

November 26, 2004

Surfrider Foundation - New York Chapter

c/o Joel Banslaben
37 Prospect Avenue
East Rockaway, New York 11518

Re: Long Beach Island, New York – Storm Damage Reduction Project

Dear Joel:

This letter is in response to your request to the *Surfrider Foundation* Environmental Issues Team (EIT) for review and comment relative to the referenced Project. Please note that this letter is rendered on behalf of your chapter and solely reflects my professional opinions as a coastal engineer based on review of documents as referenced below.

In general, it appears that the project proposed by the New York District of the U.S. Army Corps of Engineers (USACE) might be reduced to a dune feature or other measures, which adequately meet Project objectives and address Chapter concerns. The Chapter has contended that the beach is predominantly stable or accreting; the preponderance of evidence provided by the Chapter supports this contention.

Background: As part of their mission to preserve beaches and surfing resources, the New York Chapter of the *Surfrider Foundation (SF)* is seeking to preserve the highly valued recreational coastline of Long Beach Island. This coastline is highly valued by surfing interests due to desirable surfing conditions associated with the orientation of the shoreline. Dominant wave energy approaches the shoreline from the eastern and southern sectors; waves interact with the irregular shoreline formed by existing groins to yield desirable breaking wave conditions comparable to world-renowned surfing locations. The City of Long Beach is considered by local interests to be among the most consistent surf breaks on Long Island.

As identified in the USACE report titled “*Long Beach, New York Final - Feasibility Report with Environmental Impact Statement – Storm Damage Reduction Project*” dated March 1998, the USACE has previously proposed to construct over the 9-miles of Long Beach Island “a 110-foot wide beach berm at an elevation of +10 feet NGVD, backed by a dune system at an elevation of +15 feet with a crest width of 25 feet” and including “rehabilitation of 16 of the existing groins, construction of 6 new groins.” “The Plan requires 8,642,000 cubic yards of initial fill to be placed from a designated offshore borrow site and subsequent periodic nourishment of 2,111,000 cy of fill every five years for 50 years.” The Plan also includes “29 acres of planting dune grass and 90,000 linear ft of sand fence for dune sand entrapment”. The New York District’s website includes a Project “*Fact Sheet*” which identifies that:

- “The Village of Atlantic Beach ... has asked not be included in the project.”
- Only “four new groins” are now proposed.
- “The final re-evaluation report is scheduled to be completed in February 2005.”

The New York Chapter is concerned that the proposed USACE project would:

1. destroy aesthetics of the beach,
2. endanger beach-users by scarping associated with beach fill (berm) projects, and
3. destroy or significantly diminish surfing conditions

The New York Chapter's objective is to formulate an alternative for Long Beach storm damage reduction and nourishment of the beach at Point Lookout that avoids the above impacts.

The Chapter's concerns appear quite valid.

1. In concert with berm construction, escarpments are expected to form as the placed fill adjusts to be in equilibrium with ambient sea conditions. These escarpments and an extended walking distance to the waterline may "destroy aesthetics of the beach".
2. These same escarpments may "endanger beach-users".
3. As proposed, it appears that the USACE project "would destroy or significantly diminish surfing conditions" by burial of groins and the short-term creation of a more steep beach.

It appears reasonable and feasible to formulate an alternative that provides nourishment where needed with reasonable storm damage reduction and with avoidance of these impacts.

Project Assessment: Figure 1 illustrates historical shoreline locations (from 1880 to 1994) superimposed upon a 2001 aerial photograph of the Project area. Assuming the "wet-dry line" of the beach in the photograph is close to or landward of the shoreline, it appears that the shoreline in 2001 was predominantly seaward of the 1909 shoreline and subsequent historical shorelines throughout the Project area - except for the easternmost 3000± feet of beach adjacent to Point Lookout. The Project need appears to be based upon future shoreline recession projected at 4 to 5 feet per year (see paragraph A192) based upon 1992 beach profiles, however, the District's Project "*Fact Sheet*" recognizes that: "Damaging storms have occurred in ... 1991, and 1992". Except for the area around Point Lookout, it appears that the beaches within the Project area have accreted since at least 1994 and the need for the Project is reduced.

Historical Photos 1a and 2a are from a website titled "Long Beach in the Early 1900's". Recent photographs are shown in Photos 1b and 2b. Photos 1a and 1b illustrate historical (1917) and recent conditions near the bend in the Long Beach boardwalk (personal communication - Ericka Davanzo). Photos 2a and 2b illustrate historical (1952) and recent conditions near what was identified as Lido Gardens in 1952 ("Long Beach in the Early 1900's"), but is now known as "Pacific Dunes" (personal communication - Ericka Davanzo). These photographs indicate that recent conditions are similar to historical conditions. These photographs indicate that the proposed project may result in "beach creation" versus beach restoration.

