

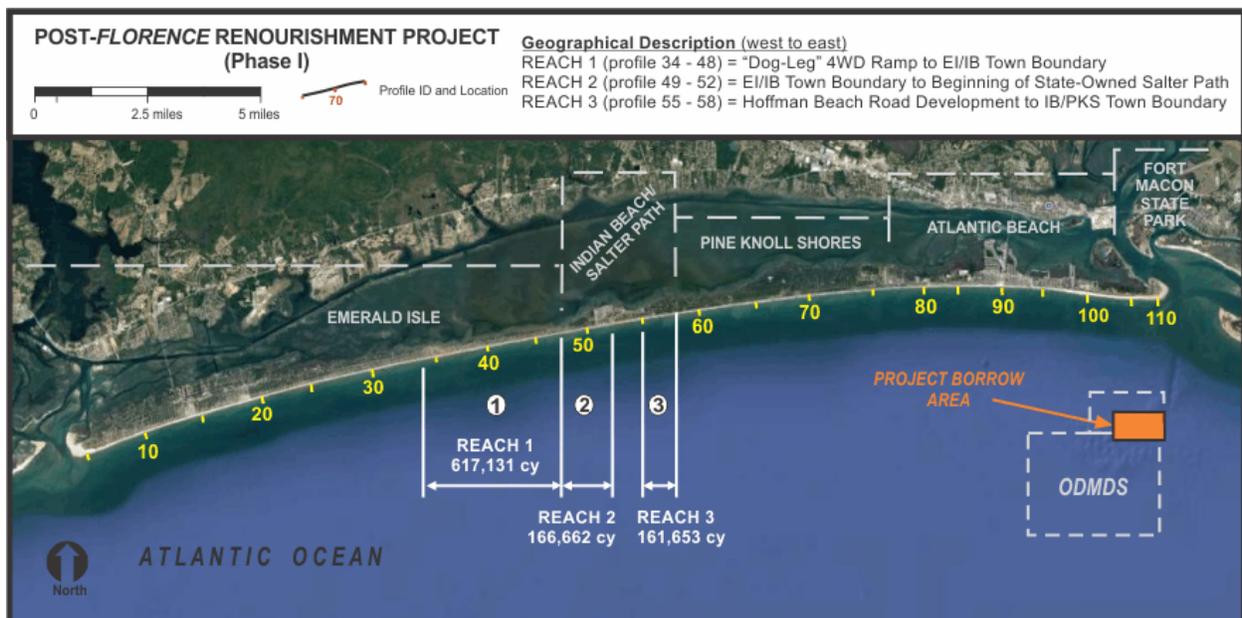
## SHORELINES – March 2019

As presented to the *Island Review* magazine

### Post-Florence Renourishment Project (Phase I)

Roughly a year ago (or “BF” = Before *Florence*), the communities of Bogue Banks begun planning for the first beach nourishment project that would be constructed under the guise of the new Bogue Banks Master Beach Nourishment Plan (Master Plan). Rather than taking a project-by-project approach that was necessitated in the early 2000s; the Master Plan was developed over the course of the past decade to serve as an umbrella engineering and permitting document for beach nourishment along the entire island of Bogue Banks over the next 50 years. The Master Plan also helps with our budget forecasting by projecting nourishment efforts into the future in order to better manage the portion of the County’s occupancy tax legislatively-mandated for beach nourishment. Also and again going back a year ago, it was several years since any portion of Bogue Banks between the Atlantic Beach/Pine Knoll Shores border westward to the Point in Emerald Isle had been nourished (~18 miles). Parts of Pine Knoll Shores and Emerald Isle were last nourished in 2013, while Indian Beach/Salter Path was last nourished in 2007.

