# Exhibit B

# Additional Information for the Joint Permit Application Hilton Head Plantation POA

## *32. Description of the Overall Project and of Each Affecting U.S. Waters or State Critical Areas (attach additional sheets if needed)*

The purpose of the proposed project is to restore the entrance to Park Creek, a small tidal creek which runs through the Hilton Head Plantation marsh and connects to Port Royal Sound. Figure 1 presents an overview of the project area. The Park Creek mouth is located just west of Pine Island and allows for recreational boat access to Skull Creek and Port Royal Sound for Hilton Head Plantation residents and guests. The creek mouth/inlet has not been maintained for approximately two decades and has become exceedingly shallow and narrow over the years, now hindering navigation and impairing flushing as a result.

The proposed project will excavate material from the Park Creek mouth to restore inlet navigation and flushing through the marsh creek system. The excavated sandy, beach compatible material will be beneficially used and placed along a nearby erosional section of Port Royal Sound estuarine shoreline between the Dolphin Head Recreation Area (also referred to as Dolphin Head Park) and Pine Island, referred to as the "Pine Island isthmus" in this document. Pine Island is a "passive" recreation and natural area where no structures occur (and none are planned).

The sandy beach shoreline of the Pine Island isthmus forms a barrier which protects the marsh and allows access to Pine Island, however, this shoreline is subject to chronic erosion. As a significant percentage of the Hilton Head Plantation community is over the age of 65, it is imperative that access between Dolphin Head and Pine Island remains continually open in the event that Emergency Medical Services (EMS) are needed.

The proposed project also includes an extension to the existing pedestrian walkover to connect the Dolphin Head Recreation Area to Pine Island to ensure resident and guest public access along the nature walk to the Pine Island recreational/natural area, even during extremely erosional or king-tide conditions along the Pine Island isthmus.

The Hilton Head Plantation Property Owners Association (HHPPOA) currently holds a permit for use of an upland/off-site source used in past maintenance renourishments for the Pine Island isthmus, and therefore this project request comes as a modification to the existing permit [P/N 2004-13583(17)].

The currently permitted upland sand mine facility is requested to remain permitted and extended for the continued use of upland truck haul renourishments of beach compatible sand to the Pine Island isthmus on an as-needed basis.


**Figure 1. Project Area and Surrounding Features Overview (April 2021 GoogleEarth Aerial Imagery).**

Pre-submittal Scoping Meeting

A pre-submittal meeting request was made by Fran Way of ATM to SCDHEC BOW and OCRM on September 23, 2022. An email dated October 31, 2022 from Haley Smarr at SCDHEC stated that a formal pre-filing meeting was not required.

- *The project proponent (Fran Way of ATM) hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief.*
- *The project proponent (Fran Way of ATM) hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.*

## *1.1. Park Creek Inlet Restoration*

The first maintenance dredging effort to improve/restore the Park Creek entrance occurred in 1999. The 1999 project was successful and it dredged the Park Creek channel and inlet opening for flow and navigation. The project beneficially placed approximately 18,000 cy of the excavated material along the Pine Island isthmus shoreline, which was severely eroded at the time. A similar project was completed in 2005 which placed ~22,000 cy of sand on the erosional isthmus shoreline, excavated from an accretional location on the west side of the Pine Island spit which was exacerbating sedimentation in Park Creek.

The Park Creek inlet area (including the accretional spit area on the west side of Pine Island) has not been maintained since 2005 and as a result, the mouth has significantly infilled and narrowed making it unnavigable during lower tides.

Figures 2 and 3 present recent aerial oblique images and Figure 4 shows the ground conditions illustrating the existing shallow, narrow opening which is impassible for boats around low tide.

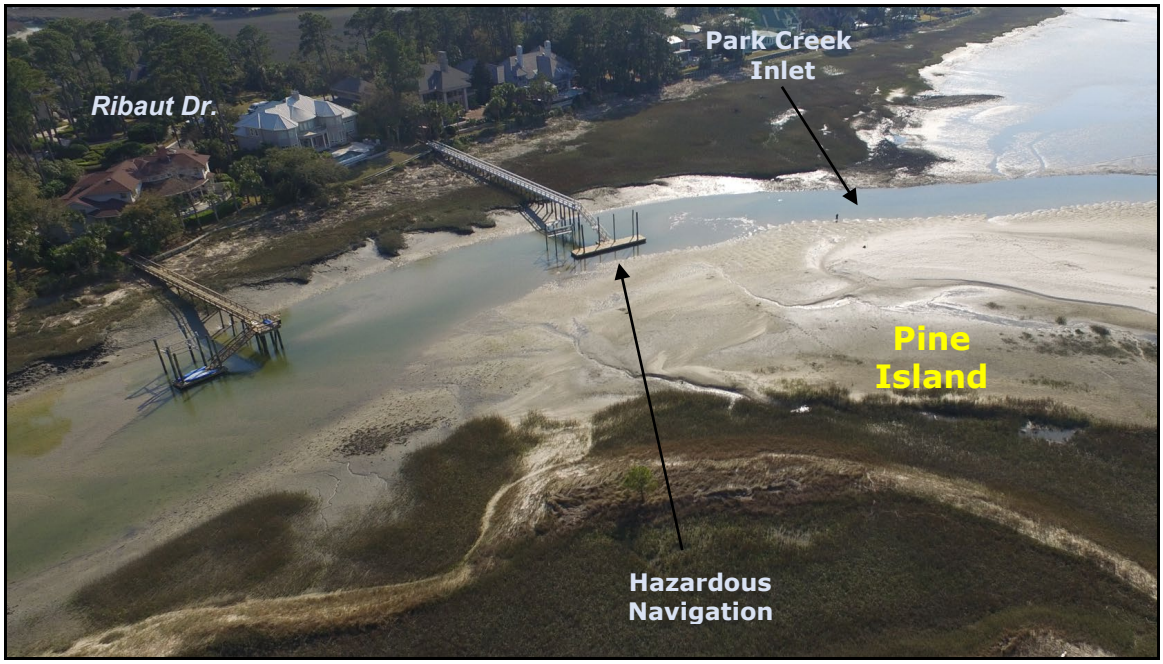



**Figure 2. March 2022 drone oblique aerial imagery taken from southern end of Pine Island spit looking SSW across Park Creek inlet toward marsh and houses along Ribaut Dr.**

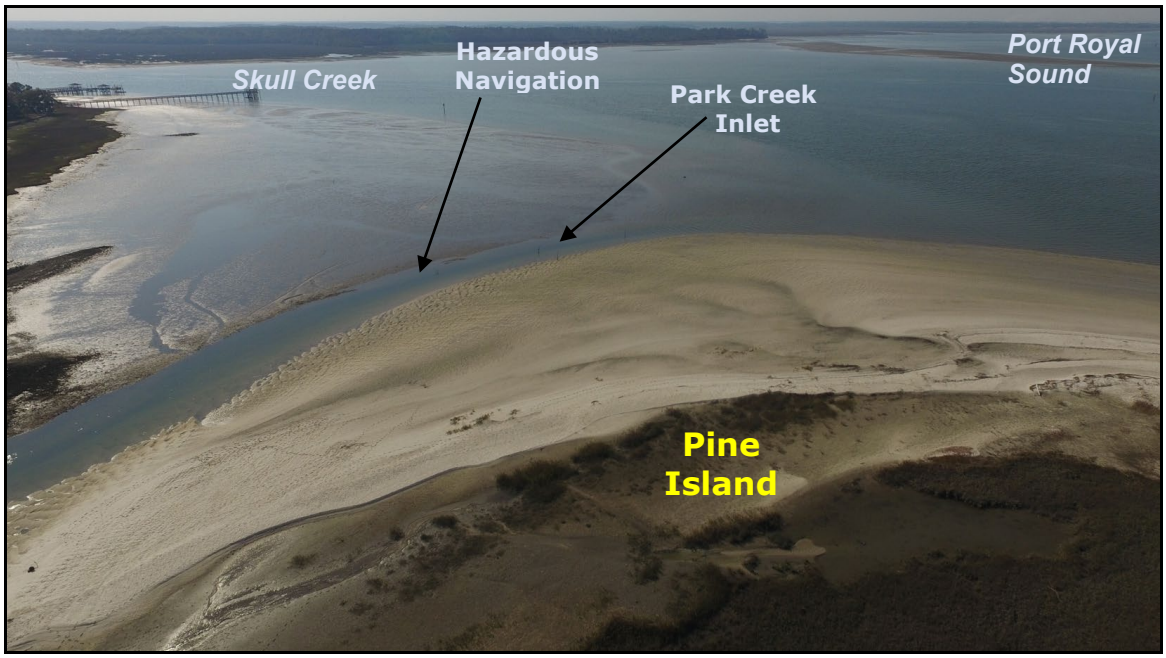



**Figure 3. March 2022 drone oblique aerial imagery taken from southern end of Pine Island spit looking west across Park Creek inlet toward marsh and houses along Ribaut Dr.**

Additionally, if left unmitigated, it is anticipated the continued accumulation of sand on the southwest end of the Pine Island spit may cause further southerly migration of the creek channel which would erode the marsh and potentially leave the houses along Ribaut Drive more vulnerable to damaging coastal conditions.

The channel is currently less than 40 ft wide at the entrance which has created hazardous conditions for navigation and limits access into and out of Park Creek to only during higher tides. Historically, channel widths have ranged between 80 to 100 ft.

A review of past aerial imagery and survey data at the inlet also show the channel has been migrating southward towards the marsh fronting the upland houses along Ribaut Drive as a result of the accumulating sediment on the west end of Pine Island pushing the accretional spit westward and southward. Calculated marsh erosion rates along this shoreline are estimated at approximately 2 ft/year and this is expected to accelerate with the unabated southerly migration of the inlet if restorative actions are not performed.

**Figure 4. March 2022 drone oblique aerial imagery taken from southern end of Pine Island spit looking SSW across Park Creek inlet toward marsh and houses along Ribaut Dr.**

A widened and deepened channel at the mouth with a dredge depth of 6 ft below NAVD is proposed which will provide 2 feet of depth in the channel during mean lower low water conditions. The majority of boats traveling in and out of the inlet are recreational outboard motor vessels with shallow drafts, and therefore the dredged inlet channel will be navigable for the majority of vessels even during very low tides.

Similar to the 1999 and 2005 projects, the compatible sandy material removed from the Park Creek inlet and the southwest end of the Pine Island spit to widen the channel is proposed to be used to renourish the isthmus beach.

Applied Technology and Management (ATM) and HHPPOA staff visited the site in March and April of 2022 to assess the site, conduct test digs, and obtain sand samples for grain size analysis in the area where the navigation dredging would occur to assess the material quality for beneficial use in a beach renourishment project. The test dig locations where sediment samples were obtained are shown on Figure 5 and grain size analyses results within the borrow area are provided as an attachment to this document.

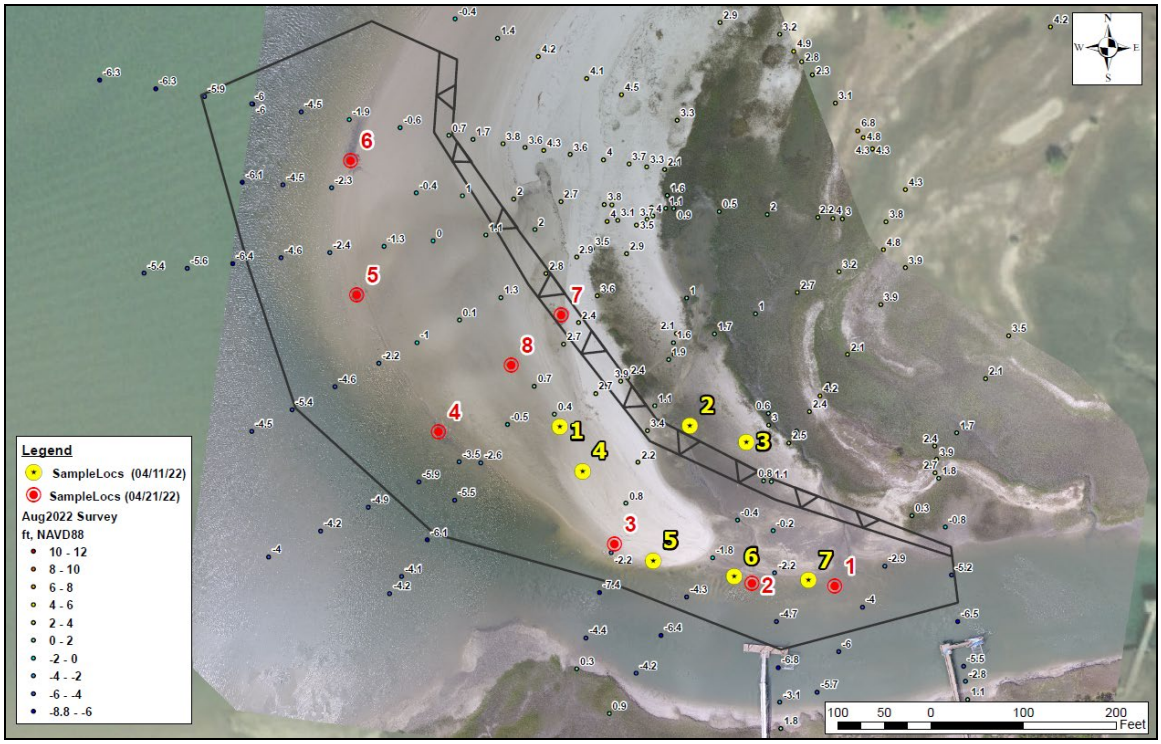



**Figure 5. Park Creek Inlet Navigation Dredging and Beneficial Use Proposed Borrow Area. Bathymetry/Elevation data shown and sediment sample locations.**

The test digs and grain size analysis revealed an approximate 5 ft layer of beach compatible sand on average over the area, with grain sizes ranging from 0.2 to 0.6 mm. The sand at this location is nice, coarse material with good color overall and shell content generally between 5 and 15%.

The sand samples showed 1% or less fines (passing the # 230 sieve). Non suitable dredge material will be hauled offsite for upland use at Dolphin Head Park and/or will be hauled to an upland stockpile location on HHPPOA property, located between Palm View Drive and Surrey Lane (see Figure 5a).

Based on ATM's assessment, it is estimated between approximately 25,000 to 30,000 cy of the proposed excavated material is beach compatible and would be beneficially used to renourish the isthmus beach to the east as part of the inlet navigation dredging.

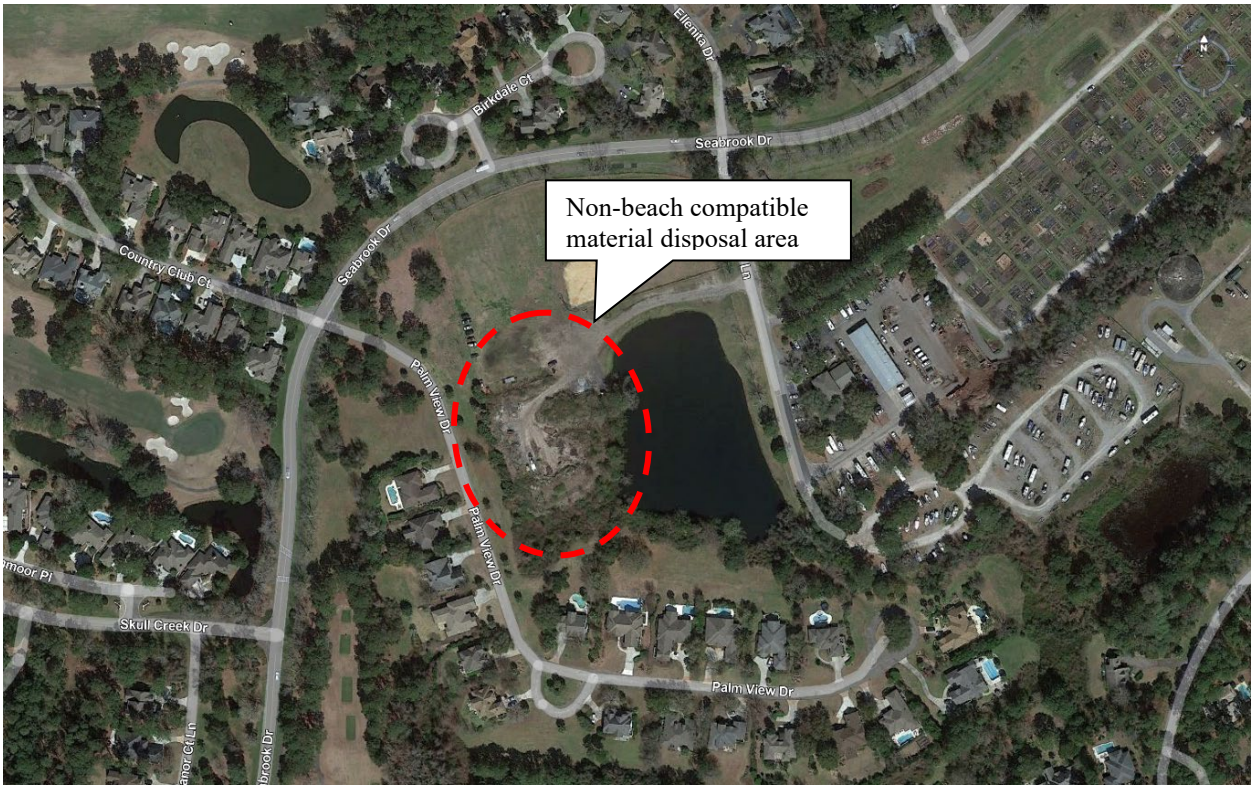



**Figure 6a. Disposal area for non-beach compatible material on HHPPOA property.**

## *1.2. Beneficial Use to Pine Island Isthmus*

The excavated beach compatible material from the mouth of Park Creek is proposed to be beneficially used to renourish the erosional isthmus shoreline, located approximately 2,100 ft east of the inlet. This is also the most cost-effective disposal solution.

The site's recreational beach along the isthmus shoreline west of Dolphin Point forms a barrier which protects the estuarine marsh and allows access to the Pine Island spit. Due to erosion, this beach must be maintained and restored with sand perpetually on an as-needed basis.

Much of the erosion along the isthmus can be attributed to dominant NE winds combined with expansive, uninterrupted fetch lengths allowing waves of significant energy to approach the site and drive sand off the upper beach. In addition to chronic long-term erosion, large storm events can bring extreme water levels and wave heights that significantly affect the entire project shoreline, such as Hurricane Matthew in 2016. The Fort Pulaski tide gauge recorded water elevations over five feet greater than the predicted tides during Hurricane Matthew on October 8, 2016 (see Figure 6).

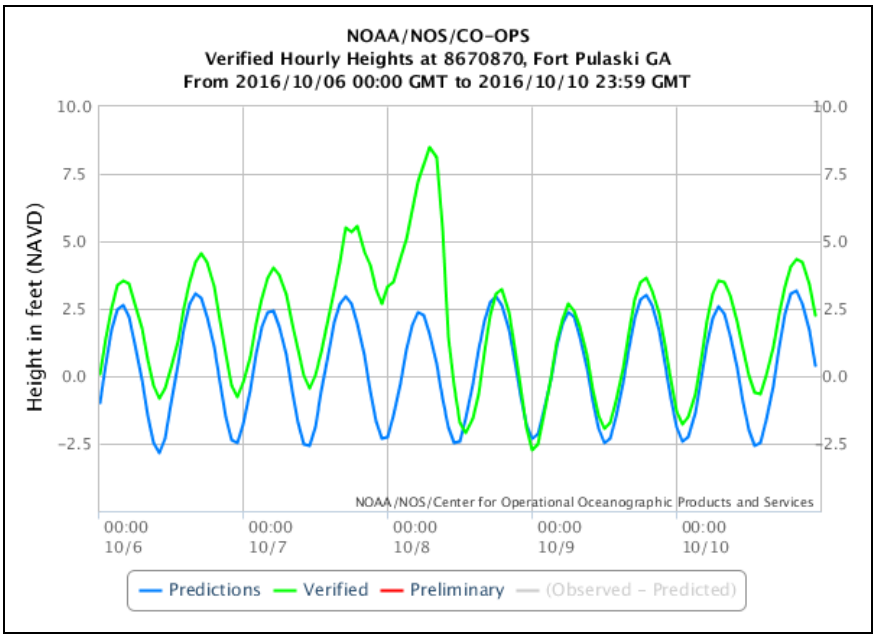



**Figure 7. Predicted and Verified water levels at NOAA Fort Pulaski Station during Hurricane Matthew.**

Hurricane Matthew had significant impacts to the Pine Island isthmus as it caused severe sedimentation loss, damage to sand fencing, and a marshward recession of the previously existing marsh vegetation. Figure 7 presents ground photos of the shoreline before and after Hurricane Matthew. The MHW line eroded ~55 feet in this location and it is estimated that approximately 3 acres of marsh vegetation were lost as a result of Matthew. As mentioned previously, the beach berm along the isthmus forms a barrier which protects the marsh and helps mitigate breaches which could cause significant marsh loss and potentially severe impacts to the water volume exchange and flows through Park Creek and surrounding marsh environment.

