



SECOND AND FINAL  
DRAFT  
DREDGED MATERIAL MANAGEMENT PLAN  
FOR  
SHARK RIVER BAY  
MONMOUTH COUNTY, NEW JERSEY  
DECEMBER 21, 2006

PREPARED BY:  
BIRDSALL ENGINEERING, INC.

PREPARED FOR:  
SHARK RIVER BAY  
ENVIRONMENTAL PLANNING COMMITTEE  
IN COOPERATION WITH



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## **SECOND DRAFT**

### **SECTION I. INTRODUCTION**

#### **A. Plan Authority**

The Authority for this SECOND DRAFT Dredged Material Management Plan (DMMP) for the Shark River Bay is derived from that of the Shark River Bay Environmental Planning Committee (SRBEPC) which is comprised of the mayors of the Boroughs of Avon-By-The-Sea, , Belmar, and Neptune City, and the Townships of Neptune and Wall along with one designee from among each mayor's municipal administrative staff. The SRBEPC came into existence through compliance with a New Jersey Department of Transportation, Office of Maritime Resources, I BOAT NJ grant of twenty thousand, seven hundred dollars (\$20,700.00) applied for in January of 2005 and awarded in February of 2005.

#### **B. Purpose and Need**

The purpose of the plan is to formalize in writing the identification and evaluation of possible actions concerning environmental issues affecting the health of the Shark River Bay estuary.

The need for a dredged material management plan is to prevent a "piecemeal," misdirected and disorganized approach to the issue of dredged material management on the Shark River Bay.

#### **C. Description of the Area**

The subject area of the dredged material management plan is the Shark River Bay and the five communities which share its shoreline -- Avon, Belmar, Neptune City, Neptune Township, and Wall Township -- located in eastern-central New Jersey's Monmouth County.

The Shark River Watershed comprises approximately twenty-three square miles and includes portions of the Borough of Tinton Falls, Township of Neptune, Borough of Neptune City, Township of Wall, Borough of Belmar, and Borough of Avon-by-the-Sea. The Watershed encompasses three sub-watersheds including the Jumping Brook sub-watershed (HUC 02030104090050) and two Shark River sub-watersheds, one above (HUC 02030104090040) and one below (HUC 02030104090060) Remsen Mill gage. The entire Shark River Watershed is located within Watershed Management Area 12.

#### **D. History and Background**

Ten thousand years before Europeans arrived, Lenape Indians lived along this watercourse. A well-worn trail (now Brighton Avenue) linked a permanent village site with several seasonal camps. By 1740, the same waterpower was attracting English, Scottish, and Dutch colonizers to the area. The local economy was built on

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milling, fishing, clamming, oystering, and boatbuilding. Efforts to sell Shark River into private ownership produced such local outcry in 1881 that New Jersey took action to protect the river, legislating the first Riparian Law. The river beach at Long Point served as a mecca for clambakes, picnics, horseback riding and swimming. At 118 feet, the river's "Skytop" promontory is the second highest point on the New Jersey coast, and was hinted to be the location of Captain Kidd's lost treasure. During the 1920's, investment developers transformed this hilly paradise-on-the-river into a real-estate goldmine called "Shark River Hills."

From the days of the Lenni Lenape, New Jersey's first boatbuilders, fishermen and navigators, the quality of life in Monmouth County and its municipalities has been shaped by its location in the Atlantic Coastal Plain. With the growth in popularity of ocean bathing and related growth in rail transportation in the late 1800's and early 1900's, the resort industry of the New Jersey Shore developed and the commercial activities associated with seasonal resorts quickly became the area's economic mainstay. In the early 1950's, a nationwide trend toward sub-urbanization saw people move outward from the older urban centers into previously sparsely populated or rural areas. The opening of the Garden State Parkway in 1954 permitted access to a large amount of undeveloped and inexpensive land within commuting distance of the labor markets of New York and northern New Jersey. Neptune and its neighboring municipalities became a desired location for people who wanted to retire away from the more industrial areas to the north. By the 1990's, those who previously had been summer visitors to the shore increasingly became year-round residents, a trend that continued to the point where, as indicated by the 2000 United States Census, Monmouth County grew to be, on average, more densely populated than India.<sup>1</sup> And within this trend, the demand for homes on waterfront and waterfront commercial development continued to grow, peaking significantly after September 11, 2001.<sup>2</sup>

During late 1980's and early 1990's, the five towns with shoreline along the Shark River Bay -- Avon, Belmar, Neptune City, Neptune Township, Wall Township -- gave various levels of consideration to the enhancement of the natural and built environment of this historic harbor. In 2003, Neptune's neighbor across the Shark River, Belmar, was awarded \$1.5 million -- the largest award in the nation that year -- from the U.S. Fish and Wildlife Service through the National Boating Infrastructure Grant program to build more than 50 slips dedicated to use by transient, non-trailerable<sup>3</sup> vessels as a key component in a multi-year, multi-million-dollar Seaport Redevelopment Project. During these same years, the Township of Neptune was developing its own Strategic Revitalization Plan with special emphasis on the Midtown, Bradley Park and Shark River waterfront neighborhoods. In regard to the Shark River in particular, in 2003 the Township applied funds from an NJDEP 319h grant to make improvements to Lake Alberta, part of the headwaters of the Shark

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<sup>1</sup> <http://www.shore.co.monmouth.nj.us/03230planboard/AtAGlanceFiles/Monmouth%20County.pdf> and <http://www.mapsofindia.com/census2001/populationdensity.htm>.

<sup>2</sup> For a recent example, go to <http://www.app.com/app/story/0.21625.902325.00.html>.

<sup>3</sup> Transient (no more than 10 consecutive days). Non-trailerable (26 feet or more in length).

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River, and in 2004 partnered with the Monmouth County Mosquito Commission to dredge the lake. In 2004 Neptune became the first municipality in the State of New Jersey to adopt an ordinance requiring developers to comply with stormwater management regulations, and applied the ordinance in a situation with the giant retailer Wal-Mart, thereby preventing stormwater runoff from the Wal-Mart construction site into the Jumping Brook, also part of the Shark River Bay headwaters. (Township of Neptune Ordinance #04-23 may be viewed at <http://www.neptunetownship.org>) These historic developments, along with the renewed interest in the recreational use of the Shark River, have spurred a greater awareness of the spectrum of environmental issues – including protecting and enhancing the fish and bird life in and around the bay, sediment reduction, dredge material management, and others – that affect the health and well-being of the bay, its ecosystem, and the humans who live, work and play on and around it.

Dredging and disposal of material from the Shark River Bay has historically been performed in the most cost effective manner; that is, the material was placed as close to where the dredging was performed as possible. An area map from 1882 provides a look at the Shark River basin before major dredging was performed. Several sedge islands (naturally occurring river sediment deposits with marsh grass) were located along the river that no longer exist because they were filled with dredged material (e.g., Seaview Island, Inlet Terrace, Shark River Hills) and were located convenient to the dredging operations. Another historic disposal location for dredged material was the local beach -- the material was used to replace sand eroded by winter storms.

Specific to this dredged material management plan, the history and background begins with the Borough of Belmar's decision to revitalize the municipal marina as part of its larger Seaport Redevelopment Plan. In 1999, Birdsall Engineering Inc. consulted with Belmar officials to devise a "Beneficial Use Demonstration Project" through which Belmar's marine basin dredged materials would be mixed with woodchips and used for cover at the Ocean County landfill. However, costs of transporting the materials and depositing them at the Ocean County landfill exceeded the municipal budget and resulted in the termination of the demonstration project. In consultation with the Borough, Birdsall Engineering Inc. designed a temporary dredged material drying facility in a portion of the municipal marina parking area and initiated discussions with the Township of Neptune concerning disposing of the dried materials at the Neptune Township landfill, closure of which Birdsall had supervised in the 1980s.<sup>4</sup>

Consistent with its Strategic Revitalization Plan goals for Shark River Hills, in February of 2004 the Township of Neptune applied to the NJDEP Green Acres Program for \$3,000,000 to acquire approximately 8 acres of parcels along Riverside

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<sup>4</sup> The Neptune Landfill, approximately 172 acres in size, is located on West Bangs Avenue east of the intersection of NJ State Highway Route 18 and West Bangs Avenue. The landfill operated as a municipal waste disposal landfill until 1981 when operations ceased and the site was capped utilizing dredged material from Seaview Island. Dredged materials from Shark River Yacht Club and the Borough of Belmar were placed at the landfill within the last several years to serve as a landfill cap enhancement.

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Drive on the Township's Shark River waterfront and continued to consult with Birdsall Engineering Inc. and Belmar officials concerning Neptune's dredged material management needs. With two of the five municipalities sharing Shark River Bay shoreline having adopted formal revitalization plans and one – Belmar – well along in construction of a new municipal marina, the Township of Neptune submitted a proposal to the NJ Department of Transportation Office of Maritime Resources (NJDOT OMR) I BOAT NJ program for \$20,700 to be used to prepare a regional plan for the environmental enhancement of the Shark River Bay. Upon award of this I BOAT grant, the NJDOT OMR instructed the Township of Neptune that a required deliverable was a dredged material management plan for the Shark River Bay.

During the months of June and July 2005, the DRAFT of the plan was prepared. On August 8, 2005 the DRAFT plan was distributed at a press conference and made available to the wider public in paper format in the Neptune Clerk's office and electronically on the Neptune Township website. The second community-wide open forum was held at the Belmar Municipal Building Courtroom on August 16, 2005 and comments on the DRAFT plan were received at this meeting as well as by US Mail and email throughout August and September. Articles published in the Coast Star newspaper in August reported opposition by the Wall Township Restoration Advisory Board (RAB) to portions of the DRAFT plan. Through August, September, October and November of 2005 discussions between the Wall Township RAB and the Wall Township Environmental Advisory Committee concerning the DRAFT plan continued. In November, written comments from the Wall Township Environmental Committee were received by Birdsall Engineering Inc. (BEI), and in January, 2006 a copy of the "Preliminary Review of the Shark River Bay Dredge Material Management Plan" prepared by the PMK Group on behalf of the Township of Wall was received by BEI (See Section XIII). A request for a six-month extension to November 2006 for delivery of a SECOND DRAFT plan was submitted to NJDOT OMR in May of 2006, and work continued on this SECOND DRAFT until November 2006.

### **E. Related Action Programs**

In addition to the Shark River Bay Environmental Planning Committee whose authority supports this plan, other groups in the region have been active in working to enhance the Shark River Bay environment. Most notably:

#### **Shark River Cleanup Coalition, Inc.**<sup>5</sup>

The mission of the Shark River Cleanup Coalition Inc. (SRCC) is to significantly enhance the water quality of the Shark River Estuary and its fresh water tributaries, to improve and protect habitats important to the conservation and abundance of the wildlife, to protect the recreational and commercial uses from degradation and pollution, thereby ensuring the

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<sup>5</sup> This section is adapted from the Shark River Cleanup Coalition website. Go to <http://www.sharkriver.org>  
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ecological and economical stability of this important watershed. The SRCC is a non profit 501 c (3) founded in 2001 and does not endorse any political parties or candidates nor does it take any position regarding political issues. SRCC objectives include: (a) educating the residents and elected officials of the towns within the Shark River watershed; (b) Conducting monitoring of water quality through biological, physical, and chemical analysis; (c) providing strong advocacy (d) leading and assisting others with similar goals; (e) increasing community awareness of the problems impacting the watershed; (f) conducting cleanups in the watershed. SRCC is funded through membership dues, donations, foundation grants, government grants, corporate grants, pro bono services and in kind contributions.

### **Shark River Environmental Roundtable<sup>6</sup>**

The Shark River Environmental Roundtable (SRER) is a consortium of citizens and environmental commissions from the five towns sharing waterfront on the Shark River Bay (Avon, Belmar, Neptune City, Neptune, Wall). The mission of the SRER is to protect and preserve the balance between man and nature in the Shark River and to ensure that it will be enjoyed for generations to come. SRER is a 501(c)(3) non-profit organization, incorporated in the State of New Jersey in 2000.

### **Municipal Environmental Commissions/Committees**

Each of the municipalities participating in the preparation of this plan has an environmental commission or some type of environmental committee. In general, it is the mission of these groups to advise and assist the mayor and governing body on environmental issues, to act as liaison between the municipal government and residents, and to help protect and foster appreciation of local natural resources.

### **Watershed Management Area 12<sup>7</sup>**

Watershed Management Area 12 (WMA 12) extends from Perth Amboy to Point Pleasant Beach and includes portions of Middlesex, Monmouth and Ocean Counties. The Area 12 Watershed Management Partnership is an active group of WMA 12 stakeholders, including representatives of local, county, state and federal governments: representatives of six Regional Subwatershed Management Councils (Bayshore, North Coast/Shrewsbury River, Navesink Valley, Mid-Coast, South Coast and the Manasquan Valley); representatives of lake commissions and other watershed management groups; representatives of water purveyors; representatives of wastewater treatment authorities and facilities; representatives of military installations; representatives of the business community; representatives of the

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<sup>6</sup> Information provided by Michael Mixson., President.

<sup>7</sup> Adapted from the WMA 12 website. Go to [www.shore.co.monmouth.nj.us/area12/](http://www.shore.co.monmouth.nj.us/area12/)

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development community; representatives of environmental interest groups; representatives of the agricultural community; and of individual citizens, dedicated to enhancing and improving water quality throughout Watershed Management Area 12.

### **F. Economic Justification**

The Shark River Bay has, throughout its history, been a contributing factor in the strength of the local economy. Currently, that economy relies heavily upon recreational boating, recreational fishing, commercial fishing, and other marine-related and non-marine-related commercial activity during a peak tourism season of May to October. Currently, there are over 500 boat slips in marinas on the Shark River Bay.

The New Jersey Marine Trades Association is preparing a comprehensive economic impact study for recreational boating in the state; however, this study will not present its findings relative to particular bodies of water. A Shark-River-Bay-specific economic impact survey should be conducted as a follow-on to this plan.

