

EXHIBIT "D"

**KINGSTON PODS 1–3
INDIGENOUS PRESERVATION, RESTORATION, AND
MANAGEMENT PLAN**

June 2024

Prepared For:

CAM7-Sub, LLC
21101 Design Parc Lane, Suite 103
Estero, Florida 33928
(239) 425-8662

Prepared By:

Passarella & Associates, Inc.
13620 Metropolis Avenue, Suite 200
Fort Myers, Florida 33912
(239) 274-0067

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1.0 INTRODUCTION

The following outlines the Lee County Indigenous Preservation, Restoration, and Management Plan for Kingston (Project), located in Sections 2, 3, 10, 11, 14, 15, 23, 24, 25, 26, 34, 35 and 36; Township 46 South; Range 27 East and Section 35, Township 45 South, Range 27 East, Lee County. The Project site totals 6,687.50± acres. As part of Lee County's open-space requirements, the Project proposes to establish on-site conservation areas totaling 3,295.60± acres. This plan is specific to Pods 1–3, which contain a combined total of 915.16± acres of conservation area. The proposed conservation areas for Pods 1-3 will contain the following elements:

- Preservation and enhancement of 82.89± acres of indigenous wetlands and uplands (existing forested and herbaceous habitats with less than 75 percent exotics);
- Restoration of 89.03± acres of indigenous wetland and upland vegetation through the removal of exotic vegetation (in existing forested and herbaceous habitats with greater than 75 percent exotics) and supplemental planting;
- Restoration of 714.40± acres of wetlands, uplands, and “Other Surface Waters” (OSW) from farm fields and replanting with native vegetation;
- Creation of 26.31± acres of native landscape berms; and
- Preservation of 2.53± acres of OSW.

Table 1 below contains a summary of the activity types by acreage for Pods 1–3.

Table 1. Preserve Activity Summary for Pods 1–3

Activity Type	Acreage (±)			
	Pod 1	Pod 2	Pod 3	Total
Indigenous Wetland Preserve and Enhancement	12.79	8.48	17.37	38.64
Indigenous Upland Preserve and Enhancement	33.42	10.83	-	44.25
Indigenous Wetland Restoration	18.81	2.90	3.75	25.46
Indigenous Upland Restoration	26.49	33.17	3.91	63.57
Wetland Restoration from Farm Fields	193.08	65.66	18.28	277.02
Upland Restoration from Farm Fields	181.51	119.92	135.95	437.38
Native Landscape Berm	3.48 ¹	8.01 ¹	14.82 ²	26.31
OSW Preserve	2.53	-	-	2.53
Totals	472.11	248.97	194.08	915.16

¹Acreage is part of Upland Restoration from Farm Fields.

²13.72± acres are part of Upland Restoration from Farm Fields, and 1.10± acres are part of Indigenous Upland Restoration.

The preservation and enhancement of existing indigenous vegetation and the restoration of extensive areas of farm fields back to indigenous habitats will serve to provide significant regional flow-ways and wildlife corridors within the Project site. The proposed on-site preservation and restoration of indigenous upland and wetland vegetation communities will create significant areas of wildlife habitat that will complement the adjacent Lee County Imperial Marsh Preserve to the west, Corkscrew Regional Ecosystem Watershed (CREW) to the east, and Corkscrew Swamp Sanctuary and CREW lands to the south. The proposed flow-ways will also serve to re-establish

the north to south flow of water through the Project that existed historically and will act as a treatment train for the uptake of nutrients, providing significant water-quality benefits.

2.0 EXISTING INDIGENOUS VEGETATION HABITATS

Pursuant to Land Development Code (LDC) Section 10-1, indigenous native vegetation is defined as those plant species that are characteristic of the major plant communities of the County. Native habitats where invasive exotic vegetation has exceeded 75 percent coverage are not considered to be indigenous vegetation.

The indigenous areas throughout the Project occur as clustered areas of wetland and upland forest and herbaceous habitats with less than 75 percent coverage by exotics, primarily located within the central and northern portions of the Project site. Smaller remnant areas of indigenous habitat are located scattered in the southern portion of the Project. Pods 1–3 contain 82.89± acres (combined pre-development wetland and upland acres) of existing indigenous vegetation. The majority of the indigenous vegetation within Pods 1–3 is located in the southern portions of the site, adjacent to CREW and Corkscrew Swamp Sanctuary lands. The Project's existing indigenous wetland and upland vegetation communities are depicted in Appendix A.

The indigenous wetland habitats within Pods 1–3 total 38.64± acres and consist mostly of cypress, hydric pine, cypress/pine/cabbage palm, mixed wetland forest, and willow/pop ash habitats. The indigenous uplands within Pods 1–3 total 44.25± acres and consist mostly of palmetto prairie, pine, pine flatwoods, and mixed hardwood/conifer habitat types. The Florida Land Use, Cover and Forms Classification System (FLUCFCS) (Florida Department of Transportation 1999) descriptions of the indigenous wetland and upland habitats, including those proposed for preservation, are provided in Appendix B. An aerial with FLUCFCS is attached as Appendix C.

3.0 EXISTING NON-INDIGENOUS VEGETATION

The non-indigenous areas throughout the Project occur predominantly as row crops and citrus groves with associated agricultural operations and ditching and drainage systems. Pods 1–3 contain 832.27± acres (combined pre-development wetland and upland acres) of wetland and upland vegetation communities and OSWs that do not meet the LDC's definition of indigenous vegetation.

The non-indigenous wetlands within Pods 1–3 total 25.46± acres and consist of existing agricultural lands and habitat types that contain greater than 75 percent coverage by exotics, primarily Brazilian pepper (*Schinus terebinthifolia*), melaleuca (*Melaleuca quinquenervia*), torpedograss (*Panicum repens*), and West Indian marsh grass (*Hymenachne amplexicaulis*). Additionally, Pods 1–3 contain 735.77± acres of disturbed agricultural lands and non-indigenous upland communities that contain greater than 75 percent coverage by exotic vegetation. The non-indigenous areas also include 71.04± acres of man-made OSWs (i.e., agricultural ditches and reservoirs) created for the purpose of water detention and conveyance throughout the site. The

non-indigenous wetlands, uplands, and OSWs are identified in Appendix A. The FLUCFCS descriptions of the non-indigenous areas on the Project site are provided in Appendix B.

4.0 INDIGENOUS VEGETATION PRESERVATION AND ENHANCEMENT

A total of 82.89± acres (38.64± acres of wetlands and 44.25± acres of uplands) with less than 75 percent existing exotic vegetation will be preserved and enhanced by removing and treating exotic and nuisance vegetation. In addition to the indigenous vegetation preservation, 2.53± acres of OSW will be preserved. The locations of the indigenous preservation areas are shown on Appendix D.

4.1 Methods to Remove and Control Exotic and Nuisance Plants

Exotics to be eradicated include, but are not limited to, the 21 species of prohibited invasive exotic species listed in Section 10-420(h) of the LDC (Table 1).

Table 2. Prohibited Invasive Exotics

Common Name	Scientific Name
Air potato	<i>Dioscorea alata</i>
Australian pines	All <i>Casuarina</i> species
Bishopwood	<i>Bischofia javanica</i>
Brazilian pepper	<i>Schinus terebinthifolia</i>
Carrotwood	<i>Cupaniopsis anacardioides</i>
Chinese tallow	<i>Sapium sebiferum</i>
Cork tree	<i>Thespesia populnea</i>
Cuban laurel fig	<i>Ficus microcarpa</i>
Downy rose-myrtle	<i>Rhodomyrtus tomentosa</i>
Earleaf acacia	<i>Acacia auriculiformis</i>
Japanese climbing fern	<i>Lygodium japonicum</i>
Java plum	<i>Syzygium cumini</i>
Melaleuca	<i>Melaleuca quinquenervia</i>
Murray red gum	<i>Eucalyptus camaldulensis</i>
Old World climbing fern	<i>Lygodium microphyllum</i>
Rose apple	<i>Syzygium jambos</i>
Rosewood	<i>Dalbergia sissoo</i>
Tropical soda apple	<i>Solanum viarum</i>
Wedelia	<i>Wedelia trilobata</i>
Weeping fig	<i>Ficus benjamina</i>
Woman's tongue	<i>Albizia lebbek</i>

Exotic and nuisance vegetation removal will be conducted primarily by hand methods. Hand treatment will be either by felling exotic trees, hand removing debris, and subsequent herbicide treatment of the stumps or by hand pulling and removal. The treatment of exotic and nuisance vegetation will include one or more of the following methods: (1) cut exotics within 12 inches of ground elevation, hand remove cut vegetation, and treat the remaining stump with an approved herbicide; (2) girdle standing Brazilian pepper, melaleuca, and Australian pine (*Casuarina equisetifolia*) with diameter at breast height greater than 4 inches and apply an approved herbicide to cambium; (3) foliar application of an approved herbicide to Brazilian pepper, melaleuca saplings, Australian pine, and downy rose-myrtle (*Rhodomyrtus tomentosa*); (4) foliar application of an approved herbicide or hand pulling of exotic seedlings; and (5) foliar application of an approved herbicide to nuisance grasses.

4.2 Debris Removal

Exotic vegetative debris that is cut will be removed from the indigenous preserve areas. Exotic debris may be stacked in the adjacent farm fields or open land and burned. The preserve areas will be inspected annually for trash and garbage. Any trash or garbage located within the preserve areas will be removed and disposed of by hand.

4.3 Method and Frequency of Pruning and Trimming

Exotic removal within the existing indigenous habitats is scheduled to begin after the applicable permits and approvals have been attained for each phase. After the completion of the initial exotic removal, semi-annual inspections of the preserves will occur for the first two years. During these inspections, the conservation areas will be traversed by a qualified ecologist. Locations of nuisance and exotic species will be identified for immediate treatment with an appropriate herbicide. Any additional potential problems will also be noted, and corrective actions will be taken. Once exotic and nuisance species levels have been reduced to acceptable limits, inspections of the conservation areas will be conducted a minimum of once every two years to coincide with the Community Development District (CDD) inspection.

Maintenance will be conducted in perpetuity to ensure that the conservation areas are free of exotic vegetation, including the prohibited invasive exotic species listed in Section 10-420(h) of the LDC (Table 1).

5.0 INDIGENOUS VEGETATION RESTORATION

Restoration and re-establishment of indigenous vegetation communities will be conducted in areas with greater than 75 percent coverage by exotic vegetation and in the existing farm fields within the conservation areas. Restoration activities will include 89.03± acres of exotic removal and supplemental plantings in existing habitats with greater than 75 percent exotics and 714.40± acres of wetland and upland restoration from existing agricultural lands. Additionally, 26.31± acres of native landscape berm will be created/restored from non-indigenous areas. The locations of the various restoration areas are shown on Appendix D.

5.1 Removal of Exotics and Supplemental Plantings

Approximately 89.03 acres (25.46± acres of wetlands and 63.57± acres of uplands) with greater than 75 percent exotics will be enhanced by removing exotic species and installing supplemental plantings of native vegetation. Mechanical equipment may be utilized to assist in removing exotic species in these areas. Cut vegetative debris will be removed from these areas to allow for successful supplemental plantings. All efforts will be made to preserve native trees when conducting the exotic removal with mechanized equipment. To minimize adverse impacts to the ground surface, machinery that exerts a relatively low impact on the ground surface (i.e., tracked skid steer, feller-buncher) will be utilized within the mechanical removal areas.

Following the removal of exotics, supplemental wetland plantings will be installed in the 25.46± acres of wetland habitats. Wetland plantings will be selected based on the type of native vegetation that occurs in the adjacent or nearby wetland habitats. Tree and ground cover species will be planted according to the specifications in Table 3. A minimum of three tree species and five ground cover species will be planted. The species selected for planting will depend on market availability at the time the plantings are to occur.

Table 3. Supplemental Wetland Plantings¹

Common Name	Scientific Name	Minimum Height	Container Size	Planting Instruction (On Center)
Trees				
American elm	<i>Ulmus americana</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Bald cypress	<i>Taxodium distichum</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Dahoon holly	<i>Ilex cassine</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Laurel oak	<i>Quercus laurifolia</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Persimmon	<i>Diospyros virginiana</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Pond apple	<i>Annona glabra</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Pop ash	<i>Fraxinus caroliniana</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Red maple	<i>Acer rubrum</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Slash pine	<i>Pinus elliottii</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Swamp dogwood	<i>Cornus foemina</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Ground Cover				
Alligator flag	<i>Thalia geniculata</i>	12 in.	2 in.	5 to 8 ft.
Arrowhead	<i>Sagittaria lancifolia</i>	12 in.	2 in.	5 to 8 ft.
Blue flag iris	<i>Iris virginica</i>	12 in.	2 in.	5 to 8 ft.
Blue maidencane	<i>Amphicarpum muehlenbergianum</i>	12 in.	2 in.	5 to 8 ft.
Dense-flower knotweed	<i>Polygonum glabrum</i>	12 in.	2 in.	5 to 8 ft.
Golden canna	<i>Canna flaccida</i>	12 in.	2 in.	5 to 8 ft.
Gulfdune paspalum	<i>Paspalum monostachyum</i>	12 in.	2 in.	5 to 8 ft.
Maidencane	<i>Hymenachne hemitomom</i>	12 in.	2 in.	5 to 8 ft.
Muhly grass	<i>Muhlenbergia capillaris</i>	12 in.	2 in.	5 to 8 ft.

Table 3. (Continued)

Common Name	Scientific Name	Minimum Height	Container Size	Planting Instruction (On Center)
Ground Cover (Continued)				
Pickernelweed	<i>Pontederia cordata</i>	12 in.	2 in.	5 to 8 ft.
Sand cordgrass	<i>Spartina bakeri</i>	12 in.	2 in.	5 to 8 ft.
Sawgrass	<i>Cladium jamaicense</i>	12 in.	2 in.	5 to 8 ft.
Soft-stem bulrush	<i>Scirpus validus</i>	12 in.	2 in.	5 to 8 ft.
Spikerush	<i>Eleocharis interstincta</i>	12 in.	2 in.	5 to 8 ft.
Swamp lily	<i>Crinum americanum</i>	12 in.	2 in.	5 to 8 ft.
Wiregrass	<i>Aristida stricta</i>	12 in.	2 in.	5 to 8 ft.

¹Plantings to be installed in Indigenous Wetland Restoration areas (25.46± acres). Additional tree and ground cover species may be included in the planting table with approval from Lee County Department of Community Development.

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Following the removal of exotic vegetation, supplemental upland plantings will be installed in 63.57± acres of upland habitats. Upland plantings will be selected to replace the type of native vegetation that occurs in the adjacent or nearby upland habitats. Tree plantings will primarily include slash pine (*Pinus elliottii*), although other tree species listed in Table 4 may be utilized. Upland tree and ground cover plantings will be installed according to the specifications listed in Table 4. A minimum of three tree species and five ground cover species will be planted. The species selected for planting will depend on market availability at the time the plantings are to occur.

