



July 28, 2016

James Boyer, PhD
United States Army Corps of Engineers
Philadelphia District
Wanamaker Building, 100 Penn Square East
Philadelphia, PA 19107-3390

RE: Stone Harbor Dredging Permit Modification
USACE Permit: CENAP-OP-R-2015-167-24

Mr. Davis,

On behalf of the Borough of Stone Harbor (Stone Harbor), New Jersey, Sevenson Environmental Services, Inc. (SES) hereby submits this permit modification and two revised work plans (Attached) for your review and approval. Sevenson is proposing an alternate approach to dredging. To complete the project on time, Sevenson feels the best approach for success involves mechanical dredging, hopper barge transport, mechanical offloading and stabilization with portland cement for disposal.

On May 11, 2016 the Borough of Stone Harbor, COWI (Borough's Dredging Project Engineer), and Sevenson met with the NJDEP Office of Dredging and Sediment Technology to discuss the next phase of the dredging project which is scheduled to begin September 2016.

This letter details the changes we discussed on May 11, 2016 related to means and methods that will need to be addressed in a permit modification. The text below is current wording amongst all of permit revisions to date as well as suggested revisions to account for the addition of mechanical dredging and the use of portland cement for stabilization and dewatering.

This letter also contains:

1. Revised Dredging Work Plan Dated July 7, 2016
2. Revised Dredge Material Dewatering and Management Plan Dated July 7, 2016
3. National Marine Fisheries (NMFS) Guidance Document to be used for consultation by USACE with NMFS
4. Correspondence between Tim Donegan (Sevenson) and James Boyer (USACE)



Revised Dredging Work Plan Dated July 7, 2016



Dredging Work Plan - **ADDENDUM**

SUBMITTED TO:



SUBMITTED BY:

**SEVENSON ENVIRONMENTAL SERVICES, INC.
2749 LOCKPORT ROAD
NIAGARA FALLS, NY 14305**

**October 19, 2015
Rev 1 October 23, 2015
Rev 2 November 12, 2015
Rev 3 July 7, 2016**

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Appendix A – Site Layout Plan

Appendix B – Dredge Equipment

1 Introduction

Sevenson Environmental Services, Inc. (Sevenson) is pleased to provide the following Dredging Work Plan to the Borough of Stone Harbor for the Stone harbor Maintenance Dredging Project. This Work Plan was developed as an addendum to the approved Plan dated November 12, 2015.

1.1 Understanding the Work

Sevenson fully understands the importance of meeting the Borough's number one objective of completing the dredging of 95,000 cubic yards on time while balancing the needs of the residential dredging if required. Based on the contract documents, Sevenson understands that the major elements of work under this contract include, but are not limited to:

- ▶ Preform Phase II Sediment Sampling and Analysis (filed and lab work)
- ▶ Mobilization & Site Preparation
- ▶ Site Improvements
- ▶ Installation of decant storage tanks for water staging
- ▶ Mechanical dredging (approximately 85,000 cy)
- ▶ Barge transport of sediment
- ▶ Stabilization of sediment with portland cement or clean sand
- ▶ Disposal of Sediment at an approved landfill
- ▶ Site Restoration
- ▶ Demobilization

2 Mobilization

Mobilization will include construction of the containment pad, delivery of dredging equipment, excavators, tugs, and barges to the site. The work will also include the mobilization of work trailers, installation of sediment and erosion controls, and protection of borough owned property located in the municipal marina (i.e. light posts, park benches, etc.). Specifically, site mobilization will include:

- ▶ Configuration of the site as shown in the attached drawing No. 1 Site Layout Year 2 (Appendix A).
- ▶ Erosion controls using concrete Jersey barriers sealed/foamed for watertight pad as shown on drawing.
- ▶ Erosion control entrance using crushed stone and an asphalt berm similar to Year 1 entrance configuration.
- ▶ Opening part of the sump pits up from the previous season and inspecting them. Only a small portion of the sump pit will now be needed due to the lower flows anticipated on the pad. A 3'x3'x3' foot pit will be opened. When work is completed the steel sheeting will be pulled and the parking lot repaired as detailed by COWI in the electronic message received on Nov 10, 2015.

- ▶ Sump pits will be surrounded with erosion control measures composed of stone wrapped in geotextile. The stone and geotextile will form a 2 foot berm around the perimeter of the pit.
- ▶ Plugging existing storm water pipes and manholes in parking lot to keep contact water and rain water on the pad. Both the inlets and outlets will be plugged.
- ▶ Drip pan at bulkhead that drains back to the pad. The drip pan will be approximately 10 feet wide and 30 feet long as shown on the attached drawing.
- ▶ 40' x 40' x 6' mixing bin lined with steel road plate on the bottom to avoid parking lot damage. The bin will have an air capacity of 300 CY up to 5 feet with 1 foot of freeboard. This bin will be used for sediment amending only, not water storage. .
- ▶ Temporary fender piles will be installed by water jetting at the barge offloading area along south end of bulkhead. Approximately eight wooden timber piles will be installed one foot off of the existing bulkhead face. They will be spaced approximately 10 feet from one another totaling 70 feet. This will keep material barges from contacting the Borough's bulkhead.
- ▶ Personnel pier installed for vessel mooring (location to be agreed upon with the Borough and COWI). For now, we assume we can use space in the marina. Some floating piers and pilings may need to be moved to make space for work boats docking. Pilling will be replaced to the satisfaction of the Borough's engineer. The largest work boat would be 25 feet. The boats would be moored to a modular float pier (sectional barge) that Sevenson will install.
- ▶ Remove three of the Boroughs lights located along the face of the bulkhead/walkway in the vicinity of the offloading operations and stage them safely away from bulkhead unloading operations.

3 Dredging

Dredging operations will be performed using one or two excavator type dredges, depending upon equipment availability. The dredges will be fitted with a 2 CY to 5 CY clamshell buckets depending on the size of the machine used. Currently, we anticipate using one Komatsu PC800 with a 5 CY dredge bucket.

The figure to the right shows one of the potential dredge buckets that will be used for operations.

The dredge platform (i.e. a flexi float barge 50 feet by 80 feet) will consist of modular floats attached to one another to provide a stable working platform. The working platform will draft approximately three feet when fully loaded with the dredge and auxiliary equipment (i.e. supplemental fuel, counter weights, welders, hydraulic spud power packs, etc.). The figure below shows the excavator dredge and 100 CY scows. Currently, Sevenson anticipates using approximately six to eight 100 CY scows to meet dredging production.



The dredging barge will be accompanied by a 400 to 600 HP tender for moving as work advances.

Sevenson will use the dredge positioning system developed by Hypack (Dredgepack). The system uses a combination of inclinometers, software and dual RTK GPS antennas for dredge bucket location. The existing dredge surface and target dredge surface will be programmed into the system. The operator will simultaneously view a plan and profile of the dredge cut on the computer screen.



Transport of sediment barges under the 96th Street Bridge is limited to 10 feet at high tide. Sevenson anticipates using tugs with telescopic pilot houses or sized to fit under the structure. However, if appropriately sized tugs are not available, the bridge will need to be opened and closed for each tug passes to and from the offloading pad. Sevenson will try and minimize opening and closing the bridge by using tandem tows if tidal currents are not too strong.

Detailed specifications for the excavator and dredging components are attached in Appendix B.

3.1 Barge Decanting and Water Handling

The tug will transport the barge to the unloading area located in the southwestern corner of the parking lot. A small trash pump will be used to decant the barge to 18,000 gallon frac tanks located in the parking lot. The water will be allowed to settle for approximately 24 hours before it is released to the North Basin. Sevenson anticipates using a 4 inch pump that can deliver 200 GPM during decanting.

Pad contact water and rain water will be removed from the sump pits with a 1,000 GPM pump that will feed to a 20 CY geotube in a roll off container. A polymer may be used to help promote dewatering in the geotube bag filter prior to discharge to the North Basin. When the Geotube is full of sediment, the bag will be broken open inside the roll off container and a portland cement super sack will be added to the material. The material and portland cement will be blended inside the roll off. Once mixing is complete, the material will be staged with the other dredged material for disposal.

3.2 Dredge Sequence

Sevenson anticipates dredging activities will commence in South Basin and generally progress from North to South. However, Sevenson understands that the owner will prioritize individual dredge areas for each phase of the project per specification section 01010, Part 01, 1.03, E. Work will end in Stone Harbor Hole/Access Channel Area.

A majority of the sand material is located towards the South end of the project. Sevenson will work with the Borough to continue to look for beneficial uses of the sand materials.

Sevenson understands that COWI and the owner are investigating several NJDEP HPO targets and these may alter the dredge sequence and/or the dredge volume.

Dredging work will begin on approximately September 15, 2016 pending permit modifications underway.

3.3 Positioning

Sevenson's dredge positioning system has been project tested and proven to meet and exceed the accuracies required on this project.

The dredge will use an RTK GPS system. The operating software will be the Dredgepack system. The dredge will be fitted with inclinometers, measured, and calibrated within the Dredgepack system and coupled with project templates, and hydrographic surveys to provide the real-time location and control of the dredge bucket through the project template. Calibration of the systems will be performed regularly by comparing water levels and x,y,z position derived by the Dredgepack software with independent values derived from a RTK "Rover".

The dredge will be positioned using a 400 to 600 HP tender. The tender will also be used to move 100 CY dredge material scows (or larger). If the dredge requires maintenance, it can be transported back to a Sevenson-installed temporary modular dock or piling rafting area.

3.4 Production

Sevenson has studied the dredge area limits, material types, and thickness of sediments remaining to be dredged. Assuming one Komatsu PC 800 excavator with a 5 CY dredge bucket, the anticipated production rates working twelve hours per day, six days per week are:

- ▶ South Basin – 1,180 CY/Day
- ▶ Snug Harbor – 1,220 CY/Day
- ▶ Shelter Haven – 1,244 CY/Day
- ▶ Stone Harbor – 1,090 CY/Day
- ▶ Pleasure Bay – 1,000 CY/Day
- ▶ Carnival Bay – 980 CY/Day
- ▶ Sanctuary Bay – 1,080 CY/Day
- ▶ Paradise Bay – 1,296 CY/Day
- ▶ Access Channel – 910 CY/Day
- ▶ Stone Harbor Hole – 1,020 CY/Day

Work hours will be 7 am to 7 pm Monday through Saturday with limited activity on Sundays. If work falls behind schedule, Sevenson may choose to work Sundays.

4 Transportation & Unloading Plan

Trucks for offsite transport will enter the site (See Drawing 1 in Appendix A) at the gate. Signage will also direct the trucks to the correct direction as detailed in the Traffic Control Plan.

Load out of materials will be performed by two front end loaders (Komatsu WA450's) filling the dump trucks.

Sevenson plans to dispose of the material at both Cape Mining and Kinsley's landfill Inc and is also examining the feasibility of disposing the materials at the BP/ARCO site located in City of Gloucester, Camden County, New Jersey. The materials that do not meet the disposal requirement for residential clean fill will go to Kinsley's or the BP/ACO site. The materials that do meet the disposal requirements will be transported one or all three of the sites identified. Potentially all three facilities will be used due to the volume of trucks required. Sevenson will begin load out of the stabilized sediment approximately one to two days after dredging begins. We will transport approximately 1,000 to 2,000 tons of sediment a day from the site.