Presently the largest commercial fishing fleet on the Shark River Bay operates out of the Belmar Municipal Marina. Approximately 13 charter boats operate seven days a week -- morning, afternoon and weekends -- during a high season from May to October and a low season from April to May. Group rates on these vessels range from a low of \$700.00+/- per trip to a high of \$1,775.00+/- per trip. Estimating that each vessel will make 200 trips per year, and averaging trip rates, these commercial fishing boats realize a total gross income of \$3,217,500.00+/- annually.

A variety of other bay-related activity impacts the local economy through rental of boats and/or equipment including water skiing, wakeboarding, tubing, scuba diving and snorkeling, to name a few. Currently, two restaurants on the Shark River Bay (Sunset's in Neptune Township and Ollie Klein's in Belmar) are able to be accessed by boat.

In sum, the economies of the five municipalities sharing Shark River Bay waterfront are positively impacted by current levels of recreational activity on and around the bay and, as local redevelopment plans move forward and the five communities develop new opportunities for waterfront recreation, the regional economy will become increasingly reliant upon a healthy and navigable Shark River Bay.

### **G. Local Sponsors**

Local sponsors with capability to share in the cost for dredging maintenance in the future and local sponsors with the capability to share in the cost of drying and disposing/reuse of dredge materials will be identified in the future.

## **SECTION II. DEMONSTRATION OF NEED**

### **A. Water and Dredge Material Quality**

The land use around the Shark River Estuary is primarily developed with a significant amount of the shoreline adjacent to housing. The Shark River Estuary is currently classified as an SE-1 water body and is part of the Watershed Management Area 12. Acceptable uses for this water body include shellfish harvesting, primary and secondary contact recreation, and maintenance, migration and propagation of the natural and established biota. Upstream freshwater tributaries are classified as Category 1 (C-1) waters. Tidal flushing of portions of the Shark River occurs throughout the Shark River Estuary.

The NJDEP, Division of Land Use Management, Bureau of Marine Water Monitoring prepared a Water Monitoring Report (*“Re-Appraisal of Shellfish Growing Area NE-4, Shark River, 1994-2000”*) for the Shark River Estuary in November 2004 to assess the current condition of the Shark River with regards to shellfish harvesting. The report found that the current classification *“Special Restricted”* for shellfish harvesting is consistent with the current water quality. Based upon this classification, it is prohibited to harvest shellfish from these waters for direct market unless a special permit is issued in compliance with New Jersey’s Relay or Depuration programs.

There are a number of discharges to the Shark River that impact the water quality of the estuary. Although many of the individual subsurface disposal systems were eliminated and the sanitary sewer connected to the local public sewer systems, there remain several indirect discharges to the estuary from areas “contaminated” by human activity such as gas stations and storm water discharges from roadways. There are twelve sewage-pumping stations and associated collection systems located near the Shark River, from which a few sewage spills into the Shark River have occurred in recent years. The Township of Neptune Sewage Authority (TNSA) Wastewater Treatment Plant outfall discharges into the Atlantic Ocean and not into the Shark River.

There are many stormwater outfalls that discharge directly into the Shark River and its upstream tributaries. The public beach at L Street in Belmar is often closed after rainfall events due to high levels of total coliforms.

There are approximately nineteen marinas within the Shark River ranging in size from 3 slips to over 300 slips. Sediment in the vicinity of these marinas can be expected to have elevated hydrocarbons and PAH’s. However, sediment samples taken in the mid-1990’s at the Belmar Marina met the Residential Clean-up Standards.

There are several indirect ground water discharges and Known Contaminated Sites (KCS) in the vicinity of the Shark River. Most of the KCS are caused by leaking underground storage tanks or sewage spills and are closed cases.

### **B. Sediment Analyses**

In general, sediment in the upstream sections of the estuary and confined areas such as inlets and coves is finer grained, containing higher percentages of silt and clay. Of the eight (8) sieve analyses on sediment samples taken from the Belmar Marina in the mid-1990’s, only two had results that indicated suitability for re-use as beach nourishment. The remaining six (6) samples contained less than 70% sand.

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In May 2002, the ACOE took 14 sediment samples in the main channel of the river. Samples 1-13 were taken outside the mouth of the Shark River in the Atlantic Ocean and continued upstream to the railroad bridge. Sample 14 was taken just west of the railroad bridge in the south channel. The two (2) sediment samples taken just east of the Route 71 bridge contained less than 70% sand and gravel. The remaining 12 samples indicated over 70% sand and gravel.

### C. Channel Conditions

Only the Federal Channels have been dredged with any regularity and the NJDEP has not recently dredged their areas. The lack of consistent dredging results in shoaled conditions at various locations with high boat traffic. This results in unsafe boating conditions, and several incidents of watercrafts “hung-up” on sand bars have recently been reported.

### D. Potential Dredged Material Totals

Based upon an analysis of recent bathymetric measurements within the Estuary, the potential dredged material total quantities by area are as follows:

Federal Channels	100,000 cy
NJDEP Channels	190,000 cy
Priority Historical Channels	196,000 cy
Historical Channels	377,000 cy
Marina Dredging	215,000 cy
Total:	<b>1,078,000 cy</b>

The breakdown for the Marina Dredging required is as follows:

Oliver’s Marina, Shark River Hills	30,000 cy
Seaview Island Marina	15,000 cy
Campbell’s Boat Yard & vicinity	30,000 cy
Belmar “L” Street Beach, fishing pier, & marina maintenance dredging	50,000 cy
AP’s Marina	10,000 cy
Inlet Terrace Association	20,000 cy
Main One Marina	5,000 cy
Klein’s	10,000 cy
North Channel Docks (north side)	20,000 cy
Miscellaneous	25,000 cy
Total Marina Dredging	<b>215,000 cy</b>

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We have used the Simplified Method for Theoretical Pollutant Loading Analysis (Scheuler, 1987) to calculate the future sediment loading on the Estuary. Based upon current “build out” conditions, the future loading is expected to be less than 1000 cubic yards per year.

### **E. Existing Hazards**

Upon reviewing the bathymetric surveys and looking at aerial photographs taken of the Shark River Estuary, it is apparent that there are many shoaled areas throughout the Estuary. These sand bars and shoaled areas in the channels represent the main navigation hazards to boaters and recreational fisherman.

### **SECTION III. REGULATED NATURAL RESOURCES**

*N.J.A.C. 7:7E presents the substantive rules of the Department of Environmental Protection regarding the use and development of coastal resources, to be used primarily by the Land Use Regulation Program in the Department in reviewing permit applications under the Coastal Area Facility Review Act (CAFRA), N.J.S.A. 13:19-1 et seq. (as amended to July 19, 1993), Wetlands Act of 1970, N.J.S.A. 13:9A-1 et seq., Waterfront Development Law, N.J.S.A. 12:5-3, Water Quality Certification (401 of the Federal Clean Water Act), and Federal Consistency Determinations (307 of the Federal Coastal Zone Management Act).*

The following is an inventory of those natural resources associated with the proposed Shark River dredging in accordance with the above referenced regulations.

#### **A. Shellfish Habitat**

*As per N.J.A.C 7:7E-3.2, Shellfish habitat is defined as an estuarine bay or river bottom which has a history for production for hard clams (*Mercenaria mercenaria*), soft clams (*Mya arenaria*), eastern oysters (*Crassostrea virginica*), bay scallops (*Argopecten irradians*), or blue mussels (*Mytilus edulis*), or otherwise listed in this section.*

The New Jersey Department of Environmental Protection – Bureau of Shellfisheries has published shellfish density maps for various segments of the New Jersey coastline. Shellfish density mapping available for the Shark River Bay (1985) (See Appendix 11, Map 1) depicts several density designations for hard clams within the estuary. Density designation range between “No Data” areas, within the vicinity of the existing navigation channels; “None”, within east of Shark River Island; “Occurrence” and “Moderate”, throughout approximately 80% of the Bay; and, “Abundant”, west of Shark River Island and within the northern portion of the Bay. Mussel beds are also mapped within the estuary, however, they are limited to the Shark River Inlet, east of the NJ State Highway Route 35 bridge crossing.

In addition, NJDEP – Bureau of Marine Water Monitoring publishes annual Shellfish Growing Water Classification Charts, which designate shellfish harvest classifications. The most recent Growing Water Classification Charts for Shark River Bay (2006) map the estuary as “Special Restricted”. “Special Restricted” areas are defined as waters condemned for the harvest of oysters, clams, and mussels except harvesting for further processing may be done under special permit from the State Department of Environmental Protection.

#### **B. Prime Fishing Areas**

*As per N.J.A.C 7:7E-3.4, Prime fishing areas include tidal water areas and water’s edge areas which have a demonstrable history of supporting a significant local quantity of recreational or commercial fishing activity.*

The Shark River Bay does have a demonstrable history of supporting recreational and commercial fishing activity. Municipalities surrounding the Shark River Bay

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contain several public fishing piers and marinas that support commercial fishing fleets, which allow for public access to prime fishing areas within the bay and the Atlantic Ocean. These recreation and commercial fishing activities are extremely important as they provide for valued recreational opportunities and support local jobs, tourism and economic development.

**C. Finfish Migratory Pathways**

*As per N.J.A.C. 7:7E-3.5, Finfish migratory pathways are waterways (rivers, streams, creeks, bays and inlets) which can be determined to serve a passageways for diadromous fish to or from seasonal spawning areas.*

Shark River Bay does serve as a migratory passageway for numerous andaromous (fish that spawn in freshwater and live most of their lives in saltwater) and diandaromous (fish that migrate between saltwater and freshwater) fish species and is mapped as Essential Fish Habitat (EFH) by the National Oceanographic and Aeronautic Association (NOAA), Fisheries Service - Habitat Conservation Division. A list of species for which the estuary is considered EFH is provided below.

NOAA Essential Fish Habitat Designation for the  
Geographic Area that Includes Shark River and Shark River Inlet

<u>Species</u>	<u>Eggs</u>	<u>Larvae</u>	<u>Juveniles</u>	<u>Adults</u>
Atlantic cod				X
Whiting	X	X	X	
Red hake	X	X	X	X
Winter flounder	X	X	X	X
Yellowtail flounder	X	X		
Windowpane flounder	X	X	X	X
Atlantic sea herring				X
Monkfish	X	X		
Bluefish				X
Atlantic butterfish			X	
Summer flounder		X	X	X
Scup			X	X
Black sea bass				X
King mackerel	X	X	X	X
Spanish mackerel	X	X	X	X
Cobia	X	X	X	X
Dusky shark		X		
Sandbar shark		X	X	X

\*Source: National Oceanographic and Aeronautic Association, Fisheries Service - Habitat Conservation Division

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### D. Navigation Channels

*As per N.J.A.C. 7:7E-3.7, Navigation channels are tidal water areas including the Atlantic Ocean, inlets, bays, rivers, and tidal guts with sufficient depth to provide safe navigation.*

Several heavily utilized Federal and State navigation channels exist within the Shark River Bay (See Appendix 11 Map 6). The primary channel consists of an approximate 1.7 mile long Federal Channel that is maintained by the United States Army Corps of Engineers (USACE). This channel, which has been recently dredged, provides for a channel that is 12 feet deep at mean low water and generally 100 feet wide through the main and south channels to the Rout 35 Bridge and 8 feet deep and 100 feet wide to the upper limit of the Belmar Municipal Boat Basin<sup>1</sup>. The remaining channels within the interior portion of the Bay consist of State maintained channels, which have not been dredged for approximately 20-years. Since the channels were last maintained, sediment generated from upland sources have accumulated within the channels resulting in near loss of navigation within several channels at low tide.

### E. Intertidal and Subtidal Shallows

*As per N.J.A.C. 7:7E-3.15, Intertidal and subtidal shallows means all permanently or temporarily submerged areas from the spring high water line to a depth of four feet below mean low water.*

Approximately 90% of the Shark River Bay meets the definition of intertidal and subtidal shallows.

Portions of the proposed channels to be dredged have shoaled to depths of less than four feet below mean low water. Navigation channels within the bay have historically been maintained to depths of greater than four feet mean low water. However, a lack of maintenance over the last twenty years (plus or minus) has resulted in severe shoaling of these channels to depths of less than four feet mean low water. As such, maintenance dredging of intertidal and subtidal shallows will be required.

### F. Wetlands and Wetlands Buffers

*As Per N.J.A.C. 7:7E-3.27 & 3.28, Wetlands or wetland means an area that is inundated or saturated by surface water or groundwater at a frequency or duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly know as hydrophytic vegetation.*

The perimeter of the Shark River estuary contains areas of both mapped coastal wetlands pursuant to the Wetlands Act of 1970 as well as freshwater wetlands and unmapped coastal wetlands regulated by the Freshwater Wetlands Protection Act (See

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<sup>1</sup> United States Army Corps of Engineers Public Notice, June 24, 2002, Notice No. 0203 Shark River.

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Appendix 11 Map 2). Most of these wetland areas are located within the western portions of the estuary.

If coastal and/or freshwater wetland encroachment is required as a result of this plan, it is anticipated that these areas will be identified and delineated in accordance with the Wetlands Act of 1970 and the Freshwater Wetlands Protection Act prior to NJDEP application submission.

### G. Coastal Bluffs

*As per N.J.A.C. 7:7E-3.31, A coastal bluff is a steep slope (greater than 15 percent) of consolidated (rock) or unconsolidated (sand, gravel) sediment which is adjacent to the shoreline or which is demonstrably associated with shoreline processes.*

A coastal bluff is located in the southwestern portion of the estuary adjacent to Marconi road.