Table 4. Supplemental Upland Plantings¹

Common Name	Scientific Name	Minimum Height	Minimum Container Size	Planting Instruction (On Center)
Trees				
Bald cypress ²	<i>Taxodium distichum</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Cabbage palm	<i>Sabal palmetto</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Dahoon holly	<i>Ilex cassine</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Gumbo limbo	<i>Bursera simaruba</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Laurel oak	<i>Quercus laurifolia</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Live oak	<i>Quercus virginiana</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Red maple	<i>Acer rubrum</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Slash pine	<i>Pinus elliottii</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Wild tamarind	<i>Lysiloma latisiliquum</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Ground Cover				
Blue maidencane	<i>Amphicarpum muehlenbergianum</i>	12 in.	2 in.	5 to 8 ft.
Broomsedge	<i>Andropogon virginicus</i>	12 in.	2 in.	5 to 8 ft.
Bushy bluestem	<i>Andropogon glomeratus</i>	12 in.	2 in.	5 to 8 ft.

Table 4. (Continued)

Common Name	Scientific Name	Minimum Height	Minimum Container Size	Planting Instruction (On Center)
Ground Cover (Continued)				
Fakahatchee grass	<i>Tripsacum dactyloides</i>	12 in.	2 in.	5 to 8 ft.
Gulfdune paspalum	<i>Paspalum monostachyum</i>	12 in.	2 in.	5 to 8 ft.
Muhly grass	<i>Muhlenbergia capillaris</i>	12 in.	2 in.	5 to 8 ft.
Purple lovegrass	<i>Eragrostis spectabilis</i>	12 in.	2 in.	5 to 8 ft.
Sand cordgrass	<i>Spartina bakeri</i>	12 in.	2 in.	5 to 8 ft.
Saw palmetto	<i>Serenoa repens</i>	12 in.	1 gal.	15 to 20 ft.
Wiregrass	<i>Aristida stricta</i>	12 in.	2 in.	5 to 8 ft.

¹Plantings to be installed in Indigenous Upland Restoration areas (63.57± acres). Additional tree and ground cover species may be included in the planting table with approval from Lee County Department of Community Development.

²To be utilized in low areas as needed.

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5.2 Wetland and Upland Restoration from Farm Fields

Approximately 714.40± acres of existing farm fields, including agricultural ditches and reservoirs, will be restored to native wetland and upland habitats. Wetland and upland restoration activities will include leveling row crop fields, removing citrus trees, backfilling agricultural ditches and detention systems, regrading to the contours necessary for the restoration of historical habitat communities, replanting vegetation to achieve target habitat types, and ongoing maintenance and management.

Wetland restoration from farm fields will consist of constructing a large-scale, interconnected freshwater flow-way system that will provide significant foraging habitat for aquatic wildlife species and extensive water-quality benefits through the filtering of nutrients.

5.2.1 Wetland Grading and Planting

Stormwater from the development areas of the Project will be treated for water quality in stormwater lakes within the stormwater management system for each development area. Following water-quality treatment, stormwater will be discharged from treatment lakes into the restoration area at various locations.

Drainage ditches and other components of the agricultural drainage/water management system will be backfilled using material from the existing berms and disturbed areas. Proposed wetland areas will be graded and planted with wetland plantings listed in Table 5. The species selected for planting will depend on market

availability at the time the plantings are to occur. Specifications for plantings' size and density (on-center spacing) are also provided in Table 5.

Table 5. Planting List for Wetland Restoration from Farm Fields¹

Common Name	Scientific Name	Minimum Height	Container Size	Planting Instruction (On Center)
Trees²				
American elm	<i>Ulmus americana</i>	2 to 5 ft.	BR to 3 gal.	30 to 50 ft.
Bald cypress	<i>Taxodium distichum</i>	2 to 5 ft.	BR to 3 gal.	30 to 50 ft.
Laurel oak	<i>Quercus laurifolia</i>	2 to 5 ft.	BR to 3 gal.	30 to 50 ft.
Persimmon	<i>Diospyros virginiana</i>	2 to 5 ft.	BR to 3 gal.	30 to 50 ft.
Pond apple	<i>Annona glabra</i>	2 to 5 ft.	BR to 3 gal.	30 to 50 ft.
Pop ash	<i>Fraxinus caroliniana</i>	2 to 5 ft.	BR to 3 gal.	30 to 50 ft.
Red maple	<i>Acer rubrum</i>	2 to 5 ft.	BR to 3 gal.	30 to 50 ft.
Slash pine	<i>Pinus elliotii</i>	2 to 5 ft.	BR to 3 gal.	30 to 50 ft.
Ground Cover Plantings				
Zone 1				
Blue flag iris	<i>Iris virginica</i>	12 in.	2 in.	3 to 5 ft.
Blue maidencane	<i>Amphicarpum muehlenbergianum</i>	12 in.	2 in.	3 to 5 ft.
Bushy bluestem	<i>Andropogon glomeratus</i>	12 in.	2 in.	5 to 8 ft.
Golden canna	<i>Canna flaccida</i>	12 in.	2 in.	5 to 8 ft.
Gulfdune paspalum	<i>Paspalum monostachyum</i>	12 in.	2 in.	5 to 8 ft.
Maidencane	<i>Hymenachne hemitomom</i>	12 in.	2 in.	3 to 5 ft.
Muhly grass	<i>Muhlenbergia capillaris</i>	12 in.	2 in.	5 to 8 ft.
Redroot	<i>Ceanothus americanus</i>	12 in.	2 in.	5 to 8 ft.
Sand cordgrass	<i>Spartina bakeri</i>	12 in.	2 in.	5 to 8 ft.
Sawgrass	<i>Cladium jamaicense</i>	12 in.	2 in.	3 to 5 ft.
Zone 2				
Alligator flag	<i>Thalia geniculata</i>	12 in.	2 in.	3 to 5 ft.
Arrowhead	<i>Sagittaria lancifolia</i>	12 in.	2 in.	3 to 5 ft.
Golden canna	<i>Canna flaccida</i>	12 in.	2 in.	3 to 5 ft.
Maidencane	<i>Hymenachne hemitomom</i>	12 in.	2 in.	3 to 5 ft.
Pickerelweed	<i>Pontederia cordata</i>	12 in.	2 in.	3 to 5 ft.
Sawgrass	<i>Cladium jamaicense</i>	12 in.	2 in.	3 to 5 ft.
Soft-stem bulrush	<i>Scirpus validus</i>	12 in.	2 in.	3 to 5 ft.
Spikerush	<i>Eleocharis interstincta</i>	12 in.	2 in.	3 to 5 ft.

Table 5. (Continued)

Common Name	Scientific Name	Minimum Height	Container Size	Planting Instruction (On Center)
Ground Cover (Continued)				
Zone 3				
Alligator flag	<i>Thalia geniculata</i>	12 in.	2 in.	3 to 5 ft.
Arrowhead	<i>Sagittaria lancifolia</i>	12 in.	2 in.	3 to 5 ft.
Golden canna	<i>Canna flaccida</i>	12 in.	2 in.	3 to 5 ft.
Pickerelweed	<i>Pontederia cordata</i>	12 in.	2 in.	3 to 5 ft.
Soft-stem bulrush	<i>Scirpus validus</i>	12 in.	2 in.	3 to 5 ft.
Spatterdock	<i>Nuphar luteum</i>	24 in.	1 gal.	15 ft.
Spikerush	<i>Eleocharis interstincta</i>	12 in.	2 in.	3 to 5 ft.
Water lily	<i>Nymphaea odorata</i>	24 in.	1 gal.	15 ft.

¹Plantings to be installed in Zones 1, 2, and 3 in Wetland Restoration from Farm Fields (277.02± acres). Additional tree and ground cover species may be included in the planting table with approval from Lee County Department of Community Development.

²Wetland tree plantings will be clustered along the edge of the flow-way restoration areas to promote open foraging habitat for listed wading bird species.

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Slash pine, cypress (*Taxodium* sp.), and ground cover species from Zone 1 in Table 5 will be installed on the higher slope of the restored wetlands where the target habitat is pine-cypress. Zone 2 plantings will be installed on the mid- to lower elevations where the target habitat is freshwater marsh. Zone 3 plantings will be installed in the lowest portions of the graded area. The Zone 3 target habitat type is freshwater marsh but may contain intermittent areas of open water. A minimum of three ground cover species will be planted per zone.

5.2.2 Upland Grading and Planting

Upland restoration will consist of levelling row crop fields, removing citrus trees and berms, and backfilling ditches and detention areas. Regrading will occur to provide appropriate ground elevations for the target upland plant communities.

Following final grading, tree species and ground cover from Table 6 will be installed. The species selected for planting will depend on the market availability at the time plantings are to occur. Trees may be planted in clusters to provide distinct areas that can be defended from prescribed fire by the installation of disked firebreaks around the perimeter of the clusters. The locations of the tree clusters will be identified based on an analysis of historical aerals and proposed site topography. Trees will be planted in accordance with the specifications listed in Table 6. Clusters of trees may be pine, hardwoods, or a mix of pine and hardwoods.

A variety of tree sizes may be utilized to create a more heterogeneous plant community.

In areas where tree plantings are not clustered, widely scattered trees will be planted randomly in the upland restoration areas. The widely scattered trees will be slash pine and bare root plantings.

Native ground cover plantings will be installed in the upland restoration areas and will include a minimum of four of the species listed in Table 6. No one species will constitute more than 50 percent of the total ground cover plantings.

Table 6. Planting Listed for Upland Restoration from Farm Fields¹

Common Name	Scientific Name	Minimum Height	Container Size	Planting Instruction (On Center)
Trees				
Bald cypress ²	<i>Taxodium distichum</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Cabbage palm	<i>Sabal palmetto</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Dahoon holly	<i>Ilex cassine</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Laurel oak	<i>Quercus laurifolia</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Live oak	<i>Quercus virginiana</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Red maple ²	<i>Acer rubrum</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Swamp bay ²	<i>Persea palustris</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Slash pine	<i>Pinus elliotii</i>	2 to 5 ft.	BR to 3 gal.	15 to 20 ft.
Wild tamarind	<i>Lysiloma latisiliquum</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Ground Cover				
Blue maidencane	<i>Amphicarpum muehlenbergianum</i>	12 in.	2 in.	3 to 5 ft.
Broomsedge	<i>Andropogon virginicus</i>	12 in.	2 in.	5 to 8 ft.
Bushy bluestem	<i>Andropogon glomeratus</i>	12 in.	2 in.	5 to 8 ft.
Fakahatchee grass	<i>Tripsacum dactyloides</i>	12 in.	2 in.	5 to 8 ft.
Gulfdune paspalum	<i>Paspalum monostachyum</i>	12 in.	2 in.	5 to 8 ft.
Muhly grass	<i>Muhlenbergia capillaris</i>	12 in.	2 in.	5 to 8 ft.
Purple lovegrass	<i>Eragrostis spectabilis</i>	12 in.	2 in.	5 to 8 ft.
Sand cordgrass	<i>Spartina bakeri</i>	12 in.	2 in.	5 to 8 ft.
Saw palmetto	<i>Serenoa repens</i>	12 in.	1 gal.	15 to 20 ft.
Wiregrass	<i>Aristida stricta</i>	12 in.	2 in.	5 to 8 ft.

¹Plantings to be installed in Upland Restoration from Farm Fields (437.38± acres). Additional tree and ground cover species may be included in the planting table with approval from Lee County Department of Community Development.

Table 6. (Continued)²To be utilized in low areas as needed.

BR – Bare Root

5.2.3 Native Landscape Berm Plantings

In addition to meeting the minimum planting requirements outlined in Table 6, additional native tree and shrub plantings may be installed along the native landscape berms (25.88± acres) within the upland restoration areas along Corkscrew Road and the entry features. The additional tree and shrub species proposed along the native landscape berms are included in Table 7.

Ground cover plantings will include a minimum of three of the five species listed in Table 7. Ground cover plantings may be clustered, so there may be small patches where only trees exist. After ground cover plantings have been installed, a layer of pine straw bedding may be utilized on the native landscape berms to prevent erosion along the side slopes.

Table 7. Native Landscape Berm Plantings¹

Common Name	Scientific Name	Minimum Height	Minimum Container Size	Planting Instruction (On Center)
Trees/Shrubs²				
American elm	<i>Ulmus americana</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Black olive	<i>Bucida buceras</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Buttonwood	<i>Conocarpus erectus</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Carolina willow	<i>Salix caroliniana</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Cocoplum	<i>Chrysobalanus icaco</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Dahoon holly	<i>Ilex cassine</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Eagleston holly	<i>Ilex x attenuata</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Fiddlewood	<i>Citharexylum spinosum</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Firebush	<i>Hamelia patens</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Gumbo limbo	<i>Bursera simaruba</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Jamaican caper	<i>Quadrella jamaicensis</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Loblolly bay	<i>Gordonia lasianthus</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Orange geiger	<i>Cordia sebestena</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Paradise tree	<i>Simarouba glauca</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Paurotis palm	<i>Acoelorrhaphe wrightii</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Persimmon	<i>Diospyros virginiana</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Pigeon plum	<i>Coccoloba diversifolia</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Pitch apple	<i>Clusia rosea</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Red bay	<i>Persea borbonia</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Red cedar	<i>Juniperus virginiana</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Saw palmetto	<i>Serenoa repens</i>	2 to 5 ft.	1 gal.	30 to 50 ft.
Seagrape	<i>Coccoloba uvifera</i>	2 to 5 ft.	1 gal.	15 to 20 ft.

Table 7. (Continued)

Common Name	Scientific Name	Minimum Height	Minimum Container Size	Planting Instruction (On Center)
Trees/Shrubs²				
Simpson's stopper	<i>Myrcianthes fragrans</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Slash pine	<i>Pinus elliottii</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Southern magnolia	<i>Magnolia grandiflora</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Sugarberry	<i>Celtis laevigata</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Sweet gum	<i>Liquidambar styraciflua</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Sycamore	<i>Platanus occidentalis</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Thatch palm	<i>Thrinax radiata</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Walter's viburnum	<i>Viburnum obovatum</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Wax myrtle	<i>Morella cerifera</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
West Indian mahogany	<i>Swietenia mahagoni</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Wild coffee	<i>Psychotria nervosa</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Wild lime	<i>Zanthoxylum fagara</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Wild tamarind	<i>Lysiloma latisiliquum</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Yaupon holly	<i>Ilex vomitoria</i>	2 to 5 ft.	1 gal.	15 to 20 ft.
Ground Cover				
Blue maidencane	<i>Amphicarpum muehlenbergianum</i>	12 in.	4 in.	3 ft.
Fakahatchee grass	<i>Tripsacum dactyloides</i>	12 in.	4 in.	3 ft.
Gulfdune paspalum	<i>Paspalum monostachyum</i>	12 in.	4 in.	3 ft.
Muhly grass	<i>Muhlenbergia capillaris</i>	12 in.	4 in.	3 ft.
Purple lovegrass	<i>Eragrostis spectabilis</i>	12 in.	4 in.	3 ft.
Sand cordgrass	<i>Spartina bakeri</i>	12 in.	4 in.	3 ft.
Sawgrass	<i>Cladium jamaicensis</i>	12 in.	4 in.	3 ft.
Wiregrass	<i>Aristida stricta</i>	12 in.	4 in.	3 ft.

¹Additional plantings that may be installed on the Native Landscape Berms (26.31± acres). Additional tree and ground cover species may be included in the planting table with approval from Lee County Department of Community Development.

²Trees and shrubs may be clustered or evenly spaced.

Detailed planting plans for the restoration areas within Pods 1, 2, and 3 are provided as Appendix E, F, and G, respectively.

6.0 PRESERVE ACTIVITY SCHEDULE

Site development will occur in phases. A restoration phase map is provided as Appendix H.