Other options are being explored for disposal. Sevenson understands that alternate locations have to be approved and meet the requirements of the NJDEP Acceptable Use Determination. Other options include a local landfill closure in the Township of Hamilton and placement of separated sand on local beaches.

5 Coordination with Home Owners

As done during the 2015/2016 dredge season, in accordance with specification 01010-4, Sevenson will work with individual property owners to dredge their individual slips.

Sevenson will work with and negotiate private contracts with property owners to perform the dredging of private slips adjacent to the public portion of the waterways being dredged as part of this project. Sevenson has established a dedicated phone line and email address for coordination. They are:

Phone - 716.998.2086

Email - stoneharbor@sevenson.com

6 Holiday and Storm Events

During holidays, storm events, and weekend downtime; tugs will be staged in the North Basin Marina area. Dredges will be secured in the lagoons they are operating within during non-work hours. During storm events, material barges will not be staged on the face of the unloading bulkhead. They will be secured to the dredge platform within one of the lagoons to allow movement up and down with the tidal surge. Sediment barges will be emptied prior to storm events.

If site flooding occurs, the entrance into the site will be bermed off with 4' x 4' bulk sand bags to prevent materials from leaving the site. Any water that contacts the site will be pumped through the geotextile tube onsite. Assuming 1 foot of water over the entire pad working area (91,000 SF), 680,000 gallons will be treated through the geotextile tube.

APPENDIX A – Site Configuration

APPENDIX B – Dredge Equipment

ENGINE AND RELATED ITEMS:

- Air cleaner, double element, dry
- Variable speed cooling fan, with fan guard
- Engine, Komatsu SAA6D140E-5

ELECTRICAL SYSTEM:

- Alternator, 50 amp, 24 V
- Batteries, 170 Ah, 2 x 12 V
- Starting motors, 11kW
- Working lights-2 boom, 2 cab top front, 1 cab bottom
- Step light with timer
- Auto decelerator

UNDERCARRIAGE:

- 610 mm 24" double grouser
- 8 track/3 carrier rollers (each side)
- Hydraulic track adjusters (each side)
- Variable track gauge
- Sealed track

GUARDS AND COVERS:

- Dust-proof net for radiator and oil cooler
- Pump/engine room partition cover
- Travel motor guards

OPERATOR ENVIRONMENT:

- Damper mount, all-weather, sound-suppressed cab with tinted safety glass windows, lockable door, intermittent window wiper and washer, floor mat, cigarette lighter and ashtray
- Multi-function color monitor, electronically-controlled throttle dials, electric service meter, gauges (coolant temperature, hydraulic oil temperature and fuel level), caution lights (electric charge, engine oil pressure, and air cleaner clogging), indicator lights (engine preheating and swing lock light) level check lights (coolant, engine oil, and hydraulic oil level), self-diagnostic system with trouble data memory
- Seat, fully adjustable with suspension
- Cab with pull-up type front window
- Rear view mirror (R,H)

*** OPTIONAL EQUIPMENT**

- Additional track guard
- Air suspension seat
- Alternator, 75 Amp, 24 V
- Arms (Backhoe):
PC800-8:
—3600 mm 11'10" arm assembly
—4600 mm 15'1" arm assembly
—5600 mm 18'4" arm assembly
PC800SE-8:
—2945 mm 9'8" SE arm assembly
- Auto air conditioner
- Automatic greasing
- Booms (Backhoe):
PC800-8:
—8200 mm 26'11" boom assembly
PC800SE-8:
—7100 mm 23'4" boom assembly

- Cab front guard (ISO 10262 level 2)
- Cab with fixed front window
- Catwalk
- Coolant heater
- Counterweight 11850 kg 26,120 lb
- Double flange track roller
- 12V electric supply
- Fire extinguisher
- Full length track guard
- General tool kit
- Grease gun, electric pump with indicator
- High cab mount
- Interconnected horn and warning light
- Large-capacity batteries
- Loading shovel attachments
- Lower wiper
- OPG top guard

- Provision for fast fuel fill
- Radio AM/FM
- Rain visor
- Rear view mirror (L,H)
- Seat belt 78 mm 3", 50 mm 2"
- Shoes:
—710 mm 28" double grouser
—810 mm 32" double grouser
—910 mm 36" double grouser
—1010 mm 40" double grouser
- Spare parts for first service
- Strengthened revolving frame underguard
- Sun visor
- Track frame undercover (center)
- Vandalism protection locks
- Working lights 2 (on cab)

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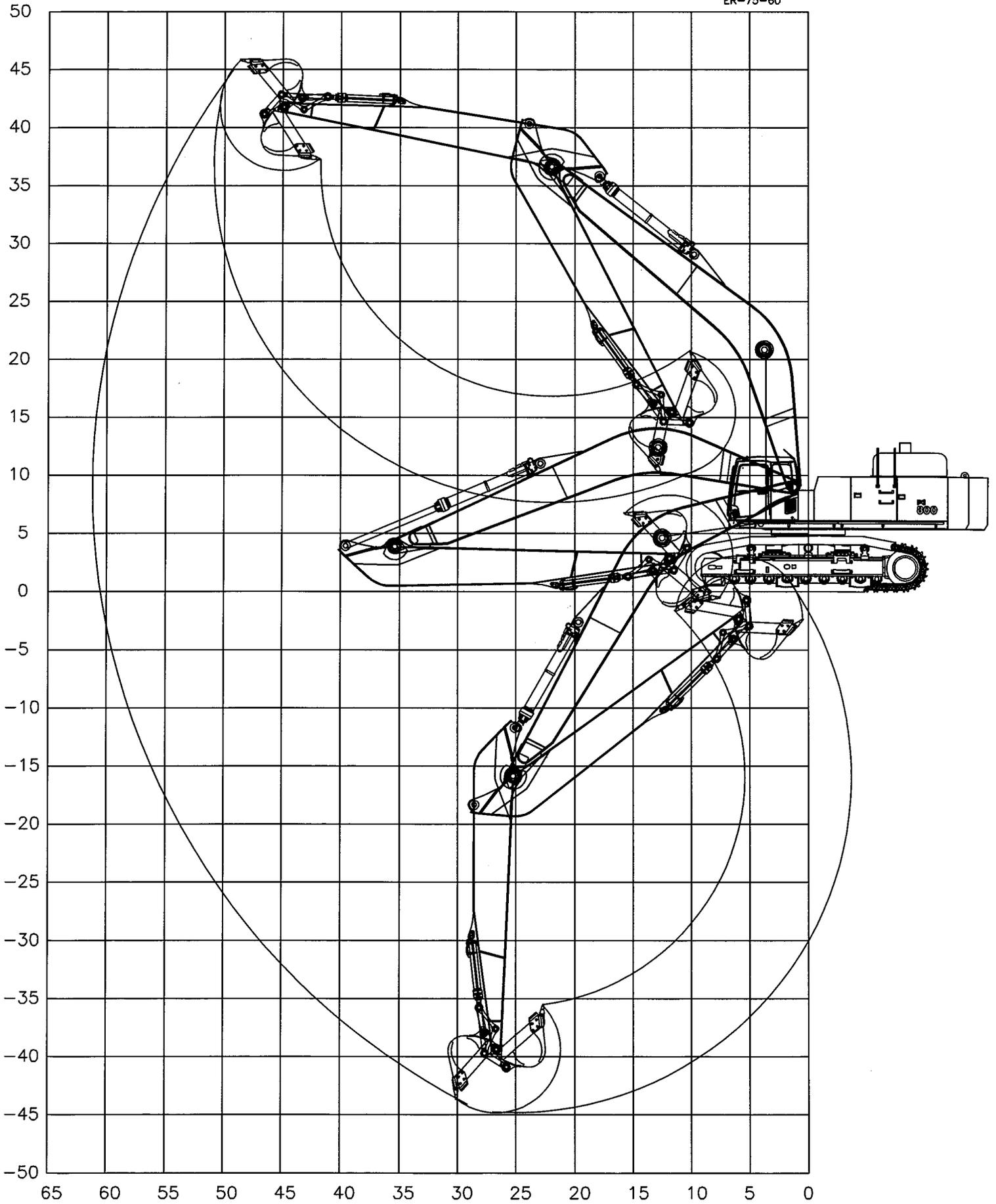


Photo may include optional equipment.

HYDRAULIC EXCAVATOR

PC 800-8 60' EXTREME REACH
40T BUCKET LINKAGE

ER-75-60



Three-Section Hopper Scow:

(2) 5'D x 10'W x 40'L Ballast Barges	23,000 lbs. (ea.)
(1) 8"D x 10'W x 40'L Fab'd Hopper Scow	30,000 lbs.
Displacement Area	1,200 s.f.
Total Weight	76,000 lbs.
Water Density	62.4 pcf

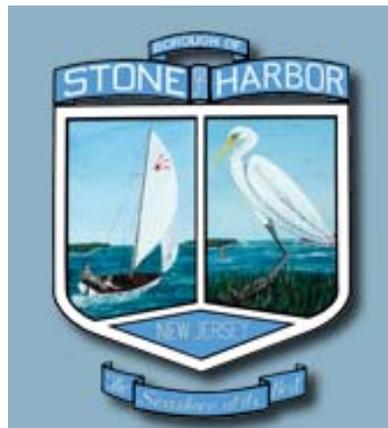
Draft (ft)	Freeboard (ft)	Tot. Displ. (lbs.)	Net Cap. (lbs.)	Net Vol. Capacity (cu. Yards) @				
				2000 lb/cy	2250 lb/cy	2500 lb/cy	2750 lb/cy	3000 lb/cy
1.0	4.0	74880	-1120	-1	0	0	0	0
1.2	3.8	89856	13856	7	6	6	5	5
1.4	3.6	104832	28832	14	13	12	10	10
1.6	3.4	119808	43808	22	19	18	16	15
1.8	3.2	134784	58784	29	26	24	21	20
2.0	3.0	149760	73760	37	33	30	27	25
2.2	2.8	164736	88736	44	39	35	32	30
2.4	2.6	179712	103712	52	46	41	38	35
2.6	2.4	194688	118688	59	53	47	43	40
2.8	2.2	209664	133664	67	59	53	49	45
3.0	2.0	224640	148640	74	66	59	54	50
3.2	1.8	239616	163616	82	73	65	59	55
3.4	1.6	254592	178592	89	79	71	65	60
3.6	1.4	269568	193568	97	86	77	70	65
3.8	1.2	284544	208544	104	93	83	76	70
4.0	1.0	299520	223520	112	99	89	81	75
4.2	0.8	314496	238496	119	106	95	87	79

Revised Dredge Material Dewatering and Management Plan Dated July 7, 2016



Dredge Material Dewatering and Management Plan - **ADDENDUM**

SUBMITTED TO:



SUBMITTED BY:

**SEVENSON ENVIRONMENTAL SERVICES, INC.
2749 LOCKPORT ROAD
NIAGARA FALLS, NY 14305**

**October 19, 2015
Rev 1 July 7, 2016**

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Appendix A – Site Layout Plan

1 Introduction

Sevenson Environmental Services, Inc. (Sevenson) is pleased to provide the following Dredge Material Dewatering and Management Plan to the Borough of Stone Harbor for the Stone Harbor Maintenance Dredging Project. This Work Plan was developed as an addendum to the approved Plan dated October 19, 2015.

