



January 25, 2024

Attn: Mr. Kirk Brafford
Fishing Creek Farm HOA
1222 Cherry Tree Lane
Annapolis, MD 21403

VIA EMAIL: rkbrafford@comcast.net

Re: Comparison of Alternative Designs
Southbreeze Community Shoreline Stabilization
Anne Arundel County, Maryland
WSSI Project # MD2148.02 / P.WSI9001812

Dear Mr. Brafford,

This document compares FCF’s attributes of interest for two design alternatives to protect the community shoreline at Southbreeze Lane. Sketches of the two alternatives are being transmitted with this memorandum as Attachment 1. The Fundamental Design Alternative is the minimum design recommended to protect the shoreline and non-tidal pond. It includes a series of stone breakwaters, dune restoration and planting, and the addition of a minor beach to act as a buffer for the dune. The Enhanced Design Alternative is the design presented in the *30% Design of Southbreeze Community Shoreline Stabilization* plan set dated October 2023. It includes the same stone breakwaters, dune restoration, and dune planting as the Fundamental Design Alternative, but restores a greater beach area between the dune and breakwaters.

These alternatives represent two ends of a spectrum. Several project features can be adjusted to strike the right balance between the community’s needs, members’ ideal features, construction cost, and potential to obtain outside funding. The table below highlights characteristics of each alternative, as well as the main opportunities for adjustments.

| Alternative | Fundamental Design | Enhanced (30%) Design |
|---------------------------------|---|---|
| Cost Range | <ul style="list-style-type: none"> \$750,000 - \$920,000 | <ul style="list-style-type: none"> \$1.1M - \$1.3M See Comment 1 in the Response to <i>30% Design Comments</i> document dated January 5, 2024, for additional details |
| Breakwaters | <ul style="list-style-type: none"> Same size and position¹ | <ul style="list-style-type: none"> Same size and position¹ |
| Dune & Dune Planting | <ul style="list-style-type: none"> Same size, position, and planting extents | <ul style="list-style-type: none"> Same size, position, and planting extents |
| Beach Fill | <ul style="list-style-type: none"> Approximately 0.3 ac above MLW (-0.7 ft elevation) Max beach elevation: 1.5 ft NAVD-88³ | <ul style="list-style-type: none"> Approximately 1.0 ac above MLW (-0.7 ft elevation)² Max beach elevation: 1.5 ft NAVD-88³ |

| | Fundamental Design | Enhanced (30%) Design |
|--|--|---|
| Beach Planting | <ul style="list-style-type: none"> • 0.0 – 0.3 ac⁴ | <ul style="list-style-type: none"> • 0.11 ac⁵ |
| Pedestrian Access | <ul style="list-style-type: none"> • Southbreeze Lane access remains as-is • 2 unplanted walkways at northern end remain as-is | <ul style="list-style-type: none"> • Boardwalk from Southbreeze Lane⁶ • 2 unplanted walkways at northern end remain as-is |
| Benefits Evaluated by Granting Organizations (expected strength of benefit) | <ul style="list-style-type: none"> • Prevents shoreline erosion using a nature-based approach (strong) • Restores dune habitat and protects unique non-tidal pond (moderate to strong) • Includes marsh/riparian planting <ul style="list-style-type: none"> ○ no beach planting (n/a) ○ planting most of the beach area⁴ (moderate) • Provides resilience benefits to private homes (minor⁷) | <ul style="list-style-type: none"> • Prevents shoreline erosion using a nature-based approach (strong) • Restores dune habitat and protects unique non-tidal pond (moderate to strong) • Includes marsh/riparian planting <ul style="list-style-type: none"> ○ current 0.11 ac (minor) ○ increasing to 1/3 of beach area⁵ (moderate) • Provides resilience benefits to private homes (minor⁷) • Restore historical beach habitat that has been vanishing within this area of the South River (moderate to strong) |
| Other Notes | <ul style="list-style-type: none"> • HOA could elect to add boardwalk access in the future • HOA could elect to add beach sand in the future (will verify with regulators at pre-application meeting) | |
| Potential Avenues for Reducing Cost | <ul style="list-style-type: none"> • Reducing sand quantity by lowering beach elevation³ • Reducing rock quantity⁸ | <ul style="list-style-type: none"> • Constructing boardwalk at a later time • Reducing sand quantity by: <ul style="list-style-type: none"> ○ Increasing Pocket Beach size² ○ Lowering beach elevation³ • Reducing rock quantity⁸ |

¹ Recommended breakwater size and position are the same between the two alternatives. Some adjustments may be made based on additional engineering analyses as the selected design progresses, but changes would be similar enough between the two alternatives that the cost difference is expected to be the same between the two alternatives.

² Enhanced (30%) Design includes approximately 1.0 acres of beach above MLW (-0.7 ft elevation); 0.11 acres of this is shown as beach planting (Zones A and B). Further engineering analysis may require an increase in the area of the

pocket beaches (the open water area landward of the breakwaters), which would reduce the total area of beach above MLW (rough estimate at present is around 0.75 ac.).

³ Beach elevation could be lowered from the proposed 1.5 ft elevation. Please refer to the last paragraph of Comment 1 and to Attachment A in the *Response to 30% Design Comments* document dated January 5, 2024, for additional details and considerations. Engineering analyses as the selected design progresses will help determine the minimum elevation from a shoreline protection standpoint; the FCF community can weigh in on their preferences from a recreation standpoint.

⁴ Adding plants along most of the beach in the Fundamental Design would increase the ability to compete for grants. Even with extensive planting, the design could leave a bare sand walking path (2 to 3 feet wide) along the full beach length for pedestrian access and will maintain the access points noted on the plans.

⁵ Beach Planting area (Zones A and B) in the Enhanced (30%) Plan could be increased so that around 1/3 of total beach area was planted to increase how much some grants might be willing to award. This additional planting could be split up along the beach area.

⁶ Boardwalk from Southbreeze Lane is optional for the Enhanced (30%) Design and could be constructed at a later time to reduce initial costs from what is listed in the table. If construction of the boardwalk is deferred, the existing access path would be put back at the end of construction.

⁷ Resilience benefits to private properties rank lower than those to public infrastructure; additionally, when evaluating resilience within the private property category, higher-density housing and disadvantaged communities rank higher than others.

⁸ During the next stage of design, further engineering analysis may allow WSSI to reduce the quantity of rock required while still providing adequate shoreline protection.

Please contact me at 410-992-2669 or ibauer@wetlands.com if you have any questions or require any additional information.

Sincerely,

WETLAND STUDIES AND SOLUTIONS, INC.



Ingrid H. Bauer, P.E.

Senior Associate Engineer

Enclosures: Attachment 1 – Southbreeze Design Alternatives

cc: Eamonn McGeady, FCF (via email: boardmal@fishingcreekfarm.org)
Scott Petrey, WSSI (via email: spetrey@wetlands.com)