7.0 SUCCESS CRITERIA

7.1 Indigenous Wetland and Upland Preservation and Enhancement

The following are the success criteria for the indigenous preserve areas:

- 1) Initial eradication of exotic and nuisance vegetation will be completed.
- 2) The preserve areas will be maintained free from exotic vegetation. Exotic vegetation species include, but are not limited to, the 21 species of prohibited invasive exotic species listed in Section 10-420(h) of the LDC (Table 1).

7.2 Indigenous Wetland and Upland Restoration

The following are the success criteria for the indigenous wetland and upland restoration areas:

- 1) Initial eradication of exotic and nuisance vegetation will be completed.
- 2) Supplemental plantings will be completed in the indigenous restoration areas.
- 3) Tree and ground cover plantings will have a minimum 80 percent survival rate after five years.
- 4) The preserve areas will be maintained free from exotic vegetation. Exotic vegetation species include, but are not limited to, the 21 species of prohibited invasive exotic species listed in Section 10-420(h) of the LDC (Table 1).

7.3 Wetland and Upland Restoration from Farm Fields

The following are the success criteria for the wetland and upland restoration from farm field areas:

- 1) Initial eradication of exotic and nuisance vegetation will be completed.
- 2) Levelling of row crop fields; removal of citrus trees, berms, and spoil areas; backfilling of ditches and borrow areas; and regrading of wetland and upland restoration areas will be completed.
- 3) Plantings within wetland and upland restoration areas will be completed.
- 4) Tree and ground cover plantings will have a minimum 80 percent survival rate after five years.
- 5) The preserve areas will be maintained free from exotic vegetation. Exotic vegetation species include, but are not limited to, the 21 species of prohibited invasive exotic species listed in Section 10-420(h) of the LDC (Table 1).

8.0 MAINTENANCE

After the completion of the initial exotic removal, semi-annual inspections of the conservation areas will occur for the first two years. During these inspections, the conservation areas will be traversed by a qualified ecologist. Locations of nuisance and/or exotic species will be identified

for immediate treatment with an appropriate herbicide. Any additional potential problems will also be noted, and corrective actions will be taken. Once exotic and nuisance species levels have been reduced to acceptable limits, inspections of the conservation areas will be conducted annually.

Maintenance will be conducted in perpetuity to ensure that the conservation areas are free of exotic vegetation, including the prohibited invasive exotic species listed in Section 10-420(h) of the LDC (Table 1).

8.1 Prescribed Fire

Prescribed burning may be used as a management tool in the conservation areas to maintain the native vegetation communities. Prescribed burns help maintain vegetative communities in their natural state, reduce fuel loads and the danger of wildfire, aid with the eradication and control of exotic and nuisance vegetation species, and improve wildlife habitat. The objectives of prescribed burning maintenance events will be to aid in the control of exotic vegetation and woody shrubs (e.g., wax myrtle (*Morella cerifera*) and saltbush (*Baccharis halimifolia*)), and to stimulate the growth and diversity of herbaceous vegetation.

The burning frequency for the conservation areas will be two to four years, which is consistent with the natural fire regime for mesic flatwoods, wet flatwoods, and wet prairies described by the Florida Natural Areas Inventory *Guide to the Natural Communities of Florida* (2010). The edges of the Project's freshwater marshes will be burned when the fire moves through the adjacent pine and prairie habitats. The fire will be allowed to extinguish naturally within the wetter marsh habitats.

Prescribed burning is typically conducted during the winter or early spring when temperatures are reduced and wind direction is more constant. The initial burn is anticipated to occur during the late winter. Winter burns are preferred to reduce high fuel loads. Growing-season burns may also be conducted as conditions allow. Changes in annual weather cycles determine when burn permits will be available, and burns may be conducted only on the day(s) of Florida Forest Service (FFS) permission.

Firebreaks will be installed in strategic locations to safely ignite and control prescribed fires. Firebreaks will be co-located with maintenance trails, access roads, easements, fence lines, property boundaries, and natural habitat boundaries. A 12-foot wide fire break will be established directly adjacent to and inside (i.e., on the restoration side) of the 6-foot tall wildlife-control fence or other structural wildlife deterrent. Fires will be excluded from the planted tree clusters until such time that the plantings are mature enough to survive fires. Fires will be allowed to extinguish naturally within the wetter preserve areas, such as the marsh habitats.

Controlled burns will be conducted only when authorized with a permit by the FFS. In addition, notice will be given to the local fire district. Coordination with CREW and the South Florida Water Management District will occur before burning. Burning will not be conducted if smoke is anticipated to encroach upon Corkscrew Road, State Road 82, or adjacent residences.

9.0 MONITORING REPORTS

Monitoring will be conducted annually for the conservation areas. Annual reports documenting the achievement of the success criteria outlined in Section 7.0 will be submitted to Lee County Department of Community Development (DCD). Monitoring will typically be conducted during the height of the growing season (August to October) with annual reports submitted by December 31. Adjustments to the monitoring schedule may be made based on environmental conditions.

Five annual monitoring reports for each restoration sub-phase will be submitted to the DCD describing the conditions of the conservation areas. The monitoring reports will include documented exotic and nuisance species, mortality of vegetation, estimated causes of mortality, growth of the vegetation, wildlife observed, other factors that demonstrate the functional health of the conservation areas, and photographs. A brief description of anticipated maintenance work to be conducted over the next year will also be included. Periodic inspections will be conducted by DCD staff to ensure the accuracy of the monitoring reports.

10.0 LONG-TERM MANAGEMENT AND MONITORING

The conservation areas will be placed in a conservation easement granted to Lee County. The conservation easement will prevent the encroachment of future development, as well as activities that are incompatible with the goal of sustaining the preserved and restored conservation areas in good ecological health. These areas will be physically managed in accordance with the approved long-term management plan prepared by the Project ecologist and implemented by a CDD or Homeowners' Association (HOA) with the assistance of an appropriately skilled environmental professional. Responsibility for management of the conservation areas will shift to the CDD or HOA following the completion of enhancement and restoration activities on-site.

11.0 PRESERVE SIGNAGE AND COMMUNITY EDUCATION PLAN

Signs identifying the preserve as a "nature preserve area" will be installed along the boundary of the conservation areas. The signage will include language stating, "No dumping allowed." The signs will be spaced a maximum of 300 feet apart. The signs will be no closer than 10 feet from residential property lines and be limited to a maximum height of 4 feet and a maximum size of two square feet. A typical preserve sign is attached as Appendix I.

The community will be advised of the benefits of the conservation areas to the surrounding landscape and their residential community. One or more kiosks containing information, maps, wildlife sightings, and community notices may be installed at appropriate locations within the development, including the activity center and recreation areas.

Periodic seminars may be held to further educate the community about the conservation areas, wetland benefits, coexistence with and protection of wildlife, and the benefits of prescribed fire. Community informational and educational brochures, such as those describing the benefits of preserve areas, may be created and provided as needed to keep residents in compliance with

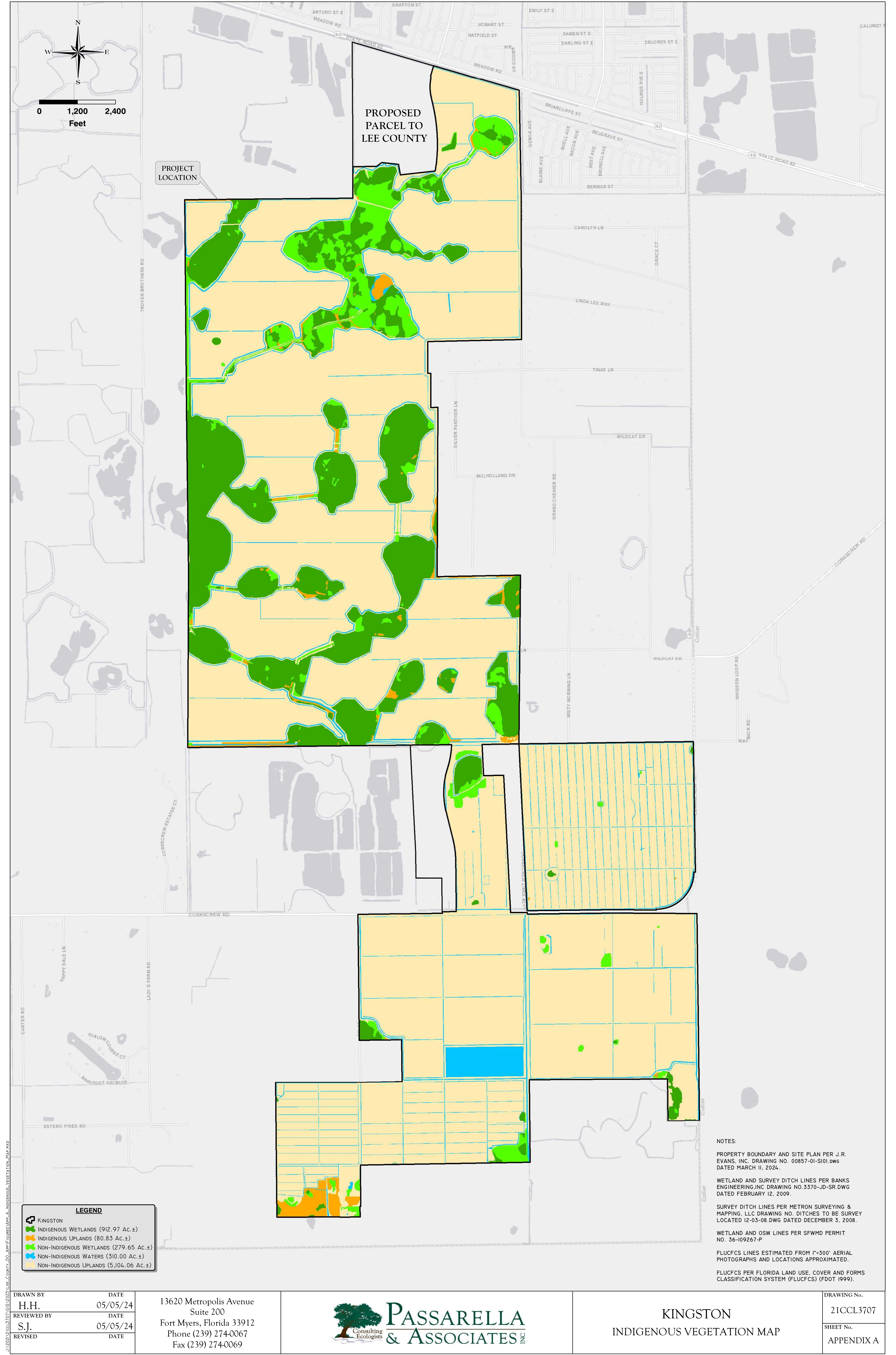
conservation easements, wildlife regulations, etc. Continued education will ensure that the community is well-informed regarding the preserves and wildlife coexistence.

12.0 REFERENCES

Florida Department of Transportation. 1999. Florida Land Use, Cover and Forms Classification System (FLUCFCS). Procedure No. 550-010-001-a. Third Edition.

Florida Natural Areas Inventory. 2010. Guide to the Natural Communities of Florida: 2010 Edition. Florida Natural Areas Inventory, Tallahassee, Florida.

APPENDIX A
INDIGENOUS VEGETATION MAP



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DRAWN BY	DATE
H.H.	05/05/24
REVIEWED BY	DATE
S.J.	05/05/24
REVISED	DATE

13620 Metropolis Avenue
Suite 200
Fort Myers, Florida 33912
Phone (239) 274-0067
Fax (239) 274-0069



PASSARELLA
& ASSOCIATES INC

KINGSTON
INDIGENOUS VEGETATION MAP

DRAWING No.
21CCL3707
SHEET No.
APPENDIX A

APPENDIX B
FLUCFCS DESCRIPTIONS

KINGSTON FLUCFCS DESCRIPTIONS

I. INDIGENOUS WETLAND HABITATS

Cabbage Palm, Hydric (0–24% Exotics) (Florida Land Use, Cover and Forms Classification System (FLUCFCS) Code 4281 E1)

The canopy of this wetland habitat type is dominated by cabbage palm (*Sabal palmetto*). The sub-canopy contains cabbage palm and scattered wax myrtle (*Morella cerifera*). The ground cover contains beaksedge (*Rhynchospora* sp.) and swamp fern (*Telmatoblechnum serrulatum*).

Wax Myrtle/Willow, Hydric (0–24% Exotics) (FLUCFCS Code 4291 E1)

This wetland habitat type contains an open canopy. The sub-canopy contains wax myrtle, Carolina willow (*Salix caroliniana*), saltbush (*Baccharis halimifolia*), slash pine (*Pinus elliottii*), and Brazilian pepper (*Schinus terebinthifolia*). The ground cover contains bushy bluestem (*Andropogon glomeratus*), broomsedge (*Andropogon virginicus*), gulfdune paspalum (*Paspalum monostachyum*), Asiatic pennywort (*Centella asiatica*), and water pennywort (*Hydrocotyle umbellata*).

Wax Myrtle/Willow, Hydric (25–49% Exotics) (FLUCFCS Code 4291 E2)

This wetland habitat type is similar to that of FLUCFCS Code 4291 E1, except with higher concentrations of Brazilian pepper in the sub-canopy.

Wax Myrtle/Willow, Hydric (50–75% Exotics) (FLUCFCS Code 4291 E3)

This disturbed wetland habitat type is similar to that of FLUCFCS Code 4291 E2, except with higher concentrations of Brazilian pepper in the sub-canopy.

Mixed Wetland Hardwoods, Disturbed (0–24% Exotics) (FLUCFCS Code 6179 E1)

The canopy of this wetland habitat type contains laurel oak (*Quercus laurifolia*), swamp bay (*Persea palustris*), cabbage palm, bald cypress (*Taxodium distichum*), and melaleuca (*Melaleuca quinquenervia*). The sub-canopy contains cabbage palm, dahoon holly (*Ilex cassine*), myrsine (*Myrsine cubana*), and Brazilian pepper. The ground cover contains swamp fern and widely scattered saw palmetto (*Serenoa repens*).

Mixed Wetland Hardwoods, Disturbed (25–49% Exotics) (FLUCFCS Code 6179 E2)

This wetland habitat type is similar to that of FLUCFCS Code 6179 E1, but contains a higher concentration of melaleuca in the canopy and Brazilian pepper in the sub-canopy.

Mixed Wetland Hardwoods, Disturbed (50–75% Exotics) (FLUCFCS Code 6179 E3)

This wetland habitat type is similar to that of FLUCFCS Code 6179 E2, but contains a higher concentration of melaleuca in the canopy and Brazilian pepper in the sub-canopy.

Willow/Pop Ash, Disturbed (0–24% Exotics) (FLUCFCS Code 6189 E1)

The canopy of this wetland habitat type contains scattered Carolina willow, bald cypress, and red maple (*Acer rubrum*). The sub-canopy is comprised of Carolina willow, bald cypress, scattered

Peruvian primrose willow (*Ludwigia peruviana*), melaleuca, pond apple (*Annona glabra*), and Brazilian pepper. The ground cover contains maidencane (*Hymenachne hemitomom*), sawgrass (*Cladium jamaicense*), leather fern (*Acrostichum* sp.), water pennywort, Asiatic pennywort, spikerush (*Eleocharis* sp.), Old World climbing fern (*Lygodium microphyllum*), and scattered alligator flag (*Thalia geniculata*).