1.1 Understanding the Work

Sevenson fully understands the importance of meeting the Borough's number one objective of completing the dredging of 95,000 cubic yards on time while balancing the needs of the residential dredging if required. Based on the contract documents, Sevenson understands that the major elements of work under this contract include, but are not limited to:

- ▶ Preform Phase II Sediment Sampling and Analysis (field and lab work)
- ▶ Mobilization & Site Preparation
- ▶ Site Improvements
- ▶ Installation of decant storage tanks for water staging
- ▶ Mechanical dredging (approximately 85,000 cy)
- ▶ Barge transport of sediment
- ▶ Stabilization of sediment with portland cement or clean sand
- ▶ Disposal of Sediment at and approved landfill
- ▶ Site Restoration
- ▶ Demobilization

2 Amending Operations

The tug will transport the sediment scows to the unloading area located in the southwestern corner of the parking lot. A small trash pump will be used to decant the barge to 18,000 gallon frac tanks located in the parking lot. The water will be allowed to settle for approximately 24 hours before it is released to the North Basin. Sevenson anticipates using a 4 inch pump that can deliver 200 GPM during decanting.

Following decanting, the barge tonnage will be used to determine amount of reagent needed (scow draft after decanting free water will be converted to tonnage of sediment in the barge).

A material handling excavator with a 3 CY material handling clamshell bucket will be used for unloading scows. This is the same Sennebogen excavator that was onsite for Year 1. The materials will be unloaded into a containment bin located on the pad.

The following steps detail the sequence of operations for the amending process.

- ▶ Super sacks of portland cement (PC) will be used as the amending reagent. Super sacks were selected to minimize dust onsite rather than using a bulk product. We will use approximately 33 Tons of portland cement per day or about 33 sacks.

- ▶ Place un-opened super sack in mixing bin on top of sediment, cover with wet sediment and blend using an excavator.
- ▶ Water misters/fans will be onsite for contingency dust control. Sevenson will develop and implement a dust monitoring action plan. Procedures will be in place prior to mobilization and equipment will be available onsite to handle dust if it becomes an issue. Equipment will also include a skid steer with a street sweeper attachment and real time dust monitors.
- ▶ Blended sediment will be transferred to staging bins to cure as shown in Appendix A. Early treatability study results indicate that portland cement blended with the sediment meets the paint filter requirement within 24 hours. If additional portland cement is required, the sediment will be put back in the mixing bin and additional portland cement will be added/mixed.
- ▶ Front end loaders will be used to load dump trucks with stabilized sediment. The stabilized sediment will be staged in the bins shown on in Appendix A. The northern pad area will be used as an alternative location for material staging if the southern pad area bins become full.
- ▶ If dust is generated from the material staged in the bins or alternate northern pile location becomes an issue, piles will be covered with tarps and weighted down or misted with water.
- ▶ The PC220 excavator will be available to mix and blend the sediment on a daily basis to meet the production rates identified in the Dredging Work Plan. If not, an additional excavator will be added.

3 Water Treatment

The details below provide the sequence and equipment that will be used for water treatment.

- ▶ Decant dredge scow using 4 inch trash pump @ 200 GPM to a 18,000 gallon frac tank.
- ▶ Per NJ regulations, water will be retained in the frac tank for 24 hours before being pumped back to the North Basin.
- ▶ Sump pits will collect pad contact water and pump it to a 20 CY geotextile tube in a roll off container. A polymer may be used to help promote dewatering in the geotextile tube.
- ▶ Decant water from the geotextile tube in the roll off will be released to the North Basin
- ▶ Both sump pits that collect water onsite will be processed through the onsite geotextile tube
- ▶ When the geotextile tube is full of sediment, the bag will be broken open inside the roll off container and a super sack added to the material. The material and portland cement will be blended inside the roll off. Once mixing is complete, the material will be staged with the other dredged material for disposal.
- ▶ If site flooding occurs, the entrance into the site will be bermed off with sand bags to prevent materials from leaving the site. Any water that contacts the site will be pumped through the WWTP onsite. Assuming 1 foot of water over the entire pad working area (91,000 SF), 680,000 gallons will be treated through the geotextile tube. Three geotextile tubes will be staged in roll offs to handle the anticipated flow.

APPENDIX A – Site Layout Plan

National Marine Fisheries (NMFS) Guidance Document

**Stone Harbor, NJ
Maintenance Dredging**

PURPOSE OF PROJECT

The purpose of the project is to restore navigational boating access to the residents of Stone Harbor. The last time the channels were dredged was 2004. The work consists of the dredging, dewatering, and stabilization at the Stone Harbor Marina parking lot, and truck transportation of the dredged material to an approved upland facility in New Jersey.

The work is located within various navigable waterways in the Borough of Stone Harbor, including: South Basin, Snug Harbor, Shelter Haven, Stone Harbor, Pleasure Bay, Carnival Bay, Sanctuary Bay, Paradise Bay, Stone Harbor Hole, and the Access Channel.

The contractor, Severson Environmental Services, Inc., is seeking authorization to switch from hydraulic dredging with geotextile tube dewatering to mechanical dredging, barge transport, and stabilization using portland cement. The contractor still intends to dispose of the materials at an approved upland facility.

The first season of dredging was performed using a 14” cutter suction dredge and a complex geotextile tube and polymer system stationed in the Stone Harbor Municipal Marina Parking Lot. This approach had limited success and dredged materials did not dewater as rapidly as treatability studies indicated. Wet dredge material from the geotextile tubes were blended with clean sand from a nearby quarry to stabilize and dewater the materials. After blending and mixing, the dredge material and sand was disposed of at a local landfill.

Moving forward, Severson would like to use a mechanical dredging approach and blend the dredged material with portland cement for disposal.

The sections below detail the plan and approach as well as addressing NMFS concerns.

DREDGING OPERATIONS

MOBILIZATION

Mobilization will include construction of the containment pad, delivery of dredging equipment, excavators, tugs, and barges to the site. The work will also include the mobilization of work trailers, installation of sediment and erosion controls, and protection of borough owned property located in the municipal marina (i.e. light posts, park benches, etc.).

Specifically, site mobilization will include:

- ▶ Configuration of the site as shown in the attached drawing No. 1 Site Layout Year 2.
- ▶ Erosion controls using concrete Jersey barriers sealed/foamed for watertight pad as shown on drawing.
- ▶ Erosion control entrance using crushed stone and an asphalt berm similar to Year 1 entrance configuration.

- ▶ Opening part of the sump pits up from the previous season and inspecting them. Only a small portion of the sump pit will now be needed due to the lower flows anticipated on the pad. A 3'x3'x3' foot pit will be opened.
- ▶ Sump pits will be surrounded with erosion control measures composed of stone wrapped in geotextile. The stone and geotextile will form a 2 foot berm around the perimeter of the pit.
- ▶ Plugging existing storm water pipes and manholes in parking lot to keep contact water and rain water on the pad. Both the inlets and outlets will be plugged.
- ▶ Drip pan at bulkhead that drains back to the pad. The drip pan will be approximately 10 feet wide and 30 feet long as shown on the attached drawing.
- ▶ 40' x 40' x 6' mixing bin lined with steel road plate on the bottom to avoid parking lot damage. The bin will have an air capacity of 300 CY up to 5 feet with 1 foot of freeboard. This bin will be used for sediment amending only, not water storage. .
- ▶ Temporary wooden fender piles 10 to 12 inches in diameter will be installed by water jetting them into place at the barge offloading area along south end of bulkhead. Approximately eight wooden timber piles will be installed one foot off of the existing bulkhead face. They will be spaced approximately 10 feet from one another totaling 70 feet. This will keep material barges from contacting the Borough's bulkhead.
- ▶ Personnel pier installed for vessel mooring (location to be agreed upon with the Borough and COWI). For now, we assume we can use space in the marina located in the North Basin. Some floating piers and pilings may need to be moved to make space for work boats docking. Pilling will be replaced to the satisfaction of the Borough's engineer. The largest work boat would be 25 feet. The boats would be moored to a modular float pier (sectional barge) that Severson will install. If existing pilings are pulled, they will be pulled out with an excavator. The pilings will be reinstalled by jetting them in. Vibratory and impact hammering will not be performed.
- ▶ Remove three of the Boroughs lights located along the face of the bulkhead/walkway in the vicinity of the offloading operations and stage them safely away from bulkhead unloading operations.

DREDGING EQUIPMENT

Dredging operations will be performed using one or two excavator type dredges, depending upon equipment availability. The dredges will be fitted with a 2 CY to 5 CY clamshell buckets depending on the size of the machine used. Currently, we anticipate using one Komatsu PC800 with a 5 CY dredge bucket.

The dredge platform (i.e. a flexi float barge 50 feet by 80 feet) will consist of modular floats attached to one another to provide a stable working platform. The working platform will draft approximately three feet when fully loaded with the dredge and auxiliary equipment (i.e. supplemental fuel, counter weights, welders, hydraulic spud power packs, etc.).

Currently, Severson anticipates using approximately four to six 100 CY scows to meet dredging production.

The dredging barge will be accompanied by a 400 to 600 HP tender for moving as work advances. This tug will also be used to transport barges from the dredge area to the offloading area at the Stone Harbor Municipal Marina. Severson anticipates having two of these tugs onsite for operations.

Severson will use the dredge positioning system developed by Hypack (Dredgepack). The system uses a combination of inclinometers, software and dual RTK GPS antennas for dredge bucket location. The existing dredge surface and target dredge surface will be programmed into the system. The operator will simultaneously view a plan and profile of the dredge cut on the computer screen.

Transport of sediment barges under the 96th Street Bridge is limited to 10 feet at high tide. Severson anticipates using tugs with telescopic pilot houses or sized to fit under the structure.

However, if appropriately sized tugs are not available, the bridge will need to be opened and closed for each tug passes to and from the offloading pad. Severson will try and minimize opening and closing the bridge by using tandem tows if tidal currents are not too strong.

BARGE DECANTING AND WATER HANDLING

The tug will transport the barge to the unloading area located in the southwestern corner of the parking lot. A small trash pump will be used to decant the barge to 18,000 gallon frac tanks located in the parking lot. The water will be allowed to settle for approximately 24 hours before it is released to the North Basin. Severson anticipates using a 4 inch pump that can deliver 200 GPM during decanting.

Pad contact water and rain water will be removed from the sump pits with a 1,000 GPM pump that will feed to a 20 CY geotextile tube in a roll off container. A polymer may be used to help promote dewatering in the geotextile tube bag filter prior to discharge to the North Basin. When the geotextile tube is full of sediment, the bag will be broken open inside the roll off container and a portland cement super sack will be added to the material. The material and portland cement will be blended inside the roll off. Once mixing is complete, the material will be staged with the other dredged material for disposal. Note that the geotextile tubes ARE NOT used for the primary dewatering of dredged material. They will only be used for collected solids from the pad contact water.

PROJECT DETAILS

- ▶ **Anticipated Starting Date:** The current contract between the Borough of Stone Harbor and Severson Environmental Service, Inc. allows access to Municipal Marina between September 5 and March 31 each season. These dates may vary based on the Boroughs needs and time restrictions.