Fortunately, a truck haul renourishment project occurred soon after to restore the beach berm and mitigate further landward recession into the marsh.


**Figure 8. Vegetation loss, destruction of sand fencing, and shoreline change as a result of Hurricane Matthew. Pre-Matthew conditions (photo taken 9/28/16) shown in Panel A, post-Matthew conditions (photo taken 12/15/16) shown in Panel B.**

Extreme high tides also play a major role in shaping the shoreline along the isthmus. A review of recorded water levels at NOAA Station 8670870 Fort Pulaski, Georgia showed average king tide elevations of ~4.9ft NAVD. The Fort Pulaski gage is ~18 miles from the project site and is typically within 0.1ft of the NOAA predicted tides and datums at the Ribaut Island, Skull Creek, SC Station (8668918). Elevated high tides have the potential to overtop the shoreline during erosional beach conditions and allow wave energy to propagate further into the marsh (see Figure 8).

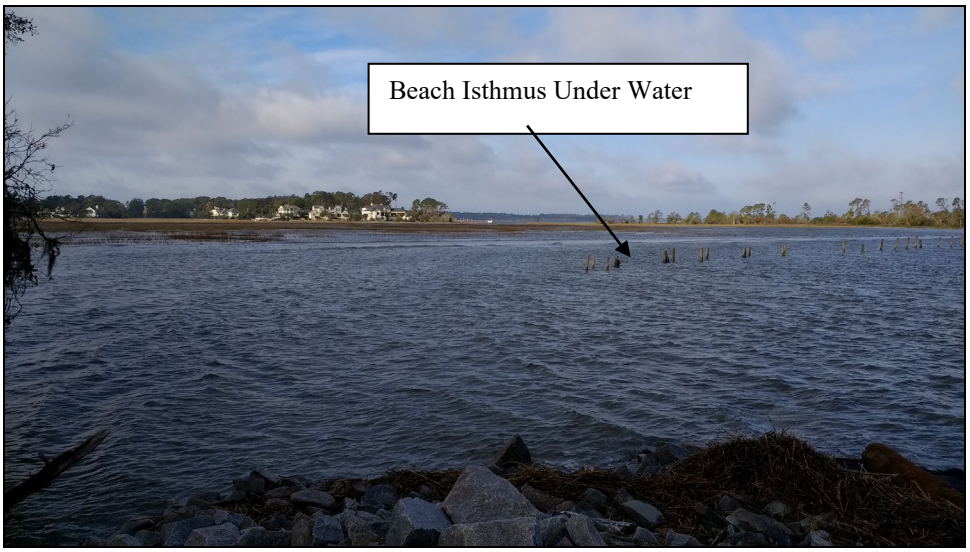



**Figure 9. Photo taken along western end of existing revetment at Dolphin Head Recreation Area looking WSW (photo taken 12/15/16 during a king tide event).**

As mentioned previously, ~18,000 cy of sand dredged from the Park Creek mouth was beneficially placed along the isthmus shoreline to restore the severely eroded beach in 1999. A similar project was completed in 2005 which placed ~22,000 cy of sand dredged from an accretional borrow area location on the west side of the Pine Island spit.

More recently, the HHPPOA has relied solely on approved upland sand from the Cemex sand mine facility in Hardeeville, SC which is truck hauled to the site. The first of these truck haul projects took place in 2012 which placed ~9,000 cubic yards of beach compatible sand from the upland Cemex sand mine. For the site, this was a relatively large truck haul project placing that quantity all at once.

Since then, smaller scale renourishment efforts (between ~500 to 5,000 cy of sand placed in a single year) have been done on an as-needed basis to try to keep pace with erosion using this same upland facility under the HHPPOA's active permit. In total, approximately 22,000 cy of material from the Cemex facility have been placed on the beach since the initial 2012 truck haul project. This material has been placed over time to abate ongoing erosion and following large storm events where larger quantities of sand are lost, such as Hurricane Matthew in 2016.

The past renourishment activities at the site have helped mitigate erosion along the majority of the shoreline. However, due to the erosive conditions at the isthmus the need for larger maintenance renourishment projects is triggered frequently and continuous small truck haul projects have only barely kept pace with erosion.

The beneficial use of dredged material from the Park Creek inlet restoration will bring a much needed, larger-scale renourishment to the Pine Island isthmus.

## *1.3. Walkover Extension to Pine Island*

The existing walkover section was authorized through the existing permit ([P/N 2004-13583(17)] and was constructed in 2018. The wooden walkway begins at the Dolphin Head Recreational Area and extends 500 ft along the isthmus beach. Figure 9 presents a recent photograph of the existing wooden walkway terminus along the isthmus.

The goal of the extended walkway is to allow access from Dolphin Head Park to Pine Island (~1,100 ft), even under severe erosional conditions. Due to limited funding at the time, only the existing 500 ft section of walkway was requested to meet the short-term purposes of the HHPPOA and allow public access along this most vulnerable section of the isthmus.

As such, an extension to complete the walkover's intended length and purpose is now requested as part of this application. The proposed project includes placement of sand which should allow for access to Pine Island under most circumstances, however, the walkover will allow access to Pine Island even under severe erosional conditions and/or king tide events.

The walkover is for resident and guest public access to a recreational/natural area. No structures or development of Pine Island are planned. The walkover will enhance public trust resources by ensuring public access even during extreme erosional conditions along the Pine Island isthmus.

**Figure 10. Photo taken from Pine Island Isthmus looking east-southeast toward wooden walkway and Dolphin Head Park (04/13/22).**

The walkover also can be thought of as a nature or marsh walk to Pine Island, which is a "passive" recreation area where no structures or even kiosks occur (and none are planned). Pine Island is a beautiful natural resource and its close proximity to the Dolphin Head Recreation Area as well as to the many nearby HHPPOA neighborhoods make it a wonderful amenity that the HHPPOA would like to preserve.

The proposed walkover will be similar to several other structures in the state such as the Murrells Inlet Marshwalk (~2,600 feet long, 10 feet wide), which was built to promote environmental education about the salt marsh and estuarine habitats[1]. The proposed project is similar in purpose to the Murrells Inlet Marshwalk and will enhance public access to the Pine Island natural area.

## *2. Project Details*

The proposed project is based on these following objectives:

- Restore the Park Creek inlet/mouth to improve navigability into and out of Park Creek
- Restore conditions to increase flushing through the inlet and improve water quality to the tidal creek and marsh system.
- Reduce erosion of the marsh fronting Ribaut Drive being caused by the southward migrating inlet/creek channel.
- Maintain a healthy dry berm along the isthmus connecting the Dolphin Head Recreation Area to Pine Island
- Protect the marsh vegetation in the lee of the beach/dry berm
- Mitigate breaches and the overwashing of sand into the marsh at the isthmus location during storm and high tide events
- Increase opportunities for recreation and beach access through a maintained dry berm region of the shoreline
- Extend walkover to allow for access of emergency medical services to and from Pine Island during all tidal conditions
- Extend walkover to allow for recreational access and nature walk to and from Pine Island during all tidal conditions

The proposed activity is part of a privately funded plan. Cross-sections of the proposed excavation and beneficial sand placement are presented in Sheets 5 through 7 of the permit drawings. The proposed walkover extension plan-view and detail is provided on Sheet 8.

To restore the mouth of Park Creek, material will be excavated from the sedimentation area at the entrance channel of Park Creek to a depth of -6 ft NAVD (±1ft) with a cut side slope of 1:3 (V:H). Dredge cuts will range from ~50 ft to ~250 ft in width by excavating the northeast side of the channel including the accretional material on the west end of Pine Island, creating a wide entrance channel for advanced channel maintenance and to mitigate future sedimentation.

[1] Coastal Waterfront Access Challenges & Opportunities for South Carolina Marine Fisheries Stakeholders. Project Final Report, June 2008. Prepared for SC Sea Grant by Raymond J. Rhodes (College of Charleston), Amber Von Harten (SC Sea Grant), and April Turner (SC Sea Grant).

All excavation and construction activities will be waterward of the existing marsh vegetation and will avoid impacts to the vegetated marsh. The sandy beach compatible material will be placed on the Pine Island isthmus to create a berm crest height of +5.5 ft NAVD. The constructed berm will be ~115 ft wide and follow a 1:10 slope down to the existing grade marshward of the berm. Note that the proposed berm will be placed seaward of the existing stable vegetation to minimize any adverse impacts. The Pine Island Isthmus shoreline is currently too energetic/dynamic for any dune vegetation to survive at the project site.

The walkover access will be used by pedestrians. The proposed walkover access is 6 feet wide with a lower deck height of 10.5 feet NAVD and extends approximately 845 linear feet northwestward from the existing walkover (see permit drawings). Note that the approximate maximum water level experienced at the site during Hurricane Matthew was 8.5 feet NAVD. In addition to storm surge, waves also have the potential to impact the deck and cause damage.

Existing grade elevations under the proposed walkover are approximately 3-6 feet NAVD (MHW=~2.9 ft NAVD). Following nourishment, existing grades will be higher below the walkover, however, handrails will be required based on the potential vertical distance (from the walkover deck to the existing grade below). Steps are proposed for the end of the walkover on Pine Island along with a gently sloping switchback ramp. The proposed walkover location is slightly marshward of the proposed beach fill template. This will allow for some protection of the walkover by the placed sand during high energy wave/surge conditions. This will also allow heavy equipment to place nourishment sand with minimal interaction with the walkover (minimizing the potential for heavy construction equipment to damage the walkover during nourishment events).

In reviewing site conditions, project needs, and design criteria (related to storm damage, etc.), the proposed walkover is the minimum possible size and height to accommodate the intended use. Shading impacts will be minimized by the narrow width (6 feet) as well as the vertical distance between the walkover deck and existing grades (~4 to 6 feet of clearance).

The walkover shall be maintained by the Hilton Head Plantation POA. Please see the attached permit sheet drawings for additional details.

It is also requested that the active permit be modified to include an additional 10,000 cy of upland beach compatible sand and that the active permit be extended for 5 years. This additional sand is not proposed to be used in the current project, but rather on an as needed basis for maintaining beach conditions in the future.

## *2.1. Construction Methods and Timeline*

The project is estimated to take between 2 and 6 months to complete. Typical, land-based heavy equipment (e.g., long reach excavator, track-hoes, dump trucks) will be used at the site during this time.

Access to the site will either come from barge or through Dolphin Head Recreation Area. A long reach excavator will be used to remove sand from the mouth of Park Creek and placed into an offroad dump truck.

The truck will drive around the north end of the island and place the compatible sand. Bulldozer or bobcat will be used to shape the fill into the correct template. During sand placement, the construction on the boardwalk will begin using an excavator to place piles and the deck will be built by workers on the ground.

### *39 Describe measures taken to avoid and minimize impacts to the Waters of the United States:*

To minimize any impacts during construction several guidelines will be implemented:

- A piping plover survey to verify the absence of birds
- Work completed outside the sea turtle nesting season of May 15 to October 31
- Project will only disturb sand substrate and no wetland habitats.
- Any wetland habitat near the project will be marked prior to construction
- The project will remain in relatively the same location as previously completed.
- No equipment will be stored on the beach during construction. Construction will be limited to daytime hours and any disturbed areas will be restored to pre-construction conditions.

Volume and Acreage Impacts are summarized below:

- Excavation Area at Inlet – 4.97 acres (footprint) – 28,500 cy
- Beach Fill Template along the Isthmus – 4.76 acres (footprint) – 29,500 cy (max template)
- Shading from Boardwalk Extension – 0.16 acres (footprint)

The proposed excavation and fill volumes are based on the November 2022 survey by Nandina (doing business as SILS).

## *2.3. Natural Resources*

The proposed dredging project will alleviate sedimentation issues at the creek entrance, increase flushing, and improve water quality to the estuarine marsh creek system. Additionally, the dredging to restore the channel to its previous conditions will reduce the ongoing erosion to the marsh shoreline and habitat being caused by the channel's continuous movement away from Pine Island. The beneficial use of excavated material to renourish the Pine Island isthmus will protect significant marsh vegetation and habitat and promote additional growth.

All aspects of the proposed project will occur outside of the sea turtle nesting season window and during low-productivity periods.

# Attachment

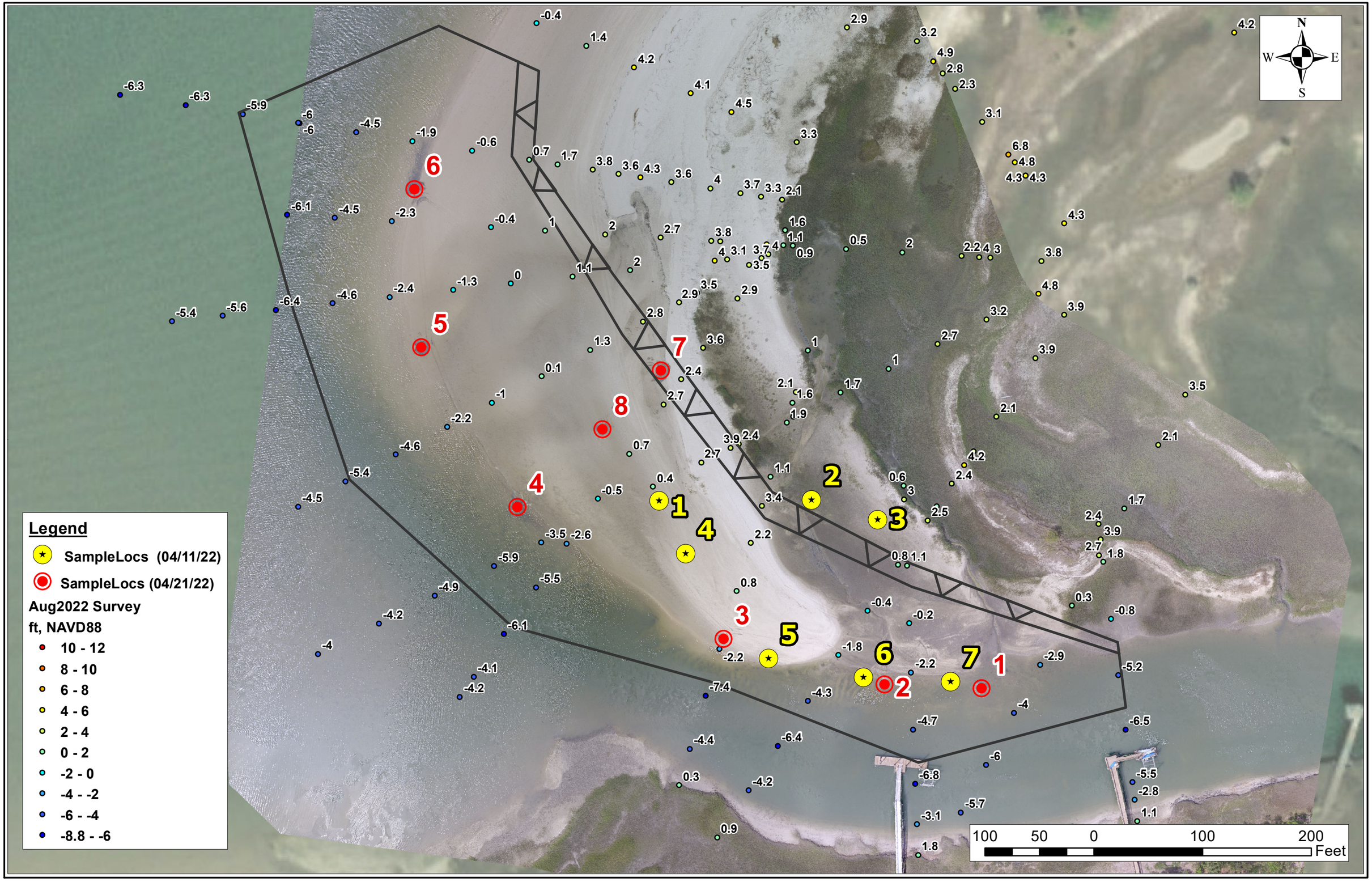
## Sediment Sample Grain Size Analysis

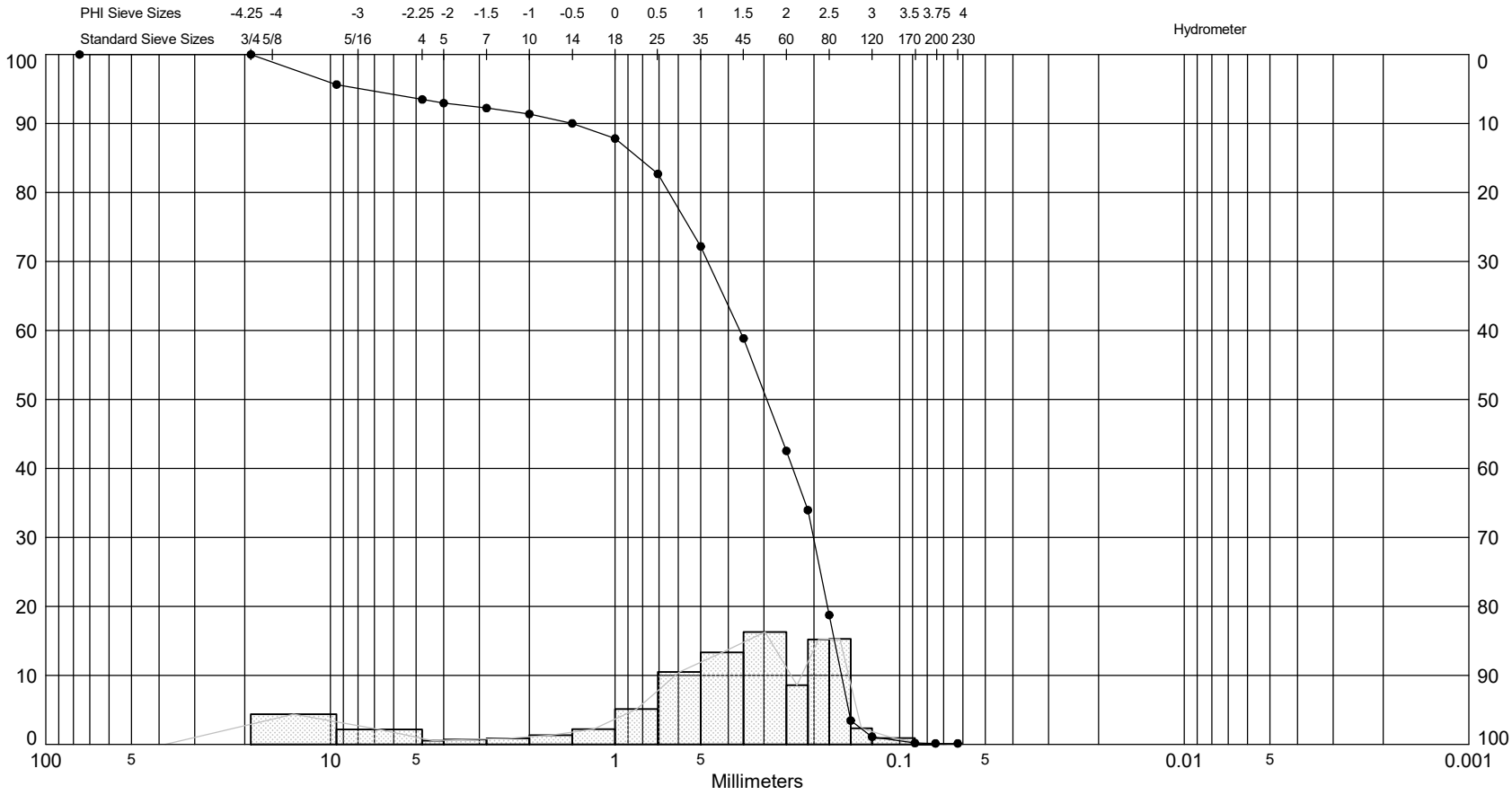
**4-11-2022 Grain Size Analysis**

| Sample Label | Elevation (ft NAVD88) | Mean (mm) | Mean Phi | Phi50 | D50 (mm) | % Fines (#230 Sieve) | Visual Shell Content % |
|---|---|---|---|---|---|---|---|
| 1-Surface | 0 | 0.4 | 1.32 | 1.77 | 0.29 | 0.14 | 5 |
| 1-Depth 2' | -2 | 0.54 | 0.9 | 0.93 | 0.52 | 0.14 | 13 |
| 4-Surface | -0.5 | 0.4 | 1.33 | 1.35 | 0.39 | 0.04 | 5 |
| 4-Depth 6" | -1 | 0.31 | 1.68 | 1.82 | 0.28 | 0.14 | 4 |
| 5-Surface | -2 | 0.42 | 1.24 | 1.31 | 0.40 | 0.34 | 5 |
| 5-Depth 3' | -5 | 0.32 | 1.65 | 1.81 | 0.29 | 0.48 | 10 |
| 6-Surface | -3 | 0.31 | 1.68 | 2.01 | 0.25 | 0.76 | 3 |
| 6-Depth 26" | -5 | 0.42 | 1.26 | 1.31 | 0.40 | 0.05 | 4 |
| 7-Surface | -2.5 | 0.56 | 0.83 | 0.96 | 0.51 | 0.34 | 15 |
| 7-Depth 12" | -3.5 | 0.38 | 1.41 | 1.52 | 0.35 | 0.34 | 5 |
| 7-Depth 32" | -5 | 0.64 | 0.65 | 0.73 | 0.60 | 1.05 | 11 |

