94.4	---	---	---	7.1	1.5	150	110	350	---	12.89
LEDGE-7 (TAN)		7-Jan-20	95.2	---	---	---	7.1	1.5	120	81	250	---	2.08
LEDGE-8 (TAN)		7-Jan-20	95	---	---	---	7.4	1.2	140	150	480	---	34.63
GREY	SAMPLE ID	SAMPLING DATE	Solids, Total			Moisture	pH	Nitrate/Nitrite	Total Kjeldahl	Phosphorus	Phosphate	Coliform, Fecal	Coliform, Total
	LEDGE-1 (GREY)	7-Jan-20	94	---	---	---	7.4	1.6	180	170	510	---	27.88
	LEDGE-2 (GREY)	7-Jan-20	93.4	---	---	---	7.2	1.6	190	190	600	---	347.96
	LEDGE-3 (GREY)	7-Jan-20	92.7	---	---	---	7.1	0.95	630	260	810	---	158.44
	LEDGE-4 (GREY)	7-Jan-20	91	---	---	---	6.9	1	160	240	750	---	>=1598.82
	LEDGE-5 (GREY)	7-Jan-20	91.3	---	---	---	7	1	260	230	710	---	1540.67
	LEDGE-5A (GREY-S)	9-Mar-20	88.7	82.1	7	11.3	---	1.1	330	280	870	< 0.2	16.91
	LEDGE-5A (GREY-D)	9-Mar-20	93.2	76.4	6.1	6.8	---	1.4	260	380	1200	1.69	3.28
	LEDGE-6 (GREY)	7-Jan-20	92.1	---	---	---	7.2	1	350	220	680	---	>=1588.99
	LEDGE-7 (GREY)	8-Jan-20	93.1	---	---	---	7.5	1.3	200	220	660	---	535.15
	LEDGE-8 (GREY)	8-Jan-20	93.2	---	---	---	7.1	2	180	340	1000	---	>=1598.53
	LEDGE-8A (GREY-S)	9-Mar-20	91.9	78.4	21.6	8.1	---	1	170	180	560	< 0.2	21.97
LEDGE-8A (GREY-D)	9-Mar-20	92.2	86.7	5.6	7.8	---	1	310	190	580	0.79	90.94	
BG	SAMPLE ID	SAMPLING DATE	Solids, Total			Moisture	pH	Nitrate/Nitrite	Total Kjeldahl	Phosphorus	Phosphate	Coliform, Fecal	Coliform, Total
	HH-Dune	9-Mar-20	94.3	96.1	2	5.7	---	0.89	160	51	160	< 0.2	10.86
	53-Dune	9-Mar-20	90.1	79.6	2.7	9.9	---	1	2000	110	330	53.39	90.97

Table 1C - Sand Sampling Data - Beach

Siasconset Beach Preservation Fund  
Siasconset, Massachusetts

SAMPLE ID	SAMPLING DATE	Solids, Total	% Sand	% Fines	Moisture	pH	Nitrate/Nitrite	Total Kjeldahl	Phosphorus	Phosphate	Coliform, Fecal	Coliform, Total
BEACH-1	7-Jan-20	97.4	---	---	---	7	0.96	120	32	99	---	91.35
BEACH-2	7-Jan-20	96.6	---	---	---	7.3	0.98	160	34	100	---	340.37
BEACH-2A	9-Mar-20	97.6	99.4	0.6	2.4	---	0.92	130	58	180	<0.2	<0.2
BEACH-3	7-Jan-20	95.4	---	---	---	7.1	0.89	150	64	200	---	278.43
BEACH-3A	9-Mar-20	82.7	99.7	0.2	17.3	---	1.1	170	12	36	<0.2	<0.2
BEACH-4	7-Jan-20	97.3	---	---	---	7.3	0.96	150	21	65	---	<0.2
BEACH-5	7-Jan-20	90.3	---	---	---	7	1	160	140	440	---	1588.86
BEACH-5A	9-Mar-20	97.9	99.2	0.1	2.1	---	1	130	21	65	<0.2	<0.2
BEACH-6	7-Jan-20	95.4	---	---	---	7.2	0.97	150	59	180	---	893.92
BEACH-7	7-Jan-20	92.9	---	---	---	7.3	0.97	100	90	280	---	>=1571.99
BEACH-8	7-Jan-20	87.2	---	---	---	7.3	1.1	110	90	280	---	>=1590.55
BEACH-8A	9-Mar-20	97.6	99.6	0.4	2.4	---	0.99	150	26	81	<0.2	<0.2
HH-Toe	9-Mar-20	89	96.5	1.1	11	---	1	150	71	220	<0.2	<0.2
HH-Beach	9-Mar-20	98.2	99.6	0.4	1.8	---	0.88	140	51	160	<0.2	<0.2
53-Toe	9-Mar-20	98.2	99.7	0.3	1.8	---	---	130	73	220	<0.2	0.4
53-Beach	9-Mar-20	97.5	99.7	0.3	2.5	---	---	150	18	55	<0.2	<0.2

Table 1D - Sand Sampling Data - Intertidal and Mean High Water

Siasconset Beach Preservation Fund  
Siasconset, Massachusetts

SAMPLE ID	SAMPLING DATE	Solids, Total	% Sand	% Fines	Moisture	pH	Nitrate/Nitrite	Total Kjeldahl	Phosphorus	Phosphate	Coliform, Fecal	Coliform, Total
TIDAL-1	8-Jan-20	86.1	---	---	---	7.4	1.1	170	10	31	---	< 0.2
TIDAL-2	8-Jan-20	82.7	---	---	---	7.4	1.1	180	11	33	---	< 0.2
TIDAL-3	8-Jan-20	80.9	---	---	---	7.5	1.1	160	12	35	---	< 0.2
TIDAL-4	8-Jan-20	92.6	---	---	---	7.5	0.91	160	55	170	---	0.2
TIDAL-5	8-Jan-20	96	---	---	---	7.7	0.98	190	46	140	---	0.2
TIDAL-6	8-Jan-20	89.7	---	---	---	7.9	1	1100	110	330	---	0.2
TIDAL-7	8-Jan-20	96.9	---	---	---	7.9	0.88	150	21	64	---	< 0.2
TIDAL-8	8-Jan-20	84.7	---	---	---	8	1.1	170	18	55	---	< 0.2
MHW-2A	9-Mar-20	96	99.6	0.4	4	---	0.92	150	19	59	< 0.2	< 0.2
MHW-3A	9-Mar-20	96.2	99.5	0.5	3.8	---	0.88	150	53	160	< 0.19	< 0.19
MHW-5A	9-Mar-20	97	99.2	0.8	3	---	0.93	150	26	80	< 0.2	< 0.2
MHW-8A	9-Mar-20	95.2	99.5	0.5	4.8	---	0.97	140	58	180	< 0.2	< 0.2

# *APPENDIX A*

## Laboratory Reports



## ANALYTICAL REPORT

Lab Number:	L2010536
Client:	OHI Engineering Incorporated 44 Wood Avenue Mansfield, MA 02048
ATTN:	James Borrebach
Phone:	(508) 339-3929
Project Name:	EPSILON SAND SAMP
Project Number:	19-2000
Report Date:	03/16/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2010536-01	LEDGE-3A(TAN-S)	SOIL	NANTUCKET, MA	03/09/20 09:00	03/10/20
L2010536-02	LEDGE-3A(TAN-D)	SOIL	NANTUCKET, MA	03/09/20 09:30	03/10/20
L2010536-03	LEDGE-4A(TAN-S)	SOIL	NANTUCKET, MA	03/09/20 09:45	03/10/20
L2010536-04	LEDGE-4A(TAN-D)	SOIL	NANTUCKET, MA	03/09/20 10:15	03/10/20
L2010536-05	LEDGE-5A(GREY-S)	SOIL	NANTUCKET, MA	03/09/20 11:00	03/10/20
L2010536-06	LEDGE-5A(GREY-D)	SOIL	NANTUCKET, MA	03/09/20 11:30	03/10/20
L2010536-07	LEDGE-8A(GREY-S)	SOIL	NANTUCKET, MA	03/09/20 11:45	03/10/20
L2010536-08	LEDGE-8A(GREY-D)	SOIL	NANTUCKET, MA	03/09/20 12:15	03/10/20
L2010536-09	BEACH-2A	SOIL	NANTUCKET, MA	03/09/20 12:20	03/10/20
L2010536-10	BEACH-3A	SOIL	NANTUCKET, MA	03/09/20 12:25	03/10/20
L2010536-11	BEACH-5A	SOIL	NANTUCKET, MA	03/09/20 12:30	03/10/20
L2010536-12	BEACH-8A	SOIL	NANTUCKET, MA	03/09/20 12:35	03/10/20
L2010536-13	MHW-2A	SOIL	NANTUCKET, MA	03/09/20 12:22	03/10/20
L2010536-14	MHW-3A	SOIL	NANTUCKET, MA	03/09/20 12:27	03/10/20
L2010536-15	MHW-5A	SOIL	NANTUCKET, MA	03/09/20 12:32	03/10/20
L2010536-16	MHW-8A	SOIL	NANTUCKET, MA	03/09/20 12:37	03/10/20
L2010536-17	HH-DUNE	SOIL	NANTUCKET, MA	03/09/20 13:05	03/10/20
L2010536-18	HH-TOE	SOIL	NANTUCKET, MA	03/09/20 13:10	03/10/20
L2010536-19	HH-BEACH	SOIL	NANTUCKET, MA	03/09/20 13:15	03/10/20
L2010536-20	53-DUNE	SOIL	NANTUCKET, MA	03/09/20 12:45	03/10/20
L2010536-21	53-TOE	SOIL	NANTUCKET, MA	03/09/20 12:50	03/10/20
L2010536-22	53-BEACH	SOIL	NANTUCKET, MA	03/09/20 13:00	03/10/20

**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

### MADEP MCP Response Action Analytical Report Certification

**This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.**

<b>An affirmative response to questions A through F is required for "Presumptive Certainty" status</b>		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES
<b>A response to questions G, H and I is required for "Presumptive Certainty" status</b>		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES
<b>For any questions answered "No", please refer to the case narrative section on the following page(s).</b>		

**Please note that sample matrix information is located in the Sample Results section of this report.**



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

**HOLD POLICY** - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

---

**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

### Case Narrative (continued)

#### Report Submission

March 16, 2020: This final report includes the results of all requested analyses.

March 13, 2020: This is a preliminary report.

#### MCP Related Narratives

##### Sample Receipt

L2010536-13 through -16: The Client IDs were changed at the client's request.

#### MCP Related Narratives

##### Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

#### Non-MCP Related Narratives

##### Grain Size Analysis

The WG1349682-2 Laboratory Duplicate RPDs for % fine sand (40%) and % total fines (40%), performed on L2010536-22, are outside the acceptance criteria. The elevated RPDs have been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 03/16/20

## QC OUTLIER SUMMARY REPORT

**Project Name:** EPSILON SAND SAMP

**Lab Number:** L2010536

**Project Number:** 19-2000

**Report Date:** 03/16/20

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment
Grain Size Analysis - Mansfield Lab								
D6913/D7928	Batch QC (L2010536-22)	WG1349682-2	% Fine Sand	Duplicate	40	20	01-22	non-directional bias
D6913/D7928	Batch QC (L2010536-22)	WG1349682-2	% Total Fines	Duplicate	40	20	01-22	non-directional bias

# **INORGANICS & MISCELLANEOUS**

**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-01  
**Client ID:** LEDGE-3A(TAN-S)  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 09:00  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	91.25		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Coliform, Fecal (MPN)	2.28		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	9.40		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	9.40		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	4.40		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	42.4		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	39.3		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	86.1		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	4.50		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	1.1		mg/kg	1.1	--	1	-	03/11/20 10:48	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	180		mg/kg	160	--	1	03/10/20 17:53	03/11/20 21:07	121,4500NH3-H	AT
Phosphorus, Total	180		mg/kg	13	--	2.5	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	560		mg/kg	40	--	2.5	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	92.8		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	7.20		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-02  
**Client ID:** LEDGE-3A(TAN-D)  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 09:30  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	0.79		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	10.7		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	10.7		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	3.90		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	44.2		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	37.2		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	85.3		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	4.00		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.0	--	1	-	03/11/20 10:49	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	150	--	1	03/10/20 17:53	03/11/20 21:09	121,4500NH3-H	AT
Phosphorus, Total	140		mg/kg	10	--	1.9	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	440		mg/kg	30	--	1.9	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	93.4		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	6.60		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-03  
**Client ID:** LEDGE-4A(TAN-S)  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 09:45  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	158.17		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Coliform, Fecal (MPN)	3.26		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	9.30		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	9.30		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	4.90		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	50.3		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	31.3		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	86.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	4.20		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.0	--	1	-	03/11/20 10:50	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	230		mg/kg	160	--	1	03/10/20 17:53	03/11/20 21:10	121,4500NH3-H	AT
Phosphorus, Total	260		mg/kg	12	--	2.2	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	820		mg/kg	36	--	2.2	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	92.2		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	7.80		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-04  
**Client ID:** LEDGE-4A(TAN-D)  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 10:15  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	9.23		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Coliform, Fecal (MPN)	2.26		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	8.00		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	8.00		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	5.20		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	47.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	35.8		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	88.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	3.40		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.96	--	1	-	03/11/20 10:51	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	160	--	1	03/10/20 17:53	03/11/20 21:11	121,4500NH3-H	AT
Phosphorus, Total	190		mg/kg	10	--	1.9	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	580		mg/kg	30	--	1.9	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	94.0		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	6.00		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-05  
**Client ID:** LEDGE-5A(GREY-S)  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 11:00  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	16.91		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	10.9		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	10.9		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	4.90		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	39.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	37.7		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	82.1		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	7.00		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	1.1		mg/kg	1.0	--	1	-	03/11/20 10:53	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	330		mg/kg	160	--	1	03/10/20 17:53	03/11/20 21:12	121,4500NH3-H	AT
Phosphorus, Total	280		mg/kg	11	--	1.9	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	870		mg/kg	32	--	1.9	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	88.7		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	11.3		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-06  
**Client ID:** LEDGE-5A(GREY-D)  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 11:30  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	3.28		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Coliform, Fecal (MPN)	1.69		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	17.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	17.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	3.30		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	38.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	34.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	76.4		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	6.10		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	1.4		mg/kg	1.0	--	1	-	03/11/20 10:54	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	260		mg/kg	160	--	1	03/10/20 17:53	03/11/20 21:16	121,4500NH3-H	AT
Phosphorus, Total	380		mg/kg	12	--	2.2	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	1200		mg/kg	35	--	2.2	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	93.2		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	6.80		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-07  
**Client ID:** LEDGE-8A(GREY-S)  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 11:45  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	21.97		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	4.10		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	34.2		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	40.1		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	78.4		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	21.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.97	--	1	-	03/11/20 10:55	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	170		mg/kg	150	--	1	03/10/20 17:53	03/11/20 21:17	121,4500NH3-H	AT
Phosphorus, Total	180		mg/kg	11	--	2	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	560		mg/kg	33	--	2	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	91.9		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	8.10		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-08  
**Client ID:** LEDGE-8A(GREY-D)  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:15  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	90.94		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Coliform, Fecal (MPN)	0.79		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	7.70		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	7.70		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	4.60		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	41.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	40.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	86.7		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	5.60		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	1.0		mg/kg	0.99	--	1	-	03/11/20 10:57	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	310		mg/kg	160	--	1	03/10/20 17:53	03/11/20 21:18	121,4500NH3-H	AT
Phosphorus, Total	190		mg/kg	12	--	2.3	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	580		mg/kg	37	--	2.3	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	92.2		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	7.80		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-09  
**Client ID:** BEACH-2A  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:20  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	0.200		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	98.0		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	1.20		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.4		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.600		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.92	--	1	-	03/11/20 10:58	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	130	--	1	03/10/20 17:53	03/11/20 21:19	121,4500NH3-H	AT
Phosphorus, Total	58		mg/kg	7.2	--	1.4	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	180		mg/kg	22	--	1.4	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	97.6		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	2.40		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-10  
**Client ID:** BEACH-3A  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:25  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	0.100		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	0.100		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	0.100		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	98.3		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	1.30		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.7		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.200		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.1	--	1	-	03/11/20 11:03	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	170	--	1	03/10/20 17:53	03/11/20 21:20	121,4500NH3-H	AT
Phosphorus, Total	12		mg/kg	5.4	--	.9	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	36		mg/kg	16	--	.9	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	82.7		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	17.3		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-11  
**Client ID:** BEACH-5A  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:30  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	0.700		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	0.700		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	1.40		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	97.0		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	0.800		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.2		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.100		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.0	--	1	-	03/11/20 11:04	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	130	--	1	03/10/20 17:53	03/11/20 21:21	121,4500NH3-H	AT
Phosphorus, Total	21		mg/kg	10	--	2	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	65		mg/kg	31	--	2	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	97.9		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	2.10		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-12  
**Client ID:** BEACH-8A  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:35  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	0.100		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	96.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	2.90		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.400		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.99	--	1	-	03/11/20 11:06	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	150	--	1	03/10/20 17:53	03/11/20 21:22	121,4500NH3-H	AT
Phosphorus, Total	26		mg/kg	4.6	--	.9	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	81		mg/kg	14	--	.9	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	97.6		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	2.40		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-13  
**Client ID:** MHW-2A  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:22  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	97.4		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	2.20		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.400		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.92	--	1	-	03/11/20 11:11	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	150	--	1	03/10/20 17:53	03/11/20 21:23	121,4500NH3-H	AT
Phosphorus, Total	19		mg/kg	5.2	--	1	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	59		mg/kg	16	--	1	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	96.0		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	4.00		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-14  
**Client ID:** MHW-3A  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:27  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.19		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Coliform, Fecal (MPN)	<0.19		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	0.100		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	98.1		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	1.30		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.500		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.88	--	1	-	03/11/20 11:12	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	150	--	1	03/10/20 17:53	03/11/20 21:24	121,4500NH3-H	AT
Phosphorus, Total	53		mg/kg	4.2	--	.8	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	160		mg/kg	12	--	.8	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	96.2		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	3.80		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-15  
**Client ID:** MHW-5A  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:32  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	0.800		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	96.8		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	1.60		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.2		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.800		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.93	--	1	-	03/11/20 11:14	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	150	--	1	03/10/20 17:53	03/11/20 21:24	121,4500NH3-H	AT
Phosphorus, Total	26		mg/kg	4.6	--	.9	-	03/11/20 09:45	121,4500P-E	SD
Phosphate, Total	80		mg/kg	14	--	.9	-	03/11/20 09:45	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	97.0		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	3.00		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-16  
**Client ID:** MHW-8A  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:37  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	0.100		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	98.2		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	1.20		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.500		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.97	--	1	-	03/11/20 11:15	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	140	--	1	03/10/20 17:59	03/11/20 21:41	121,4500NH3-H	AT
Phosphorus, Total	58		mg/kg	10	--	2	-	03/11/20 10:55	121,4500P-E	SD
Phosphate, Total	180		mg/kg	32	--	2	-	03/11/20 10:55	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	95.2		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	4.80		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-17  
**Client ID:** HH-DUNE  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 13:05  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	10.86		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	1.90		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	1.90		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	9.00		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	51.9		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	35.2		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	96.1		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	2.00		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.89	--	1	-	03/11/20 11:16	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	160	--	1	03/10/20 17:59	03/11/20 21:44	121,4500NH3-H	AT
Phosphorus, Total	51		mg/kg	9.0	--	1.7	-	03/11/20 10:55	121,4500P-E	SD
Phosphate, Total	160		mg/kg	27	--	1.7	-	03/11/20 10:55	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	94.3		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	5.70		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-18  
**Client ID:** HH-TOE  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 13:10  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	2.40		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	2.40		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	11.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	67.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	17.4		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	96.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	1.10		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.0	--	1	-	03/11/20 11:21	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	150	--	1	03/10/20 17:59	03/11/20 21:45	121,4500NH3-H	AT
Phosphorus, Total	71		mg/kg	5.0	--	.9	-	03/11/20 10:55	121,4500P-E	SD
Phosphate, Total	220		mg/kg	15	--	.9	-	03/11/20 10:55	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	89.0		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	11.0		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-19  
**Client ID:** HH-BEACH  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 13:15  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	98.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	1.00		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.400		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.88	--	1	-	03/11/20 11:23	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	140	--	1	03/10/20 17:59	03/11/20 21:46	121,4500NH3-H	AT
Phosphorus, Total	51		mg/kg	4.6	--	.9	-	03/11/20 10:55	121,4500P-E	SD
Phosphate, Total	160		mg/kg	14	--	.9	-	03/11/20 10:55	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	98.2		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	1.80		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-20  
**Client ID:** 53-DUNE  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:45  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	90.97		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Coliform, Fecal (MPN)	53.39		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	17.7		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	17.7		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	8.50		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	40.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	30.5		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	79.6		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	2.70		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.0	--	1	-	03/11/20 11:24	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	2000		mg/kg	160	--	1	03/10/20 17:59	03/11/20 21:47	121,4500NH3-H	AT
Phosphorus, Total	110		mg/kg	13	--	2.4	-	03/11/20 10:55	121,4500P-E	SD
Phosphate, Total	330		mg/kg	40	--	2.4	-	03/11/20 10:55	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	90.1		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL
Moisture	9.90		%	0.100	--	1	-	03/11/20 08:00	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-21  
**Client ID:** 53-TOE  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 12:50  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	0.4		MPN/gm	0.2	NA	1	-	03/10/20 19:28	121,9221B	DP
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:28	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	98.1		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	1.60		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.7		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.300		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.92	--	1	-	03/11/20 11:25	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	130	--	1	03/10/20 17:59	03/11/20 21:51	121,4500NH3-H	AT
Phosphorus, Total	73		mg/kg	4.6	--	.9	-	03/11/20 10:55	121,4500P-E	SD
Phosphate, Total	220		mg/kg	14	--	.9	-	03/11/20 10:55	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	98.2		%	0.100	--	1	-	03/11/20 08:32	121,2540G	AL
Moisture	1.80		%	0.100	--	1	-	03/11/20 08:32	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**SAMPLE RESULTS**

**Lab ID:** L2010536-22  
**Client ID:** 53-BEACH  
**Sample Location:** NANTUCKET, MA

**Date Collected:** 03/09/20 13:00  
**Date Received:** 03/10/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:28	121,9221B	DP
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:28	121,9221E	CO
<b>Grain Size Analysis - Mansfield Lab</b>										
Cobbles	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Gravel	ND		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Coarse Sand	0.100		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Medium Sand	98.1		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Fine Sand	1.50		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Sand	99.7		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
% Total Fines	0.300		%	0.100	NA	1	-	03/11/20 08:57	12,D6913/D7928	MC
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	0.92	--	1	-	03/11/20 11:31	121,4500NO3-F	MR
Nitrogen, Total Kjeldahl	ND		mg/kg	150	--	1	03/10/20 17:59	03/11/20 21:51	121,4500NH3-H	AT
Phosphorus, Total	18		mg/kg	4.6	--	.9	-	03/11/20 10:55	121,4500P-E	SD
Phosphate, Total	55		mg/kg	14	--	.9	-	03/11/20 10:55	121,4500P-E(M)	SD
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total	97.5		%	0.100	--	1	-	03/11/20 08:32	121,2540G	AL
Moisture	2.50		%	0.100	--	1	-	03/11/20 08:32	121,2540G	AL



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab for sample(s): 01-10 Batch: WG1349419-1										
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221E	CO
Microbiological Analysis - Westborough Lab for sample(s): 11-20 Batch: WG1349420-1										
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221E	CM
Microbiological Analysis - Westborough Lab for sample(s): 21-22 Batch: WG1349422-1										
Coliform, Fecal (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:28	121,9221E	CO
Microbiological Analysis - Westborough Lab for sample(s): 01-10 Batch: WG1349423-1										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:00	121,9221B	DP
Microbiological Analysis - Westborough Lab for sample(s): 11-20 Batch: WG1349424-1										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:20	121,9221B	CO
Microbiological Analysis - Westborough Lab for sample(s): 21-22 Batch: WG1349426-1										
Coliform, Total (MPN)	<0.2		MPN/gm	0.2	NA	1	-	03/10/20 19:28	121,9221B	DP
General Chemistry - Westborough Lab for sample(s): 01-15 Batch: WG1349433-1										
Nitrogen, Total Kjeldahl	ND		mg/kg	150	--	1	03/10/20 17:53	03/11/20 21:04	121,4500NH3-H	AT
General Chemistry - Westborough Lab for sample(s): 16-22 Batch: WG1349443-1										
Nitrogen, Total Kjeldahl	ND		mg/kg	150	--	1	03/10/20 17:59	03/11/20 21:38	121,4500NH3-H	AT
General Chemistry - Westborough Lab for sample(s): 01-15 Batch: WG1349667-1										
Phosphate, Total	ND		mg/kg	15	--	1	-	03/11/20 09:45	121,4500P-E(M)	SD
General Chemistry - Westborough Lab for sample(s): 16-22 Batch: WG1349669-1										
Phosphate, Total	ND		mg/kg	15	--	1	-	03/11/20 10:55	121,4500P-E(M)	SD
General Chemistry - Westborough Lab for sample(s): 01-20 Batch: WG1349725-1										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.0	--	1	-	03/11/20 10:39	121,4500NO3-F	MR
General Chemistry - Westborough Lab for sample(s): 21-22 Batch: WG1349727-1										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.0	--	1	-	03/11/20 10:41	121,4500NO3-F	MR
General Chemistry - Westborough Lab for sample(s): 01-15 Batch: WG1349801-1										
Phosphorus, Total	ND		mg/kg	5.0	--	1	-	03/11/20 09:45	121,4500P-E	SD
General Chemistry - Westborough Lab for sample(s): 16-22 Batch: WG1349802-1										
Phosphorus, Total	ND		mg/kg	5.0	--	1	-	03/11/20 10:55	121,4500P-E	SD