Willow/Pop Ash, Disturbed (25–49% Exotics) (FLUCFCS Code 6189 E2)

This wetland habitat type is similar to that of FLUCFCS Code 6189 E1, except with higher concentrations of Peruvian primrose willow and Brazilian pepper in the sub-canopy.

Willow/Pop Ash, Disturbed (50–75% Exotics) (FLUCFCS Code 6189 E3)

This wetland habitat type is similar to that of FLUCFCS Code 6189 E2, except with higher concentrations of Peruvian primrose willow and Brazilian pepper in the sub-canopy.

Cypress, Disturbed (0–24% Exotics) (FLUCFCS Code 6219 E1)

The canopy of this wetland habitat type is comprised of bald cypress, melaleuca, cabbage palm, strangler fig (*Ficus aurea*), laurel oak, Brazilian pepper, and scattered slash pine and red maple. The sub-canopy contains bald cypress, cabbage palm, wax myrtle, dahoon holly, pond apple, myrsine, Brazilian pepper, and scattered red maple and melaleuca. The ground cover contains swamp fern, Asiatic pennywort, saltbush, bog-hemp (*Boehmeria cylindrica*), wax myrtle, cabbage palm, rosy camphorweed (*Pluchea baccharis*), cocoplum (*Chrysobalanus icaco*), spikerush, pickerelweed (*Pontederia cordata*), maidencane, torpedograss (*Panicum repens*), saw palmetto, panicum (*Panicum* sp.), sawgrass, widely scattered cattail (*Typha* sp.), morning glory (*Ipomoea* sp.), climbing hempvine (*Mikania scandens*), greenbrier (*Smilax* sp.), and muscadine grapevine (*Vitis rotundifolia*).

Cypress, Disturbed (25–49% Exotics) (FLUCFCS Code 6219 E2)

This wetland habitat type is similar to that of FLUCFCS Code 6219 E1, except with higher concentrations of melaleuca and Brazilian pepper in the canopy and sub-canopy.

Cypress, Disturbed (50–75% Exotics) (FLUCFCS Code 6219 E3)

This wetland habitat type is similar to that of FLUCFCS Code 6219 E2, except with higher concentrations of melaleuca and Brazilian pepper in the canopy and sub-canopy.

Cypress/Pine/Cabbage Palm, Disturbed (0–24% Exotics) (FLUCFCS Code 6249 E1)

The canopy of this wetland habitat type contains slash pine, bald cypress, cabbage palm, and scattered melaleuca. The sub-canopy contains slash pine, bald cypress, cabbage palm, myrsine, scattered melaleuca, and scattered Brazilian pepper. The ground cover contains swamp fern, Asiatic pennywort, cabbage palm, wiregrass (*Aristida stricta*), melaleuca, torpedograss, maidencane, gulfdune paspalum, wax myrtle, beaksedge, corkwood (*Stillingia aquatica*), and widely scattered saw palmetto.

Cypress/Pine/Cabbage Palm, Disturbed (25–49% Exotics) (FLUCFCS Code 6249 E2)

This wetland habitat type is similar to that of FLUCFCS Code 6249 E1, except with higher concentrations of melaleuca and Brazilian pepper in the canopy and sub-canopy.

Cypress/Pine/Cabbage Palm, Disturbed (50–75% Exotics) (FLUCFCS Code 6249 E3)

This wetland habitat type is similar to that of FLUCFCS Code 6249 E2, except with higher concentrations of melaleuca and Brazilian pepper in the canopy and sub-canopy.

Pine, Hydric, Disturbed (0–24% Exotics) (FLUCFCS Code 6259 E1)

The canopy of this wetland habitat type is comprised of slash pine, cabbage palm, and widely scattered melaleuca. The sub-canopy contains slash pine, wax myrtle, cabbage palm, scattered Brazilian pepper, and widely scattered melaleuca. The ground cover includes wiregrass, torpedograss, ragweed (*Ambrosia artemisiifolia*), swamp fern, blue maidencane (*Amphicarpum muehlenbergianum*), caesarweed (*Urena lobata*), fogfruit (*Phyla nodiflora*), rosy camphorweed, Asiatic pennywort, Brazilian pepper, tickseed (*Coreopsis* sp.), pineland heliotrope (*Heliotropium polyphyllum*), climbing hempvine, muscadine grapevine, and scattered saw palmetto.

Pine, Hydric, Disturbed (25–49% Exotics) (FLUCFCS Code 6259 E2)

This wetland habitat type is similar to that of FLUCFCS Code 6259 E1, but with higher concentrations of melaleuca in the canopy and sub-canopy.

Pine, Hydric, Disturbed (50–75% Exotics) (FLUCFCS Code 6259 E3)

This wetland habitat type is similar to that of FLUCFCS Code 6259 E2, but with higher concentrations of melaleuca in the canopy and sub-canopy.

Mixed Wetland Forest, Disturbed (0–24% Exotics) (FLUCFCS Code 6309 E1)

The canopy of this wetland habitat type contains red maple, bald cypress, and laurel oak. The sub-canopy consists of red maple, bald cypress, laurel oak, myrsine, wax myrtle, Brazilian pepper, swamp bay, and cabbage palm. The ground cover includes swamp fern, tickseed, cocoplum, red maple, maidencane, cinnamon fern (*Osmunda cinnamomea*), rosy camphorweed, climbing hempvine, muscadine grapevine, and cabbage palm.

Mixed Wetland Forest, Disturbed (25–49% Exotics) (FLUCFCS Code 6309 E2)

This wetland habitat type is similar to that of FLUCFCS Code 6309 E1, but with higher concentrations of Brazilian pepper in the sub-canopy.

Mixed Wetland Forest, Disturbed (50–75% Exotics) (FLUCFCS Code 6309 E3)

This wetland habitat type is similar to that of FLUCFCS Code 6309 E2, but with higher concentrations of Brazilian pepper in the sub-canopy.

Freshwater Marsh, Sawgrass (0–24% Exotics) (FLUCFCS Code 6411 E1)

This wetland habitat type contains a predominately open canopy and sub-canopy. The ground cover is dominated by sawgrass.

Freshwater Marsh, Cattail (0–24% Exotics) (FLUCFCS Code 6412 E1)

This disturbed wetland habitat type contains a predominately open canopy and sub-canopy. The ground cover is dominated by cattail.

Freshwater Marsh, Disturbed (0–24% Exotics) (FLUCFCS Code 6419 E1)

The canopy of this wetland habitat type contains scattered bald cypress and widely scattered melaleuca. The sub-canopy contains cabbage palm, Peruvian primrose willow, pond apple, scattered bald cypress, and widely scattered Carolina willow. The ground cover contains sawgrass, maidencane, corkwood, swamp fern, shield fern (*Dryopteris ludoviciana*), dotted smartweed (*Persicaria punctata*), spikerush, arrowhead (*Sagittaria lancifolia*), pickerelweed, alligator flag, cattail, and torpedograss.

Freshwater Marsh, Disturbed (25–49% Exotics) (FLUCFCS Code 6419 E2)

This wetland habitat type is similar to that of FLUCFCS Code 6419 E1, but with higher densities of torpedograss in the ground cover.

Freshwater Marsh, Disturbed (50–75% Exotics) (FLUCFCS Code 6419 E3)

This wetland habitat type is similar to that of FLUCFCS Code 6419 E2, but with higher densities of torpedograss in the ground cover.

Wet Prairies, Disturbed (0–24% Exotics) (FLUCFCS Code 6439 E1)

The canopy of this wetland habitat type contains widely scattered slash pine and bald cypress. The sub-canopy is comprised of wax myrtle and widely scattered bald cypress. The ground cover contains panicum, wax myrtle, fogfruit, sand cordgrass (*Spartina bakeri*), gulfdune paspalum, corkwood, maidencane, wiregrass, bushy bluestem, rosy camphorweed, and scattered sawgrass.

Wet Prairies, Disturbed (25–49% Exotics) (FLUCFCS Code 6439 E2)

This wetland habitat type is similar to that of FLUCFCS Code 6439 E1, but with melaleuca in the canopy and sub-canopy, and higher densities of torpedograss in the ground cover.

Wet Prairies, Disturbed (50–75% Exotics) (FLUCFCS Code 6439 E3)

This wetland habitat type is similar to that of FLUCFCS Code 6439 E2, but with higher densities of melaleuca in the canopy and sub-canopy, and torpedograss in the ground cover.

II. INDIGENOUS UPLAND HABITATS

Palmetto Prairie, Disturbed (0–24% Exotics) (FLUCFCS Code 3219 E1)

The canopy of this upland habitat type contains scattered slash pine and widely scattered melaleuca. The sub-canopy contains saw palmetto, staggerbush (*Lyonia fruticosa*), gallberry (*Ilex glabra*), and scattered wax myrtle and Brazilian pepper. The ground cover includes saw palmetto, pennyroyal (*Piloblephis rigida*), shiny blueberry (*Vaccinium myrsinites*), and wiregrass.

Palmetto Prairie, Disturbed (25–49% Exotics) (FLUCFCS Code 3219 E2)

This upland habitat type is similar to that of FLUCFCS Code 3219 E1, except with higher concentrations of Brazilian pepper in the sub-canopy.

Palmetto Prairie, Disturbed (50–75% Exotics) (FLUCFCS Code 3219 E3)

This upland habitat type is similar to that of FLUCFCS Code 3219 E2, except with higher concentrations of Brazilian pepper in the sub-canopy.

Pine Flatwoods, Disturbed (0–24% Exotics) (FLUCFCS Code 4119 E1)

The canopy of this upland habitat type contains slash pine, cabbage palm, Brazilian pepper, and scattered melaleuca. The sub-canopy contains slash pine, cabbage palm, myrsine, and scattered wax myrtle, melaleuca, and Brazilian pepper. The ground cover includes saw palmetto, wax myrtle, caesarweed, wiregrass, blackberry (*Rubus* sp.), ragweed, Old World climbing fern, melaleuca, and Brazilian pepper.

Pine Flatwoods, Disturbed (25–49% Exotics) (FLUCFCS Code 4119 E2)

This upland habitat type is similar to that of FLUCFCS Code 4119 E1, except with higher concentrations of Brazilian pepper, melaleuca, and Old World climbing fern in the canopy and sub-canopy.

Pine Flatwoods, Disturbed (50–75% Exotics) (FLUCFCS Code 4119 E3)

This upland habitat type is similar to that of FLUCFCS Code 4119 E2, except with higher concentrations of Brazilian pepper, melaleuca, and Old World climbing fern in the canopy and sub-canopy.

Pine, Disturbed (0–24% Exotics) (FLUCFCS Code 4159 E1)

The canopy of this upland habitat type is dominated by slash pine. The sub-canopy contains slash pine and scattered Brazilian pepper. The ground cover contains pineland heliotrope, wax myrtle, caesarweed, wiregrass, blackberry, ragweed, melaleuca, and Brazilian pepper.

Pine, Disturbed (25–49% Exotics) (FLUCFCS Code 4159 E2)

This upland habitat type is similar to that of FLUCFCS Code 4159 E1, except with higher concentrations of Brazilian pepper in the sub-canopy.

Pine, Disturbed (50–75% Exotics) (FLUCFCS Code 4159 E3)

This upland habitat type is similar to that of FLUCFCS Code 4159 E2, except with higher concentrations of Brazilian pepper in the sub-canopy.

Live Oak, Disturbed (0–24% Exotics) (FLUCFCS Code 4279 E1)

The canopy of this upland habitat type contains live oak (*Quercus virginiana*), laurel oak, and cabbage palm. The sub-canopy contains cabbage palm, laurel oak, and wax myrtle. The ground cover contains saw palmetto, cabbage palm, and scattered swamp fern.

Live Oak, Disturbed (25–49% Exotics) (FLUCFCS Code 4279 E2)

This upland habitat type is similar to that of FLUCFCS Code 4279 E1, except with higher concentrations of Brazilian pepper and melaleuca in the canopy and sub-canopy.

Cabbage Palm, Disturbed (0–24% Exotics) (FLUCFCS Code 4289 E1)

The canopy of this upland habitat type contains cabbage palm and scattered laurel oak. The sub-canopy contains saw palmetto, wax myrtle, cabbage palm, melaleuca, and Brazilian pepper. The ground cover is dominated by saw palmetto with scattered swamp fern.

Cabbage Palm, Disturbed (25–49% Exotics) (FLUCFCS Code 4289 E2)

This upland habitat type is similar to that of FLUCFCS Code 4289 E1, except with higher concentrations of Brazilian pepper in the canopy and sub-canopy.

Wax Myrtle, Disturbed (25–49% Exotics) (FLUCFCS Code 4299 E2)

The canopy of this upland habitat type contains cabbage palm, Brazilian pepper, and scattered laurel oak. The sub-canopy contains cabbage palm, Brazilian pepper, wax myrtle, laurel oak, saltbush, slash pine, and myrsine. The ground cover includes blackberry, caesarweed, fogfruit, cogon grass (*Imperata cylindrica*), broomsedge, and bushy bluestem.

Wax Myrtle, Disturbed (50–75% Exotics) (FLUCFCS Code 4299 E3)

This upland habitat type is similar to that of FLUCFCS Code 4299 E2, except with higher concentrations of Brazilian pepper in the sub-canopy.

Hardwood/Conifer Mixed, Disturbed (0–24% Exotics) (FLUCFCS Code 4349 E1)

The canopy of this upland habitat type contains slash pine, cabbage palm, laurel oak, live oak, and scattered melaleuca. The sub-canopy contains slash pine, cabbage palm, laurel oak, live oak, and Brazilian pepper. The ground cover includes saw palmetto, cabbage palm, laurel oak, water pennywort, spermacoce (*Spermacoce verticillata*), bahiagrass (*Paspalum notatum*), bracken fern (*Pteridium aquilinum*), and scattered swamp fern.

Hardwood/Conifer Mixed, Disturbed (25–49% Exotics) (FLUCFCS Code 4349 E2)

This upland habitat type is similar to that of FLUCFCS Code 4349 E1, except with higher concentrations of Brazilian pepper in the canopy and sub-canopy.

Hardwood/Conifer Mixed, Disturbed (50–75% Exotics) (FLUCFCS Code 4349 E3)

This upland habitat type is similar to that of FLUCFCS Code 4349 E2, except with higher concentrations of Brazilian pepper in the canopy and sub-canopy.

Cypress, Disturbed and Drained (0–24% Exotics) (FLUCFCS Code 6215 E1)

This disturbed upland habitat type contains bald cypress, cabbage palm, and scattered live oak. The sub-canopy contains Brazilian pepper, cabbage palm, and wax myrtle. The ground cover contains caesarweed, Boston fern (*Nephrolepis exaltata*), smutgrass (*Sporobolus indicus*), ragweed, beggartick (*Bidens alba*), flatsedge (*Cyperus ligularis*), dog fennel (*Eupatorium capillifolium*), and muscadine grapevine.

Cypress, Disturbed and Drained (25–49% Exotics) (FLUCFCS Code 6215 E2)

This upland habitat type is similar to that of FLUCFCS Code 6215 E1, except with higher concentrations of Brazilian pepper in the sub-canopy.

Cypress, Disturbed and Drained (50–75% Exotics) (FLUCFCS Code 6215 E3)

This upland habitat type is similar to FLUCFCS Code 6215 E2, except with higher concentrations of Brazilian pepper in the canopy and sub-canopy.