**4-21-2022 Grain Size Analysis**

| Sample Label | Elevation (ft NAVD88) | Mean (mm) | Mean Phi | Phi50 | D50 (mm) | % Fines (#230 Sieve) | Visual Shell Content % |
|---|---|---|---|---|---|---|---|
| Hole 1 | -6.5 | 0.38 | 1.41 | 1.76 | 0.30 | 0.14 | 15 |
| Hole 2 | -6.5 | 0.68 | 0.55 | 0.86 | 0.55 | 0.43 | 30 |
| Hole 3 | -5.5 | 0.44 | 1.18 | 1.22 | 0.43 | 0.24 | 10 |
| Hole 4 | -7 | 0.38 | 1.41 | 1.49 | 0.36 | 0.43 | 15 |
| Hole 5 | -6 | 0.27 | 1.88 | 2.03 | 0.24 | 0.14 | 5 |
| Hole 6 | -5.5 | 0.24 | 2.03 | 2.35 | 0.20 | 0.05 | 5 |
| Hole 7 | -4 | 0.4 | 1.33 | 1.59 | 0.33 | 0.14 | 15 |
| Hole 8 | -5.5 | 0.32 | 1.65 | 2.01 | 0.25 | 0.10 | 5 |


N
W
E
S
Legend
SampleLocs (04/11/22)
SampleLocs (04/21/22)
Aug2022 Survey
ft, NAVD88
10 - 12
8 - 10
6 - 8
4 - 6
2 - 4
0 - 2
-2 - 0
-4 - -2
-6 - -4
-8.8 - -6
100 50 0 100 200
Feet




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-1-D0 #PI-1 | —●— | 0.0 | SW | #230 - 0.14 | | | 1.77 | 1.32 | -1.85 | 6.14 | 1.58 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-11-22 |
| Analyzed By: | PRD |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

TI Coastal SERVICES, INC.

TI Coastal Services, Inc
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Wilmington, NC 28405
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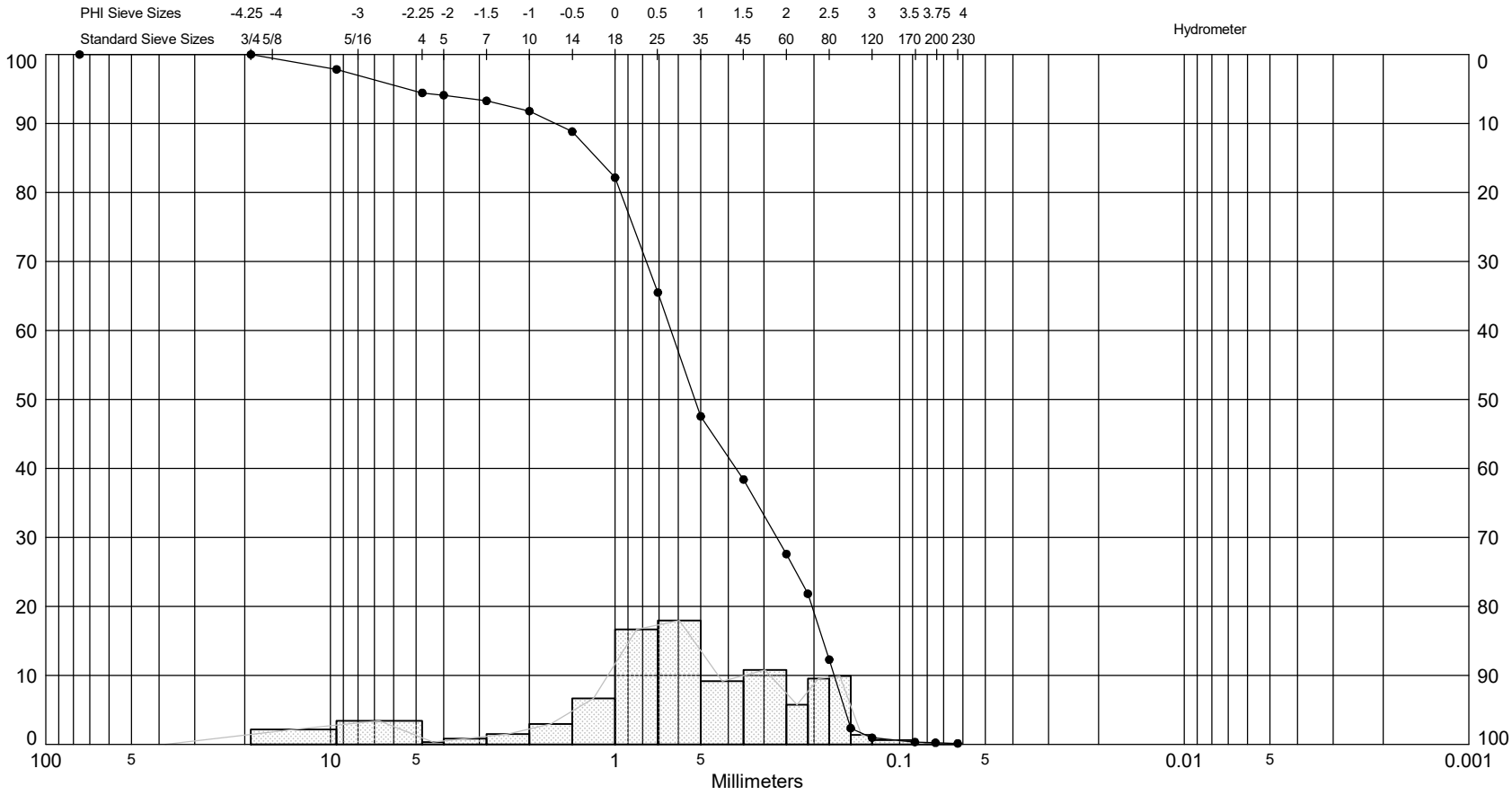
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-1-D2 #PI-1 | —●— | -2.0 | SW | #230 - 0.14 | | | 0.93 | 0.9 | -1.08 | 4.42 | 1.45 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-11-22 |
| Analyzed By: | HDM |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAD88 |

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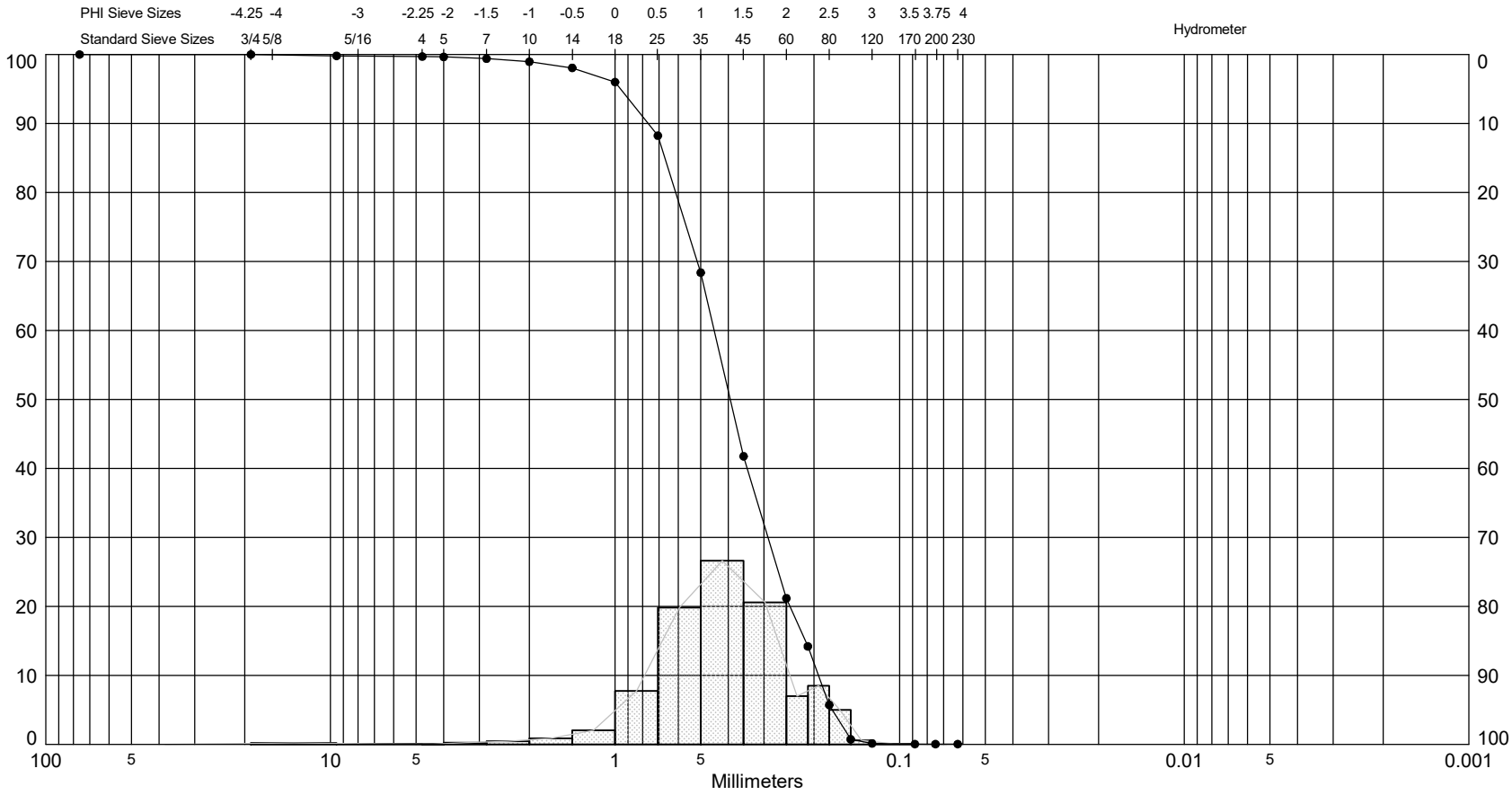
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-4-D0 #PI-4 | —●— | 0.0 | SP | #230 - 0.04 | | | 1.35 | 1.33 | -0.98 | 6.7 | 0.81 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-08-22 |
| Analyzed By: | STP |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

TI Coastal SERVICES, INC.

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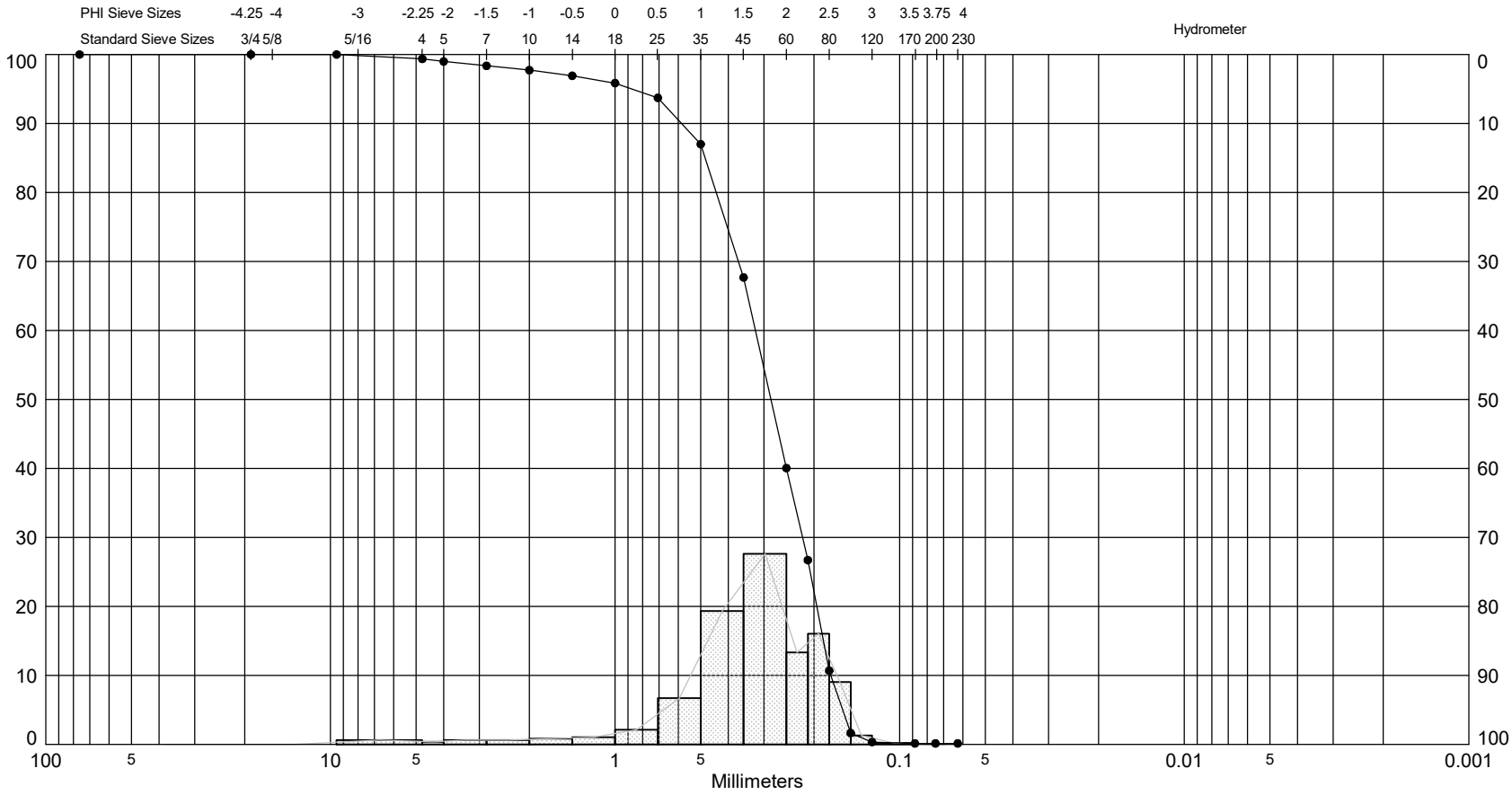
fax 910.821.1359

SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-4-D6 #PI-4 | —●— | -0.5 | SW | #230 - 0.14 | | | 1.82 | 1.68 | -2.06 | 9.56 | 0.86 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-11-22 |
| Analyzed By: | PRD |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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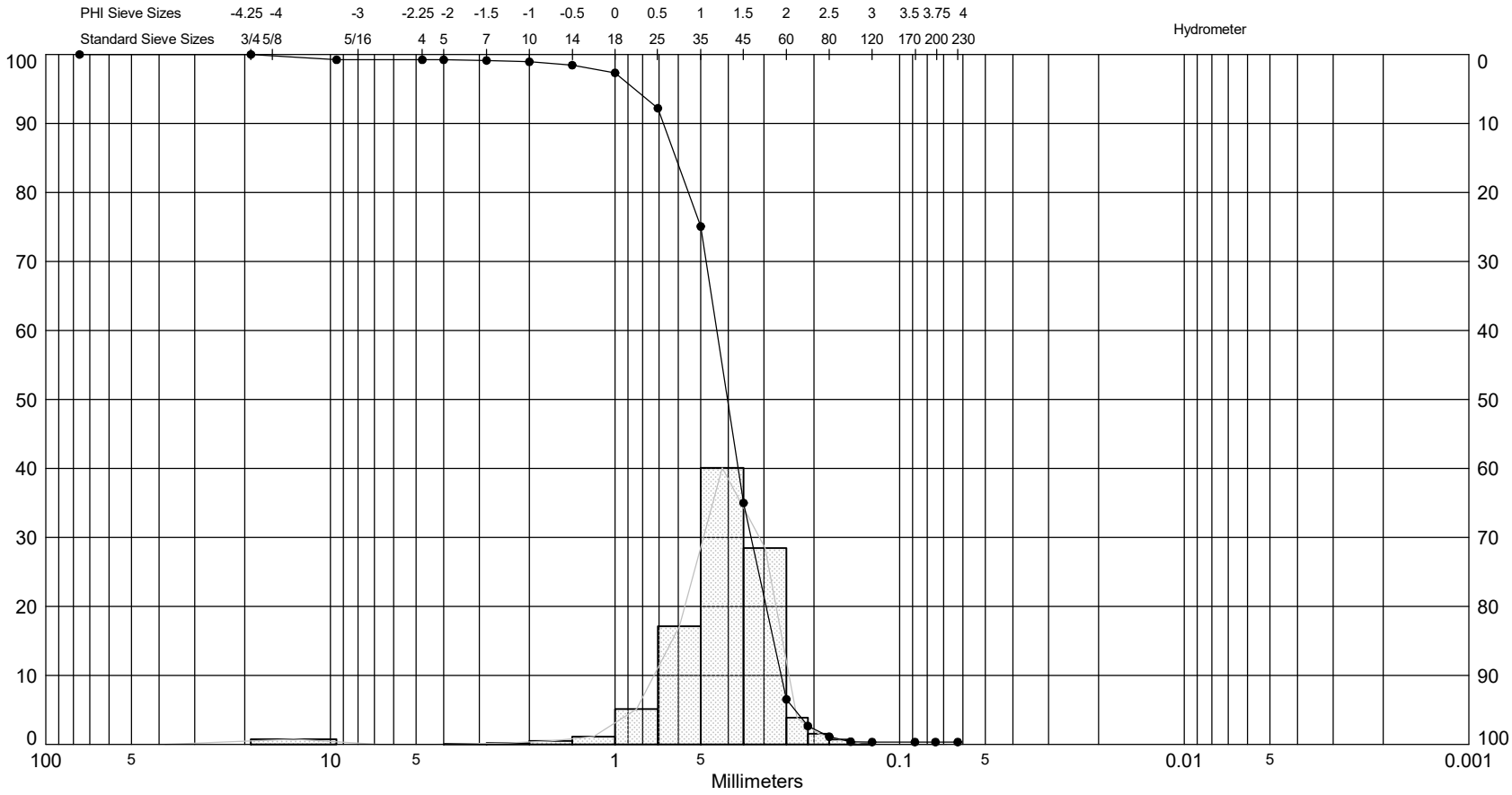
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-5-D0 #PI-5 | —●— | 0.0 | SP | #230 - 0.34 | | | 1.31 | 1.24 | -3.1 | 21.99 | 0.7 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-11-22 |
| Analyzed By: | PRD |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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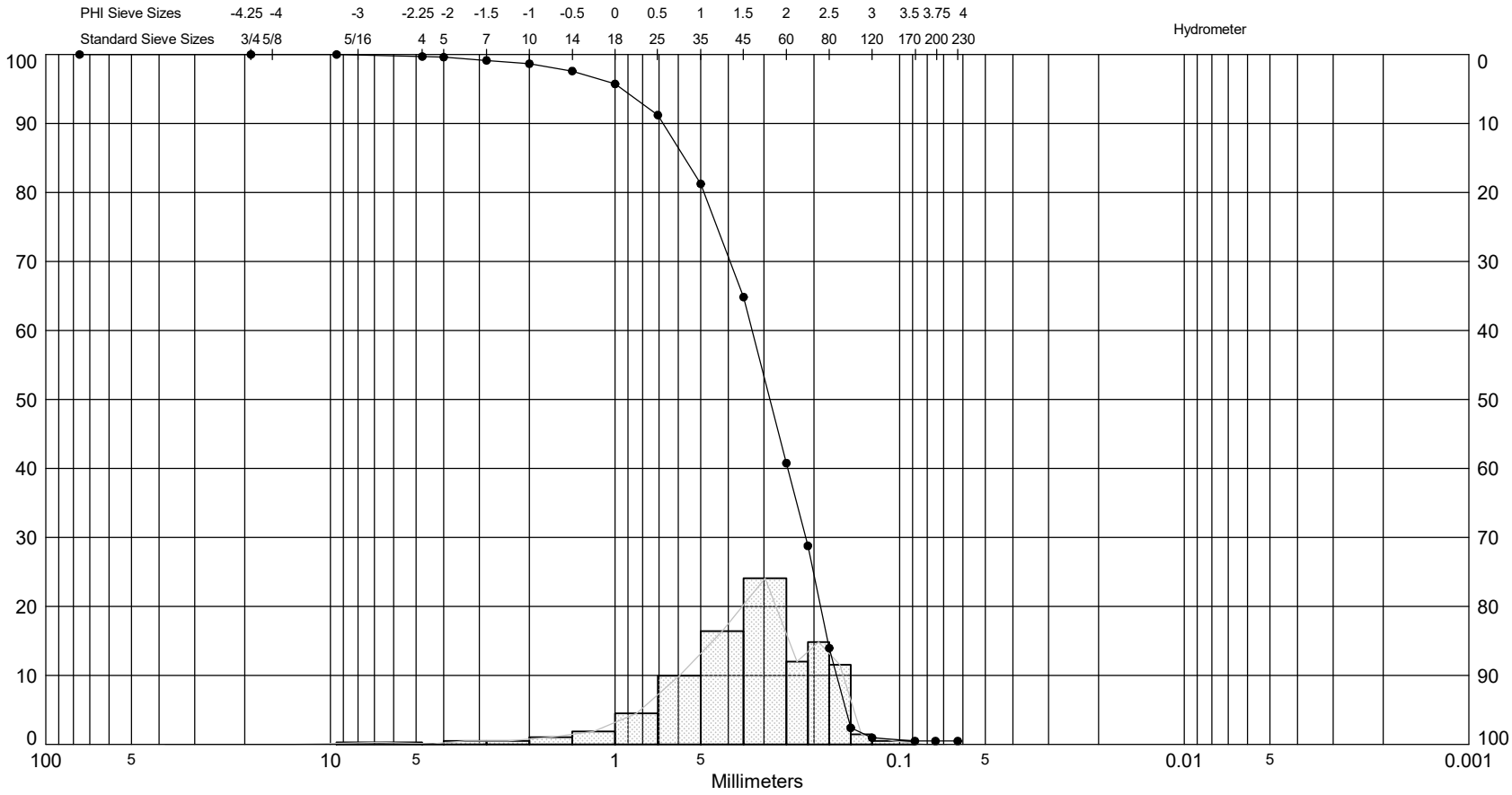
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-5-D3 #PI-5 | —●— | -3.0 | SW | #230 - 0.48 | | | 1.81 | 1.65 | -1.35 | 6.01 | 0.86 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-08-22 |
| Analyzed By: | STP |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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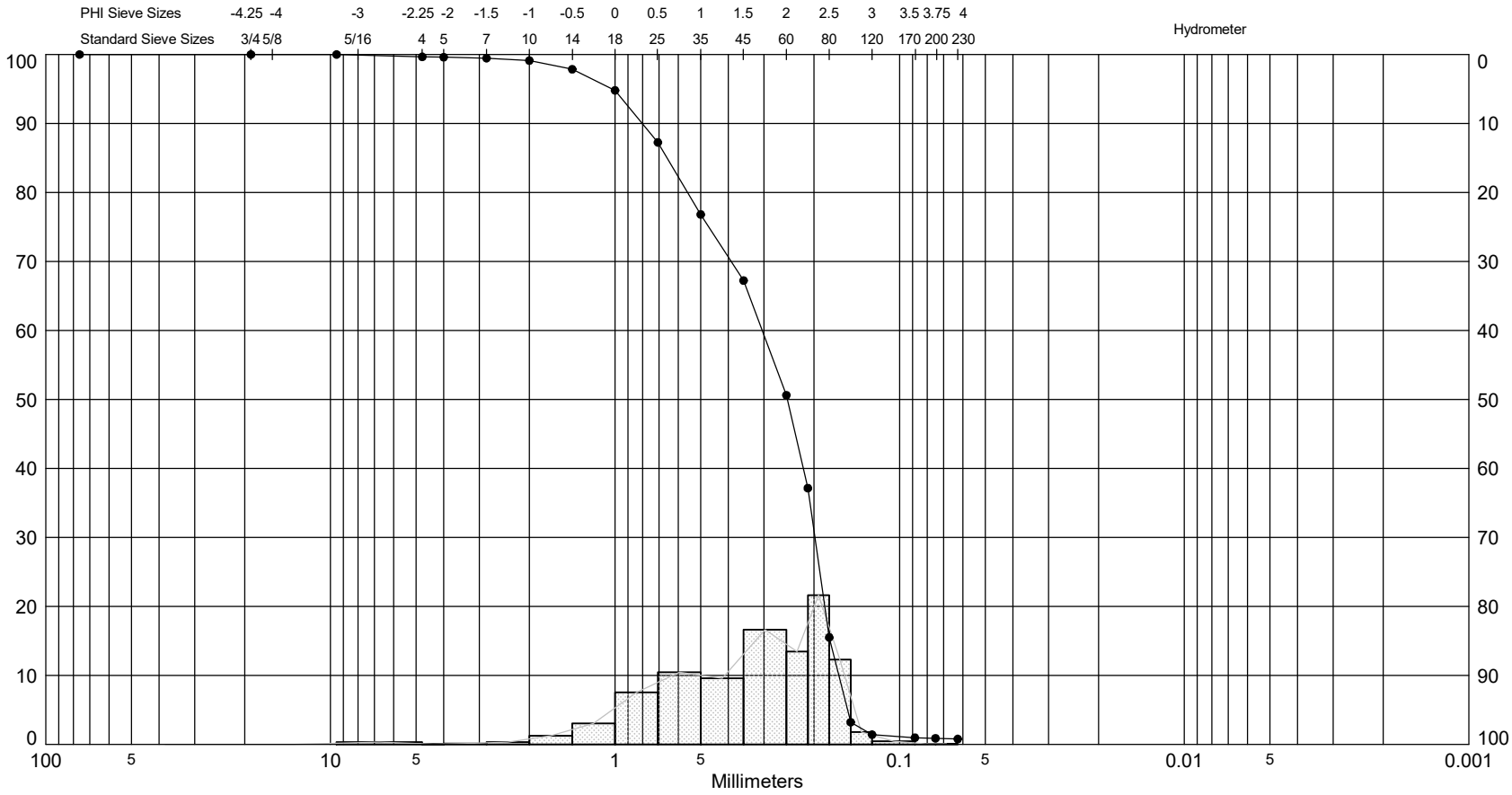
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-6-D0 #PI-6 | —●— | 0.0 | SW | #230 - 0.78 | | | 2.01 | 1.68 | -1.17 | 4.57 | 0.93 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-11-22 |
| Analyzed By: | STP |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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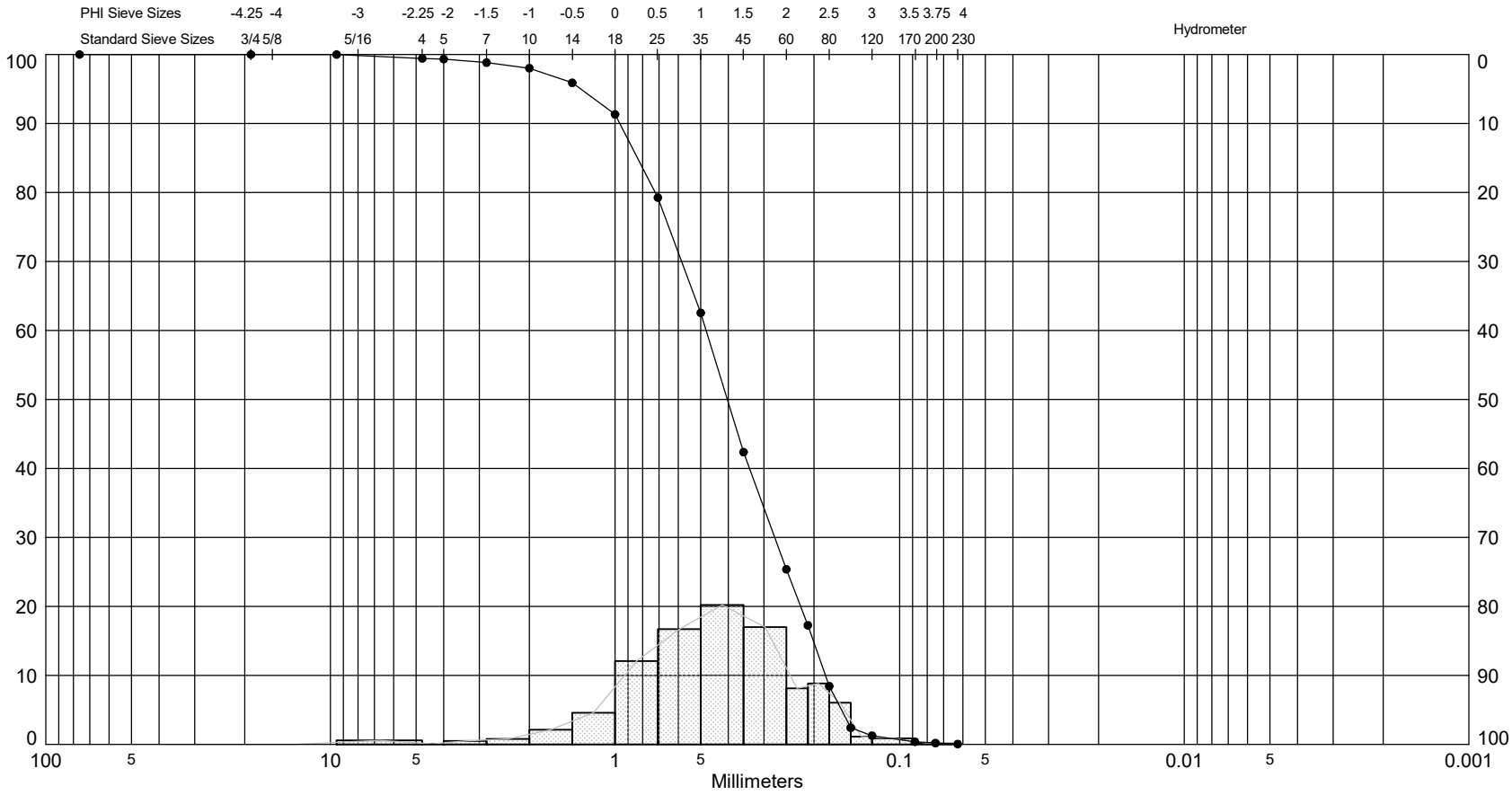
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-6-D26 #PI-6 | —●— | -2.2 | SW | #230 - 0.05 | | | 1.31 | 1.26 | -0.65 | 4.06 | 0.98 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-11-22 |
| Analyzed By: | PRD |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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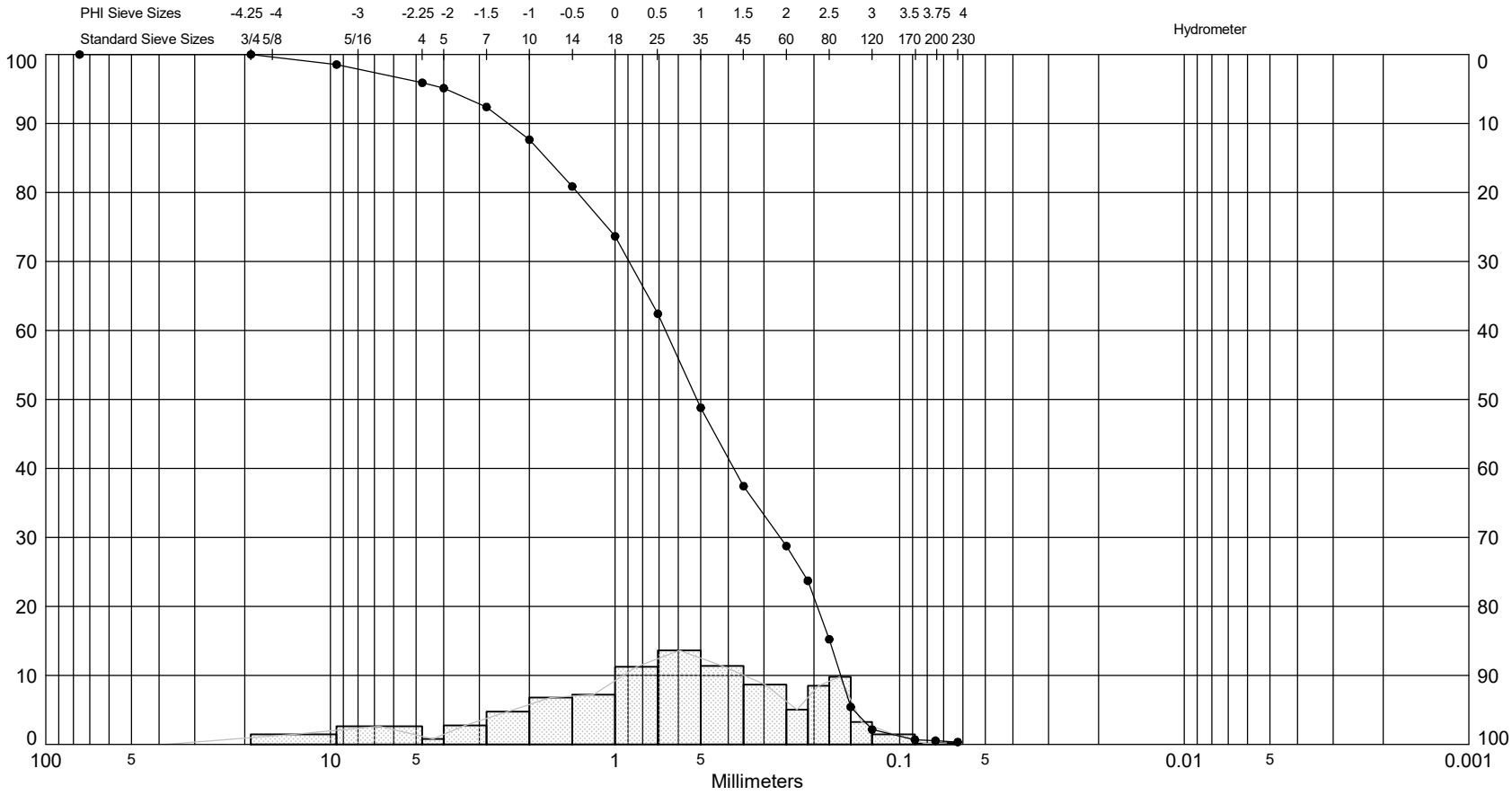
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-7-D0 #PI-7 | —●— | 0.0 | SW | #230 - 0.34 | | | 0.96 | 0.83 | -0.68 | 3.09 | 1.53 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-12-22 |
| Analyzed By: | HDM |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

TI Coastal SERVICES, INC.

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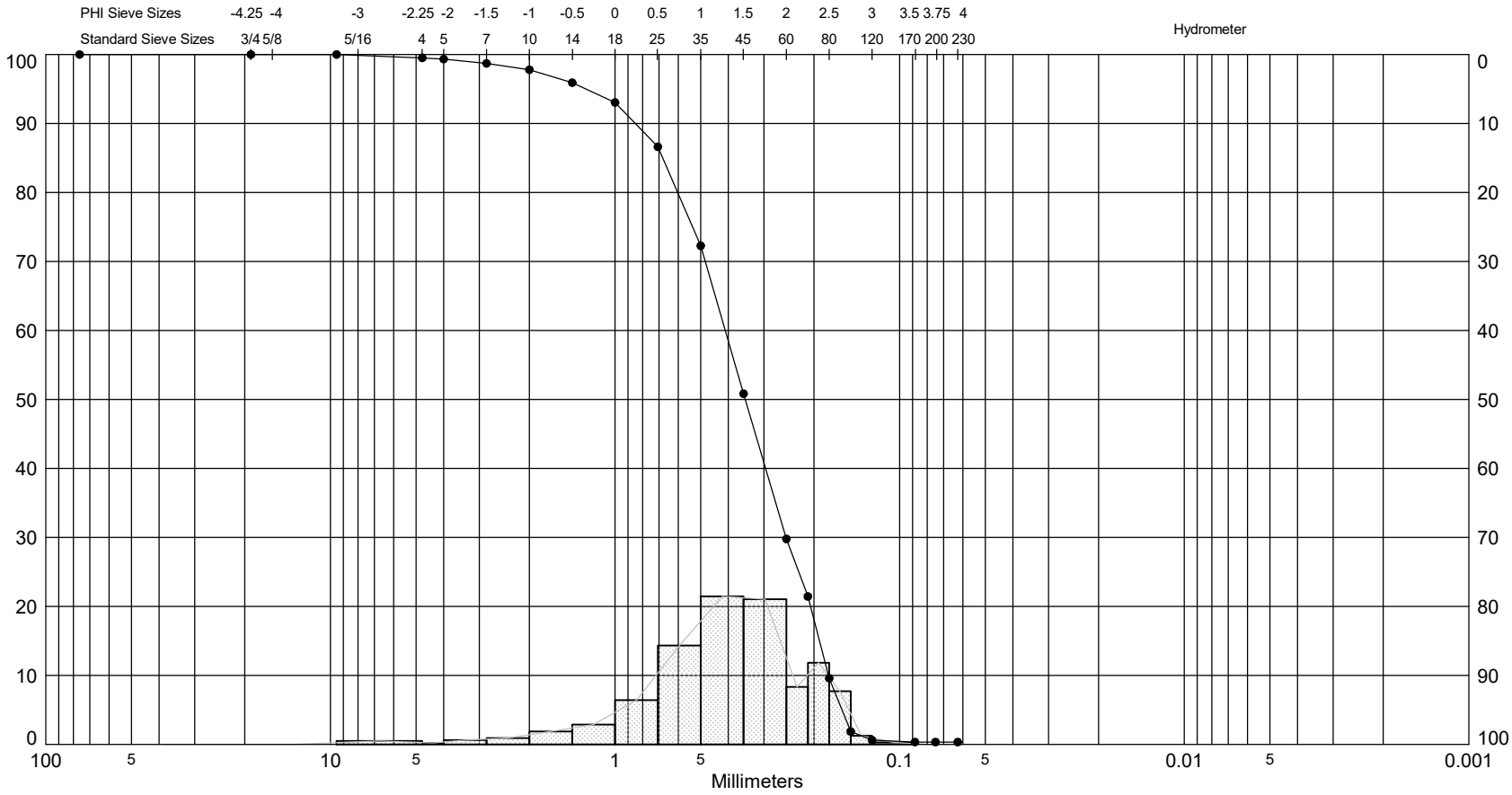
fax 910.821.1359

SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-7-D12 #PI-7 | —●— | -1.0 | SW | #230 - 0.34 | | | 1.52 | 1.41 | -1.11 | 5.08 | 0.94 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-11-22 |
| Analyzed By: | PRD |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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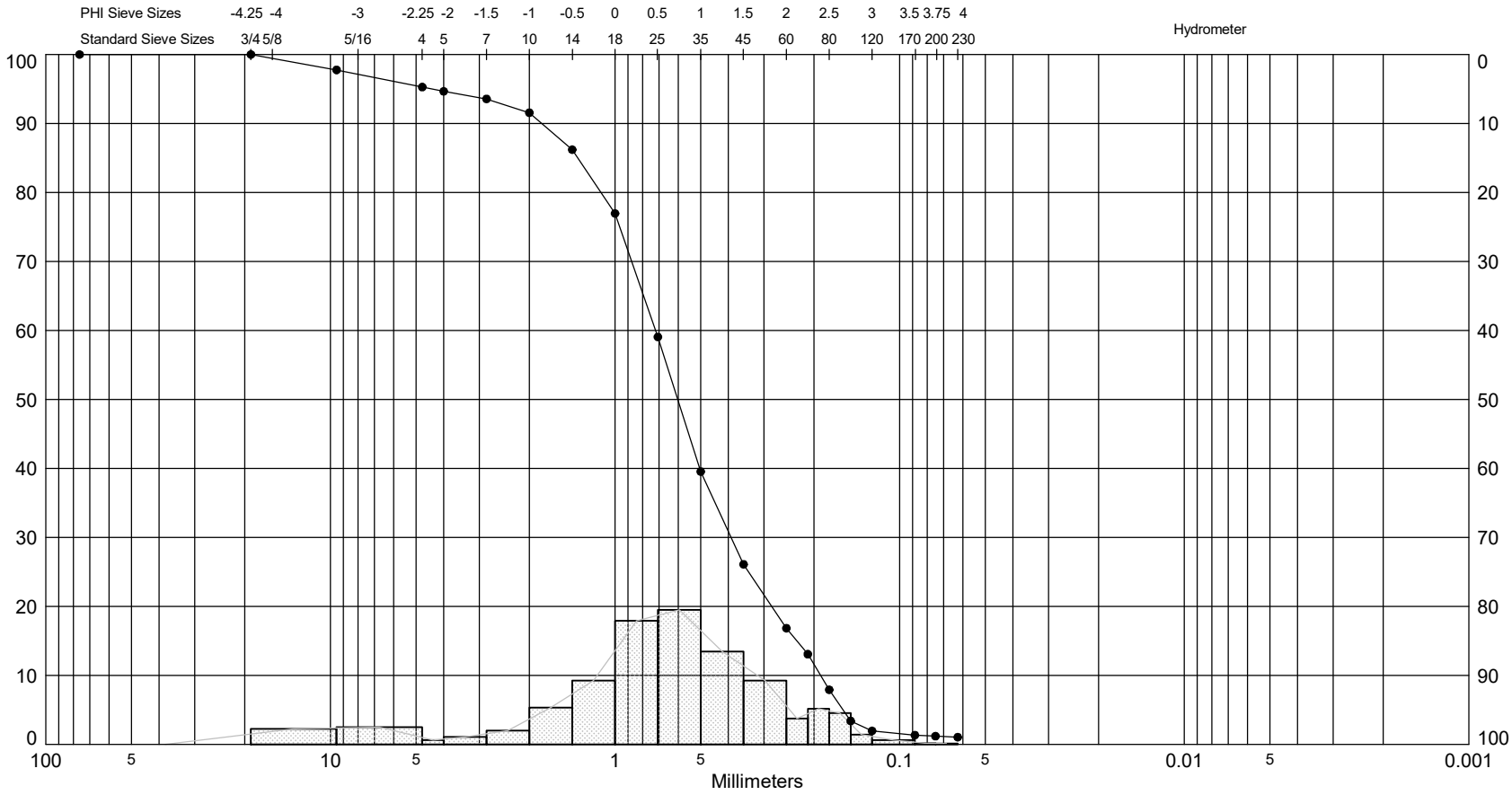
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-7-D32 #PI-7 | —●— | 0.0 | SW | #230 - 1.05 | | | 0.73 | 0.65 | -0.92 | 4.55 | 1.36 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-12-22 |
| Analyzed By: | PRD |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-1-D0 #PI-1

Analysis Date: 04-11-22

Analyzed By: PRD

TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-6/2<br>Dry - 10YR-8/2 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 208.50 | 208.50 | 0.00 | 0.14 | #230 - 0.14 | | | 5.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 9.10 | 4.36 | 9.10 | 4.36 |
| 4 | -2.25 | 4.76 | 4.50 | 2.16 | 13.60 | 6.52 |
| 5 | -2.00 | 4.00 | 1.10 | 0.53 | 14.70 | 7.05 |
| 7 | -1.50 | 2.83 | 1.50 | 0.72 | 16.20 | 7.77 |
| 10 | -1.00 | 2.00 | 1.80 | 0.86 | 18.00 | 8.63 |
| 14 | -0.50 | 1.41 | 2.80 | 1.34 | 20.80 | 9.98 |
| 18 | 0.00 | 1.00 | 4.60 | 2.21 | 25.40 | 12.18 |
| 25 | 0.50 | 0.71 | 10.70 | 5.13 | 36.10 | 17.31 |
| 35 | 1.00 | 0.50 | 21.90 | 10.50 | 58.00 | 27.82 |
| 45 | 1.50 | 0.35 | 27.80 | 13.33 | 85.80 | 41.15 |
| 60 | 2.00 | 0.25 | 34.00 | 16.31 | 119.80 | 57.46 |
| 70 | 2.25 | 0.21 | 17.90 | 8.59 | 137.70 | 66.04 |
| 80 | 2.50 | 0.18 | 31.70 | 15.20 | 169.40 | 81.25 |
| 100 | 2.75 | 0.15 | 31.90 | 15.30 | 201.30 | 96.55 |
| 120 | 3.00 | 0.13 | 4.90 | 2.35 | 206.20 | 98.90 |
| 170 | 3.50 | 0.09 | 1.90 | 0.91 | 208.10 | 99.81 |
| 200 | 3.74 | 0.07 | 0.10 | 0.05 | 208.20 | 99.86 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 208.20 | 99.86 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.72 | 2.54 | 2.40 | 1.77 | 0.87 | 0.37 | -2.95 |

| Moment Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| | 1.32 | 0.40 | 1.58 | -1.85 | 6.14 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-1-D2 #PI-1

Analysis Date: 04-11-22

Analyzed By: HDM

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | -2.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-6/2<br>Dry - 10YR-8/2 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 208.40 | 208.40 | 0.30 | 0.00 | #230 - 0.14 | | | 13.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 4.50 | 2.16 | 4.50 | 2.16 |
| 4 | -2.25 | 4.76 | 7.10 | 3.41 | 11.60 | 5.57 |
| 5 | -2.00 | 4.00 | 0.70 | 0.34 | 12.30 | 5.90 |
| 7 | -1.50 | 2.83 | 1.70 | 0.82 | 14.00 | 6.72 |
| 10 | -1.00 | 2.00 | 3.10 | 1.49 | 17.10 | 8.21 |
| 14 | -0.50 | 1.41 | 6.20 | 2.98 | 23.30 | 11.18 |
| 18 | 0.00 | 1.00 | 13.90 | 6.67 | 37.20 | 17.85 |
| 25 | 0.50 | 0.71 | 34.70 | 16.65 | 71.90 | 34.50 |
| 35 | 1.00 | 0.50 | 37.40 | 17.95 | 109.30 | 52.45 |
| 45 | 1.50 | 0.35 | 19.10 | 9.17 | 128.40 | 61.61 |
| 60 | 2.00 | 0.25 | 22.50 | 10.80 | 150.90 | 72.41 |
| 70 | 2.25 | 0.21 | 12.00 | 5.76 | 162.90 | 78.17 |
| 80 | 2.50 | 0.18 | 19.90 | 9.55 | 182.80 | 87.72 |
| 100 | 2.75 | 0.15 | 20.70 | 9.93 | 203.50 | 97.65 |
| 120 | 3.00 | 0.13 | 2.90 | 1.39 | 206.40 | 99.04 |
| 170 | 3.50 | 0.09 | 1.30 | 0.62 | 207.70 | 99.66 |
| 200 | 3.74 | 0.07 | 0.20 | 0.10 | 207.90 | 99.76 |
| 230 | 4.00 | 0.06 | 0.20 | 0.10 | 208.10 | 99.86 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.68 | 2.40 | 2.11 | 0.93 | 0.21 | -0.14 | -2.42 |

| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Statistics | 0.9 | 0.54 | 1.45 | -1.08 | 4.42 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-4-D0 #PI-4

Analysis Date: 04-08-22

Analyzed By: STP

TI Coastal Services, Inc
387-B N. Green Meadows Dr
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ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SP | Wet - 10YR-7/2<br>Dry - 10YR-8/2 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 200.60 | 200.60 | 0.00 | 0.04 | #230 - 0.04 | | | 5.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.40 | 0.20 | 0.40 | 0.20 |
| 4 | -2.25 | 4.76 | 0.20 | 0.10 | 0.60 | 0.30 |
| 5 | -2.00 | 4.00 | 0.10 | 0.05 | 0.70 | 0.35 |
| 7 | -1.50 | 2.83 | 0.50 | 0.25 | 1.20 | 0.60 |
| 10 | -1.00 | 2.00 | 0.90 | 0.45 | 2.10 | 1.05 |
| 14 | -0.50 | 1.41 | 1.80 | 0.90 | 3.90 | 1.94 |
| 18 | 0.00 | 1.00 | 4.12 | 2.05 | 8.02 | 4.00 |
| 25 | 0.50 | 0.71 | 15.60 | 7.78 | 23.62 | 11.77 |
| 35 | 1.00 | 0.50 | 39.80 | 19.84 | 63.42 | 31.62 |
| 45 | 1.50 | 0.35 | 53.40 | 26.62 | 116.82 | 58.24 |
| 60 | 2.00 | 0.25 | 41.30 | 20.59 | 158.12 | 78.82 |
| 70 | 2.25 | 0.21 | 14.00 | 6.98 | 172.12 | 85.80 |
| 80 | 2.50 | 0.18 | 17.00 | 8.47 | 189.12 | 94.28 |
| 100 | 2.75 | 0.15 | 10.00 | 4.99 | 199.12 | 99.26 |
| 120 | 3.00 | 0.13 | 1.20 | 0.60 | 200.32 | 99.86 |
| 170 | 3.50 | 0.09 | 0.20 | 0.10 | 200.52 | 99.96 |
| 200 | 3.74 | 0.07 | 0.00 | 0.00 | 200.52 | 99.96 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 200.52 | 99.96 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.54 | 2.19 | 1.91 | 1.35 | 0.83 | 0.61 | 0.06 |

| Moment Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| | 1.33 | 0.40 | 0.81 | -0.98 | 6.7 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-4-D6 #PI-4

Analysis Date: 04-11-22

Analyzed By: PRD

TI Coastal SERVICES, INC.
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fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | -0.5 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-7/2<br>Dry - 10YR-8/2 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 207.00 | 207.00 | 0.00 | 0.14 | #230 - 0.14 | | | 4.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -2.25 | 4.76 | 1.30 | 0.63 | 1.30 | 0.63 |
| 5 | -2.00 | 4.00 | 0.80 | 0.39 | 2.10 | 1.01 |
| 7 | -1.50 | 2.83 | 1.30 | 0.63 | 3.40 | 1.64 |
| 10 | -1.00 | 2.00 | 1.30 | 0.63 | 4.70 | 2.27 |
| 14 | -0.50 | 1.41 | 1.70 | 0.82 | 6.40 | 3.09 |
| 18 | 0.00 | 1.00 | 2.20 | 1.06 | 8.60 | 4.15 |
| 25 | 0.50 | 0.71 | 4.40 | 2.13 | 13.00 | 6.28 |
| 35 | 1.00 | 0.50 | 13.90 | 6.71 | 26.90 | 13.00 |
| 45 | 1.50 | 0.35 | 40.00 | 19.32 | 66.90 | 32.32 |
| 60 | 2.00 | 0.25 | 57.20 | 27.63 | 124.10 | 59.95 |
| 70 | 2.25 | 0.21 | 27.60 | 13.33 | 151.70 | 73.29 |
| 80 | 2.50 | 0.18 | 33.20 | 16.04 | 184.90 | 89.32 |
| 100 | 2.75 | 0.15 | 18.70 | 9.03 | 203.60 | 98.36 |
| 120 | 3.00 | 0.13 | 2.70 | 1.30 | 206.30 | 99.66 |
| 170 | 3.50 | 0.09 | 0.40 | 0.19 | 206.70 | 99.86 |
| 200 | 3.74 | 0.07 | 0.00 | 0.00 | 206.70 | 99.86 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 206.70 | 99.86 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.66 | 2.42 | 2.28 | 1.82 | 1.31 | 1.08 | 0.20 |

| Moment Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| | 1.68 | 0.31 | 0.86 | -2.06 | 9.56 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

Project Name: ATM - Pine Island - Hilton Head - 2022
Sample Name: 2022-PI-5-D0 #PI-5
Analysis Date: 04-11-22
Analyzed By: PRD

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SP | Wet - 10YR-7/2<br>Dry - 10YR-8/1 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 206.60 | 206.60 | 0.00 | 0.34 | #230 - 0.34 | | | 5.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 1.60 | 0.77 | 1.60 | 0.77 |
| 4 | -2.25 | 4.76 | 0.00 | 0.00 | 1.60 | 0.77 |
| 5 | -2.00 | 4.00 | 0.00 | 0.00 | 1.60 | 0.77 |
| 7 | -1.50 | 2.83 | 0.20 | 0.10 | 1.80 | 0.87 |
| 10 | -1.00 | 2.00 | 0.40 | 0.19 | 2.20 | 1.06 |
| 14 | -0.50 | 1.41 | 1.00 | 0.48 | 3.20 | 1.55 |
| 18 | 0.00 | 1.00 | 2.30 | 1.11 | 5.50 | 2.66 |
| 25 | 0.50 | 0.71 | 10.60 | 5.13 | 16.10 | 7.79 |
| 35 | 1.00 | 0.50 | 35.40 | 17.13 | 51.50 | 24.93 |
| 45 | 1.50 | 0.35 | 82.80 | 40.08 | 134.30 | 65.00 |
| 60 | 2.00 | 0.25 | 58.80 | 28.46 | 193.10 | 93.47 |
| 70 | 2.25 | 0.21 | 8.00 | 3.87 | 201.10 | 97.34 |
| 80 | 2.50 | 0.18 | 3.20 | 1.55 | 204.30 | 98.89 |
| 100 | 2.75 | 0.15 | 1.50 | 0.73 | 205.80 | 99.61 |
| 120 | 3.00 | 0.13 | 0.10 | 0.05 | 205.90 | 99.66 |
| 170 | 3.50 | 0.09 | 0.00 | 0.00 | 205.90 | 99.66 |
| 200 | 3.74 | 0.07 | 0.00 | 0.00 | 205.90 | 99.66 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 205.90 | 99.66 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.10 | 1.83 | 1.68 | 1.31 | 1.00 | 0.74 | 0.23 |

| Moment Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| | 1.24 | 0.42 | 0.7 | -3.1 | 21.99 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-5-D3 #PI-5

Analysis Date: 04-08-22

Analyzed By: STP

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | -3.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-7/2<br>Dry - 10YR-8/2 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 208.50 | 208.50 | 0.00 | 0.48 | #230 - 0.48 | | | 10.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -2.25 | 4.76 | 0.60 | 0.29 | 0.60 | 0.29 |
| 5 | -2.00 | 4.00 | 0.20 | 0.10 | 0.80 | 0.38 |
| 7 | -1.50 | 2.83 | 1.00 | 0.48 | 1.80 | 0.86 |
| 10 | -1.00 | 2.00 | 1.00 | 0.48 | 2.80 | 1.34 |
| 14 | -0.50 | 1.41 | 2.20 | 1.06 | 5.00 | 2.40 |
| 18 | 0.00 | 1.00 | 3.90 | 1.87 | 8.90 | 4.27 |
| 25 | 0.50 | 0.71 | 9.40 | 4.51 | 18.30 | 8.78 |
| 35 | 1.00 | 0.50 | 20.80 | 9.98 | 39.10 | 18.75 |
| 45 | 1.50 | 0.35 | 34.20 | 16.40 | 73.30 | 35.16 |
| 60 | 2.00 | 0.25 | 50.20 | 24.08 | 123.50 | 59.23 |
| 70 | 2.25 | 0.21 | 25.00 | 11.99 | 148.50 | 71.22 |
| 80 | 2.50 | 0.18 | 30.90 | 14.82 | 179.40 | 86.04 |
| 100 | 2.75 | 0.15 | 24.10 | 11.56 | 203.50 | 97.60 |
| 120 | 3.00 | 0.13 | 3.00 | 1.44 | 206.50 | 99.04 |
| 170 | 3.50 | 0.09 | 1.00 | 0.48 | 207.50 | 99.52 |
| 200 | 3.74 | 0.07 | 0.00 | 0.00 | 207.50 | 99.52 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 207.50 | 99.52 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.69 | 2.47 | 2.31 | 1.81 | 1.19 | 0.86 | 0.08 |

| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Statistics | 1.65 | 0.32 | 0.86 | -1.35 | 6.01 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-6-D0 #PI-6

Analysis Date: 04-11-22

Analyzed By: STP

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-5/2<br>Dry - 10YR-7/2 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 205.70 | 205.70 | 0.30 | 0.63 | #230 - 0.78 | | | 3.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -2.25 | 4.76 | 0.70 | 0.34 | 0.70 | 0.34 |
| 5 | -2.00 | 4.00 | 0.10 | 0.05 | 0.80 | 0.39 |
| 7 | -1.50 | 2.83 | 0.30 | 0.15 | 1.10 | 0.53 |
| 10 | -1.00 | 2.00 | 0.70 | 0.34 | 1.80 | 0.88 |
| 14 | -0.50 | 1.41 | 2.60 | 1.26 | 4.40 | 2.14 |
| 18 | 0.00 | 1.00 | 6.30 | 3.06 | 10.70 | 5.20 |
| 25 | 0.50 | 0.71 | 15.50 | 7.54 | 26.20 | 12.74 |
| 35 | 1.00 | 0.50 | 21.50 | 10.45 | 47.70 | 23.19 |
| 45 | 1.50 | 0.35 | 19.70 | 9.58 | 67.40 | 32.77 |
| 60 | 2.00 | 0.25 | 34.20 | 16.63 | 101.60 | 49.39 |
| 70 | 2.25 | 0.21 | 27.70 | 13.47 | 129.30 | 62.86 |
| 80 | 2.50 | 0.18 | 44.50 | 21.63 | 173.80 | 84.49 |
| 100 | 2.75 | 0.15 | 25.30 | 12.30 | 199.10 | 96.79 |
| 120 | 3.00 | 0.13 | 3.70 | 1.80 | 202.80 | 98.59 |
| 170 | 3.50 | 0.09 | 0.90 | 0.44 | 203.70 | 99.03 |
| 200 | 3.74 | 0.07 | 0.20 | 0.10 | 203.90 | 99.12 |
| 230 | 4.00 | 0.06 | 0.20 | 0.10 | 204.10 | 99.22 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.71 | 2.49 | 2.39 | 2.01 | 1.09 | 0.66 | -0.03 |

| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Statistics | 1.68 | 0.31 | 0.93 | -1.17 | 4.57 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

