

North American Land Trust

CONSERVATION MANAGEMENT PLAN

LONG BAY MARINA

Chester County ❖ South Carolina

Long Bay Marina Conservation Management Plan

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I. Property Overview and Characteristics:

The Long Bay Conservation Area property is located in Horry County, SC and consists of approximately 60 acres. This tract is located along Bourne Trail, a dirt road that parallels the new Highway 31. Although rural at one time, this area is slated for intensive development as the highway has made the area easily accessible. Some tracts along this road have already converted to single family residential development.

In recent years, portions of the property were used for the production of forest products, and most of the uplands planted in Loblolly Pine were used for commercial timber operations. In 2014, the property was protected by a conservation easement.

Regional context: The property lies within the Coastal Plain Ecoregion, and historically boasted upland maritime forests, sandhill ecosystems and other depressional wetlands. The property lies in an area referred to by SCDNR as the “outer belt” or “flatwoods” landscape of this ecoregion, referencing the primarily pine-dominated forest with close proximity to both the Waccamaw and Little Rivers.

This property is located in North Myrtle Beach, an area that has remained one of the fastest growing regions on the East Coast for many years. From a natural resource perspective, residential and commercial development is the single largest threat to the region, leading to the loss of habitat and flora and faunal species, as well as water quality degradation.

General Property characteristics of ecological significance:

The Long Bay Marina Conservation Area contains several productive habitats indicative of the region, or allowed to naturally occur on the property. Present on the property are:

Pine Woodlands

Watershed context: Long Bay Marina is located in the Coastal Sampit watershed in SC. This watershed includes properties from Myrtle Beach as well as Georgetown County.

II. Executive Summary of Management Recommendations

The Long Bay Marina property is located in North Myrtle Beach, Horry County SC and consists of approximately 60 acres that is protected by a perpetual conservation easement.

NALT believes the most likely useage for this property was passive recreation. The size and forested nature of the tract is suitable for limited deer hunting, walking, and horseback riding. Given these potential uses, the ecological land management plan should create a diversity of habitats for ecological and aesthetic benefit and seek to control fuel loads for mitigation against wildfires.

There are some management limitations that should be noted, and that are further explored in the Forestry Management Plan in Appendix 2.

- a. Prescribed fire cannot be used on site due to proximity to the airport.
- b. “Bedded” Pine Plantations are a management/useage factor.
- c. For recreational hunting, white tailed deer will likely be the only game species.

The long term goals and objectives for Long Bay Marina Preserve are as follows:

- Transition planted Loblolly Pine stands into old-growth mixed canopy forests (Mesic Hardwood Forest) using strategic timber thinning/chipping
- Protect water quality
- Protect scenic views
- Maximize recreational value
- To maintain and document the biological integrity of the property
- Secure the site, and remove illegally dumped material

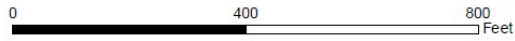
The short term goals and objectives would be:

- Treatment of invasive species
- Creation of river buffer and riparian protection zones
- Creation of firebreaks/trails
- Creation of wildlife openings to maximize biodiversity
- Strategic understory control for portions of the property

Listed below are practices that are recommendations by the North American Land Trust, to achieve the long term and short term goals of an integrated conservation management plan.

By protecting the Long Bay Marina Property, the owners have ensured that ecologically valuable lands will forever remain intact.

III. Management recommendations and Land Use Descriptions



1 inch = 200 feet



Management Recommendation #1: Water Quality Protection/River Buffers

Long Bay Marina property sits along the bank of the Atlantic Intracoastal Waterway. The portion of this waterway is manmade; however it is an important natural and recreational resource. The waterway boasts a variety of aquatic and terrestrial wildlife.

Intracoastal Waterway (taken from the Horry County Comprehensive Plan)

The Intracoastal Waterway (ICW) is a 3,000 mile inland waterway that runs parallel to the Atlantic and Gulf coasts. Some sections of the waterway consist of natural inlets, saltwater rivers, bays and sounds, while others are artificial canals. While the Waccamaw River and Little River are natural portions of the ICW, the majority of the ICW in Horry County was constructed by the US Army Corps of Engineers (ACOE) in 1936. Over time, the waterway has become a part of the natural scenery. While the ICW in Horry County is tidally influenced, salt water only influences its northern reach in Little River. The remaining portion of the ICW in the Grand Strand is freshwater until it reaches Winyah Bay in Georgetown County. Along the freshwater portions of the ICW in Horry County, the artificial portion of the waterway mimics the blackwater rivers in the area.

Originally established to provide a safe transportation route and to protect commerce, the ICW now mainly serves as a route for transient boaters and other recreational users. Because the ICW is no longer primarily used for the transportation of goods, it is no longer regularly dredged to sustain its channel, potentially affecting its use for recreational boaters.

Management recommendations:

1. Reduce impervious surfaces. The conservation easement largely addresses this by removing development from the tract.
2. River buffers: One of the single most important tools for protection of waterways is a naturally vegetated buffer.
 - a) Maintain at least 100' natural vegetation.
 - b) For waterway views consider view "windows" trimming shrub level vegetation to 1' from ground, and/or "limbing up": removing view obstruction but leaving tree canopies. This leaves root structures for erosion and filtration.
 - c) If access is desired to waters/bank edge, consider clearing a "view corridor" only, leaving specimen trees, but removing shrub understory only for the 50-75' strip. Leave the remaining area wooded and natural. If sod is part of the corridor use a drought tolerant species, such as carpet grass that is ideal for coastal climates and does not require fertilization or irrigation.
 - d) Ensure shrub level materials such as wax myrtles are plentiful for native, seasonal and migrating songbirds such as Painted Buntings.
 - e) Protect or promote mature specimen trees for nesting sites for Bald Eagles and Osprey, as well as other species that will utilize the waterway.

