

Indian River Flood Shoal Dredging and Beneficial Use Project

Special Permit Application Processing Request

August 21, 2024

1. Applicant's name, address, and telephone number (or the applicant's agent)
 - a. Agent: Karen Taylor, DNREC Division of Watershed Stewardship, Shoreline and Waterway Management Section, 901 Pilottown Rd, Lewes, DE 19958, 302-855-7302, KarenAnnTaylor@delaware.gov
 - b. Applicant: Stephen Williams, 285 Beiser Blvd. Suite 102, Dover, DE 19904, 302-739-9921, Stephen.Williams@delaware.gov
2. ORM2 identification number
 - a. NAP-2024-00438-85 (Indian River Shoal Dredging and Beach Placement SX)
3. Location of the proposed activity (city, county, state, waterway name, latitude and longitude)
 - a. Sussex County, Delaware, Atlantic Ocean and Indian River Inlet (38.606549, -75.074819)
4. Description of the proposed activity, including schematic drawings of sufficient detail to describe the work proposed and photographs of the site, if available
 - a. The intention is to replicate the 2013 US Army Corps of Engineers (USACE) project that includes the following key components: 1) Dredge up to 550,000 cubic yards of sediment from the Indian River Inlet flood shoal, consistent with the authorized federal channel elevation of -24 ft NAVD with 1 ft of allowable over-dredge and approximately 640 ft wide; 2) Transport dredged material, via pipeline, to the beneficial use placement site at North Beach; 3) Spread and grade dredged material to construct the berm (+9.0 NAVD, 100 to 150-ft-width) and dune system to an overall elevation of +16.0 ft NAVD by 25-ft wide to restore the beach template. The beneficial placement of dredged material will begin at the north jetty and extend northward for approximately 5,200 linear feet (00+00 to 55+00). This will restore the dune system at North Beach to improve coastal resiliency and protect critical infrastructure and habitat from future storm events. The Permit Design Plans are provided as Attachment 1. Updated Plans to include the staging area and pipeline will be provided as soon as available.
 - b. Previous survey data indicates that nearly 50% of the material dredged (520,000 cubic yards) by the US Army Corps in 2013 returned to the flood shoal after one year and nearly 100% after four years. We theorize that the flood shoal is a sink of material that has eroded from the North Beach. As sand erodes offshore and washes out along the outside of the north jetty, it likely gets siphoned through the inlet and deposited in the flood shoal.
 - c. Construction is expected during the Fall of 2024 into the Winter/Spring of 2025, within the expected environmental window (October through March). Please see photographs below.
5. District's assessment of the circumstances justifying the use of special procedures
 - a. Since 1990 the sand bypass system was used to move sand from the south to north sides of the inlet generally maintained sand levels on North Beach to acceptable conditions. After Hurricane Sandy in 2012, conditions severely worsened and the USACE conducted a similar nourishment project as the one proposed herein. In 2020 the sand

bypass system became inoperable and since then DNREC has judiciously added sand to North Beach via truck haul; however this can no longer overcome the current rate of erosion. Presently, a minor storm surge or swell event is very likely to breach the dune and flood the Delaware State Route-1 (SR-1) northbound lane, an evacuation route, placing critical infrastructure at risk of failure. A dune breach occurred most recently on August 17, 2024, that forced the closure of SR-1 for several hours (Figures 1-2). The construction of this project as well as the continued operation of the bypass (slated for December 2024) will hopefully protect SR-1 and surrounding infrastructure for several years.



Figure 1. August 17, 2024. Aerial view of the dune breach at Delaware Seashore State Park (looking north). The SR-1 northbound lane is closed to vehicles and completely covered in ocean water, sand, and debris.



Figure 2. August 17, 2024. View of the dune breach at Delaware Seashore State Park (looking south). The SR-1 northbound lane is covered in water and sand, forcing a road closure.

- b. Prior to the dune breach, severe erosion at North Beach had exposed hazardous debris from historical roads that had previously washed out. There have been extensive clean-up efforts among DNREC and local volunteers, but as the beach erodes further, additional debris becomes exposed. The debris is now more difficult to remove since the beach elevation has lowered leaving no dry beach above the intertidal zone during high tide (Figure 3). In response, beachgoers at the time were walking and sitting on the dune face and crest, which was an additional stressor. During low tide, beachgoers were sitting in the intertidal zone among the large pieces of marine debris that are now exposed and washing ashore (Figure 4). In addition, swimmers and waders may be unaware of the hazards posed by debris and the currents driven by wave energy from the dune.



Figure 3. July 26, 2024. View of North Beach from the Atlantic Ocean during high tide. No observable dry beach above the intertidal zone. Beachgoers sit on the dune face and crest.