Cypress/Pine, Disturbed and Drained (0–24% Exotics) (FLUCFCS Code 6245 E1)

This disturbed upland habitat type contains slash pine, bald cypress, cabbage palm, and scattered melaleuca in the canopy. The sub-canopy contains slash pine, bald cypress, cabbage palm, myrsine, scattered melaleuca, and scattered Brazilian pepper. The ground cover contains saw palmetto and swamp fern.

III. NON-INDIGENOUS WETLAND HABITATSLow Pasture, Hydric (FLUCFCS Code 262)

The canopy of this disturbed wetland habitat type contains widely scattered cabbage palm. The sub-canopy is comprised of widely scattered cabbage palm, Brazilian pepper, and wax myrtle. The ground cover includes torpedograss, spermacoce, water pennywort, fogfruit, dog fennel, and dotted smartweed.

Brazilian Pepper, Hydric (FLUCFCS Code 4221)

The canopy and sub-canopy of this disturbed wetland habitat type are dominated by Brazilian pepper. The ground cover is mostly open.

Melaleuca, Hydric (FLUCFCS Code 4241)

The canopy of this disturbed wetland habitat type contains melaleuca with widely scattered bald cypress and slash pine. The sub-canopy contains melaleuca and widely scattered bald cypress and wax myrtle. The ground cover contains wax myrtle, rosy camphorweed, and scattered Southern beaksedge (*Rhynchospora microcarpa*).

Drainage Canal/Ditch, Hydric (FLUCFCS Code 514*)

These ditches are interior to a wetland. The sub-canopy along the banks and within the ditches contains Carolina willow, Peruvian primrose willow, Brazilian pepper, and wax myrtle. The ground cover contains water spangles (*Salvinia minima*), maidencane, Peruvian primrose willow, cattail, and torpedograss. The ditches are associated with the citrus (*Citrus* sp.) groves.

Cattle Pond, Hydric (FLUCFCS Code 525*)

This surface water area is interior to wetlands and contains minimal vegetation.

Willow/Pop Ash, Disturbed (76–100% Exotics) (FLUCFCS Code 6189 E4)

This wetland habitat type is similar to that of FLUCFCS Code 6189 E3, except with higher concentrations of Peruvian primrose willow and Brazilian pepper in the canopy and sub-canopy.

Cypress, Disturbed (76–100% Exotics) (FLUCFCS Code 6219 E4)

This wetland habitat type is similar to that of FLUCFCS Code 6219 E3, except with higher concentrations of melaleuca, Old World climbing fern, and Brazilian pepper in the canopy and sub-canopy.

Cypress/Pine/Cabbage Palm, Disturbed (76–100% Exotics) (FLUCFCS Code 6249 E4)

This disturbed wetland habitat type is similar to that of FLUCFCS Code 6249 E3 except with higher concentrations of Brazilian pepper, melaleuca, and downy rose-myrtle (*Rhodomyrtus tomentosa*) in the sub-canopy.

Pine, Hydric, Disturbed (76–100% Exotics) (FLUCFCS Code 6259 E4)

This wetland habitat type is similar to that of FLUCFCS Code 6259 E3, but with higher concentrations of melaleuca in the canopy and sub-canopy.

Mixed Wetland Forest, Disturbed (76–100% Exotics) (FLUCFCS Code 6309 E4)

This wetland habitat type is similar to that of FLUCFCS Code 6309 E3, but with higher concentrations of Brazilian pepper in the sub-canopy.

Freshwater Marsh, Disturbed (76–100% Exotics) (FLUCFCS Code 6419 E4)

This wetland habitat type is similar to that of FLUCFCS Code 6419 E3, but with higher densities of torpedograss in the ground cover.

Wet Prairies, Disturbed (76–100% Exotics) (FLUCFCS Code 6439 E4)

This disturbed wetland habitat type contains an open canopy. The sub-canopy contains scattered melaleuca, willow (*Salix* sp.), and wax myrtle. The ground cover is dominated by the exotic species torpedograss but also contains cattail and sawgrass.

Disturbed Land, Hydric (FLUCFCS Code 7401)

The canopy of this disturbed wetland habitat type includes scattered slash pine, cabbage palm, and Brazilian pepper. The sub-canopy contains melaleuca, Peruvian primrose willow, Brazilian pepper, bald cypress, and scattered wax myrtle. The ground cover contains cattail, torpedograss, maidencane, blue maidencane, Asiatic pennywort, slash pine, climbing hempvine, spermacoce, water pennywort, dog fennel, and Peruvian primrose willow.

Borrow Area, Hydric (FLUCFCS Code 742*)

The canopy and sub-canopy of this wetland habitat type are open. The ground cover consists of torpedograss, scattered dotted smartweed, and water pennywort.

Electrical Power Transmission Line, Hydric (FLUCFCS Code 8321)

There are two sets of power lines that run in a northwest-southeast direction on the northern portion of the property. The land is maintained and contains torpedograss in the ground cover.

IV. NON-INDIGENOUS UPLAND HABITATS

Agricultural Support Operations (FLUCFCS Code 200)

The canopy and sub-canopy of this disturbed upland land use type is open. The ground cover contains bahiagrass, spermacoce, Bermuda grass (*Cynodon dactylon*), Baldwin flatsedge (*Cyperus croceus*), and largeflower Mexican clover (*Richardia grandiflora*).

Improved Pasture (FLUCFCS Code 211)

The canopy of this disturbed upland land use type contains scattered slash pine, cabbage palm, and earleaf acacia (*Acacia auriculiformis*). The sub-canopy is open. The ground cover is made up of spermacoce, largeflower Mexican clover, bahiagrass, Bermuda grass, and Baldwin flatsedge.

Unimproved Pasture (FLUCFCS Code 212)

The canopy of this disturbed upland land use type is made up of cabbage palm, earleaf acacia, and melaleuca. The sub-canopy contains cabbage palm, earleaf acacia, and saltbush. The ground cover includes cogongrass, bahiagrass, caesarweed, spermacoce, smutgrass, and muscadine grapevine.

Woodland Pasture (FLUCFCS Code 213)

The canopy of this upland land use type includes scattered live oak, laurel oak, slash pine, and cabbage palm. The sub-canopy is mostly open with widely scattered cabbage palm and saw palmetto. The ground cover contains saw palmetto, largeflower Mexican clover, Baldwin flatsedge, Bermuda grass, bahiagrass, and spermacoce.

Row Crop/Sod Farm (FLUCFCS Code 214)

This upland agricultural use contains active row crop and sodding operations. The ground cover contains sod grass (*Poaceae* sp.), beggartick, water pennywort, common ragweed, lantana (*Lantana camara*), caesarweed, and torpedograss.

Citrus Grove (FLUCFCS Code 221)

This upland agricultural use contains active citrus trees in the canopy and sub-canopy. The ground cover contains sod grass, Florida tasselflower (*Emilia fosbergii*), beggartick, water pennywort, thistle (*Cirsium* sp.), wild balsam apple (*Momordica charantia*), ragweed, lantana, caesarweed, torpedograss, and widely scattered Peruvian primrose willow.

Abandoned Groves (FLUCFCS Code 224)

The canopy of this upland agricultural use is comprised of cabbage palm. The sub-canopy contains cabbage palm and Brazilian pepper. The ground cover includes bahiagrass, spermacoce, carpetgrass (*Axonopus* sp.), smutgrass, dog fennel, Mexican clover (*Richardia brasiliensis*), common ragweed, digit grass (*Digitaria* sp.), bermudagrass, and broomsedge.

Palmetto Prairie, Disturbed (76–100% Exotics) (FLUCFCS Code 3219 E4)

This upland habitat type is similar to that of FLUCFCS Code 3219 E3, except with higher concentrations of Brazilian pepper in the sub-canopy.

Pine Flatwoods, Disturbed (76–100% Exotics) (FLUCFCS Code 4119 E4)

This upland habitat type is similar to that of FLUCFCS Code 4119 E3, except with higher concentrations of Brazilian pepper and Old World climbing fern in the canopy and sub-canopy.

Pine, Disturbed (76–100% Exotics) (FLUCFCS Code 4159 E4)

This upland habitat type is similar to that of FLUCFCS Code 4159 E3, except with higher concentrations of Brazilian pepper in the canopy and sub-canopy.

Brazilian Pepper (FLUCFCS Code 422)

This upland habitat type is dominated by Brazilian pepper in the canopy and sub-canopy. The ground cover is mostly open.

Cabbage Palm, Disturbed (76–100% Exotics) (FLUCFCS Code 4289 E4)

This upland habitat type is similar to that of FLUCFCS Code 4289 E2, except with higher concentrations of Brazilian pepper in the canopy and sub-canopy.

Wax Myrtle, Disturbed (76–100% Exotics) (FLUCFCS Code 4299 E4)

This upland habitat type is similar to that of FLUCFCS Code 4299 E3, except with higher concentrations of Brazilian pepper in the sub-canopy.

Hardwood/Conifer Mixed, Disturbed (76–100% Exotics) (FLUCFCS Code 4349 E4)

This upland habitat type is similar to that of FLUCFCS Code 4349 E3, except with higher concentrations of Brazilian pepper in the canopy and sub-canopy.

Cypress, Disturbed and Drained (76–100% Exotics) (FLUCFCS Code 6215 E4)

This upland habitat type is similar to FLUCFCS Code 6215 E3, except with higher concentrations of Brazilian pepper in the canopy and sub-canopy.

Disturbed Land (FLUCFCS Code 740)

The canopy of this disturbed upland habitat type is comprised of scattered slash pine and cabbage palm. The sub-canopy contains scattered slash pine, Brazilian pepper, and wax myrtle. The ground cover contains sod grass, dog fennel, beggartick, crowfoot grass (*Dactyloctenium aegyptium*), wild balsam apple, bahiagrass, lantana, caesarweed, natalgrass (*Rhynchelytrum repens*), and scattered saw palmetto.

Spoil Area (FLUCFCS Code 743)

The canopy and sub-canopy of this land use are open. The ground cover contains caesarweed, dog fennel, ragweed, and bahiagrass.

Dikes and Levees (Berm) (FLUCFCS Code 747)

The canopy and sub-canopy of this land use are predominantly open with widely scattered Brazilian pepper. The ground cover contains ragweed, Florida tasselflower, natalgrass, lantana, beggartick, bahiagrass, caesarweed, and dog fennel.

Road (FLUCFCS Code 814)

This land use type includes unvegetated paved roadways.

Unpaved Road (FLUCFCS Code 8146)

This land use consists of an unvegetated dirt road that runs in a north-south direction along the northeast portion of the property.

V. NON-INDIGENOUS OTHER SURFACE WATERS

Pine Flatwoods, Disturbed, OSW (0–24% Exotics) (FLUCFCS Code 4119 E1**)

This land cover type contains vegetation similar to FLUCFCS Code 4119 E1 but is an “other surface water” (OSW).

Live Oak, Disturbed, OSW (0–24% Exotics) (FLUCFCS Code 4279 E1**)

This land cover type contains vegetation similar to FLUCFCS Code 4279 E1 but is an OSW.

Hardwood/Conifer Mixed, Disturbed, OSW (0–24% Exotics) (FLUCFCS Code 4349 E1**)

This land use type contains vegetation similar to FLUCFCS Code 4349 E1 but is an OSW.

Hardwood/Conifer Mixed, Disturbed, OSW (25–49% Exotics) (FLUCFCS Code 4349 E2**)

This land use type is similar to FLUCFCS Code 4349 E1** but with higher concentrations of Brazilian pepper in the sub-canopy.

Drainage Canal/Ditch (FLUCFCS Code 514)

This OSW has an open canopy. The sub-canopy along the banks and within the ditches contains Carolina willow, Peruvian primrose willow, Brazilian pepper, and wax myrtle. The ground cover contains water spangles, pickerelweed, maidencane, Peruvian primrose willow, cattail, torpedograss, dotted smartweed, red ludwigia (*Ludwigia repens*), and fogfruit. The ditches are associated with the citrus groves.

Reservoirs (<10 acres but >100 acres) (FLUCFCS Code 533)

This land use type is utilized for water retention.

Borrow Area (FLUCFCS Code 742)

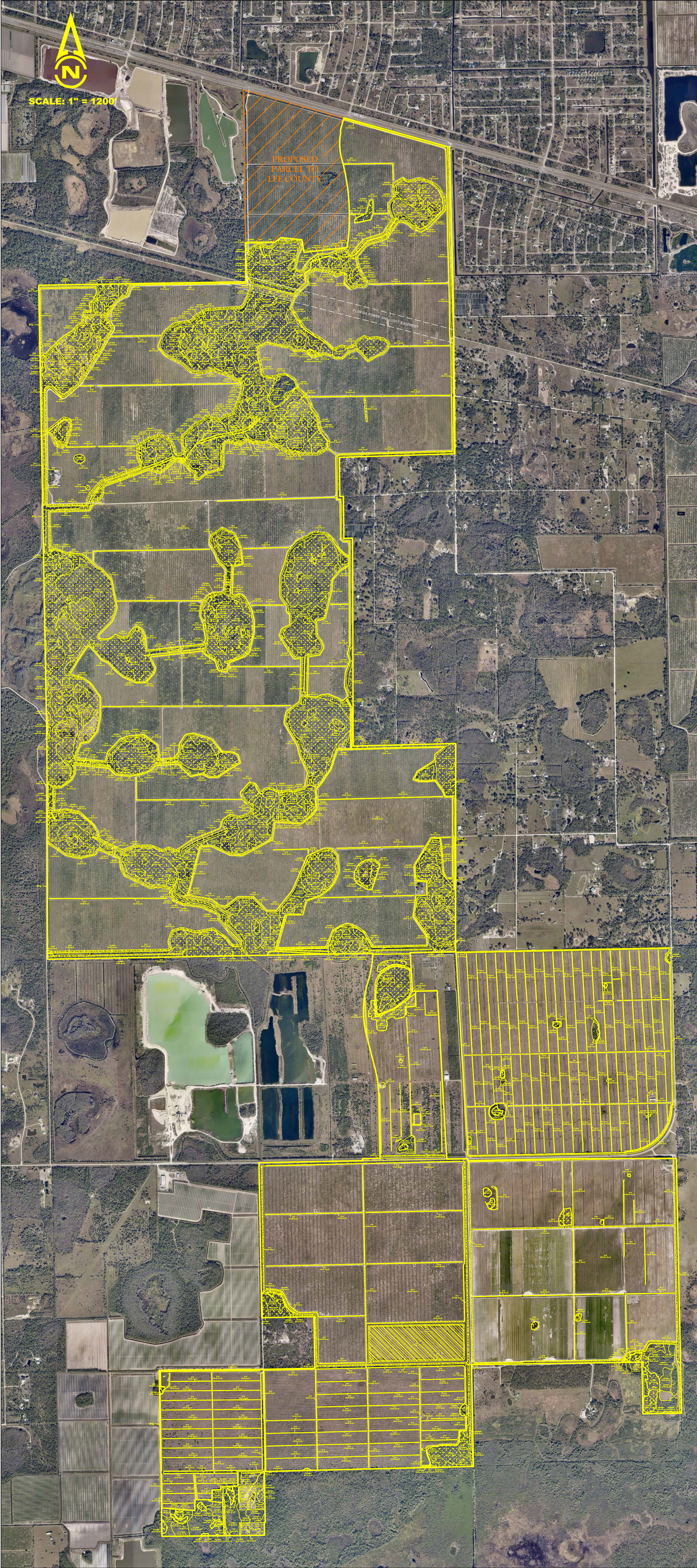
This OSW contains minimal vegetation. The borrow area appears to have been created to acquire fill for a berm connecting two adjacent citrus groves.