Management recommendation #2: Scenic view protection

Overview: Contrary to what many landowners might consider to be true, this management recommendation is to protect the scenic qualities currently existing on the Long Bay Marina property for people viewing the property from waterways and roadways. This is particularly needed in the Myrtle Beach region, one of the most rapidly developing areas in South Carolina and the East Coast. This pressure is acute on beaches, creeks and waterways. With each high rise condominium, multi-family housing complex, commercial venture or even golf course, natural habitats are lost. First and foremost, this impacts the flora and fauna of the area, but there is also a negative impact to residents and visitors to the area with the loss of natural landscapes to visually enjoy.

This property, conserved in a natural state without intense development, will benefit the larger public, residents and visitors alike.

Management recommendations:

1. The protection of this property with a conservation easement will largely protect this property as a scenic view from the waterway and adjacent upland.
2. Careful consideration should be given to any structures and their placement, orientation and size to minimize visual impact to the surrounding area.
3. Wherever possible create or maintain “nature curtains” or natural buffers of 30-100’ from roadways and/or waterways.
4. Consider natural solutions for erosion control or streambank stabilization in lieu of riprap or bulkheads. If these are necessary, native landscaping should be used to naturalize the site.
5. Avoid large scale clearings of forests in viewshed areas.
6. If exercising the reserved right for homesites, remove only vegetation required for the homesite, gradually increasing any further clearing to minimize disruption.



Management Recommendation #3: Create Trail/firebreak Network

Wildfires are a serious threat in the North Myrtle Beach area. Given that, the fuel load for Long Bay Marina is not problematic. Although NALT generally encourages the reintroduction of prescribed burning to any property to mimic natural conditions and to reduce the threat of wildfire, that is unlikely on this property.

NALT does recommend that a naturalized trail network be established to serve multiple purposes: access for management activities; potential access for future homesites; passive recreational use for the property; and to act as a firebreak in the unlikely event that a wildfire were to occur.

Management recommendations:

1. Establish logical trail network as identified.
2. Roads should be cleared, stumped and graded, and average 8' widths.
3. Roads should be placed on a long-term maintenance rotation.



Management Recommendation #4: Wildlife openings/food plots

The majority of Long Bay Marina is a Pine Woodland. Numerous species will benefit from this habitat; however, wildlife diversity and recreational value can easily be enhanced by the introduction of several small wildlife openings to create “edge” habitat. In ecology, edge effects refer to the changes in populations or community structures that occur at the boundary of two habitats. Though the relationship can have both positive and negative outcomes, in this situation a small native grass meadow will provide opportunities for foraging and bugging for some species of wildlife.

Ideally, NALT would prefer recommending native warm season grasses be planted. If planted and managed as wildlife habitat using native grasses, even without a natural fire regime, numerous species will benefit. NALT suggests consideration of native grass mixes and species that include: switchgrass (*Panicum virgatum*), indiangrass (*Sorghastrum nutans*), eastern gamagrass (*Tripsacum dactyloides*), big bluestem (*Andropogon gerardii*), and little bluestem (*Schizachyrium scoparium*) for this site.

However, traditional game plot seeds such as sorghum, millet, peas, wheat or clover may also be mixed with the seed to enhance crops to attract game animals, especially if the pine forests are managed towards a “Savanna” habitat with native grass understory.

The conservation easement denotes the future building zone. Although this is not located for maximum “edge” effect, using a small portion of this site as a wildlife opening would also be appropriate.

Management recommendations:

1. Openings should be 2-4 acres, curved or elongated openings with widths ranging from 30-150 yards are best.
2. Place openings at the juncture of different stands.
3. Use Native Certified Seeds/Mixes whenever possible
4. Plant seeds in March or early April at the latest.
5. Irrigate if possible to help seed establishment.
6. Use tilling or herbicide on undesired weed species.
7. Use a no-till drill to plant seeds.
8. Ideally, native grasses meadows would be managed with prescribed burning to mimic natural processes
9. The best time of year to mow is during the fall through late winter.
10. Do not mow during the spring or summer months because of the nesting season.
11. When mowing, cut grass no lower than 6 inches and allow stubble to remain until spring to help insulate plant roots and provide cover for wildlife.
12. Periodically disking (once every 2 years) should maintain open structure at ground level.

Management Recommendation #5: Eradicate Invasive Species

Invasive species are non-native plant, insect or animal species that have been introduced into an area outside of their original range and compete with native species for resources. Invasive species reproduce and spread rampantly because they have no natural enemies in their new homes. Invasive species are recognized as one of the leading threats to biodiversity, and they impose enormous costs to agriculture, forestry, fisheries, and other human enterprises, as well as to human health.

There are several notable invasive species occupying the tract such as kudzu (*Pueria lobata*), Japanese Honeysuckle (*Lonicera japonica*), and English ivy (*Hedera helix*). All of these species should be eradicated.

Kudzu is by far the most aggressive and destructive of the invasives, and there is a large infestation on multiple acres located in the southwest corner of the property along the access roads. This issue must be addressed, as the Horry County Comprehensive Plan and SC Department of Natural Resources have identified treatment of invasive species as a top priority. Moreover, if left untreated the Kudzu may take over the entire site, removing all conservation values.

Management recommendations:

1. Due to the size of the plants, all plants should be chipped to expose stems.
2. Apply herbicides as needed. Utilize a herbicide called Veteran for treatments. It is rated to apply in proximity to wetlands and is effective at kudzu control.
3. Treatment are 3 gallons per acre with Veteran 720, 1% surfactant.
4. Plan for at least two treatments per year in the first three years.
5. English Ivy and Japanese honeysuckle could be treated with 3% glyphosate and 1% surfactant applied to leaf surface area in late spring.



