

Richard W. Gilbert, P.E.

April 2, 2014

New Jersey Department of Environmental Protection
Land Use Regulation Program
Mail Code 501-02A
PO Box 420
501 East State Street
Trenton, New Jersey 08625

Attn: Mantoloking Section Chief
Attn: Brick Section Chief

RE: CAFRA Application
Steel Sheet Pile Revetment Dune Restoration Project
Located between Route 35 Mileposts 7.24 and 11.2
Borough of Mantoloking & Township of Brick
County of Ocean
DLUR File No.: 1500-13-0006.1, CAF 140001
Bureau of Coastal Engineering Project Number 4256-14

INTRODUCTION

This letter provides the comments of BlueShore Engineering LLC to the subject CAFRA application ("Application"). We have been retained by a group of potentially affected homeowners ("Homeowners") to review the CAFRA permit application and provide comments to the DEP during the public comment period on behalf of the listed homeowners. Homeowners that have reviewed and are represented by these comments are listed alphabetically in the attached Appendix A (below, page 9).

REGULATORY BASIS

The referenced application has been submitted as an individual permit application under CAFRA statutes as it falls within the Coastal Area Boundaries as defined by NJSA 13:19-4. A permit is required for a development located in the coastal area on any beach or dune per NJSA 13:19-5a. It is the burden of the applicant to demonstrate minimization of unavoidable impacts per NJSA 13:19-10. As many impacts have not been identified or analyzed (as demonstrated in further comments below), and alternatives with reduced impacts thoroughly considered, this burden has not been met by the applicant.

Any permit application submitted under these regulations shall include an Environmental Impact Statement ("EIS") which shall "provide the information needed to evaluate the effects of a proposed development upon the environment of the coastal area", per NJSA 13:19-6, therefore a significant number of comments relate to Exhibit D "Compliance Statement... and Environmental

Impact Statement...” It should be noted that the EIS contained in the Application is not the same as, or comparable to an EIS prepared in pursuit of NEPA compliance, and in fact, only an Environmental Assessment (“EA”) was submitted in December 2013.

Through the following comments, we demonstrate the applicant has not met the aforementioned regulatory burden to “provide the information needed to evaluate the effects of a proposed development upon the environment of the coastal area”. Throughout these comments we will provide examples of how the EIS is insufficient to serve this purpose, for which the application should be rejected until complete.

7:7E-1.5 COASTAL DECISION-MAKING PROCESS

Item 4: The EIS claims the Project “will have no effect on water aquifers of other ground or surface water supplies.” The EIS has provided no evidence to demonstrate this claim. As the sheet piling is embedded at least 30’ into the upper soil layers, it is conceivable and likely that a barrier 4 miles long will have an effect of ground water movement in the vicinity. Soil borings, geotechnical analysis, and commentary by a geotechnical engineering professional have not been sufficiently provided in the Project documentation to demonstrate negligible impact.

Item 5: The EIS claims the Project “will not cause interference with the natural functioning of plant, animal, fish, and human processes.” The EIS has provided no evidence to demonstrate this claim. While the Project description states the sheet pile wall will typically be buried or encased within the dune structure, the stated purpose and need for the sheet pile seawall is for the occasions when the dune is breached. The dune breach will immediately change the hydrodynamics in the vicinity, resulting in a substantial increase in the wave energy regime and a substantial scouring and loss of beach fill at the outer face of the seawall. This will finally result in an immediate and drastic “interference with the natural functioning of plant, animal, fish, and human processes.” Project documents indicate beach renourishment should take place at 4 year intervals. Funding for such federal projects is also often interrupted for various political and budgetary reasons, therefore the timing of a renourishment project and funding after breach of the dune and exposure of the seawall may therefore leave a substantially impacted environment for years.

Item 6: The EIS claims the Project “is being constructed to protect property, infrastructure, public health, safety, and welfare and will not endanger human life or property.” The EIS has provided no evidence to demonstrate this claim. The project introduction states that “design features are incorporated to minimize end effect”, yet the EIS does not identify the end effects as an impact, nor does it demonstrate that the potential end effects have been studied. The tapering of the seawall height at the southern end is intended to reduce end effects, but the applicant has not sufficiently demonstrated they have studied these effects sufficiently to be confident that their design does in fact reduce end effects.