*Denotes Wetlands

**Denotes OSW

APPENDIX C

AERIAL WITH FLUCFCS AND WETLANDS



FLUCFCS CODE	DESCRIPTION	ACREAGE	TOTAL	% OF TOTAL
200	AGRICULTURAL SUPPORT OPERATION	0.69 Ac.±		0.0%
211	IMPROVED PASTURE	4.84 Ac.±		0.1%
212	UNIMPROVED PASTURE	2.29 Ac.±		0.0%
213	WOODLAND PASTURE	4.90 Ac.±		0.1%
214	ROW CROP/SOD FARM	587.81 Ac.±		8.8%
221	CITRUS GROVE	4052.42 Ac.±		60.6%
224	ABANDONED GROVES	151.35 Ac.±		2.3%
262	LOW PASTURE, HYDRIC	14.20 Ac.±		0.2%
3219E1	PALMETTO PRAIRIE, DISTURBED (0-24% EXOTICS)	6.50 Ac.±		0.1%
3219E2	PALMETTO PRAIRIE, DISTURBED (25-49% EXOTICS)	1.56 Ac.±		0.0%
3219E3	PALMETTO PRAIRIE, DISTURBED (50-75% EXOTICS)	3.90 Ac.±		0.1%
3219E4	PALMETTO PRAIRIE, DISTURBED (76-100% EXOTICS)	0.03 Ac.±		0.0%
4119E1	PINE FLATWOODS, DISTURBED (0-24% EXOTICS)	12.61 Ac.±		0.2%
4119E1**	PINE FLATWOODS, DISTURBED, OSW (0-24% EXOTICS)	0.09 Ac.±		0.0%
4119E2	PINE FLATWOODS, DISTURBED (25-49% EXOTICS)	4.03 Ac.±		0.1%
4119E3	PINE FLATWOODS, DISTURBED (50-75% EXOTICS)	23.28 Ac.±		0.3%
4119E4	PINE FLATWOODS, DISTURBED (76-100% EXOTICS)	1.19 Ac.±		0.0%
4159E1	PINE DISTURBED (0-24% EXOTICS)	12.99 Ac.±		0.2%
4159E2	PINE DISTURBED (25-49% EXOTICS)	0.40 Ac.±		0.0%
4159E3	PINE DISTURBED (50-75% EXOTICS)	0.33 Ac.±		0.0%
4159E4	PINE DISTURBED (76-100% EXOTICS)	0.24 Ac.±		0.0%
422	BRAZILIAN PEPPER	3.69 Ac.±		0.1%
4221	MELALEUCA, HYDRIC	1.49 Ac.±		0.0%
4241	LIVE OAK, DISTURBED (0-24% EXOTICS)	99.34 Ac.±		1.5%
4279E1	LIVE OAK, DISTURBED, OSW (0-24% EXOTICS)	0.80 Ac.±		0.0%
4279E1**	LIVE OAK, DISTURBED (25-49% EXOTICS)	0.05 Ac.±		0.0%
4279E2	LIVE OAK, DISTURBED (50-75% EXOTICS)	0.19 Ac.±		0.0%
4281E1	CABBAGE PALM, HYDRIC (0-24% EXOTICS)	0.08 Ac.±		0.0%
4289E1	CABBAGE PALM, DISTURBED (0-24% EXOTICS)	0.68 Ac.±		0.0%
4289E2	CABBAGE PALM, DISTURBED (25-49% EXOTICS)	1.11 Ac.±		0.0%
4289E4	CABBAGE PALM, DISTURBED (76-100% EXOTICS)	2.68 Ac.±		0.0%
4291E1	WAX MYRTLE/WILLOW, HYDRIC (0-24% EXOTICS)	0.23 Ac.±		0.0%
4291E2	WAX MYRTLE/WILLOW, HYDRIC (25-49% EXOTICS)	0.41 Ac.±		0.0%
4291E3	WAX MYRTLE/WILLOW, HYDRIC (50-75% EXOTICS)	0.29 Ac.±		0.0%
4299E2	WAX MYRTLE, DISTURBED (25-49% EXOTICS)	2.55 Ac.±		0.0%
4299E3	WAX MYRTLE, DISTURBED (50-75% EXOTICS)	7.95 Ac.±		0.1%
4299E4	WAX MYRTLE, DISTURBED (76-100% EXOTICS)	9.33 Ac.±		0.1%
4349E1	HARDWOOD/CONIFER MIXED, DISTURBED (0-24% EXOTICS)	7.78 Ac.±		0.1%
4349E1**	HARDWOOD/CONIFER MIXED, DISTURBED, OSW (0-24% EXOTICS)	1.86 Ac.±		0.0%
4349E2	HARDWOOD/CONIFER MIXED, DISTURBED (25-49% EXOTICS)	2.11 Ac.±		0.0%
4349E2**	HARDWOOD/CONIFER MIXED, DISTURBED, OSW (25-49% EXOTICS)	0.23 Ac.±		0.0%
4349E3	HARDWOOD/CONIFER MIXED, DISTURBED (50-75% EXOTICS)	2.18 Ac.±		0.0%
4349E4	HARDWOOD/CONIFER MIXED, DISTURBED (76-100% EXOTICS)	5.86 Ac.±		0.1%
514	DRAINAGE CANAL/DITCH	259.21 Ac.±		3.9%
514*	DRAINAGE CANAL/DITCH, HYDRIC	19.49 Ac.±		0.3%
525	CATTLE POND	0.54 Ac.±		0.0%
525*	CATTLE POND, HYDRIC	0.07 Ac.±		0.0%
533	RESERVOIRS (<10 ACRES BUT >100 ACRES)	47.96 Ac.±		0.7%
6179E1	MIXED WETLAND HARDWOODS, DISTURBED (0-24% EXOTICS)	1.85 Ac.±		0.0%
6179E2	MIXED WETLAND HARDWOODS, DISTURBED (25-49% EXOTICS)	0.83 Ac.±		0.0%
6179E3	MIXED WETLAND HARDWOODS, DISTURBED (50-75% EXOTICS)	0.30 Ac.±		0.0%
6189E1	WILLOW/POP ASH, DISTURBED (0-24% EXOTICS)	2.08 Ac.±		0.0%
6189E2	WILLOW/POP ASH, DISTURBED (25-49% EXOTICS)	0.25 Ac.±		0.0%
6189E3	WILLOW/POP ASH, DISTURBED (50-75% EXOTICS)	9.03 Ac.±		0.1%
6189E4	WILLOW/POP ASH, DISTURBED (76-100% EXOTICS)	12.55 Ac.±		0.2%
6215E1	CYPRESS, DISTURBED AND DRAINED (0-24% EXOTICS)	0.08 Ac.±		0.0%
6215E2	CYPRESS, DISTURBED AND DRAINED (25-49% EXOTICS)	0.08 Ac.±		0.0%
6215E3	CYPRESS, DISTURBED AND DRAINED (50-75% EXOTICS)	0.07 Ac.±		0.0%
6215E4	CYPRESS, DISTURBED AND DRAINED (76-100% EXOTICS)	4.85 Ac.±		0.1%
6219E1	CYPRESS, DISTURBED (0-24% EXOTICS)	455.71 Ac.±		6.8%
6219E2	CYPRESS, DISTURBED (25-49% EXOTICS)	55.57 Ac.±		0.8%
6219E3	CYPRESS, DISTURBED (50-75% EXOTICS)	94.11 Ac.±		1.4%
6219E4	CYPRESS, DISTURBED (76-100% EXOTICS)	16.17 Ac.±		0.2%
6245E1	CYPRESS/PINE, DISTURBED AND DRAINED (0-24% EXOTICS)	0.14 Ac.±		0.0%
6249E1	CYPRESS/PINE/CABBAGE PALM, DISTURBED (0-24% EXOTICS)	66.39 Ac.±		1.0%
6249E2	CYPRESS/PINE/CABBAGE PALM, DISTURBED (25-49% EXOTICS)	20.60 Ac.±		0.3%
6249E3	CYPRESS/PINE/CABBAGE PALM, DISTURBED (50-75% EXOTICS)	23.40 Ac.±		0.3%
6249E4	CYPRESS/PINE/CABBAGE PALM, DISTURBED (76-100% EXOTICS)	0.14 Ac.±		0.0%
6259E1	PINE, HYDRIC, DISTURBED (0-24% EXOTICS)	7.47 Ac.±		0.1%
6259E2	PINE, HYDRIC, DISTURBED (25-49% EXOTICS)	2.40 Ac.±		0.0%
6259E3	PINE, HYDRIC, DISTURBED (50-75% EXOTICS)	6.37 Ac.±		0.1%
6259E4	PINE, HYDRIC, DISTURBED (76-100% EXOTICS)	1.55 Ac.±		0.0%
6309E1	MIXED WETLAND FOREST, DISTURBED (0-24% EXOTICS)	9.64 Ac.±		0.1%
6309E2	MIXED WETLAND FOREST, DISTURBED (25-49% EXOTICS)	7.24 Ac.±		0.1%
6309E3	MIXED WETLAND FOREST, DISTURBED (50-75% EXOTICS)	2.78 Ac.±		0.0%
6309E4	MIXED WETLAND FOREST, DISTURBED (76-100% EXOTICS)	3.59 Ac.±		0.1%
6411E1	FRESHWATER MARSH, SAWGRASS (0-24% EXOTICS)	1.11 Ac.±		0.0%
6412E1	FRESHWATER MARSH, CATTAIL (0-24% EXOTICS)	13.07 Ac.±		0.2%
6419E1	FRESHWATER MARSH, DISTURBED (0-24% EXOTICS)	100.23 Ac.±		1.5%
6419E2	FRESHWATER MARSH, DISTURBED (25-49% EXOTICS)	2.82 Ac.±		0.0%
6419E3	FRESHWATER MARSH, DISTURBED (50-75% EXOTICS)	19.68 Ac.±		0.3%
6419E4	FRESHWATER MARSH, DISTURBED (76-100% EXOTICS)	57.30 Ac.±		0.9%
6439E1	WET PRAIRIES, DISTURBED (0-24% EXOTICS)	8.15 Ac.±		0.1%
6439E2	WET PRAIRIES, DISTURBED (25-49% EXOTICS)	0.42 Ac.±		0.0%
6439E3	WET PRAIRIES, DISTURBED (50-75% EXOTICS)	0.45 Ac.±		0.0%
6439E4	WET PRAIRIES, DISTURBED (76-100% EXOTICS)	24.22 Ac.±		0.4%
740	DISTURBED LAND	85.99 Ac.±		1.3%
7401	DISTURBED LAND, HYDRIC	24.25 Ac.±		0.4%
742	BORROW AREA	0.06 Ac.±		0.0%
742*	BORROW AREA, HYDRIC	0.23 Ac.±		0.0%
743	SPOIL AREA	8.82 Ac.±		0.1%
747	DIKES AND LEVEES (BERM)	158.12 Ac.±		2.4%
814	ROAD	2.60 Ac.±		0.0%
8146	UNPAVED ROAD	5.85 Ac.±		0.1%
8321	ELECTRICAL POWER TRANSMISSION LINE, HYDRIC	5.05 Ac.±		0.1%
TOTAL		6687.50 Ac.±	100.0%	

* DENOTES "WETLANDS"
**DENOTES "OTHER SURFACE WATERS"

LEGEND:

COE WETLANDS
(1,192.61 Ac.±)

COE "WATERS OF THE U.S."
(310.00 Ac.±)

SURVEYED WETLAND LINE

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH A FLIGHT DATE OF JANUARY 2023.

PROPERTY BOUNDARY AND SITE PLAN PER J.R. EVANS, INC. DRAWING NO. 00857-01-S101.DWG DATED MARCH 11, 2024.