Project Name: ATM - Pine Island - Hilton Head - 2022
Sample Name: 2022-PI-6-D26 #PI-6
Analysis Date: 04-11-22
Analyzed By: PRD

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | -2.2 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-5/2<br>Dry - 10YR-7/2 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 212.00 | 212.00 | 0.00 | 0.05 | #230 - 0.05 | | | 4.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -2.25 | 4.76 | 1.20 | 0.57 | 1.20 | 0.57 |
| 5 | -2.00 | 4.00 | 0.20 | 0.09 | 1.40 | 0.66 |
| 7 | -1.50 | 2.83 | 1.10 | 0.52 | 2.50 | 1.18 |
| 10 | -1.00 | 2.00 | 1.70 | 0.80 | 4.20 | 1.98 |
| 14 | -0.50 | 1.41 | 4.50 | 2.12 | 8.70 | 4.10 |
| 18 | 0.00 | 1.00 | 9.70 | 4.58 | 18.40 | 8.68 |
| 25 | 0.50 | 0.71 | 25.60 | 12.08 | 44.00 | 20.75 |
| 35 | 1.00 | 0.50 | 35.40 | 16.70 | 79.40 | 37.45 |
| 45 | 1.50 | 0.35 | 42.80 | 20.19 | 122.20 | 57.64 |
| 60 | 2.00 | 0.25 | 36.00 | 16.98 | 158.20 | 74.62 |
| 70 | 2.25 | 0.21 | 17.20 | 8.11 | 175.40 | 82.74 |
| 80 | 2.50 | 0.18 | 18.70 | 8.82 | 194.10 | 91.56 |
| 100 | 2.75 | 0.15 | 12.80 | 6.04 | 206.90 | 97.59 |
| 120 | 3.00 | 0.13 | 2.40 | 1.13 | 209.30 | 98.73 |
| 170 | 3.50 | 0.09 | 1.90 | 0.90 | 211.20 | 99.62 |
| 200 | 3.74 | 0.07 | 0.40 | 0.19 | 211.60 | 99.81 |
| 230 | 4.00 | 0.06 | 0.30 | 0.14 | 211.90 | 99.95 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.64 | 2.29 | 2.01 | 1.31 | 0.63 | 0.30 | -0.40 |

| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Statistics | 1.26 | 0.42 | 0.98 | -0.65 | 4.06 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-7-D0 #PI-7

Analysis Date: 04-12-22

Analyzed By: HDM

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-5/2<br>Dry - 10YR-7/1 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 204.90 | 204.90 | 0.70 | 0.00 | #230 - 0.34 | | | 15.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 3.00 | 1.46 | 3.00 | 1.46 |
| 4 | -2.25 | 4.76 | 5.40 | 2.64 | 8.40 | 4.10 |
| 5 | -2.00 | 4.00 | 1.60 | 0.78 | 10.00 | 4.88 |
| 7 | -1.50 | 2.83 | 5.60 | 2.73 | 15.60 | 7.61 |
| 10 | -1.00 | 2.00 | 9.70 | 4.73 | 25.30 | 12.35 |
| 14 | -0.50 | 1.41 | 13.90 | 6.78 | 39.20 | 19.13 |
| 18 | 0.00 | 1.00 | 14.80 | 7.22 | 54.00 | 26.35 |
| 25 | 0.50 | 0.71 | 23.00 | 11.22 | 77.00 | 37.58 |
| 35 | 1.00 | 0.50 | 27.90 | 13.62 | 104.90 | 51.20 |
| 45 | 1.50 | 0.35 | 23.30 | 11.37 | 128.20 | 62.57 |
| 60 | 2.00 | 0.25 | 17.80 | 8.69 | 146.00 | 71.25 |
| 70 | 2.25 | 0.21 | 10.30 | 5.03 | 156.30 | 76.28 |
| 80 | 2.50 | 0.18 | 17.40 | 8.49 | 173.70 | 84.77 |
| 100 | 2.75 | 0.15 | 20.10 | 9.81 | 193.80 | 94.58 |
| 120 | 3.00 | 0.13 | 6.70 | 3.27 | 200.50 | 97.85 |
| 170 | 3.50 | 0.09 | 3.00 | 1.46 | 203.50 | 99.32 |
| 200 | 3.74 | 0.07 | 0.30 | 0.15 | 203.80 | 99.46 |
| 230 | 4.00 | 0.06 | 0.40 | 0.20 | 204.20 | 99.66 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.78 | 2.48 | 2.19 | 0.96 | -0.09 | -0.73 | -1.98 |

| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Statistics | 0.83 | 0.56 | 1.53 | -0.68 | 3.09 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

Project Name: ATM - Pine Island - Hilton Head - 2022
Sample Name: 2022-PI-7-D12 #PI-7
Analysis Date: 04-11-22
Analyzed By: PRD

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | -1.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-6/2<br>Dry - 10YR-8/2 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 208.50 | 208.50 | 0.00 | 0.34 | #230 - 0.34 | | | 5.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -2.25 | 4.76 | 1.00 | 0.48 | 1.00 | 0.48 |
| 5 | -2.00 | 4.00 | 0.40 | 0.19 | 1.40 | 0.67 |
| 7 | -1.50 | 2.83 | 1.30 | 0.62 | 2.70 | 1.29 |
| 10 | -1.00 | 2.00 | 1.90 | 0.91 | 4.60 | 2.21 |
| 14 | -0.50 | 1.41 | 3.90 | 1.87 | 8.50 | 4.08 |
| 18 | 0.00 | 1.00 | 6.00 | 2.88 | 14.50 | 6.95 |
| 25 | 0.50 | 0.71 | 13.40 | 6.43 | 27.90 | 13.38 |
| 35 | 1.00 | 0.50 | 29.90 | 14.34 | 57.80 | 27.72 |
| 45 | 1.50 | 0.35 | 44.70 | 21.44 | 102.50 | 49.16 |
| 60 | 2.00 | 0.25 | 43.90 | 21.06 | 146.40 | 70.22 |
| 70 | 2.25 | 0.21 | 17.40 | 8.35 | 163.80 | 78.56 |
| 80 | 2.50 | 0.18 | 24.70 | 11.85 | 188.50 | 90.41 |
| 100 | 2.75 | 0.15 | 16.10 | 7.72 | 204.60 | 98.13 |
| 120 | 3.00 | 0.13 | 2.60 | 1.25 | 207.20 | 99.38 |
| 170 | 3.50 | 0.09 | 0.60 | 0.29 | 207.80 | 99.66 |
| 200 | 3.74 | 0.07 | 0.00 | 0.00 | 207.80 | 99.66 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 207.80 | 99.66 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.65 | 2.36 | 2.14 | 1.52 | 0.91 | 0.59 | -0.34 |

| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Statistics | 1.41 | 0.38 | 0.94 | -1.11 | 5.08 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-7-D32 #PI-7

Analysis Date: 04-12-22

Analyzed By: PRD

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-5/2<br>Dry - 10YR-7/2 | |

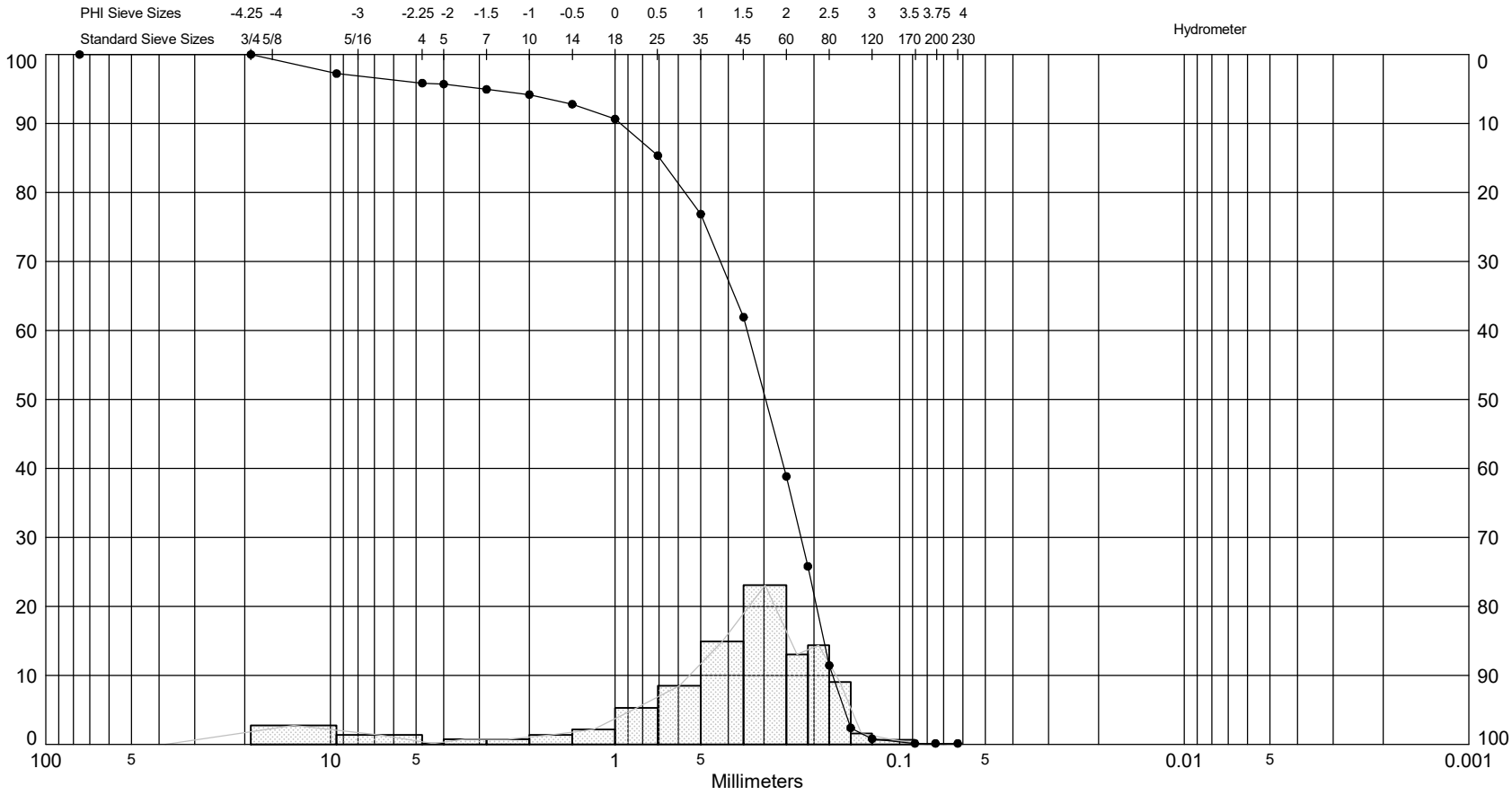
| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 209.60 | 209.60 | 0.90 | 0.62 | #230 - 1.05 | | | 11.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 4.70 | 2.24 | 4.70 | 2.24 |
| 4 | -2.25 | 4.76 | 5.20 | 2.48 | 9.90 | 4.72 |
| 5 | -2.00 | 4.00 | 1.30 | 0.62 | 11.20 | 5.34 |
| 7 | -1.50 | 2.83 | 2.30 | 1.10 | 13.50 | 6.44 |
| 10 | -1.00 | 2.00 | 4.20 | 2.00 | 17.70 | 8.44 |
| 14 | -0.50 | 1.41 | 11.20 | 5.34 | 28.90 | 13.79 |
| 18 | 0.00 | 1.00 | 19.40 | 9.26 | 48.30 | 23.04 |
| 25 | 0.50 | 0.71 | 37.50 | 17.89 | 85.80 | 40.94 |
| 35 | 1.00 | 0.50 | 40.90 | 19.51 | 126.70 | 60.45 |
| 45 | 1.50 | 0.35 | 28.20 | 13.45 | 154.90 | 73.90 |
| 60 | 2.00 | 0.25 | 19.40 | 9.26 | 174.30 | 83.16 |
| 70 | 2.25 | 0.21 | 7.90 | 3.77 | 182.20 | 86.93 |
| 80 | 2.50 | 0.18 | 10.80 | 5.15 | 193.00 | 92.08 |
| 100 | 2.75 | 0.15 | 9.50 | 4.53 | 202.50 | 96.61 |
| 120 | 3.00 | 0.13 | 3.00 | 1.43 | 205.50 | 98.04 |
| 170 | 3.50 | 0.09 | 1.30 | 0.62 | 206.80 | 98.66 |
| 200 | 3.74 | 0.07 | 0.30 | 0.14 | 207.10 | 98.81 |
| 230 | 4.00 | 0.06 | 0.30 | 0.14 | 207.40 | 98.95 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.66 | 2.06 | 1.56 | 0.73 | 0.05 | -0.38 | -2.14 |

| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Statistics | 0.65 | 0.64 | 1.36 | -0.92 | 4.55 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/12/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-HOLE1 | —●— | 0.0 | SW | #230 - 0.14 | | | 1.76 | 1.41 | -2.17 | 8.28 | 1.33 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-21-22 |
| Analyzed By: | STP |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

TI Coastal SERVICES, INC.