### H. Historic and Archaeological Resources

*As per N.J.A.C. 7:7E-3.36, historic and archaeological resources include objects, structures, shipwrecks, buildings, neighborhoods, districts, and man-made or man-modified features of the landscape and seascape, including historic and prehistoric archaeological sites, which either are on or are eligible for inclusion on the New Jersey or National Register of Historic Places.*

According to the NJDEP Historic Preservation Office, the following sites, located within a reasonable distance to the Shark River estuary, are on the New Jersey and National Registers of Historic Places, last updated 7/20/06.

#### ***Belmar:***

##### **Scherzer Rolling Lift Single Bascule Bridge (ID#2891)**

NJ Transit North Jersey Coast Line, Milepost 30.43 over Shark River  
SHPO Opinion: 9/27/1995  
(Big Shark Moveable Span)

##### **"Spirit of the American Doughboy" Statue (ID#2892)**

NJ Route 35 and Seventh Avenue at Shark River  
SHPO Opinion: 9/27/1995

#### ***Neptune:***

##### **Scherzer Rolling Lift Single Bascule Bridge (ID#2891)**

NJ Transit North Jersey Coast Line, Milepost 30.43 over Shark River  
SHPO Opinion: 9/27/1995  
(Big Shark Moveable Span)  
See Main Entry / Filed Location:  
Monmouth County, Belmar Borough

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### **Shark River Golf Course Clubhouse and Support Building (ID#2037)**

Shark River County Park  
SHPO Opinion: 12/10/1980  
(Demolished c1986)

### **Steiner's & Sons Mill (ID#2038)**

Memorial Drive & 4th Avenue  
SHPO Opinion: 8/27/1993

### ***Wall:***

### **Project Diana Site (ID#3376)**

Marconi Road  
SHPO Opinion: 6/28/1996  
SR: 1/6/1976

## **I. Endangered or Threatened Wildlife or Plant Species Habitats & Critical Wildlife Habitats**

*As per 7:7E-3.38 & 3.39, Endangered or threatened wildlife or plant species habitats are areas known to be inhabited on a seasonal or permanent basis by or to be critical at any stage in the life cycle of any wildlife or plant identified as "endangered" or "threatened" species on official Federal or State lists of endangered or threatened species, or under active consideration for State or Federal listing.*

Current NJDEP Landscape Project Mapping (Version 2.0) depicts the southwestern portion of the estuary, in the area of the historic CDF, as foraging habitat for bald eagle, *Haliaeetus leucocephalus* (See Appendix 11 Map 3). Bald eagles are federally and state endangered species, which are known to nest at the Manasquan Reservoir Park.

Since 1996, Robert Smith and Charles Doyle have been conducting seasonal bird counts within the Shark River estuary and the nearby coastal lakes. During this time, a number of rare, threatened, endangered, and uncommon species have been observed and are listed below. This listing is only birds sited by Smith and Doyle between 1996 and the present. While many groups and individuals have reported a variety of sightings over the years, this listing only reflects birds actually observed by the two investigators.

1. Great Blue Heron - hunting, roosting, nesting, year round resident, up to 75 observed at once in the Musquash Cove area and in the Evans Area. The great blue heron was listed as *threatened* in New Jersey, particularly regarding nesting areas and only recently removed from that status.
2. Black Crowned Night Heron - solitary specimens observed along the edge of the Lakewood Rd/East End Ave. embankment separating Musquash Cove from the rest of Shark River Bay since 1996. In 2001, a number of immature specimens were identified in the marshes and adjacent mature trees along the edge of Musquash Brook. Since that summer, the numbers of immature specimens has increased annually. The black crowned night heron was listed as *decreasing in population* in New Jersey; upgraded to *threatened* 4/00.

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3. Yellow Crowned Night Heron - solitary specimens observed in early fall in county park at Brighton Avenue Bridge between Shark River Hills and Evans Area. The yellow crowned night heron is listed as *threatened* in New Jersey
4. American Bittern - single specimen jumped in June 1997 in the saltmarsh adjacent to the primitive canoe launching ramp at the end of Marconi Road in the Shark River Manor section of Wall Township. The American bittern was listed as *threatened* in New Jersey, particularly regarding nesting; upgraded to *endangered*, 4/00.
5. Osprey – nesting from mid-March through July; hunting and roosting from mid-September through mid- November during southern migrations. The osprey is listed as *threatened* in New Jersey. Five ospreys have been reared at the Musquash Cove nesting platform since 1999. The most ospreys observed in the watershed were eight in the fall of 1998.
6. Peregrine Falcon - flyover, hunting, and feeding, a single specimen, during January and February 1999 and 2000. It was observed eating a bufflehead duck on the lawn at Belmar Marine Basin in January 2000. The peregrine falcon is listed as *endangered* in New Jersey; also listed by the US Fish and Wildlife Service as *endangered*.
7. Cooper's Hawk - nest discovered in Jumping Brook watershed, 6/00, near Jumping Brook Golf Course. The Cooper's hawk is listed as *threatened* in New Jersey.
8. Bald Eagle - flyover during October 2002. The bald eagle is listed as *endangered* both in New Jersey and nationally.
9. Least Tern - five pairs nested in the spring of 2000 on the north beach of Belmar, adjacent to Shark River Inlet. Two of those nests were successful. Since then, the colony has increased to over 100 specimens. They can be observed throughout Shark River Bay and saltmarshes as well as along the beaches near the Inlet from mid-May through July. The least tern is listed as *endangered* in New Jersey.
10. Ruddy Duck - small rafts and flocks in winter and early spring around Shark River Hills Beach and Yacht Club and Belmar Marine Basin. The ruddy duck is listed as *decreasing in population* in New Jersey.
11. American Coot - small flocks in winter and early spring at Campbell's Boat Yard in Neptune City. The American coot is listed as *decreasing in population* in New Jersey and in the eastern flyway.
12. Black Skimmer - solitary flyover, fall 2001. The black skimmer is listed as *endangered* in New Jersey.
13. Pied Billed Grebe - feeding in pairs; nesting not observed, but no searches were conducted. It has been observed year round in small numbers, usually near the Shark River Hills Beach and Yacht Club. The pied billed grebe is listed as *endangered* in New Jersey particularly regarding nesting.

Species to be investigated:

1. Bog Turtle, listed as *endangered* in New Jersey and by US Fish and Wildlife. Freshwater marshes will be investigated as bog turtle is found in adjacent watersheds.
2. Pine Barrens Tree Frog, listed as *endangered* in New Jersey. Wet areas in pinelands habitats will be investigated as pine barrens tree frog is found in adjacent watersheds.

### **J. Maintenance Dredging**

### **K. Dredged Material Disposal**

**L. Dredged Material Placement on Land**

**M. Scenic Resources and Design**

*As per N.J.A.C. 7:7E-8.12, scenic resources include the views of the natural and/or built landscape.*

The Shark River Estuary, as well as its surrounding communities, contains innumerable scenic resources ranging from existing maritime uses to natural landscapes which will be of concern during the proposed dredging process.

Maintaining the scenic resources associated with the Shark River Bay (See Appendix 11 Map 4) will be a primary concern during the continued development and planning of the preferred alternative.

**N. Traffic**

*As Per 7:7E-8.14, traffic is the movement of vehicles, pedestrians or ships along a route.*

If, as a result of this plan, planned transportation of dredged material is required, traffic impacts to the surrounding communities will be expected.

## SECTION IV. ALTERNATIVES DESCRIPTIONS AND EVALUATIONS

(See Appendix C for Alternatives Evaluations Summary and Cost Estimates)

### Alternative A - No Action

In this alternative, no action will be taken (i.e., no dredging will be performed) to remedy the current siltation problem within the Shark River Estuary. The sedimentation problem will continue to worsen, limiting recreational, commercial, and biological activities.

#### Environmental Impact

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – If no dredging is performed, the sediment loading will eventually fill all areas of Shark River, creating a tidal marsh. This could fill areas that are currently prime shellfish habitat such as mud flats causing a reduced area for the shellfish.

*Prime fishing areas* – If no dredging is performed, the sediment loading will eventually fill all areas of Shark River, creating a tidal marsh. The areas currently used for recreational fishing would likely be reduced.

*Finfish migratory pathways* – Since there will be no dredging, there is the potential for existing spawning areas to be reduced. Therefore a moderate impact to finfish migratory pathways is expected from the No Action alternative.

*Navigation channels* – Since no action will be taken to remedy the existing sedimentation problem, impacts to the navigation channels within Shark River Estuary will continue to worsen.

*Inter-tidal and sub-tidal shallows* – If no dredging is performed, the sediment loading will eventually fill all areas of Shark River, creating a tidal marsh. This would increase areas of inter-tidal and sub-tidal shallows. Therefore, this alternative would have a positive impact (increased area) on inter-tidal and sub-tidal shallows.

*Wetlands and wetland buffers* – If no dredging is performed, the sediment loading will eventually fill all areas of Shark River, creating a tidal marsh. New coastal wetland areas would likely be created as existing open water areas are filled. No impact to existing wetlands and wetlands buffers is expected from the No Action alternative.

*Coastal bluffs* – No impact to coastal bluffs is expected from the No Action alternative.

*Historic and archaeological resources* – No impact to historic and archaeological resources is expected from the No Action alternative.

*Endangered or threatened wildlife* – No impact to threatened and endangered wildlife is expected from the No Action alternative.

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*Plant species habitats and critical wildlife habitats* – No impact to plant species habitats and critical wildlife habitats is expected from the No Action alternative.

**Rating – Poor**

### **Costs**

Initial Costs – None associated with this alternative.

Annual Costs – None associated with this alternative.

**Rating – Excellent**

### **Likelihood of Community Support**

Public comments, both written and verbal, indicated agreement without exception that the Shark River Bay should be dredged; thus, the No Action alternative has no community support.

**Rating – Very Poor**

### **Logistics**

No logistical problems are associated with this alternative.

**Rating – Excellent**

### **Regulatory Compliance**

No regulatory problems are associated with this alternative.

**Rating –Fair**

Based upon our evaluation of the above criteria, the need for dredging and the public support of same, we have assigned an **overall rating of Fair** in terms of its worthiness to be considered as the preferred alternative.

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### Alternative B - Open Water Disposal (Island Creation)

In this alternative, materials dredged from existing and/or historic navigation channels within the estuary would be disposed of via the creation of new sedge islands within the Shark River estuary. Two locations would be considered, as these locations provide water depths of one (1) foot or less at mean low water (See Map 7). The material would be piped to the proposed locations as part of the initial dredging operations, thus eliminating double handling of the material. The creation of two sedge islands within the Shark River Estuary for the disposal of dredged material could provide for approximately 60,000 cubic yards and 120,000 cubic yards, for Areas A and B respectively. Area A could potentially accommodate the creation of a 7.75-acre island and Area B could potentially accommodate the creation of a 23.75-acre island. It is estimated that five feet of dredged material could be placed in Area A and three feet of dredged material could be placed in Area B for final elevations adequate to accommodate the establishment of the desired sedge island habitat.

### Environmental Impact

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – In Area A, the NJDEP Hard Clam Density map indicates that there is a “Moderate” density of hard clams. For Area B, the area is listed as having “Occurrence” of hard clams. Based upon this information, we believe that there will be a moderate impact to the shellfish habitat from the creation of dredged material islands.

*Prime fishing areas* – The proposed locations for island creation are not in areas considered as “prime fishing areas”. However, the areas are potentially accessible by boat and could be used for recreational fishing. Therefore, there will be a moderate impact to potential recreational fishing areas from the Island Creation Alternative.

*Finfish migratory pathways* – Since the proposed locations for island creation are in relatively shallow waters, it is not likely that they would serve as “finfish migratory pathways”. Therefore, no impact is expected to finfish migratory pathways from the Island Creation Alternative.

*Navigation channels* – Minimal impacts (short term) to the use of the navigation channels are expected during the initial placement and removal of the dredging discharge pipeline and during the dredging operation. Since the proposed locations for the island creation are not in identified navigation channels, no additional impacts to the use of navigation channels are expected from the Island Creation Alternative.

*Inter-tidal and sub-tidal shallows* – Since the proposed locations for the dredged material islands are in areas that can be considered inter-tidal shallows, the construction of the islands will eliminate the inter-tidal shallows habitat and replace it with dredged material island upland. Therefore, there will be significant impact to a portion of the existing inter-tidal shallows.

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*Wetlands and wetland buffers* – Since there are no wetlands or wetland buffers at the proposed location of the island creation, no impact to wetlands and wetland buffers is expected from the Island Creation Alternative.

*Coastal bluffs* – Since the island creation will occur in shallow water areas and there are no coastal bluffs at these locations, no impact is expected from the Island Creation Alternative.

*Historic and archaeological resources* – Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark River. In addition, The State Historic Preservation Office records were searched and no site were identified at the site of this alternative. Therefore no impact is expected from the Island Creation Alternative.

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping, there are no identified endangered or threatened species located at the proposed island creation site. A Bald Eagle foraging site is located a substantial distance to the west of Site A. Therefore, no impact to endangered or threatened species is expected from the Island Creation Alternative.

*Plant species habitats and critical wildlife habitats* – Based upon a review of NJDEP GIS mapping, there are no identified plant species habitat or critical wildlife habitat located at the proposed locations for the islands. Therefore, no impact to plant species habitats and critical wildlife habitats is expected from the Island Creation Alternative.

### **Rating - Poor**

#### **Costs**

Initial Costs – The cost includes the contract cost for dredging and placement of the dredged material in the proposed island locations. In addition, there will be costs associated with stabilizing the island after the dredging is complete.

Annual Costs – None associated with this alternative

### **Rating – Fair**

#### **Likelihood of Community Support**

Based upon the placement of the dredged material in the new islands within the Shark River Estuary, we would expect that there would be limited support from the local community and no support from the environmental community.

### **Rating - Poor**

#### **Logistics**

The routing of the dredged material piping along the Shark River Estuary may create initial impacts to the use of the inlet navigation channels. In general, once the pipeline is placed, the operation should proceed smoothly. The islands are located in areas outside of the navigational channels so no impact to boating is anticipated.