- ▶ **Duration of project:** To complete the work Severson is currently contracted for, we would need approximately 97 work days Monday through Saturday. This schedule accounts for two Holidays (Thanksgiving and Christmas). Mobilization would begin early September and demobilization complete early January. Approximately 82,800 CY are remaining to dredge.
- ▶ **Applicable time of year restriction (please specify):**

Shellfishers Concerns

30day notice in advance of dredging

Winter Flounder, Anadromous Fish

This restriction was lifted November 2015.

DESCRIBE ALL ACTIVITIES TO BE CARRIED OUT

- ▶ **Include any mitigation/minimization measures proposed as part of the action (special permit conditions, restrictions on equipment, time of year):** Currently the project/permits limit channel dredging to hydraulic dredging. Residential slips can be dredge mechanically with hydraulic removal of the materials. Severson would like to change the approach to mechanical dredging for the channel dredging. Special permit conditions have been developed by the NJDEP and USACE already for existing permits.
- ▶ **If silt curtains or cofferdams, describe:**
 - **How will be installed** – A silt curtain is currently required for mechanical dredging activities by the contract specifications. The curtain will be attached to a 16” floating HDPE pipe that will be attached to the dredge barge. As the dredge moves, the curtain will move with it. A silt curtain of sufficient length and depth will be used. The photo below shows a silt curtain used of the Buffalo River remediation project that is attached to a HDPE pipe for flotation.



The materials will be assembled on land then lifted into the water with a crane or an excavator.

- **Size of area within the curtain or cofferdam** – An area of approximately 40x40 feet will be curtained off. As the dredge moves, the curtain will move with it.
- **How long the structure will be present.** – The silt curtain will be used for the duration of dredging.
- ▶ **If dredging, include the following information:**
 - **Dredge type:** Mechanical excavator type dredge with a dredge bucket 2 CY to 5 CY is size. Dredge barge will most likely be 50x80 feet.

- **Volume of material to be removed:** Currently, the anticipated volume remaining for removal is 82,800 CY spread amongst the channels. The volume breakdown by channel is:
 - South Basin – 5,000 CY
 - Snug Harbor – 8,000 CY
 - Shelter Haven Entrance – 1,800 CY
 - Stone Harbor – 4,000 CY
 - Pleasure Bay – 11,000 CY
 - Carnival Bay – 20,000 CY
 - Sanctuary Bay – 13,000 CY
 - Paradise Bay – 9,000 CY
 - Access Channel – 7,000 CY
 - Stone Harbor Hole – 4,000 CY

- **Authorized dimensions of channel and/or depths to be restored:** Channel widths vary by lagoon dredging area. The narrowest channel area is 100 feet and the largest is approximately 350 feet. The current USACE and NJDEP permits authorized dredging depth is -6 feet MLLW with 2 feet of allowable overdepth. The contract specifications have limited the dredge depth to -6 FF MLLW with 1 foot of allowable over depth.

- **Disposal location and estimate of number of trips:** Two landfills are currently authorized to receive materials. They are:
 - Kinsley’s Landfill – Gloucester County, New Jersey for materials that do not meet Residential Soil Remediation Standards
 - Cape mining and Recycling – Cape May County, New Jersey for material that do meet Residential Soil Remediation Standards
 - Tandem dump trucks will be used for disposal and permits current allow this. The number of trucks trips is approximately $82,800 \times 1.157 \text{ tons/CY} = 95,800 \text{ tons} / 22 \text{ tons per truck} = 4,354 \text{ truck trips}$

- **If maintenance is included, indicate the frequency and location of disposal:** Severson is only contracted for the current dredge amount. The next maintenance dredging cycle is unknown at this time.

- **Time of year proposed and future time of year restrictions:** Severson is only contracted for the current dredge amount. The next maintenance dredging cycle is unknown at this time.

- **Duration of work:** Severson is only contracted for the current dredge amount. The next maintenance dredging cycle is unknown at this time.

- ▶ **If pile driving, include the following information:**
 - **Number, diameter and type of piles** – Eight wooden piles, 30 to 40 feet long. Each pile will be approximately 10 to 12 inches in diameter.
 - **Installation/removal method** – Piles will be water jetted into placed. A small “A” frame barge will hold the pile in position. The pile tip will be lowered to the mudline and allowed to sink in under self-weight. The pile will not be hammered in. A 20 foot pipe with a 4 inch water pump attached to it will be placed next to the pile. The water jet will clear the way for the pile tip as mud and sand are

pushed out of the way. The pile will be lowered in the controlled manner to the desired elevation. When dredging work is complete and the piles are no longer needed, an excavator will pull the pile using a chain “choked” around the pile. The excavator will apply steady, upward pressure until the suction and friction between the pile and surrounding sediment are broken. Vibratory or impact hammers will not be used for pile installation.

- **Estimate of noise at the source and distance to relevant thresholds for species in the action area** – Based on review of the data presented in the acoustical spreadsheet, the water jetting approach and the use of wooden piles should not have an impact on the fish and/or turtles. Therefore we believe that this approach is a “No Effect” determination
- ▶ **Estimate of sediment plume size, duration and characteristics for any sediment disturbing activity:** Severson has reviewed the Turbidity table for “mechanical Dredging”. Without silt curtains, turbidity levels between 15 mg/L and 191 mg/L up to 2,000 feet from the dredge site are possible. However, the current contract specifications require silt curtains for mechanical dredging. The silt curtain will be attached to a 16” floating HDPE pipe that will be attached to the dredge barge. As the dredge moves, the curtain will move with it. A photo of the system is shown above.

▶ **If NPDES, include:**

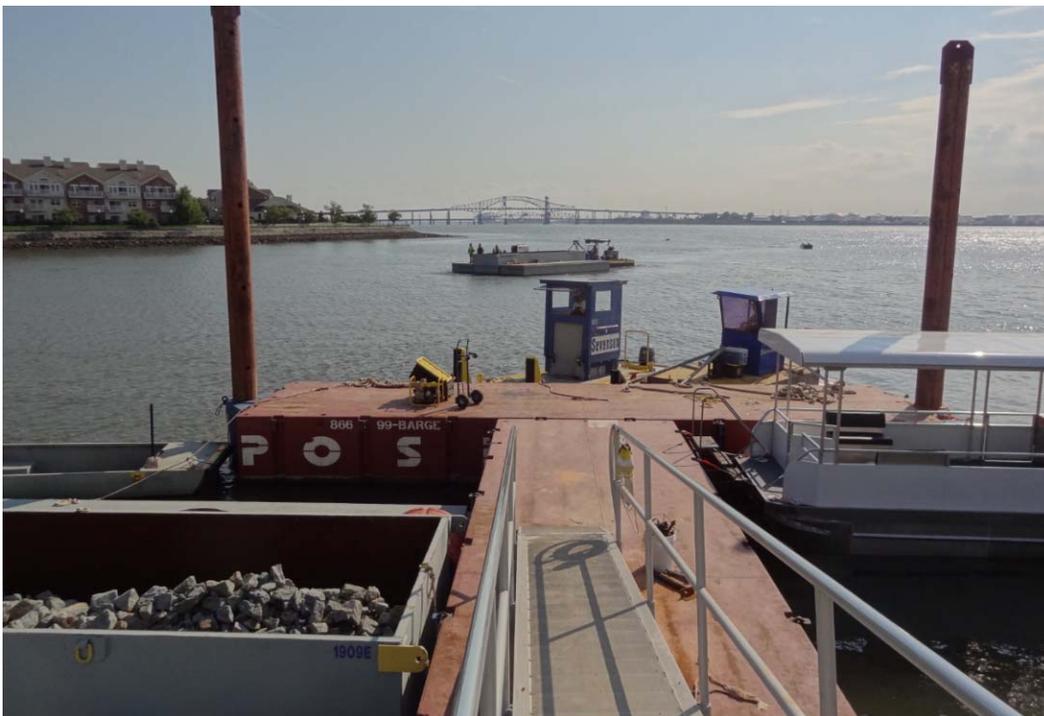
Severson obtained a 5G3 – Construction Activity Stormwater General Permit. The NJDES # is NJG0247847. Date of Issue was 10/26/2015. Currently the NJDEP and USACE permits allow decant water discharge back to North Basin with reporting/action limits for metals and monitoring of TSS.

The decant water discharge point is required by the permits and specifications to have a turbidity curtain surrounding it.

▶ **If there will be project vessels:**

- **Approximate size and type of vessel (i.e., deep draft, cargo, barge etc.)**
 - Severson plans to use 1 or 2 excavator type dredges with level cut buckets ranging in size from 2 to 5 CY yards. Each deck barge will be 50x80 feet with spuds to hold the barge in position.
 - We will transport dredge materials in water tight, 100 CY scows.
 - We will have 4 to 6 of these 100 CY barges in circulation depending on production and transport distance to the offloading area. The further away we are from the offloading area, the more barges we need.
 - A fully loaded scow drafts 4 feet
 - The 100 CY material scows are 30 feet wide and 40 to 50 feet long depending on the final model we use.
 - We will have two tugs to transport the barges from the work area to the offloading area (Marina Parking Lot).
 - The Tugs will be 400 to 600 HP each.
 - The tugs will push the 100 CY barge from the stern of the barge. The tugs are approximately 10 feet wide and 25 feet long and draft 4.5 feet

- **Available information on speed**
 - The Tugs will run 4MPH when full and 6 MPH when empty. There may be a slightly different to these numbers based on tidal currents and ebb/flood direction.
- Travel routes
 - The vessels/tugs will traverse the eastern edge of the ICW as tides/water depth allow. They will be in the middle of the when going under the 96th street bridge.
- Number of trips
 - We will dredge approximately 900 to 1,200 CY per day. This will be 17 to 20 barge loads making round trips each day.
 - If feasible and tidal currents allow, we will double tow the barges with one tug. This would cut the barge trips from 17 down to 9 per day making a round trip from the dredge to the marina and back to the dredge
- Presence of lookout
 - A lookout is not anticipated
- ▶ **If in-water or over-water structures:**
 - **Describe the size of the structure and how it will be constructed/installed**
 - Severson will spud a small 10x80 foot barge in the North Basin in a location that is mutually agreeable to the Borough of Stone Harbor and Severson. Two spuds will be used to keep the barge in place. The photo below shows a similar setup.



- ▶ **If rip-rap or other material being placed on shoreline or bottom, provide description of type of material and how it will be placed (e.g., small rocks by hand)**
 - Severson will not be placing materials in the water for this project.

DESCRIPTION OF THE ACTION AREA

The action area is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50CFR§402.02). For this project, the action area includes:

The waterway located along the western edge of The Borough of Stone Harbor. Specifically, the project begins at the southern edge of the Borough limits (LAT 39.040310, LON 74.776038) and the most north end of the project ends at the north end of the Borough limits (LAT 39.065797, LON 74.754668). The lagoons where dredging will take place are South Basin, Snug Harbor, Shelter Haven, Stone Harbor, Pleasure Bay, Carnival Bay, Sanctuary Bay, Paradise Bay, Stone Harbor Hole, and the Access Channel. The barges will transport the eastern edge of the “Great Channel” from the dredge areas to the municipal parking lot.