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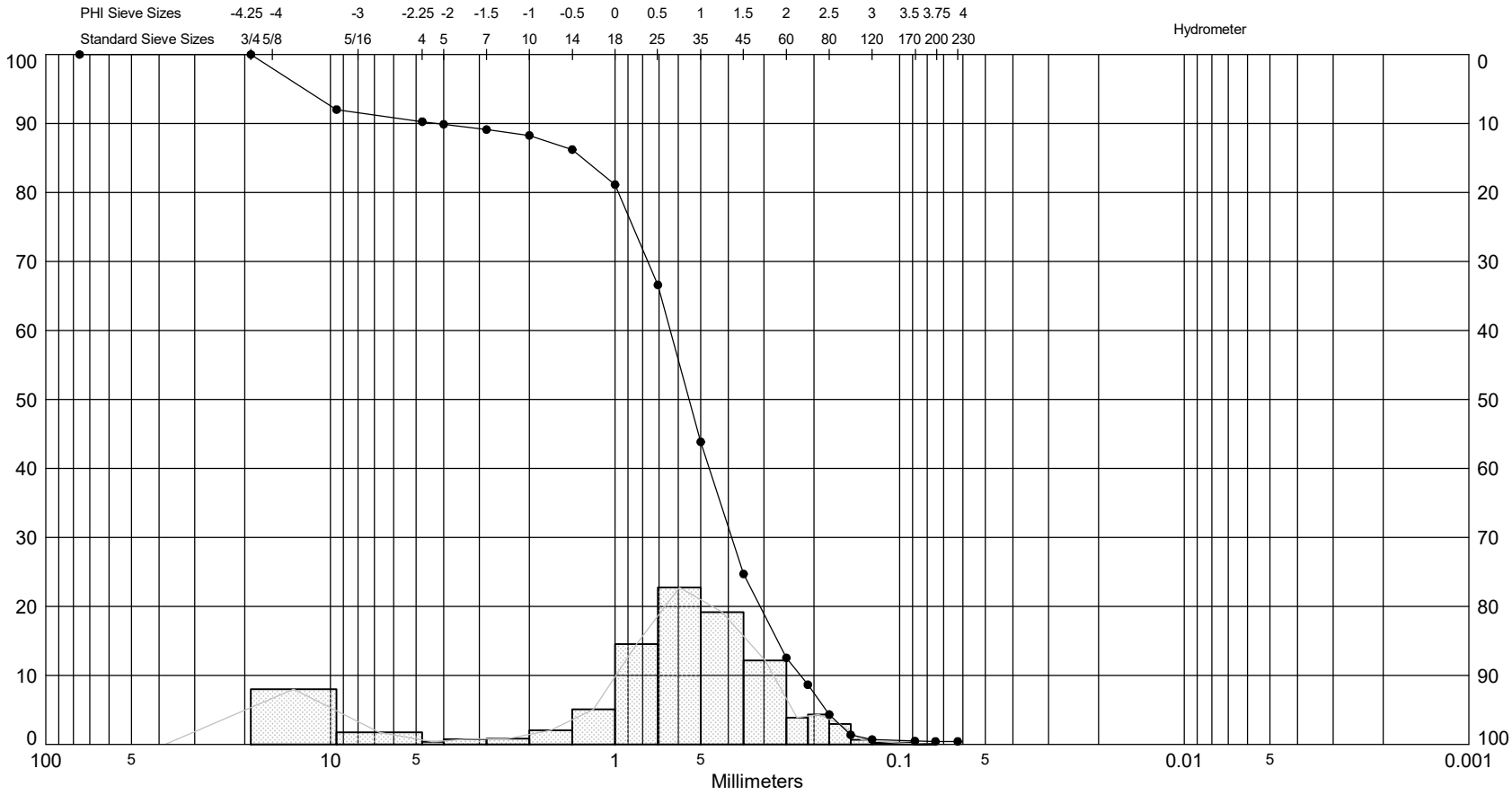
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-HOLE2 | —●— | 0.0 | SW | #230 - 0.43 | | | 0.86 | 0.55 | -1.51 | 4.88 | 1.6 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-21-22 |
| Analyzed By: | HDM |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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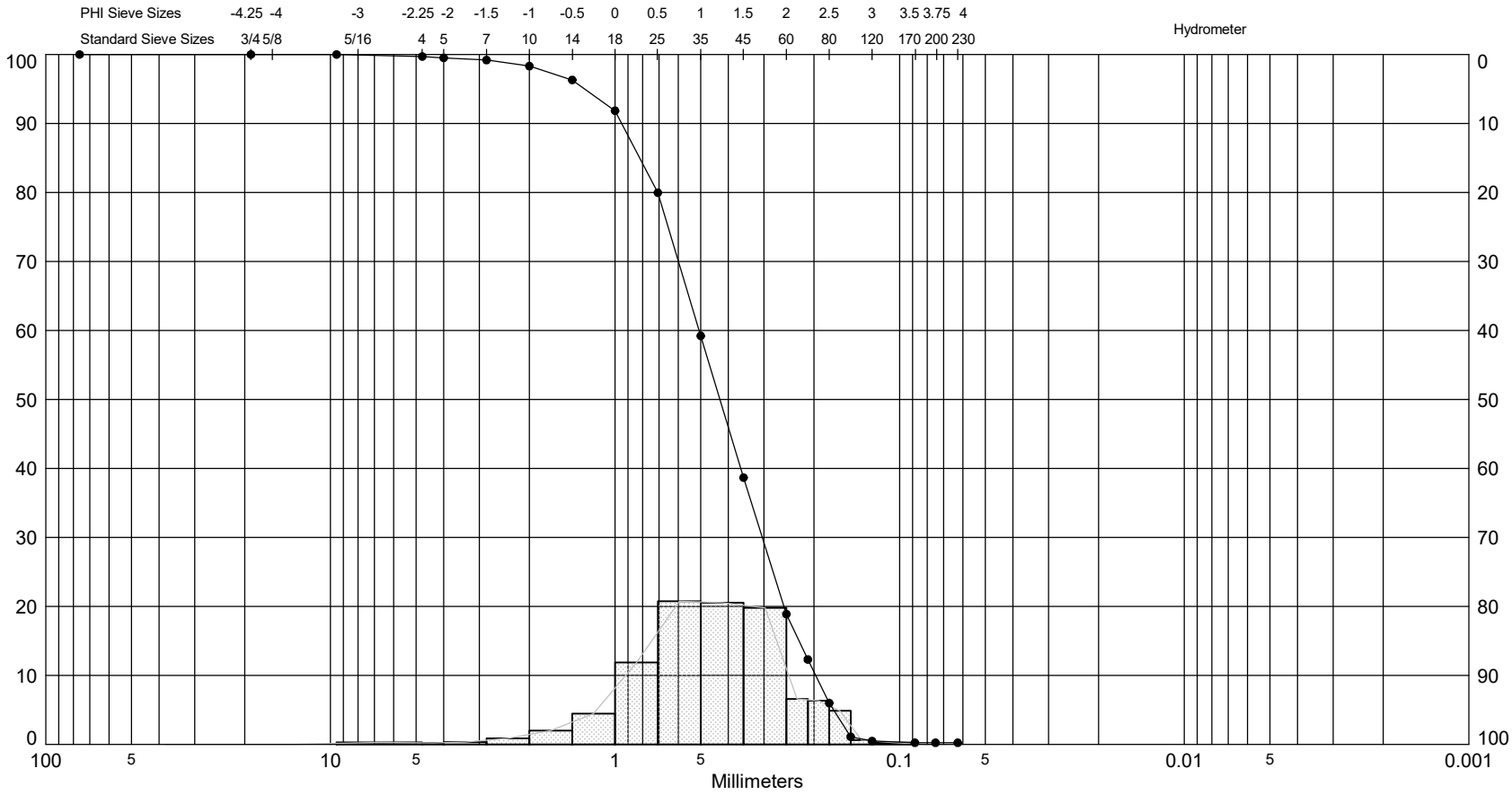
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-HOLE3 | —●— | 0.0 | SW | #230 - 0.24 | | | 1.22 | 1.18 | -0.62 | 3.98 | 0.89 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-21-22 |
| Analyzed By: | STP |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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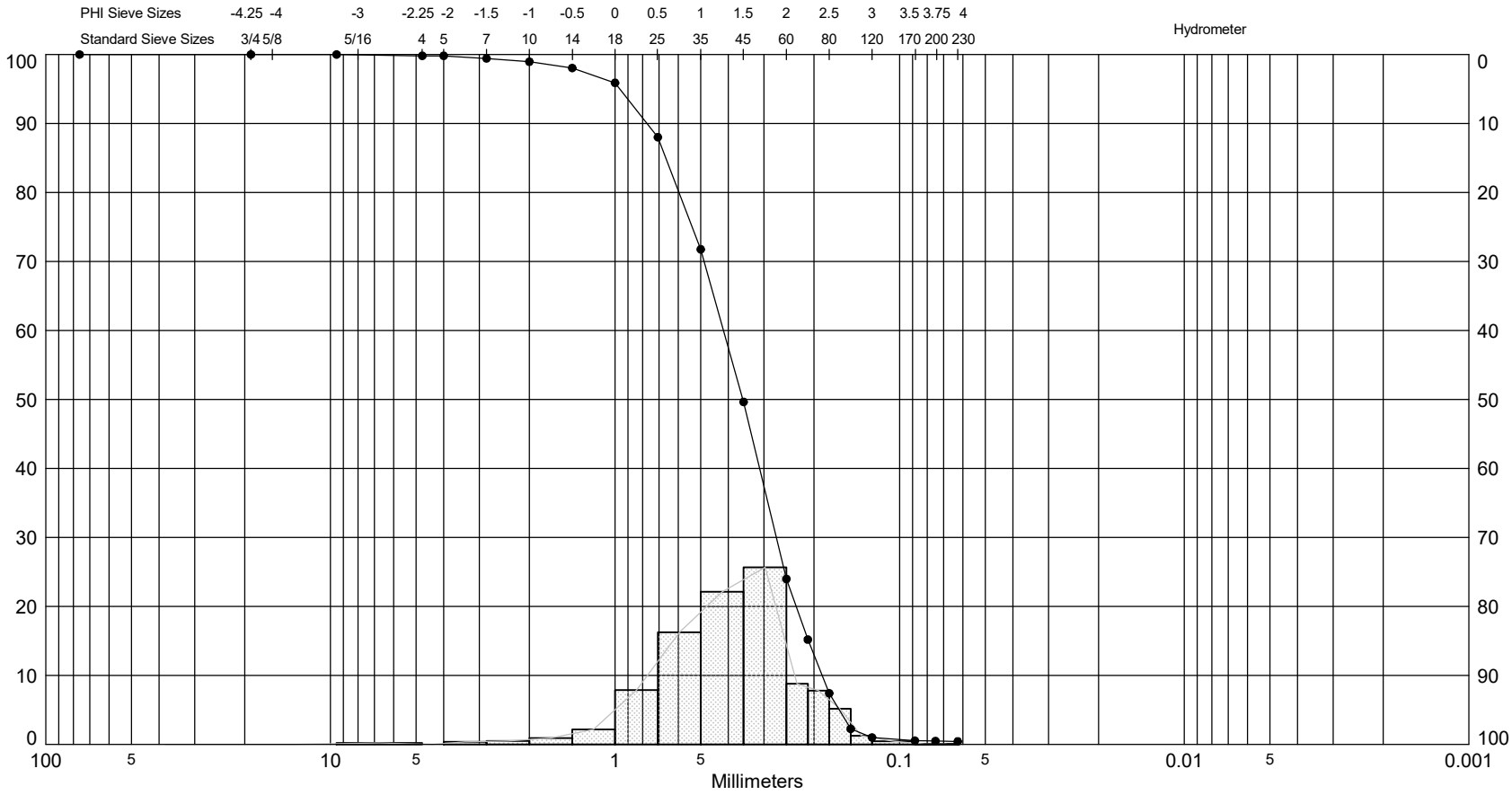
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-HOLE4 | —●— | 0.0 | SP | #230 - 0.43 | | | 1.49 | 1.41 | -0.77 | 4.72 | 0.81 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-21-22 |
| Analyzed By: | HDM |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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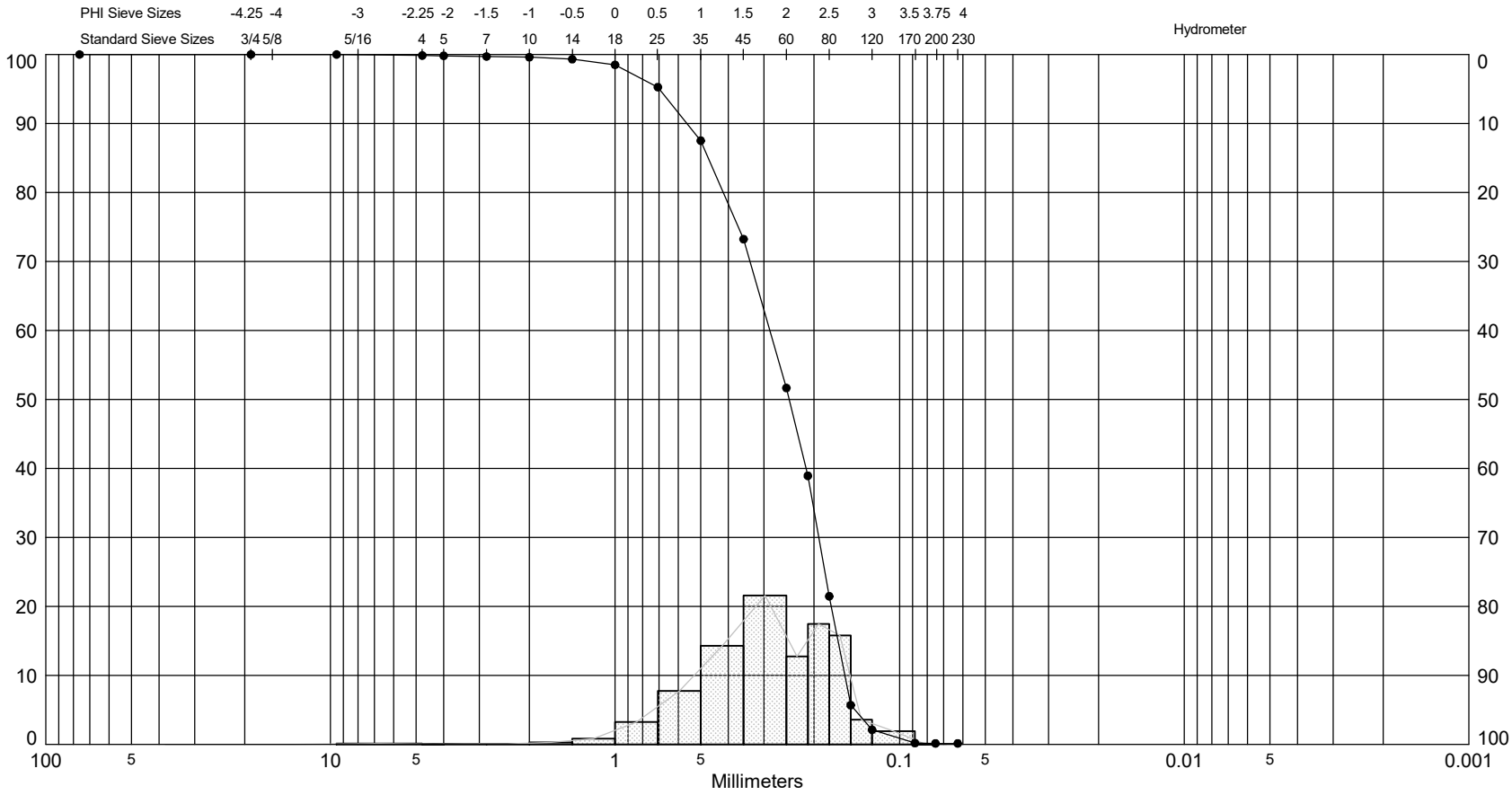
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-HOLE5 | —●— | 0.0 | SP | #230 - 0.14 | | | 2.03 | 1.88 | -1.13 | 5.75 | 0.76 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-21-22 |
| Analyzed By: | STP |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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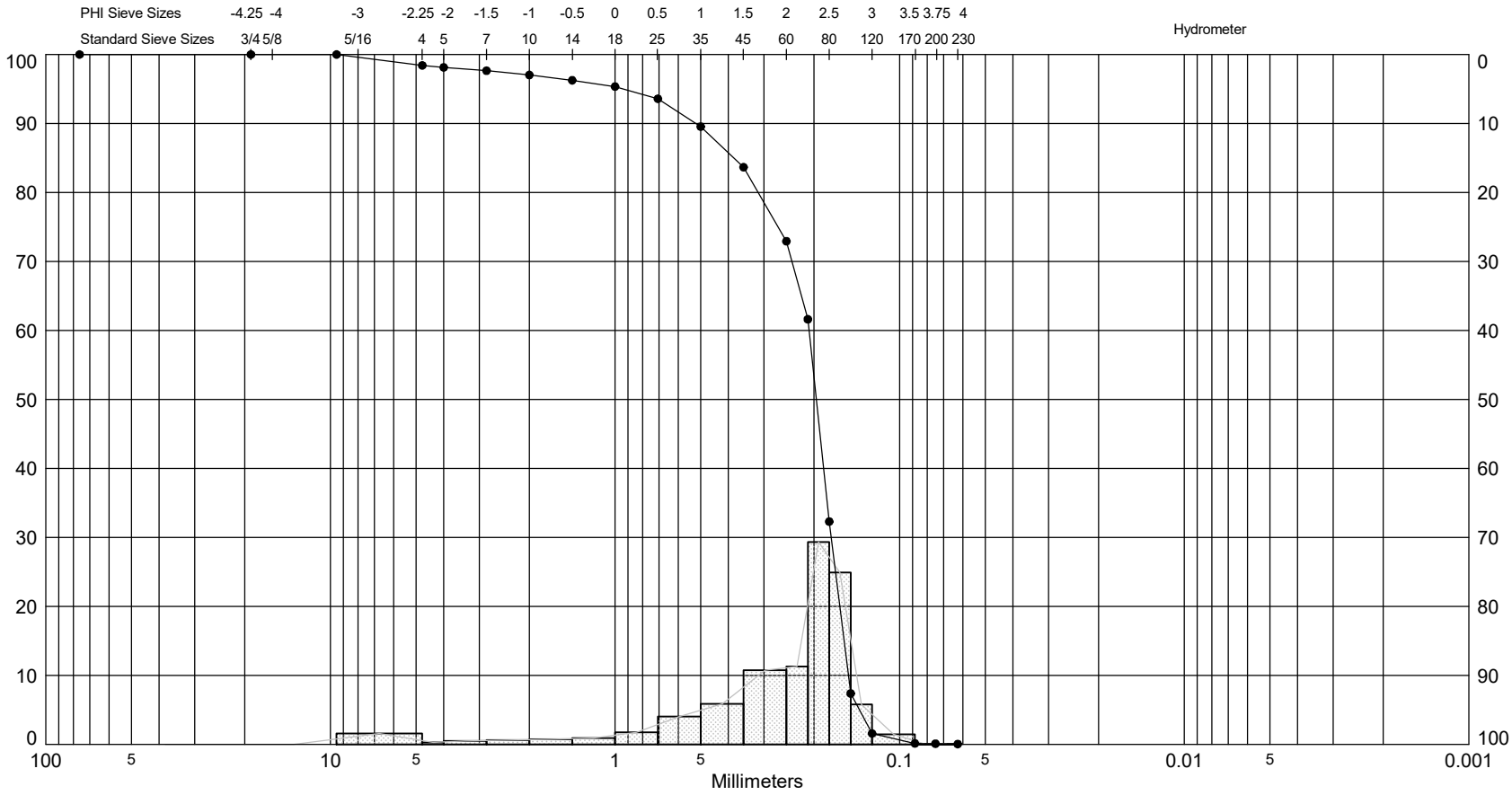
SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-HOLE6 | —●— | 0.0 | SW | #230 - 0.05 | | | 2.35 | 2.03 | -2.73 | 11.72 | 1 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-21-22 |
| Analyzed By: | STP |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAD88 |

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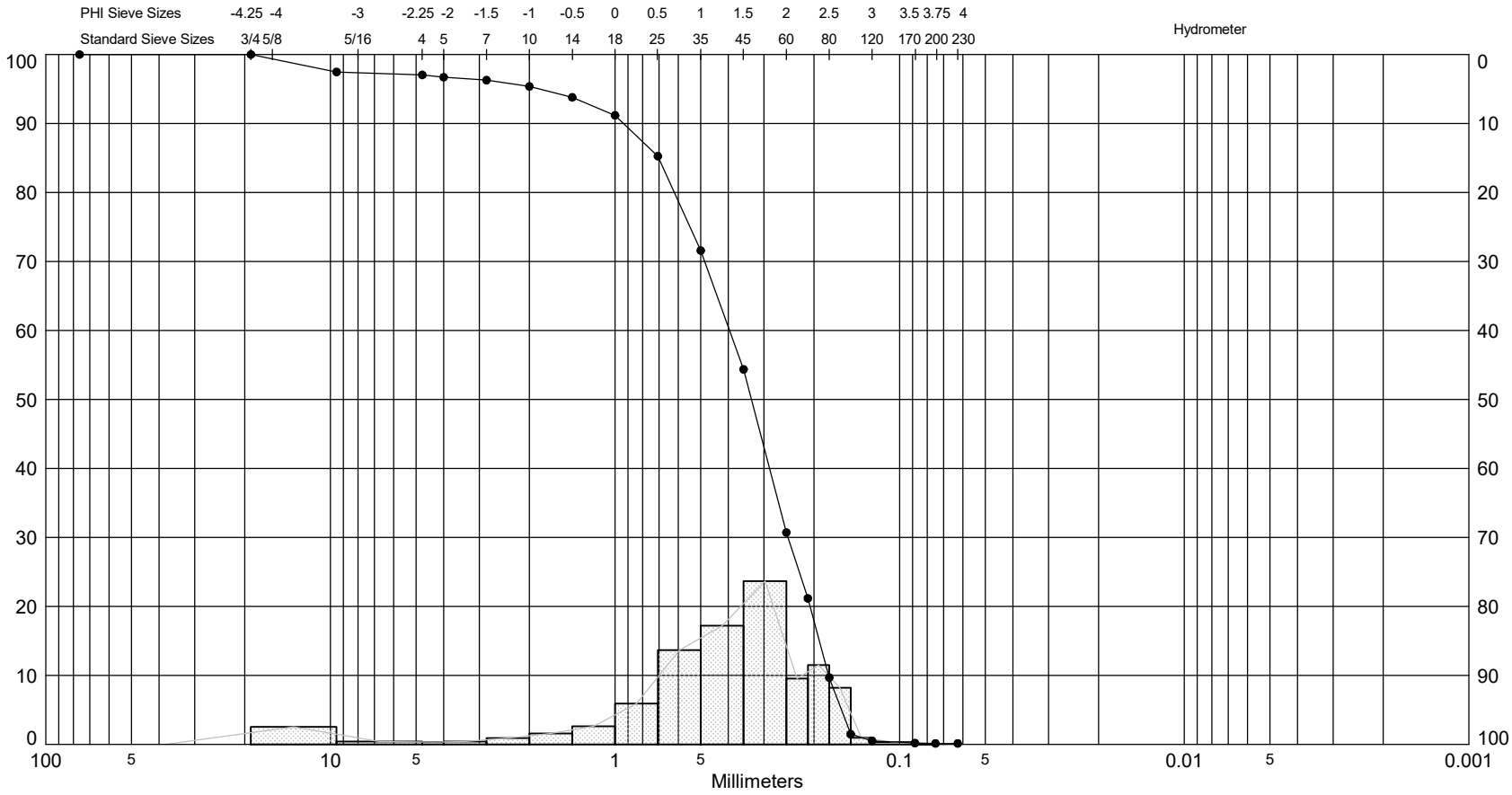
fax 910.821.1359

SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-HOLE7 | —●— | 0.0 | SW | #230 - 0.14 | | | 1.59 | 1.33 | -2.1 | 8.83 | 1.23 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-21-22 |
| Analyzed By: | HDM |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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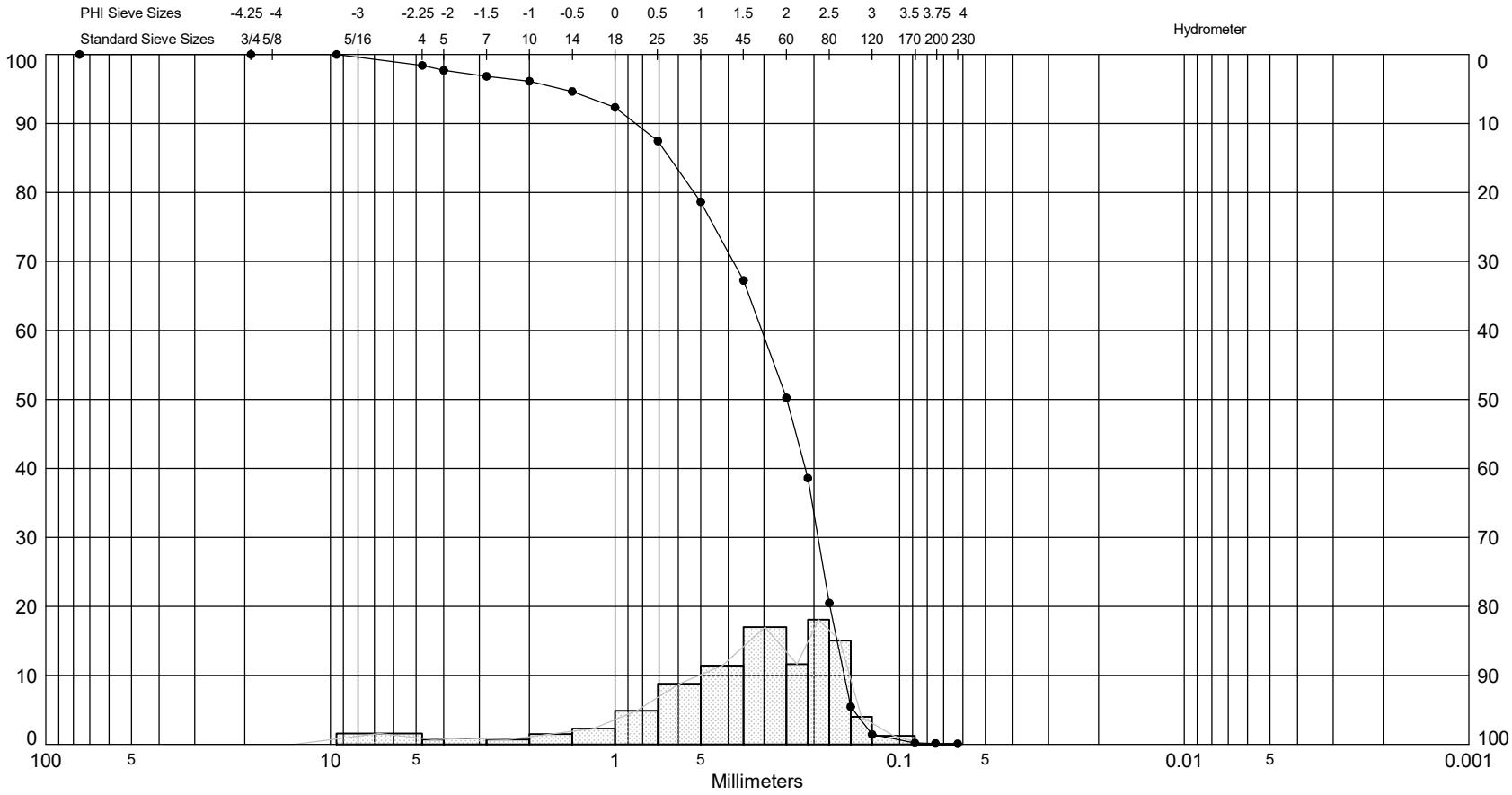
fax 910.821.1359

SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22




| Gravel | | Sand | | | Silt and Clay |
|---|---|---|---|---|---|
| Coarse | Fine | Coarse | Medium | Fine | |

| Sample | Symbol | Elev. (ft) | USCS | % Fines | % Organics | % Carbonates | Median | Mean | Skew | Kurt | Sort |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-PI-HOLE8 | —●— | 0.0 | SW | #230 - 0.10 | | | 2.01 | 1.65 | -1.69 | 6.35 | 1.13 |

Comments:

Depths and elevations based on measured values

| Sample Information | |
|---|---|
| Project Name: | ATM - Pine Island - Hilton Head - 2022 |
| Analysis Date: | 04-21-22 |
| Analyzed By: | HDM |
| Easting (X, ft): | |
| Northing (Y, ft): | |
| Horizontal System: | NAD 1983 |
| Vertical System: | NAVD88 |

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SIEVE ANALYSIS ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-HOLE1

Analysis Date: 04-21-22

Analyzed By: STP

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-6/2<br>Dry - 10YR-8/1 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 209.60 | 209.60 | 0.00 | 0.14 | #230 - 0.14 | | | 15.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 5.80 | 2.77 | 5.80 | 2.77 |
| 4 | -2.25 | 4.76 | 2.90 | 1.38 | 8.70 | 4.15 |
| 5 | -2.00 | 4.00 | 0.30 | 0.14 | 9.00 | 4.29 |
| 7 | -1.50 | 2.83 | 1.60 | 0.76 | 10.60 | 5.06 |
| 10 | -1.00 | 2.00 | 1.60 | 0.76 | 12.20 | 5.82 |
| 14 | -0.50 | 1.41 | 2.90 | 1.38 | 15.10 | 7.20 |
| 18 | 0.00 | 1.00 | 4.50 | 2.15 | 19.60 | 9.35 |
| 25 | 0.50 | 0.71 | 11.10 | 5.30 | 30.70 | 14.65 |
| 35 | 1.00 | 0.50 | 17.80 | 8.49 | 48.50 | 23.14 |
| 45 | 1.50 | 0.35 | 31.30 | 14.93 | 79.80 | 38.07 |
| 60 | 2.00 | 0.25 | 48.40 | 23.09 | 128.20 | 61.16 |
| 70 | 2.25 | 0.21 | 27.30 | 13.02 | 155.50 | 74.19 |
| 80 | 2.50 | 0.18 | 30.10 | 14.36 | 185.60 | 88.55 |
| 100 | 2.75 | 0.15 | 19.00 | 9.06 | 204.60 | 97.61 |
| 120 | 3.00 | 0.13 | 3.30 | 1.57 | 207.90 | 99.19 |
| 170 | 3.50 | 0.09 | 1.40 | 0.67 | 209.30 | 99.86 |
| 200 | 3.74 | 0.07 | 0.00 | 0.00 | 209.30 | 99.86 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 209.30 | 99.86 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.68 | 2.42 | 2.26 | 1.76 | 1.06 | 0.58 | -1.54 |

| Moment Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| | 1.41 | 0.38 | 1.33 | -2.17 | 8.28 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-HOLE2

Analysis Date: 04-21-22

Analyzed By: HDM

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-7/1<br>Dry - 10YR-8/1 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 210.50 | 210.50 | 0.00 | 0.43 | #230 - 0.43 | | | 30.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 16.80 | 7.98 | 16.80 | 7.98 |
| 4 | -2.25 | 4.76 | 3.70 | 1.76 | 20.50 | 9.74 |
| 5 | -2.00 | 4.00 | 0.80 | 0.38 | 21.30 | 10.12 |
| 7 | -1.50 | 2.83 | 1.60 | 0.76 | 22.90 | 10.88 |
| 10 | -1.00 | 2.00 | 1.80 | 0.86 | 24.70 | 11.73 |
| 14 | -0.50 | 1.41 | 4.30 | 2.04 | 29.00 | 13.78 |
| 18 | 0.00 | 1.00 | 10.70 | 5.08 | 39.70 | 18.86 |
| 25 | 0.50 | 0.71 | 30.60 | 14.54 | 70.30 | 33.40 |
| 35 | 1.00 | 0.50 | 47.90 | 22.76 | 118.20 | 56.15 |
| 45 | 1.50 | 0.35 | 40.30 | 19.14 | 158.50 | 75.30 |
| 60 | 2.00 | 0.25 | 25.60 | 12.16 | 184.10 | 87.46 |
| 70 | 2.25 | 0.21 | 8.20 | 3.90 | 192.30 | 91.35 |
| 80 | 2.50 | 0.18 | 9.10 | 4.32 | 201.40 | 95.68 |
| 100 | 2.75 | 0.15 | 6.20 | 2.95 | 207.60 | 98.62 |
| 120 | 3.00 | 0.13 | 1.40 | 0.67 | 209.00 | 99.29 |
| 170 | 3.50 | 0.09 | 0.50 | 0.24 | 209.50 | 99.52 |
| 200 | 3.74 | 0.07 | 0.10 | 0.05 | 209.60 | 99.57 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 209.60 | 99.57 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.46 | 1.86 | 1.49 | 0.86 | 0.21 | -0.28 | -4.37 |

| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Statistics | 0.55 | 0.68 | 1.6 | -1.51 | 4.88 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-HOLE3

Analysis Date: 04-21-22

Analyzed By: STP

TI Coastal SERVICES, INC.
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fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-7/1<br>Dry - 10YR-8/1 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 208.70 | 208.70 | 0.00 | 0.24 | #230 - 0.24 | | | 10.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -2.25 | 4.76 | 0.60 | 0.29 | 0.60 | 0.29 |
| 5 | -2.00 | 4.00 | 0.40 | 0.19 | 1.00 | 0.48 |
| 7 | -1.50 | 2.83 | 0.70 | 0.34 | 1.70 | 0.81 |
| 10 | -1.00 | 2.00 | 1.80 | 0.86 | 3.50 | 1.68 |
| 14 | -0.50 | 1.41 | 4.20 | 2.01 | 7.70 | 3.69 |
| 18 | 0.00 | 1.00 | 9.30 | 4.46 | 17.00 | 8.15 |
| 25 | 0.50 | 0.71 | 24.80 | 11.88 | 41.80 | 20.03 |
| 35 | 1.00 | 0.50 | 43.30 | 20.75 | 85.10 | 40.78 |
| 45 | 1.50 | 0.35 | 42.90 | 20.56 | 128.00 | 61.33 |
| 60 | 2.00 | 0.25 | 41.30 | 19.79 | 169.30 | 81.12 |
| 70 | 2.25 | 0.21 | 13.70 | 6.56 | 183.00 | 87.69 |
| 80 | 2.50 | 0.18 | 13.20 | 6.32 | 196.20 | 94.01 |
| 100 | 2.75 | 0.15 | 10.20 | 4.89 | 206.40 | 98.90 |
| 120 | 3.00 | 0.13 | 1.30 | 0.62 | 207.70 | 99.52 |
| 170 | 3.50 | 0.09 | 0.50 | 0.24 | 208.20 | 99.76 |
| 200 | 3.74 | 0.07 | 0.00 | 0.00 | 208.20 | 99.76 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 208.20 | 99.76 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.55 | 2.11 | 1.85 | 1.22 | 0.62 | 0.33 | -0.35 |

| Moment Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| | 1.18 | 0.44 | 0.89 | -0.62 | 3.98 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-HOLE4

Analysis Date: 04-21-22

Analyzed By: HDM

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
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ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SP | Wet - 10YR-5/2<br>Dry - 10YR-8/1 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 209.30 | 209.30 | 0.30 | 0.29 | #230 - 0.43 | | | 15.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -2.25 | 4.76 | 0.40 | 0.19 | 0.40 | 0.19 |
| 5 | -2.00 | 4.00 | 0.00 | 0.00 | 0.40 | 0.19 |
| 7 | -1.50 | 2.83 | 0.80 | 0.38 | 1.20 | 0.57 |
| 10 | -1.00 | 2.00 | 1.00 | 0.48 | 2.20 | 1.05 |
| 14 | -0.50 | 1.41 | 1.90 | 0.91 | 4.10 | 1.96 |
| 18 | 0.00 | 1.00 | 4.50 | 2.15 | 8.60 | 4.11 |
| 25 | 0.50 | 0.71 | 16.50 | 7.88 | 25.10 | 11.99 |
| 35 | 1.00 | 0.50 | 34.00 | 16.24 | 59.10 | 28.24 |
| 45 | 1.50 | 0.35 | 46.30 | 22.12 | 105.40 | 50.36 |
| 60 | 2.00 | 0.25 | 53.70 | 25.66 | 159.10 | 76.02 |
| 70 | 2.25 | 0.21 | 18.40 | 8.79 | 177.50 | 84.81 |
| 80 | 2.50 | 0.18 | 16.30 | 7.79 | 193.80 | 92.59 |
| 100 | 2.75 | 0.15 | 10.80 | 5.16 | 204.60 | 97.75 |
| 120 | 3.00 | 0.13 | 2.60 | 1.24 | 207.20 | 99.00 |
| 170 | 3.50 | 0.09 | 1.00 | 0.48 | 208.20 | 99.47 |
| 200 | 3.74 | 0.07 | 0.10 | 0.05 | 208.30 | 99.52 |
| 230 | 4.00 | 0.06 | 0.10 | 0.05 | 208.40 | 99.57 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.62 | 2.23 | 1.98 | 1.49 | 0.90 | 0.62 | 0.06 |

| Moment Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| | 1.41 | 0.38 | 0.81 | -0.77 | 4.72 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-HOLE5

Analysis Date: 04-21-22

Analyzed By: STP

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SP | Wet - 10YR-5/3<br>Dry - 10YR-6/1 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 207.30 | 207.30 | 0.10 | 0.10 | #230 - 0.14 | | | 5.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -2.25 | 4.76 | 0.30 | 0.14 | 0.30 | 0.14 |
| 5 | -2.00 | 4.00 | 0.10 | 0.05 | 0.40 | 0.19 |
| 7 | -1.50 | 2.83 | 0.20 | 0.10 | 0.60 | 0.29 |
| 10 | -1.00 | 2.00 | 0.20 | 0.10 | 0.80 | 0.39 |
| 14 | -0.50 | 1.41 | 0.60 | 0.29 | 1.40 | 0.68 |
| 18 | 0.00 | 1.00 | 1.70 | 0.82 | 3.10 | 1.50 |
| 25 | 0.50 | 0.71 | 6.70 | 3.23 | 9.80 | 4.73 |
| 35 | 1.00 | 0.50 | 16.10 | 7.77 | 25.90 | 12.49 |
| 45 | 1.50 | 0.35 | 29.60 | 14.28 | 55.50 | 26.77 |
| 60 | 2.00 | 0.25 | 44.70 | 21.56 | 100.20 | 48.34 |
| 70 | 2.25 | 0.21 | 26.40 | 12.74 | 126.60 | 61.07 |
| 80 | 2.50 | 0.18 | 36.20 | 17.46 | 162.80 | 78.53 |
| 100 | 2.75 | 0.15 | 32.70 | 15.77 | 195.50 | 94.31 |
| 120 | 3.00 | 0.13 | 7.40 | 3.57 | 202.90 | 97.88 |
| 170 | 3.50 | 0.09 | 4.00 | 1.93 | 206.90 | 99.81 |
| 200 | 3.74 | 0.07 | 0.10 | 0.05 | 207.00 | 99.86 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 207.00 | 99.86 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.80 | 2.59 | 2.45 | 2.03 | 1.44 | 1.12 | 0.52 |

| Moment Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| | 1.88 | 0.27 | 0.76 | -1.13 | 5.75 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-HOLE6

Analysis Date: 04-21-22

Analyzed By: STP

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-4/1<br>Dry - 10YR-8/1 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 208.70 | 208.70 | 0.00 | 0.05 | #230 - 0.05 | | | 5.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -2.25 | 4.76 | 3.30 | 1.58 | 3.30 | 1.58 |
| 5 | -2.00 | 4.00 | 0.60 | 0.29 | 3.90 | 1.87 |
| 7 | -1.50 | 2.83 | 1.00 | 0.48 | 4.90 | 2.35 |
| 10 | -1.00 | 2.00 | 1.30 | 0.62 | 6.20 | 2.97 |
| 14 | -0.50 | 1.41 | 1.60 | 0.77 | 7.80 | 3.74 |
| 18 | 0.00 | 1.00 | 1.90 | 0.91 | 9.70 | 4.65 |
| 25 | 0.50 | 0.71 | 3.70 | 1.77 | 13.40 | 6.42 |
| 35 | 1.00 | 0.50 | 8.40 | 4.02 | 21.80 | 10.45 |
| 45 | 1.50 | 0.35 | 12.30 | 5.89 | 34.10 | 16.34 |
| 60 | 2.00 | 0.25 | 22.40 | 10.73 | 56.50 | 27.07 |
| 70 | 2.25 | 0.21 | 23.60 | 11.31 | 80.10 | 38.38 |
| 80 | 2.50 | 0.18 | 61.20 | 29.32 | 141.30 | 67.70 |
| 100 | 2.75 | 0.15 | 52.00 | 24.92 | 193.30 | 92.62 |
| 120 | 3.00 | 0.13 | 12.10 | 5.80 | 205.40 | 98.42 |
| 170 | 3.50 | 0.09 | 3.00 | 1.44 | 208.40 | 99.86 |
| 200 | 3.74 | 0.07 | 0.10 | 0.05 | 208.50 | 99.90 |
| 230 | 4.00 | 0.06 | 0.10 | 0.05 | 208.60 | 99.95 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.85 | 2.66 | 2.57 | 2.35 | 1.90 | 1.47 | 0.10 |

| Moment Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| | 2.03 | 0.24 | 1 | -2.73 | 11.72 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-HOLE7

Analysis Date: 04-21-22

Analyzed By: HDM

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-6/1<br>Dry - 10YR-8/1 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 209.70 | 209.70 | 0.20 | 0.05 | #230 - 0.14 | | | 15.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 5.30 | 2.53 | 5.30 | 2.53 |
| 4 | -2.25 | 4.76 | 0.90 | 0.43 | 6.20 | 2.96 |
| 5 | -2.00 | 4.00 | 0.70 | 0.33 | 6.90 | 3.29 |
| 7 | -1.50 | 2.83 | 0.90 | 0.43 | 7.80 | 3.72 |
| 10 | -1.00 | 2.00 | 1.90 | 0.91 | 9.70 | 4.63 |
| 14 | -0.50 | 1.41 | 3.30 | 1.57 | 13.00 | 6.20 |
| 18 | 0.00 | 1.00 | 5.50 | 2.62 | 18.50 | 8.82 |
| 25 | 0.50 | 0.71 | 12.40 | 5.91 | 30.90 | 14.74 |
| 35 | 1.00 | 0.50 | 28.70 | 13.69 | 59.60 | 28.42 |
| 45 | 1.50 | 0.35 | 36.10 | 17.22 | 95.70 | 45.64 |
| 60 | 2.00 | 0.25 | 49.60 | 23.65 | 145.30 | 69.29 |
| 70 | 2.25 | 0.21 | 20.00 | 9.54 | 165.30 | 78.83 |
| 80 | 2.50 | 0.18 | 24.10 | 11.49 | 189.40 | 90.32 |
| 100 | 2.75 | 0.15 | 17.20 | 8.20 | 206.60 | 98.52 |
| 120 | 3.00 | 0.13 | 2.00 | 0.95 | 208.60 | 99.48 |
| 170 | 3.50 | 0.09 | 0.70 | 0.33 | 209.30 | 99.81 |
| 200 | 3.74 | 0.07 | 0.10 | 0.05 | 209.40 | 99.86 |
| 230 | 4.00 | 0.06 | 0.00 | 0.00 | 209.40 | 99.86 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.64 | 2.36 | 2.15 | 1.59 | 0.88 | 0.55 | -0.88 |

| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Statistics | 1.33 | 0.40 | 1.23 | -2.1 | 8.83 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22

# Granularmetric Report

Depths and elevations based on measured values

Project Name: ATM - Pine Island - Hilton Head - 2022

Sample Name: 2022-PI-HOLE8

Analysis Date: 04-21-22

Analyzed By: HDM

TI Coastal SERVICES, INC.
TI Coastal Services, Inc
387-B N. Green Meadows Dr
Wilmington, NC 28405
ph 910.821.1358
fax 910.821.1359

| Easting (ft): | Northing (ft): | Coordinate System: | Elevation (ft): |
|---|---|---|---|
| | | South Carolina State Plane | 0.0 NAVD88 |

| USCS: | Munsell: | Comments: |
|---|---|---|
| SW | Wet - 10YR-7/1<br>Dry - 10YR-8/1 | |

| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shells (%): |
|---|---|---|---|---|---|---|---|
| 208.80 | 208.80 | 0.10 | 0.05 | #230 - 0.10 | | | 5.00 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|---|---|---|---|---|---|---|
| 3" | -6.25 | 76.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.75" | -4.25 | 19.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.375" | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -2.25 | 4.76 | 3.30 | 1.58 | 3.30 | 1.58 |
| 5 | -2.00 | 4.00 | 1.50 | 0.72 | 4.80 | 2.30 |
| 7 | -1.50 | 2.83 | 1.80 | 0.86 | 6.60 | 3.16 |
| 10 | -1.00 | 2.00 | 1.50 | 0.72 | 8.10 | 3.88 |
| 14 | -0.50 | 1.41 | 3.10 | 1.48 | 11.20 | 5.36 |
| 18 | 0.00 | 1.00 | 4.80 | 2.30 | 16.00 | 7.66 |
| 25 | 0.50 | 0.71 | 10.20 | 4.89 | 26.20 | 12.55 |
| 35 | 1.00 | 0.50 | 18.40 | 8.81 | 44.60 | 21.36 |
| 45 | 1.50 | 0.35 | 23.80 | 11.40 | 68.40 | 32.76 |
| 60 | 2.00 | 0.25 | 35.50 | 17.00 | 103.90 | 49.76 |
| 70 | 2.25 | 0.21 | 24.30 | 11.64 | 128.20 | 61.40 |
| 80 | 2.50 | 0.18 | 37.80 | 18.10 | 166.00 | 79.50 |
| 100 | 2.75 | 0.15 | 31.40 | 15.04 | 197.40 | 94.54 |
| 120 | 3.00 | 0.13 | 8.40 | 4.02 | 205.80 | 98.56 |
| 170 | 3.50 | 0.09 | 2.60 | 1.25 | 208.40 | 99.81 |
| 200 | 3.74 | 0.07 | 0.10 | 0.05 | 208.50 | 99.86 |
| 230 | 4.00 | 0.06 | 0.10 | 0.05 | 208.60 | 99.90 |

| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
|---|---|---|---|---|---|---|
| 2.78 | 2.57 | 2.44 | 2.01 | 1.16 | 0.70 | -0.62 |

| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Statistics | 1.65 | 0.32 | 1.13 | -1.69 | 6.35 |

GRANULARMETRIC REPORT ATM-PINE ISLAND-HILTON HEAD 2022.GPJ FL DEP ROSS.GDT 4/27/22