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Westborough Lab Associated sample(s): 01-15 Batch: WG1349433-2								
Nitrogen, Total Kjeldahl	99		-		83-111	-		26
General Chemistry - Westborough Lab Associated sample(s): 16-22 Batch: WG1349443-2								
Nitrogen, Total Kjeldahl	100		-		83-111	-		26
General Chemistry - Westborough Lab Associated sample(s): 01-15 Batch: WG1349667-2								
Phosphate, Total	95		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 16-22 Batch: WG1349669-2								
Phosphate, Total	120		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01-20 Batch: WG1349725-2								
Nitrogen, Nitrate/Nitrite	98		-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 21-22 Batch: WG1349727-2								
Nitrogen, Nitrate/Nitrite	98		-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-15 Batch: WG1349801-2								
Phosphorus, Total	94		-		52-148	-		20



## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** EPSILON SAND SAMP

**Lab Number:** L2010536

**Project Number:** 19-2000

**Report Date:** 03/16/20

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 16-22 Batch: WG1349802-2					
Phosphorus, Total	120	-	52-148	-	20

### Matrix Spike Analysis Batch Quality Control

**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1349433-4 QC Sample: L2010536-01 Client ID: LEDGE-3A(TAN-S)												
Nitrogen, Total Kjeldahl	180	4350	4400	97	-	-	-	-	43-160	-	-	26
General Chemistry - Westborough Lab Associated sample(s): 16-22 QC Batch ID: WG1349443-4 QC Sample: L2010536-16 Client ID: MHW-8A												
Nitrogen, Total Kjeldahl	ND	4100	3900	95	-	-	-	-	43-160	-	-	26
General Chemistry - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1349667-3 QC Sample: L2010536-01 Client ID: LEDGE-3A(TAN-S)												
Phosphate, Total	560	832	1300	89	-	-	-	-	75-125	-	-	25
General Chemistry - Westborough Lab Associated sample(s): 16-22 QC Batch ID: WG1349669-3 QC Sample: L2010536-16 Client ID: MHW-8A												
Phosphate, Total	180	806	790	76	-	-	-	-	75-125	-	-	25
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1349725-4 QC Sample: L2010536-12 Client ID: BEACH-8A												
Nitrogen, Nitrate/Nitrite	ND	71	75	106	-	-	-	-	80-120	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 21-22 QC Batch ID: WG1349727-4 QC Sample: L2010536-21 Client ID: 53-TOE												
Nitrogen, Nitrate/Nitrite	ND	71	78	108	-	-	-	-	80-120	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1349801-3 QC Sample: L2010536-01 Client ID: LEDGE-3A(TAN-S)												
Phosphorus, Total	180	270	420	89	-	-	-	-	75-125	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 16-22 QC Batch ID: WG1349802-3 QC Sample: L2010536-16 Client ID: MHW-8A												
Phosphorus, Total	58	262	260	77	-	-	-	-	75-125	-	-	20



## Lab Duplicate Analysis

*Batch Quality Control*

Project Name: EPSILON SAND SAMP

Project Number: 19-2000

Lab Number: L2010536

Report Date: 03/16/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1349433-3 QC Sample: L2010536-01 Client ID: LEDGE-3A(TAN-S)						
Nitrogen, Total Kjeldahl	180	200	mg/kg	11		26
General Chemistry - Westborough Lab Associated sample(s): 16-22 QC Batch ID: WG1349443-3 QC Sample: L2010536-16 Client ID: MHW-8A						
Nitrogen, Total Kjeldahl	ND	ND	mg/kg	NC		26
General Chemistry - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1349650-1 QC Sample: L2010536-01 Client ID: LEDGE-3A(TAN-S)						
Solids, Total	92.8	92.4	%	0		10
Moisture	7.2	7.60	%	5		10
General Chemistry - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1349651-1 QC Sample: L2010536-21 Client ID: 53-TOE						
Solids, Total	98.2	98.0	%	0		10
Moisture	1.8	2.00	%	10		10
General Chemistry - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1349667-4 QC Sample: L2010536-01 Client ID: LEDGE-3A(TAN-S)						
Phosphate, Total	560	540	mg/kg	4		25
General Chemistry - Westborough Lab Associated sample(s): 16-22 QC Batch ID: WG1349669-4 QC Sample: L2010536-16 Client ID: MHW-8A						
Phosphate, Total	180	170	mg/kg	6		25

### Lab Duplicate Analysis Batch Quality Control

**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Grain Size Analysis - Mansfield Lab Associated sample(s): 01-22 QC Batch ID: WG1349682-1 QC Sample: L2010536-01 Client ID: LEDGE-3A(TAN-S)					
Cobbles	ND	ND	%	NC	20
% Coarse Gravel	ND	ND	%	NC	20
% Fine Gravel	9.40	7.80	%	19	20
% Total Gravel	9.40	7.80	%	19	20
% Coarse Sand	4.40	5.10	%	15	20
% Medium Sand	42.4	43.4	%	2	20
% Fine Sand	39.3	39.8	%	1	20
% Total Sand	86.1	88.3	%	3	20
% Total Fines	4.50	3.90	%	14	20
Grain Size Analysis - Mansfield Lab Associated sample(s): 01-22 QC Batch ID: WG1349682-2 QC Sample: L2010536-22 Client ID: 53-BEACH					
Cobbles	ND	ND	%	NC	20
% Coarse Gravel	ND	ND	%	NC	20
% Fine Gravel	ND	ND	%	NC	20
% Total Gravel	ND	ND	%	NC	20
% Coarse Sand	0.100	ND	%	NC	20
% Medium Sand	98.1	98.8	%	1	20
% Fine Sand	1.50	1.00	%	40	Q 20
% Total Sand	99.7	99.8	%	0	20
% Total Fines	0.300	0.200	%	40	Q 20



## Lab Duplicate Analysis

*Batch Quality Control*

Project Name: EPSILON SAND SAMP

Project Number: 19-2000

Lab Number: L2010536

Report Date: 03/16/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1349725-3 QC Sample: L2010536-12 Client ID: BEACH-8A					
Nitrogen, Nitrate/Nitrite	ND	ND	mg/kg	NC	20
General Chemistry - Westborough Lab Associated sample(s): 21-22 QC Batch ID: WG1349727-3 QC Sample: L2010536-21 Client ID: 53-TOE					
Nitrogen, Nitrate/Nitrite	ND	ND	mg/kg	NC	20
General Chemistry - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1349801-4 QC Sample: L2010536-01 Client ID: LEDGE-3A(TAN-S)					
Phosphorus, Total	180	170	mg/kg	6	20
General Chemistry - Westborough Lab Associated sample(s): 16-22 QC Batch ID: WG1349802-4 QC Sample: L2010536-16 Client ID: MHW-8A					
Phosphorus, Total	58	56	mg/kg	4	20

**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

Serial\_No:03162012:45  
**Lab Number:** L2010536  
**Report Date:** 03/16/20

**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

**Cooler Information**

Cooler	Custody Seal
A	Absent
B	Absent

**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2010536-01A	Plastic 2oz unpreserved for TS	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-01B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-01C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-01D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-01E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL()
L2010536-02A	Plastic 2oz unpreserved for TS	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-02B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-02C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-02D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-02E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL()
L2010536-03A	Plastic 2oz unpreserved for TS	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-03B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-03C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-03D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-03E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL()

\*Values in parentheses indicate holding time in days



**Project Name:** EPSILON SAND SAMP**Lab Number:** L2010536**Project Number:** 19-2000**Report Date:** 03/16/20**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2010536-04A	Plastic 2oz unpreserved for TS	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-04B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-04C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-04D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-04E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBPLES(),A2-HYDRO-FGRAVEL()
L2010536-05A	Plastic 2oz unpreserved for TS	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-05B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-05C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-05D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-05E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBPLES(),A2-HYDRO-FGRAVEL()
L2010536-06A	Glass 60ml unpreserved split	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-06B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-06C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-06D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-06E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBPLES(),A2-HYDRO-FGRAVEL()
L2010536-07A	Glass 60ml unpreserved split	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-07B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-07C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-07D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)

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**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2010536-07E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-08A	Glass 60ml unpreserved split	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-08B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-08C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-08D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-08E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-09A	Glass 60ml unpreserved split	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-09B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-09C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-09D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-09E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-10A	Glass 60ml unpreserved split	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-10B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-10C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-10D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-10E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-11A	Glass 60ml unpreserved split	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-11B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-11C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)

**Project Name:** EPSILON SAND SAMP**Lab Number:** L2010536**Project Number:** 19-2000**Report Date:** 03/16/20**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2010536-11D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-11E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-12A	Glass 60ml unpreserved split	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-12B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-12C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-12D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-12E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-13A	Glass 60ml unpreserved split	B	NA		2.8	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-13B	Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-13C	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		F-COLI-MPN(7)
L2010536-13D	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		T-COLI-MPN(7)
L2010536-13E	Plastic 8oz unpreserved for Grain Size	B	NA		2.8	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-14A	Glass 60ml unpreserved split	B	NA		2.8	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-14B	Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-14C	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		F-COLI-MPN(7)
L2010536-14D	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		T-COLI-MPN(7)
L2010536-14E	Plastic 8oz unpreserved for Grain Size	B	NA		2.8	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-15A	Glass 60ml unpreserved split	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-15B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)

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**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2010536-15C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-15D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-15E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-16A	Glass 60ml unpreserved split	A	NA		2.6	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-16B	Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-16C	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		F-COLI-MPN(7)
L2010536-16D	Bacteria Cup unpreserved	A	NA		2.6	Y	Absent		T-COLI-MPN(7)
L2010536-16E	Plastic 8oz unpreserved for Grain Size	A	NA		2.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-17A	Glass 60ml unpreserved split	B	NA		2.8	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-17B	Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-17C	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		F-COLI-MPN(7)
L2010536-17D	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		T-COLI-MPN(7)
L2010536-17E	Plastic 8oz unpreserved for Grain Size	B	NA		2.8	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-18A	Glass 60ml unpreserved split	B	NA		2.8	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)
L2010536-18B	Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		TKN-4500(28),TPO4-4500(28),TPHOS-4500(28),NO3/NO2-4500(28)
L2010536-18C	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		F-COLI-MPN(7)
L2010536-18D	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		T-COLI-MPN(7)
L2010536-18E	Plastic 8oz unpreserved for Grain Size	B	NA		2.8	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLER(),A2-HYDRO-FGRAVEL()
L2010536-19A	Glass 60ml unpreserved split	B	NA		2.8	Y	Absent		A2-MOISTURE-2540(7),A2-TS(7)

**Project Name:** EPSILON SAND SAMP**Lab Number:** L2010536**Project Number:** 19-2000**Report Date:** 03/16/20**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2010536-19B	Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		TKN-4500(28), TPO4-4500(28), TPPOS-4500(28), NO3/NO2-4500(28)
L2010536-19C	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		F-COLI-MPN(7)
L2010536-19D	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		T-COLI-MPN(7)
L2010536-19E	Plastic 8oz unpreserved for Grain Size	B	NA		2.8	Y	Absent		A2-HYDRO-TFINE(), A2-HYDRO-CGRAVEL(), A2-HYDRO-FSAND(), A2-HYDRO-MSAND(), A2-HYDRO-TGRAVEL(), A2-HYDRO-CSAND(), A2-HYDRO-TSAND(), A2-HYDRO-COBBLER(), A2-HYDRO-FGRAVEL()
L2010536-20A	Glass 60ml unpreserved split	B	NA		2.8	Y	Absent		A2-MOISTURE-2540(7), A2-TS(7)
L2010536-20B	Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		TKN-4500(28), TPO4-4500(28), TPPOS-4500(28), NO3/NO2-4500(28)
L2010536-20C	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		F-COLI-MPN(7)
L2010536-20D	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		T-COLI-MPN(7)
L2010536-20E	Plastic 8oz unpreserved for Grain Size	B	NA		2.8	Y	Absent		A2-HYDRO-TFINE(), A2-HYDRO-CGRAVEL(), A2-HYDRO-FSAND(), A2-HYDRO-MSAND(), A2-HYDRO-TGRAVEL(), A2-HYDRO-CSAND(), A2-HYDRO-TSAND(), A2-HYDRO-COBBLER(), A2-HYDRO-FGRAVEL()
L2010536-21A	Glass 60ml unpreserved split	B	NA		2.8	Y	Absent		A2-MOISTURE-2540(7), A2-TS(7)
L2010536-21B	Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		TKN-4500(28), TPO4-4500(28), TPPOS-4500(28), NO3/NO2-4500(28)
L2010536-21C	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		F-COLI-MPN(7)
L2010536-21D	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		T-COLI-MPN(7)
L2010536-21E	Plastic 8oz unpreserved for Grain Size	B	NA		2.8	Y	Absent		A2-HYDRO-TFINE(), A2-HYDRO-CGRAVEL(), A2-HYDRO-FSAND(), A2-HYDRO-MSAND(), A2-HYDRO-TGRAVEL(), A2-HYDRO-CSAND(), A2-HYDRO-TSAND(), A2-HYDRO-COBBLER(), A2-HYDRO-FGRAVEL()
L2010536-22A	Glass 60ml unpreserved split	B	NA		2.8	Y	Absent		A2-MOISTURE-2540(7), A2-TS(7)
L2010536-22B	Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		TKN-4500(28), TPO4-4500(28), TPPOS-4500(28), NO3/NO2-4500(28)
L2010536-22C	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		F-COLI-MPN(7)
L2010536-22D	Bacteria Cup unpreserved	B	NA		2.8	Y	Absent		T-COLI-MPN(7)
L2010536-22E	Plastic 8oz unpreserved for Grain Size	B	NA		2.8	Y	Absent		A2-HYDRO-TFINE(), A2-HYDRO-CGRAVEL(), A2-HYDRO-FSAND(), A2-HYDRO-MSAND(), A2-HYDRO-TGRAVEL(), A2-HYDRO-CSAND(), A2-HYDRO-TSAND(), A2-HYDRO-COBBLER(), A2-HYDRO-FGRAVEL()

**Project Name:** EPSILON SAND SAMP

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**Container Information**

**Container ID**   **Container Type**

<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
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**Project Name:** EPSILON SAND SAMP  
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## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### Footnotes

Report Format: Data Usability Report



**Project Name:** EPSILON SAND SAMP  
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- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Difference:** With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**PAH Total:** With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

**PFAS Total:** With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less

Report Format: Data Usability Report



**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

**Data Qualifiers**

than 5x the RL. (Metals only.)

- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

**Project Name:** EPSILON SAND SAMP  
**Project Number:** 19-2000

**Lab Number:** L2010536  
**Report Date:** 03/16/20

## REFERENCES

- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

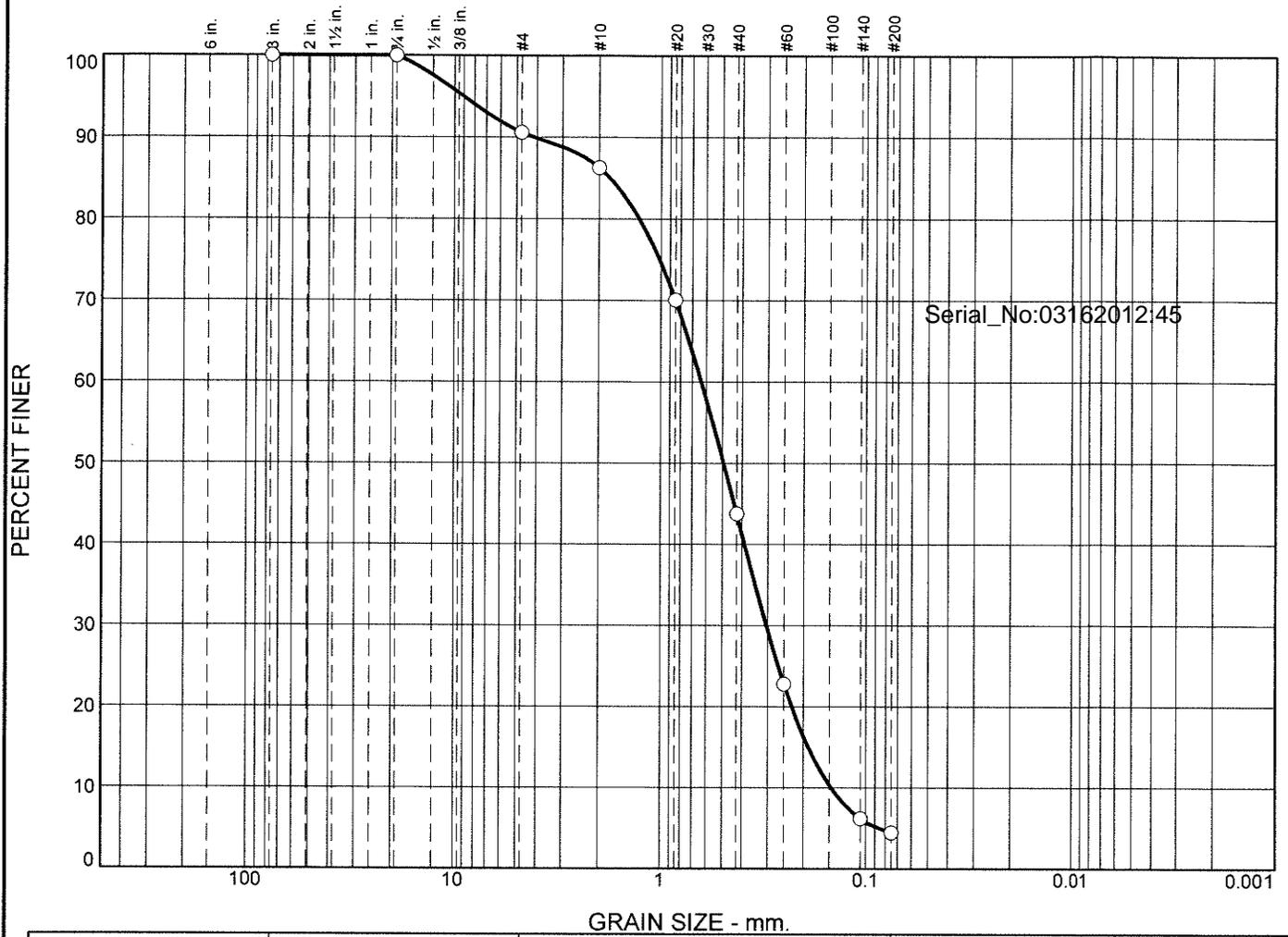
We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Serial\_No:03162012:45

**ASTM D6913/D7928**  
**GRAIN SIZE ANALYSIS**

# Particle Size Distribution Report



%	+3"	% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
○	0.0	0.0	9.4	4.4	42.4	39.3	4.5				
X	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
○				1.7723	0.6344	0.4932	0.3046	0.1896	0.1470	0.99	4.32

Material Description	USCS	AASHTO
○	SP	

<p><b>Project No.</b>                      <b>Client:</b></p> <p><b>Project:</b></p> <p>○ <b>Source of Sample:</b> LEDGE-3A(TAN-S)                      <b>Sample Number:</b> L2010536-01</p> <p><b>Date:</b> ○</p> <p style="text-align: center;"><b>Alpha Analytical</b></p> <p style="text-align: center;"><b>Mansfield, MA</b></p>	<p><b>Remarks:</b></p> <p>○ Sampled and Tested by MCH</p>
--	---

Figure

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

**Location:** LEDGE-3A(TAN-S)

**Sample Number:** L2010536-01

**USCS Classification:** SP

**Testing Remarks:** Sampled and Tested by MCH

**Sieve Test Data**

**Post #200 Wash Test Weights (grams): Dry Sample and Tare =98.90**

**Tare Wt. =0.00**

**Minus #200 from wash =0.0%**

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
98.90	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	9.31	0.00	90.6
		#10	4.29	0.00	86.2
		#20	16.02	0.00	70.1
		#40	25.99	0.00	43.8
		#60	20.72	0.00	22.8
		#140	16.43	0.00	6.2
		#200	1.73	0.00	4.5

Serial\_No:03162012:45

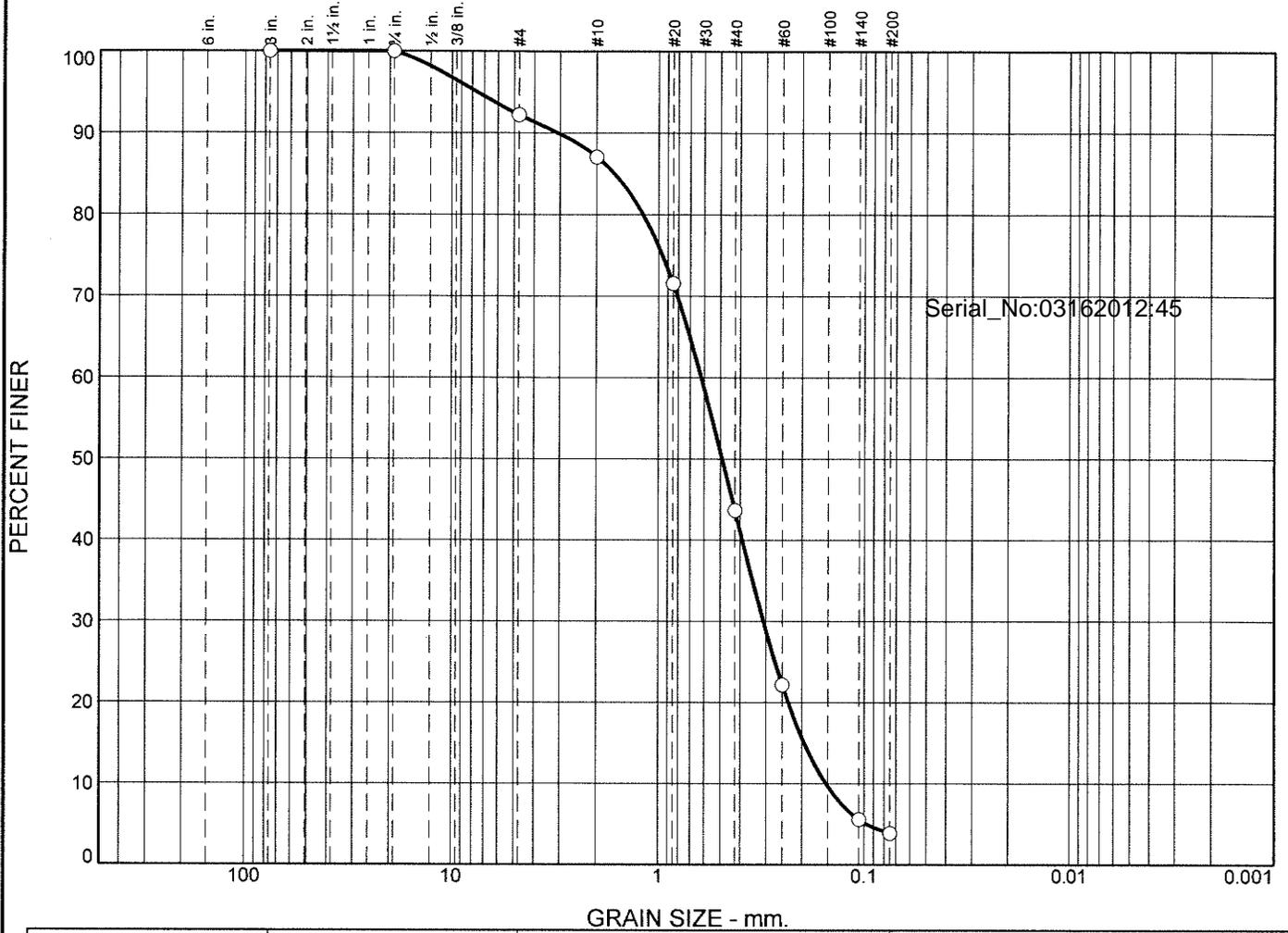
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	9.4	9.4	4.4	42.4	39.3	86.1			4.5

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0860	0.1470	0.1896	0.2286	0.3046	0.3887	0.4932	0.6344	1.2748	1.7723	4.1530	9.0724

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.50	4.32	0.99

# Particle Size Distribution Report



%	+3"	% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	7.8	5.1	43.4	39.8	3.9				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				1.6390	0.6198	0.4902	0.3085	0.1950	0.1531	1.00	4.05

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

<b>Project No.</b> <b>Client:</b> <b>Project:</b> <input type="radio"/> <b>Source of Sample:</b> LEDGE-3A(TAN-S) <b>Sample Number:</b> WG1349682-1  <b>Date:</b> <input type="radio"/>	<b>Remarks:</b>
<b>Alpha Analytical</b>  <b>Mansfield, MA</b>	<b>Figure</b>

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: LEDGE-3A(TAN-S)

Sample Number: WG1349682-1

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =99.04

Tare Wt. = 0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
99.04	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	7.73	0.00	92.2
		#10	5.08	0.00	87.1
		#20	15.38	0.00	71.5
		#40	27.58	0.00	43.7
		#60	21.28	0.00	22.2
		#140	16.47	0.00	5.6
		#200	1.68	0.00	3.9