DESCRIBE THE HABITAT IN THE ACTION AREA

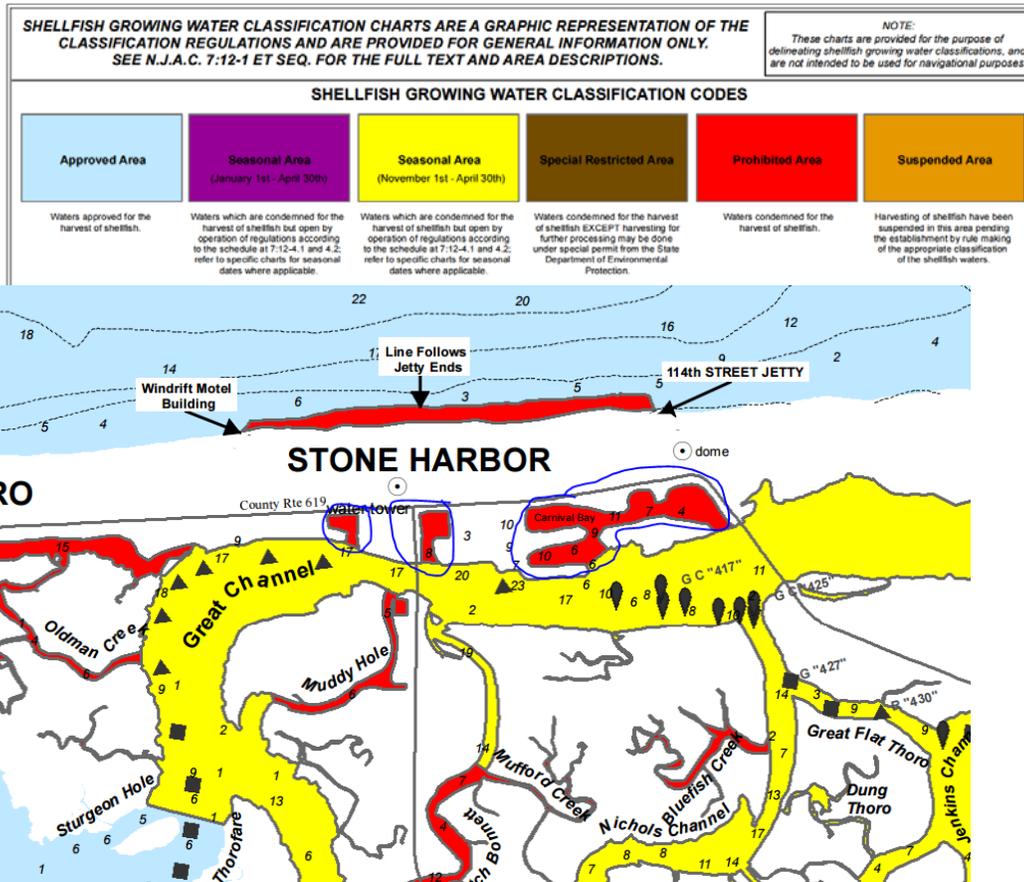
- Water depths within the dredge areas range from -6 to + 0 Feet MLLW.
- Tidal range in the area is 4.6 Feet
 - Mean Higher High Water - 4.61 Feet MLLW
 - Mean Sea level - 2.22 Feet MLLW
 - Mean Tide Level – 2.19 Feet MLLW
 - Mean Lower Low Water – 0.00 Feet MLLW
 - Source: NOAA Tidal Bench Mark Sheet 8535419
<https://tidesandcurrents.noaa.gov/benchmarks.html?id=8535419>
- Substrate varies by dredge area. COWI (Boroughs Engineer) performed a sampling event in preparation to submit permit application to the U.S. Army Corps of Engineers (USACE) and the State of New Jersey Department of Environmental Protection (NJDEP) requesting authorization for maintenance dredging within the Stone Harbor Lagoons with upland disposal of the dredged materials. Work was performed in 2014 and the report was completed in 2015 in order to meet the testing requirements for a NJDEP Acceptable Use Determination (AUD).

The material types by dredge area are presented below:

Dredge Area	Sample ID	% Gravel	% Sand	% Silt	% Clay
South Basin	S-04	0.0%	19.2%	53.3%	27.5%
South Basin	S-05	0.0%	14.2%	50.2%	35.6%
South Basin	S-05a	8.6%	58.6%	17.7%	15.1%
Sung Harbor	S-06	0.3%	29.7%	40.0%	30.0%
Sung Harbor	S-07	0.0%	2.5%	59.8%	37.7%

Sung Harbor	S-08	0.0%	1.8%	58.7%	39.5%
Shelter Haven	S-09	0.0%	69.6%	16.1%	14.3%
Shelter Haven	S-10	0.0%	26.0%	48.1%	25.9%
Shelter Haven	S-10a	0.0%	11.3%	60.6%	28.1%
Stone Harbor	S-12	0.0%	24.8%	51.9%	23.3%
Stone Harbor	S-13	0.3%	83.5%	11.8%	4.4%
Pleasure bay	S-14	0.0%	2.1%	67.4%	30.5%
Pleasure bay	S-15	0.0%	2.2%	65.4%	32.4%
Carnival bay	S-17	0.0%	11.7%	52.7%	35.6%
Carnival bay	S-17a	0.0%	12.9%	49.9%	37.2%
Carnival bay	S-18	0.0%	2.9%	62.1%	35.0%
Sanctuary Bay	S-20	0.0%	5.7%	61.8%	32.5%
Sanctuary Bay	S-21	0.2%	81.5%	11.0%	7.3%
Paradise Bay	S-22	0.0%	31.9%	45.4%	22.7%
Paradise Bay	S-23	0.0%	81.7%	11.4%	6.9%
Access Channel	S-16 (0-3.4')	0.0%	82.1%	0.0%	17.9%
Access Channel	S-16 (3.4-7.4')	0.0%	91.2%	0.0%	8.8%
Access Channel	S-19	0.0%	37.2%	38.2%	24.6%
Access Channel	S-16a	0.0%	95.5%	0.0%	4.5%
Access Channel	S-16b	0.0%	90.6%	0.0%	9.4%
Stone Harbor Hole	S-24	0.0%	90.8%	0.0%	9.2%
Stone Harbor Hole	S-25	0.0%	96.4%	0.0%	3.6%
Stone Harbor Hole	S-26	0.0%	92.3%	0.0%	7.7%

- The current contract dredging plans have wetland vegetation mapped. The specifications indicate a 25 foot buffer from all wetlands. The contract drawings will be provided as needed.
- Salinity – From the Report *Hereford Inlet to Cape May Inlet Final Feasibility Report and Integrated Environmental Assessment* prepared by USACE and NJDEP 2014.
 - Salinity varied little from surface to bottom ranging from 29.7 to 30.0 ppt. The salinity in this area was slightly lower than full strength seawater, indicating this area may have some estuarine influence from the Delaware Bay. Similar water quality investigations were conducted within the northern project area at Hereford Inlet in September 2000 (Versar 2001). Bottom water quality measurements within the Inlet measured temperature at 21.1°C, pH at 8.0, salinity at 31.3 ppt and dissolved oxygen concentrations at 8.18 mg/l
- Shellfish Beds – The Figure below shows the Shellfish Growing Water Classification Codes. This was published in 2015 by NJDEP.
- Note that the stone harbor dredge areas are labored as “Prohibited Area”. Specifically the dredge areas are circled in blue below.



To establish the Action Area, consider the project footprint (e.g., where the dredging will take place, where structures will be removed or installed etc.) as well as...

- **Dredging**
 - **Disposal** – Dredge materials will not be disposed of in open water or in a confined disposal facility. All materials will be disposed of at an upland facility.
- **Pile Driving**
 - **How far does noise travel from the piles being installed** – Severson anticipates water jetting the pilling in. We will not hammer or vibrate the piles in.
 - Extent of sediment disturbance
- **Vessel traffic**
 - **Number, type, and route of vessels to and from the project site as well as operations and functions at the project site**
 - Severson plans to use 1 or 2 excavator type dredges with level cut buckets ranging in size from 2 to 5 CY yards. Each deck barge will be 50x80 feet with spuds to hold the barge in position.
 - We will transport dredge materials in water tight, 100 CY scows.

- We will have 4 to 6 of these 100 CY barges in circulation depending on production and transport distance to the offloading area. The further away we are from the offloading area, the more barges we need.
 - A fully loaded scow draft 4 feet
 - The 100 CY material scows are 30 feet wide and 40 to 50 feet long depending on the final model we use.
 - We will have two tugs to transport the barges from the work area to the offloading area (Marina Parking Lot).
 - The Tugs will be 400 to 600 HP each.
 - The tugs will push the 100 CY barge from the stern of the barge. The tugs are approximately 10 feet wide and 25 feet long and draft 4.5 feet
- **If there is any activity on land, include it. If the effects of land based activities do not extend into the water, then explain that no species will be exposed to effects of land-based activities so will not be considered further.**

The effects of land based operations will not extend into the water. The dredge materials will be processed on land at the Stone Harbor Municipal parking lot Marina. A detailed approach to processing the materials are provided below.

The tug will transport the sediment scows to the unloading area located in the southwestern corner of the parking lot. A small trash pump will be used to decant the barge to 18,000 gallon frac tanks located in the parking lot. The water will be allowed to settle for approximately 24 hours before it is released to the North Basin. Severson anticipates using a 4 inch pump that can deliver 200 GPM during decanting.

Following decanting, the barge tonnage will be used to determine amount of reagent needed (scow draft after decanting free water will be converted to tonnage of sediment in the barge). A material handling excavator with a 3 CY material handling clamshell bucket will be used for unloading scows. This is the same Sennebogen excavator that was onsite for Year 1. The materials will be unloaded into a containment bin located on the pad.

The following steps detail the sequence of operations for the amending process.

- ▶ Super sacks of portland cement (PC) will be used as the amending reagent. Super sacks were selected to minimize dust onsite rather than using a bulk product. We will use approximately 33 Tons of portland cement per day or about 33 sacks.
- ▶ Place un-opened super sack in mixing bin on top of sediment, cover with wet sediment and blend using an excavator.
- ▶ Water misters/fans will be onsite for contingency dust control. Severson will develop and implement a dust monitoring action plan. Procedures will be in place prior to mobilization and equipment will be available onsite to handle dust if it becomes an issue. Equipment will also include a skid steer with a street sweeper attachment and real time dust monitors.
- ▶ Blended sediment will be transferred to staging bins to cure. Early treatability study results indicate that portland cement blended with the sediment meets the paint filter

requirement within 24 hours. If additional portland cement is required, the sediment will be put back in the mixing bin and additional portland cement will be added/mixed.

- ▶ Front end loaders will be used to load dump trucks with stabilized sediment. The stabilized sediment will be staged in the bins. The northern pad area will be used as an alternative location for material staging if the southern pad area bins become full.
- ▶ If dust is generated from the material staged in the bins or alternate northern pile location becomes an issue, piles will be covered with tarps and weighted down or misted with water.
- ▶ The PC220 excavator will be available to mix and blend the sediment on a daily basis to meet the production rates identified in the Dredging Work Plan. If not, an additional excavator will be added.

The details below provide the sequence and equipment that will be used for water treatment.

