Applicant Information

The applicant for the proposed project is Raj Patel, represented by LaBarba Environmental Services. The contact details are as follows:

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Applicant
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Project Summary

The proposed project involves the installation of a living shoreline bank stabilization at 330 Clipper Bay in Brunswick, Georgia. This property is a private hammock with marsh encapsulating all sides and a tidal creek to the north. The tidal creek is causing severe erosion on the north side of the island while the eastern side is experiencing subsidence. This project aims to stabilize the shoreline along the tidal creek and the eastern marsh edge through the implementation of a nature derived stabilization. This application seeks a Coastal Marshlands Protection Act (CMPA) permit install the living shoreline within CMPA jurisdiction.

Existing Conditions

The project is a residential lot situated on a private hammock. The northern shoreline is adjacent to a tidal creek which has significantly scoured the natural shoreline, resulting in a 5’-6’ immediate drop from the upland to the creek bottom and severe undercutting which is undermining the remaining shoreline vegetation. To the east side of the tidal creek erosion is a marsh shelf that experiences lower energy impacts, but is subsiding due to several factors. The thick tree canopy along the marsh line is preventing sufficient marsh grass from growing at the higher tidal marsh elevations. This lack of vegetation leaves the marsh sediments vulnerable to movement with the daily tides. The runoff from rainwater is also contributing the sediment at the marsh edge being transferred further into the marsh and out from underneath the existing tree roots. As the upland loses the topsoil around this vegetation it subsides and eventually becomes low enough to be inundated by the tides.

Proposed Structures

The proposed living shoreline will result in the stabilization of approximately 337 linear feet of shoreline through the strategic use of rip-rap, Flexamat, Filtrexx GroSoxx, and native vegetation. The project also includes impacts to adjacent upland areas, which will involve grading to achieve the required slope and facilitate the installation of shoreline stabilization components. The project is designed to minimize environmental impacts while addressing erosion and enhancing the ecological function of the area. Below is a summary of the impacts to Coastal Marshlands Protection Act (CMPA) jurisdiction.

Summary of Impacts:

- Total impact area: **337 LF (2,906.4 SF) (101 CY)**
- Impacts within CMPA jurisdiction: **1,213.4 SF (37 CY)**
- Upland Impacts: **1,693 SF (64 CY)**

Description of Impacts:

1. **Grading:** The grading activities are essential for preparing the site along the creek for the installation of shoreline stabilization materials and achieving a stable slope. The upland area will be re-graded to a 2H:1V slope to ensure stability and prevent future erosion. This work involves the redistribution of existing material to produce the desired slope. Grading will facilitate proper alignment and installation of the rip-rap, Flexamat, and other components, while minimizing disturbance to surrounding areas. Best management practices (BMPs), including silt fencing and mats for heavy equipment, will be employed to reduce sediment runoff and soil compaction. The total area to be graded will be 1,354 SF, with 745 SF being below jurisdiction and 609 SF above the jurisdiction line.
2. **Flexamat:** Installed along the slope adjacent to the creek, the Flexamat will stabilize soils, while allowing for vegetation to be planted between the individual concrete cells. This provides immediate protection for the plant roots and space for the vegetation to spread once established. The flexamat will be anchored per manufacturer specifications to prevent displacement during tidal and storm events. The total impacts from flexamat will be 1,386 SF (13 CY), with 741 SF (7 CY) being below the jurisdiction line and 645 (6 CY) being above the jurisdiction line.
3. **Rip-rap:** A limited amount of rip-rap will be strategically placed at the toe of the slope and edges of the rip rap, to dissipate wave energy and prevent further erosion. All rip rap will be placed seaward of the jurisdiction line, and will result in a total impacted area of 225 SF (9 CY). These impacts overlap the impacts from grading and Flexamat installation.
4. **Filtrexx Grosoxx:** This material is composed of a tube filled with native soils which are pre-seeded. The tubes are installed in rows adjacent to, and on top, of each other with a slight offset, in order to stabilize the shoreline. The tubes will be anchored to the shoreline per manufacturers instructions shown on the permit exhibits. The GroSoxx will impact approximately 1,423.4 SF (79 CY), with 375.4 SF (21 CY) being in below the jurisdiction line and 1,048 SF (58 CY) being above the jurisdiction line.
5. **Vegetation Trimming:** The vegetation along the east side of the island will be selectively trimmed to allow more sunlight to penetrate to the marsh surface. No root systems or whole plants will be removed during this process.
6. **Native Vegetation:** Salt-tolerant species will be planted across the graded slope into the Flexamat to establish a resilient vegetative buffer. Below the CMPA jurisdiction line will be a combination of plants selected from the 14 jurisdictional plants, while the areas above the CMPA jurisdiction line will be planted with upland salt tolerant species. The Filtrexx GroSoxx will be pre-seeded with either jurisdictional plants or upland salt tolerant plants, depending upon their location. This planting will provide both ecological benefits and erosion control. Salt tolerant upland plants will be used above the HTL. A total area