Serial\_No:03162012:45

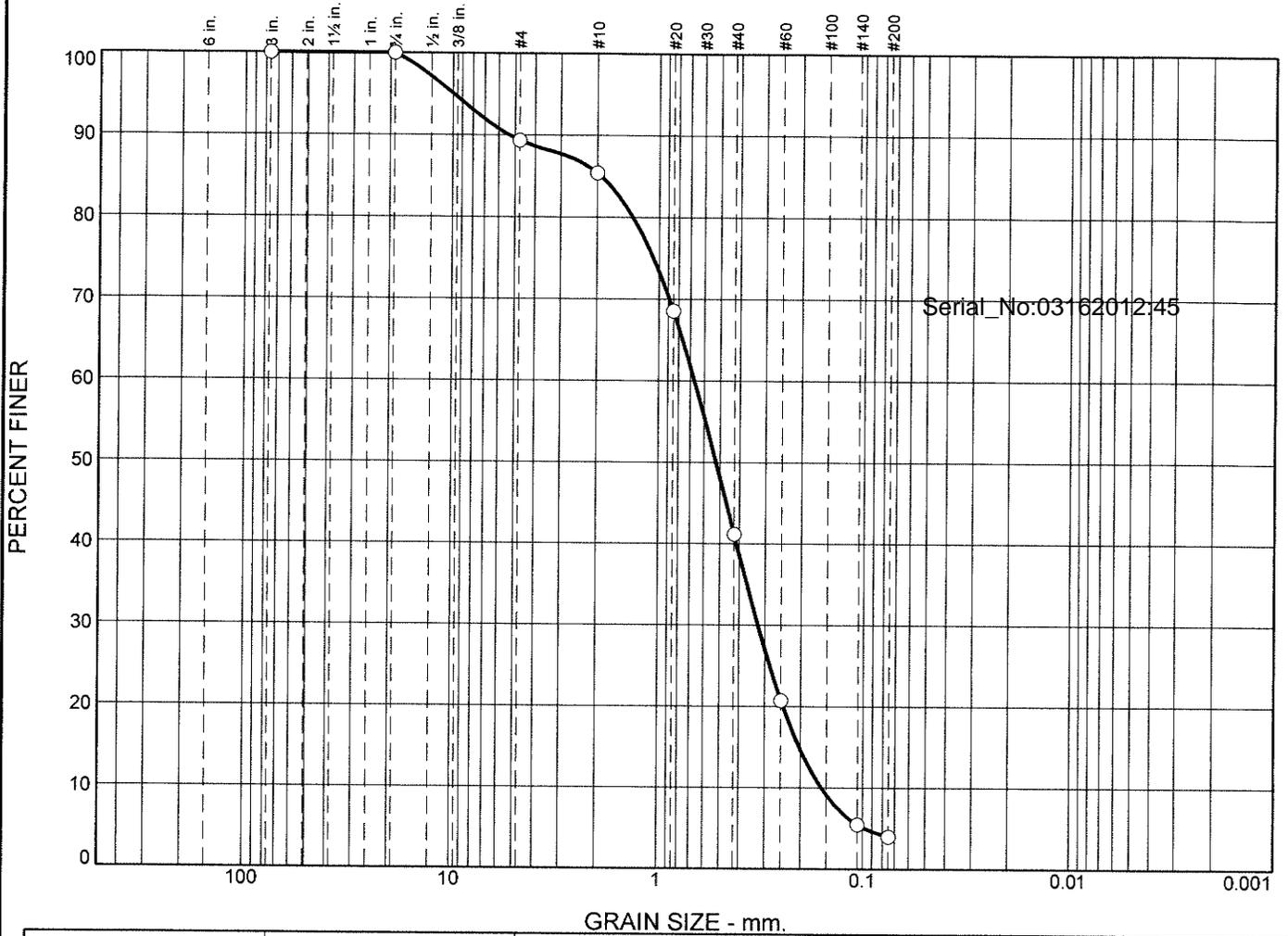
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	7.8	7.8	5.1	43.4	39.8	88.3			3.9

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0972	0.1531	0.1950	0.2335	0.3085	0.3909	0.4902	0.6198	1.1896	1.6390	3.0713	7.5731

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.46	4.05	1.00

# Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	10.7	3.9	44.2	37.2	4.0				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				1.9202	0.6689	0.5231	0.3241	0.2032	0.1585	0.99	4.22

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

<p><b>Project No.</b>                      <b>Client:</b></p> <p><b>Project:</b></p> <p><input type="radio"/> <b>Source of Sample:</b> LEDGE-3A(TAN-D)                      <b>Sample Number:</b> L2010536-02</p> <p><b>Date:</b> <input type="radio"/></p> <p style="text-align: center;"><b>Alpha Analytical</b></p> <p style="text-align: center;"><b>Mansfield, MA</b></p>	<p><b>Remarks:</b></p> <p style="text-align: right;"><b>Figure</b></p>
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**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: LEDGE-3A(TAN-D)

Sample Number: L2010536-02

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =118.48

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
118.48	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	12.62	0.00	89.3
		#10	4.70	0.00	85.4
		#20	19.94	0.00	68.6
		#40	32.44	0.00	41.2
		#60	24.20	0.00	20.7
		#140	18.08	0.00	5.5
		#200	1.76	0.00	4.0

Serial\_No:03162012:45

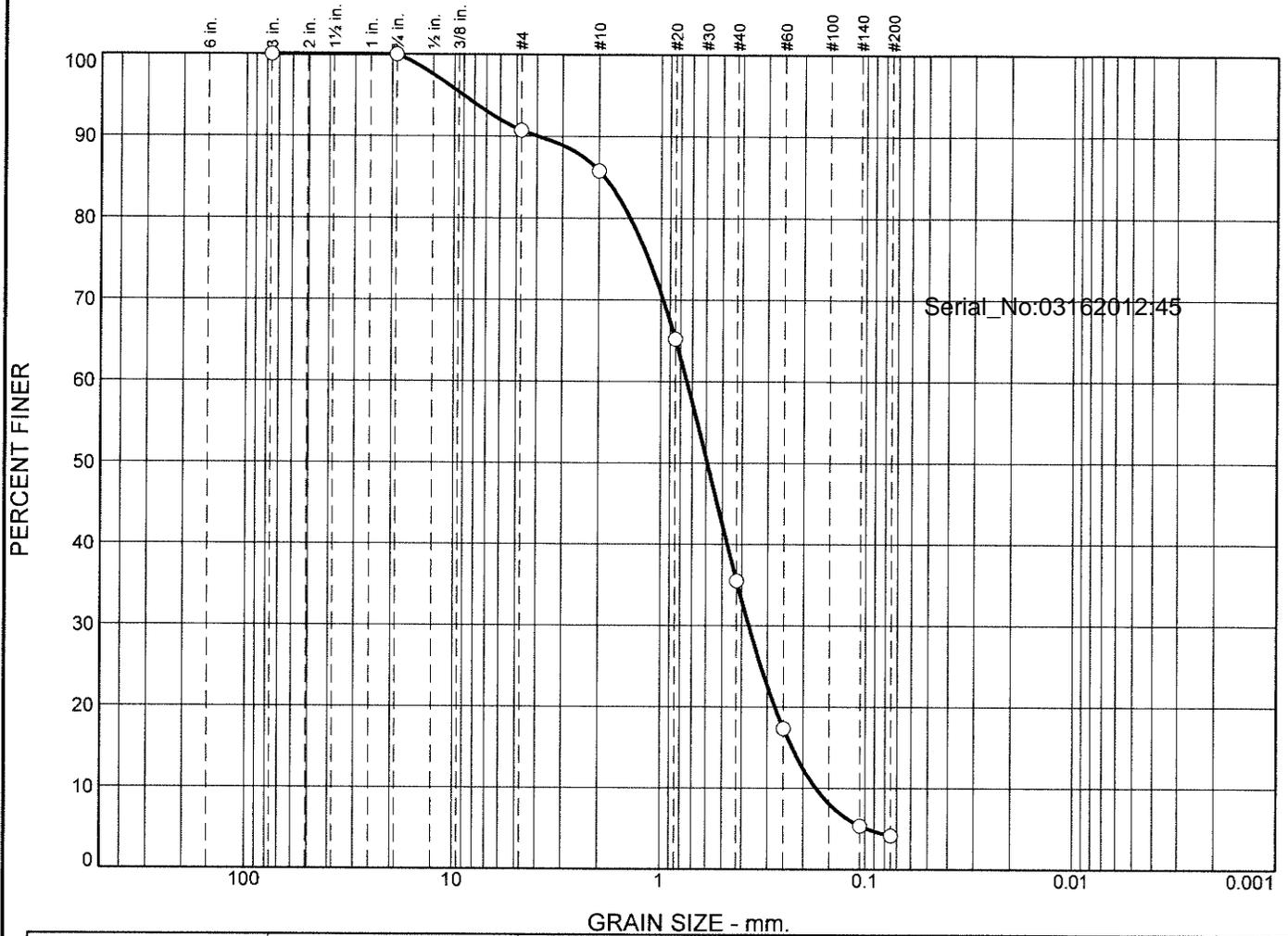
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	10.7	10.7	3.9	44.2	37.2	85.3			4.0

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0975	0.1585	0.2032	0.2441	0.3241	0.4134	0.5231	0.6689	1.3422	1.9202	5.3418	9.9132

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.60	4.22	0.99

# Particle Size Distribution Report



GRAIN SIZE - mm.											
% +3"	% Gravel		% Sand			% Fines					
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay				
0.0	0.0	9.3	4.9	50.3	31.3	4.2					
Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>	
			1.8786	0.7451	0.5915	0.3698	0.2269	0.1733	1.06	4.30	

Material Description	USCS	AASHTO
	SP	

<p><b>Project No.</b>                      <b>Client:</b></p> <p><b>Project:</b></p> <p>○ <b>Source of Sample:</b> LEDGE-4A(TAN-S)                      <b>Sample Number:</b> L2010536-03</p> <p><b>Date:</b> ○</p> <p style="text-align: center;"><b>Alpha Analytical</b></p> <p style="text-align: center;"><b>Mansfield, MA</b></p>	<p><b>Remarks:</b></p> <p> </p> <p style="text-align: right;"><b>Figure</b></p>
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**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: LEDGE-4A(TAN-S)

Sample Number: L2010536-03

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =111.33  
 Tare Wt. = 0.00  
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
111.33	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	10.33	0.00	90.7	
		#10	5.49	0.00	85.8	
		#20	22.91	0.00	65.2	
		#40	33.04	0.00	35.5	
		#60	20.24	0.00	17.4	
		#140	13.32	0.00	5.4	
		#200	1.37	0.00	4.2	

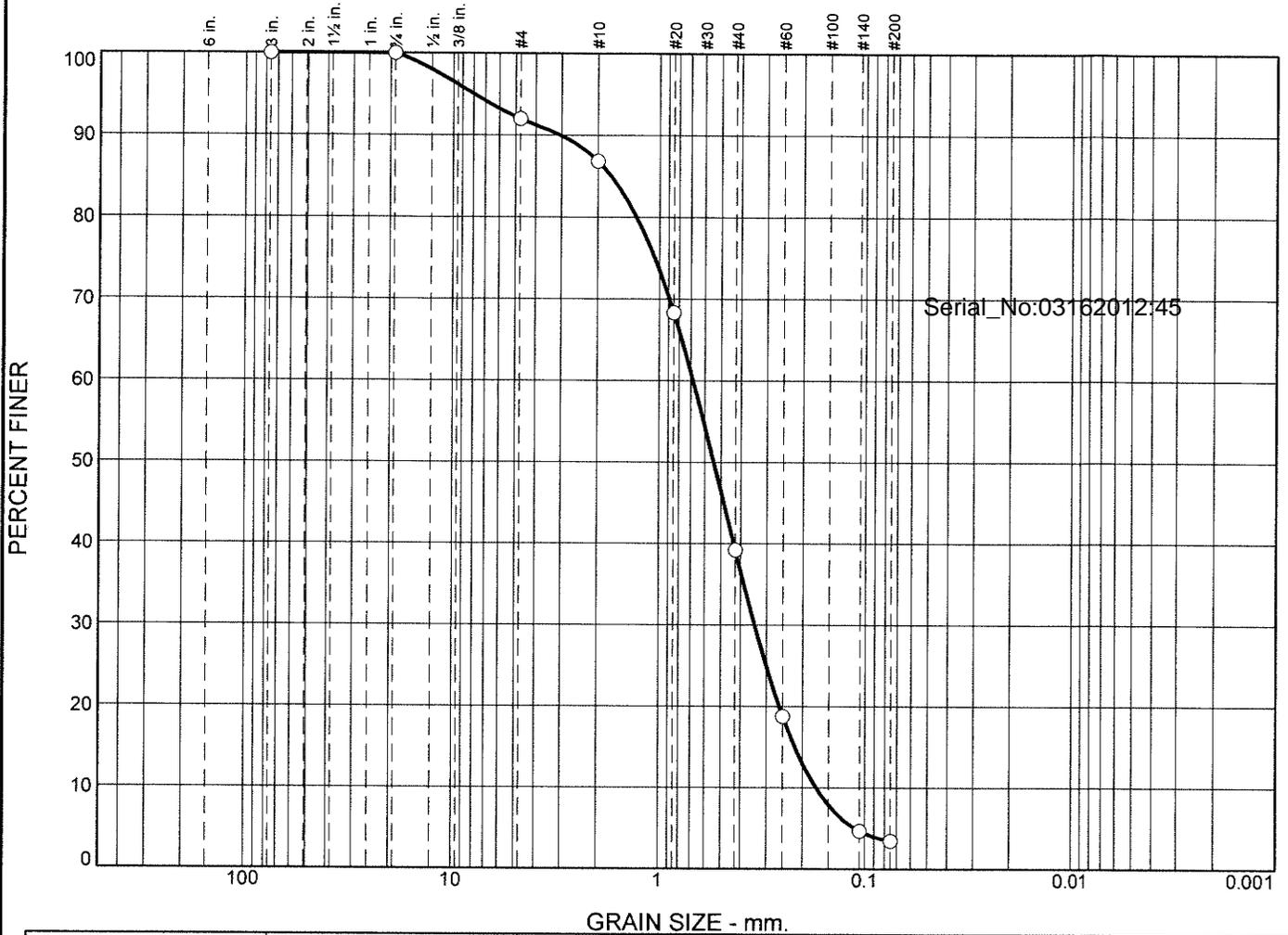
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	9.3	9.3	4.9	50.3	31.3	86.5			4.2

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.0973	0.1733	0.2269	0.2751	0.3698	0.4721	0.5915	0.7451	1.4087	1.8786	3.9715	9.0326

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.69	4.30	1.06

# Particle Size Distribution Report



GRAIN SIZE - mm.											
%	+3"	% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	8.0	5.2	47.6	35.8	3.4				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
<input type="radio"/>				1.7241	0.6836	0.5419	0.3418	0.2181	0.1721	0.99	3.97

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

<b>Project No.</b> <b>Client:</b> <b>Project:</b> <input type="radio"/> <b>Source of Sample:</b> LEDGE-4A(TAN-D) <b>Sample Number:</b> L2010536-04  <b>Date:</b> <input type="radio"/>	<b>Remarks:</b>
<b>Alpha Analytical</b>  <b>Mansfield, MA</b>	<b>Figure</b>

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: LEDGE-4A(TAN-D)

Sample Number: L2010536-04

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =111.24

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
111.24	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	8.93	0.00	92.0	
		#10	5.72	0.00	86.8	
		#20	20.58	0.00	68.3	
		#40	32.40	0.00	39.2	
		#60	22.70	0.00	18.8	
		#140	15.70	0.00	4.7	
		#200	1.39	0.00	3.4	

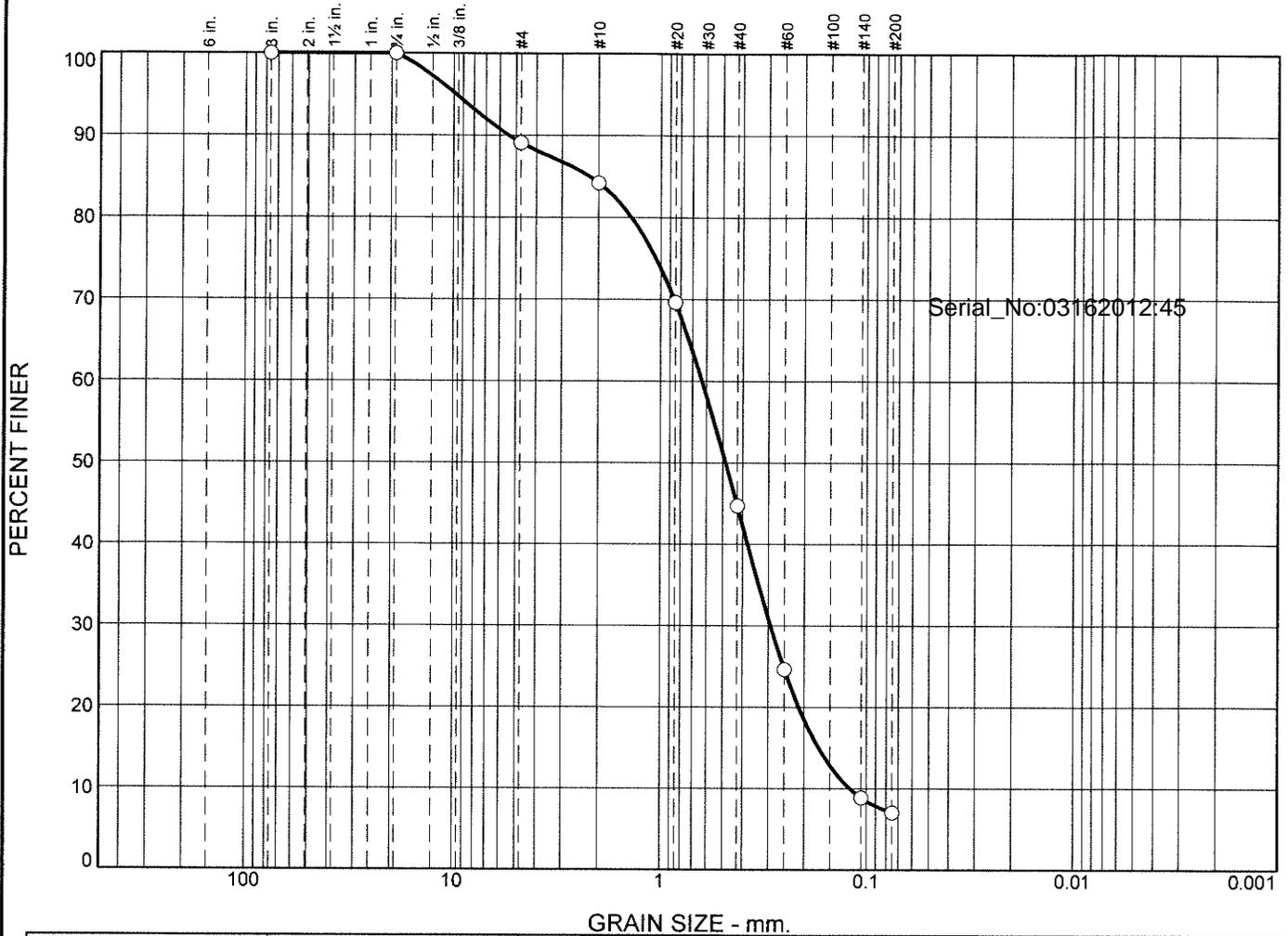
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	8.0	8.0	5.2	47.6	35.8	88.6			3.4

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.1116	0.1721	0.2181	0.2598	0.3418	0.4328	0.5419	0.6836	1.2947	1.7241	3.0531	7.9304

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.58	3.97	0.99

# Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	10.9	4.9	39.5	37.7	7.0				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				2.2159	0.6310	0.4848	0.2922	0.1700	0.1201	1.13	5.25

Material Description	USCS	AASHTO
<input type="radio"/>		

Project No. <input type="radio"/>	Client: <input type="radio"/>	Remarks: <input type="radio"/>
Project: <input type="radio"/>	Source of Sample: LEDGE-5A(GREY-S) <input type="radio"/>	Sample Number: L2010536-05 <input type="radio"/>
Date: <input type="radio"/>	Alpha Analytical Mansfield, MA	
		Figure <input type="radio"/>

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: LEDGE-5A(GREY-S)

Sample Number: L2010536-05

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 130.72  
 Tare Wt. = 0.00  
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
130.72	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	14.25	0.00	89.1
		#10	6.40	0.00	84.2
		#20	19.06	0.00	69.6
		#40	32.55	0.00	44.7
		#60	26.22	0.00	24.7
		#140	20.62	0.00	8.9
		#200	2.43	0.00	7.0

Serial\_No:03162012:45

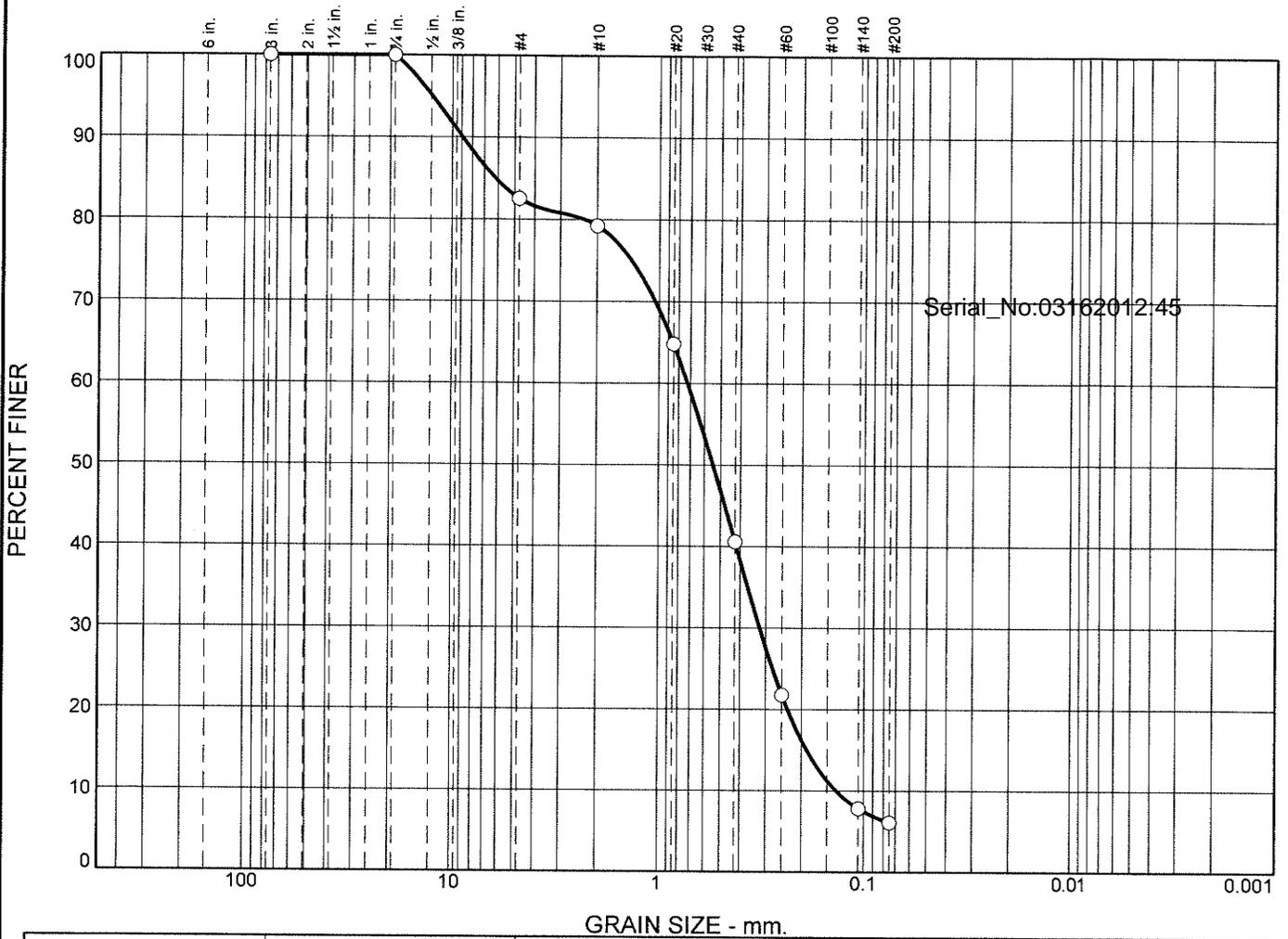
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	10.9	10.9	4.9	39.5	37.7	82.1			7.0

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.1201	0.1700	0.2126	0.2922	0.3782	0.4848	0.6310	1.3879	2.2159	5.4286	9.7651

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.51	5.25	1.13

# Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	17.5	3.3	38.6	34.5	6.1				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				6.1635	0.7253	0.5444	0.3209	0.1887	0.1356	1.05	5.35

Material Description	USCS	AASHTO
<input type="radio"/>		

<b>Project No.</b> <b>Client:</b> <b>Project:</b> <input type="radio"/> <b>Source of Sample:</b> LEDGE-5A(GREY-D) <b>Sample Number:</b> L2010536-06  <b>Date:</b> <input type="radio"/>	<b>Remarks:</b>
<b>Alpha Analytical</b>  <b>Mansfield, MA</b>	<b>Figure</b>

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

**Location:** LEDGE-5A(GREY-D)

**Sample Number:** L2010536-06

**Sieve Test Data**

**Post #200 Wash Test Weights (grams):** Dry Sample and Tare =135.06  
 Tare Wt. =0.00  
 Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
135.06	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	23.59	0.00	82.5
		#10	4.45	0.00	79.2
		#20	19.51	0.00	64.8
		#40	32.67	0.00	40.6
		#60	25.41	0.00	21.8
		#140	18.85	0.00	7.8
		#200	2.34	0.00	6.1