- ▶ Decant dredge scow using 4 inch trash pump @ 200 GPM to a 18,000 gallon frac tank.
- ▶ Per NJ regulations, water will be retained in the frac tank for 24 hours before being pumped back to the North Basin.
- ▶ Sump pits will collect pad contact water and pump it to a 20 CY geotextile tube in a roll off container. A polymer may be used to help promote dewatering in the geotextile tube.
- ▶ Decant water from the geotextile tube in the roll off will be released to the North Basin
- ▶ Both sump pits that collect water onsite will be processed through the onsite geotextile tube
- ▶ When the geotextile tube is full of sediment, the bag will be broken open inside the roll off container and a super sack added to the material. The material and portland cement will be blended inside the roll off. Once mixing is complete, the material will be staged with the other dredged material for disposal.
- ▶ If site flooding occurs, the entrance into the site will be bermed off with sand bags to prevent materials from leaving the site. Any water that contacts the site will be pumped through the WWTP onsite. Assuming 1 foot of water over the entire pad working area (91,000 SF), 680,000 gallons will be treated through the geotextile tube. Three geotextile tubes will be staged in roll offs to handle the anticipated flow.

Correspondence between Tim Donegan (Sevenson) and James Boyer (USACE)

Donegan, Tim

From: Donegan, Tim
Sent: Wednesday, July 20, 2016 4:30 PM
To: Boyer, James N NAP; Matt Dalon; Davis, Mark
Cc: Jill Gougher (GougherJ@shnj.org); A067772_Mail; Crystal, Mike; Marrone, Mike; Crystal, Michael J.; Elia, Michael; Elia, Mike II
Subject: RE: WFD Permit #0510-15-0002.1, Phase 2 Strategy
Attachments: Stone Harbor_Dredging Plan Rev 3 7.6.pdf;
Stone_Harbor_DM_Dewatering_&_Mngt_Plan.pdf; Public Notice Residents Letter 7.18.16.pdf; Cap May Herald.pdf; SEVE-3718-SHT1-WEST-OF-NORTHBASIN.PDF

Jim,

As discussed today, below and attached are items that will be useful for the USACE evaluation process moving forward.

- DRAFT Dredging Plan. Currently under review by COWI and the Borough of Stone Harbor
- DRAFT Dewatering and Management Plan. Currently under review by COWI and the Borough of Stone Harbor
- The Borough of Stone Harbor will send a Blast Email to everyone on their email list notifying them on the public meeting in August (Date TBD) to discuss the dredging operations and changes to the project. The Borough will also directly contact the individual property owners associations who will also send out email blasts to each person registered on their list. I confirmed this with Jill Gougher today (7/20/16).
- Per the NJDEP, we sent out notifications by Certified Mail to the residents within 200 feet of the dewatering pad AND Atlantic City Electric, Cape May County Engineer, Planning Board, Public Works, etc. See attached Public Notice Residents Letter 7.18.16.pdf
- A legal public notice will run in the Cape May Herald 7/27/16. Please see attached add Cape May Herald.pdf

Equipment Vessels

- Severson plans to use 1 or 2 excavator type dredges with level cut buckets ranging in size from 2 to 5 CY yards. Each deck barge will be 50x80 feet with spuds to hold the barge in position.
- We will transport dredge materials in water tight, 100 CY scows.
- We will have 4 to 6 of these 100 CY barges in circulation depending on production and transport distance to the offloading area. The further away we are from the offloading area, the more barges we need.
- A fully loaded scow draft 4 feet
- The 100 CY material scows are 30 feet wide and 40 to 50 feet long depending on the final model we use.
- We will have two tugs to transport the barges from the work area to the offloading area (Marina Parking Lot).
- The Tugs will be 400 to 600 HP each.
- The tugs will push the 100 CY barge from the stern of the barge. The tugs are approximately 10 feet wide and 25 feet long and draft 4.5 feet
- The Tugs will run 4MPH when full and 6 MPH when empty. There may be a slight different to these numbers based on tidal currents and ebb/flood direction.

Production and Barge Movement

- We are looking to minimize opening and closing the 96th street bridge. We are currently making every effort to have our tugs fit under the bridge at high tide. We are doing this by modifying the pilot house. The bridge has a vertical clearance of 10 feet at high tide.

- We will dredge approximately 900 to 1,200 Cy per day. This will be 17 to 20 barge loads making round trips each day.
- If feasible and tidal currents allow, we will double tow the barges with one tug. This would cut the barge trips from 17 down to 9 per day making a round trip from the dredge to the marina and back to the dredge
- The piles and fendering system at the Marina Bulkhead is to be designed. We planned on having the local pilling contractor jet the piles in. If this gets to be a complex process with NMFS, we look at alternative means for protecting the boroughs bulkhead. It might be as simple as spudding a 10x40 barge along the face of the bulkhead.

Differences Between Previous Approach and New Approach

- Navigational dredging was performed previously with a 14" cutter suction dredge and a 14" HDPE slurry line. We would use a mechanical dredge (excavator on a barge) moving forward.
- The 14" hydraulic dredge had a tender tug to move it when needed. The mechanical excavator dredge will have a tender tug to move it when needed.
- Two work boats/crew boats were previously used for the hydraulic dredging operation. The same two work boats/crew boats will be needed for the mechanical operation.
- Sediment was transported as slurry before with large volume of water used for transport. Now, we would use 100 CY Scows and tugs described above.
- We treated approximately 2,000,000 gallons **per day** onsite with bag filters during hydraulic dredging operations. Now we will only have to handle barge decant water and pad contact water @ 30,000 gallons per day.
- A HDPE slurry line was floated and submerged from the dredge to the marina parking. Now barges and scows and can be easily moved if they are obstructing access to pier/home.
- Residential dredging was previously performed with a mechanical dredge (excavator). This same approach will be used moving forward. The only difference is the material were pulled into the channel and dredge with the 14" cutter suction dredge. Now the materials will be dredged and directly loaded to 100 CY scows for transport to the Marina parking lot.
- A 600 HP booster pump was needed for part of Year 1 dredging to transport materials from the dredge area to the marina parking lot. Booster was stationed on a 40x40 barge outside the channel. A booster pump will not be needed. Materials will be transported by barge.

Other

- The vessels/tugs will traverse the eastern edge of the ICW as tides/water depth allow. At some point, they will be in the middle of the channel especially when going under the 96th street bridge.
- Dredge barges will not be working in the ICW and will not be moored in the ICW at any time.
- During storm event, dredge and barge will be staged in the North Basin or the Lagoon that the dredge is working in.
- Please see attached SEV-3718-WEST-OF-NorthBASIN.PDF. It shows the scows being unloaded and how close to the ICW/deeper water. We are well outside of the deep water. We had a 3rd party perform the hydro survey this spring.
- Any other mooring activities will be at a mutually agreeable location within North Basin at the marina (between Severson and the Borough) or attaching the 100 CY sediment scows to the bridge barge within the lagoons. Barges will not be moored on anchors.
- Work boats will be staged at the Marina in the North basin also.

Equipment Used on Water - Hydraulic Approach

- 1 – 14" Cutter Suction Dredge 150 feet x 30 feet
- 6,000 LF of HDPE Slurry Line running on the east side of the ICW. Some floating, some submerged.

- 1 - Booster barge 40x40 spudded outside of channel with 950 HP Booster pump
- 3 – Work Boats 20 feet long x 8 feet wide. Draft 4 feet
- 1 – Survey Boat 22 feet long x 8 feet wide Draft 3 feet
- 1 – Anchor barge 40x20 feet draft 1.5 feet
- 1 – Excavator dredge barge 40x60 feet drafting 2.5 feet

Equipment Planned Summary mechanical Approach

- 1 or 2 - Dredges 50x80x3 feet of draft
- 2 - Tugs 10 feet wide and 25 feet long and draft 4.5 feet
- 4 to 6 - Material scows. 100 CY each 30 feet wide and 40 to 50 feet long depending on the final model we use
- 2 - Work boats

Timothy M. Donegan, PE

Cell: 443.928.7813

From: Boyer, James N NAP [mailto:James.N.Boyer@usace.army.mil]

Sent: Wednesday, July 20, 2016 11:21 AM

To: Donegan, Tim; Matt Dalon; Davis, Mark

Cc: Jill Gougher (GougherJ@shnj.org); A067772_Mail; Crystal, Mike; Marrone, Mike; Crystal, Michael J.; Elia, Michael; Elia, Mike II

Subject: RE: WFD Permit #0510-15-0002.1, Phase 2 Strategy

Tim (et al.) -- I spoke briefly with my supervisor. We are not certain whether we will need to issue a supplemental public notice on this or not. At the very least, I believe I would reach out to the people who have been in touch by e-mail about the dewatering site, whether we issue an official notice or not. They have been inquiring about whether we have received the modification request. I would probably e-mail them any plans and description that we get, and I would anticipate they would have comments. Is the NJDEP putting anything out for public comment as part of their process, or are they requiring any sort of public notification? I checked the Borough's web site, and I see that they plan to have a public meeting in August. Will they be notifying residents in some way besides posting it on their web site?

I know I said back in May that we would be issuing a new notice to ensure that people are informed (at least) about new vessel (tug/barge) traffic and potential impacts to navigation. If you can provide some information in that regard, then perhaps we can make a preliminary call on the notice. The May 2 e-mail does give some details about vessels (although we will need some details on the sizes/drafts of the tugs, scows and work barges, at least for the NMFS consultation, see below). Can you briefly summarize the difference (or similarity) between this proposal and the original hydraulic proposal in terms of overall number of vessels operating and the area(s) they would operate in? In our original public notice, we did not get into the vessel specifics, but we did state that the pipeline would be kept at least 100 feet outside the ICW. Can you confirm that all work vessels for the new proposal (tug/barges) would operate at least 100 feet outside the ICW? If not, then specify as best you can. Please also indicate how far any new structures (fender piles) would be from the channel, as well as the closest distance for any barges moored at that site. The site layout sketch showed three scows there. If that is the maximum, how close would that get you to the channel? I assume the other pier/dock work would be inside the north basin.

I had also pointed out in my previous e-mail about our new process for ESA consultations with NMFS, and I forwarded some information about that ("NMFS Info" - attached). Some of that necessary information has to do with specifics about vessels (for the dredging as well as the piling installation).

Let me know what you can, and I will speak with my supervisor again.

Jim Boyer
Corps of Engineers
Regulatory Branch
(215) 656-5826

From: Donegan, Tim [<mailto:TDonegan@sevenson.com>]
Sent: Wednesday, July 20, 2016 7:20 AM
To: Boyer, James N NAP <James.N.Boyer@usace.army.mil>; Matt Dalon <madn@cowi.com>; Davis, Mark <Mark.Davis@dep.nj.gov>
Cc: Jill Gougher (GougherJ@shnj.org) <GougherJ@shnj.org>; A067772_Mail <A067772_Mail@cowi.com>; Crystal, Mike <MDCrystal@sevenson.com>; Marrone, Mike <MMarrone@sevenson.com>; Crystal, Michael J. <MJCrystal@sevenson.com>; Elia, Michael <MAElia@sevenson.com>; Elia, Mike II <McElia@sevenson.com>
Subject: [EXTERNAL] RE: WFD Permit #0510-15-0002.1, Phase 2 Strategy

Thank you Jim. I'm available anytime. 443 928 7813.