### **Rating - Good**

#### **Regulatory Compliance**

This alternative is removed from further consideration for the following reasons: the filling

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of open water is discouraged in accordance with N.J.A.C. 7:7E, and conditions for approval of open water fills render this alternative currently unfeasible; the creation of islands provides very limited capacity; additional material could be placed at these locations, however increased elevations would most likely result in the introduction of invasive and/or nuisance species; and the creation of islands is limited to one-time use due to dredged material being dewatered and disposed of at the same location in order to create long-term habitat.

### **Rating – Very Poor**

Based upon our evaluation of the above criteria and regulatory opposition to this type of disposal method, we have assigned an **overall rating of Poor** in terms of its worthiness to be considered as the preferred alternative.

### **Alternative C - Confined Disposal Facilities (CDF)**

For this alternative, the dredged material would be placed in a confined disposal facility (CDF) for dewatering. The confined disposal facility would be located in areas near the Shark River Estuary and would be constructed of available earthen materials that would retain the dredged material and water associated with the dredging. The dredged material would be allowed to settle in the CDF and the water would be discharged to the Shark River Estuary after the water has been clarified sufficiently to meet the effluent discharge criteria. Once dewatered, the dredged material will be trucked to the Neptune Landfill for use in enhancements to the existing landfill cap. There are six CDF locations under consideration and each will be evaluated separately. These sites have been identified based upon a review of NJDEP GIS mapping and were selected based upon apparent availability. See Map 8.

**CDF #1 - Site Location and Description** - This site is located on the northern side of Marconi Road in Wall Township at the site of the former Camp Evans wastewater treatment plant (See Map 9). The site area is only 1.43 acres; based upon a preliminary site analysis, a CDF with a capacity of approximately 30,000 cubic yards can be constructed on this site. The site is currently owned by Wall Township.

#### **Environmental Impact**

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – The discharge for CDF #1 will be into an area of the Shark River Estuary where there are limited to moderate shellfish densities. Based upon this, the potential for impact is considered moderate.

*Prime fishing areas* – Since the material will be placed in a CDF, there will be no obstruction to the use of the estuary by recreational fisherman. Therefore, there will be no impact to prime fishing areas resulting from the placement of the dredged materials in the CDF #1.

*Finfish migratory pathways* – Since the material will be placed in a CDF, no contact with finfish migratory pathways will occur. Therefore, no impact is expected from the placement of the dredged materials in CDF #1.

*Navigation channels* – Minimal impacts (short term) to the use of the navigation channels are expected during the initial placement and removal of the dredging discharge pipeline and during the dredging operation.

*Inter-tidal and sub-tidal shallows* – The discharge from the CDF will be into an area of inter-tidal and sub-tidal shallows. There will be initial, limited impacts due to the discharge flow temporarily modifying local flow conditions. These impacts will cease once discharge of the effluent from the CDF is complete.

*Wetlands and wetland buffers* – There are no wetlands at the placement site but there are wetland buffers. A wetland permit will have to be obtained for the construction of the discharge piping. The impacts to the wetlands will be minimized through careful site design.

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*Coastal bluffs* – Since there are no coastal bluffs at the proposed location of the CDF, no impact is expected from the placement of the dredged materials in CDF #1.

*Historic and archaeological resources* – A wastewater treatment plant formerly operated at the site. Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark River. In addition, The State Historic Preservation Office records were searched and no site were identified at the site of this alternative. Therefore no impact to historic and archaeological sites is expected from the placement of the dredged materials in the CDF #1.

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping (Bald Eagle Foraging Habitat – See Map 3), the site is located near a Rank 5 Habitat. The proposed area of the discharge from the CDF will be directly into tidal waters within the Rank 5 Habitat. This discharge flow will cause temporary modification to local flow conditions at the point of discharge only. The CDF would be located in an area not included in the Bald Eagle Foraging Habitat. Therefore, no impact to Threatened or Endangered species is expected from the placement of the dredged materials in CDF #1.

*Plant species habitats and critical wildlife habitats* – The site is located in an area formerly used as a wastewater treatment plant. Based upon a review of NJDEP GIS mapping, no plant species or critical wildlife habitats are identified for the site. Therefore, no impact to plant species habitats and critical wildlife habitats is expected from the placement of the dredged materials in CDF #1.

*General* – There is the potential for traffic related impacts due to the trucking of the dredged material from the CDF to the Neptune Landfill. However, these impacts can be minimized by careful planning and scheduling of the trucking operations.

**Rating - Excellent**

### **Cost**

*Initial Costs* – The costs include construction of the CDF and the site preparation (including the cost for improvements to the access road) and the contract cost for dredging and placement of the dredged material in the CDF. In addition, there will be the cost of removing dewatered material from the CDF once dredging operations are completed.

*Annual Costs* – There will be an annual maintenance cost for operation and upkeep of the CDF which will include repairs to the dikes and discharge piping.

**Rating – Good**

### **Likelihood of Community Support**

While community support from all five Shark River Bay municipalities for this alternative should be forthcoming, it is expected that both the local neighborhood in which the landfill is located and the local neighborhood hosting the CDF may oppose this alternative based upon possible increased truck traffic impacts.

**Rating - Fair**

## SECOND DRAFT

### **Logistics**

Due to ecological limitations and recreational constraints, the “dredging window” for the project is restricted to the period after Labor Day through December 31, for any given year. Based upon this limitation, the preferred CDF size is a minimum of 120,000 cubic yards in order to accommodate the annual dredging plans for the Shark River Estuary. The routing of the dredged material piping along the Shark River Estuary may create initial impacts to the use of the inlet navigation channels. In general, once the pipeline is placed, the operation should proceed smoothly. Coordination (planning of the routes and scheduling of the trucks) will require special attention to avoid problems.

### **Rating – Fair**

### **Regulatory Compliance**

It has been assumed that the dredged material will be tested prior to placement and that the chemical composition of the dredged material will not exceed regulatory standards. Therefore the beneficial reuse of the dredged material will be consistent with existing NJDEP and Federal standards. All necessary NJDEP permits for CDF#1 and the enhancement of the landfill cap will be obtained.

### **Rating – Excellent**

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Fair** in terms of its worthiness to be considered as the preferred alternatives. This is primarily due to the limited usefulness due to the small overall size and capacity (30,000 cubic yards) of the site. The site can be considered in conjunction with another site of limited capacity.

## SECOND DRAFT

**CDF #2** - This site is located west of the Shark River, bounded by Brighton Avenue to the North, Watson Avenue to the East and Route 18 to the West (See Map 10). The site area is 18.3 acres and appears to have wetlands issues that may restrict some usable property. There is a land use restriction for the site that the U. S Army imposed as part of the transfer to Wall Township. The Army required that the site be used only for passive recreation. In addition, there is a Native American burial ground located along the Laurel Gully Brook that precludes the installation of pipes to the Shark River in this location. The site has a potential capacity of 350,000 to 400,000 cubic yards.

### **Environmental Impact**

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – The discharge for CDF #2 will be into an area of the Shark River Estuary where there are limited to moderate shellfish densities. Based upon this, the potential for impact to shellfish habitat is considered moderate

*Prime fishing areas* – Since the material will be placed in a CDF, there will be no obstruction to the use of prime fishing area by recreational fisherman. Therefore, there will be no impact resulting from the placement of the dredged materials in CDF #2.

*Finfish migratory pathways* – Since the material will be placed in a CDF, no contact with finfish migratory pathways will occur. Therefore, no impact is expected to finfish migratory pathways from the placement of the dredged materials in CDF #2.

*Navigation channels* – Minimal impacts (short term) to the use of the navigation channels are expected during the initial placement and removal of the dredging discharge pipeline and during the dredging operation.

*Inter-tidal and sub-tidal shallows* – The discharge from the CDF will be into an area of inter-tidal and sub-tidal shallows. There will be initial, limited impact due to the discharge flow temporarily modifying local flow conditions at the point of discharge only.

*Wetlands and wetland buffers* – Although there is a wetland corridor located on the southern end of the site, the CDF will not be constructed in wetlands or wetland buffer areas. Therefore, no direct impact to wetlands and wetland buffers is expected from the placement of the dredged materials in CDF #2.

*Coastal bluffs* – Since there are no coastal bluffs at the proposed location of the CDF, no impact is expected from the placement of the dredged materials in CDF #2.

*Historic and archaeological resources* – The only identified historical or archaeological site is a Native American burial ground that is located along the Laurel Gully Brook. The location of this burial ground would preclude the installation of dredge piping to the Shark River in this location. However, alternate piping locations can be obtained. The CDF will not be constructed on or adjacent to the burial grounds. Therefore no impact to historic and

## SECOND DRAFT

archaeological resources is expected from the placement of the dredged materials in CDF #2.

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping (See Map 3), the site is located to the west of a Rank 5 Habitat. The proposed area of the discharge from the CDF will be directly into tidal waters within the Rank 5 Habitat. This discharge flow will cause temporary modification to local flow conditions at the point of discharge only. The CDF would be located in an area outside of the Bald Eagle Foraging Habitat. Therefore, no impact to Threatened or Endangered species is expected from the placement of the dredged materials in CDF #2.

*Plant species habitats and critical wildlife habitats* – The site is located in an area formerly used as part of the military operations of Camp Evans. Based upon a review of NJDEP GIS mapping, no plant species or critical wildlife habitats are identified for the site. Therefore, no impact to plant species habitats and critical wildlife habitats is expected from the placement of the dredged materials in the CDF #2.

*General* – There is the potential for traffic related impacts due to the trucking of the dredged material from the CDF to the Neptune Landfill. However, these impacts can be minimized by careful planning and scheduling of the trucking operations.

**Rating – Fair**

### **Cost**

*Initial Costs* – The costs include construction of the CDF and the site preparation (including the cost for improvements to the access road) and the contract cost for dredging and placement of the dredged material in the CDF. In addition, there will be the cost of removing dewatered material from the CDF once dredging operations are completed.

*Annual Costs* – There will be an annual maintenance cost for the CDF which will include repairs to the dikes and discharge piping.

**Rating – Good**

### **Likelihood of Community Support**

While community support from all five Shark River Bay municipalities for this alternative should be forthcoming, it is expected that both the local neighborhood in which the landfill is located and the local neighborhood hosting the CDF may oppose this alternative based upon possible increased truck traffic impacts.

**Rating – Fair**

### **Logistics**

The routing of the dredged material piping along the Shark River may create Initial impacts to the use of the inlet navigation channels. In general, once the pipeline is placed, the operation should proceed smoothly. Coordination (planning of the routes and scheduling of the trucks) will require special attention to avoid problems.

**Rating – Good**

## SECOND DRAFT

### **Regulatory Compliance**

It has been assumed that the dredged material will be tested prior to placement and that the chemical composition of the dredged material will not exceed regulatory standards. Therefore the beneficial reuse of the dredged material will be consistent with existing NJDEP and Federal standards. All necessary NJDEP permits for the CDF and the enhancement of the landfill cap will be obtained.

### **Rating - Fair**

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Fair** in terms of its worthiness to be considered as the preferred alternative.

## SECOND DRAFT

**CDF #3** - This site is located on the northern side of Marconi Road in Wall Township just east of the CDF #1 Site. The site is 10.08 acres in size and is currently owned by Wall Township (See Map 11). The site was previously used for a dredged material disposal basin (more than 10 years ago) and is currently overgrown with vegetation. The existing dikes will be reconstructed along with the necessary discharge piping. The site has a potential capacity of 200,000 cubic yards.

### **Environmental Impact**

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – The discharge for CDF #3 will be into an area of the Shark River Estuary where there are limited to moderate shellfish densities. Based upon this, the potential for impact is considered moderate

*Prime fishing areas* – Since the material will be placed in a CDF #3, there will be no obstruction to the use of the estuary by recreational fisherman. Therefore, there will be no impact resulting from the placement of the dredged materials in the CDF #3.

*Finfish migratory pathways* – Since the material will be placed in a CDF, no contact with finfish migratory pathways will occur. Therefore, no impact is expected from the placement of the dredged materials in the CDF #3.

*Navigation channels* – Minimal impacts (short term) to the use of the navigation channels are expected during the initial placement and removal of the dredging discharge pipeline and the dredging operation.

*Inter-tidal and sub-tidal shallows* – The discharge from the CDF will be into an area of inter-tidal and sub-tidal shallows. There will be initial, limited impact due to the discharge flow temporarily modifying local flow conditions at the point of discharge only.

*Wetlands and wetland buffers* – There are wetlands located at the placement site; a wetland permit will have to be obtained for the construction of the CDF and discharge piping. However, the proposed location for the new CDF is coincident with the location of the previously established CDF. Therefore, the area can be considered previously disturbed. The site will be designed to minimize impacts to the existing wetlands.

*Coastal bluffs* – Since there are no coastal bluffs at the proposed location of the CDF, no impact is expected from the placement of the dredged materials in the CDF #3.

*Historic and archaeological resources* – The site was formerly used as a dredged material disposal site. Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark River. In addition, The State Historic Preservation Office records were searched and no site were identified at the site of this alternative. Therefore no impact is expected from the placement of the dredged materials in CDF #3.

## SECOND DRAFT

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping (See Map 3), the site is located within a Rank 5 Habitat. The proposed area of the discharge from the CDF will be directly into tidal waters within the Rank 5 Habitat. This discharge flow will cause temporary modification to local flow conditions at the point of discharge only. The CDF would be located in an area included in the Bald Eagle Foraging Habitat. Therefore, some short-term, limited impact to Threatened or Endangered species habitat may occur from the construction of the CDF #3.

*Plant species habitats and critical wildlife habitats* – The site is located in an area formerly used as a dredged material disposal site. Based upon a review of NJDEP GIS mapping, no plant species or critical wildlife habitats are identified for the site. Therefore, no impact to plant species habitats and critical wildlife habitats is expected from the placement of the dredged materials in the CDF #3.