Serial\_No:03162012:45

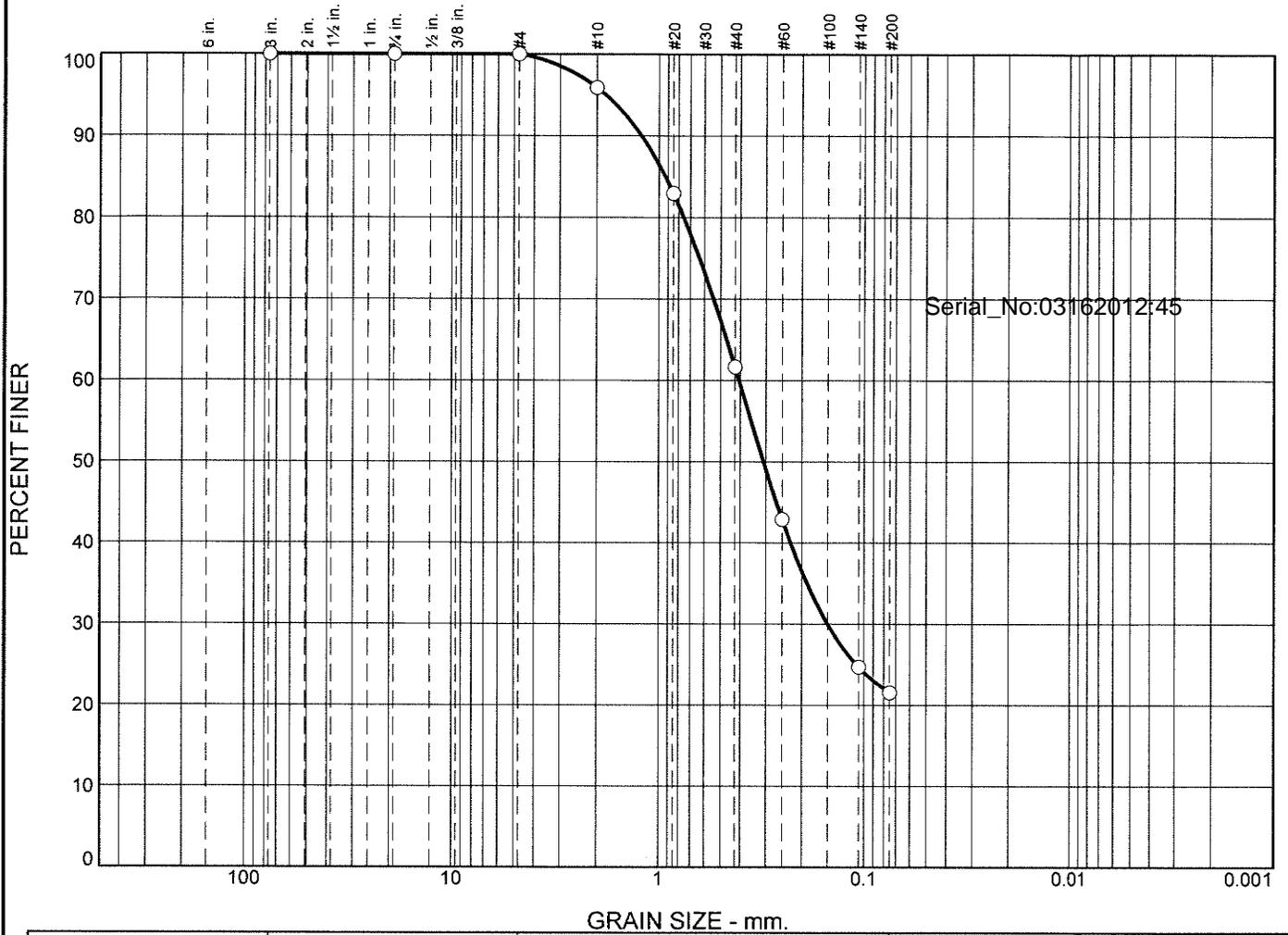
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	17.5	17.5	3.3	38.6	34.5	76.4			6.1

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.1356	0.1887	0.2344	0.3209	0.4184	0.5444	0.7253	2.2989	6.1635	8.9192	12.5165

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.81	5.35	1.05

# Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	0.0	4.1	34.2	40.1	21.6				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				0.9304	0.4060	0.3083	0.1500				

Material Description	USCS	AASHTO
<input type="radio"/>		

Project No. <input type="text"/>	Client: <input type="text"/>	Remarks:   
Project: <input type="text"/>		
<input type="radio"/> Source of Sample: LEDGE-8A(GREY-S)      Sample Number: L2010536-07		
Date: <input type="text"/>		
<b>Alpha Analytical</b> <b>Mansfield, MA</b>		Figure

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: LEDGE-8A(GREY-S)

Sample Number: L2010536-07

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =102.80  
 Tare Wt. =0.00  
 Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
102.80	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	4.21	0.00	95.9
		#20	13.32	0.00	82.9
		#40	21.89	0.00	61.7
		#60	19.28	0.00	42.9
		#140	18.70	0.00	24.7
		#200	3.22	0.00	21.6

Serial\_No:03162012:45

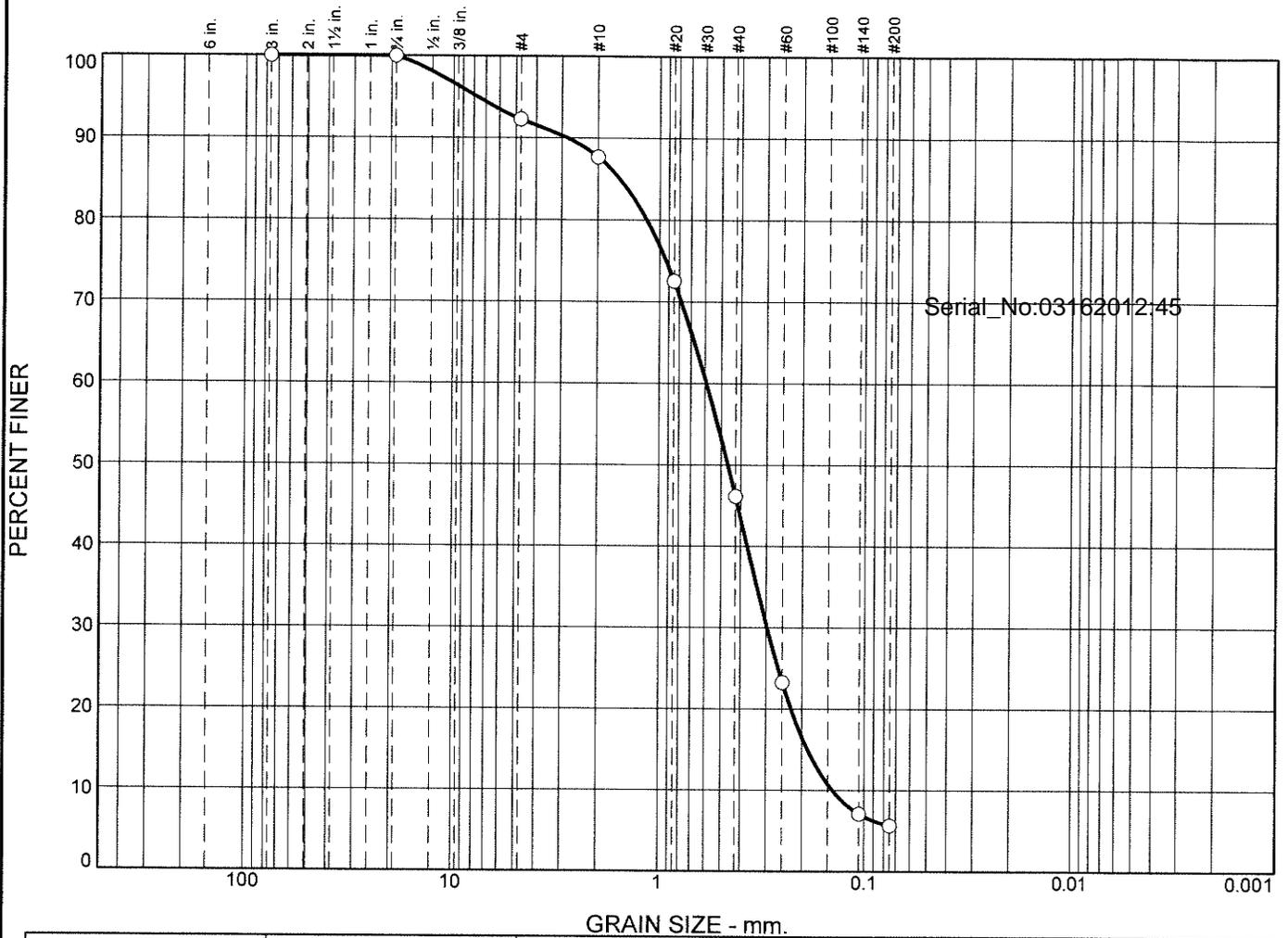
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	4.1	34.2	40.1	78.4			21.6

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
				0.1500	0.2273	0.3083	0.4060	0.7562	0.9304	1.2162	1.8101

<b>Fineness Modulus</b>
1.61

# Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
<input type="radio"/>	0.0	0.0	7.7	4.6	41.5	40.6	5.6	

<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				1.5644	0.5899	0.4635	0.2967	0.1881	0.1425	1.05	4.14

Material Description								USCS	AASHTO
<input type="radio"/>									

Project No.	Client:		Remarks:
Project:			
<input type="radio"/> Source of Sample: LEDGE-8A(GREY-D)	Sample Number: L2010536-08		
Date: <input type="radio"/>			
<b>Alpha Analytical</b>			
<b>Mansfield, MA</b>			Figure

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: LEDGE-8A(GREY-D)

Sample Number: L2010536-08

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =131.62  
 Tare Wt. =0.00  
 Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
131.62	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	10.19	0.00	92.3
		#10	6.03	0.00	87.7
		#20	19.95	0.00	72.5
		#40	34.70	0.00	46.2
		#60	30.12	0.00	23.3
		#140	21.25	0.00	7.1
		#200	1.95	0.00	5.6

Serial\_No:03162012:45

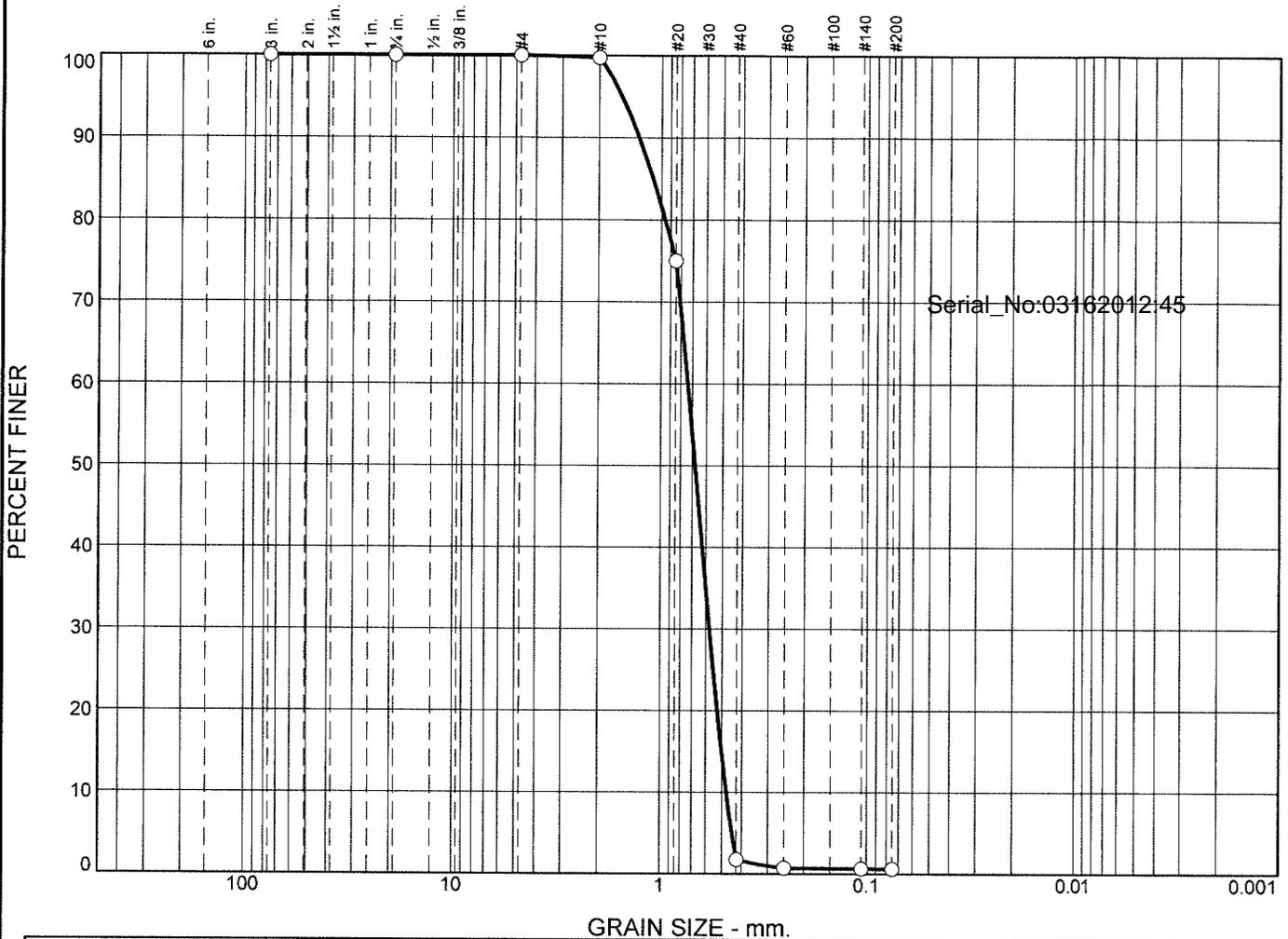
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	7.7	7.7	4.6	41.5	40.6	86.7			5.6

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.1425	0.1881	0.2266	0.2967	0.3713	0.4635	0.5899	1.1549	1.5644	2.8274	7.6866

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.40	4.14	1.05

# Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
<input type="radio"/>	0.0	0.0	0.0	0.2	98.0	1.2	0.6	

<input checked="" type="checkbox"/>	Colloids	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
<input type="radio"/>				1.0988	0.7371	0.6781	0.5759	0.5026	0.4765	0.94	1.55

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

<p><b>Project No.</b>                      <b>Client:</b></p> <p><b>Project:</b></p> <p><input type="radio"/> <b>Source of Sample:</b> BEACH-2A                      <b>Sample Number:</b> L2010536-09</p> <p><b>Date:</b> <input type="radio"/></p>	<p><b>Remarks:</b></p>
<p><b>Alpha Analytical</b></p> <p><b>Mansfield, MA</b></p>	<p><b>Figure</b></p>

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: BEACH-2A

Sample Number: L2010536-09

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =101.13  
 Tare Wt. = 0.00  
 Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
101.13	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	0.00	0.00	100.0	
		#10	0.25	0.00	99.8	
		#20	25.01	0.00	75.0	
		#40	74.10	0.00	1.8	
		#60	1.04	0.00	0.7	
		#140	0.07	0.00	0.7	
		#200	0.02	0.00	0.6	

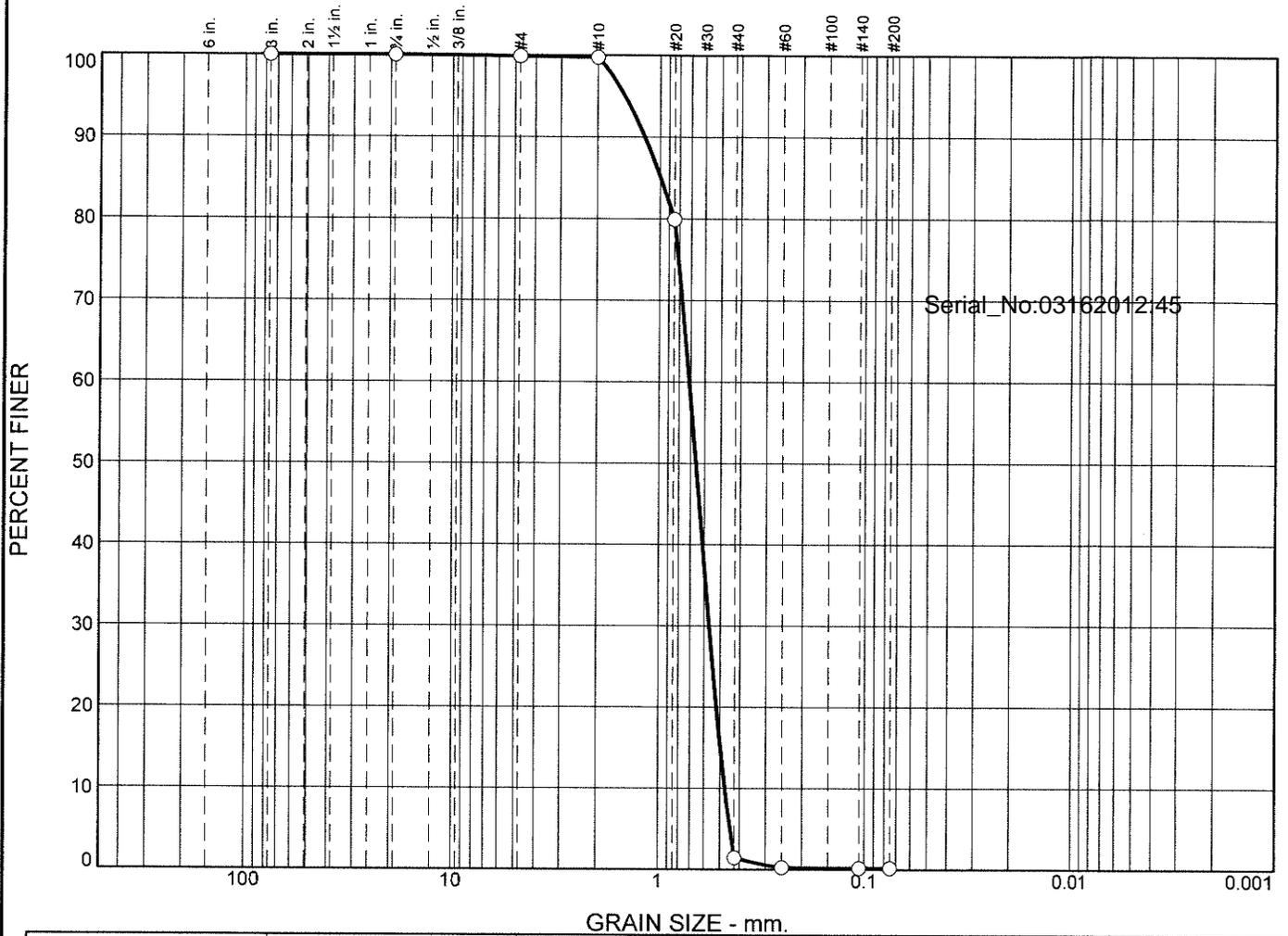
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	98.0	1.2	99.4			0.6

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4475	0.4765	0.5026	0.5274	0.5759	0.6253	0.6781	0.7371	0.9594	1.0988	1.2847	1.5545

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.76	1.55	0.94

# Particle Size Distribution Report



%	+3"		Gravel		Sand			Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
<input type="radio"/>	0.0	0.0	0.1	98.3	1.3	0.2			

	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input checked="" type="checkbox"/>				0.9933	0.7124	0.6595	0.5662	0.4984	0.4742	0.95	1.50

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

Project No. <input type="text"/>	Client: <input type="text"/>	Remarks:
Project: <input type="text"/>		
<input type="radio"/> Source of Sample: BEACH-3A	Sample Number: L2010536-10	
Date: <input type="text"/>	Alpha Analytical Mansfield, MA	Figure

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: BEACH-3A

Sample Number: L2010536-10

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =86.20

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
86.20	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.11	0.00	99.9
		#10	0.10	0.00	99.8
		#20	17.09	0.00	79.9
		#40	67.63	0.00	1.5
		#60	1.04	0.00	0.3
		#140	0.08	0.00	0.2
		#200	0.00	0.00	0.2

Serial\_No:03162012:45

**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.1	0.1	0.1	98.3	1.3	99.7			0.2

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4474	0.4742	0.4984	0.5214	0.5662	0.6115	0.6595	0.7124	0.8517	0.9933	1.1870	1.4789

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.72	1.50	0.95



**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: BEACH-5A

Sample Number: L2010536-11

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =106.68  
 Tare Wt. =0.00  
 Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
106.68	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.72	0.00	99.3
		#10	1.57	0.00	97.9
		#20	38.02	0.00	62.2
		#40	65.42	0.00	0.9
		#60	0.75	0.00	0.2
		#140	0.07	0.00	0.1
		#200	0.00	0.00	0.1

Serial\_No:03162012:45

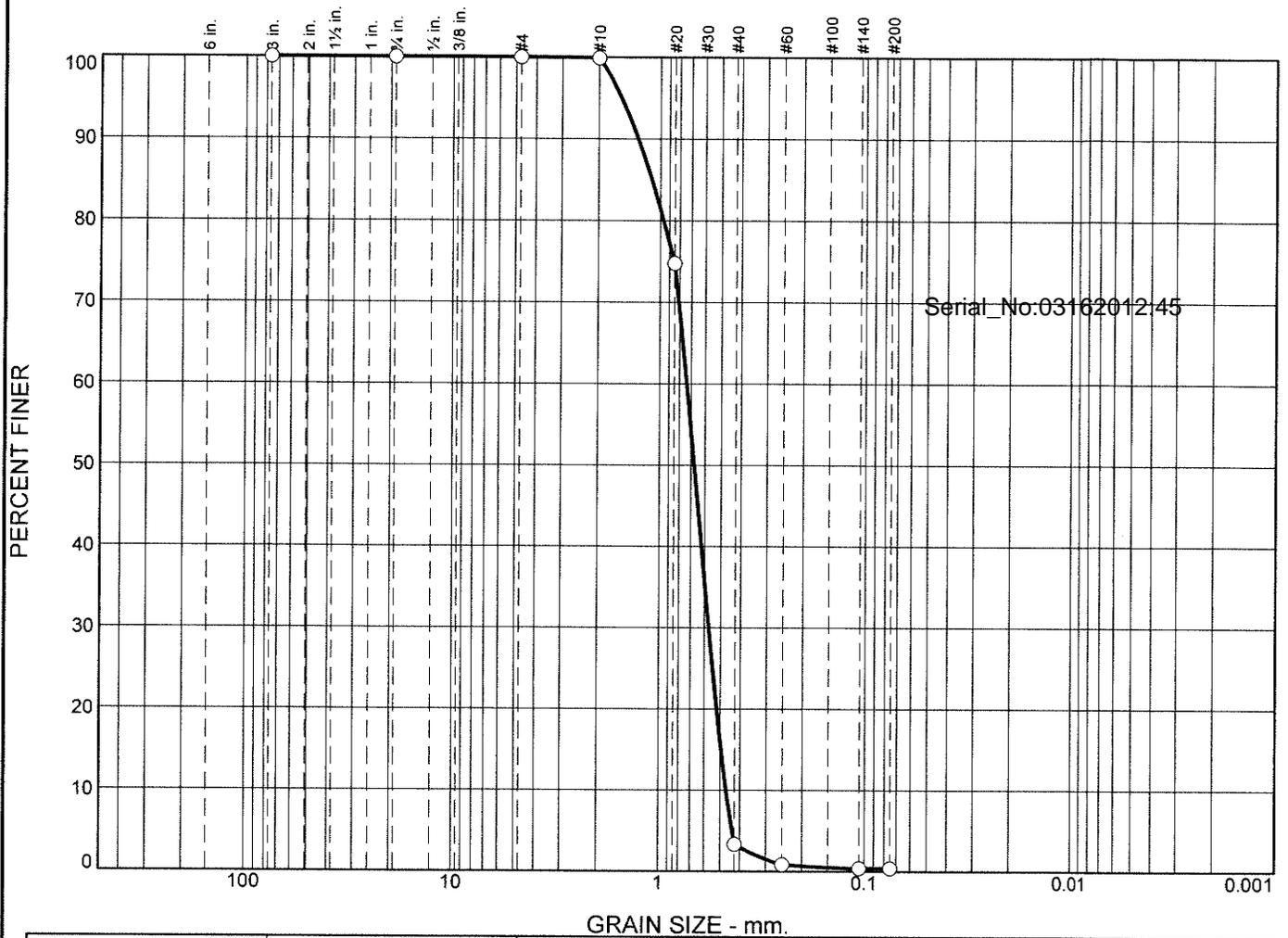
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.7	0.7	1.4	97.0	0.8	99.2			0.1

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4592	0.4934	0.5246	0.5546	0.6143	0.6770	0.7466	0.8290	1.0945	1.2097	1.3751	1.6615

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.91	1.68	0.92

# Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	0.0	0.1	96.6	2.9	0.4				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				1.1014	0.7362	0.6756	0.5707	0.4952	0.4680	0.95	1.57

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

<b>Project No.</b> <b>Client:</b> <b>Project:</b> <input type="radio"/> <b>Source of Sample:</b> BEACH-8A <b>Sample Number:</b> L2010536-12  <b>Date:</b> <input type="radio"/>	<b>Remarks:</b>
<b>Alpha Analytical</b>  <b>Mansfield, MA</b>	<b>Figure</b>

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: BEACH-8A

Sample Number: L2010536-12

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 106.70  
 Tare Wt. = 0.00  
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
106.70	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	0.00	0.00	100.0	
		#10	0.11	0.00	99.9	
		#20	26.82	0.00	74.8	
		#40	76.20	0.00	3.3	
		#60	2.66	0.00	0.9	
		#140	0.49	0.00	0.4	
		#200	0.00	0.00	0.4	