Furthermore, once the dune is breached and the seawall exposed, the remaining beach seaward of the exposed seawall will contain a higher energy regime that would be considered an increased

hazard to human life, particularly as occupants (people on the beach) will be accustomed to the lower energy regime of the dune prior to exposing the seawall.

Item 7: The EIS claims the Project “was designed to the minimum extent practicable while providing the maximum amount of shore protection.” The EIS has provided no evidence to demonstrate this claim. The claim itself is not practically quantifiable, and no effort is made in the EIS to rigorously (or even minimally) quantify the alternatives considered. Compliance with this policy cannot be met with unquantifiable claims and has not been met due to the lack of alternatives analysis.

7:7E-3.16 DUNES

The EIS claims the Project “is a shore protection structure that meets the above referenced coastal engineering rule.”, specifically 7:7E-7.11. The EIS has provided no evidence to demonstrate this claim. In fact, 7:7E-7.11 repeatedly recommends the use of non-structural measures unless it is “not feasible or practicable”. The EIS does not provide any evidence that non-structural measures are not feasible or practicable. The burden of proof is on the applicant to provide such evidence, therefore the application is incomplete.

7:7E-7.11 recommends a hierarchy of design alternatives be considered when non-structural measures are not practicable. The first alternative presented in the hierarchy is “Stone, rip-rap, sloped concrete articulated blocks, or similar structures.” The EIS quickly dismisses this alternative without sufficient analysis. As regulations require this hierarchy be considered, the burden of proof is on the applicant to demonstrate it is not a feasible alternative, and this burden has not been met.

7:7E-3.18 COASTAL HIGH HAZARD AREAS

The EIS claims to be in compliance with the design requirements of section (f) of this rule, however it does not meet FEMA recommendations for flood resistant construction in many locations. Within the following project limits, the new FEMA Base flood elevations at the proposed dune crest are +15’ re: NAVD88, which is the same as the top of sheet pile elevation:

- 000+00 to 038+00 (560 Ocean Terrace to 16 Edgewater Terrace)
- 051+00 to 074+00 (192 Dune Avenue to 14 Falls Road)
- 103+00 to 168+00 (1063 Ocaen Avenue to 1535 Ocean Avenue)
- 190+00 to 201+00 (991 East Avenue to 933 East Avenue)

The seawall is designed to a cutoff (top of wall) elevation of +15’ re:NAVD88, and provides no freeboard above that elevation. It therefore does not provide sufficient protection in accordance with FEMA design standard, particularly given the higher wave energy regime of the reflecting seawall face after the dune is breached.

While the design may be considered in combination with the dune under this statute, a thorough review of the policy implications of this statute has not been considered nor has a thorough review of FEMA coastal construction recommendations been considered and presented within the application, in particular as relates to this statute.

7:7E-3.38 ENDANGERED OR THREATENED WILDLIFE OR PLANT SPECIES HABITAT, 7:7E-3.39 CRITICAL WILDLIFE HABITATS

The EIS does not consider the substantial Ecological impact in the years following a dune breach and exposure of the seawall prior to renourishment. There would be a drastic and long-term impact to long-term habitat, and to short-term spawning and nesting grounds, which when extended over multiple years may have a drastic impact on a species and its long-term habitual use of the vicinity. The applicant has also not considered the differences in potential ecological impacts of various feasible alternatives, therefore the application is clearly insufficient and incomplete.

7:7E-3.40 PUBLIC OPEN SPACE (COMMUNITY CHARACTER, VISUAL AND AESTHETIC RESOURCES)

The EIS does not consider the substantial impact to Public Open Space or Community Character during the years following a dune breach and exposure of the seawall prior to renourishment. There would be a drastic and long-term impact to the community once they are cut off from the beach by the exposed seawall. The proposed 'access ladders' are an emergency egress method only, and would not provide reasonable recreational access to the beach for residents or tourists.

The EIS does not consider the substantial impact to Visual and Aesthetic Resources during the years following a dune breach and exposure of the seawall prior to renourishment. There would be a drastic and long-term impact to these resources as the nearshore beach would likely be entirely removed to the seawall until renourishment occurs.

7:7E-4.1 GENERAL WATER AREAS, PURPOSE AND SCOPE

The EIS states that this rule does not apply as the work is "all above the high tide line and no in water work is proposed." The EIS fails to identify that the structure would likely become the high tide line when the dune is eventually breached and the higher wave energy regime removes the remainder of the beach from the face of the seawall. The application should therefore identify this certain outcome and apply this rule as is appropriate.