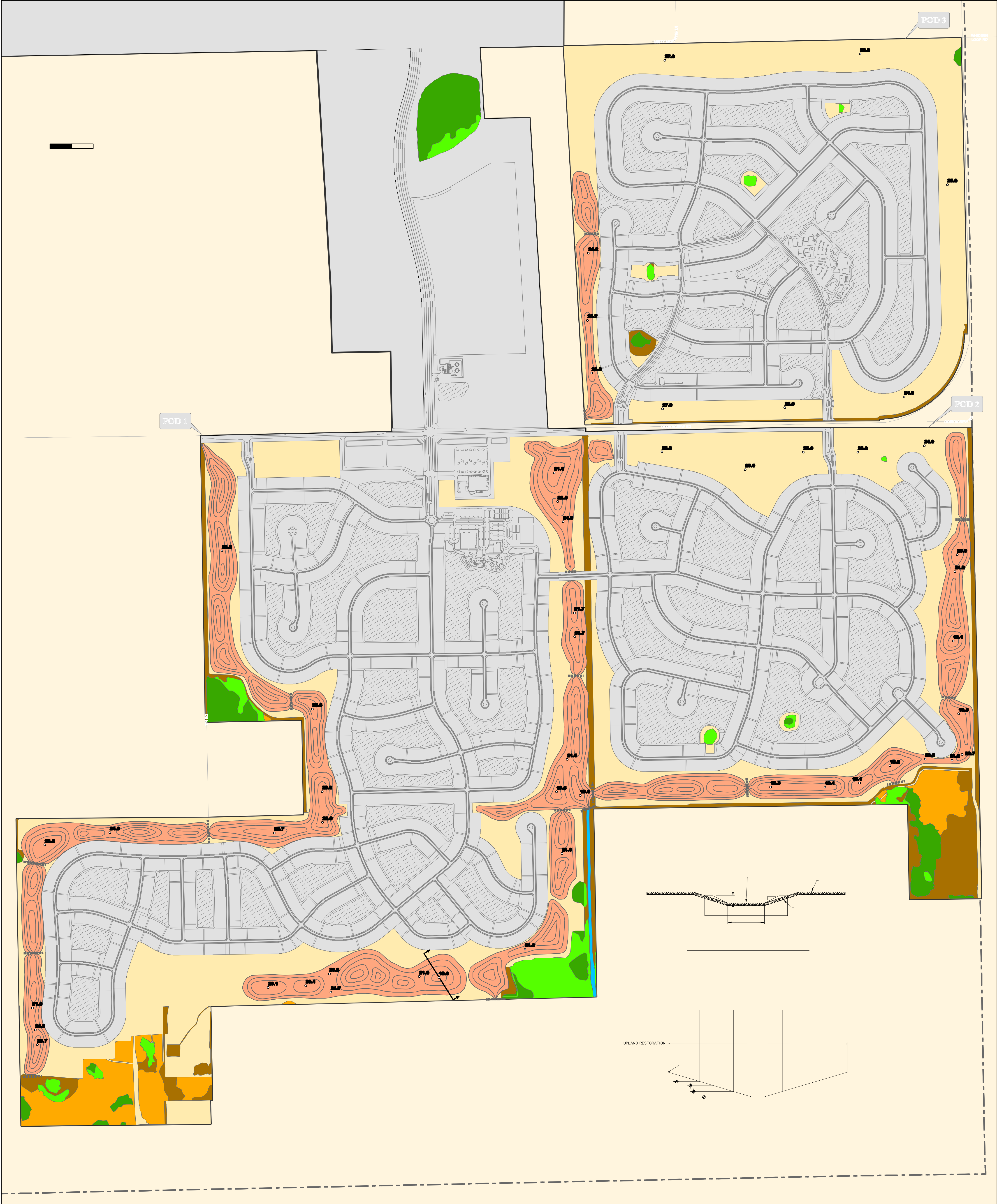
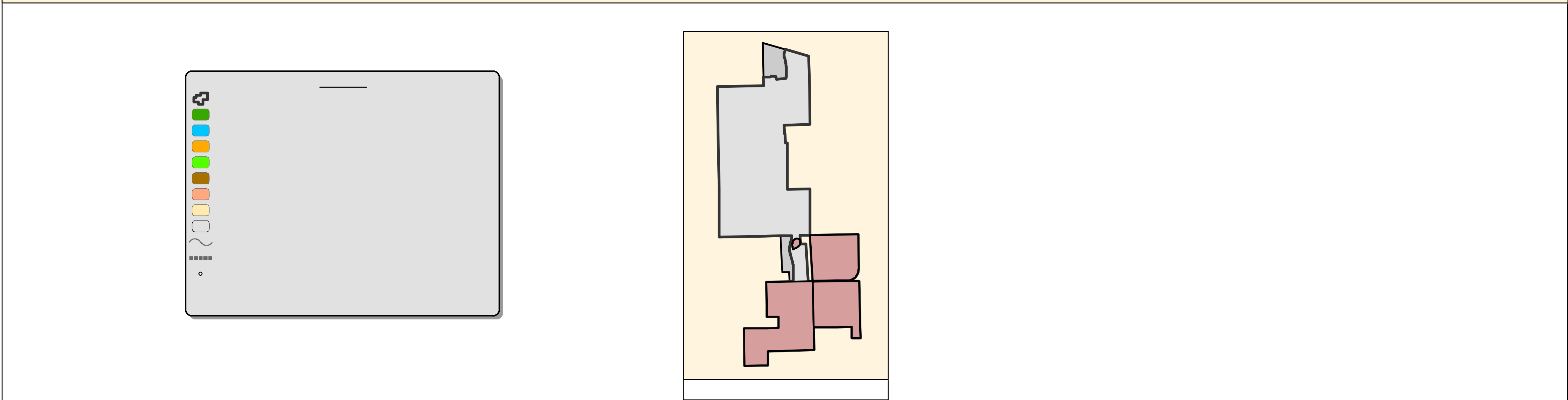
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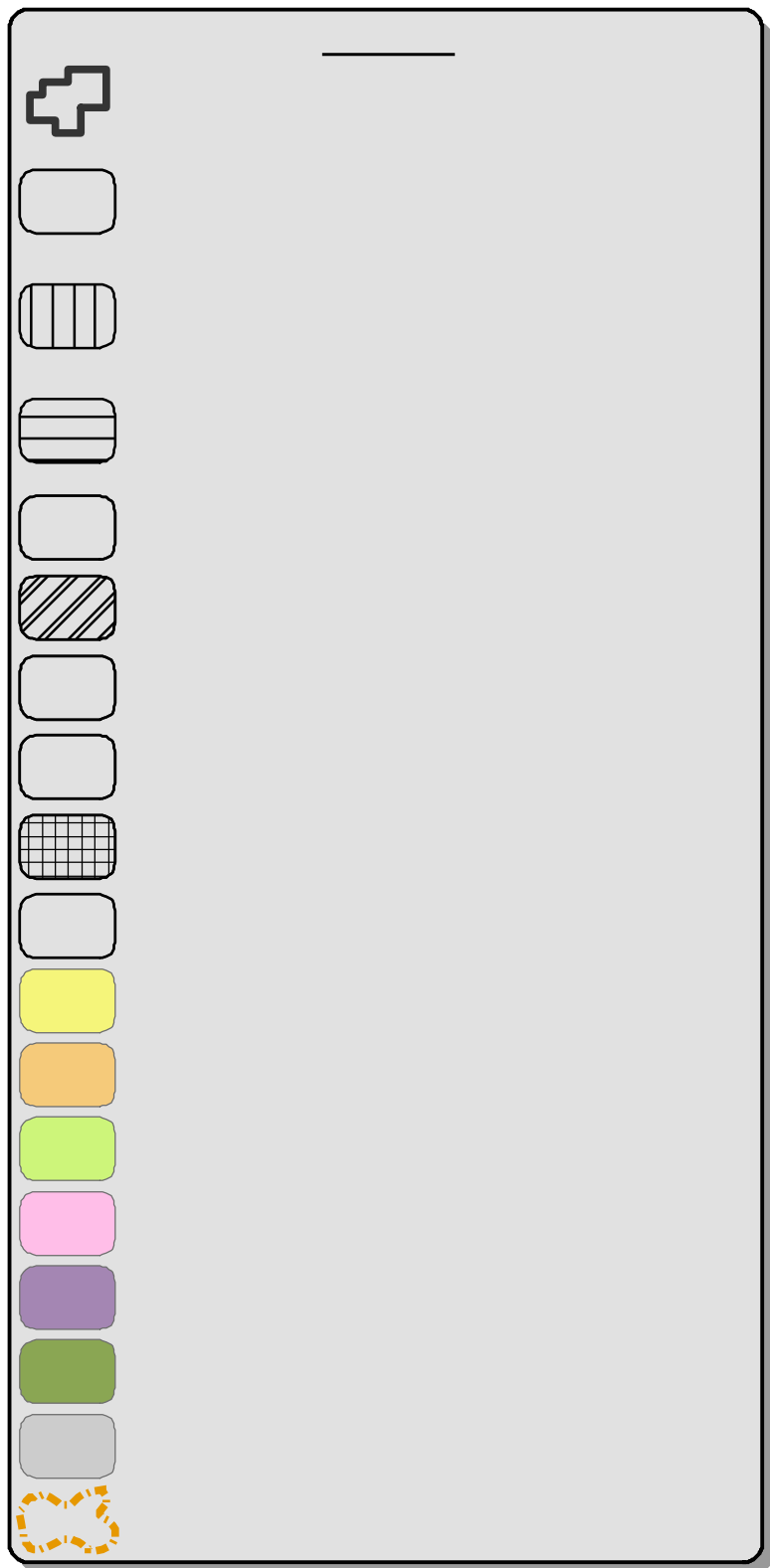
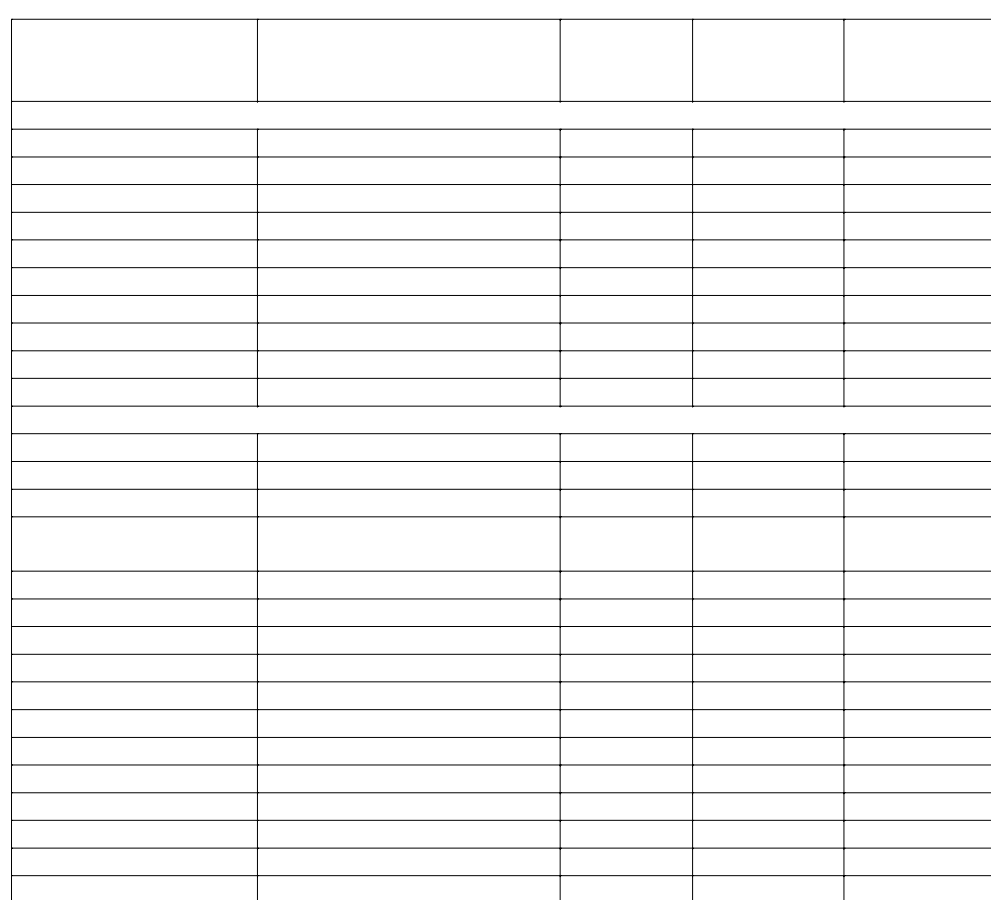
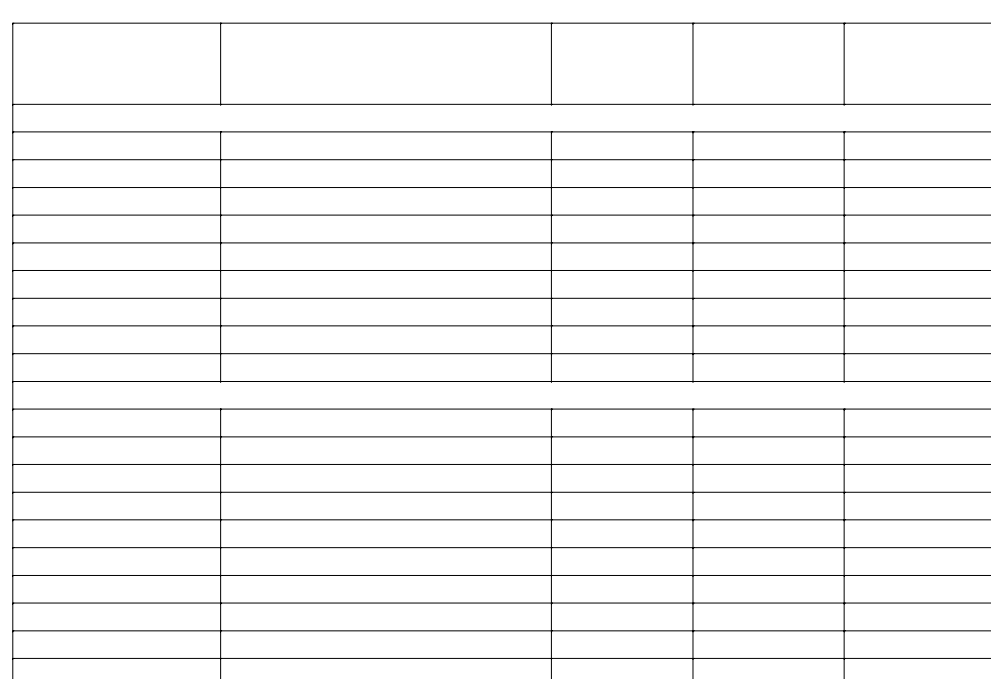
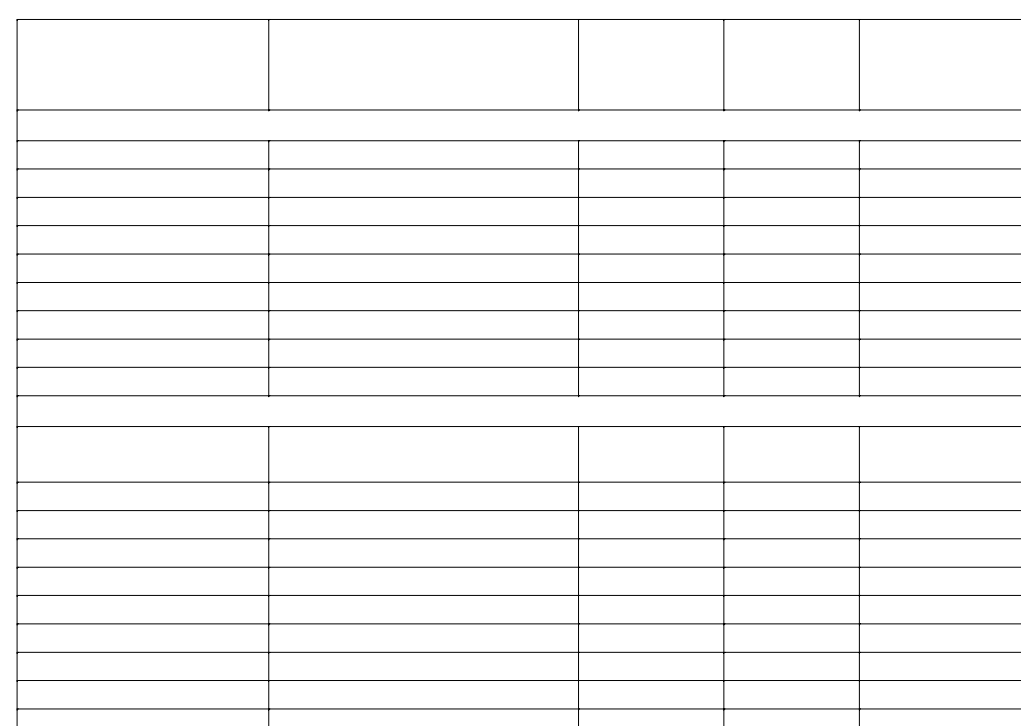