Kudzu found on the property

Management Recommendation #6: Transition forest to mixed canopy and manage for recreation

Almost the entirety of the 60.7 acre property is Loblolly pine plantation. The pines are most mature at the southern end of the tract reaching heights above 60 feet, toward the northern end the pine average approximately 40 to 50 feet.

This pine stand was established approximately 20+ years ago. A mid story of less desirable hardwood (e.g., water oak) and softwood (e.g., sweetgum) species are present in the midstory. Areas of ericaceous species are also present across the planted pine stand.

Pine habitat in Horry County is pyrogenic. This results from fuel accumulation and either intentional or unintentional fire application. Prescribed fire is not possible on the Long Bay parcel because of the proximity to the Grand Strand Airport, but fuel loads still need to be controlled such that unintentional fire would not result in a stand-destroying fire. Fuel loads also need to be controlled to maintain valuable habitat for wildlife.

Management recommendations:

1. Reduction in basal area of 30-40% across the stand. This harvest rate would not be applied evenly but rather unevenly to create heterogeneity across the stand.
2. Areas nearest the property boundary should be left denser than those at the center of the property. Less dense forests along the parcel boundary would open a viewscape out of and into the parcel. The future owner would likely desire privacy and timber density can achieve this; additionally this would protect the scenic nature of the conservation tract.
3. Less desirable midstory species can be minimized during the timber harvest while areas of ericaceous plant species should be preserved.
4. Timber on the property would be harvested for chip and saw (i.e., dimensional lumber and paper pulp), pulpwood, and potentially “super pulp.” This tree classification is new and results in one or two dimensional boards out of a pulpwood tree. Super pulp prices have been relatively high over the last several years.
5. Were timber harvests approved for ecological objectives, timber prices and harvest volumes could be computed to generate expected income from the harvest.
6. The timber harvest could also be used to create a road/trail network and openings for eventual plantings.
7. After the timber harvest, numerous tree and shrub species will regenerate and these will be the target of fuel control. Initially less desirable species, like sweetgum and water oak, will be controlled by hand application of herbicide (likely 3% of Garlon 4 and 1% MSO surfactant).
 - Herbicide will likely need to be applied two or three years with diminishing effort required in subsequent years. Simultaneous to the herbicide application mechanical control of the understory will be required. Some areas with more open canopy might regenerate in herbaceous species and require mechanical control while other areas might be shrubbier.
 - In general, herbaceous dominated understory will require mechanical control every 1-2 years and areas of greater shrub component require mechanical control every 2-3 years.

8. Mechanical control will be with a bush hog or heavier piece of equipment. There is a major caveat to mechanical control: it is more difficult in areas that have been bedded. I mentioned this previously as a limitation to management. This should be discussed prior to the timber harvest. Leveling some or all of the beds would create a parcel that would be easier to manage than one with the beds left in place.
9. As some of the timber is harvested and beds leveled, desirable understory species should be allowed to grow to convert the canopy to a mixed hardwood/pine stand in the future.

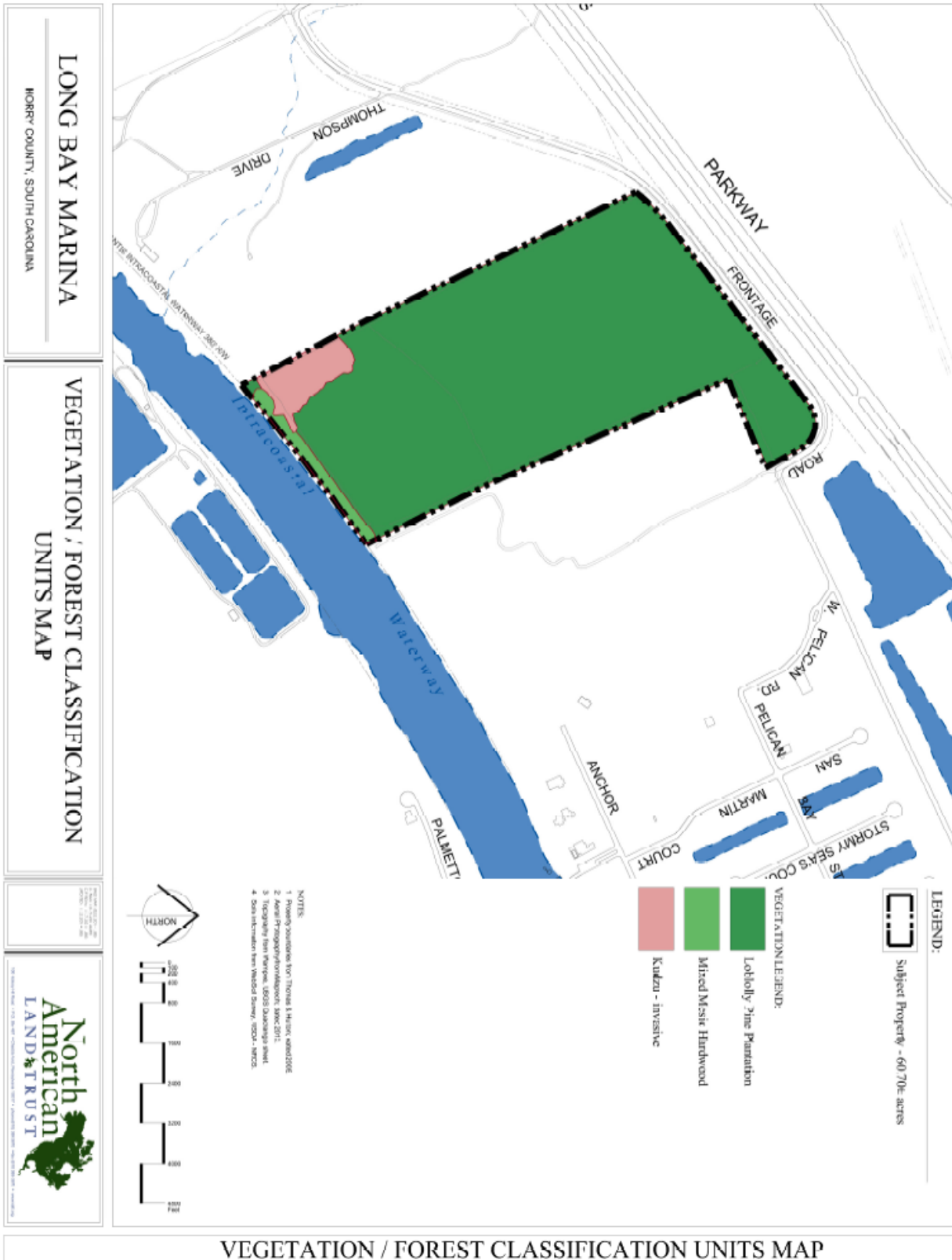
Management Recommendation #5: Continue Biological Surveys/Manage for Species of Concern (current/future)