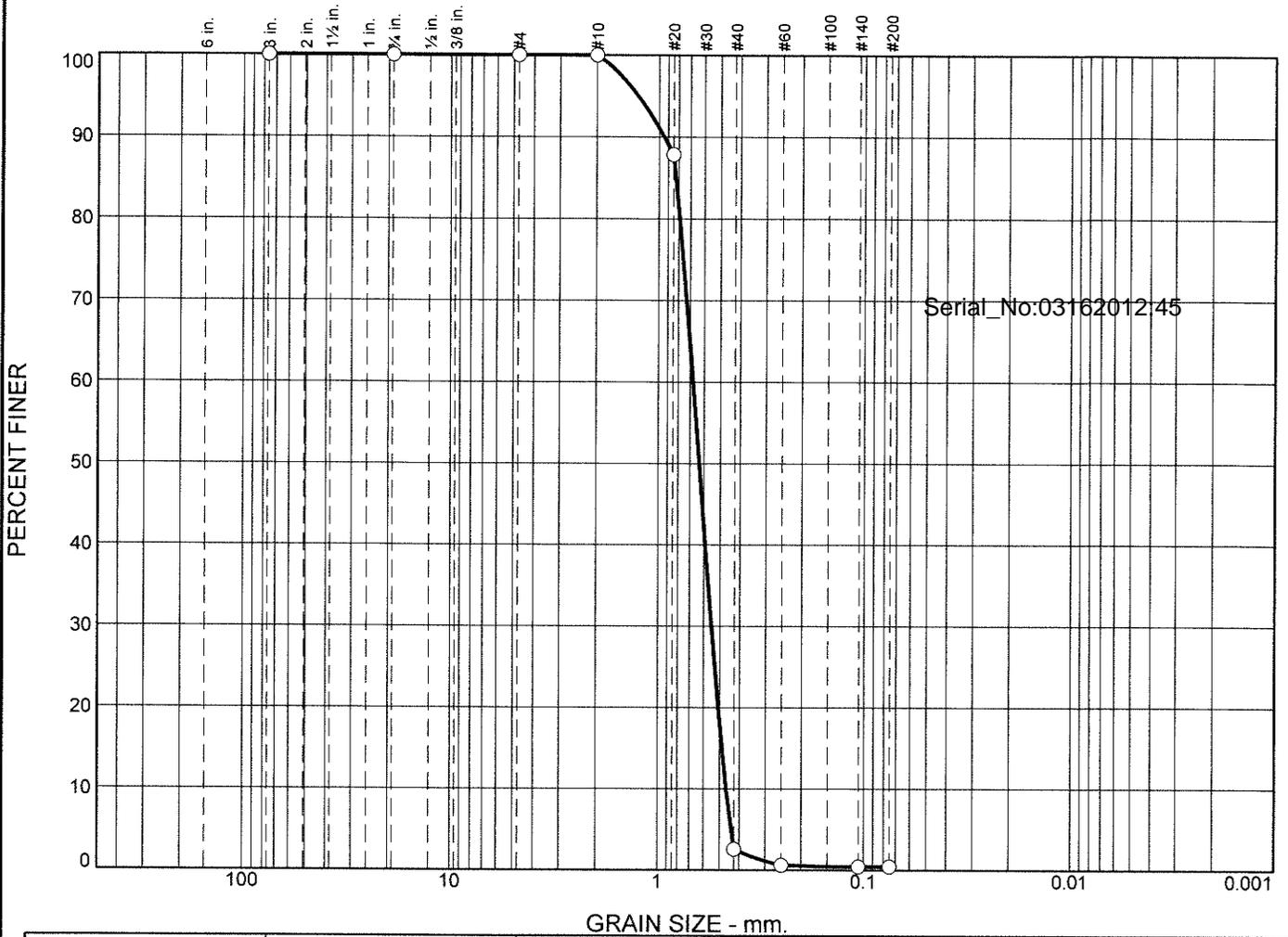
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	96.6	2.9	99.6			0.4

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4370	0.4680	0.4952	0.5209	0.5707	0.6214	0.6756	0.7362	0.9635	1.1014	1.2846	1.5491

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.75	1.57	0.95

# Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	0.0	0.0	97.4	2.2	0.4				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				0.8261	0.6778	0.6321	0.5490	0.4869	0.4644	0.96	1.46

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

Project No. <input type="radio"/>	Client: <input type="radio"/>	Remarks: <input type="radio"/>
Project: <input type="radio"/>		
<input type="radio"/> Source of Sample: MHW-2	Sample Number: L2010536-13	
Date: <input type="radio"/>		
Alpha Analytical		
Mansfield, MA		Figure

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: MHW-2

Sample Number: L2010536-13

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =93.64

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
93.64	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	0.00	0.00	100.0	
		#10	0.00	0.00	100.0	
		#20	11.36	0.00	87.9	
		#40	79.87	0.00	2.6	
		#60	1.82	0.00	0.6	
		#140	0.19	0.00	0.4	
		#200	0.00	0.00	0.4	

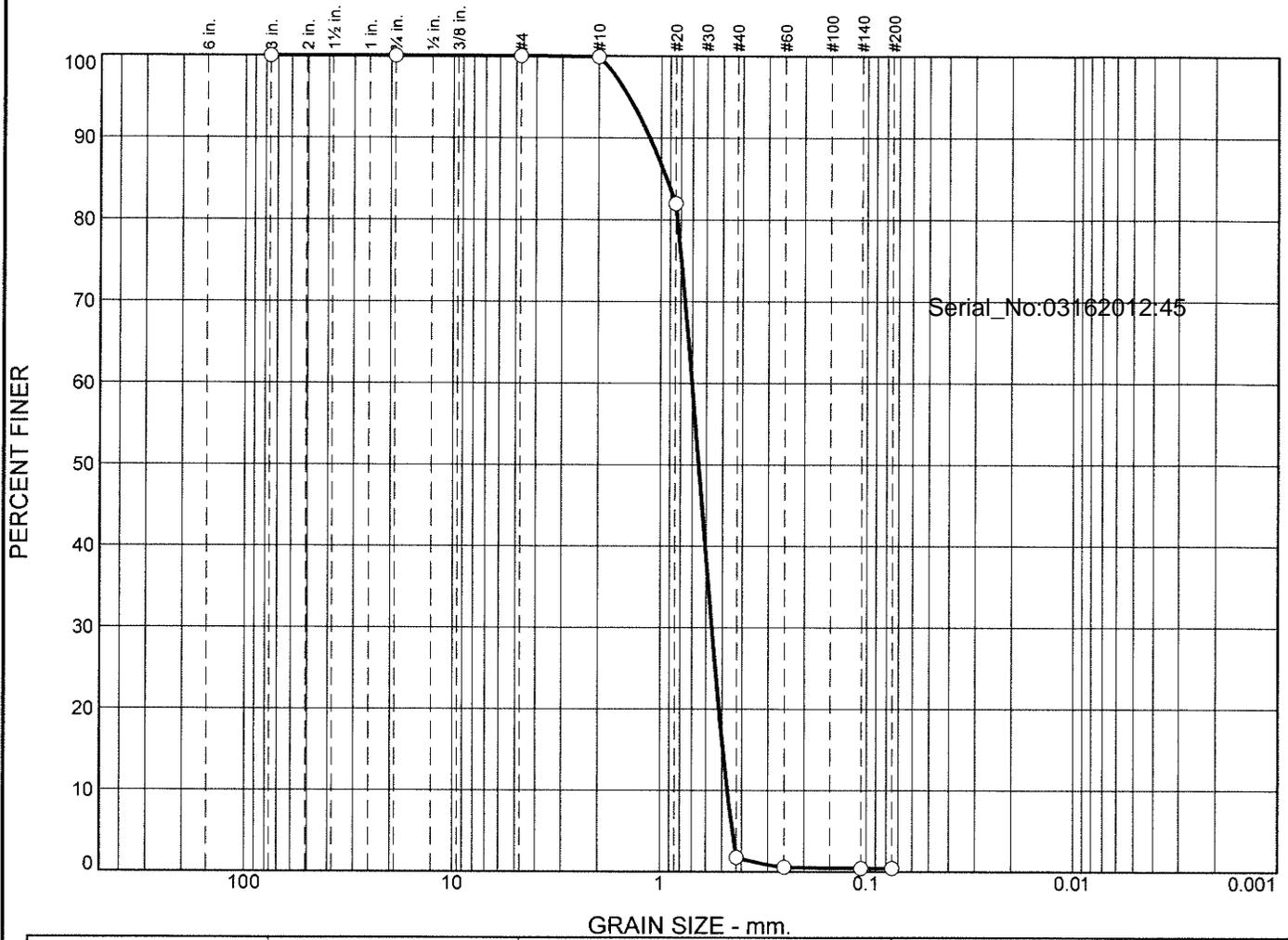
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	97.4	2.2	99.6			0.4

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4392	0.4644	0.4869	0.5082	0.5490	0.5897	0.6321	0.6778	0.7897	0.8261	0.9438	1.2645

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.62	1.46	0.96

# Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	0.0	0.1	98.1	1.3	0.5				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
<input type="radio"/>				0.9397	0.7027	0.6520	0.5615	0.4953	0.4715	0.95	1.49

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

Project No. <input type="radio"/>	Client: <input type="radio"/>	Remarks: <input type="radio"/>
Project: <input type="radio"/>		
<input type="radio"/> Source of Sample: MHW-3	<input type="radio"/> Sample Number: L2010536-14	
Date: <input type="radio"/>		
<b>Alpha Analytical</b>		
<b>Mansfield, MA</b>		<b>Figure</b>

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: MHW-3

Sample Number: L2010536-14

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =102.36

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
102.36	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	0.00	0.00	100.0	
		#10	0.11	0.00	99.9	
		#20	18.33	0.00	82.0	
		#40	82.11	0.00	1.8	
		#60	1.22	0.00	0.6	
		#140	0.12	0.00	0.5	
		#200	0.00	0.00	0.5	

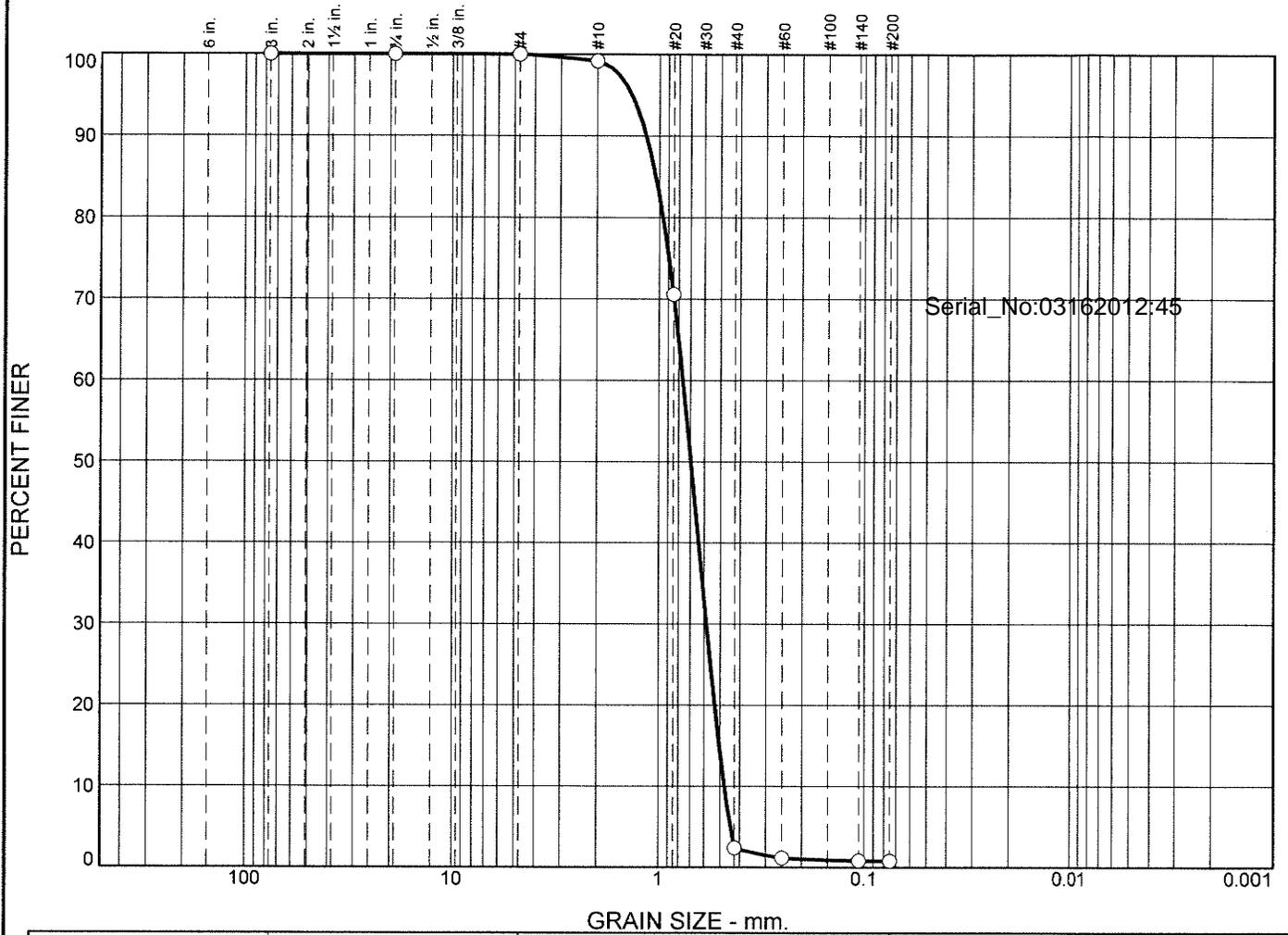
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	98.1	1.3	99.5			0.5

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4451	0.4715	0.4953	0.5178	0.5615	0.6056	0.6520	0.7027	0.8329	0.9397	1.1342	1.4314

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.69	1.49	0.95

# Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	0.0	0.8	96.8	1.6	0.8				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				1.0405	0.7631	0.6967	0.5844	0.5049	0.4766	0.94	1.60

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

Project No. <input type="radio"/>	Client: <input type="radio"/>	Remarks: <input type="radio"/>
Project: <input type="radio"/>		
<input type="radio"/> Source of Sample: MHW-5	Sample Number: L2010536-15	
Date: <input type="radio"/>		
<b>Alpha Analytical</b>		
<b>Mansfield, MA</b>		Figure <input type="radio"/>

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: MHW-5

Sample Number: L2010536-15

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =98.91  
 Tare Wt. =0.00  
 Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
98.91	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	0.00	0.00	100.0	
		#10	0.84	0.00	99.2	
		#20	28.26	0.00	70.6	
		#40	67.43	0.00	2.4	
		#60	1.24	0.00	1.2	
		#140	0.32	0.00	0.8	
		#200	0.04	0.00	0.8	

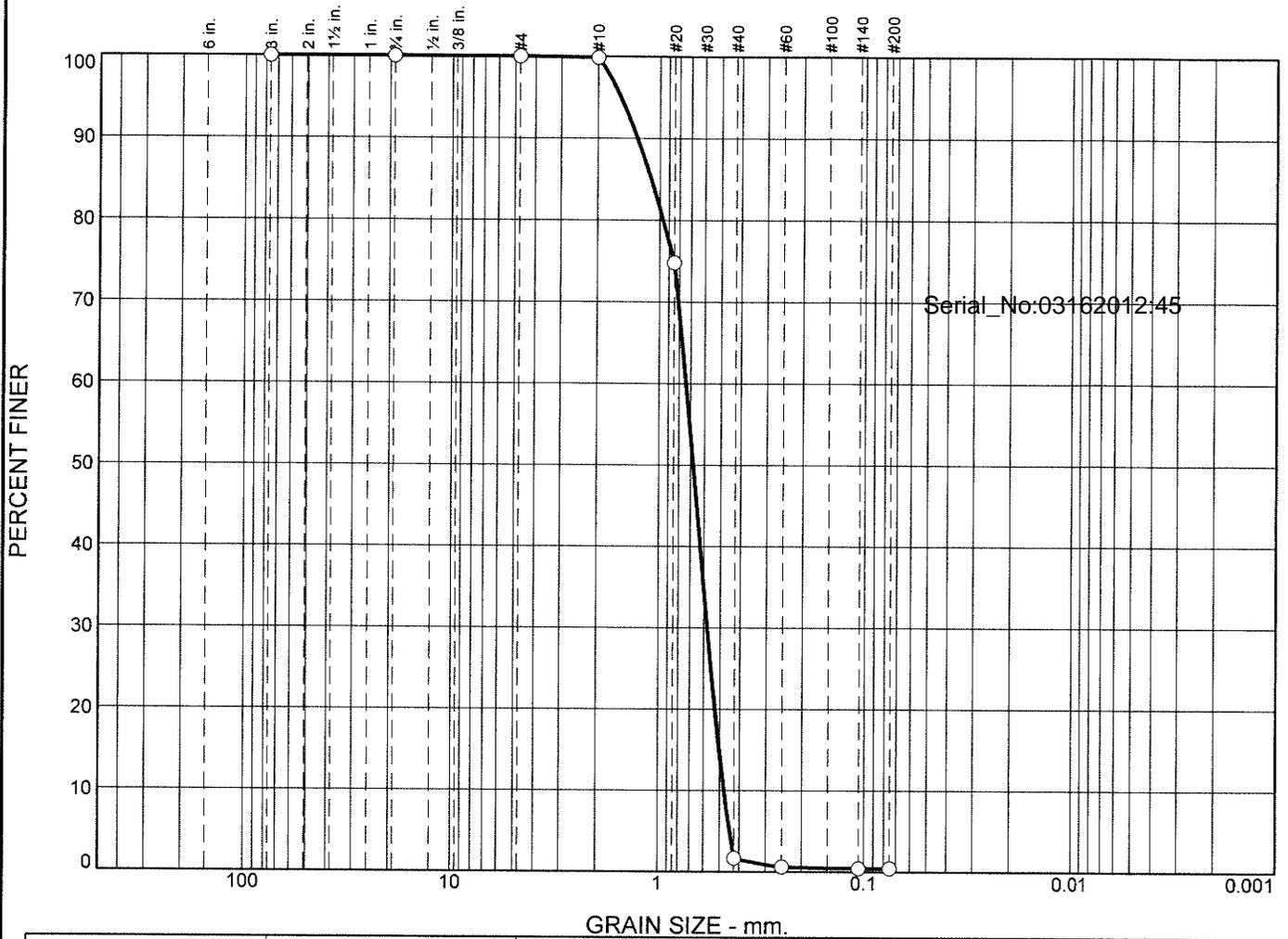
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.8	96.8	1.6	99.2			0.8

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4447	0.4766	0.5049	0.5318	0.5844	0.6383	0.6967	0.7631	0.9589	1.0405	1.1560	1.3558

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.74	1.60	0.94

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	98.2	1.2	0.5	

Colloids	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
			1.1009	0.7384	0.6791	0.5766	0.5032	0.4770	0.94	1.55

Material Description	USCS	AASHTO
	SP	

Project No. _____	Client: _____	Remarks:
Project: _____		
○ Source of Sample: MHW-8	Sample Number: L2010536-16	
Date: ○ _____		
Alpha Analytical Mansfield, MA		Figure

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: MHW-8

Sample Number: L2010536-16

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =97.59  
 Tare Wt. =0.00  
 Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
97.59	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	0.00	0.00	100.0	
		#10	0.13	0.00	99.9	
		#20	24.45	0.00	74.8	
		#40	71.37	0.00	1.7	
		#60	1.04	0.00	0.6	
		#140	0.15	0.00	0.5	
		#200	0.00	0.00	0.5	

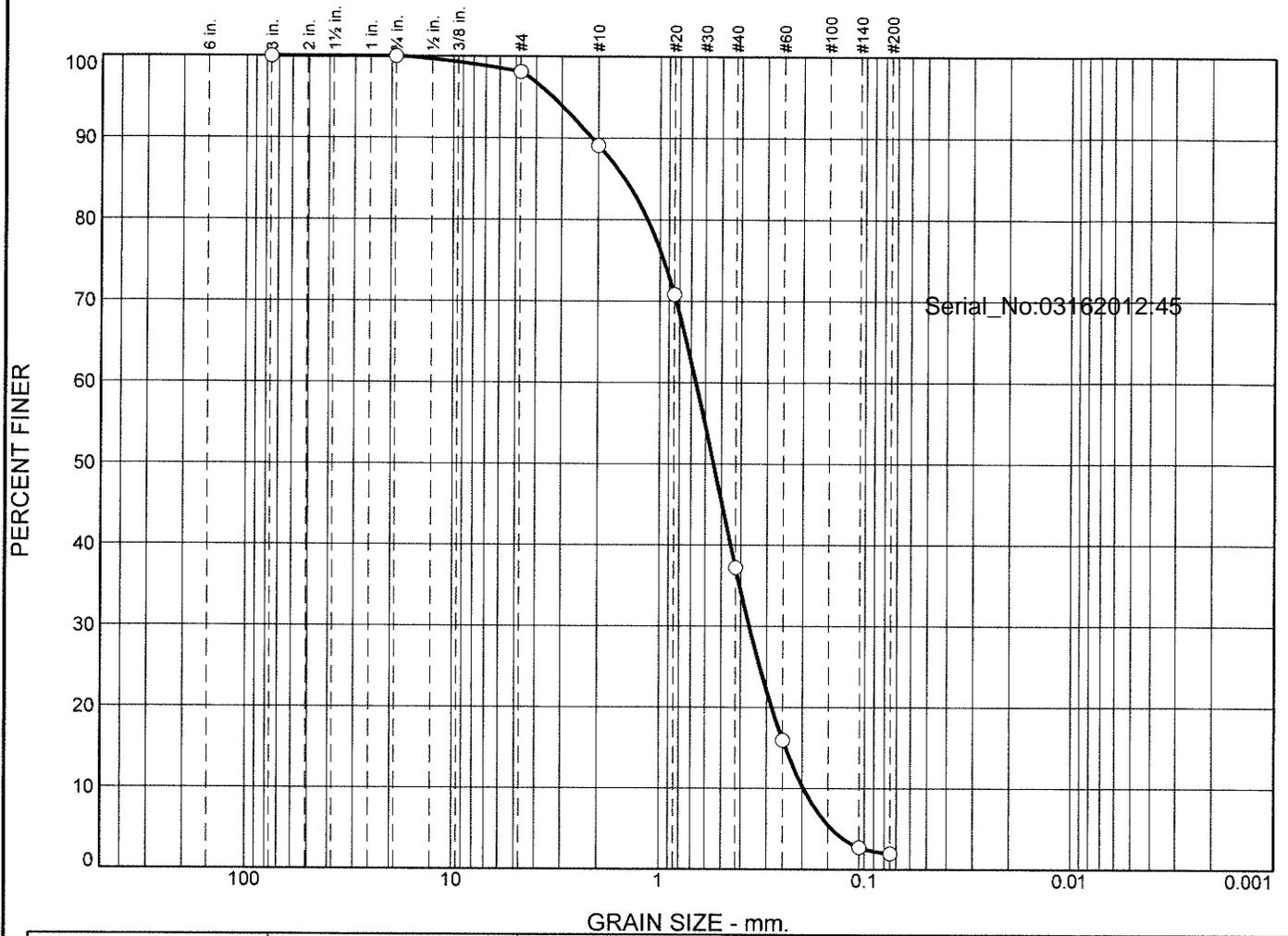
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	98.2	1.2	99.5			0.5

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4480	0.4770	0.5032	0.5280	0.5766	0.6261	0.6791	0.7384	0.9627	1.1009	1.2846	1.5503

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.77	1.55	0.94

# Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
<input type="radio"/>	0.0	0.0	1.9	9.0	51.9	35.2	2.0	

<input checked="" type="checkbox"/>	Colloids	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
<input type="radio"/>				1.4859	0.6649	0.5460	0.3638	0.2420	0.1977	1.01	3.36

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

<b>Project No.</b> <b>Project:</b> <input type="radio"/> <b>Source of Sample:</b> HH-DUNE  <b>Date:</b> <input type="radio"/>	<b>Client:</b>  <input type="radio"/> <b>Sample Number:</b> L2010536-17	<b>Remarks:</b>   
<b>Alpha Analytical</b> <b>Mansfield, MA</b>		<b>Figure</b>

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: HH-DUNE

Sample Number: L2010536-17

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 101.91  
 Tare Wt. = 0.00  
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
101.91	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	1.93	0.00	98.1	
		#10	9.18	0.00	89.1	
		#20	18.61	0.00	70.8	
		#40	34.25	0.00	37.2	
		#60	21.68	0.00	16.0	
		#140	13.48	0.00	2.7	
		#200	0.79	0.00	2.0	

