

Project Description

**Michael Bono Residence, #2, 8th Place
City of Tybee Island, Georgia
Installation of New Bulkhead and Stairs
Chatham County, Georgia**

The following information is submitted in association with the attached application requesting authorization for a Permit from the Shore Protection Committee to authorize the installation of a new bulkhead and relocation of existing stairs to stabilize an existing sand dune to prevent further sand encroachment onto the house porch and stair foundation. Specifically, this application proposes the installation of a retaining wall within Shore Protection Act Jurisdiction and the relocation of the entrance stairs that continue to be covered by eroding sand from the existing sand dune on the northeastern portion of the residential lot. Minor landscaping, to include grassing and irrigation, is proposed landward of the new retaining wall within SPA jurisdiction, but no other hard-scaped surfaces are proposed within SPA jurisdiction at this time.

1.0 Project Description:

The proposed project includes the installation of a vinyl sheet pile retaining wall with timber pile cap and fascia within SPA jurisdiction. The proposed wall is designed to run parallel with the existing contours of the adjacent dune and landward toe of slope to avoid direct impacts to the existing sand dune. The retaining wall is to be constructed with mechanical equipment and driven approximately 6 to 7 feet in the ground. Although the existing ground elevation varies from north to south along the dune line, the exposed height of the proposed wall will be between 3 to 4 feet. The additional height above ground will serve to prevent and slow the erosion of the adjacent dune and will also capture future wind blown sand from the adjacent dune before reaching the house and foundation. Total impacts within SPA jurisdiction associated with the retaining wall total 50 square feet. The applicant also proposes to remove the existing stairs (that are partially covered with wind blown sand) from the front porch of the house totaling 56 square feet. The stairs are to be replaced with new stairs that will extend from the same location as the existing stairs, but will be directed to the west and towards the existing carport under the existing house. The new stairs will total 68 square feet. Two small oak trees and one palm tree are to be removed during the retaining wall installation. The remaining area landward of the proposed retaining wall within SPA jurisdiction is to be planted with native grasses and irrigated (1,492 square feet). The specific planting plan and irrigation plan will be submitted to GADNR-CRD staff for approval prior to implementing the proposed work. Total impacts to SPA jurisdiction (including retaining wall, new stairs, native grassed area and irrigation) totals 1,610 square feet or 0.036 acres and should be considered a minor alteration as proposed encroachments are well less than one-tenth of an acre.

The remaining portions of the 15,374 square foot lot east of the newly constructed retaining wall (Approximately 4,729 square feet – one-third of the lot) will remain in a natural vegetated and topographic state. The existing house and porch occupies approximately 865 square feet within SPA jurisdiction.

It is anticipated that the proposed work will take 6 months to complete depending on material availability.

1.2 Background and Migrating Sand Cause:

The eastern property line of the lot extends an additional 75 feet seaward towards the beach from the existing porch of the house. Beyond the eastern property line, approximately 18 feet, is an existing rock seawall originally constructed around 1938 to prevent storm tidal surges moving inland along the beach front (Dr. George Oertel, 2013). In a draft report titled *Conceptual Plan for Correcting and Managing Dune Instability along Commercial Beaches for Tybee Island, Georgia* (Oertel Coastal Consultants, Belleair Beach, Florida, October 2013), Dr. George Oertel provides a history of the Tybee beach beginning in the 1920's and states that through the 1960's there was no dry sand beach on Tybee between Fort Screven and Tybee Creek on the south end of the island, and therefore no chance for a dune ridge to form with no dry sand beach. During the 1970's, groins were constructed and beach renourishment began with an initial 2.3 million yards of sand pumped onto the beach. The beach renourishment project was completed again in 1987, 1995, and 2000. Between 2000 and 2005 large fields of linear dune ridges formed between Third Street and Fourteenth Street. By 2012, the dune field along the Tybee shore expanded seaward from the rock seawall over the newly placed dry beach surface, and by 2012, the dune field had grown inland and seaward and was greater than 450-feet wide between Eighth Street and Twelfth Street. The most recent Tybee Island renourishment project was completed in 2019-2020 to repair and replace sand lost during Hurricanes Matthew and Irma. This expansive Tybee Island dune field began to form after the 1970's renourishment with the formation of parallel dune ridges on the dry sand beaches (Oertel, 2013), and has continued to expand in the central beach portion of Tybee Island as a result of the on-going beach renourishment projects. The proposed project is within this area of massive dune expansion, and it continues to grow and widen.

Dune fields, without proper management, can become dissected, poorly developed, and unstable (Oertel, 2013). The primary dune closest to the ocean must be maintained as a continuous parallel ridge that forms along the upper beach and achieves a height of over 10 feet (Oertel, 2013). This parallel primary dune becomes the main protector against major storm and tide events. When the primary dune becomes dissected, breaches occur (blow-outs) which allows wind-blown sand from the dry sand beach to migrate inland. These blow-outs typically begin with scour basins where wind blows through the breach, scours the dry sand landward of the primary dune, and wind-blown sand continues landward until the sand contacts a structure, plant, or tree where it forms mounds that are typically pyramidal shaped and unstable. Breaches in the primary dune can occur from natural or man-made causes. Poorly managed renourishment projects where the primary

dune is breached or not maintained properly, pedestrian paths that damage dune plants and expose dune surfaces and re-activate wind-blown sand landward of the primary dune, and pedestrian cross walks that are too low and short can all alter and increase wind patterns that lead to a blow-out. Poorly maintained sand fencing can be a contributor to an increase or decrease in wind speeds leading to a blow-out. The exact cause of the shifting sand migrating to the house at #3 8th place is unknown, but based on the Oertel report, one can conclude this source of migrating sand could be associated with beach renourishment activities and a breach in the primary dune that has allowed wind-blown sand to migrate inland which has accumulated and covered the porch stairs and porch foundation. The applicant has observed this piling of sand for several years, and more recently this accumulation of sand has accelerated over the past two to three years.

Due to the increased rate of sand shifting towards the house and covering the front porch stairs, the Applicant consulted with GADNR-CRD Staff and a Professional Engineer to determine the least environmentally damaging approach to decrease the rate of sand accumulation and to prevent sand from reaching the house and porch foundation. The proposed retaining wall was the least environmentally damaging approach to satisfy the project purpose.

2.0 Threatened and Endangered Species

SECI evaluated the site for potential impacts to listed threatened and endangered species and concluded there are no threatened or endangered species of concern that could be negatively impacted by the proposed retaining wall installation and relocation of porch stairs.

4.0 Public Interest

The proposed project includes the installation of a retaining wall landward of the toe of the existing dune field to catch wind-blown sand, that is most likely a result of the ongoing beach renourishment projects. It is the Applicant's opinion that granting the proposed permit will not interfere with access and recreational use and enjoyment of the public beaches on Tybee Island, and should create a safer and more stable condition for the existing structure. The proposed work will not create any harmful alteration of the dynamic dune field or submerged lands, and will not negatively impact the sand sharing system of this important sand dune ecosystem.

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CITY OF TYBEE ISLAND

*mailed
5/3/23*

Petitioner: Michael Bono

Description: Seeking to install a bulkhead wall in the dune

Property Address: 3 8th Place -4000603001

Zoning Action Requested: Special Review

Following any required Public Hearing, the Mayor and Council of the City of Tybee Island decided on the 13th day of April 2023, to approve the application for special review, to-wit:

Petitioner

[Signature]

Date

4-28-2023

Planning and Zoning Manager

[Signature]

Date

4-28-2023

Mayor

[Signature]

Date

5/2/23

Clerk of Council

Date