*General* – There is the potential for traffic related impacts due to the trucking of the dredged material from the CDF to the Neptune Landfill. However, these impacts can be minimized by careful planning and scheduling of the trucking operations.

**Rating - Fair**

### **Costs**

*Initial Costs* – The costs include construction of the CDF and the site preparation (including the cost for improvements to the access road) and the contract cost for dredging and placement of the dredged material in the CDF. In addition, there will be the cost of removing dewatered material from the CDF once dredging operations are completed.

*Annual Costs* – There will be an annual maintenance cost for the CDF which will include repairs to the dikes and discharge piping.

**Rating – Good**

### **Likelihood of Community Support**

While community support from all five Shark River Bay municipalities for this alternative should be forthcoming, it is expected that both the local neighborhood in which the landfill is located and the local neighborhood hosting the CDF may oppose this alternative based upon possible increased truck traffic impacts.

**Rating - Fair**

### **Logistics**

The routing of the dredged material piping along the Shark River may create initial impacts to the use of the inlet navigation channels. In general, once the pipeline is placed, the operation should proceed smoothly. Coordination (planning of the routes and scheduling of the trucks) will require special attention to avoid problems.

**Rating – Excellent**

### **Regulatory Compliance**

Since the site was formerly used as a dredged material CDF, the reuse of the site is consistent with NJDEP policy to reuse existing sites rather than construct new sites. It has been assumed that the dredged material will be tested prior to placement and that the

## SECOND DRAFT

chemical composition of the dredged material will not exceed regulatory standards. Therefore the beneficial reuse of the dredged material will be consistent with existing NJDEP and Federal standards. All necessary NJDEP permits for the CDF and the enhancement of the landfill cap will be obtained.

### **Rating – Fair**

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Good** in terms of its worthiness to be considered as the preferred alternative.

## SECOND DRAFT

**CDF #4** – This site is located on Seaview Island and is currently owned by the NJDOT (See Map 12). The site consists of 3.22 acres of cleared land with easy access to the water and truck routes. It was used as an equipment laydown area during the re-construction of the Route 35 Bridge. The estimated site capacity is less than 60,000 cubic yards. The location is very visible to the public from the adjoining townhouses.

### **Environmental Impact**

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – The discharge for CDF #4 will be into an area of the estuary where there are no identified shellfish beds. Based upon this, the potential for impact is considered low

*Prime fishing areas* – Since the material will be placed in a CDF, there will be no obstruction to the use of prime fishing area by recreational fisherman. Therefore, there will be no impact resulting from the placement of the dredged materials in the CDF #4.

*Finfish migratory pathways* – Since the material will be placed in a CDF, no contact with finfish migratory pathways will occur. Therefore, no impact is expected to finfish migratory pathways from the placement of the dredged materials in the CDF #4.

*Navigation channels* – Minimal impacts (short term) to the use of the navigation channels are expected during the initial placement and removal of the dredging discharge pipeline and during dredging operations.

*Inter-tidal and sub-tidal shallows* – The discharge from the CDF will be into a primary channel of the Shark River where tidal flow is significantly higher than the expected CDF effluent discharge flow. No impact is expected.

*Wetlands and wetland buffers* – There are no wetlands on the site and there will be no impact to wetlands and wetland buffers from the placement of the dredged materials in CDF #4.

*Coastal bluffs* – Since there are no coastal bluffs at the proposed location of the CDF, no impact is expected from the placement of the dredged materials in CDF #4.

*Historic and archaeological resources* – Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark River. In addition, The State Historic Preservation Office records were searched and no site were identified at the site of this alternative. Therefore no impact to historic and archaeological resources is expected from the placement of the dredged materials in CDF #4.

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping, there are no known Threatened or Endangered species on the CDF #4 site.

*Plant species habitats and critical wildlife habitats* – Based upon a review of NJDEP GIS mapping, there are no known plant species habitats and critical wildlife habitats on the CDF #4 site.

## SECOND DRAFT

*General* – There is the potential for traffic related impacts due to the trucking of the dredged material from the CDF to the Neptune Landfill. However, these impacts can be minimized by careful planning and scheduling of the trucking operations.

**Rating – Excellent**

### **Cost**

*Initial Costs* – The costs include construction of the CDF and the site preparation and the contract cost for dredging and placement of the dredged material in the CDF. In addition, there will be the cost of removing dewatered material from the CDF once dredging operations are completed.

*Annual Costs* – There will be an annual maintenance cost for the CDF which will include repairs to the dikes and discharge piping.

**Rating – Good**

### **Likelihood of Community Support**

While community support from all five Shark River Bay municipalities for this alternative should be forthcoming, it is expected that both the local neighborhood in which the landfill is located and the local neighborhood hosting the CDF may oppose this alternative based upon possible increased truck traffic impacts. In addition, the residents living in the townhouses adjacent to the site will object to the alternative based upon perceived potential impacts due to dust and operational noise.

**Rating – Very Poor**

### **Logistics**

Due to ecological limitations and recreational constraints, the “dredging window” for the project is restricted to the period after Labor Day through December 31, for any given year. Based upon this limitation, the preferred CDF size is a minimum of 120,000 cubic yards in order to accommodate the Annual dredging plans for the Shark River Estuary. The routing of the dredged material piping along the Shark River Estuary may create short term impacts to the use of the inlet navigation channels. In general, once the pipeline is placed, the operation should proceed smoothly. Coordination (planning of the routes and scheduling of the trucks) will require special attention to avoid problems.

**Rating - Fair**

### **Regulatory Compliance**

It has been assumed that the dredged material will be tested prior to placement and that the chemical composition of the dredged material will not exceed regulatory standards. Therefore the beneficial reuse of the dredged material will be consistent with existing NJDEP and Federal standards. All necessary NJDEP permits for the CDF and the enhancement of the landfill cap will be obtained. The reuse of a site that has already been cleared (as opposed to an undisturbed site) will be more acceptable to the NJDEP.

**Rating - Excellent**

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Fair** in terms of its worthiness to be considered as the preferred alternatives. This is primarily

## **SECOND DRAFT**

due to the limited usefulness due to the small overall size and capacity (60,000 cubic yards) of the site. The site can be considered in conjunction with another site of limited capacity.

## SECOND DRAFT

**CDF #5** - This site is located adjacent to the Shark River Golf Course (part of the Monmouth County Park System and, therefore, a Green Acres site) and is approximately 11.78 acres in size (See Map 13). The site is a wooded wetland area with limited water and truck access. The site has a potential capacity of 200,000 to 250,000 cubic yards. There is limited waterside access to this site.

### **Environmental Impact**

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – The discharge for CDF #5 will be into an area of the estuary where there are limited to moderate shellfish densities. Based upon this, the potential for impact is considered moderate.

*Prime fishing areas* – Since the material will be placed in a CDF, there will be no obstruction to the use of the Shark River Estuary by recreational fisherman. Therefore, there will be no impact to prime fishing areas resulting from the placement of the dredged materials in the CDF #5.

*Finfish migratory pathways* – Since the material will be placed in a CDF, no contact with finfish migratory pathways will occur. Therefore, no impact to finfish migratory pathways is expected from the placement of the dredged materials in the CDF #5.

*Navigation channels* – Minimal impacts (short term) to the use of the navigation channels are expected during the initial placement and removal of the dredging discharge pipeline and during the dredging operations.

*Inter-tidal and sub-tidal shallows* – The discharge from the CDF will be into an area of inter-tidal and sub-tidal shallows. There will be initial, limited impact due to the discharge flow temporarily modifying local flow conditions.

*Wetlands and wetland buffers* – There are wetlands at the placement site; a wetland permit will have to be obtained for the construction of the CDF and discharge piping. The CDF will be located and the overall site designed to minimize wetland disturbance.

*Coastal bluffs* – Since there are no coastal bluffs at the proposed location of the CDF, no impact will occur.

*Historic and archaeological resources* – Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark River. In addition, The State Historic Preservation Office records were searched and no sites were identified at the site of this alternative. Therefore no impact to historic and archaeological resources is expected from the placement of the dredged materials in the CDF #5.

## SECOND DRAFT

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping (See Map 3), the site is located near a Rank 5 Habitat. The proposed area of the discharge from the CDF will be directly into tidal waters within the Rank 5 Habitat. This discharge flow will cause temporary modification to local flow conditions at the point of discharge only.

*Plant species habitats and critical wildlife habitats* – Based upon a review of NJDEP GIS mapping, no plant species or critical wildlife habitats are identified for the site. Therefore, no impact to plant species habitats and critical wildlife habitats is expected from the placement of the dredged materials in the CDF #5.

*General* – There is the potential for traffic related impacts due to the trucking of the dredged material from the CDF to the Neptune Landfill. Currently, there is no road access to the site, so an access road would have to be constructed.

**Rating - Poor**

### **Cost**

*Initial Costs* – The costs include construction of the CDF and the site preparation (including the cost for improvements to the access road) and the contract cost for dredging and placement of the dredged material in the CDF. In addition, there will be the cost of removing dewatered material from the CDF once dredging operations are completed.

*Annual Costs* – There will be an annual maintenance cost for the CDF which will include repairs to the dikes and discharge piping.

**Rating – Poor**

### **Likelihood of Community Support**

While community support from all five Shark River Bay municipalities for this alternative should be forthcoming, it is expected that both the local neighborhood in which the landfill is located and the local neighborhood hosting the CDF may oppose this alternative based upon possible increased truck traffic impacts.

**Rating - Fair**

### **Logistics**

The routing of the dredged material piping along the Shark River may create short term impacts to the use of the inlet navigation channels. In general, once the pipeline is placed, the operation should proceed smoothly. Coordination (planning of the new road and truck routes and scheduling of the trucks) will require special attention to avoid problems.

**Rating – Fair**

### **Regulatory Compliance**

It has been assumed that the dredged material will be tested prior to placement and that the chemical composition of the dredged material will not exceed regulatory standards. Therefore the beneficial reuse of the dredged material will be consistent with existing NJDEP and Federal standards. All necessary NJDEP permits for the CDF and the enhancement of the landfill cap will be obtained. The use of an undisturbed site will cause additional review by the NJDEP and reduce the acceptability of the site to the NJDEP.

**Rating - Poor**

## SECOND DRAFT

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Poor** in terms of its worthiness to be considered as the preferred alternative.

## SECOND DRAFT

**CDF #6** – This site is located on Brighton Avenue in Neptune adjacent to Route 18 with access to the Shark River (See Map 14). The site is currently owned by the County of Monmouth and is part of the Shark River Park System. The site is approximately 14.17 acres in size and has a potential capacity of 200,000 to 250,000 cubic yards. The site is presently wooded with a wetland area along Shark River. The site preparation would include clearing of existing vegetation, construction of the CDF and supporting facilities, and construction of the site access road.

### **Environmental Impact**

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – The discharge for CDF #6 will be into an area of the estuary where there are no identified shellfish beds. Based upon this, the potential for impact is considered low

*Prime fishing areas* – Since the material will be placed in a CDF, there will be no obstruction to the use of prime fishing area by recreational fisherman. Therefore, there will be no impact resulting from the placement of the dredged materials in the CDF #6.

*Finfish migratory pathways* – Since the material will be placed in a CDF, no contact with finfish migratory pathways will occur. Therefore, no impact is expected from the placement of the dredged materials in CDF #6.

*Navigation channels* – Minimal impacts (short term) to the use of the navigation channels are expected during the initial placement and removal of the dredging discharge pipeline and during dredging operations.

*Inter-tidal and sub-tidal shallows* – The discharge from the CDF will be into an area of inter-tidal and sub-tidal shallows. There will be initial, limited impact due to the discharge flow temporarily modifying local flow conditions.

*Wetlands and wetland buffers* – There are wetlands on the site; placement of the CDF and supporting facilities will be in non-wetland areas of the site.

*Coastal bluffs* – Since there are no coastal bluffs at the proposed location of the CDF, no impact will occur.

*Historic and archaeological resources* – Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark River. In addition, The State Historic Preservation Office records were searched and no site were identified at the site of this alternative. Therefore no impact to historic and archaeological resources is expected from the placement of the dredged materials in CDF #6.

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping, there are no known Threatened or Endangered species on the CDF #6 site.

## SECOND DRAFT

*Plant species habitats and critical wildlife habitats* – Based upon a review of NJDEP GIS mapping, there are no known plant species habitats and critical wildlife habitats on the CDF #6 site.

*General* – There is the potential for traffic related impacts due to the trucking of the dredged material from the CDF to the Neptune Landfill. However, these impacts can be minimized by careful planning and scheduling of the trucking operations.

**Rating – Fair**

### **Cost**

*Initial Costs* – The costs include construction of the CDF and the site preparation (including the cost for improvements to the access road) and the contract cost for dredging and placement of the dredged material in the CDF. In addition, there will be the cost of removing dewatered material from the CDF once dredging operations are completed.

*Annual Costs* – There will be an annual maintenance cost for the CDF which will include repairs to the dikes and discharge piping.

**Rating – Fair**

### **Likelihood of Community Support**

While community support from all five Shark River Bay municipalities for this alternative should be forthcoming, it is expected that both the local neighborhood in which the landfill is located and the local neighborhood hosting the CDF may oppose this alternative based upon possible increased truck traffic impacts.

**Rating – Fair**

### **Logistics**

The site is located on sloping ground. Berms would have to be constructed to control erosion and for material placement. The site is currently wooded and would require extensive clearing. The routing of the dredged material piping along the Shark River may create short term impacts to the use of the inlet navigation channels. In general, once the pipeline is placed, the operation should proceed smoothly. Coordination (planning of the new road and truck routes and scheduling of the trucks) will require special attention to avoid problems.