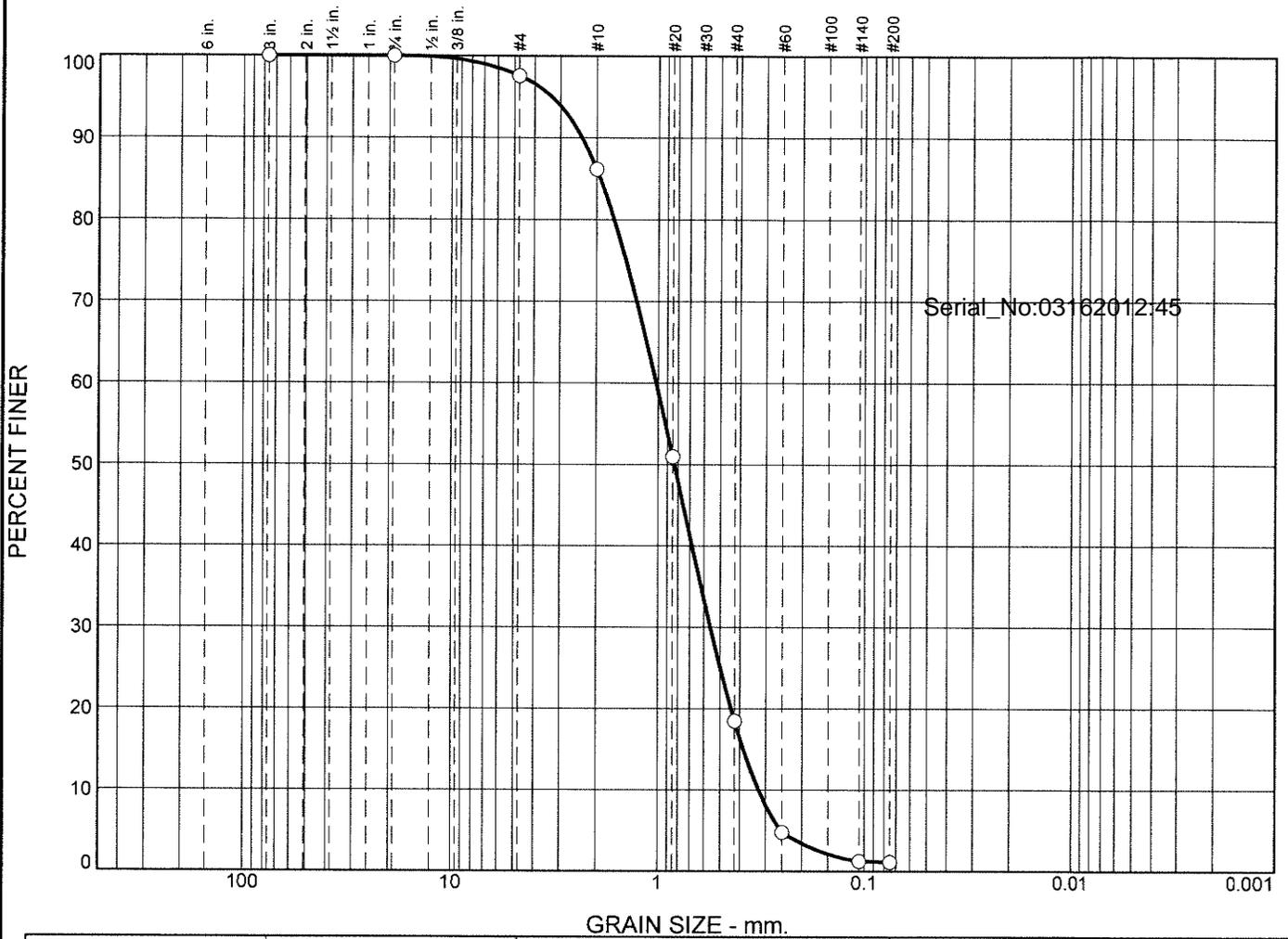
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.9	1.9	9.0	51.9	35.2	96.1			2.0

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.1439	0.1977	0.2420	0.2830	0.3638	0.4495	0.5460	0.6649	1.1488	1.4859	2.1492	3.3115

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.48	3.36	1.01

# Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	2.4	11.5	67.6	17.4	1.1				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				1.9205	1.0223	0.8339	0.5571	0.3849	0.3242	0.94	3.15

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

Project No. <input type="radio"/>	Client: <input type="radio"/>	Remarks: <input type="radio"/>
Project: <input type="radio"/>	Source of Sample: HH-TOE <input type="radio"/>	Sample Number: L2010536-18 <input type="radio"/>
Date: <input type="radio"/>	<b>Alpha Analytical</b>	
	<b>Mansfield, MA</b>	

Figure

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: HH-TOE

Sample Number: L2010536-18

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =115.17

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
115.17	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	2.80	0.00	97.6	
		#10	13.17	0.00	86.1	
		#20	40.51	0.00	51.0	
		#40	37.41	0.00	18.5	
		#60	15.75	0.00	4.8	
		#140	4.08	0.00	1.3	
		#200	0.14	0.00	1.1	

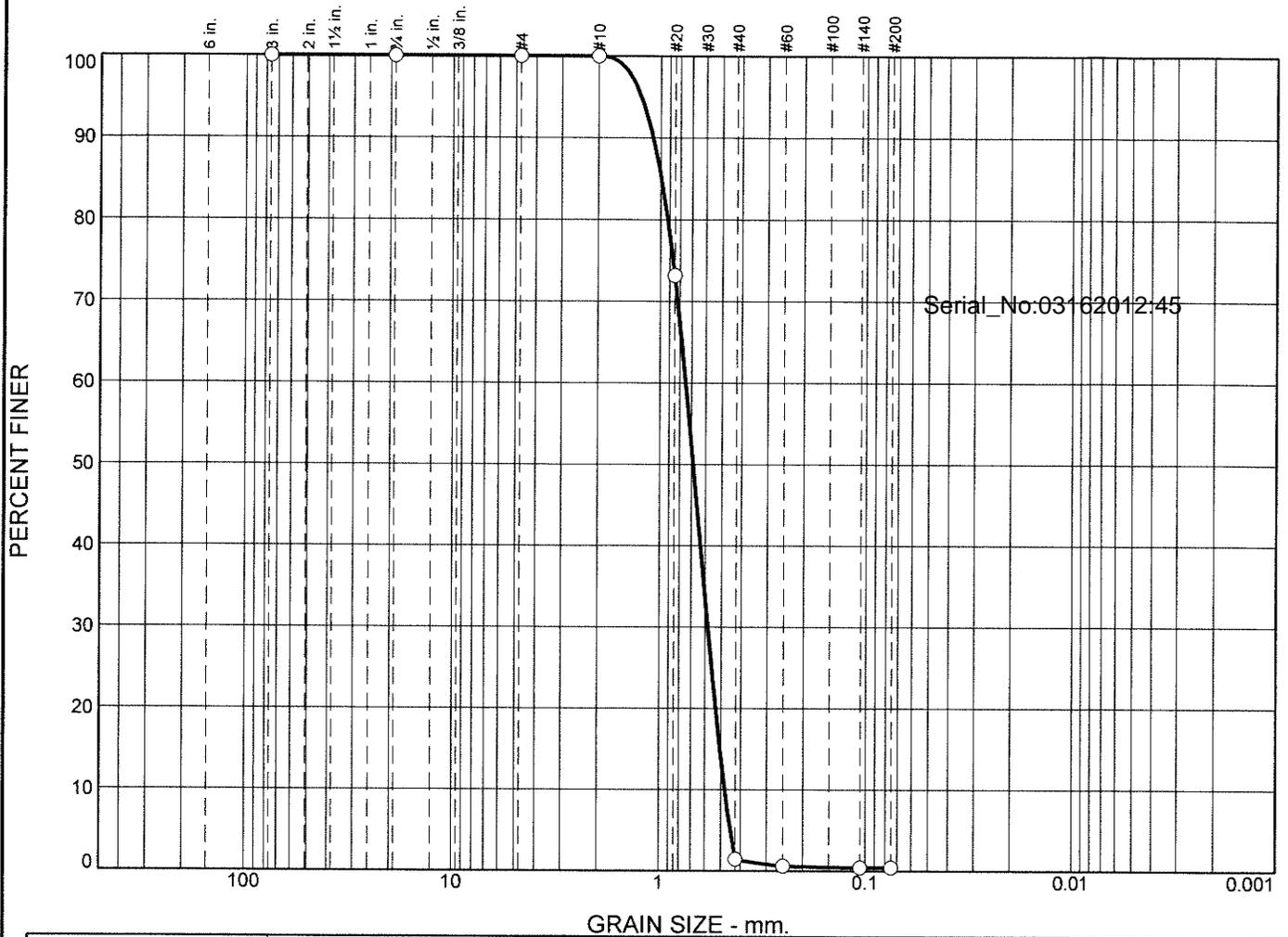
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.4	2.4	11.5	67.6	17.4	96.5			1.1

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.2533	0.3242	0.3849	0.4423	0.5571	0.6839	0.8339	1.0223	1.6430	1.9205	2.3560	3.2991

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
3.02	3.15	0.94

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines					
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay				
0.0	0.0	0.0	0.0	98.6	1.0	0.4					
<input checked="" type="checkbox"/>	Colloids	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
<input type="checkbox"/>				0.9918	0.7484	0.6869	0.5813	0.5063	0.4796	0.94	1.56

<b>Material Description</b>	<b>USCS</b>	<b>AASHTO</b>
<input type="checkbox"/>	SP	

Project No. <input type="checkbox"/>	Client: <input type="checkbox"/>	Remarks:
Project: <input type="checkbox"/>		
<input type="checkbox"/> Source of Sample: HH-BEACH	Sample Number: L2010536-19	
Date: <input type="checkbox"/>	Alpha Analytical Mansfield, MA	Figure

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: HH-BEACH

Sample Number: L2010536-19

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =103.16

Tare Wt. = 0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
103.16	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.00	0.00	100.0
		#20	27.68	0.00	73.2
		#40	73.99	0.00	1.4
		#60	0.86	0.00	0.6
		#140	0.18	0.00	0.4
		#200	0.00	0.00	0.4

Serial\_No:03162012:45

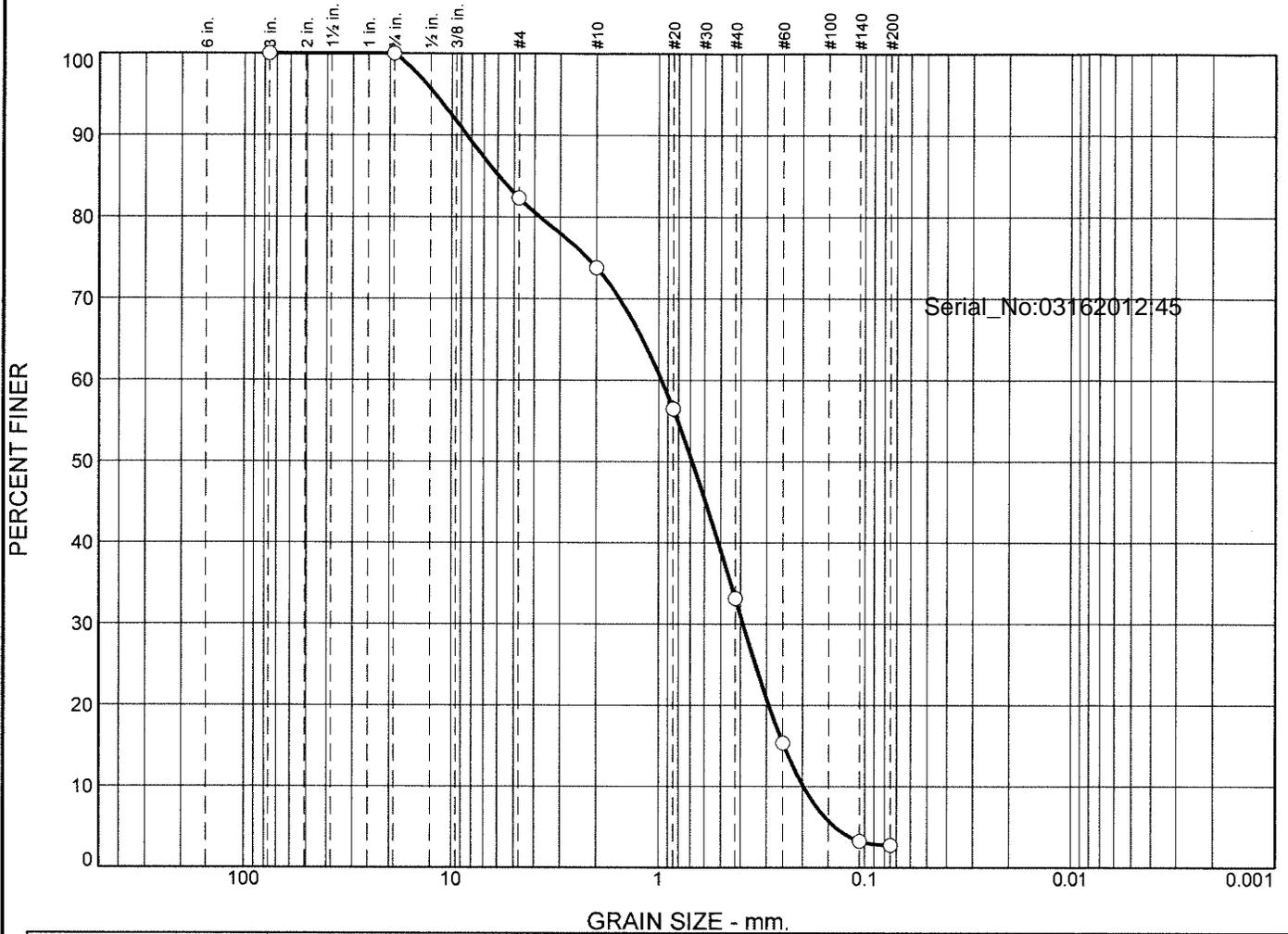
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	98.6	1.0	99.6			0.4

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4501	0.4796	0.5063	0.5317	0.5813	0.6322	0.6869	0.7484	0.9223	0.9918	1.0868	1.2388

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.72	1.56	0.94

# Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	17.7	8.5	40.6	30.5	2.7				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
<input type="radio"/>				5.9250	0.9675	0.6876	0.3896	0.2466	0.1982	0.79	4.88

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

<b>Project No.</b> <b>Client:</b> <b>Project:</b> <input type="radio"/> <b>Source of Sample:</b> 53-DUNE <b>Sample Number:</b> L2010536-20  <b>Date:</b> <input type="radio"/>	<b>Remarks:</b>
<b>Alpha Analytical</b>  <b>Mansfield, MA</b>	<b>Figure</b>

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: 53-DUNE

Sample Number: L2010536-20

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 134.74

Tare Wt. = 0.00

Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
134.74	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	23.84	0.00	82.3	
		#10	11.45	0.00	73.8	
		#20	23.35	0.00	56.5	
		#40	31.40	0.00	33.2	
		#60	23.99	0.00	15.4	
		#140	16.30	0.00	3.3	
		#200	0.71	0.00	2.7	

**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	17.7	17.7	8.5	40.6	30.5	79.6			2.7

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.1390	0.1982	0.2466	0.2920	0.3896	0.5133	0.6876	0.9675	3.7624	5.9250	8.4502	12.0370

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
3.13	4.88	0.79



**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: 53-TOE

Sample Number: L2010536-21

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =117.87

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer	Serial_No:03162012:45
117.87	0.00	3	0.00	0.00	100.0	
		0.75	0.00	0.00	100.0	
		#4	0.00	0.00	100.0	
		#10	0.00	0.00	100.0	
		#20	12.95	0.00	89.0	
		#40	102.71	0.00	1.9	
		#60	1.57	0.00	0.5	
		#140	0.23	0.00	0.3	
		#200	0.04	0.00	0.3	

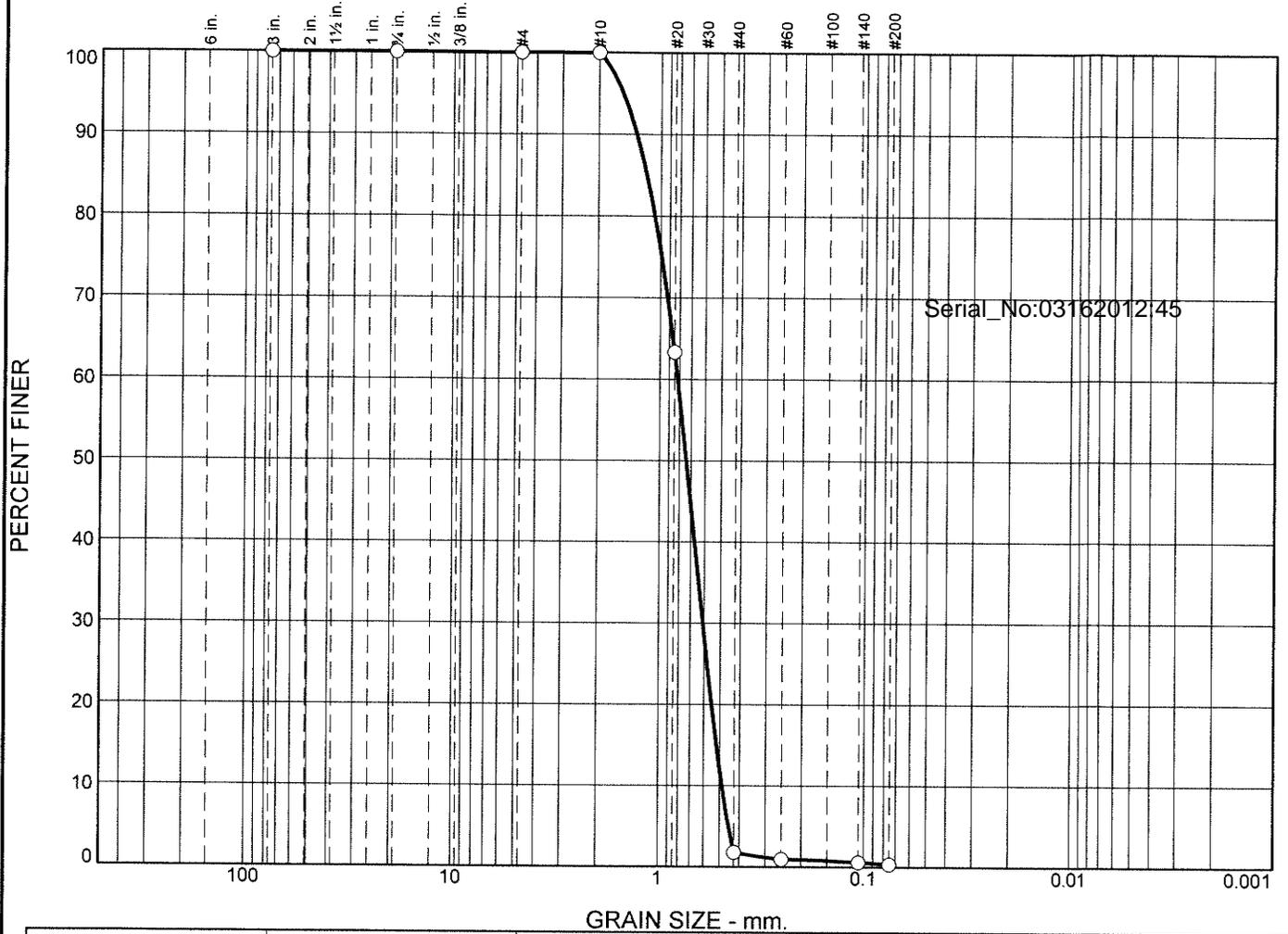
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	98.1	1.6	99.7			0.3

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4428	0.4671	0.4889	0.5096	0.5495	0.5893	0.6306	0.6751	0.7830	0.8177	0.8957	1.2212

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.62	1.45	0.96

# Particle Size Distribution Report



%	+3"	% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	0.0	0.1	98.1	1.5	0.3				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
<input type="radio"/>				1.1702	0.8194	0.7394	0.6088	0.5191	0.4876	0.93	1.68

Material Description	USCS	AASHTO
<input type="radio"/>	SP	

Project No. <input type="text"/>	Client: <input type="text"/>
Project: <input type="text"/>	
<input type="radio"/> Source of Sample: 53-BEACH	Sample Number: L2010536-22
Date: <input type="text"/>	
<b>Alpha Analytical</b>	
<b>Mansfield, MA</b>	

Remarks:

Figure

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: 53-BEACH

Sample Number: L2010536-22

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 102.95

Tare Wt. = 0.00

Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
102.95	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.06	0.00	99.9
		#20	37.72	0.00	63.3
		#40	63.33	0.00	1.8
		#60	0.85	0.00	1.0
		#140	0.38	0.00	0.6
		#200	0.27	0.00	0.3

Serial\_No:03162012:45

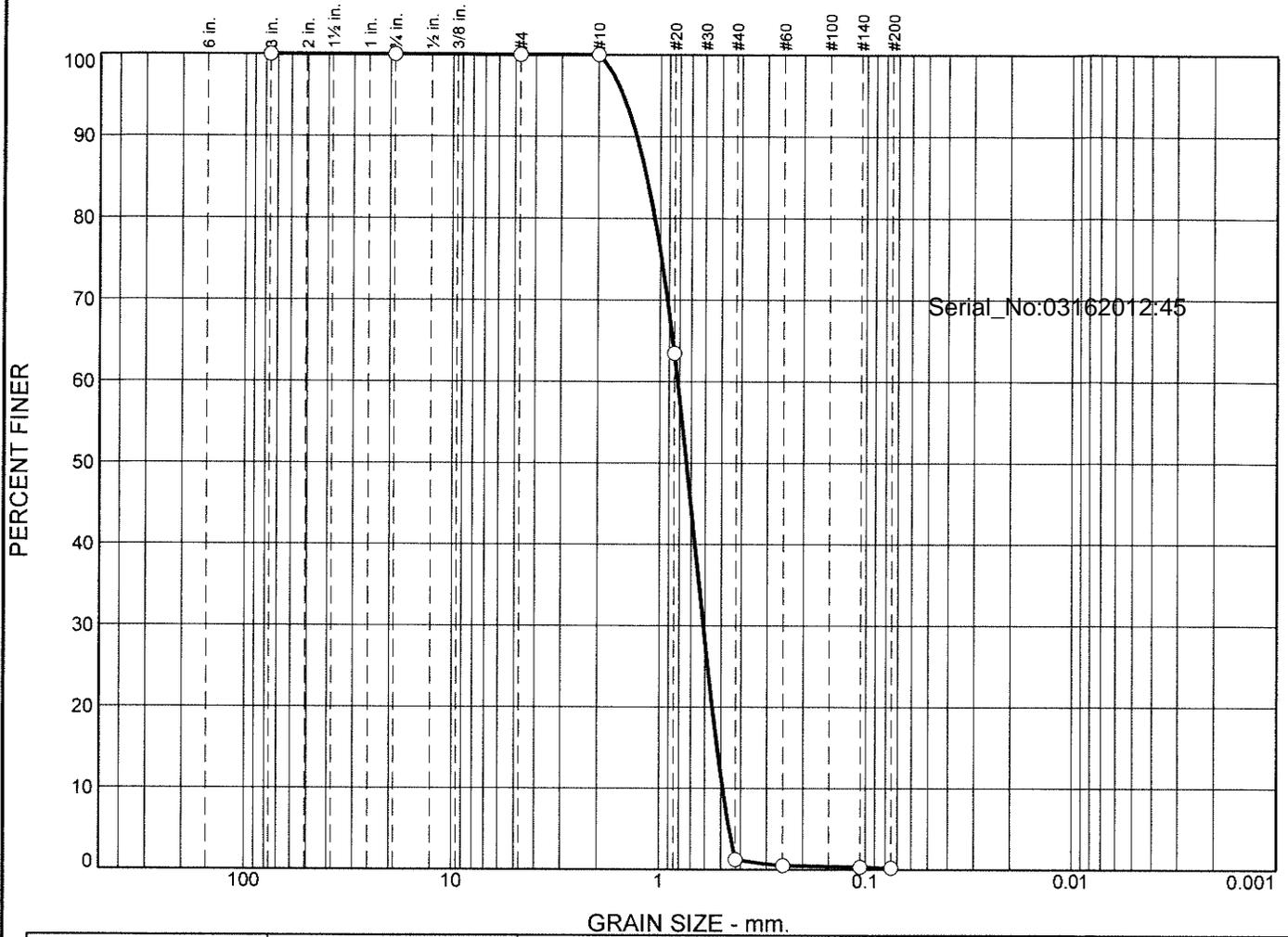
**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	98.1	1.5	99.7			0.3

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4524	0.4876	0.5191	0.5493	0.6088	0.6709	0.7394	0.8194	1.0678	1.1702	1.3099	1.5264

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.84	1.68	0.93

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	98.8	1.0	0.2	

Colloids	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
			1.1643	0.8181	0.7390	0.6099	0.5214	0.4904	0.93	1.67

Material Description	USCS	AASHTO
	SP	

<p><b>Project No.</b>                      <b>Client:</b></p> <p><b>Project:</b></p> <p>○ <b>Source of Sample:</b> 53-BEACH                      <b>Sample Number:</b> WG1349682-2</p> <p><b>Date:</b> ○</p> <p style="text-align: center;"><b>Alpha Analytical</b></p> <p style="text-align: center;"><b>Mansfield, MA</b></p>	<p><b>Remarks:</b></p> <p style="text-align: right;"><b>Figure</b></p>
---	--

**GRAIN SIZE DISTRIBUTION TEST DATA**

3/12/2020

Location: 53-BEACH

Sample Number: WG1349682-2

USCS Classification: SP

**Sieve Test Data**

Post #200 Wash Test Weights (grams): Dry Sample and Tare =100.65

Tare Wt. =0.00

Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
100.65	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.00	0.00	100.0
		#20	36.76	0.00	63.5
		#40	62.64	0.00	1.2
		#60	0.74	0.00	0.5
		#140	0.18	0.00	0.3
		#200	0.12	0.00	0.2

Serial\_No:03162012:45

**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	98.8	1.0	99.8			0.2

D <sub>5</sub>	D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>40</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.4562	0.4904	0.5214	0.5511	0.6099	0.6714	0.7390	0.8181	1.0632	1.1643	1.3023	1.5166

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.85	1.67	0.93

## Certification Information

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The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624/624.1:** m/p-xylene, o-xylene

**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS

**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**EPA TO-12** Non-methane organics

**EPA 3C** Fixed gases

**Biological Tissue Matrix:** EPA 3050B

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The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### *Drinking Water*

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**

**EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### *Non-Potable Water*

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

**EPA 624.1:** Volatile Halocarbons & Aromatics,

**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

### Mansfield Facility:

#### *Drinking Water*

**EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.

**EPA 522.**

#### *Non-Potable Water*

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

**EPA 245.1** Hg.

**SM2340B**

---

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



# CHAIN OF CUSTODY

PAGE 1 OF 3

Date Rec'd in Lab: 3/10/20

ALPHA Job #: L2c10536

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9300

### Project Information

Project Name: Epsilon Snd Smp.

