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**From:** Minkin, Paul NAE
**To:** marsh.mike@epamail.epa.gov; Sneeringer, Paul J NAE
**Subject:** RE: River"s End Park mitigation plan (UNCLASSIFIED)
**Date:** Friday, October 26, 2012 4:32:56 PM

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Classification: UNCLASSIFIED
Caveats: NONE

Mike and Paul,

I have spoken to a couple of our folks who do more work in tidal marshes, discussing the proposed plantings with them. The general thoughts are that the proposed elevations for the Spartina alterniflora are too high and should actually be lower by several inches to ensure the marsh would be dominated by S. alterniflora (6 inches of water or so is fine for S. alterniflora). The proposed grades would be suitable for Spartina patens and Distichlis spicata as there would only be an inch or two of water regularly on them. I still concur with the recommendations for making the slope to upland less steep and having planting zones appropriate for the plantings proposed in this area.

Paul

-----Original Message-----
From: Minkin, Paul NAE
Sent: Friday, October 26, 2012 3:06 PM
To: 'marsh.mike@epamail.epa.gov'; Sneeringer, Paul J NAE
Subject: RE: River's End Park mitigation plan (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Mike and Paul,

I agree with all of these comments and share the expressed concerns. Proposing inappropriate plantings for specific elevations can result in not only poor planting success, but also a greater opportunity for establishment of invasive species. Likewise, placement of the new berm along the southeastern portion of the site may diminish flushing and water movement, detracting from water quality and allowing for invasive species establishment. A more natural sculpting of the shoreline would also benefit site stability. Overall, I support the comments and recommendations below.

Let me know if you have any questions.

Paul

-----Original Message-----
From: marsh.mike@epamail.epa.gov [mailto:marsh.mike@epamail.epa.gov]
Sent: Thursday, October 25, 2012 10:29 PM
To: Sneeringer, Paul J NAE
Cc: Minkin, Paul NAE
Subject: River's End Park mitigation plan

Paul and Paul:

I am preparing comments for Apex on the Final Mitigation Plan for Rivers End Park. I want to make sure that the concerns we raised and recommendations we made during the field visit and in subsequent discussions of the conceptual mitigation plan have been properly addressed.

I have some concerns with the design for Rivers End Park, listed below, and am curious if you agree with my concerns, or if you have different or additional issues that you would like to raise. I would like to present recommendations for design revisions that incorporate all of our ideas regarding the proposed

SDMS Doc ID 526388

design.

We need to get back to Apex and their subcontractor ASAP, so that any necessary changes can be made prior to the October 31 Final Determination deadline, so I would appreciate any quick feedback you can give me. The proposed plan sheet (Sheet 2) and cross section sheet (Sheet 3) are on pages 8 and 9 of Appendix 2 on the Final Mitigation Plan CD (dated October 22, 2012).

1. The species proposed at the Rivers End park appear to be in inappropriate tidal regimes. Spartina patens, and Distichlis spicata are both listed as low marsh species, and proposed for planting below MHW. I would consider them high marsh species (I recognize that Spartina patens sometimes occurs in low marsh settings, but I think of it as primarily growing around MHW and higher). In the proposed design, they intend to plant both species below MHW (at 2.5 feet or lower, where MHW is at 2.61). They also propose to plant Juncus gerardii and Iva frutescens from 2.5' to 4.0' - exactly where each species is proposed to be planted is not shown, but I would assume higher in this zone. For example, I would assume that, despite the elevation range indicated, they would not propose planting Iva frutescens below MHW. The plans are not explicit on locations of planting zones for various species (see item 2).

2. More detail must be provided on the exact locations and elevations/tidal regimes proposed for the various species, including vegetative community zones for various species, which should be shown on the plans.

3. Cross sectional drawings should include the identification of vegetative community zones (e.g., high marsh, low marsh). Elevation ranges within the high marsh zone for particular species should be indicated as appropriate (e.g., Iva frutescens should be located within the upper high marsh).

4. Overall, the design is akin to a bowl with a relatively flat bottom, bounded by steep berms. I would imagine that the proposed design would at best (dependent upon tidal flushing, see Item 5) result in mostly low marsh, Spartina alterniflora, with thin bands of high marsh species at the sharp elevation change along the berms. I would recommend flattening the slope of the western berm, such that there would be a gentle slope from slightly above the HTL elevation down to a MHW elevation, ~1/3 of the way across the "bowl." A steeper outer slope transitioning from just above HTL to upland elevations could still be used.

5. The purpose and design of the berm along the southern and eastern boundary needs to be better explained. It appears that this berm is being constructed at an elevation above the existing surface elevation (~5.0') and is ~5 feet wide along the top of the berm and ~15 feet in total width. It seems possible that this berm could act as a dam, restricting tidal flow out of the southern portion of the proposed mitigation area. Its purpose is unclear. If it is meant to protect the existing salt marsh, it seems that this could be accomplished by simply including a buffer zone between the appropriately graded mitigation area (high marsh if necessary) and the existing salt marsh. It appears that constructing the berm itself would have as much or more adverse impact on the existing salt marsh than simply grading. If it is necessary to tie contours into higher elevations along the existing salt marsh boundary, it appears that could be accomplished by tying into the recommended gentle slope from the western berm. One possible concept would be to have a broader area of high marsh in the southern portion of the site, very gently graded toward the northern low marsh portion.

6. Grading contours in the design should exhibit sinuosity and microtopography. Limit the use of straight line contours, and try to emulate a natural wetland system. This is a salt marsh creation area, not a detention basin.

7. Target elevations should be based on reference elevations from the existing salt marsh at the site, rather than arbitrarily picking an elevation (here, it appears that a target elevation of ~2.0 was chosen). The applicant should determine the elevation ranges of the existing high and low marsh at the site, and use these ranges as references for wetland creation.

8. Plans should specify the removal of rip rap at the northern end of the site, and indicate salt marsh restoration/creation in that area.

9. What is the purpose of the existing foundation at the northern end of the site? Are there future plans to construct something on that foundation, and if so, what? Could future use at this foundation have an adverse impact on mitigation project?

I look forward to your feedback...

Thanks,

Mike

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