of 2,640.85 SF will be planted, with 1,338.4 SF being below the jurisdiction line and 1,302.45 SF being above the jurisdiction line.

Additional Permitting

401 Water Quality Certification (Georgia DNR-EPD)
The proposed project will utilize a Nationwide Permit from the U.S. Army Corps of Engineers, which has been granted a blanket Water Quality Certification for the activities. A copy of the Water Quality Certification can be found in the appendices.

Nationwide Pemit 54 (USACE)
The proposed project is simultaneously being submitted to the USACE for verification as a Nationwide Permit 14: Living Shoreline project. In the appendices is the Pre-Construction Notification and all the additional documentation required for verification, as well as a Federal Consistency form.

Georgia EPD 25' Marsh Buffer
Georgia EPD was contacted about this project and determined that the property is exempt from the buffer due to the 18% rule. The correspondence with EPD is provided in the appendix.

Adjoining Landowners

Flemington Forest Properties LLC
109 Overlook Point
Brunswick, GA 31523

Landfill/Hazardous Waste Statement

The Georgia Environmental Protection Division Hazardous Site Inventory indicates that the project location does not contain any landfills or hazardous waste sites.

Historic/Cultural Resources

The National Register of Historic Places and GNAHRGIS indicate no historic sites on the property.

Soil and Erosion Control Statement

The proposed project will adhere to the soil and erosion control responsibilities as required for the proposed project.

Turbidity Statement

The proposed project will be performed in a manner to minimize turbidity in the stream. BMP's will be used throughout the duration of the project and inspections will be performed as required by law.

Needs Assessment

Shoreline erosion at the project site poses risks to the adjacent upland area, contributing to sedimentation and loss of habitat. Without intervention, continued erosion will degrade water quality and reduce the ecological integrity of the tidal ecosystem. The proposed living shoreline addresses these issues by:

- Stabilizing the bank to prevent further erosion.

- Restoring native vegetation and habitat for aquatic and terrestrial species.
- Improving water quality by reducing sediment runoff.
- Enhancing the shoreline's resilience to storm surges and tidal flows.

This project aligns with regional goals for sustainable shoreline management and habitat restoration, providing both ecological and community benefits.

Alternative Analysis

Several alternatives were evaluated to address the shoreline erosion and habitat degradation:

1. **No-Action Alternative:**
   - **Outcome:** Continued erosion would result in ongoing habitat loss, water quality degradation, and increased risks to upland stability.
   - **Conclusion:** Not viable due to ecological and structural concerns.
2. **Hardened Shoreline (e.g., Bulkhead):**
   - **Outcome:** While this option would stabilize the shoreline, it would disrupt natural tidal flows and eliminate habitat for aquatic and terrestrial species.
   - **Conclusion:** Rejected due to adverse environmental impacts and regulatory constraints.
3. **Stabilization Using Only Rip-Rap:**
   - **Outcome:** This approach would involve using rip-rap exclusively to stabilize the shoreline. While effective at reducing erosion, this method lacks the ecological benefits provided by a living shoreline, such as habitat creation and water quality improvement. Additionally, rip-rap alone would not address the loss of vegetative cover, limiting its long-term effectiveness and resilience.
   - **Conclusion:** Not selected due to insufficient ecological benefits and limited functionality compared to the preferred alternative.
4. **Living Shoreline (Preferred Alternative):**
   - **Outcome:** Combines natural and structural elements to stabilize the shoreline, restore habitat, and improve water quality while maintaining tidal connectivity and aquatic life movement.
   - **Conclusion:** Selected as the most sustainable and environmentally beneficial solution.

Public Interest Statement

A. Whether or not unreasonably harmful obstruction to or alteration of the natural flow of navigational water within the affected area will arise as a result of the proposal.

The proposed living shoreline project, which incorporates Flexamat, Filtress GroSoxx, and native vegetation, is specifically designed to minimize any obstruction or alteration to the natural flow of navigational waters. The Flexamat Plus system is a porous, flexible concrete block system that allows for natural water movement and tidal exchange. Unlike traditional hard structures such as bulkheads, the living shoreline design ensures that water flow patterns remain largely unaffected.

The installation of native vegetation further enhances the natural flow by promoting sediment accumulation and stabilizing the shoreline without creating barriers. The project will not extend beyond the mean low water line, ensuring that navigation along the waterway remains

unimpeded. Additionally, the design follows best practices to avoid any disruption to tidal currents or sediment transport, ensuring that the natural hydrology of the area is preserved.

B. Whether or not unreasonably harmful or increased erosion, shoaling of channels, or stagnant areas of water will be created.

The proposed living shoreline project is specifically designed to reduce erosion and prevent shoaling rather than contribute to these issues. The Flexamat system provides immediate stabilization to the shoreline, while the incorporation of native vegetation promotes long-term erosion control by trapping sediments and reducing wave energy. This dual approach ensures that the shoreline is stabilized without creating unintended erosion or sedimentation downstream.

The porous nature of the Flexamat system allows for water movement, preventing the creation of stagnant areas. The native vegetation further enhances water quality by filtering runoff and promoting healthy aquatic habitats. By stabilizing the shoreline and reducing sediment loss, the project will minimize the risk of shoaling in nearby channels. The design also includes measures to ensure that the installation does not cause erosion at adjacent properties, further protecting the surrounding ecosystem.

C. Whether or not the granting of a permit and the completion of the applicant's proposal will unreasonably interfere with the conservation of fish, shrimp, oysters, crabs, clams, or other marine life, wildlife, or other resources, including but not limited to water and oxygen supply.

The proposed living shoreline project is designed to enhance the ecosystem and provide habitat benefits for marine life, wildlife, and other resources. The Flexamat system creates interstitial spaces that serve as habitat for fish, crustaceans, and other aquatic organisms. Unlike traditional hard armoring, which can disrupt natural habitats, the living shoreline approach promotes biodiversity by providing a more natural and dynamic environment.

The incorporation of native vegetation further enhances the ecological value of the project. The vegetation will provide habitat for wildlife, improve water quality by filtering pollutants, and contribute to the overall health of the coastal ecosystem. The project will follow Best Management Practices (BMPs) to minimize turbidity and sedimentation during construction, ensuring that water quality and oxygen levels are maintained. By stabilizing the shoreline and reducing sedimentation, the project will help protect aquatic habitats and support the conservation of fish, shellfish, and other marine life.

Conclusion

The proposed shoreline stabilization project effectively addresses erosion while maintaining water quality and habitat integrity. The design prevents further land loss, minimizes sedimentation, and avoids negative impacts on navigation, water flow, or marine life. The project meets all regulatory requirements and represents the most practical and environmentally responsible solution for shoreline protection. Approval of this project will ensure sustainable shoreline management with minimal environmental impact.