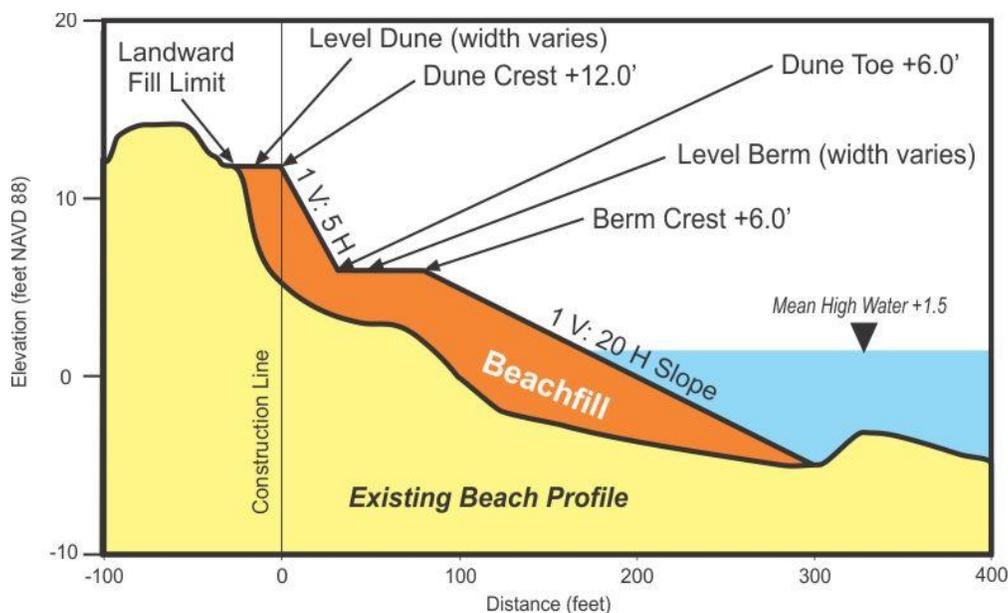
Thus in general, we had a nourishment project planned for this winter (2018-19) entailing ~5.4 miles of beach along the shorelines of east Emerald Isle (EI), Indian Beach, and Salter Path. Hurricane *Florence* of course passed by in September and accordingly we re-focused our efforts, made a few slight changes, and re-termed our project as the Post-*Florence* Renourishment Project (Phase I) – see Fig. 1. This best describes what we are trying to accomplish, and is more consistent for FEMA reimbursement purposes. Decisions from FEMA concerning reimbursement for beach nourishment or their “428” program, which provides a fixed-cost number in lump-sum will be made later this year (2019). Phase II of the Post-*Florence* Renourishment Project is ideally scheduled for next winter (2019-2020) and will encompass Central and Western EI, Pine Knoll Shores, and East Atlantic Beach.



**Figure 1** – Site map depicting the geographic ranges, volume of sand (cubic yardage - cy), and borrow source for the upcoming Post-*Florence* Renourishment Project (Phase I).

The Phase I Project is estimated to include 945,446 cubic yards (cy) of nourishment sand, which is obviously a large number that maybe difficult to envision, but considering a dump truck holds ~12 cy of sand; the Post-Florence Project can be considered as equivalent to 78,787 dump trucks worth of sand – or enough sand to extend a regulation college basketball court (94 ft. x 50 ft.) well over a mile in to the air. The source of sand for nourishment is the Offshore Dredged Material Disposal Site, or “ODMDS”, which is a component of the dredging program that routinely occurs at the federally-maintained Morehead City Harbor. The ODMDS has been utilized before for nourishment along Bogue Banks in [2004](#), [2007](#), and [2013](#) and passed the eyeball/aesthetics (and engineering) test with flying colors.

Visualizing the nourishment project in cross-section as one would go from the top of the dune seaward, the beachfill will be contoured by; (1) tying into the existing, eroded frontal dune at +12 feet elevation (NAVD 88) and maintaining that top dune elevation at varying lengths as one progresses seaward, (2) the slope of the newly constructed frontal dune will be graded on a 5:1 slope to the elevation of +6 feet, (3) the beach berm (flat part of the beach) will be extended from that point seaward at +6 feet elevation at varying lengths, and (4) the slope of the fill from the berm crest out to sea will be on a 20:1 grade. The newly created dune crest and dune slope will be planted (vegetated) with Sea Oats and Bitter Panicum as part of the contract (see Fig. 2).



**Figure 2** – Typical cross-section of the Post-Florence Renourishment Project (Phase I) – the dune crest and slope will be vegetated as part of the nourishment construction contract.

[Great Lakes Dredge & Dock](#) furnished the lone bid for the project bid totaling \$20,109,385, and the firm of [Moffatt & Nichol](#) is serving as project engineer (i.e., design, bid solicitation & award, construction administration, etc.). The construction portion of the project will adhere to the following cost-schedule; (1) the State is providing \$5 million per last year’s budget bill (S.L. 2018-5), which will be apportioned to the Towns based on the percentage of cubic yardage to be received in each municipality, and (2) the balance of cost per municipality is subsequently split via 75% nourishment reserve (occupancy tax) and 25% the Town receiving nourishment. For a more complete summary of the project, please visit <http://www.carteretcountync.gov/788/Florence-Replenishment-Project-2019>, which will be updated at least on a weekly basis to monitor progress once construction begins. Great Lakes Dredge & Dock should begin mobilizing equipment in Mid-February and dredging/pumping should follow the first week of March. Construction must be completed on April 30<sup>th</sup> to limit any adverse impacts to biological resources.