Overview: NALT recommends that biological inventories and botanical surveys be continued each season, and management strategies refined accordingly. Whether hiring experts in a particular biological discipline, engaging with natural resource agencies, or partnering with universities and coalitions, NALT recommends continued documentation of this property. The priority species listed in the next section should be a starting point for inventories.

Any species identified should be input into a Priority Species Map when discovered. Overall management techniques should be adapted and refined as new priority species are discovered.



IV. Manage Existing Habitats for Existing Species of Concern



VEGETATION / FOREST CLASSIFICATION UNITS MAP

Almost the entirety of the 60.7 acre property is Loblolly pine plantation. The pine are most mature at the southern end of the tract reaching heights above 60 feet, toward the northern end the pine average approximately 40 to 50 feet.

Management recommendation:

1. The long-term management objective for this stand is to re-establish Mesic Mixed Hardwood Forest. The pines should be selectively thinned to allow for natural hardwood regeneration. Additionally, removing or treating undesirable hardwood or softwood species may be considered to achieve an ideal forest composition of 25% oaks, 25% other hardwoods/softwoods and 50% pine.
2. Species to protect and/or promote include: oaks, hickories, tulip poplar, pines, sugarberry and elm with dogwood, southern sugar maple, ironwood, American holly, swamp bay, dwarf palmetto, cane grass indicative of the understory.
3. This forest is critical to the scenic conservation purpose for Long Bay Marina.
4. Avoid large-scale clearing or converting this area.
5. Prescribed burning is always ideal, but in this situation unlikely. Consideration should be given to mechanical understory control or selective thinning of undesirable species as necessary.
6. Eradicate invasive as identified.
7. Due to the proximity to the AIW chemical application should be considered cautiously, and carefully applied to minimize harm to water quality.
8. Leave specimen pines in/near the waterway buffer to act as nest trees for Bald Eagles and Osprey.

Additionally, implement the all of the management recommendations listed in Section 3.

Habitat Importance: Species of Concern associated with Coastal Plain Pine Woodland Forest:

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	LEGAL STATUS	PRIORITY	SPECIFIC HABITAT REQUIREMENTS	
<u>MAMMALS</u>	-	-	-	-			
<i>Condylura cristata</i>	Star-nosed Mole	G5	S3?	Of concern, State	High	X	swamps, marshes, bogs, streamsides; dense leaf litter
<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	G3/G4	S2?	State Endangered	Highest	X	T-beam and I-beam bridges, abandoned buildings, old bunkers and tunnels, cavity trees, rock outcrops, mines, caves
<i>Eptesicus fuscus</i>	Big Brown Bat	G5	SNR		Highest	X	buildings, cavity trees, under bridges and in bat boxes; forage in open fields or forest gaps
<i>Lasionycteris noctivagans</i>	Silver-haired Bat	G5	SNR		Highest	X	roosts include tree cavities, under loose bark, rock crevices, under tree foliage, and occasionally in buildings, stacks of firewood, and bird boxes; forage over water
<i>Lasiurus borealis</i>	Red Bat	G5	SNR		Highest	X	thinned stands; roost on smaller branches or twigs, often in the hardwood tree canopy; may roost in leaf litter
<i>Lasiurus cinereus</i>	Hoary Bat	G5	S?		Highest	X	tree cavities, trunks, tree foliage, squirrel nests, and Spanish moss
<i>Lasiurus intermedius</i>	Northern Yellow Bat	G4/G5	S?	Of concern, State	Highest	X	forage over open areas such as fields, pastures, golf courses, marshes, and along lake and forest edges; roost in clumps of Spanish moss or under old palm fronds
<i>Lasiurus seminolus</i>	Seminole Bat	G5	SNR		Highest	X	roost in large pines located near forested corridors; may roost in leaf litter
<i>Microtus pennsylvanicus</i>	Meadow Vole	G5	SNR	Of concern, State	High	X	tall grass prairie habitats
<i>Neotoma floridana</i>	Eastern Woodrat	G5	S3/S4	Of concern, State	Moderate	X	wide variety of habitats
<i>Perimyotis subflavus</i>	Tri-colored Bat	G5	SNR		Highest	X	abandoned mines and caves, bridges, buildings
<i>Ursus americanus</i>	Black Bear	G5	S3?	Of concern, State	Moderate	X	early successional habitat and forest interior; den sites
<u>REPTILES & AMPHIBIANS</u>	-	-	-	-	-	-	-
<i>Ambystoma cingulatum</i>	Flatwoods Salamander (Frosted)	G2/G3	S1	Federal Threatened; State Endangered	Highest	X	isolated, temporary wetlands with no fish that have open canopy above and abundant grasses and sedges
<i>Ambystoma tigrinum</i>	Tiger Salamander	G5	S2/S3	Of Concern, State	Highest	X	isolated, temporary wetlands with no fish that have open canopy above and abundant grasses and sedges
<i>Crotalus adamanteus</i>	Eastern Diamondback Rattlesnake	G4	S3	Of Concern, State	High	X	underground refugia such as stump holes and rodent burrows
<i>Crotalus horridus</i>	Timber Rattlesnake	G4	SNR	Of Concern, State	High	X	dry, south-facing slopes at high elevations; rock outcrops or logs for den sites with south face exposed to sun
<i>Eurycea chamberlainii</i>	Chamberlain's Dwarf Salamander	G4	SNR		Highest	X	wetland types like seepages near small streams; leaf litter and small debris
<i>Heterodon simus</i>	Southern Hognose Snake	G2	SNR	Of Concern, State	Highest	X	friable soils; underground refugia such as stump holes and rodent burrows; abundance of toads
<i>Micrurus fulvius</i>	Coral Snake (Harlequin)	G5	S2	Of Concern, State	Highest	X	underground refugia such as stump holes and rodent burrows; loose soil for burrowing