Figure 4. August 2, 2024. Bird's-eye view of North Beach during low tide. Beachgoers sit in the intertidal zone among large pieces of potentially hazardous debris.

- c. Currently, the only means to add sand to attempt to repair North Beach is truck haul sand from inland sources (due to the sand bypass system being inoperable); however this method has been ineffective for mitigating risk, as the volume and rate of sand delivery is inadequate such that sand placed onto the beach gets washed out within one tidal cycle. The beach needs to be rebuilt and requires a large volume of sand that is delivered rapidly. To do so, DNREC is seeking an emergency authorization to replicate the project led by the USACE following Hurricane Sandy in 2013.
6. Summary of any consultations with the Council on Environmental Quality in the event the district believes emergency response activities would result in significant environmental impact, and justification that the activity proposed is the minimum necessary to control the immediate impacts of the emergency in accordance with 40 C.F.R. § 1506.11.
 - a. The Philadelphia District Regulatory Branch plans to prepare an Environmental Assessment to analyze the effects from the proposed dredging and beneficial use of dredged material.
 - b. DNREC determines the proposed dredging and beneficial use of dredged material as the minimum necessary to control the immediate impacts of the emergency. Alternatives were considered for protecting North Beach and include: no action, using truck haul sand from inland sources to nourish North Beach, transporting sand from the southside Inlet beach to North Beach, and the beneficial use of dredged material from the Inlet flood shoal to reconstruct North Beach. The alternatives were considered with respect to project cost, habitat loss due to construction activities, turbidity increases, disturbances to fish and wildlife, human safety, and recreational uses of the area.
 - i. If no action is taken to rebuild the North Beach berm and dune system, continued erosion from coastal storm events will severely endanger SR-1 and the Inlet Bridge from becoming impassible and eventually result in total failure. Loss of the roadway and use of the bridge would severely hinder first responders and emergency personnel who rely on SR-1 and the Inlet Bridge to access areas in and around the Indian River area by land. SR-1 is also an important evacuation route in southern Delaware. In addition, economic interruptions could affect businesses and communities as the Inlet Bridge provides the only reasonable means of reaching the southside of Indian River Inlet via roadway in Delaware. Additionally, if no action is taken erosion will continue to expose hazardous road debris at North Beach that will increasingly threaten human and environmental safety.
 - ii. Sand is available for purchase from inland quarries that is suitable for beach nourishment; however this is not an ideal option mainly due to the cost and volume of sand needed. Costs associated with transporting over 500,000 cy of sand at approximately 12 cy per truck (50,000 trucks), as well as the wear and tear on the existing road system, increased emissions, and the increased traffic on an already congested roadway are all factors that negatively impact this option. In addition, this option does not improve navigability within Indian River Inlet. Therefore, using truck-hauled sand from inland sources is not recommended.
 - iii. Accretion occurs on the southside Indian River Inlet beach due to the Inlet jetties disrupting the northward flow of sand caused by the longshore current; therefore the sand bypass system was installed to help transport sand back to North Beach. Given the sand bypass system has not been operational since

2020, adequate sand has accumulated onto the southside beach. One alternative is to move sand manually using front-end loaders and trucks from the southside beach to North Beach for nourishment; however this is not an ideal option. Cost and manpower associated with transporting over 500,000 cy of sand at approximately 12 cy per truck (~42,000 trucks), as well as the wear and tear on the vehicles and existing road system, increased emissions, and the increased traffic are all factors that negatively impact this option. In addition, removing over 500,000 cy of sand from southside would significantly alter the dune profile and leave the beach looking sparse. Therefore, using trucks to transport sand from the southside of the Inlet to North Beach is not recommended.

- iv. The preferred alternative is to dredge the Indian River Inlet flood shoal to an elevation of -24 ft NAVD and then use all dredged material for reconstructing the berm and dune system at North Beach for a length of over 5,000 linear feet of shoreline beginning from the north jetty and extending northward. Smaller truck-haul beach nourishment projects can no longer keep up with the rapid rate of erosion occurring at North Beach. This area needs to be rebuilt with a large volume of material that is delivered rapidly, and there is a significant quantity of sand available within the Indian River Inlet. Dredging the Inlet flood shoal also provides advance maintenance of the channel by reducing infilling of adjacent sediments. The beneficial use of dredged material would allow for the immediate improvement of navigation within Indian River Inlet and protection of critical infrastructure, like SR-1 and the Inlet Bridge, from erosion. The preferred design alternative is the most cost effective and least environmentally damaging alternative that would meet the project goals.