Project Location: Nantucket, MA

Project #: 19-2000

Project Manager: Jim Borreback

ALPHA Quote #:

### Report Information - Data Deliverables

ADEX  EMAIL

### Billing Information

Same as Client info PO #:

### Client Information

Client: OHI Engineering

Address: 44 Wood Ave  
Mansfield, MA

Phone:

Email:

Additional Project Information:

### Turn-Around Time

Standard  RUSH (not confirmed if pre-approved)

Date Due: 2-Day TAT

### Regulatory Requirements & Project Information Requirements

Yes  No MA MCP Analytical Methods  Yes  No CT RCP Analytical Methods  
 Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)  
 Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)  
 Yes  No NPDES RGP  
 Other State / Fed Program \_\_\_\_\_ Criteria \_\_\_\_\_

ANALYSIS		SAMPLE INFO	
VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> 524.2	SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH	Filtration	<input type="checkbox"/> Field <input type="checkbox"/> Lab to do
METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15	METALS: <input type="checkbox"/> RCRA5 <input type="checkbox"/> RCRA8	Preservation	<input type="checkbox"/> Lab to do
EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	Sample Comments	
TPH: <input type="checkbox"/> PCB <input type="checkbox"/> PEST	TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint		
<u>Total &amp; Fecal Coliform</u> <u>Gen Size / Moist. Content</u> <u>NO<sub>2</sub> / NO<sub>3</sub> / TKN</u> <u>Phosphorus / Phosphate</u>			

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials	ANALYSIS	SAMPLE INFO
		Date	Time				
10536-01	LEDGE-3A(TAN-S)	3/9/20	0900	Soil	JH		X X X X
-02	LEDGE-3A(TAN-D)		0930				
-03	LEDGE-4A(TAN-S)		0945				
-04	LEDGE-4A(TAN-D)		1015				
-05	LEDGE-5A(GREY-S)		1100				
-06	LEDGE-5A(GREY-D)		1130				
-07	LEDGE-8A(GREY-S)		1145				
-08	LEDGE-8A(GREY-D)		1215				
-09	BEACH-2A		1220				
-10	BEACH-3A		1225				

Container Type	Preservative	Container Type	Preservative
P= Plastic A= Amber glass V= Vial G= Glass B= Bacteria cup C= Cube O= Other E= Encore D= BOD Bottle	A= None B= HCl C= HNO <sub>3</sub> D= H <sub>2</sub> SO <sub>4</sub> E= NaOH F= MeOH G= NaHSO <sub>4</sub> H= Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> I= Ascorbic Acid J= NH <sub>4</sub> Cl K= Zn Acetate O= Other	A P A A	A →

Relinquished By:	Date/Time	Received By:	Date/Time	All samples submitted are subject to Alpha's Terms and Conditions. See reverse side. FORM NO: 01-01 (rev. 12-Mar-2012)
<u>[Signature]</u>	<u>3/10/20 0650</u>	<u>[Signature]</u>	<u>3/10/20 08:50</u>	
<u>[Signature]</u>	<u>3/10/20</u>	<u>[Signature]</u>	<u>3/10/20 1155</u>	
<u>[Signature]</u>	<u>3/10/20 1235</u>	<u>[Signature]</u>	<u>3/10/20 1235</u>	



# CHAIN OF CUSTODY

PAGE 2 OF 3

Date Rec'd in Lab: 3/10/20

ALPHA Job #: L2010536

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9310

### Project Information

Project Name: *Epsilon Pond Bmp.*  
Project Location: *Nantucket, MA*  
Project #: *19-2000*  
Project Manager: *Jim Borrebaeck*  
ALPHA Quote #:

### Report Information - Data Deliverables

ADEX  EMAIL

Same as Client info PO #:

### Client Information

Client: *OHI Engineering*  
Address:

Phone:

Email:

Additional Project Information:

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)

Date Due: *2-DAY TAT*

### Regulatory Requirements & Project Information Requirements

Yes  No MA MCP Analytical Methods  Yes  No CT RCP Analytical Methods  
 Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)  
 Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)  
 Yes  No NPDES RGP  
 Other State /Fed Program Criteria

ANALYSIS	VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 824 <input type="checkbox"/> 524.2	SAMPLE INFO	Filtration	TOTAL # BOTTLES
	SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH		<input type="checkbox"/> Field	
	METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> MCP 15		<input type="checkbox"/> Lab to do	
	METALS: <input type="checkbox"/> RCRA5 <input type="checkbox"/> RCRA8 <input type="checkbox"/> PPI3		Preservation	
EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	<input type="checkbox"/> PCB <input type="checkbox"/> PEST	<input type="checkbox"/> Lab to do		
VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint			
<i>Total &amp; FELAL Conf Form</i> <i>Grav S, 2 / Moisture Content</i> <i>Na<sub>2</sub>/No<sub>2</sub> / TKN</i> <i>Phosphorus / Phosphate</i>		Sample Comments		

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
10536-11	BEACH-5A	3/9/20	1230	Soil	JH
-12	BEACH-8A		1235		
-13	MHW-2		1222		
-14	MHW-3		1227		
-15	MHW-5		1232		
-16	MHW-8		1237		
-17	HH-DUNE		1305		
-18	HH-TOE		1310		
-19	HH-BEACH		1315		
-20	53-DUNE		1245		

**Container Type**  
P= Plastic  
A= Amber glass  
V= Vial  
G= Glass  
B= Bacteria cup  
C= Cube  
O= Other  
E= Encore  
D= BOD Bottle

**Preservative**  
A= None  
B= HCl  
C= HNO<sub>3</sub>  
D= H<sub>2</sub>SO<sub>4</sub>  
E= NaOH  
F= MeOH  
G= NaHSO<sub>4</sub>  
H= Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>  
I= Ascorbic Acid  
J= NH<sub>4</sub>Cl  
K= Zn Acetate  
O= Other

Container Type	A	P	A	A
Preservative	A			

Relinquished By: *[Signature]* Date/Time: *3/10/20 0850*  
 Received By: *[Signature]* Date/Time: *3/10/20 1155*  
*[Signature]* Date/Time: *3/10/20 1235*

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.  
FORM NO: 01-01 (rev. 12-Mar-2012)



# CHAIN OF CUSTODY

PAGE 3 OF 3

8 Wallup Drive  
Weelbors, MA 01581  
Tel: 508-896-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9300

Date Rec'd In Lab: 3/10/20

ALPHA Job #: L2010336

### Client Information

Client: OHI Engineering

Address:

Phone:

Email:

### Project Information

Project Name: Epsilon Sand Dump

Project Location: Nantucket, MA

Project #: 19-2000

Project Manager: Jim Boerbech

ALPHA Quote #:

### Report Information - Data Deliverables

ADEX  EMAIL

### Billing Information

Same as Client Info PO #:

### Regulatory Requirements & Project Information Requirements

Yes  No MA MCP Analytical Methods  Yes  No CT RCP Analytical Methods

Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)

Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)

Yes  No NPDES RGP

Other State / Fed Program

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)

Date Due: 2-Day TAT

Additional Project Information:

ANALYSIS	VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 824 <input type="checkbox"/> 524.2	SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH	METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15	EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	PCB: <input type="checkbox"/> PEST	TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint	Total & Fecal Coliform	GRAIN S.Z.C, Moisture Content	NO <sub>2</sub> /NO <sub>3</sub> /TKN	Phosphorus / phosphate	SAMPLE INFO	TOTAL # BOTTLES
												Filtration	
												<input type="checkbox"/> Field	
												<input type="checkbox"/> Lab to do	
												Preservation	
												<input type="checkbox"/> Lab to do	
												Sample Comments	

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
106336-21	53-TOE	3/9/20	1250	Soil	JJK
-22	53-BEACH	3/9/20	1300	Soil	JJK

**Container Type**  
P= Plastic  
A= Amber glass  
V= Vial  
G= Glass  
B= Bacteria cup  
C= Cube  
O= Other  
E= Encore  
D= BOD Bottle

**Preservative**  
A= None  
B= HCl  
C= HNO<sub>3</sub>  
D= H<sub>2</sub>SO<sub>4</sub>  
E= NaOH  
F= MeOH  
G= NaHSO<sub>4</sub>  
H= Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>  
I= Ascorbic Acid  
J= NH<sub>4</sub>Cl  
K= Zn Acetate  
O= Other

Container Type	B	A	A	A
Preservative	A			

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	3/10/20 08:50	<i>[Signature]</i>	3/10/20 08:50
<i>[Signature]</i>	3/10/20	<i>[Signature]</i>	3/10/20 12:55
<i>[Signature]</i>	3/10/20 12:35	<i>[Signature]</i>	3/10/20 12:35

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.  
FORM NO: 01-01 (Rev. 12-Mar-2012)

# *END OF REPORT*

44 Wood Avenue  
Mansfield, MA 02048  
*Tel (508) 339-3929*  
*Fax (508) 339-3140*

110 Pulpit Hill Road  
Amherst, MA 01002  
*Tel (413) 835-0780*

[www.OHIengineering.com](http://www.OHIengineering.com)

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/02/20 Time: 8:58 am Weather: Sunny 45°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

~ 100 feet.



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/03/20 Time: 12:48 am Weather: Cloudy 52°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

~ 100 feet.



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/04/20      Time: 11:18am      Weather: Sunny 48°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

~ 100 feet.



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/05/20 Time: 7:48 am Weather: Sunny 45°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

~ 100 feet.



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/06/20 Time: 8:48 am Weather: Sunny 37°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

~ 100 feet.



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/09/20 Time: 8:48 am Weather: Sunny 49°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

Exposed entire 2<sup>nd</sup> Geotube from north to south and ~500' of 3<sup>rd</sup> Geotube



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/10/20 Time: 3:48 pm Weather: Sunny 47°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

Exposed entire 2<sup>nd</sup> Geotube from north to south and ~500' of 3<sup>rd</sup> Geotube



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

Collected several bricks, irrigation pipe, metal strap, small piece of marble and landscape material. ~ 4 gallons.



2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/11/20 Time: 8:54 am Weather: Sunny 43°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

Exposed entire 2<sup>nd</sup> Geotube from north to south and ~500' of 3<sup>rd</sup> Geotube



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

Collected several bricks, and landscape material. ~ 1 gallon.



2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/12/20 Time: 7:54 am Weather: Sunny 40°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

Exposed entire 2<sup>nd</sup> Geotube from north to south and ~500' of 3<sup>rd</sup> Geotube



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/13/20 Time: 9:04 am Weather: Cloudy 48°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

Exposed entire 2<sup>nd</sup> Geotube from north to south and ~500' of 3<sup>rd</sup> Geotube



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/16/20 Time: 8:04 am Weather: Sunny 35°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

Exposed entire 2<sup>nd</sup> Geotube from north to south and ~500' of 3<sup>rd</sup> Geotube



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/17/20 Time: 9:42 am Weather: Rain 41°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

Exposed entire 2<sup>nd</sup> Geotube from north to south and ~500' of 3<sup>rd</sup> Geotube



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/18/20 Time: 8:22 am Weather: Sunny 43°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

Exposed entire 2<sup>nd</sup> Geotube from north to south and ~500' of 3<sup>rd</sup> Geotube



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/19/20 Time: 12:22 pm Weather: Rain 47°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

Exposed entire 2<sup>nd</sup> Geotube from north to south and ~500' of 3<sup>rd</sup> Geotube



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

2020

# SBPF Site Inspection Report/Log

Inspector: Ali Tepsurkayev

Date: 03/20/20 Time: 11:12 am Weather: Cloudy 44°F

## General Site Conditions:

Site was in good condition. Lower geotubes partially exposed along the structure.

## Length of Exposed Geotube:

Exposed entire 2<sup>nd</sup> Geotube from north to south and ~500' of 3<sup>rd</sup> Geotube



## Type & Quantity of Debris Removed/Action Taken:

Fully inspected the structure from North to South. Drove and walked along the template and the ramps.

No debris was collected during this inspection

Vendor	Invoice #	Date	Time	Quantity	Unit Cost	Invoice Total	Service	Sand Ticket
Read Custom Soils, LLC	60479	10/12/2018	15:14	26.00	16.50	429.00	Beach Sand/Read	137805
Read Custom Soils, LLC	60605	10/15/2018	6:58	26.00	16.50	429.00	Beach Sand/Read	137808
Read Custom Soils, LLC	60605	10/15/2018	7:01	26.00	16.50	429.00	Beach Sand/Read	137809
Read Custom Soils, LLC	60605	10/15/2018	7:04	26.00	16.50	429.00	Beach Sand/Read	137810
Read Custom Soils, LLC	60605	10/15/2018	7:07	26.00	16.50	429.00	Beach Sand/Read	137811
Read Custom Soils, LLC	60605	10/15/2018	7:09	26.00	16.50	429.00	Beach Sand/Read	137812
Read Custom Soils, LLC	60605	10/15/2018	7:18	26.00	16.50	429.00	Beach Sand/Read	137816
Read Custom Soils, LLC	60605	10/15/2018	7:35	26.00	16.50	429.00	Beach Sand/Read	137824
Read Custom Soils, LLC	60605	10/15/2018	7:40	26.00	16.50	429.00	Beach Sand/Read	137827
Read Custom Soils, LLC	60605	10/15/2018	8:19	26.00	16.50	429.00	Beach Sand/Read	137836
Read Custom Soils, LLC	60605	10/15/2018	8:22	26.00	16.50	429.00	Beach Sand/Read	137837
Read Custom Soils, LLC	60605	10/15/2018	8:26	26.00	16.50	429.00	Beach Sand/Read	137838
Read Custom Soils, LLC	60605	10/15/2018	8:44	26.00	16.50	429.00	Beach Sand/Read	137841
Read Custom Soils, LLC	60605	10/15/2018	8:46	26.00	16.50	429.00	Beach Sand/Read	137842
Read Custom Soils, LLC	60605	10/15/2018	8:56	26.00	16.50	429.00	Beach Sand/Read	137843
Read Custom Soils, LLC	60605	10/15/2018	8:58	26.00	16.50	429.00	Beach Sand/Read	137844
Read Custom Soils, LLC	60605	10/15/2018	9:33	26.00	16.50	429.00	Beach Sand/Read	137855
Read Custom Soils, LLC	60605	10/15/2018	9:37	26.00	16.50	429.00	Beach Sand/Read	137856
Read Custom Soils, LLC	60605	10/15/2018	9:43	26.00	16.50	429.00	Beach Sand/Read	137858
Read Custom Soils, LLC	60605	10/15/2018	10:11	26.00	16.50	429.00	Beach Sand/Read	137863
Read Custom Soils, LLC	60605	10/15/2018	10:13	26.00	16.50	429.00	Beach Sand/Read	137864
Read Custom Soils, LLC	60605	10/15/2018	10:18	26.00	16.50	429.00	Beach Sand/Read	137866
Read Custom Soils, LLC	60605	10/15/2018	10:22	26.00	16.50	429.00	Beach Sand/Read	137868
Read Custom Soils, LLC	60605	10/15/2018	10:55	26.00	16.50	429.00	Beach Sand/Read	137872
Read Custom Soils, LLC	60605	10/15/2018	11:00	26.00	16.50	429.00	Beach Sand/Read	137874
Read Custom Soils, LLC	60605	10/15/2018	11:09	26.00	16.50	429.00	Beach Sand/Read	137878
Read Custom Soils, LLC	60605	10/15/2018	11:30	26.00	16.50	429.00	Beach Sand/Read	137883
Read Custom Soils, LLC	60605	10/15/2018	11:42	26.00	16.50	429.00	Beach Sand/Read	137887
Read Custom Soils, LLC	60605	10/15/2018	11:44	26.00	16.50	429.00	Beach Sand/Read	137888
Read Custom Soils, LLC	60605	10/15/2018	11:47	26.00	16.50	429.00	Beach Sand/Read	137889
Read Custom Soils, LLC	60605	10/15/2018	12:19	26.00	16.50	429.00	Beach Sand/Read	137895
Read Custom Soils, LLC	60605	10/15/2018	12:24	26.00	16.50	429.00	Beach Sand/Read	137897
Read Custom Soils, LLC	60605	10/15/2018	12:27	26.00	16.50	429.00	Beach Sand/Read	137898
Read Custom Soils, LLC	60605	10/15/2018	13:01	26.00	16.50	429.00	Beach Sand/Read	137906
Read Custom Soils, LLC	60605	10/15/2018	13:12	26.00	16.50	429.00	Beach Sand/Read	137909
Read Custom Soils, LLC	60605	10/15/2018	1:20	-	-	-	Beach Sand/Read	137912
PM Reis Trucking	136177	10/30/2018	14:00	20.00	50.00	1,000.00	Beach Sand/Reis	127808
PM Reis Trucking	136177	10/30/2018	15:00	20.00	50.00	1,000.00	Beach Sand/Reis	127808
PM Reis Trucking	136177	10/30/2018	15:40	20.00	50.00	1,000.00	Beach Sand/Reis	127808
PM Reis Trucking	136177	10/30/2018	13:40	16.00	50.00	800.00	Beach Sand/Reis	128684
PM Reis Trucking	136177	10/30/2018	14:20	16.00	50.00	800.00	Beach Sand/Reis	128684
PM Reis Trucking	136177	10/30/2018	14:55	16.00	50.00	800.00	Beach Sand/Reis	128684
PM Reis Trucking	136177	10/30/2018	15:25	16.00	50.00	800.00	Beach Sand/Reis	128684
PM Reis Trucking	136177	10/30/2018	13:30	20.00	50.00	1,000.00	Beach Sand/Reis	128777
PM Reis Trucking	136177	10/30/2018	14:15	20.00	50.00	1,000.00	Beach Sand/Reis	128777
PM Reis Trucking	136177	10/30/2018	14:55	20.00	50.00	1,000.00	Beach Sand/Reis	128777
PM Reis Trucking	136177	10/30/2018	15:25	20.00	50.00	1,000.00	Beach Sand/Reis	128777
PM Reis Trucking	136177	10/30/2018	13:30	20.00	50.00	1,000.00	Beach Sand/Reis	128830
PM Reis Trucking	136177	10/30/2018	14:00	20.00	50.00	1,000.00	Beach Sand/Reis	128830
PM Reis Trucking	136177	10/30/2018	14:30	20.00	50.00	1,000.00	Beach Sand/Reis	128830

Vendor	Invoice #	Date	Time	Quantity	Unit Cost	Invoice Total	Service	Sand Ticket
PM Reis Trucking	136177	10/30/2018	15:00	20.00	50.00	1,000.00	Beach Sand/Reis	128830
PM Reis Trucking	136177	10/30/2018	13:30	20.00	50.00	1,000.00	Beach Sand/Reis	137001
PM Reis Trucking	136177	10/30/2018	14:05	20.00	50.00	1,000.00	Beach Sand/Reis	137001
PM Reis Trucking	136177	10/30/2018	14:40	20.00	50.00	1,000.00	Beach Sand/Reis	137001
PM Reis Trucking	136177	10/30/2018	15:10	20.00	50.00	1,000.00	Beach Sand/Reis	137001
PM Reis Trucking	136177	10/30/2018	15:45	20.00	50.00	1,000.00	Beach Sand/Reis	137001
Read Custom Soils, LLC	60920	10/30/2018	n/a	20.00	16.50	330.00	Beach Sand/Read	74177
Read Custom Soils, LLC	60920	10/30/2018	7:00	26.00	16.50	429.00	Beach Sand/Read	138999
Read Custom Soils, LLC	60920	10/30/2018	7:06	26.00	16.50	429.00	Beach Sand/Read	139000
Read Custom Soils, LLC	60920	10/30/2018	7:11	26.00	16.50	429.00	Beach Sand/Read	139002
Read Custom Soils, LLC	60920	10/30/2018	7:30	26.00	16.50	429.00	Beach Sand/Read	139010
Read Custom Soils, LLC	60920	10/30/2018	7:32	26.00	16.50	429.00	Beach Sand/Read	139011
Read Custom Soils, LLC	60920	10/30/2018	7:36	26.00	16.50	429.00	Beach Sand/Read	139013
Read Custom Soils, LLC	60920	10/30/2018	7:41	26.00	16.50	429.00	Beach Sand/Read	139015
Read Custom Soils, LLC	60920	10/30/2018	8:16	26.00	16.50	429.00	Beach Sand/Read	139032
Read Custom Soils, LLC	60920	10/30/2018	8:18	26.00	16.50	429.00	Beach Sand/Read	139033
Read Custom Soils, LLC	60920	10/30/2018	8:36	26.00	16.50	429.00	Beach Sand/Read	139035
Read Custom Soils, LLC	60920	10/30/2018	9:05	26.00	16.50	429.00	Beach Sand/Read	139039
Read Custom Soils, LLC	60920	10/30/2018	9:08	26.00	16.50	429.00	Beach Sand/Read	139040
Read Custom Soils, LLC	60920	10/30/2018	9:11	26.00	16.50	429.00	Beach Sand/Read	139041
Read Custom Soils, LLC	60920	10/30/2018	9:35	26.00	16.50	429.00	Beach Sand/Read	139047
Read Custom Soils, LLC	60920	10/30/2018	9:39	26.00	16.50	429.00	Beach Sand/Read	139049
Read Custom Soils, LLC	60920	10/30/2018	10:00	26.00	16.50	429.00	Beach Sand/Read	139057
Read Custom Soils, LLC	60920	10/30/2018	10:04	26.00	16.50	429.00	Beach Sand/Read	139058
Read Custom Soils, LLC	60920	10/30/2018	10:32	26.00	16.50	429.00	Beach Sand/Read	139064
Read Custom Soils, LLC	60920	10/30/2018	10:47	26.00	16.50	429.00	Beach Sand/Read	139065
Read Custom Soils, LLC	60920	10/30/2018	10:51	26.00	16.50	429.00	Beach Sand/Read	139067
Read Custom Soils, LLC	60920	10/30/2018	10:53	26.00	16.50	429.00	Beach Sand/Read	139068
Read Custom Soils, LLC	60920	10/30/2018	10:55	26.00	16.50	429.00	Beach Sand/Read	139069
Read Custom Soils, LLC	60920	10/30/2018	11:27	26.00	16.50	429.00	Beach Sand/Read	139080
Read Custom Soils, LLC	60920	10/30/2018	11:33	26.00	16.50	429.00	Beach Sand/Read	139083
Read Custom Soils, LLC	60920	10/30/2018	12:00	26.00	16.50	429.00	Beach Sand/Read	139094
Read Custom Soils, LLC	60920	10/30/2018	12:10	26.00	16.50	429.00	Beach Sand/Read	139095
Read Custom Soils, LLC	60920	10/30/2018	12:20	26.00	16.50	429.00	Beach Sand/Read	139096
Read Custom Soils, LLC	60920	10/30/2018	12:27	26.00	16.50	429.00	Beach Sand/Read	139099
Read Custom Soils, LLC	60920	10/30/2018	12:37	26.00	16.50	429.00	Beach Sand/Read	139103
Read Custom Soils, LLC	60920	10/30/2018	13:00	26.00	16.50	429.00	Beach Sand/Read	139108
Read Custom Soils, LLC	60920	10/30/2018	13:02	26.00	16.50	429.00	Beach Sand/Read	139109
Read Custom Soils, LLC	60920	10/30/2018	13:22	26.00	16.50	429.00	Beach Sand/Read	139115
Read Custom Soils, LLC	60920	10/30/2018	13:53	26.00	16.50	429.00	Beach Sand/Read	139125
Read Custom Soils, LLC	60920	10/30/2018	14:20	26.00	16.50	429.00	Beach Sand/Read	139132
PM Reis Trucking	135885	11/8/2018	8:05	20.00	50.00	1,000.00	Beach Sand/Reis	136396
PM Reis Trucking	135885	11/8/2018	7:20	20.00	50.00	1,000.00	Beach Sand/Reis	136397
PM Reis Trucking	135885	11/8/2018	8:30	20.00	50.00	1,000.00	Beach Sand/Reis	136397
PM Reis Trucking	135885	11/8/2018	9:30	20.00	50.00	1,000.00	Beach Sand/Reis	136397
PM Reis Trucking	135885	11/8/2018	8:15	16.00	50.00	800.00	Beach Sand/Reis	136398
PM Reis Trucking	135885	11/8/2018	9:00	16.00	50.00	800.00	Beach Sand/Reis	136398
PM Reis Trucking	135885	11/8/2018	7:00	20.00	50.00	1,000.00	Beach Sand/Reis	136399
PM Reis Trucking	135936	11/13/2018	9:00	20.00	50.00	1,000.00	Beach Sand/Reis	127014