<i>Ophisaurus attenuatus</i>	Slender Glass Lizard	G5	S4		Moderate	X	underground refugia such as stump holes and rodent burrows; open canopied forests or fields
<i>Pituophis melanoleucus</i>	Pine Snake (Northern)	G4	S2/S3	Of Concern, State	Highest	X	pine sites with dry soils; underground refugia such as stump holes and rodent burrows
<i>Pituophis melanoleucus mugitus</i>	Pine Snake (Florida)	G4	S2	Of Concern, State	Highest	X	pine sites with well-drained soils; underground refugia such as stump holes and rodent burrows
<i>Rhadinea flavilata</i>	Pine Woods Snake	G4	SNR	Of Concern, State	High	X	moist pine flatwoods with many rotten logs; underground refugia such as stump holes and rodent burrows
<i>Terrapene carolina</i>	Eastern Box Turtle	G5	SNR		Moderate	X	moist woodlands; sandy or loamy soils in open for egg laying; loose soils and leaf litter for burrowing
BIRDS	-	-		-			
<i>Caprimulgus carolinensis</i>	Chuck-will's-widow	G5	S4		High	X	openings for nocturnal feeding; mixed forests with light to moderate understory
<i>Chaetura pelagica</i>	Chimney Swift	G5	SNRB		High	X	open areas for foraging; cavity for nesting (often chimneys)
<i>Columbina passerine</i>	Common Ground-Dove	G5	SNR	State Threatened	Highest	X	shrubs near openings for nesting; sandy bare ground or short grass for foraging
<i>Contopus virens</i>	Eastern Wood-Pewee	G5	S5		High	X	open forests with sparse midstory
<i>Dendroica pinus</i>	Pine Warbler	G5	SNR		Moderate	X	typically middle to mature pine forests
<i>Dryocopus pileatus</i>	Pileated Woodpecker	G5	SNR		Moderate	X	extensive mature forests with dead snags for nest cavities; probably prefer riverbottom hardwoods
<i>Icteria virens</i>	Yellow-breasted Chat	G5	S4B		High	X	old fields, briar thickets, dry woodland margins;
<i>Junco hyemalis</i>	Dark-eyed Junco	G5	SNRB,SNRN		Moderate	X	short grass openings near conifer woodlands
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	G5	SNR		Moderate	X	open, mature woods with dead snags for nest cavities; man-made poles with cavities
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	G5	SNR		Moderate	X	open, mature woods with dead snags for nest cavities; man-made poles with cavities
<i>Passerina ciris</i>	Painted Bunting	G5	SNRB		Highest	X	woodland margins; dense thickets in openings
<i>Passerina cyanea</i>	Indigo Bunting	G5	SNRB		Moderate	X	woodland margins; shrubby thickets in openings
<i>Picoides pubescens</i>	Downy Woodpecker	G5	SNR		Moderate	X	middle-aged to mature woodlands; prefer hardwoods; dead snags for nest cavities
<i>Pipilo erythrophthalmus</i>	Eastern Towhee	G5	SNR		High	X	brushy areas; woodland margins and understory
<i>Piranga rubra</i>	Summer Tanager	G5	S?		Moderate	X	dry, mixed woodlands
<i>Poecile carolinensis</i>	Carolina Chickadee	G5	SNR		Moderate	X	mature woodlands with dead snags for nest cavities; will use bird boxes
<i>Regulus satrapa</i>	Golden-crowned Kinglet	G5	S4		Moderate	X	winter in coniferous or mixed woodlands
<i>Scolopax minor</i>	American Woodcock	G5	S4		Moderate	X	moist soils and leaf litter for probe foraging; woodlands for nesting; openings for mating displays
<i>Setophaga dominica</i>	Yellow-throated Warbler	G5	S3?		Moderate	X	moderately open, mature, moist forests; pines, mixed forests; Spanish moss
<i>Sitta pusilla</i>	Brown-headed Nuthatch	G5	S4		Moderate	X	mature, open pines for foraging; nest cavities in snags
<i>Spizella pusilla</i>	Field Sparrow	G5	S5?		High	X	saplings and shrubs in weedy thickets and woodland margins

<i>Thryothorus ludovicianus</i>	Carolina Wren	G5	SNR		Moderate	X	woodland thickets; leaf litter; cavities or ledges for nesting; will use bird boxes and many other human material
<i>Toxostoma rufum</i>	Brown Thrasher	G5	SNR		High	X	moderate to dense brush and saplings
<i>Tyto alba</i>	Barn Owl	G5	S4	Of Concern, State	Moderate	X	grasslands or marshes for foraging; nest cavities; dense roosting cover

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V. Mapping

- A. Aerial
- B. Soils
- C. Concept Plan
- D. Topography

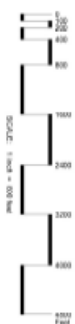


LEGEND:



Subject Property - 60.70+ acres

- NOTES:
1. Property boundaries from Thompson & Hinson, 10/10/2016
 2. Aerial Photography from 10/10/2016, 10/10/2017
 3. Topography from 10/10/2016, 10/10/2017
 4. Data collection from 10/10/2016, 10/10/2017
 5. Foundation data to be determined by Surveyor.