7:7E-7.11 COASTAL ENGINEERING

The EIS states the assumption that "it will be topped with at least one foot of sand coverage.", and concludes that it will therefore "not cause adverse impact to living marine and estuarine resources

and will not change public access to the shore front.” This conflicts directly with the stated purpose and need for the sheet pile seawall. If there is a need, then the dune will be breached, and there will be an impact that they have admittedly failed to identify and address through avoidance, minimization, or mitigation.

7:7E-8.11 PUBLIC ACCESS

The EIS states that the project “will not modify the existing public access”, and in the same sentence suggests that ladders on the sheeting would provide equivalent and continuous public access when the wall becomes exposed. Ladders have never been, in any standard of care, considered an appropriate or acceptable method of public access, even less so under the Americans with Disabilities Act (“ADA”). The Project, therefore, does interfere with public access, and the application should identify the impact, analyze the impact, and address avoidance, minimization, or mitigation of this impact before being considered complete.

ALTERNATIVES/IMPACTS

The EIS does not seriously consider any alternatives to the proposed construction. It states very briefly that “no action” is not a feasible alternative, but it does not provide sufficient economic rationale for such a decision. While such a rationale is likely, the burden of proof is on the applicant. The only budget they provide is the cost of local storm recovery at “over one hundred million dollars”, with no other budgets with which to compare this number. In fact, the lack of a Lifecycle Cost Analysis of the alternatives is a severe deficiency of the application and does not meet an appropriate standard of care for a project of this magnitude.

The EIS identifies the cost of local storm recovery within the Project boundaries at “over one hundred million dollars”. If a lifecycle cost analysis compares this cost with the present value of feasible alternatives, the EIS should note that a portion of flood damage and the resulting storm recovery cost is due to the elevated floodwaters on the bay side of the barrier beach, as well as those floodwaters receding toward the bayside. Any sufficient and complete alternatives analysis should consider that ocean-side barriers cannot prevent such damage as resulted from bay-side flooding. The application is incomplete as it does not explore or describe or differentiate the sources of the damage, and which portion of the damage the construction can mitigate.

The EIS states that a rock wall was considered as an alternative, but “rejected due to its cost and expansive footprint.” In fact, the adjacent community has installed a stone revetment because it is the least expensive alternative, and its footprint is well within the limits of the proposed Army Corps of Engineers beach renourishment project. It is our experience as coastal engineers that a stone revetment can be expected to cost 25% less than a cantilever sheet pile structure.

The EIS does not consider the use of beach fill alone, or a greater volume of beach fill, or a greater frequency of renourishment. Analyses may be performed that would demonstrate the extent and cost of comparable protection using beachfill alone. The application is incomplete as it is the

burden of the applicant to demonstrate they have considered all feasible alternatives to minimize impacts.

7:7E-7.11 specifically dictates that “hybrid alternatives” be considered. The applicant has not only discarded the stone revetment alternative erroneously, (as described above) but they have neglected to consider many other issues in comparing the alternatives. Such as:

- Coatings are not required for a stone revetment, in particular no coatings with hazardous constituents, as prescribed by the applicant’s proposed design.
- The lower slope of a stone revetment results in a lower wave energy regime once the dune is breached, subsequently resulting in reduced beach fill loss.
- The greater roughness of a stone revetment results in a lower wave energy regime once the dune is breached, subsequently resulting in reduced beach fill loss.
- The various openings of a stone revetment allow greater establishment of vegetation in the vicinity, with greater resultant habitat value.
- The lower slope of a stone revetment may be designed with truly accessible public access locations that ensure continued public access during the years between a dune breach and subsequent renourishment over the secondary protective structure.
- The lower wave energy regime and increased public access of a stone revetment results in a lower potential hazard to public safety.
- The lower slope of a stone revetment has lower wave impacts, and subsequently lower noise and vibration.
- A stone revetment has lower noise and vibration during construction, and subsequently lower potential damages do adjacent structures.
- A stone revetment does not corrode. While wave action can displace some stone, this has a low comparable maintenance cost to the replacement of sheet pile. A Life-Cycle Cost Analysis would not only demonstrate a lower up-front cost, but also a lower total life-cycle cost as the stone revetment would still be in place after 50 years, whereas the sheet pile seawall would need to be rebuilt in its entirety.