**Rating – Very Poor**

### **Regulatory Compliance**

It has been assumed that the dredged material will be tested prior to placement and that the chemical composition of the dredged material will not exceed regulatory standards. Therefore the beneficial reuse of the dredged material will be consistent with existing NJDEP and Federal standards. All necessary NJDEP permits for the CDF and the enhancement of the landfill cap will be obtained. The use of an undisturbed site is not encouraged by the NJDEP and will likely cause additional regulatory review by the NJDEP and other agencies.

**Rating – Fair**

## SECOND DRAFT

Based upon our evaluation of the above criteria and the steep sloping ground, we have assigned an **overall rating of Poor** in terms of its worthiness to be considered as the preferred alternative.

## **SECOND DRAFT**

### **Multiple CDFs**

(See Appendix C for Alternatives Evaluations Summary and Cost Estimates)

In this alternative, the dredged material will be pumped to either Alternative E-2 (Belmar Beach) or one of the smaller CDFs (Alternative C-1 or C-4). Proper scheduling will allow for the most appropriate CDF to be used based upon quantity of material to be disposed of at the CDFs, the dredged material will be dewatered and trucked to the Neptune Landfill where it will be used for cap enhancement. The Belmar Beach Alternative will be performed first followed by the use of the CDFs. The CDF used for a particular dredging project will be selected based upon the size of the project and location of the area to be dredged.

### **Environmental Impact**

Potential environmental impacts related to this alternative were evaluated under the individual alternatives and are summarized at Appendix C.

**Rating – Good**

### **Costs**

Potential costs related to this alternative were evaluated under the individual alternatives and are summarized at Appendix C. This alternative is rated poor because all three options within the alternative will have to be constructed, thus increasing the initial costs for the alternative.

**Rating – Poor**

### **Likelihood of Community Support**

Likelihood of community support related to this alternative was evaluated under the individual alternatives and is summarized at Appendix C.

**Rating – Fair**

### **Logistics**

The logistics related to this alternative were evaluated under the individual alternatives and are summarized at Appendix C.

**Rating - Fair**

### **Regulatory Compliance**

The regulatory compliance issues related to this alternative were evaluated under the individual alternatives and are summarized at Appendix C.

**Rating – Good**

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Fair** in terms of its worthiness to be considered as the preferred alternative.

## SECOND DRAFT

### Alternative D - Pumping to the Neptune Landfill

In this alternative, the dredged material will be pumped via an intermediate pumping station to the Neptune Landfill where the material will be dewatered. The layout for the alternative is shown on Map 15 (Overall Plan), Map 16 (Landfill Plan), and Map 17 (Pipeline Plan). The dredged material will be discharged to a lined, twelve (12) acre basin at the landfill for dewatering. After sufficient settling time has occurred, the effluent will be pumped back to the Shark River for discharge. The effluent discharge will be directed into an existing channel to minimize scour. Once dewatered, the dredged material will be used for cap enhancement at the existing landfill.

#### Environmental Impact

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – Based upon a review of NJDEP GIS mapping, the proposed site for the pump station and associated discharge piping would not be in an area of shellfish habitat. Therefore, no impact to shellfish habitat is expected from the Pumping to the Neptune Landfill alternative.

*Prime fishing areas* – Since the material will be placed at the Neptune Landfill, there will be no potential for short and long-term impacts to local offshore fishing.

*Finfish migratory pathways* – Since the material will be placed at the Neptune Landfill, there will be no potential for short or long-term impacts to finfish migratory pathways from placement of the material at the Neptune Landfill

*Navigation channels* – Since the material will be placed at the Neptune Landfill, no impact to Navigation Channels is expected. There will be a minimal, short-term impact during the placement of the dredging pipelines and during the dredging operation.

*Inter-tidal and sub-tidal shallows* – Since the material will be placed at the Neptune Landfill, no impact to inter-tidal or sub-tidal shallows is expected from final placement of the material at the Neptune Landfill.

*Wetlands and wetland buffers* – Since there are no wetlands or wetland buffers at the placement site. Therefore, no impact to wetlands and wetland buffers is expected from final placement of the material at the Neptune Landfill.

*Coastal bluffs* – Since there are no coastal bluffs at the Neptune Landfill, no impact to coastal bluffs is expected from final placement of the material on the Neptune Landfill.

*Historic and archaeological resources* – Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark River or at the Neptune Landfill site. In addition, The State Historic Preservation Office

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records were searched and no sites were identified at the site of this alternative. Therefore no impact is expected from final placement of the material on the Neptune Landfill.

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping, there are no identified endangered or threatened species located at the proposed pump station site or at the Neptune Landfill. Therefore, no impact to Threatened or Endangered species is expected from final placement of the material on the Neptune Landfill

*Plant species habitats and critical wildlife habitats* – Based upon a review of NJDEP GIS mapping, there are no identified plant species habitat or critical wildlife habitat located at the proposed pump station site or the placement site on Neptune Landfill. Therefore, no impact to plant species or critical wildlife habitats is expected from final placement of the material on the Neptune Landfill.

**Rating – Good**

### **Costs**

**Initial Costs** – The cost includes the contract cost for dredging and placement of the dredged material at the Neptune Landfill. This cost would include construction of two sixteen inch pipelines from Shark River to the Neptune Landfill, construction of pumping stations at the Shark River and at the landfill, construction of a 12 acre dewatering pond at the landfill, and all associated structures for system operation. Increased laboratory testing and permitting costs would also be incurred as part of the effort to obtain regulatory approval.

**Annual Costs** – Operation and maintenance costs associated with the operation of the pump station and the dewatering facility.

**Rating – Very Poor**

### **Likelihood of Community Support**

Although this alternative was suggested by one of the participating municipalities, the likelihood for support of this alternative by all five of the Shark River Bay municipalities is low do to the high initial and annual cost to implement and maintain this alternative.

**Rating – Poor**

### **Logistics**

The additional construction and permitting required for the construction of the lined basins at the Neptune Landfill requires additional project scheduling and coordination. The use of the landfill for the dewatering area significantly reduces the area available for cap enhancement, thus dramatically reducing the quantity of material that can be placed at the landfill.

**Rating - Poor**

### **Regulatory Compliance**

The use of the existing landfill as the dewatering site will require the construction of a twelve acre lined cell. This will be required by the NJDEP Division of Solid and Hazardous waste to minimize leachate generation (which would occur with an unlined cell). In addition, stability analyses would have to be performed to demonstrate that the construction on top of

## SECOND DRAFT

the landfill would not create additional problems within the landfill. Additional permitting, including dam safety approvals for the diked areas, Major Disruption approval for the landfill and a Modification to the Solid Waste Permit will be required. These approvals can be obtained but will lengthen the regulatory time period required for the project.

### **Rating – Fair**

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Poor** in terms of its worthiness to be considered as the preferred alternative.

## SECOND DRAFT

### Alternative E – Reuse at Beaches

#### 1) Beneficial Reuse of the Dredged Material as Beach Nourishment on Avon Beach

In this alternative, the dredged material would be used for beach nourishment on the Avon Beach. The dredged material would be piped immediately after dredging along the Shark River inlet to the Avon Beach where the material will be placed directly on the beach above the high water line. Once placed, the dredged material will disperse along the beach through tidal and wave action and provide needed beach nourishment. The littoral drift in this area is primarily to the North so re-entrainment in the Shark River Inlet is not expected.

#### Environmental Impact

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – Based upon a review of NJDEP GIS mapping, Avon Beach is not located near a shellfish habitat. Therefore, no impact is expected from beneficially reusing the material on the Avon Beach as beach nourishment.

*Prime fishing areas* – Since the material will be placed directly on the beach during the non-tourist season as beach nourishment, there will be an initial deterrent to the use of the beach by recreational fishermen. This impact will be limited to the duration of the material placement on the beach.

*Finfish migratory pathways* – Since the material will be placed on the beach above the mean high water line, no contact with finfish migratory pathways will occur. Some initial degrading of the water quality in the immediate vicinity of the placement site will occur. Therefore, minimal impact to the finfish migratory pathways is expected from placing the material on the Avon Beach.

*Navigation channels* – Minimal impact to the use of the navigation channels is expected during the initial placement and removal of the dredging discharge pipeline.

*Inter-tidal and sub-tidal shallows* – Since the material will be placed on the beach above the mean high water line along the ocean (therefore not along any inter-tidal or sub-tidal shallows), no impact to inter-tidal or sub-tidal shallows is expected from placing the material on the Avon Beach.

*Wetlands and wetland buffers* – Since there are no wetlands or wetland buffers at the placement site and the material will be placed on the beach above the mean high water line, no impact to wetlands and wetland buffers is expected from placing the material on the Avon Beach.

*Coastal bluffs* – Since there are no coastal bluffs on the Avon Beach, no impact to coastal bluffs is expected from placing the material on the Avon Beach.

*Historic and archaeological resources* – Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark

## SECOND DRAFT

River. In addition, The State Historic Preservation Office records were searched and no site were identified at the site of this alternative. Therefore no impact is expected from placing the material on the Avon Beach.

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping, there are no identified endangered or threatened species located at the placement site on Avon Beach. Therefore, no impact to Threatened or Endangered species is expected from placing the material on the Avon Beach

*Plant species habitats and critical wildlife habitats* – Based upon a review of NJDEP GIS mapping, there are no identified plant species habitat or critical wildlife habitat located at the placement site on Avon Beach. Therefore, no impact to plant species or critical wildlife habitats is expected from placing the material on the Avon Beach.

### **Rating – Good**

#### **Costs**

Initial Costs – The cost includes the contract cost for dredging and placement of the dredged material on the beach.

Annual Costs – None associated with this alternative

### **Rating – Excellent**

#### **Likelihood of Community Support**

Previous placement of dredged material at the beach generated significant opposition from the host community. Thus, support for this alternative is expected to come from all participating municipalities except for the host municipality. The initial impact of discharge of the sediment as part of the placement of the material may also generate objections by local fishermen and environmental groups.

### **Rating – Fair**

#### **Logistics**

The routing of the dredged material piping along the Shark River may create short term impacts to the use of the inlet navigation channels. In general, once the pipeline is placed, the operation should proceed smoothly. Since the work will occur during the non-tourist season, the placement along the beach should be easily coordinated .

### **Rating - Good**

#### **Regulatory Compliance**

It has been assumed that the dredged material will be tested prior to placement and that the chemical composition of the dredged material will not exceed regulatory standards. Therefore the placement of the dredged material will be consistent with existing NJDEP and Federal standards. The grain size analyses will vary, but are expected to average between 60% to 70% sand which is not optimal for beach nourishment and may not meet the optimum design grain size analysis normally recommended for beach nourishment. However, since the dredged material is available and will be placed as a “beneficial reuse alternative”, it is not essential to meet the design grain size analysis for beach nourishment.

### **Rating - Fair**

## SECOND DRAFT

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Good** in terms of its worthiness to be considered as the preferred alternative.

## SECOND DRAFT

### 2) Beneficial Reuse of the Dredged Material through Construction of Dunes on Belmar Beach

In this alternative, the dredged material would be used for the construction of protective dunes on the 1st Avenue Beach in Belmar. An area of beach at least 100 feet from the Mean High Water line will be excavated to Elevation +5; the dredged material will be placed in the pit and covered with the excavated sand. The estimated amount of dredged material needed is approximately 80,000 cubic yards. This volume was developed based upon the area proposed by Belmar in 1997 for a project that was not completed. The design was modified slightly by increasing the top height of the dune to Elevation +16 ft (beach elevation is approximately +11 ft). The top two feet of the dune will be a sand cap so that the dredged material will be placed to Elevation +14 ft. The hole will be excavated to +5 ft with a sideslope for both the excavation and cap of 3:1, horizontal to vertical.

#### Environmental Impact

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – No impact is expected from placing the material on the Belmar Beach since no runoff is expected from the pits used for the construction of the dunes on Belmar Beach. The beach is also not located near a shellfish habitat

*Prime fishing areas* – Since the material will be placed in an excavated pit located at least one hundred feet (100') from the mean high water line; there will be no obstruction to the use by recreational fisherman of the beach as a prime fishing area. Therefore, there will be no impact resulting from the placement of the dredged materials as a base for constructed dunes on the Belmar Beach.

*Finfish migratory pathways* – Since the material will be placed on the beach at least one hundred feet (100') from the mean high water line and covered with no direct exposure to the adjoining ocean, no contact with finfish migratory pathways will occur. Therefore, no impact is expected from placing the material on the Belmar Beach.

*Navigation channels* – Minimal impact (short term) to the use of the navigation channels is expected during the initial placement and removal of the dredging discharge pipeline.

*Inter-tidal and sub-tidal shallows* – Since the material will be placed on the beach at least one hundred feet (100') from the mean high water line and covered with clean sand (no direct exposure to the adjoining ocean) no impact is expected from placing the material on the Belmar Beach.

*Wetlands and wetland buffers* – Since there are no wetlands or wetland buffers at the placement site and the material will be placed on the beach at least one hundred feet (100') from the mean high water line and covered, with no direct exposure to the adjoining ocean, no impact to wetlands and wetland buffers is expected from placing the material on the Belmar Beach.

*Coastal bluffs* – Since there are no coastal bluffs on the Belmar Beach, no impact is expected from placing the material on the Belmar Beach.

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*Historic and archaeological resources* – Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark River. In addition, The State Historic Preservation Office records were searched and no site were identified at the site of this alternative. Therefore no impact is expected from placing the material on the Belmar Beach.

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping, there are no identified endangered or threatened species located at the placement site on Belmar Beach. There is an established Piping Plover nesting area near the site. Based upon a review of the 2003 Monitoring Report for Piping Plover (See Appendix D), the site is considered marginal due to dense vegetation (primarily Seaside Goldenrod) in the area. The proposed enhancement of the dune would not make the site less desirable and could remove some of the vegetation during construction, possibly enhancing the suitability of the site. This area would be closely monitored during placement operations if this alternative were selected. Therefore, no impact to Threatened or Endangered species is expected from placing the material on the Belmar Beach.