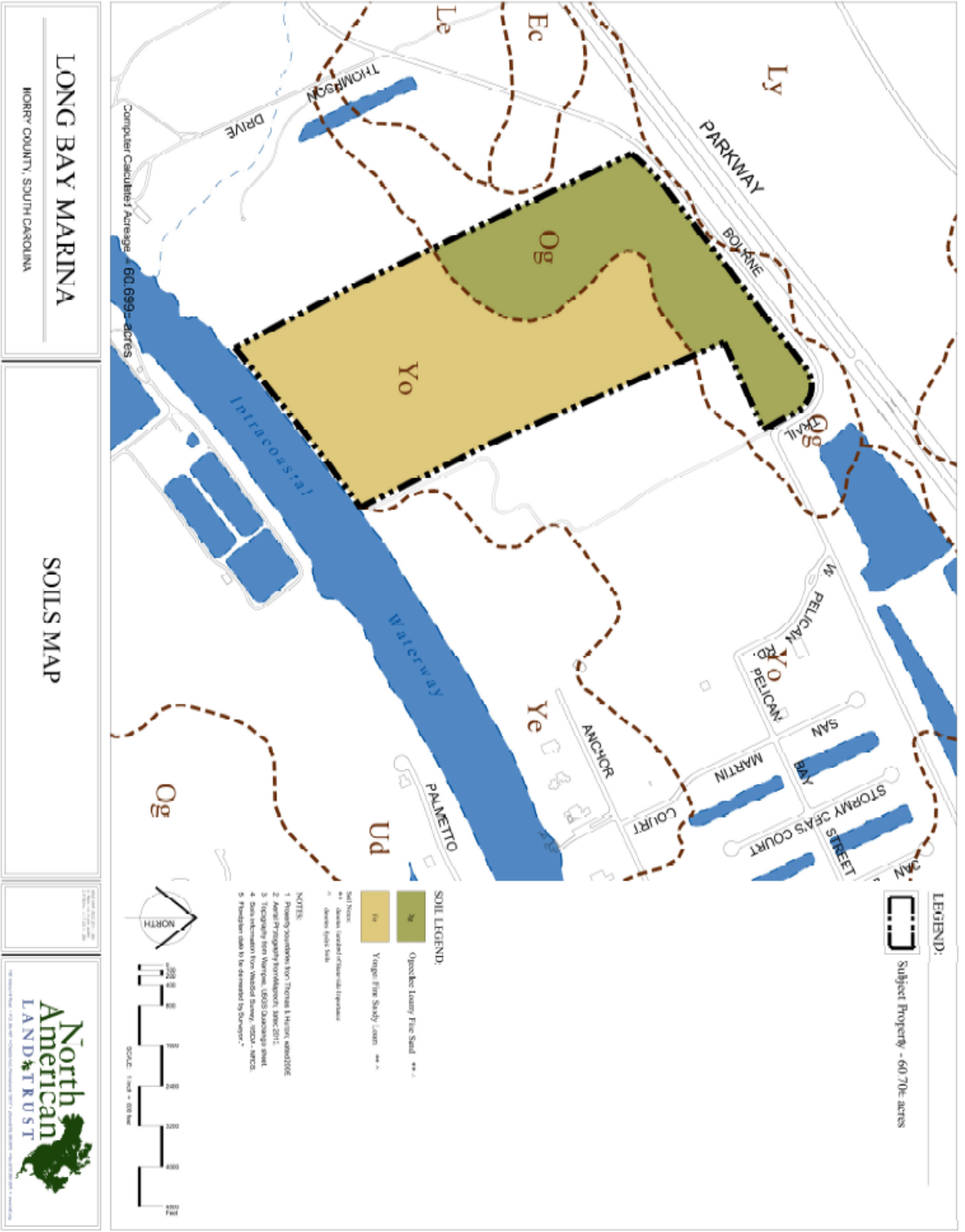


LONG BAY MARINA
MORRIS COUNTY, SOUTH CAROLINA

AERIAL PHOTOGRAPH

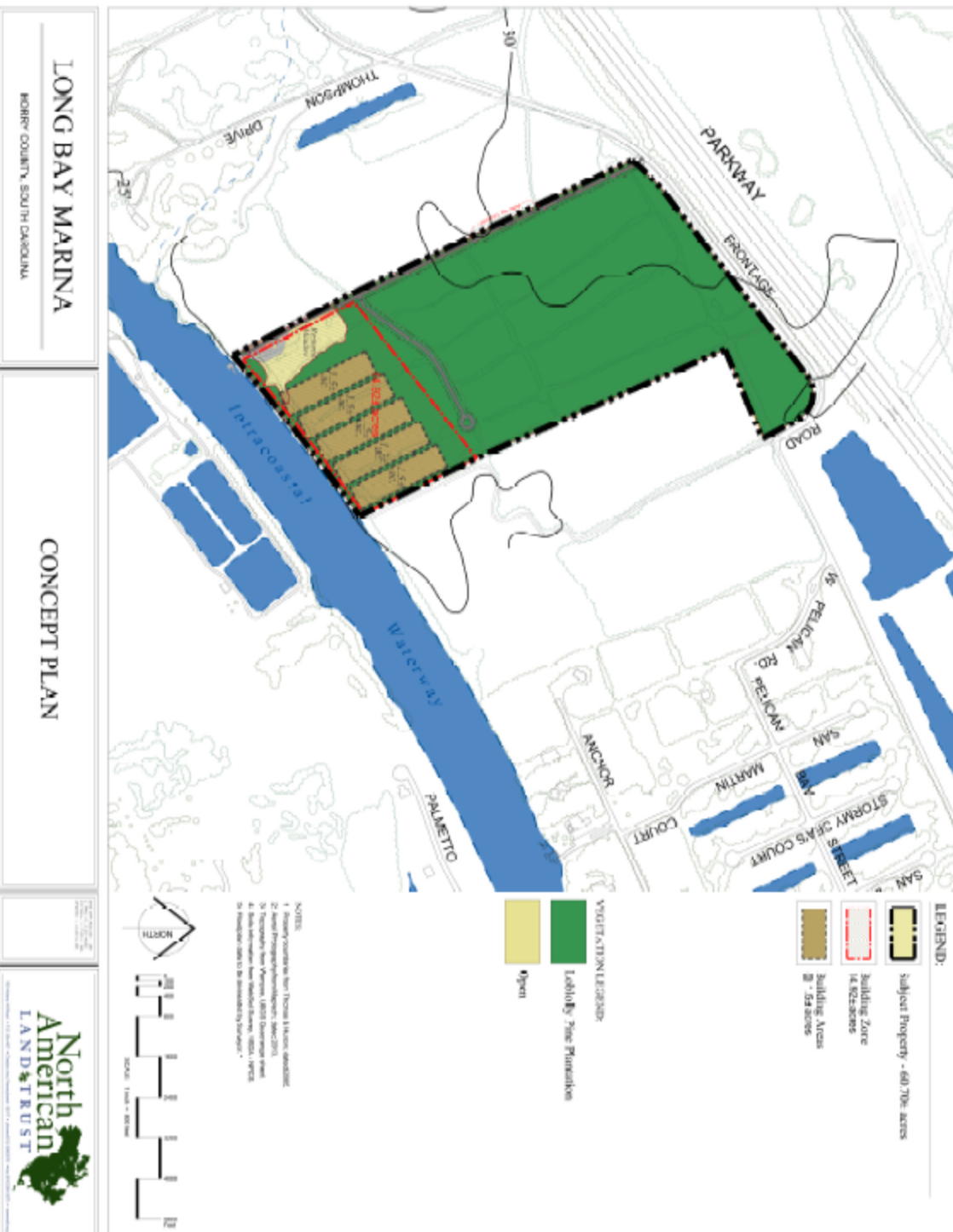


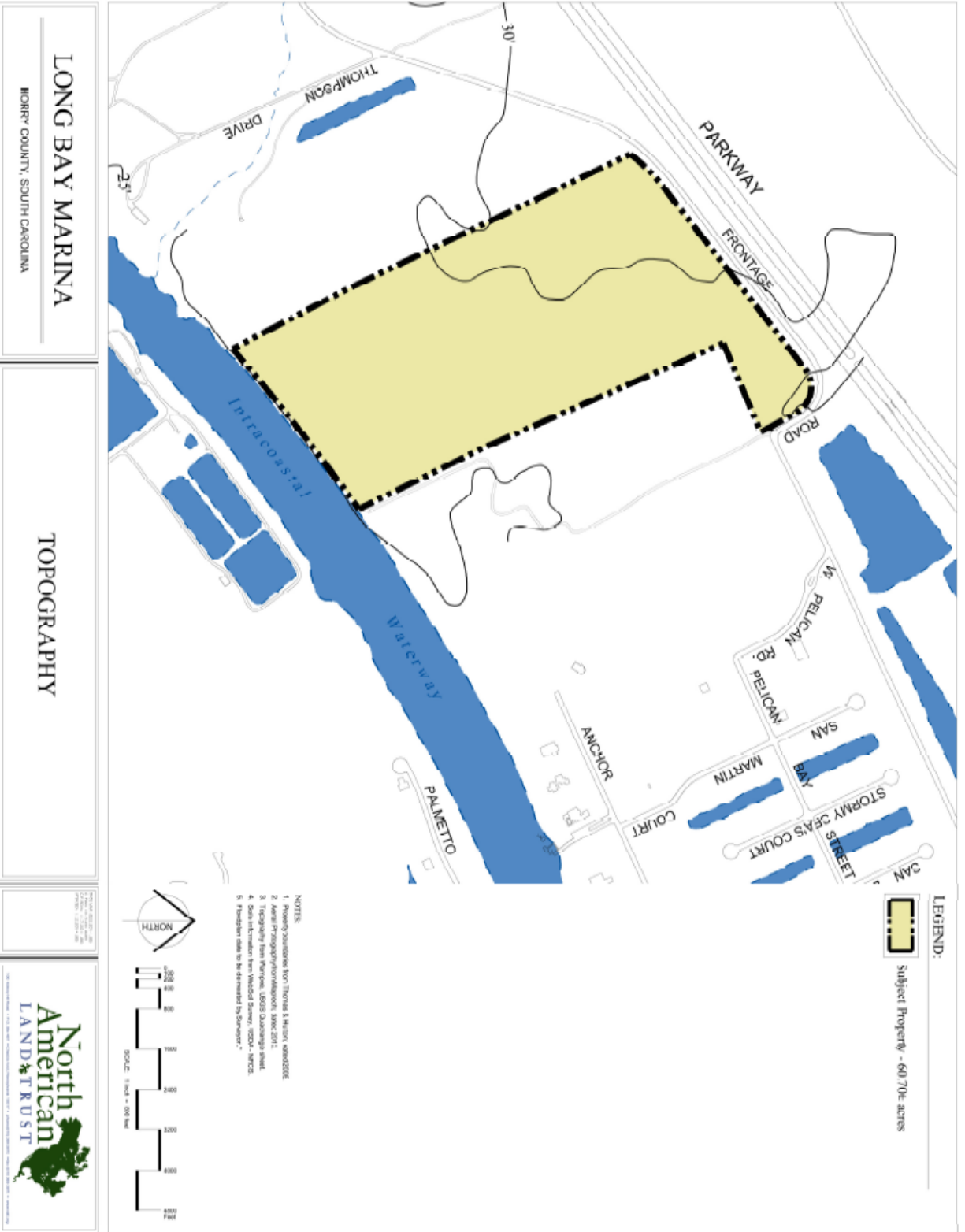
AERIAL PHOTOGRAPH II



SOILS MAP

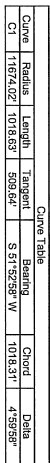
WORTH COUNTY, SOUTH CAROLINA





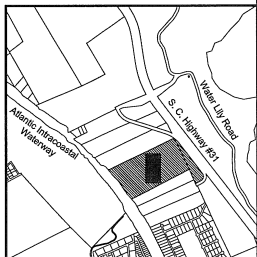
TOPOGRAPHY

1. This property is subject to all easements and restrictions of record.
2. This document represents a exhibit for an existing parcel of record. Not for the purpose of sales, conveyance or reclamation.
3. This property is located in flood zones "X" & "AE - 1" as shown on Flood Insurance Rate Map number 4505 IC0 5754H dated 8/23/99. Flood zone and floodway/lines shown on the face of this plat (if applicable) are scaled and approximate only.
4. Existing Tax Map Parcel numbers and references for the adjoining properties are as shown (if applicable) on the face of this plat.
5. No title search has been performed by this office.
6. Bearings shown are based on NAD 83 South Carolina State Plane coordinate system and all distances are horizontal ground distances, not ground distances.
7. No subsurface or environmental conditions have been considered as part of this survey and no statement has been made concerning the locations of underground utilities or facilities that may affect the use or development of this property.
8. Parent Tax Map Number: Tr-43-43-00-01-013



Line Table		
Line	Bearing	Distance
