Beach Nourishment Presentation

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Sent: Monday, July 07, 2014 8:45 AM

To: John Stockton

John,

Hope you all fared well with the storm.

I'll be leaving the office in a few hours. I should be up there by about 3:30 or so. I wanted to send you a copy of the summary table that I'll be discussing this evening. Please see the table below.

The "apples to apples" comparison that we've been talking about over the past two weeks is Alternative 1 and 2. As a point of reference, the original volume estimate for the Kitty Hawk Project, for which the County estimates are based, is 1,493,000 cy. Since we haven't conducted the storm damage reduction simulations yet, these numbers are somewhat arbitrary and are only used for comparative purposes. Alternative 1 would require ~ 6% more sand than the original estimate. This alternative is the berm and dune design that would tie into the existing dune (assumes structures don't exist). Alternative 2 , which is an equal design to Alternative 1, constructed seaward of the oceanfront structures, would require approximately 92% more sand than the original estimate. Alternative 2A is a modification that I'll explain this evening to save a little volume in areas where no structures exist and the dunes are in good shape; however, we are still talking about 81% more sand than the original estimate. Alternative 3 is a berm only design (50 ft. berm) comparable to what Nags Head constructed. The volume shown for Alternative 3 is basically the same as the original estimate. This design may provide some storm damage reduction to the roads and utilities, but is unlikely to have any significant benefit with regards to the reduction in overwash and flooding. Alternative 4 is a hypothetical design we came up with in order to see how much volume it would take to construct what we might consider to be the bare minimum dune and berm design that could be constructed seaward of the structures. The volume for Alternative 4 is approximately 8.5% greater than the original estimate.

I will try to give you a call sometime after lunch while I'm driving up to discuss this table and see if you have any questions if I haven't heard back from you buy then.

ALTERNATIVE	VOLUME (CY)	DENSITY (CY/FT)
ALTERNATIVE 1 – Dune and Berm Design (20 ft. wide, 13 ft. high dune; 50 ft. wide, 6 ft. high berm (Tie into Existing Dune)	1,583,000	81.3
ALTERNATIVE 2 – Dune and Berm Design (20 ft. wide, 13 ft. high dune; 50 ft. wide, 6 ft. high berm (Seaward of Structures)	2,872,000	147.4
ALTERNATIVE 2A – Dune and Berm Design (20 ft. wide, 13 ft. high dune – Where Needed; 50 ft. wide, 6 ft. high berm (Seaward of Structures)	2,707,000	138.9
ALTERNATIVE 3 - Berm Only (50 ft. wide, 6 ft. high berm	1,508,000	77.4
ALTERNATIVE 4 – Minimal Dune Design (10 ft. wide, 12 ft. high dune – Where Needed; 30 ft. wide, 6 ft. high berm (Seaward of Structures)	1,620,000	83.1

Kind Regards,