7. Summary of avoidance, minimization, and compensatory mitigation measures
 - a. Impacts to waters of the United States will be avoided and minimized by placing temporary perimeter controls near dredging operations that will be monitored routinely throughout construction to protect water quality. Dredging during winter months will also limit the disruption to migrating fish and aquatic species that could be adversely impacted by water column turbidity. Transport pipelines will be floated and clearly marked to avoid environmental impact. Proper construction oversight will be implemented to ensure there are no negative impacts to water quality via daily site inspections.
 - b. Compensatory mitigation should not be required for the proposed Project as dredging would be performed to the previously authorized elevation of -24 ft NAVD.
8. Summaries of comments received from the appropriate federal, state and local agencies and the affected public and the district's evaluation of those comments
 - a. DNREC was issued an Emergency Waiver in accordance with Section 7205 (c3) of the Subaqueous Lands Act. Portions of the application and the public notice typically required by the Subaqueous Lands Act have been waived to expedite the activity. The Emergency Waiver is included as Attachment 2.
 - b. The US Army Corps Individual Permit cannot be waived. On August 21, 2024, USACE provided guidance and potential paths forward to authorize renourishment at North Beach. DNREC's committed coordination with federal and state agencies is on-going.

9. Statement regarding conformance with state water quality certification requirements and/or Coastal Zone Management Act consistency certification, when applicable
 - a. There are no known or suspected sources of contamination at the Project site that would negatively impact human health or aquatic life if sediment were dredged from the Indian River Inlet and placed on North Beach. A sediment chemical evaluation is planned for September 2024, and subsequently results will be compared to Delaware risk-based criteria. DNREC hired Anchor QEA, Inc. to coordinate sediment sampling services as well as geotechnical and chemical testing to comply with the 401 Water Quality Certification. The Indian River Flood Shoal Sampling and Analysis Plan is included as Attachment 3. The Sediment Chemical Evaluation will be provided as soon as available.
 - b. The Project is expected to conform to the DNREC Coastal Zone Management (CZM) Act Consistency Certification. DNREC’s commitment to complying with all federal and state agency requests is on-going, including the CZM certification requirement.

10. Statement regarding compliance with section 7 of the Endangered Species Act (ESA), section 106 of the National Historic Preservation Act (NHPA), and/or Essential Fish Habitat (EFH) consultation, as applicable
 - a. Data from the U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) planning tool and species list for the State of Delaware was used to determine the potential for special status species to occur within the Project site. The resulting IPaC letters are included as Attachment 4. Table 1 presents the federally listed special status species with the potential to occur in or adjacent to the Project area. None of the special status species are anticipated to be affected during dredging and placement activities. It is expected that both species of bats, monarch butterflies and roseate terns will prefer to leave or avoid the dredging area, if present. Lastly, it is very unlikely that any flowering plants will be affected by the Project since coastal erosion has caused severe dune scarping and loss of vegetation on North Beach.

Table 1. Federal Special Status Species within the Project Area

Common Name	Scientific Name	Special Status	Special Status
Northern long-eared bats	<i>Myotis septentrionalis</i>	Mammal	Endangered species
Monarch butterfly	<i>Danaus Plexippus</i>	Insect	Candidate species
Tricolored bat	<i>Perimyotis subflavus</i>	Mammal	Proposed endangered
Roseate Tern	<i>Sterna dougallii dougallii</i>	Bird	Endangered species
Seabeach Amaranth	<i>Amaranthus pumilus</i>	Flowering Plant	Threatened species

- b. The Project area contains Essential Fish Habitat (EFH) for both highly migratory and New England/Mid-Atlantic species that may be adversely affected during dredging. However, the expected construction window during winter months accommodates many dredging restrictions, including for summer flounder and sand tiger sharks, and limits impacts to when aquatic species are not as active as in other seasons. For example, during summer months the Inlet is typically utilized as a forage area for juveniles and adults, and a nursery area for larvae and young of the year life stages. Juveniles and adults are expected to vacate the area once construction starts, and nearby waters outside of the Project site will remain and serve as EFH. The disturbance of bottom sediments

associated with dredging could interfere with feeding, predation, and avoidance patterns; however, adverse impacts are expected to be temporary and highly localized. No critical habitats have been identified within the Project area. EFH Assessment Worksheets are included as Attachment 5.

- c. Consultation with the State Historic Preservation Office consultation was received 8/21/2024 and concluded there are no known archaeological sites or historic properties within the area of potential effect, and there is low potential for any intact archeological sites. The SHPO determination letter is included as Attachment 6.
11. Draft special conditions appropriate to the proposed activity as determined by the District Commander and/or recommended by other commenting agencies
- a. TBD