L1	S 26°08'39" E	58.02'
L2	N 27°32'37" W	626.32'
L3	N 25°40'36" W	25.44'

Vicinity Map - Not to Scale



Drawing Number	Long Bay Marina City of North Myrtle Beach, Horry County, South Carolina
2 of 2	Building Zone Area Exhibit "A"
14826S	Prepared For: Long Bay Marina, LLC

No.	Date	Revision	Description	by
Proj. No. 148265	Date: 12/10/14	Scale: 1" = 400'		
Design:	Draw: Candy	Check: CA		

6. I warrant to the owner that this document is the property of ABC Company, Incorporated and all rights with respect to copyrights are reserved as of the date of this document. This entire copy of plans or plans without attachments and any parts.



VI. Next Steps and Activity Timeline

NALT recommends the following tasks during the first year of operation:

1. Secure site with gate/fencing
2. Remove debris that has been illegally dumped
3. Immediately treat Kudzu
4. Identify Conservation Management Team to include:
 - a. Forestry Management Contractor
 - b. Road maintenance contractor (general)
 - c. Site improvement/repair contractor (construction)
 - d. Biological expertise (as necessary)
 - e. Site security contractors (as necessary)
 - f. Natural resource agencies and partners
5. Develop a list of local partners/players to open dialogue as necessary:
 - a. Utility companies
 - i. Powerline
 - ii. GSWSA
 - b. Local government and planning departments
 - c. Academics or natural resource partners
 - d. State parks or nearby Preserves
