

## Maryland Department of Natural Resources

### Capital Programs Administration

2012 Industrial Drive  
Annapolis, Maryland 21401

October 2, 1989

William Donald Schaefer  
*Governor*

Torrey C. Brown, M.D.  
*Secretary*

Michael J. Nelson  
*Assistant Secretary  
for Capital Programs*

Mr. David Wilson  
Maryland Eastern Shore Resource  
Conservation and Development Area  
274 No. Washington Street, Suite 2  
Easton, Maryland 21601

Dear Mr. Wilson:

We have received Queen Anne's County submittal of preliminary design drawings and specifications for the Terrapin Park "Beach Beams" project, and have the following comments:

1. The RW&L survey crew did not utilize a reliable plane of reference to establish vertical control at the project site. Instead, an arbitrary datum plane was used to determine elevations. On September 12, a DNR survey crew checked the elevation of the RW&L field datum plane against a control benchmark at the adjacent "demonstration site" for a Corps of Engineers breakwater project at Terrapin Park. The results indicated that the elevation of the +1.0 MLW datum plane represented by RW&L on the Beach Beam preliminary plan is actually at a height of +3.1 feet MLW. This is a serious error which requires immediate corrective action.

2. There seems to be some confusion as to the proper approach towards evaluating the site and determining the correct configuration for installing the Beach Beams in the nearshore zone. Since the Department's purpose in undertaking this project is to evaluate the effectiveness of the Beach Beams for possible wider application throughout the Bay system, it is important that the devices at the Terrapin Park site be deployed in the beach system according to the manufacturer's directions at an elevation, alignment, location and configuration which will optimize performance. A clear explanation and justification must be provided by the Design Engineer for the proposed installation at the Terrapin Park project site.

Telephone: (301) 974-7853

DNR TTY for Deaf: 301-974-3683

To date, we have received explanations from the RW&L design engineer that the configuration of the Beach Beams on the preliminary design drawings is based on information provided by the product's marketing representative, Mr. Ron Martinsen. Mr. Martinsen has independently advised the Department that Beach Beams with a four-foot vertical height should be deployed in water that is three feet deep at MHW, leaving a one-foot exposure of the Beams at MHW. However, on the preliminary design location of the Beach Beams would result in the devices begin submerged by one-half foot at MHW. This further causes us to question the accuracy and sufficiency of the preliminary design plan submitted by the County's engineering consultant.

3- The following concerns should also be addressed:

- Has a foundations analysis be done to determine bottom conditions along the proposed alignment of the Beams? Under what conditions would preparatory work have to be done before the Beams could be set in place?

- Against what level of storm will the four-foot Beams provide protection against?

- Are four-foot Beams adequate at this site to attenuate sufficient wave energy and thereby protect the shoreline? What is the porosity of the units and as deployed, what will be the percentage of wave energy transmission through and over the Beams?

- What is the anticipated critical wave height expected to impact the Beams?

- What is the anticipated wave height in the lee of the Beams?

- How much sand is expected to accrete landward of the Beams? first year?, second year?

- Will there be a problem with undermining of the ends of the individual Beams due to 'jetting' between the structures? Should the ends of the individual Beams be contact with each other rather than gaped? Will the beams eventually align themselves perpendicularly to the project axis?

- Sufficient topo should be developed on top of the bank to clearly define the entire project area.

- Stake out data should be clearly shown and described on the drawings. Bearings and distances should be called out by front sighting from the control points to the points of emplacement of the Beams.

- It is absolutely imperative that the baseline traverse be carefully and completely laidout in the field and described on the drawings so that monitoring data can be easily and accurately compared to the before conditions at the site.

- Should marker piles be installed along the project site channelward of the structures? Since the Beams will be nearly submerged during high tides they could become a hazard to small boats in the immediate vicinity.

- Why do the plans call out 823 feet of protection when the entire length of the structures including gaps is 817 feet?

- Our comments concerning the Specifications have been forwarded to Jim Wright, engineer for Rauch, Walls and Lane and a copy is attached for your use. All of our comments should be addressed, including inspection of the Beams at the plant, inspection of materials during manufacturing, certification for curing time concrete mix, steel, etc.

- Each specification should be developed into an individual page for individual Divisions.

- Where will excavated material be placed?

- Has the County agreed to providing the Beach Beams as called out in the Specifications?

- For Item 3 page 1 of Specifications substitute our wording for changes in conditions to site after engineer's survey.

Before the Department can accept the Design Drawings and Specifications for the Beach Beam Project at Terrapin Park, and authorize installation under the terms of the Project Agreement for the matching grant, the following items need to be provided:

1. A corrected Design Drawing with vertical control established by using a reliable vertical datum.

2. An explanation for the location and configuration the Beach Beam devices as they would be represented on the revised preliminary design drawings.

3. A corrected Specifications package, addressing all points noted above.

4. Resolution of all concerns and questions mentioned above.

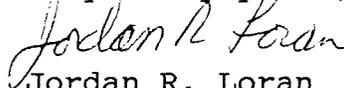
Attached are letters received by our office from Mr. Ron

Martinsen and Mr. James Wright which address some of our concerns. Any information contained in the letters which specifically relates to the items above concerning specifications should be extracted and included in the Specifications for the project.

Please schedule a meeting, as soon as possible, to be attended by all principal parties involved with this project, including Ron Martinsen, Queen Anne's County, the RC&D, and Rauch, Walls and Lane.

If you have any questions concerning these items, please do not hesitate to contact at the number listed below.

Very truly yours,



Jordan R. Loran

Engineer,

Shore Erosion Control Program

cc: Mr. Ron Martinsen, President  
(w/out Advanced Erosion Control, Inc.  
attachmmts.) Mr. James Wright, P.E., Rauch Walls and Lane, Inc.  
Mr. Thomas Ryder, Q.A's County Recreation and Parks  
Department