----- Original message -----

From: "Boyer, James N NAP" <James.N.Boyer@usace.army.mil>
Date: 7/20/16 7:09 AM (GMT-05:00)
To: "Donegan, Tim" <TDonegan@sevenson.com>, Matt Dalon <madn@cowi.com>, "Davis, Mark" <Mark.Davis@dep.nj.gov>
Cc: "Jill Gougher (GougherJ@shnj.org)" <GougherJ@shnj.org>, A067772_Mail <A067772_Mail@cowi.com>, "Crystal, Mike" <MDCrystal@sevenson.com>, "Marrone, Mike" <MMarrone@sevenson.com>, "Crystal, Michael J." <MJCrystal@sevenson.com>
Subject: RE: WFD Permit #0510-15-0002.1, Phase 2 Strategy

Tim -- I got your voice mail messages. I was out of the office unexpectedly yesterday. The last I heard about this revised proposal was an e-mail from Matt on May 2. I understood that, in addition to changes to the dewatering method (including new fender piles), the dredging method was to change from hydraulic to mechanical, with barge loading and transfer instead of pipeline discharge. When my boss gets in, I will discuss with him whether the public notice needs to go to all the parties that received the original one, or if we just need to send it to people adjacent to the dewatering area. I will let you know.

Jim Boyer
Corps of Engineers
Regulatory Branch
(215) 656-5826

Donegan, Tim

From: Donegan, Tim
Sent: Thursday, July 28, 2016 12:22 PM
To: Boyer, James N NAP (James.N.Boyer@usace.army.mil)
Cc: Mark.Davis@dep.nj.gov; GougherJ@shnj.org; Matt Dalon; Crystal, Mike; Elia, Mike II; Elia, Michael
Subject: RE: Stone Harbor Dredging

Jim,

Please see responses below in red.

Timothy M. Donegan, PE
Cell: 443.928.7813

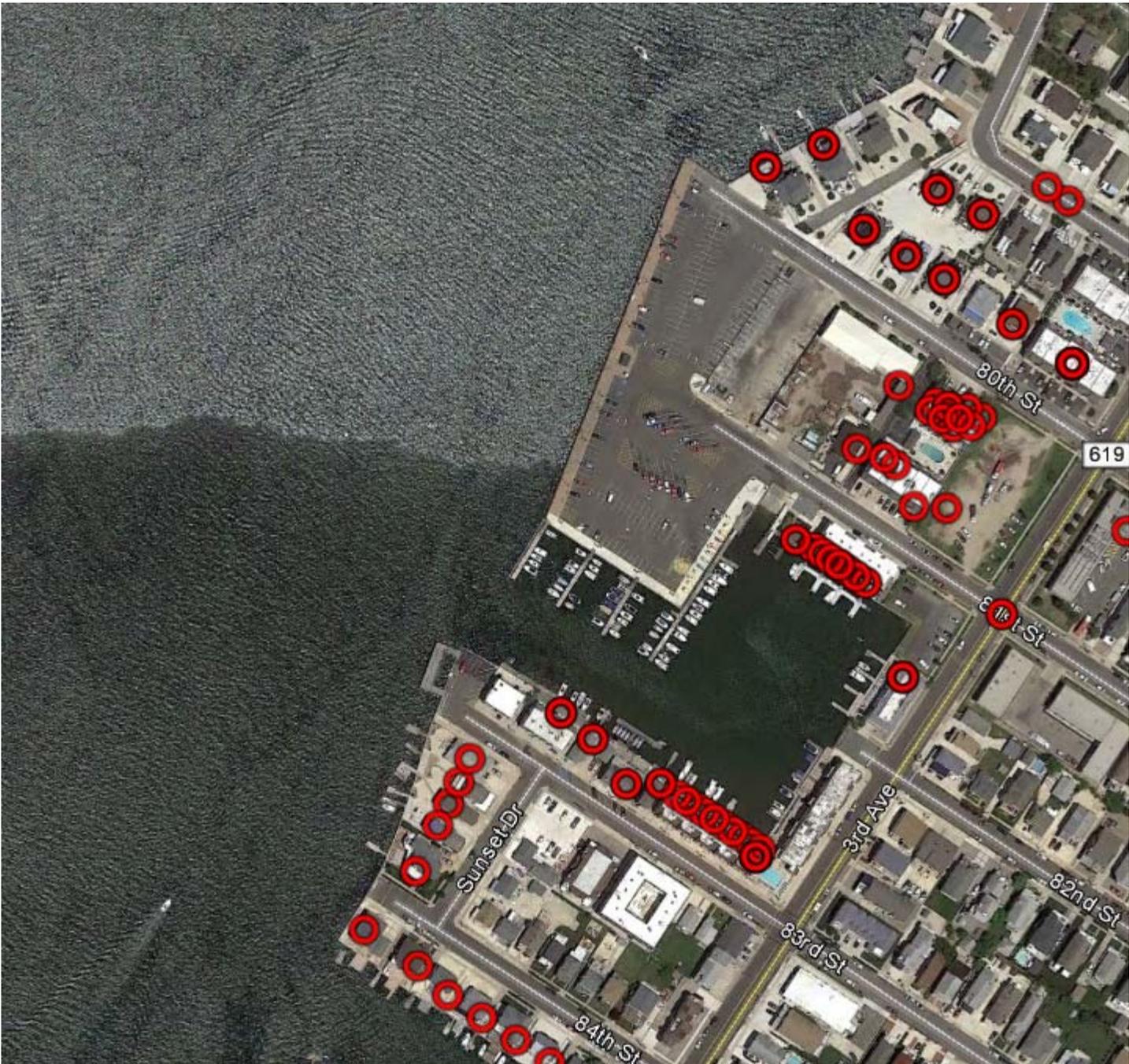
From: Boyer, James N NAP [mailto:James.N.Boyer@usace.army.mil]
Sent: Thursday, July 28, 2016 8:42 AM
To: Donegan, Tim
Cc: Mark.Davis@dep.nj.gov; Matt Dalon; GougherJ@shnj.org; Crystal, Mike; Elia, Mike II; Elia, Michael
Subject: RE: Stone Harbor Dredging

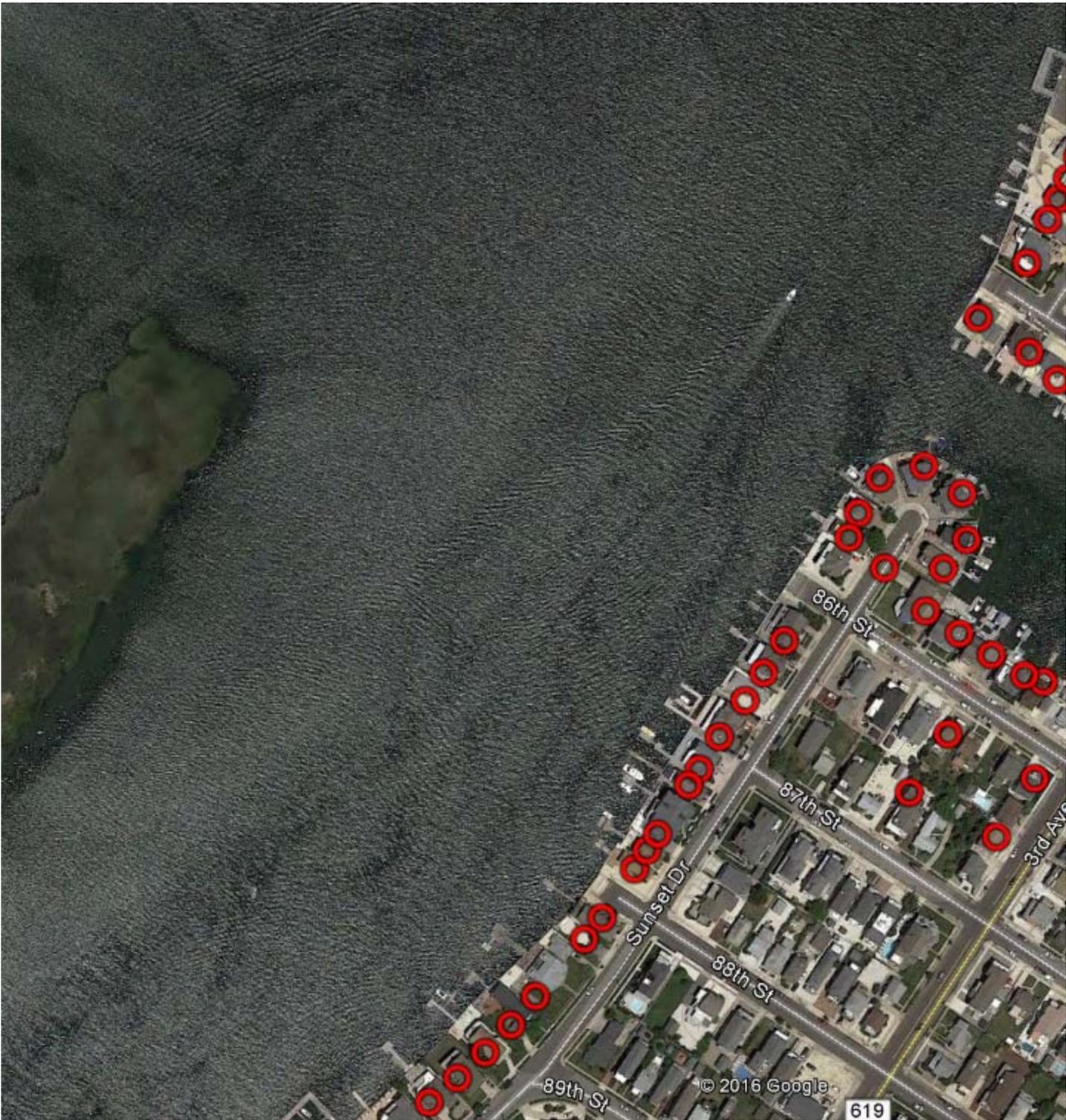
Tim -- Regarding item #2, your proposal to use CCA-treated wood in mapped shellfish habitat will be problematic. NMFS is adamant about not allowing that, and we have been on board with that prohibition for some time. **Sevenson will use untreated southern yellow pine piles. This is different than what we had proposed. The pilings will be temporary so they do not need to last long or have the treatment. They are available from a local vendor. <http://www.marinelumber.net>**

I assume that the mailing list includes, at least, the owners immediately across 80th Street from the site (west of 3rd Avenue/Ocean Drive). Is that correct? For the 2015 notice, we had 534 waterfront owners, and an additional 45 owners adjacent to the dewater site (total 579). You now have 642 total. Is that because you have additional ones for the dewater site? Are the waterfront owners the same?

We imported the address into google earth so I think it gives you an idea of who gets the letters. Waterfront people/list are the same, then we added the people within 200 feet of the marina. The people within 200 feet of the marina database was generated by the Boroughs tax assessor. See photos below. The dots in the middle of the road are because google earth could not figure out how to exactly map the address.

Note that the letters sent to the NJDEP and the labels provided to the NJDEP are for the permanent mailing address.