Table A22 of the March 1998 USACE Report cites the "*Frequency of Event Causing Dune Failure (Years) Without-Project Conditions*" for each "*Economic Reach*" in the Project area. This table indicates that for present conditions ("P0"), that a 92-year return interval storm would be required to cause dune failure. The District's Project "*Fact Sheet*" identifies that the proposed Project "*provides protection against a 100-year storm event*". The data in Table A22 appears to indicate that the level of protection afforded by the Project nearly exists now without the Project.



The March 1998 USACE Report (Page 14) identifies that:

- *“Transport is net westerly, with an overall erosive trend, losing an estimated 80,000 cy/yr over the entire Atlantic shoreline.”*
- *“The most erosive zone is located adjacent to Jones Inlet although significant losses are found mid-island as well”.*

The above conditions imply that Jones Inlet is a primary cause of erosion on Long Beach Island.

Historical erosive conditions on Long Beach Island are likely associated with construction of the east jetty, channel dredging or other modifications at Jones Inlet, which resulted in the inlet functioning as a sediment sink and interrupting longshore transport west to Long Beach Island. Jones Inlet has a design depth of 12 feet (USACE website). Dredging a channel through the inlet’s shallow ebb tidal delta can create a significant sink that would fill with sand, reduce natural bypassing, and increase erosion on Long Beach Island. It’s my understanding that the proposed borrow area is located in the general proximity of Jones Inlet (personal communication - Ericka Davanzo). It is desirable to obtain bathymetry, geotechnical data, and analysis results that demonstrates that use of the proposed borrow area will produce beach-compatible sand and will not increase erosion rates on Long Beach Island.

The District’s website identifies that the USACE Regional Sediment Management program has conducted *“land-based backpassing from Pt. Lookout (Jones Inlet) ebb shoal attachment”* to the area immediately west of the westernmost groin near Point Lookout. As the inlet’s ebb shoal now appears to be attached to the shoreline, inlet induced interruption of longshore transport and losses from Long Beach Island may now be reduced as compared to historical conditions.

The District’s Project *“Fact Sheet”* identifies that: *“The project also includes the rehabilitation of sixteen existing groins in the City of Long Beach”*. In general, rehabilitation of groins does not entail seaward extension. Impacts to surfing in Long Beach would likely be short-term (<1yr) except where groins become buried. Surfing conditions at groins would likely be restored when (or if) the placed sand berm recedes (erodes) landward to near the existing shoreline. The USACE Project includes a 110 foot-wide protective berm; to preserve surfing conditions associated with the groins, the groins should be extended seaward the same distance (110’±) as the proposed movement of the mean high water line. In the absence of groin extensions, the proposed berm would bury existing groins and eliminate the favorable surfing conditions associated with the groins.

The March 1998 USACE Report (Page 61) identifies that: *“The largest cause of building damage, representing approximately 57% of the critical damage, is widespread flooding due to the combined impacts of high ocean surges, waves overtopping berms and dunes, and elevated stages in the channels and bays to the north of the island.”* Except in the vicinity of Point Lookout, the beaches now appear to be accreting (yielding natural “construction” of the berm) and the influence of Jones Inlet upon most of the Island appears to be abating. It now appears that most Project benefits may be achieved through construction of only the dune feature.



Conclusion: Based upon my limited review of available information, it appears that:

- East of the “(Jones Inlet) ebb shoal attachment”, in the vicinity of Point Lookout, the Project and/or modifications to Jones Inlet are needed.
- West of the “(Jones Inlet) ebb shoal attachment”, in Lido Beach and the City of Long Beach, the existing beach berm is adequate, and construction of only the dune feature or other measures would adequately meet the Project objectives and address Chapter concerns.

I recommend that the above assessment and conclusions be reviewed with the City and USACE staff in conjunction with new data associated with the forthcoming “*re-evaluation report*”. The following basic questions/requests might be posed to the City and USACE:

1. If the above assessment and conclusions are confirmed as valid, given that: (a) the level of protection afforded by the project appears to exist now without the project and (b) the beach now appears stable. Are a dune feature or any other measures needed and justified?
2. It may be feasible to formulate a “Locally Preferred Plan”. What are the City’s objectives and design criteria for the Project?
3. Please provide:
 - (a) updated data, evidence, analysis procedures, and results to demonstrate economic benefits that justify the project, including
 - (b) a determination of the level of protection afforded by the existing beach/dune system, a
 - (c) historic beach profile data with comparative plots of the data,
 - (d) bathymetry, geotechnical data, and analysis that demonstrates that use of the proposed borrow area will produce beach-compatible sand and will not increase erosion on Long Beach Island.

If you have any questions regarding the above, please contact me.

Sincerely
COASTAL TECH



Michael Walther, M.S.
P.E. – FL, TX, NC, LA, AL

cc: Ericka Davanzo – *Surfrider Foundation*
Anthony Ciorra , Project Manager – USACE



Figure 1 – Historical Shorelines
1880 to 1994

Courtesy of
Ericka D'Avanzo
(from USACE)



Photo 1a

Circa 1917

From website titled:
"Long Beach in the
Early 1900's"



Photo 1b

November 2004

Courtesy of
Ericka D'Avanzo