 - i. Peter Horry Preserve
 - ii. Lewis Ocean Bay Heritage Preserve
 - e. Local NGO partners
6. Meet with contractors on CMP Plan components to obtain bids, determine timetable for implementation
7. Draft annual Management Budget for the property (begin 3-5 year projection)
8. Implement Conservation Management Plan to include
9. Modify budget and timetables for the next five-year period.

VII. Proposed Budget

Long Bay Marina Proposed 2016 Budget (currently being revised for accuracy)			
	Proposed Cost	Committed	Discretionary
Site Maintenance	\$3,080.00		
Security gate/installation		\$0.00	
Routine mowing		\$2,580.00	
Road repair		\$500.00	
Habitat Enhancement/Land Mngmt	\$37,336.00		
Timber Harvest			
New trail/firebreak/access			\$18,336.00
Leveling beds			\$680.00
Create wildlife openings (2 acre x 2.1)			
Clearing/stumping			\$7,020.00
Site prep/planting/seed			\$2,100.00
Mobilization, Per Diem, Forestry			\$1,200.00
Understory control			\$6,000.00
Kudzu treatment (Herbicide application X 2)		\$2,000.00	
Biological surveys	\$4,200.00		
Biodiversity study			\$0.00
Surveys, monitoring, baseline			\$4,200.00
Site improvement			
Building envelope/view shed ex.			
Site inspections and management	\$26,500.00	\$26,500.00	
Capital Expenditure			
			\$0.00
Firebreaks/Trails			
Total	\$71,116.00		
Total Committed	\$31,580.00		
Total Discretionary	\$39,536.00		

Appendices

Appendix 1: Conservation Easement and Baseline

Appendix 2: Forestry Management Plan