Army Corps of Engineers Engineering Manual EM-1110-2-1100 (the “Coastal Engineering Manual”), Section V-7-8.a.2.c states bulkheads “should only be used in situation where reflected wave energy can be tolerated”. It continues by demonstrating other environmental benefits to sloped revetments over bulkheads. The “state of the art” in the industry is clearly to avoid vertical structures like that proposed by the applicant.

DESIGN DEFICIENCIES

The 9’ lateral wall extensions at 400’ on center are an added project cost with insufficient justification, and with additional project impact. They are too far apart to provide any significant amount of stability to a majority of the wall between them. They are seaward of the seawall, so if enough of the main seawall is exposed to need support of the cantilever sheets, then the lateral

sheets are exposed enough to lose any benefits they may provide to lateral stability of the main wall. These extensions also provide greater reflective wall surface area, increasing the wave energy regime in the vicinity, which increases beachfill loss when the dune is breached.

The ¼" thick bent plate cap of the main seawall even when embedded in the dune, is exposed to salt water with a high oxygen content and can be expected to last no more than 35 years with the specified coatings. The overwash blanket is connected to this bent plate cap, and will therefore be washed away as the bent plate cap corrodes and fails. As the bent plate cap corrodes, it presents a dangerous surface when exposed, further limiting access to the beach.

The design documents should provide soil borings over the length of the project to demonstrate the embedment is sufficient to support the cantilever sheets. Sufficient geotechnical analysis is not presented in the application to demonstrate the proposed design is an appropriate and thoroughly considered alternative.

NOISE AND VIBRATION

The EIS does not consider the substantial impact of Noise and Vibration both during construction and in the years following a dune breach and exposure of the seawall prior to renourishment. There would be a drastic and long-term impact to residents due to increased wave breaking much closer to each residence, and with a higher energy regime than exists solely with dunes or with a sloped stone revetment. A sloped stone revetment would impose lower noise due to the lower wave energy regime, and with a greater mass than the sheet pile seawall would result in lower vibration from wave breaking impacts.

HAZARDOUS WASTE AND CONTAMINATED MATERIALS

The EIS proposes the use of Coal Tar Epoxy coatings on all steel structures, at the same time that the NJDEP Site Remediation Program is currently performing remedial activities on Coal Tar contamination, such as Troutmans Creek in Long Branch, Monmouth County. The Project and application have therefore not provided sufficient alternatives analysis. For example, stone revetments do not require coatings, thereby avoiding the potential contamination of the coal tar end use at the project site, and also avoiding potential contamination at coal tar production or application facilities, such as that being cleaned up in Long Branch.

CONSTRUCTION IMPACTS

The EIS does not consider the construction impacts of various alternatives. Driving cantilever sheets imposes greater vibration than placement of a stone revetment or beach renourishment activities alone. This vibration in the vicinity of existing structures has the potential to (and often does) damage existing structures in the vicinity, resulting in damage that should be repaired, with such potential costs to be included in the budget comparison of various alternatives.

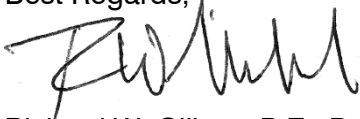
PUBLIC PARTICIPATION

As a community substantially affected by the Project, the Homeowners have not been afforded or invited to ample opportunities to engage in the process. The State's lack of effort to directly engage affected communities has resulted in a lack of sufficient analysis of the impacts to those communities or representation of those communities in the Project effort. Therefore there is an added burden on the State to provide greater than average allowance for public input, and that such input is not only put on record but seriously considered and full responses provided before this application is considered complete.

CLOSURE

Due to the comments given above and the key deficiencies they represent, we stipulate that this document is incomplete. A majority of the application's assumptions of negligible impact stem from the idea that the seawall is encased by the dune, yet the seawall is specifically for when the dune is breached, and no guarantee is provided (or can be provided) for a dune replacement timeline when the seawall is exposed. For a project that may cost in the vicinity of 50 million dollars of public money, it is reasonable to expect a much more thorough review, consideration of alternatives, and presentation of the review and alternatives for public oversight. The State should not be allowed to consider this application complete at this time by merely providing token responses to the comments of the affected individuals, organizations, and communities. Rather, a more complete application and EIS should be prepared with consistently applied and thorough analysis of all alternatives, including those previously discarded through insufficient analysis, and the public review process should be restarted at that time.

Best Regards,



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