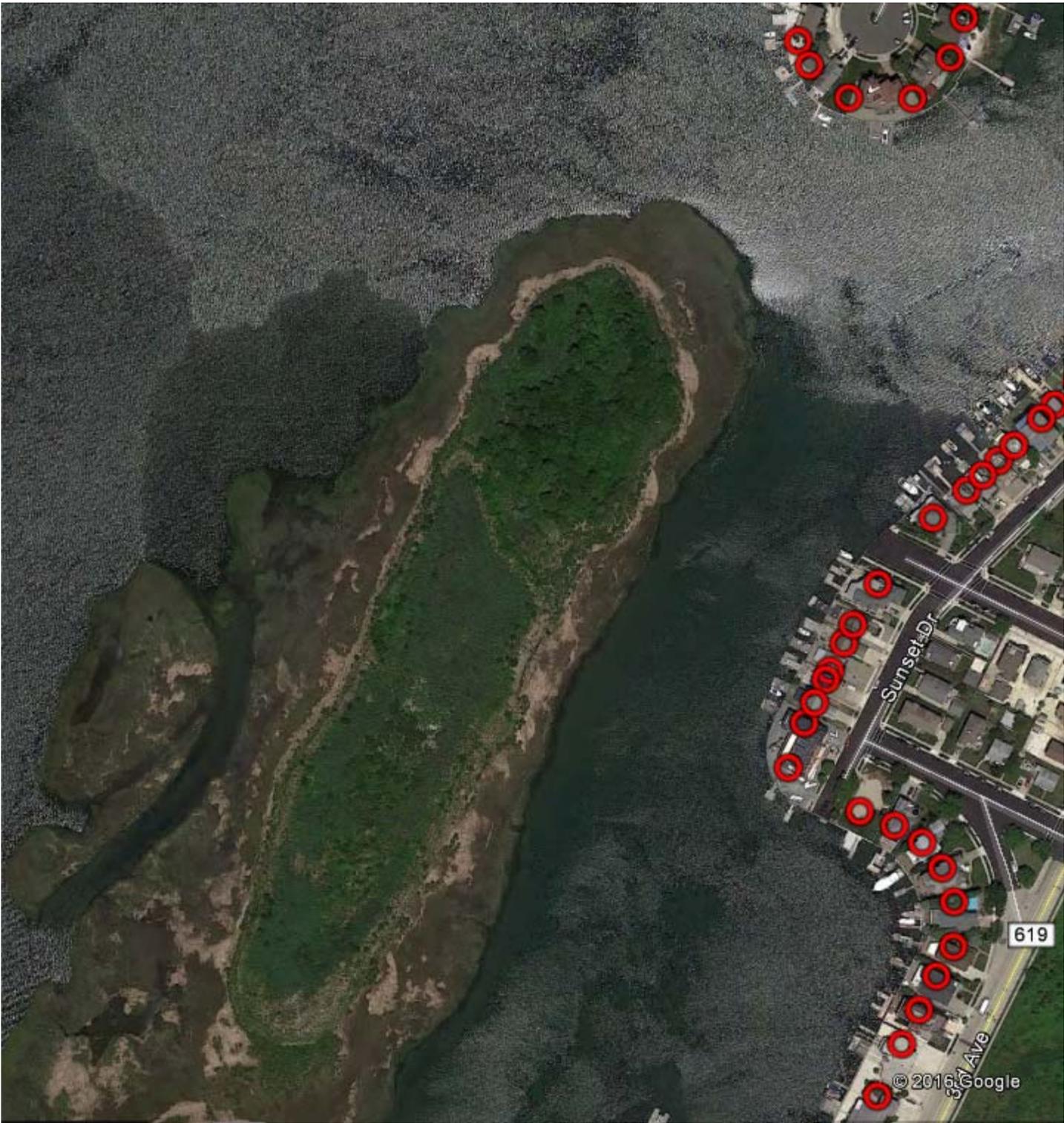


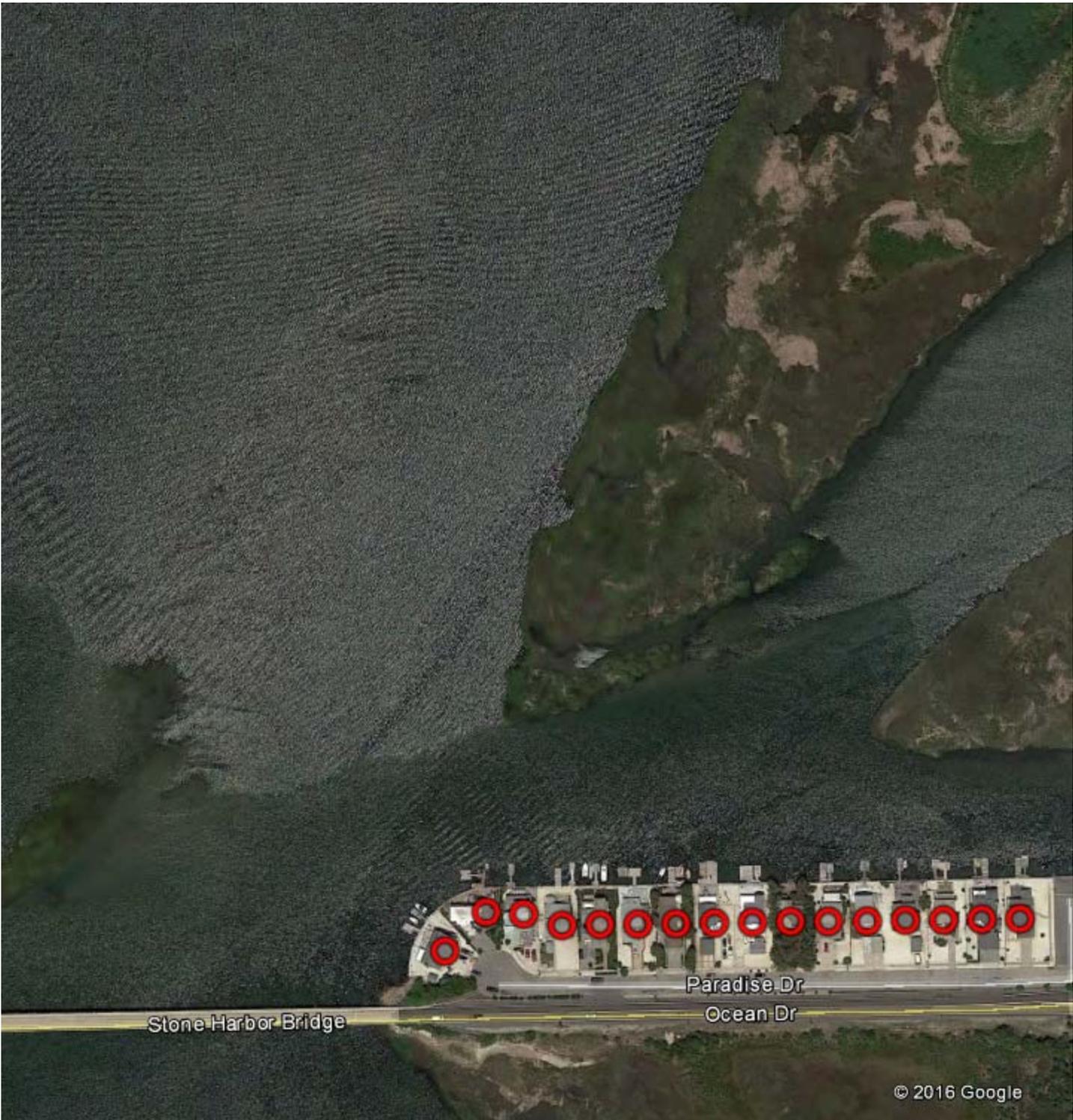












I will start looking at the other information that you provided while waiting to see the request for permit modification, and I will let you know if I need anything else, either for my NMFS assessment or for our public notice.

Jim Boyer
Corps of Engineers
Regulatory Branch
(215) 656-5826

From: Donegan, Tim [<mailto:TDonegan@sevenson.com>]
Sent: Monday, July 25, 2016 4:58 PM
To: Boyer, James N NAP <James.N.Boyer@usace.army.mil>
Cc: Mark.Davis@dep.nj.gov; Matt Dalon <madn@cowi.com>; GougherJ@shnj.org; Crystal, Mike <MDCrystal@sevenson.com>; Elia, Mike II <McElia@sevenson.com>; Elia, Michael <MAElia@sevenson.com>
Subject: [EXTERNAL] RE: Stone Harbor Dredging

Jim,

We appreciate the help on this project. Please see comments below in **Red**.

I also attached the NMFS form filled out. If you need more detail in it, please let us know. The mailing labels should be in your office tomorrow. 642 residences along the water front and within 200 feet of the dewatering area (Parking lot). I have asked that COWI prepare the formal notice for the permit modification.

-Tim D.

Timothy M. Donegan, PE
Cell: 443.928.7813

From: Boyer, James N NAP [<mailto:James.N.Boyer@usace.army.mil>]
Sent: Thursday, July 21, 2016 2:25 PM
To: Donegan, Tim
Cc: Matt Dalon; Jill Gougher (GougherJ@shnj.org); Davis, Mark
Subject: Stone Harbor Dredging

Tim -- I took a very quick look at the information that you e-mailed late yesterday. This is not a comprehensive review of your proposal, and I noted in your e-mail this morning that you will be providing additional information with regard to the NMFS assessment that I need to do. In the meantime, I just wanted to point out a few items for your consideration as we begin to move forward on this:

1. Please clarify the closest distance to the edge of the federal navigation channel (ICW) for: a) proposed pilings or other structures; **pilings will be 268 feet outside of the USACE channel** and b) any moored vessels, including scows or barges. **The barge will be moored on the pilings 253 feet outside of the USACE channel limits. Please see attached drawing showing the UASCE channel (SEVE-3718-WEST-OF-NORTHBASIN-SHEET1).** I see you located red channel markers on the survey. Are those on the far side or near side of the channel? You have two different arrangement of barges/scows: one on the site layout plan and one on the survey. One way gets you closer to the channel than the other. Please clarify.
2. It looks like the portion of Great Channel adjacent to North Basin is mapped as shellfish habitat on the 1963 U.S. FWS map. As such, we would be expecting to see non-polluting materials for the pilings or any other structures in or over the water. Please specify whether that is the case or not. Also, you indicate that the piles would be temporary. You should also describe how they would be removed at the

end of the job. Pilings would be per American Wood Protection Association (AWPA) standards with CCA at 2.50 pounds per cubic foot. Please let us know if this is acceptable.

3. There is mention of a “personnel pier,” presumably to go in the basin or marina. Same as the fender piles, that would need authorization even if only temporary. That should be shown on plans, along with the materials. This has been added to the plan for the site layout. It will be two 40x10 barges pinned together and held in place with two spuds. A sample photo is provided in the NMFS document. The pier has been added to the pan sheet also (Site Layout 7-25-16).
4. I know I sent you the “NMFS info” document before. I have attached another copy of it where I highlighted certain items for emphasis (yellow) or noted where I attached something. For instance, I made copies of the items that NMFS references in the links to their web site. The blue items are where I wrote in something from your description. You should confirm those. I made a rough map of the “action area” (see attached). Please let me know if that is accurate in portraying where all the work and vessel transit will occur. I did not include any area on the channel side of Sedge Island, since I assumed that you would work in and out of the north end of Stone Harbor Hole. Let me know if that is not correct. The action area map you attached is correct. I filed out the NMFS items. If there anything else you think we need, please let us know.

Jim Boyer
Corps of Engineers
Regulatory Branch
(215) 656-5826