Vendor	Invoice #	Date	Time	Quantity	Unit Cost	Invoice Total	Service	Sand Ticket
PM Reis Trucking	135936	11/13/2018	11:32	20.00	50.00	1,000.00	Beach Sand/Reis	137008
PM Reis Trucking	135936	11/13/2018	12:06	20.00	50.00	1,000.00	Beach Sand/Reis	137008
PM Reis Trucking	135936	11/13/2018	12:40	20.00	50.00	1,000.00	Beach Sand/Reis	137008
PM Reis Trucking	135936	11/13/2018	13:15	20.00	50.00	1,000.00	Beach Sand/Reis	137008
PM Reis Trucking	135936	11/13/2018	13:47	20.00	50.00	1,000.00	Beach Sand/Reis	137008
PM Reis Trucking	135936	11/13/2018	7:45	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	8:25	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	9:00	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	9:35	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	10:10	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	10:40	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	11:15	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	11:50	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	12:20	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	13:00	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	13:35	22.00	50.00	1,100.00	Beach Sand/Reis	137352
PM Reis Trucking	135936	11/13/2018	7:20	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	7:55	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	8:30	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	9:15	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	9:40	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	10:15	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	10:50	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	11:25	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	12:00	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	12:30	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	13:05	16.00	50.00	800.00	Beach Sand/Reis	138692
PM Reis Trucking	135936	11/13/2018	13:40	16.00	50.00	800.00	Beach Sand/Reis	138692
Read Custom Soils, LLC	61113	11/15/2018	13:12	26.00	16.50	429.00	Beach Sand/Read	139818
Read Custom Soils, LLC	61113	11/15/2018	14:23	26.00	16.50	429.00	Beach Sand/Read	139835
Read Custom Soils, LLC	61113	11/15/2018	15:12	26.00	16.50	429.00	Beach Sand/Read	139845
Read Custom Soils, LLC	61113	11/15/2018	6:56	26.00	16.50	429.00	Beach Sand/Read	139847
Read Custom Soils, LLC	61113	11/15/2018	7:02	26.00	16.50	429.00	Beach Sand/Read	139850
Read Custom Soils, LLC	61113	11/15/2018	7:06	26.00	16.50	429.00	Beach Sand/Read	139852
Read Custom Soils, LLC	61113	11/15/2018	7:10	26.00	16.50	429.00	Beach Sand/Read	139854
Read Custom Soils, LLC	61113	11/15/2018	7:58	26.00	16.50	429.00	Beach Sand/Read	139865
Read Custom Soils, LLC	61113	11/15/2018	8:16	26.00	16.50	429.00	Beach Sand/Read	139871
Read Custom Soils, LLC	61113	11/15/2018	8:30	26.00	16.50	429.00	Beach Sand/Read	139872
Read Custom Soils, LLC	61113	11/15/2018	8:32	26.00	16.50	429.00	Beach Sand/Read	139873
Read Custom Soils, LLC	61113	11/15/2018	8:34	26.00	16.50	429.00	Beach Sand/Read	139874
Read Custom Soils, LLC	61113	11/15/2018	9:30	26.00	16.50	429.00	Beach Sand/Read	139884
Read Custom Soils, LLC	61113	11/15/2018	9:32	26.00	16.50	429.00	Beach Sand/Read	139885
Read Custom Soils, LLC	61113	11/15/2018	9:53	26.00	16.50	429.00	Beach Sand/Read	139889
Read Custom Soils, LLC	61113	11/15/2018	10:03	26.00	16.50	429.00	Beach Sand/Read	139893
Read Custom Soils, LLC	61113	11/15/2018	10:08	26.00	16.50	429.00	Beach Sand/Read	139896
Read Custom Soils, LLC	61113	11/15/2018	10:26	26.00	16.50	429.00	Beach Sand/Read	139901
Read Custom Soils, LLC	61113	11/15/2018	11:03	26.00	16.50	429.00	Beach Sand/Read	139908
Read Custom Soils, LLC	61113	11/15/2018	11:14	26.00	16.50	429.00	Beach Sand/Read	139913
Read Custom Soils, LLC	61113	11/15/2018	11:18	26.00	16.50	429.00	Beach Sand/Read	139915
Read Custom Soils, LLC	61113	11/15/2018	11:20	26.00	16.50	429.00	Beach Sand/Read	139916
Read Custom Soils, LLC	61113	11/15/2018	11:33	26.00	16.50	429.00	Beach Sand/Read	139920

Vendor	Invoice #	Date	Time	Quantity	Unit Cost	Invoice Total	Service	Sand Ticket
Read Custom Soils, LLC	61113	11/15/2018	11:46	26.00	16.50	429.00	Beach Sand/Read	139925
Read Custom Soils, LLC	61113	11/15/2018	11:53	26.00	16.50	429.00	Beach Sand/Read	139927
Read Custom Soils, LLC	61113	11/15/2018	12:16	26.00	16.50	429.00	Beach Sand/Read	139931
Read Custom Soils, LLC	61113	11/15/2018	12:27	26.00	16.50	429.00	Beach Sand/Read	139934
Read Custom Soils, LLC	61113	11/15/2018	12:37	26.00	16.50	429.00	Beach Sand/Read	139936
Read Custom Soils, LLC	61113	11/15/2018	12:42	26.00	16.50	429.00	Beach Sand/Read	139937
Read Custom Soils, LLC	61113	11/15/2018	12:52	26.00	16.50	429.00	Beach Sand/Read	139938
Read Custom Soils, LLC	61113	11/15/2018	13:03	26.00	16.50	429.00	Beach Sand/Read	139941
Read Custom Soils, LLC	61113	11/15/2018	13:25	26.00	16.50	429.00	Beach Sand/Read	139948
Read Custom Soils, LLC	61113	11/15/2018	13:27	26.00	16.50	429.00	Beach Sand/Read	139949
Read Custom Soils, LLC	61113	11/15/2018	13:32	26.00	16.50	429.00	Beach Sand/Read	139952
Read Custom Soils, LLC	61113	11/15/2018	13:37	26.00	16.50	429.00	Beach Sand/Read	139954
Read Custom Soils, LLC	61113	11/15/2018	13:47	26.00	16.50	429.00	Beach Sand/Read	139957
AH Construction LLC	214	11/26/2018	3 hrs each	192	8.75	1680	Beach Sand/AH	
AH Construction LLC	214	11/26/2018	3 hrs each	96	8.75	840	Beach Sand/AH	
AH Construction LLC	214	11/26/2018	9 hrs each	288	8.75	2520	Beach Sand/AH	
PM Reis Trucking	139263	1/10/2019	8:25	20.00	50.00	1,000.00	Beach Sand/Reis	128796
PM Reis Trucking	139263	1/10/2019	9:05	20.00	50.00	1,000.00	Beach Sand/Reis	128796
PM Reis Trucking	139263	1/10/2019	9:40	20.00	50.00	1,000.00	Beach Sand/Reis	128796
PM Reis Trucking	139263	1/10/2019	10:15	20.00	50.00	1,000.00	Beach Sand/Reis	128796
PM Reis Trucking	139263	1/10/2019	11:00	20.00	50.00	1,000.00	Beach Sand/Reis	128796
PM Reis Trucking	139263	1/10/2019	11:45	20.00	50.00	1,000.00	Beach Sand/Reis	128796
PM Reis Trucking	139263	1/10/2019	8:30	20.00	50.00	1,000.00	Beach Sand/Reis	137031
PM Reis Trucking	139263	1/10/2019	7:35	20.00	50.00	1,000.00	Beach Sand/Reis	138358
PM Reis Trucking	139263	1/10/2019	8:15	20.00	50.00	1,000.00	Beach Sand/Reis	138358
PM Reis Trucking	139263	1/10/2019	9:00	20.00	50.00	1,000.00	Beach Sand/Reis	138358
PM Reis Trucking	139263	1/10/2019	9:45	20.00	50.00	1,000.00	Beach Sand/Reis	138358
PM Reis Trucking	139263	1/10/2019	10:30	20.00	50.00	1,000.00	Beach Sand/Reis	138358
PM Reis Trucking	139263	1/10/2019	11:20	20.00	50.00	1,000.00	Beach Sand/Reis	138358
PM Reis Trucking	139263	1/10/2019	7:40	20.00	50.00	1,000.00	Beach Sand/Reis	138403
PM Reis Trucking	139263	1/10/2019	8:45	20.00	50.00	1,000.00	Beach Sand/Reis	138403
PM Reis Trucking	139263	1/10/2019	9:30	20.00	50.00	1,000.00	Beach Sand/Reis	138403
PM Reis Trucking	139263	1/10/2019	10:00	20.00	50.00	1,000.00	Beach Sand/Reis	138403
PM Reis Trucking	139263	1/10/2019	10:45	20.00	50.00	1,000.00	Beach Sand/Reis	138403
PM Reis Trucking	139263	1/10/2019	11:30	20.00	50.00	1,000.00	Beach Sand/Reis	138403
PM Reis Trucking	139322	1/11/2019	10:05	16.00	50.00	800.00	Beach Sand/Reis	128499
PM Reis Trucking	139322	1/11/2019	10:40	16.00	50.00	800.00	Beach Sand/Reis	128499
PM Reis Trucking	139322	1/11/2019	11:15	16.00	50.00	800.00	Beach Sand/Reis	128499
PM Reis Trucking	139322	1/11/2019	11:50	16.00	50.00	800.00	Beach Sand/Reis	128499
PM Reis Trucking	139322	1/11/2019	13:20	20.00	50.00	1,000.00	Beach Sand/Reis	137032
PM Reis Trucking	139322	1/11/2019	13:55	20.00	50.00	1,000.00	Beach Sand/Reis	137032
PM Reis Trucking	139322	1/11/2019	14:30	20.00	50.00	1,000.00	Beach Sand/Reis	137032
PM Reis Trucking	139322	1/11/2019	15:05	20.00	50.00	1,000.00	Beach Sand/Reis	137032
PM Reis Trucking	139322	1/11/2019	15:45	20.00	50.00	1,000.00	Beach Sand/Reis	137032
PM Reis Trucking	139322	1/11/2019	10:35	22.00	50.00	1,100.00	Beach Sand/Reis	137363
PM Reis Trucking	139322	1/11/2019	11:10	22.00	50.00	1,100.00	Beach Sand/Reis	137363
PM Reis Trucking	139322	1/11/2019	11:41	22.00	50.00	1,100.00	Beach Sand/Reis	137363
PM Reis Trucking	139322	1/11/2019	12:13	22.00	50.00	1,100.00	Beach Sand/Reis	137363
PM Reis Trucking	139322	1/11/2019	12:45	22.00	50.00	1,100.00	Beach Sand/Reis	137363
PM Reis Trucking	139322	1/11/2019	13:42	22.00	50.00	1,100.00	Beach Sand/Reis	137363
PM Reis Trucking	139322	1/11/2019	14:35	22.00	50.00	1,100.00	Beach Sand/Reis	137363
PM Reis Trucking	139322	1/11/2019	15:13	22.00	50.00	1,100.00	Beach Sand/Reis	137363
PM Reis Trucking	139322	1/11/2019	11:25	20.00	50.00	1,000.00	Beach Sand/Reis	138251





Vendor	Invoice #	Date	Time	Quantity	Unit Cost	Invoice Total	Service	Sand Ticket
AH Construction LLC	229	1/23/2019		400.00	150.00	1,650.00	Beach Sand/AH	
AH Construction LLC	229	1/23/2019	5 hrs	104.00	150.00	750.00	Beach Sand/AH	
Read Custom Soils, LLC	62142	1/24/2019	7:15	26.00	16.50	429.00	Beach Sand/Read	144349
Read Custom Soils, LLC	62142	1/24/2019	7:24	26.00	16.50	429.00	Beach Sand/Read	144353
Read Custom Soils, LLC	62142	1/24/2019	7:31	26.00	16.50	429.00	Beach Sand/Read	144356
Read Custom Soils, LLC	62142	1/24/2019	7:33	26.00	16.50	429.00	Beach Sand/Read	144357
Read Custom Soils, LLC	62142	1/24/2019	7:42	26.00	16.50	429.00	Beach Sand/Read	144361
Read Custom Soils, LLC	62142	1/24/2019	7:53	26.00	16.50	429.00	Beach Sand/Read	144367
Read Custom Soils, LLC	62142	1/24/2019	8:24	26.00	16.50	429.00	Beach Sand/Read	144377
Read Custom Soils, LLC	62142	1/24/2019	8:33	26.00	16.50	429.00	Beach Sand/Read	144378
Read Custom Soils, LLC	62142	1/24/2019	8:52	26.00	16.50	429.00	Beach Sand/Read	144379
Read Custom Soils, LLC	62142	1/24/2019	8:55	26.00	16.50	429.00	Beach Sand/Read	144380
Read Custom Soils, LLC	62142	1/24/2019	9:00	26.00	16.50	429.00	Beach Sand/Read	144382
Read Custom Soils, LLC	62142	1/24/2019	9:03	26.00	16.50	429.00	Beach Sand/Read	144383
Read Custom Soils, LLC	62142	1/24/2019	9:09	26.00	16.50	429.00	Beach Sand/Read	144385
Read Custom Soils, LLC	62142	1/24/2019	9:37	26.00	16.50	429.00	Beach Sand/Read	144390
Read Custom Soils, LLC	62142	1/24/2019	9:44	26.00	16.50	429.00	Beach Sand/Read	144391
Read Custom Soils, LLC	62142	1/24/2019	10:16	26.00	16.50	429.00	Beach Sand/Read	144400
Read Custom Soils, LLC	62142	1/24/2019	10:20	26.00	16.50	429.00	Beach Sand/Read	144402
Read Custom Soils, LLC	62142	1/24/2019	10:29	26.00	16.50	429.00	Beach Sand/Read	144405
Read Custom Soils, LLC	62142	1/24/2019	10:30	26.00	16.50	429.00	Beach Sand/Read	144406
Read Custom Soils, LLC	62142	1/24/2019	10:37	26.00	16.50	429.00	Beach Sand/Read	144410
Read Custom Soils, LLC	62142	1/24/2019	10:53	26.00	16.50	429.00	Beach Sand/Read	144418
Read Custom Soils, LLC	62142	1/24/2019	10:58	26.00	16.50	429.00	Beach Sand/Read	144421
Read Custom Soils, LLC	62142	1/24/2019	11:43	26.00	16.50	429.00	Beach Sand/Read	144429
Read Custom Soils, LLC	62142	1/24/2019	11:44	26.00	16.50	429.00	Beach Sand/Read	144430
Read Custom Soils, LLC	62142	1/24/2019		26.00	16.50	429.00	Beach Sand/Read	144432
Read Custom Soils, LLC	62142	1/24/2019	11:55	26.00	16.50	429.00	Beach Sand/Read	144434
Read Custom Soils, LLC	62142	1/24/2019	12:10	26.00	16.50	429.00	Beach Sand/Read	144436
Read Custom Soils, LLC	62142	1/24/2019	12:15	26.00	16.50	429.00	Beach Sand/Read	144438
Read Custom Soils, LLC	62142	1/24/2019	13:07	26.00	16.50	429.00	Beach Sand/Read	144459
Read Custom Soils, LLC	62142	1/24/2019	13:08	26.00	16.50	429.00	Beach Sand/Read	144460
Read Custom Soils, LLC	62142	1/24/2019	13:11	26.00	16.50	429.00	Beach Sand/Read	144461
Read Custom Soils, LLC	62142	1/24/2019	13:18	26.00	16.50	429.00	Beach Sand/Read	144463
Read Custom Soils, LLC	62283	2/13/2019	7:07	26.00	16.50	429.00	Beach Sand/Read	145688
Read Custom Soils, LLC	62283	2/13/2019	7:10	26.00	16.50	429.00	Beach Sand/Read	145689
Read Custom Soils, LLC	62283	2/13/2019	7:14	26.00	16.50	429.00	Beach Sand/Read	145690
Read Custom Soils, LLC	62283	2/13/2019	7:16	26.00	16.50	429.00	Beach Sand/Read	145691
Read Custom Soils, LLC	62283	2/13/2019	7:20	26.00	16.50	429.00	Beach Sand/Read	145692
Read Custom Soils, LLC	62283	2/13/2019	7:23	26.00	16.50	429.00	Beach Sand/Read	145693
Read Custom Soils, LLC	62283	2/13/2019	7:29	26.00	16.50	429.00	Beach Sand/Read	145696
Read Custom Soils, LLC	62283	2/13/2019	7:33	26.00	16.50	429.00	Beach Sand/Read	145698
Read Custom Soils, LLC	62283	2/13/2019	8:27	26.00	16.50	429.00	Beach Sand/Read	145713
Read Custom Soils, LLC	62283	2/13/2019	8:35	26.00	16.50	429.00	Beach Sand/Read	145716
Read Custom Soils, LLC	62283	2/13/2019	8:39	26.00	16.50	429.00	Beach Sand/Read	145717
Read Custom Soils, LLC	62283	2/13/2019	8:51	26.00	16.50	429.00	Beach Sand/Read	145718
Read Custom Soils, LLC	62283	2/13/2019	8:53	26.00	16.50	429.00	Beach Sand/Read	145719
Read Custom Soils, LLC	62283	2/13/2019	8:57	26.00	16.50	429.00	Beach Sand/Read	145720
Read Custom Soils, LLC	62283	2/13/2019	9:12	26.00	16.50	429.00	Beach Sand/Read	145722
Read Custom Soils, LLC	62283	2/13/2019	9:45	26.00	16.50	429.00	Beach Sand/Read	145729

Vendor	Invoice #	Date	Time	Quantity	Unit Cost	Invoice Total	Service	Sand Ticket
Read Custom Soils, LLC	62283	2/13/2019	9:54	26.00	16.50	429.00	Beach Sand/Read	145733
Read Custom Soils, LLC	62283	2/13/2019	9:59	26.00	16.50	429.00	Beach Sand/Read	145736
Read Custom Soils, LLC	62283	2/13/2019	10:11	26.00	16.50	429.00	Beach Sand/Read	145737
Read Custom Soils, LLC	62283	2/13/2019	10:14	26.00	16.50	429.00	Beach Sand/Read	145738
Read Custom Soils, LLC	62283	2/13/2019	10:36	26.00	16.50	429.00	Beach Sand/Read	145741
Read Custom Soils, LLC	62283	2/13/2019	10:59	26.00	16.50	429.00	Beach Sand/Read	145743
Read Custom Soils, LLC	62283	2/13/2019	11:09	26.00	16.50	429.00	Beach Sand/Read	145746
Read Custom Soils, LLC	62283	2/13/2019	11:15	26.00	16.50	429.00	Beach Sand/Read	145748
Read Custom Soils, LLC	62283	2/13/2019	11:25	26.00	16.50	429.00	Beach Sand/Read	145751
Read Custom Soils, LLC	62283	2/13/2019	11:31	26.00	16.50	429.00	Beach Sand/Read	145753
Read Custom Soils, LLC	62283	2/13/2019	12:00	26.00	16.50	429.00	Beach Sand/Read	145760
Read Custom Soils, LLC	62283	2/13/2019	12:10	26.00	16.50	429.00	Beach Sand/Read	145761
Read Custom Soils, LLC	62283	2/13/2019	12:20	26.00	16.50	429.00	Beach Sand/Read	145763
Read Custom Soils, LLC	62283	2/13/2019	12:37	26.00	16.50	429.00	Beach Sand/Read	145766
Read Custom Soils, LLC	62283	2/13/2019	12:41	26.00	16.50	429.00	Beach Sand/Read	145768
Read Custom Soils, LLC	62283	2/13/2019	12:47	26.00	16.50	429.00	Beach Sand/Read	145771
Read Custom Soils, LLC	62283	2/13/2019	13:16	26.00	16.50	429.00	Beach Sand/Read	145776
AH Construction LLC	241	2/21/2019	2/6/2019	252.00	30.00	7,560.00	Beach Sand/AH	
AH Construction LLC	241	2/21/2019	2/7/2019	108.00	30.00	3,240.00	Beach Sand/AH	
AH Construction LLC	241	2/21/2019	2/8/2019	348.00	30.00	10,440.00	Beach Sand/AH	
AH Construction LLC	241	2/21/2019	2/9/2019	486.00	30.00	14,580.00	Beach Sand/AH	
AH Construction LLC	241	2/21/2019	2/10/2019	540.00	30.00	16,200.00	Beach Sand/AH	
AH Construction LLC	241	2/21/2019	2/11/2019	72.00	30.00	2,160.00	Beach Sand/AH	
Total				12,163.00				

Truck	Delivery Date	Loads	Per Load CYD's	Total CYD's	Hours	Amount	Source	Delivery Vendor	Delivery Location
658	10/17/2019	9	18	162	7.00	1,050.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	10/18/2019	12	18	216	8.00	1,200.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	10/19/2019	5	18	90	3.00	450.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	10/21/2019	7	18	126	5.50	825.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	10/23/2019	8	18	144	6.00	900.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	10/24/2019	13	18	234	8.50	1,275.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	10/30/2019	3	18	54	1.50	300.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	11/7/2019	1	18	18	0.75	75.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	11/13/2019	13	18	234	8.50	1,275.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	11/14/2019	13	18	234	8.50	1,275.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	11/19/2019	7	18	126	5.00	750.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	11/20/2019	5	18	90	3.50	525.00	Baxter Road, from Sandlot	AH Construction	To Bluff
658	11/21/2019	11	18	198	7.50	1,125.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	10/17/2019	12	18	216	8.50	1,275.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	10/18/2019	13	18	234	9.50	1,425.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	10/19/2019	6	18	108	5.00	750.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	10/21/2019	5	18	90	4.50	675.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	10/23/2019	5	18	90	4.50	675.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	10/24/2019	10	18	180	7.50	1,125.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	10/30/2019	4	18	72	1.50	275.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	11/14/2019	11	18	198	7.00	1,050.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	11/19/2019	6	18	108	5.00	750.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	11/20/2019	2	18	36	2.00	300.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	11/21/2019	12	18	216	9.00	1,350.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	11/14/2019	11	18	198	7.00	1,050.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	11/19/2019	6	18	108	5.00	750.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	11/20/2019	2	18	36	2.00	300.00	Baxter Road, from Sandlot	AH Construction	To Bluff
097	11/21/2019	12	18	216	9.00	1,350.00	Baxter Road, from Sandlot	AH Construction	To Bluff
083	10/17/2019	8	18	144	6.00	900.00	Baxter Road, from Sandlot	AH Construction	To Bluff
083	10/18/2019	8	18	144	6.00	900.00	Baxter Road, from Sandlot	AH Construction	To Bluff
083	10/19/2019	8	18	144	6.00	900.00	Baxter Road, from Sandlot	AH Construction	To Bluff
083	10/30/2019	3	18	54	2.00	350.00	Baxter Road, from Sandlot	AH Construction	To Bluff
083	11/13/2019	12	18	216	7.50	1,125.00	Baxter Road, from Sandlot	AH Construction	To Bluff
083	11/14/2019	6	18	108	4.00	600.00	Baxter Road, from Sandlot	AH Construction	To Bluff

Truck	Delivery Date	Loads	Per Load CYD's	Total CYD's	Hours	Amount	Source	Delivery Vendor	Delivery Location
083	11/19/2019	10	18	180	6.50	975.00	Baxter Road, from Sandlot	AH Construction	To Bluff
083	11/20/2019	5	18	90	3.00	450.00	Baxter Road, from Sandlot	AH Construction	To Bluff
083	11/21/2019	10	18	180	8.00	1,200.00	Baxter Road, from Sandlot	AH Construction	To Bluff
500	10/17/2019	10	18	180	6.50	975.00	Baxter Road, from Sandlot	AH Construction	To Bluff
500	10/18/2019	12	18	216	7.50	1,125.00	Baxter Road, from Sandlot	AH Construction	To Bluff
500	10/21/2019	9	18	162	6.00	900.00	Baxter Road, from Sandlot	AH Construction	To Bluff
500	10/23/2019	4	18	72	3.00	450.00	Baxter Road, from Sandlot	AH Construction	To Bluff
500	10/24/2019	9	18	162	6.00	900.00	Baxter Road, from Sandlot	AH Construction	To Bluff
500	11/13/2019	11	18	198	6.50	975.00	Baxter Road, from Sandlot	AH Construction	To Bluff
500	11/14/2019	9	18	162	6.00	900.00	Baxter Road, from Sandlot	AH Construction	To Bluff
500	11/19/2019	10	18	180	7.50	1,100.00	Baxter Road, from Sandlot	AH Construction	To Bluff
500	11/19/2019	2	18	36	0.50	100.00	Baxter Road, from South Shore Road	AH Construction	To Bluff
207	10/18/2019	6	18	108	4.00	600.00	Baxter Road, from Sandlot	AH Construction	To Bluff
207	11/19/2019	10	18	180	7.00	1,000.00	Baxter Road, from Sandlot	AH Construction	To Bluff
207	11/19/2019	2	18	36	1.00	200.00	Baxter Road, from South Shore Road	AH Construction	To Bluff
473	12/7/2019	7	18	126	8.00	1,200.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	10/17/2019	12	18	216	8.00	1,200.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	10/18/2019	13	18	234	8.50	1,275.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	10/19/2019	5	18	90	3.00	450.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	10/21/2019	8	18	144	6.00	900.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	10/23/2019	8	18	144	6.50	975.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	10/24/2019	13	18	234	9.00	1,350.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	10/30/2019	1	18	18	1.00	150.00	Baxter Road, from TCE	AH Construction	To Bluff
473	11/11/2019	8	18	144	6.00	900.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	11/19/2019	11	18	198	8.00	1,200.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	11/19/2019	2	18	36	1.00	150.00	Baxter Road, from South Shore Road	AH Construction	To Bluff
473	11/20/2019	5	18	90	3.00	450.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	11/21/2019	12	18	216	8.00	1,200.00	Baxter Road, from Sandlot	AH Construction	To Bluff
473	10/29/2019	26	18	468	6.00	900.00	Baxter Road, from Sankaty Road	AH Construction	To Bluff
473	10/20/2019	20	18	360	5.00	3,000.00	Baxter Road, from Sankaty Road	AH Construction	To Bluff
473	10/31/2019	5	18	90	1.50	225.00	Baxter Road, from Sankaty Road	AH Construction	To Bluff
473	12/1/2019	29	18	522	8.00	10,440.00	Baxter Road, from South Shore Road	AH Construction	To Bluff
Valero/Davidson	12/13/2019	34	18	612		12,240.00	Baxter Road, from TCE	AH Construction	To Bluff
Glowacki	12/13/2019	6	18	108		2,150.00	Baxter Road, from TCE	AH Construction	To Bluff
Lafuer	12/13/2019	5	18	90		1,800.00	Baxter Road, from TCE	AH Construction	To Bluff
TCE	12/13/2019	3	18	48		960.00	Baxter Road, from TCE	AH Construction	To Bluff
Total				11,172					