*Plant species habitats and critical wildlife habitats* – Based upon a review of NJDEP GIS mapping, there are no identified plant species habitat or critical wildlife habitat located at the placement site on Belmar Beach. Therefore, no impact to plant species habitats and critical wildlife habitats is expected from placing the material on the Belmar Beach.

### **Rating – Good**

#### **Costs**

Initial Costs – The cost includes the contract cost for dredging and placement of the dredged material in the pits on the beach. In addition, there will be the cost of constructing and refilling the pits once the dredging operation is complete.

Annual Costs – None associated with this alternative.

### **Rating – Good**

#### **Likelihood of Community Support**

Based upon the loss of available bathing beach are due to construction of protected dunes for the beach, the local community and those from other communities who visit the beach are likely to not support this alternative. It may also be expected that environmental groups would opposed this alternative.

### **Rating – Fair**

#### **Logistics**

The routing of the dredged material piping along the Shark River may create short term impacts to the use of the inlet navigation channels. In general, once the pipeline is placed, the operation should proceed smoothly. Coordination of the construction of the dunes should also proceed smoothly. It is recognized that the amount of material that can be placed at the site is limited to the 80,000 cubic yards which eliminates the Annual use of this site for future dredging. Since this alternative would be limited to 80,000 cubic yards, it will have to be considered with another alternative to provide for the long term disposal needs

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of the Shark River Estuary.

### **Rating - Fair**

#### **Regulatory Compliance**

It has been assumed that the dredged material will be tested prior to placement and that the chemical composition of the dredged material will not exceed regulatory standards. Therefore the placement of the dredged material will be consistent with existing NJDEP and Federal standards. The grain size analyses will vary, but are expected to average between 60% to 70% sand which is not optimal for beach nourishment and may not meet the design grain size analysis normally recommended for beach nourishment or use for dune construction. However, since the dredged material is available and will be placed beneficially as the foundation of the dune, it is not essential to meet the design grain size analysis for beach nourishment. It is expected that the issues related to the Piping Plover nesting site near the proposed dune can be properly addressed.

### **Rating – Fair**

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Fair** in terms of its worthiness to be considered as the preferred alternative.

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### **Alternative F - Placement of the Dredged Material at the HARS Site**

In this alternative, the dredged material will be placed in barges and hauled to the HARS site for use as remediation material. There, the material will be deposited as remediation capping for the contaminated material that exists there. See Appendix E.

#### **Environmental Impact**

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – Based upon a review of NJDEP GIS mapping, the HARS Site is not located near a shellfish habitat. Therefore, no impact to shellfish habitat is expected from final disposal at the HARS site.

*Prime fishing areas* – Since the material will be placed in open water in the ocean with the potential to disperse through out the water column, there will be the potential for short and long term severe impacts to local offshore fishing. Dredged material placed on the ocean floor tends to smother local marine life causing “dead zones”. This impact should be considered significant.

*Finfish migratory pathways* – Since the material will be placed in open water in the ocean with the potential to disperse through out the water column, there will be the potential for short and long-term impacts to finfish migratory pathways that cannot be quantified at this time. This impact should be considered significant.

*Navigation channels* – Since the material will be placed by barge outside of normal navigational channels, no impact is expected.

*Inter-tidal and sub-tidal shallows* – Since the material will be placed in open water in the ocean with the potential to disperse through out the water column, and not along any inter-tidal or sub-tidal shallows, no impact to inter-tidal or sub-tidal shallows is expected from final disposal of the material at the HARS Site.

*Wetlands and wetland buffers* – Since there are no wetlands or wetland buffers at the placement site, no impact to wetlands and wetland buffers is expected from final disposal of the material at the HARS Site.

*Coastal bluffs* – Since there are no coastal bluffs at the HARS Site, no impact to coastal bluffs is expected from final disposal of the material on the HARS Site.

*Historic and archaeological resources* – Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark River. In addition, The State Historic Preservation Office records were searched and no site were identified at the site of this alternative. Therefore no impact is expected from final disposal of the material on the HARS Site.

*Endangered or threatened wildlife* – Based upon a review of NJDEP GIS mapping, there are no identified endangered or threatened species located at the HARS Site. Therefore, no impact

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to Threatened or Endangered species is expected from final disposal of the material on the HARS Site

*Plant species habitats and critical wildlife habitats* – Based upon a review of NJDEP GIS mapping, there are no identified plant species habitat or critical wildlife habitat located at the placement site on HARS Site. Therefore, no impact to plant species or critical wildlife habitats is expected from final disposal of the material on the HARS Site.

**Rating – Good**

### **Costs**

Initial Costs – The cost includes the contract cost for dredging and disposal of the dredged material at the HARS site. This cost can not be quantified until final quantities are determined.

Annual Costs – None associated with this alternative.

**Rating – Poor**

### **Likelihood of Community Support**

It is expected that all five participating municipalities would support this alternative. Local fishermen and environmental groups are like to oppose this alternative.

**Rating – Good**

### **Logistics**

The additional sampling and analyses required for approval for disposal at the HARS will be extremely time consuming and costly. The barging of the dredged material and final placement at the HARS Site in the open ocean is relatively simple with minimal coordination required.

**Rating - Poor**

### **Regulatory Compliance**

In accordance with 40CFR227.15, the need for ocean dumping must be determined by evaluation of several factors including the relative environmental risks, impact and cost for ocean dumping as opposed to other feasible alternatives. Based upon prior testing by the NJDEP and Army COE, the dredged material will not be the most suitable material for use at the HARS site based upon the expected percentage of sand in the dredged material (60-70%). Based upon this, it is unlikely that use of the HARS site for disposal would be approved.

**Rating – Poor**

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Poor** in terms of its worthiness to be considered as the preferred alternative.

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### **Alternative G - Commercial Disposal at Bayshore Recycling Corp.**

In this alternative, the dredged material would be removed and dewatered on barges for transport to the Bayshore Recycling Corporation located at 75 Crows Mill Road, Keasbey, NJ 08832 (See Map 20) where the material will be converted to various soil aggregate materials and beneficially reused.

### **Environmental Impact**

Potential environmental impacts related to this alternative are as follows:

*Shellfish habitat* – Since the dredged material will be placed on and dewatered in barges, the effluent discharge will occur in the area of the dredging. Therefore, there will be no additional impact to areas outside of those proposed for dredging. Therefore, no impact to shellfish habitat is expected from the Commercial Disposal alternative.

*Prime fishing areas* – Since the dredging material will be placed on and dewatered in barges, the effluent discharge will occur in the area of the dredging. Therefore, there will be no additional impact to areas outside of those proposed for dredging. No impact to prime fishing areas is expected from the Commercial Disposal alternative.

*Finfish migratory pathways* – Since the dredging material will be placed on and dewatered in barges, the effluent discharge will occur in the area of the dredging. Therefore, there will be no additional impact to areas outside of those proposed for dredging. No impact to Finfish migratory pathways is expected from the Commercial Disposal alternative.

*Navigation channels* – Since the dredging material will be placed on and dewatered in barges, the effluent discharge will occur in the area of the dredging. Therefore, there will be no additional impact to areas outside of those proposed for dredging.

*Inter-tidal and sub-tidal shallows* – Since the dredged material will be placed on and dewatered in barges, the effluent discharge will occur in the area of the dredging. Therefore, there will be no additional impact to areas outside of those proposed for dredging. Therefore, no impact to inter-tidal and sub-tidal shallows is expected from the Commercial Disposal alternative.

*Wetlands and wetland buffers* – Since the dredged material will be placed on and dewatered in barges, the effluent discharge will occur in the area of the dredging. Therefore, there will be no additional impact to areas outside of those proposed for dredging. Therefore, no impact to wetlands and wetlands buffers is expected from the Commercial Disposal alternative.

*Coastal bluffs* – Since the dredged material will be placed on and dewatered in barges, the effluent discharge will occur in the area of the dredging. Therefore, there will be no additional impact to areas outside of those proposed for dredging. Therefore, no impact to coastal bluffs is expected from the Commercial Disposal alternative.

*Historic and archaeological resources* – Based upon a review of the NJDEP GIS “Historical Sites” layer (Natural and Historic Resources – State Historic Preservation Office – last revised October 20, 2004), there are no historic or archaeological sites identified within the Shark

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River. In addition, The State Historic Preservation Office records were searched and no site were identified at the site of this alternative. Therefore, no impact is expected from the Commercial Disposal alternative.

*Endangered or threatened wildlife* – Since the dredged material will be placed on and dewatered in barges, the effluent discharge will occur in the area of the dredging. Therefore, there will be no additional impact to areas outside of those proposed for dredging. Therefore, no impact to endangered and threatened wildlife is expected from the Commercial Disposal alternative.

*Plant species habitats and critical wildlife habitats* – Since the dredged material will be placed on and dewatered in barges, the effluent discharge will occur in the area of the dredging. Therefore, there will be no additional impacts to areas outside of those proposed for dredging. Therefore, no impact to plant species habitats and critical wildlife habitats is expected from the Commercial Disposal alternative.

**Rating – Excellent**

### **Costs**

Initial Costs – The cost includes the contract cost for dredging and barging the material to the Bayshore Recycling Corporation Facility and the disposal cost at the facility.

Annual Costs – None associated with this alternative.

**Rating – Very Poor**

### **Likelihood of Community Support**

Based upon the beneficial reuse of the dredged material, it is expected that all five participating municipalities, local fishermen and environmental groups will support this alternative.

**Rating – Excellent**

### **Logistics**

The operation of the barge and the transport of the material to the Bayshore Recycling Corp facility may present difficulties.

**Rating - Poor**

### **Regulatory Compliance**

It has been assumed that the dredged material will be tested prior to placement and that the chemical composition of the dredged material will not exceed regulatory standards. Therefore the beneficial reuse of the dredged material will be consistent with existing NJDEP and Federal standards.

**Rating – Excellent**

Based upon our evaluation of the above criteria, we have assigned an **overall rating of Good** in terms of its worthiness to be considered as the preferred alternative.

## **SECTION V. ANTICIPATED REGULATORY APPROVALS**

The New Jersey Department of Environmental Protection and the U.S. Army Corps of Engineers will primarily regulate implementation of the Dredged Material Management Plan for the Shark River estuary. Current regulatory authority for each is described as follows:

### **New Jersey Department of Environmental Protection**

New Jersey protects coastal waters and the land adjacent to them under a variety of laws, including the Waterfront Development Law (N.J.S.A. 12:5-3), the Coastal Area Facility Review Act (N.J.S.A. 13:19), and the Wetlands Act of 1970 (N.J.S.A. 13:9A). The Department of Environmental Protection (DEP) applies the New Jersey Coastal Permit Program Rules, N.J.A.C. 7:7, and the Coastal Zone Management Rules, N.J.A.C. 7:7E, to determine what may or may not be built under these three laws.

#### *The Coastal Area Facility Review Act (CAFRA) (N.J.S.A. 13:19)*

CAFRA applies to projects near coastal waters in the southern part of the State. The CAFRA area begins where the Cheesequake Creek enters Raritan Bay in Old Bridge, Middlesex County. It extends south along the coast around Cape May, and then north along the Delaware Bay ending at the Kilcohook National Wildlife Refuge in Salem County. The inland limit of the CAFRA area follows an irregular line drawn along public roads, railroad tracks, and other features. The CAFRA area varies in width from a few thousand feet to 24 miles, measured straight inland from the shoreline.

The law divides the CAFRA area into pieces or zones, and regulates different types of development in each zone. Generally, the closer you are to the water, the more likely it is that your development will be regulated.

The CAFRA law regulates almost all development activities involved in residential, commercial, or industrial development, including construction, relocation, and enlargement of buildings or structures; and all related work, such as excavation, grading, shore protection structures, and site preparation.

#### *The Waterfront Development Law (N.J.S.A. 12:5-3)*

The Waterfront Development Law is a very old law, passed in 1914, that seeks to limit problems that new development could cause for existing navigation channels, marinas, moorings, other existing uses, and the environment.

If you are proposing any development in a tidally flowed waterway anywhere in New Jersey, you need a Waterfront Development Permit. Examples of projects that need a Waterfront Development Permit include docks, piers, pilings, bulkheads, marinas, bridges, pipelines, cables, and dredging.

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### *Wetlands Act of 1970 (N.J.S.A. 13:9A)*

The land immediately adjacent to a tidal water often contains coastal wetlands. These wetland areas are a vital coastal resource serving as habitat for many creatures. The wetlands also serve as buffers that protect upland areas from the flooding and damage caused by storms.

The Wetlands Act of 1970 requires the DEP to regulate development in coastal wetlands. The regulated coastal wetlands are shown on maps prepared by the DEP. Unlike DEP's freshwater wetlands maps, the coastal wetlands maps are used to determine jurisdiction.

You must have a coastal wetlands permit to excavate, dredge, fill or place a structure on any coastal wetland shown on the maps.

### *Tidelands Act (N.J.S.A. 12:3)*

Tidelands, also known as "riparian lands" are lands now or formerly flowed by the tide of a natural waterway. This includes lands that were previously flowed by the tide but have been filled and are no longer flowed by the tide. These lands are owned by the people of the State of New Jersey. You must first get permission from the State to use these lands, in the form of a tidelands license, lease or grant, and you must pay for this use.

### *Flood Hazard Area Control Act (N.I.S.A. 58:16A-50 et seq., and its implementing rules at N.J.A.C. 7:13)*

New Jersey regulates construction in the flood plain under the Flood Hazard Area Control Act, N.I.S.A. 58:16A-50 et seq., and its implementing rules at N.J.A.C. 7:13.

### *Freshwater Wetlands Protection Act (N.J.S.A. 13:9B)*

New Jersey protects wetlands under the New Jersey Freshwater Wetlands Protection Act, N.J.S.A. 13:9B. This law also protects transition areas or "buffers" around freshwater wetlands. New Jersey also protects coastal wetlands under a different law. See the pamphlet entitled Guide to New Jersey's Coastal Permitting Program if you are in a coastal area and think you may have coastal wetlands on your property.

## **U.S. Army Corps of Engineers**

The Department of the Army regulatory program is one of the oldest in the Federal Government. Initially it served a fairly simple, straightforward purpose: to protect and maintain the navigable capacity of the nation's waters. Time, changing public needs, evolving policy, case law, and new statutory mandates have changed the complexion of the program, adding to its breadth, complexity, and authority.

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### *Legislative Authorities*

The legislative origins of the program are the Rivers and Harbors Acts of 1890 (superseded) and 1899 (33 U.S.C. 401, et seq.). Various sections establish permit requirements to prevent unauthorized obstruction or alteration of any navigable water of the United States. The most frequently exercised authority is contained in [Section 10](#) (33 U.S.C. 403) which covers construction, excavation, or deposition of materials in, over, or under such waters, or any work which would affect the course, location, condition, or capacity of those waters. The authority is granted to the Secretary of the Army. Other permit authorities in the Act are [Section 9](#) for dams and dikes, Section 13 for refuse disposal, and Section 14 for temporary occupation of work built by the United States. Various pieces of legislation have modified these authorities, but not removed them.

In 1972, amendments to the Federal Water Pollution Control Act added what is commonly called [Section 404](#) authority (33 U.S.C. 1344) to the program. The Secretary of the Army, acting through the Chief of Engineers, is authorized to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into waters of the United States at specified disposal sites. Selection of such sites must be in accordance with guidelines developed by the Environmental Protection Agency (EPA) in conjunction with the Secretary of the Army; these guidelines are known as the [404\(b\)\(1\) Guidelines](#). The discharge of all other pollutants into waters of the U. S. is regulated under Section 402 of the Act which supersedes the Section 13 permitting authority mentioned above. The Federal Water Pollution Control Act was further amended in 1977 and given the common name of "Clean Water Act" and was again amended in 1987 to modify criminal and civil penalty provisions and to add an administrative penalty provision.

Also in 1972, with enactment of the Marine Protection, Research, and Sanctuaries Act, the Secretary of the Army, acting through the Chief of Engineers, was authorized to issue permits for the transportation of dredged material to be dumped in the ocean. This authority also carries with it the requirement of notice and opportunity for public hearing. Disposal sites for such discharges are selected in accordance with criteria developed by EPA in consultation with the Secretary of the Army.

## **SECTION VI. WATERSHED RESTORATION AND PROTECTION PLAN**

### **Rationale**

Three important components of a dredged material management plan include: 1) the frequency of dredging, 2) the quality of sediment to be removed and, 3) existing water quality of the subject waterbody. As each of these components is directly affected by existing conditions within the contributory watershed, it is strongly recommended that a Watershed Restoration and Protection Plan be developed and implemented consequent to this dredged material management plan. The purpose of implementing a Watershed Restoration and Protection Plan is to reduce the frequency of dredging by eliminating or minimizing sources of sedimentation (i.e. eroding stream banks) and to improve and protect sediment and water quality by eliminating, minimizing or mitigating pollutants that enter the stream system (i.e. pollutant laden stormwater).

### **Rationale Applied to Study Area**

The Shark River watershed encompasses an approximate 23-square mile area that generally extends from the Atlantic Ocean in the east to Naval Weapons Station Earle in the west (See Appendix 11 Map 5) and is primarily comprised of six (6) municipalities: Borough of Belmar, Township of Neptune, Neptune City, Township of Wall, Avon-by-the-Sea Borough and Borough of Tinton Falls. The watershed encompasses three subwatersheds including the Jumping Brook subwatershed (HUC 02030104090050) and two Shark River subwatersheds one above (HUC 02030104090040) and one below (HUC 02030104090060) Remsen Mill gage. The entire Shark River watershed is located within Watershed Management Area 12.

The need to address sedimentation within the Shark River watershed is evident through the accumulation of sediment within the Shark River estuary over time and through observation of erosive stream bank conditions within the watershed. The need to address water quality within the watershed has been well documented within the New Jersey 2004 Integrated Water Quality Monitoring and Assessment Report<sup>1</sup> and through the establishment of a fecal coliform TMDL (Total Maximum Daily Load) and proposed phosphorus TMDL. Waterbodies appearing on Sublist 5 of the above report are comprised of those waterbodies that the State has determined as “not attaining” the applicable State Surface Water Quality Standards for the associated parameter(s). Sublist 5 impairments identified for stream segments within the Shark River watershed include: fish-PCB, fish-dioxin, benthic macroinvertebrates, phosphorus, dissolved oxygen and total coliform. As part of the development of the Integrated Report, the State reviews and evaluates background water quality data under a process that involves consideration of quality assurance/quality control, monitoring design, age of data, accurate sampling location information, data documentation and use of electronic data management. As part of a TMDL development, the State identifies a narrow list of potential primary sources of pollutants based on results from selected sampling stations.

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### Restoration and Protection Plan Development

It is recommended that the Watershed Restoration and Protection Plan developed for the Shark River watershed comply with those requirements established by NJDEP – Division of Watershed Management under the State Nonpoint Source Program. These requirements state that Watershed Restoration Plans developed for waterbodies where a TMDL has been established (which includes Shark River), the plan must be designed to identify the course of action necessary to achieve the load reductions identified in the TMDL and that where a plan is to be developed for a Sublist 5 waterbody (which includes Shark River), the plan must be designed to reduce nonpoint source pollutant loading that is contributing to the surface water quality impairments. Watershed Protection Plans for Category One designated waters (which include the Shark River), must also be designed to ensure protection from any negative measurable changes in water quality characteristics and, where feasible, to enhance surface water quality. There are nine (9) minimum components required as part of the Watershed Restoration and Protection Plans. These include:

- a. Identification of the causes and sources or groups of similar sources that will need to be controlled to achieve the load reductions estimated in this watershed-based plan. Sources that need to be controlled should be identified at the significant subcategory level with estimates of the extent to which they are present in the watershed (e.g., linear miles of eroded streambank needing remediation).
- b. An estimate of the load reductions expected for the management measures. Estimates should be provided at the same level as in item (a) above (e.g., total load reduction expected for eroded streambanks).
- c. A description of the NPS management measures that will need to be implemented to achieve the load reductions, and an identification (using a map and description) of the critical areas in which those measures will be needed to implement this plan.
- d. An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan.
- e. An information/education component that will be used to enhance public understanding of the project and encourage the public's early and continued participation in selecting, designing, and implementing the NPS management measures that will be implemented.
- f. A schedule for implementing the NPS management measures identified in this plan that is reasonably expeditious.
- g. A description of interim, measurable milestones for determining whether NPS management measures or other control actions are being implemented.
- h. A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made towards attaining water quality standards and, if not, the criteria for determining whether this watershed-based plan needs to be revised or, if a NPS TMDL has been established, whether the NPS TMDL needs to be revised.

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- i. A monitoring component to evaluate the effectiveness of the implementation efforts overtime.

### **Regional Stormwater Management Plan**

In addition, as one of the primary sources of contamination listed under the TMDL for Shark River is direct stormwater discharges to waterbodies, it is also recommended that, once completed, the Watershed Restoration and Protection Plan be utilized as a basis to develop a regional stormwater management plan (RSWMP). NJDEP defines a RSWMP as a participatory process that requires the creation of a broadly representative regional planning committee assembled to address stormwater related water quality, groundwater recharge and/or water quantity impacts of new and existing land uses in a regional stormwater management planning area. The goals of a RSWMP are to develop drainage area specific water quality, groundwater recharge, and water quantity objectives; develop drainage area specific design and performance standards; select stormwater measures to be implemented; develop a strategy for implementation and evaluation of measures identified in the plan; and, identify the entity responsible for coordination and tracking the implementation of the measures. A RSWMP may also include innovative stormwater strategies such as pollutant trading, mitigation strategies, or special protection measures like a stream corridor protection plan to address the protection of areas adjacent to waterbodies. Once a RSWMP is completed, each municipality must incorporate the requirements of the RSWMP into their municipal stormwater management plan and ordinances and the lead planning agency submits the plan to NJDEP for adoption under the Water Quality Management Planning Rules at N.J.A.C. 7:15-3.4 as a request to amend the Areawide Water Quality Management (WQM) plan(s). Once approved, the specific requirements of the plan will then supersede any stormwater management requirements of the Stormwater Management Rules for new development and NJDEP will use the RSWMP for stormwater review under the Coastal Permit Program, Freshwater Wetlands, CAFRA, Stream Encroachment, NJPDES, and Dam Safety and will not issue a permit that conflicts with the RSWMP under the amended Areawide Water Quality Management Plan. In addition, the State Residential Site Improvement Standards, which are the requirements for stormwater review of residential developments, states that stormwater management plans regulated under RSIS must conform to the RSWMP (N.J.A.C. 5:21-7.5(d)4).

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### SECTION VII. COORDINATION, CONSULTATION, AND PUBLIC INVOLVEMENT

This SECOND DRAFT plan has been prepared by Birdsall Engineering Inc. and has taken into account written and verbal comments on the DRAFT plan (See Section XIII).

The schedule for public involvement in the preparation of this plan was as follows:

<b>Event</b>	<b>Date completed</b>
Initial meeting of Shark River Bay Environmental Planning Committee	May 3, 2005
Press conference to announce award of I BOAT grant	May 13, 2005
Meeting with related action programs/environmental groups	May 24, 2005
First community-wide open forum	May 26, 2005
Presentation of DRAFT plan and copies distributed at press conference. Copies available via Township of Neptune (paper) and its website (electronic). Comments invited via email, in writing, or in person at next community-wide open forum	August 8, 2005
Second community-wide open forum	August 16, 2005
Presentation to Wall Township Restoration Advisory Board (RAB)	September 19, 2005
Presentation to Wall Township Environmental Advisory Committee	October 4, 2005
Preparation and distribution of SECOND DRAFT	November, 2006
Third community-wide open forum in Wall Township	PENDING

## **SECOND DRAFT**

### **SECTION VIII. LIST OF PREPARERS**

This plan was prepared by the following Birdsall Engineering Inc. personnel:

1. Thomas K. Rospos, PE, PP, CME, Chief Operating Officer
2. Richard W. Watson, PE, PP, CME
3. Michael S. Sinnema, Senior Environmental Project Manager
4. Robert R. Fiorile, Environmental Project Manager
5. Amanda G. Lettieri, Environmental Scientist
6. Kelly J. Gunther, Environmental Scientist
7. Jessica L. Hock, Environmental Scientist
8. Gerald D. Frazee, Senior Project Designer
9. Alex T. Rospos, Civil Engineering/CAD Intern

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### SECTION IX. DISTRIBUTION LIST

1. Shark River Bay Environmental Planning Committee
2. NJ Department of Transportation, Office of Maritime Resources
3. NJ Department of Environmental Protection
4. Township of Neptune Webmaster at <http://www.neptunetownship.org/>
5. Shark River Cleanup Coalition
6. Shark River Environmental Roundtable
7. Environmental Commissions/Committees of Borough of Avon-by-the-Sea, Belmar, Neptune City and Townships of Neptune and Wall
8. Asbury Park Press, Coast Star, The Coaster newspapers

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### SECTION X. REFERENCES

Township of Neptune, Monmouth County, NJ, I BOAT NJ Grant Proposal, January 24, 2005.

Historic/Scenic Shark River Tour, Shark River Environmental Roundtable, PO Box A, Belmar, NJ 07719, undated. Also available at <http://www.visitmonmouth.com/area12/DOCUMENTS/SharkRiverTour.pdf>

At a Glance, Monmouth County NJ Planning Board, undated. Available at <http://www.shore.co.monmouth.nj.us/03230planboard/AtAGlanceFiles/AtAGlance2004.pdf>

Population Density Map of India, Maps of India, 2001. Available at <http://www.mapsofindia.com/census2001/populationdensity.htm>

Chapter 7 Coastal Permit Program Rules, New Jersey Department of Environmental Protection; February 3, 2003.

Chapter 7E Coastal Zone Management, New Jersey Department of Environmental Protection; February 2, 2004.

Essential Fish Habitats, NOAA Fisheries Service: Habitat Conservation Division; 2005. <http://www.nero.noaa.gov/hcd/>

Geographic Information Systems, New Jersey Department of Environmental Protection; 2005. <http://www.nj.gov/dep/gis/lists.html>

Shark River Bay Hard Clam Density Map, New Jersey Department of Environmental Protection; 1985

Shellfish Growing Water Classification Charts, New Jersey Department of Environmental Protection Bureau of Marine Water Monitoring.

## **SECOND DRAFT**

### **SECTION XI. MAPS/PLANS**

1. Hard Clam Density
2. Freshwater Wetlands
3. Bald Eagle Foraging Habitat
4. Land Use
5. Shark River Watershed Monmouth County, NJ
6. Existing/Historic Navigation Channels
7. Alternative B “Open Water (Island Creation)” Alternative
8. Alternative C “CDF” Alternatives
9. CDF 1
10. CDF 2
11. CDF 3
12. CDF 4
13. CDF 5
14. CDF 6
15. Dredge Dewatering and Material Transportation Plan – All CDFs
16. Proposed Landfill Cap Enhancement
17. “Permanent Pipeline to Landfill” Alternative
18. “Beach Sites” Alternatives
19. “HARS” Alternative Location Map
20. “Commercial Facility” Alternative Location Map

## **SECOND DRAFT**

### **SECTION XII. APPENDICES**

- A. Notes: Community-wide Open Forum, August 16, 2005. (Specific public comments from this forum may be found at Section XIII.)
- B. Press articles of 08/9/05, 08/16/05 and 08/19/05
- C. Alternatives Evaluations Summary and Cost Estimates
- D. 2003 Monitoring Report for Piping Plover, New Jersey Department of Environmental Protection, Division of Fish and Wildlife
- E. Regulatory Requirements for Placement at HARS Site