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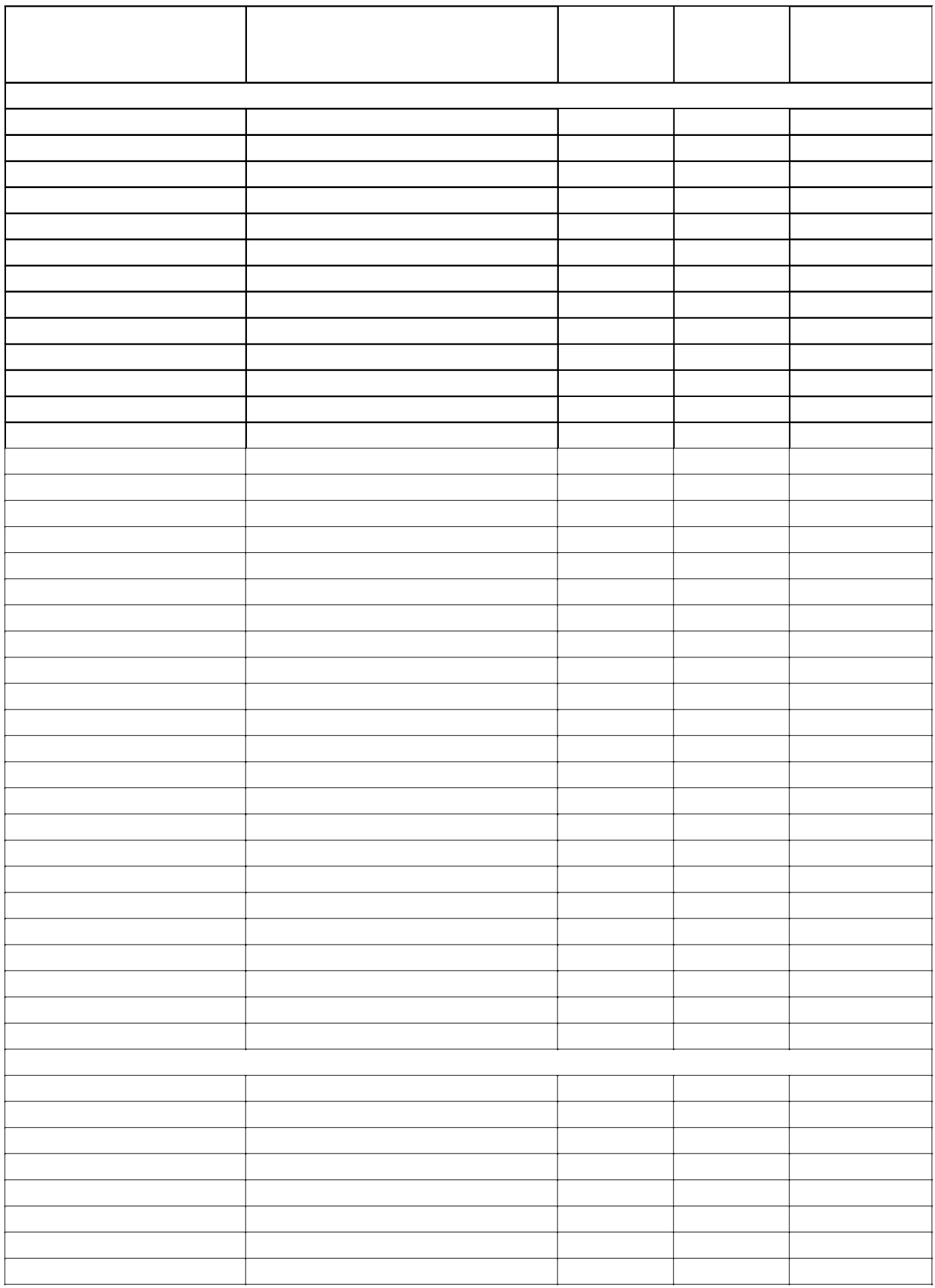
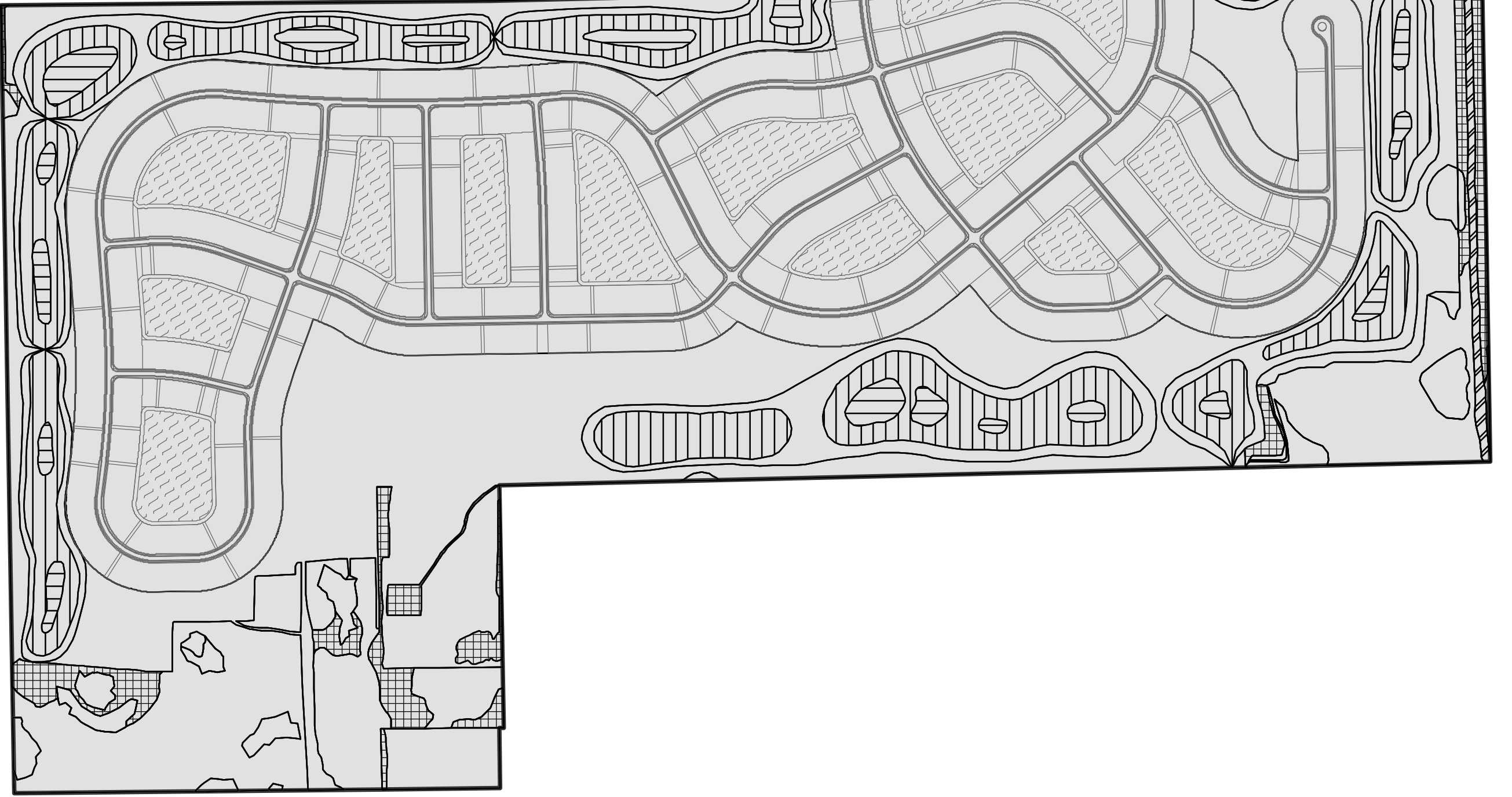
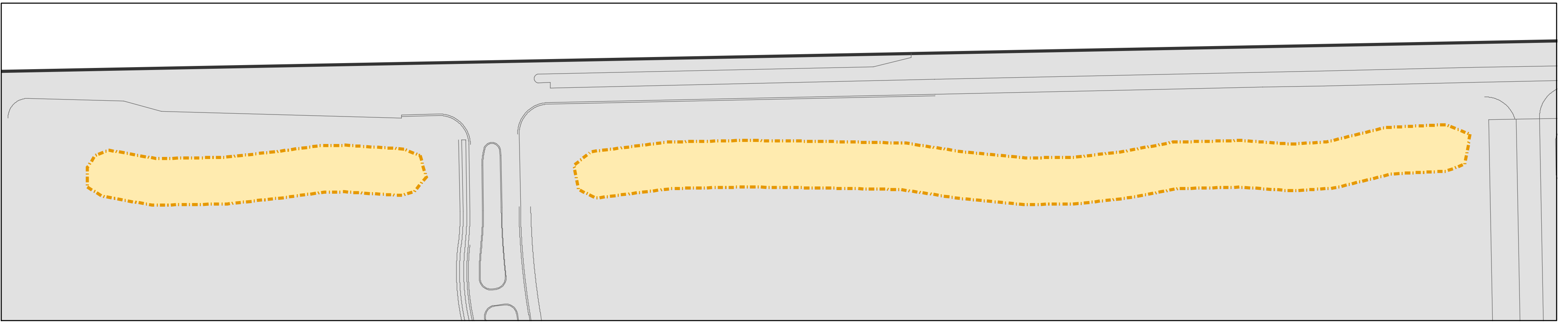
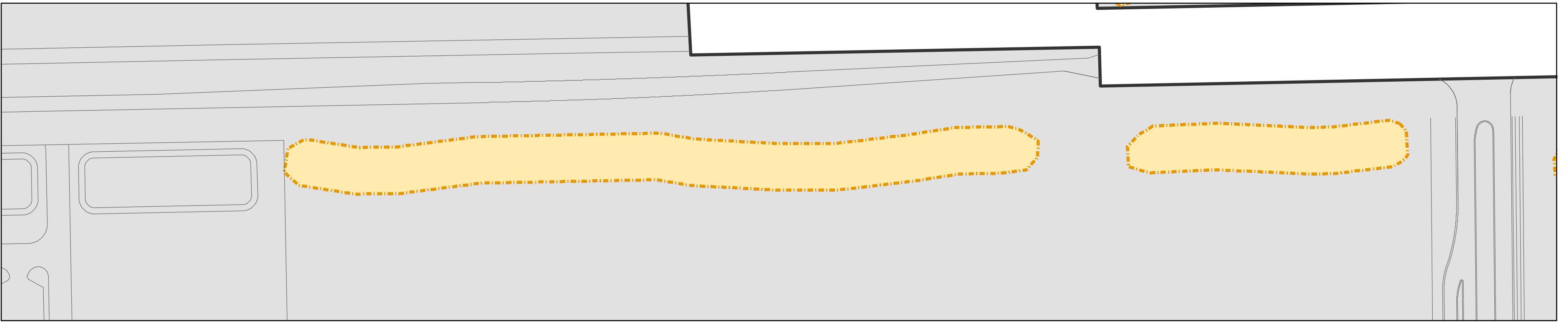
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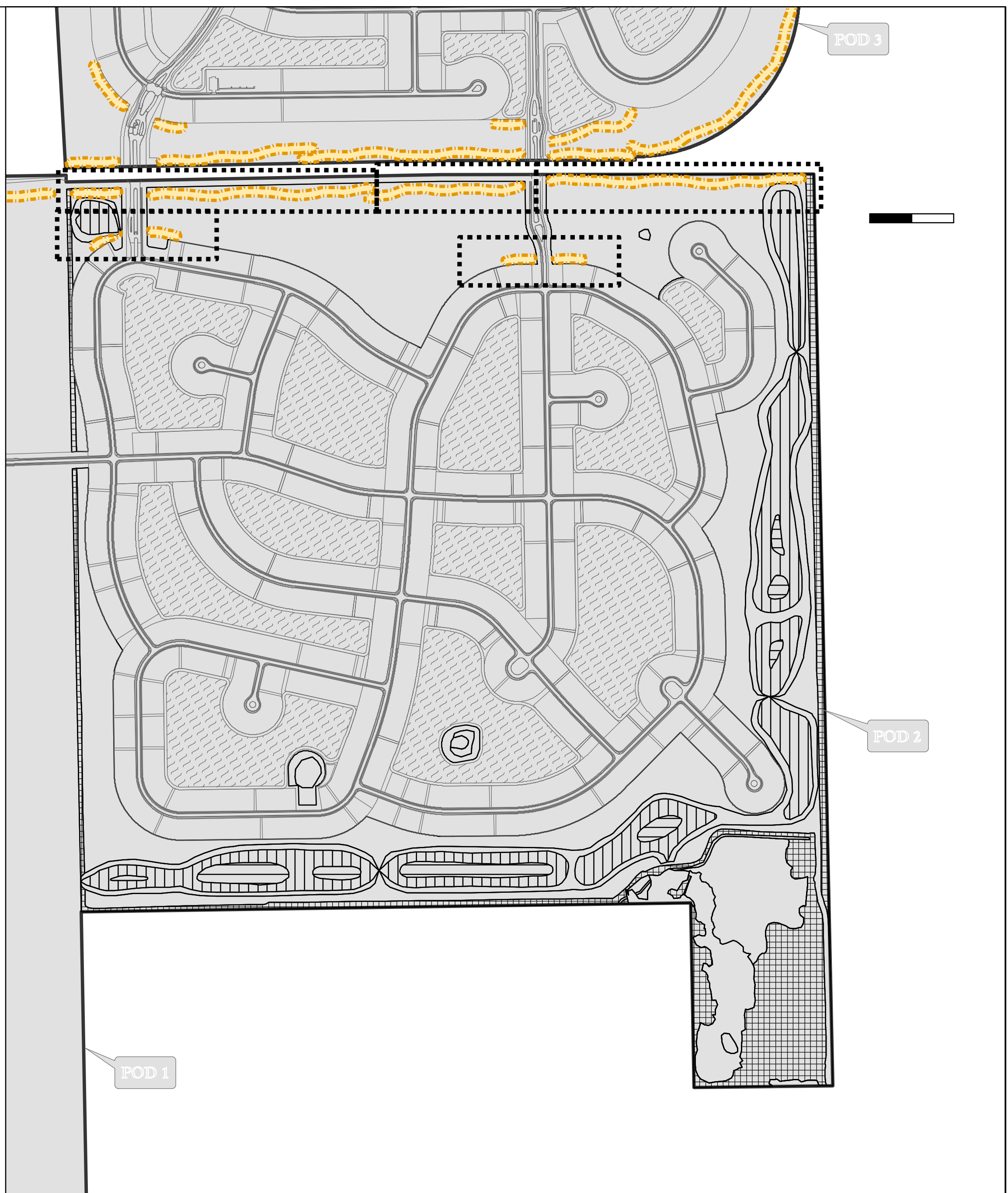
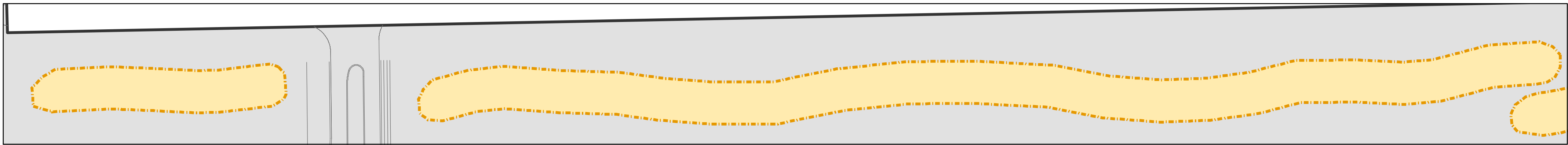
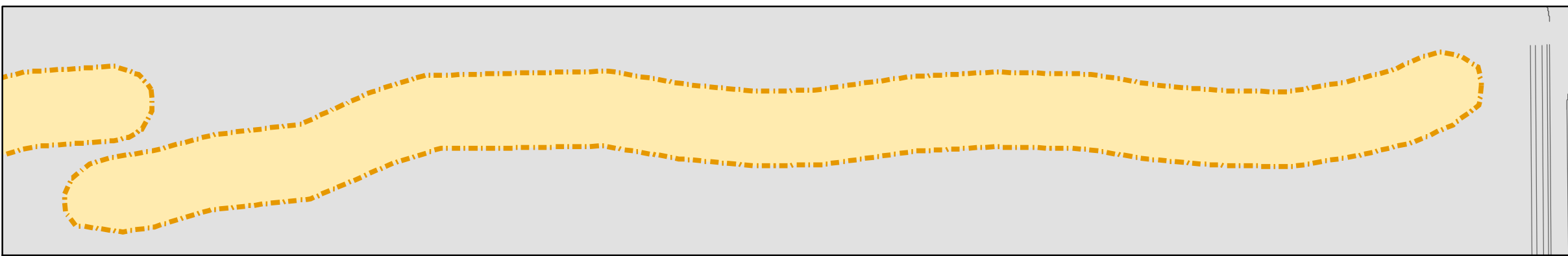
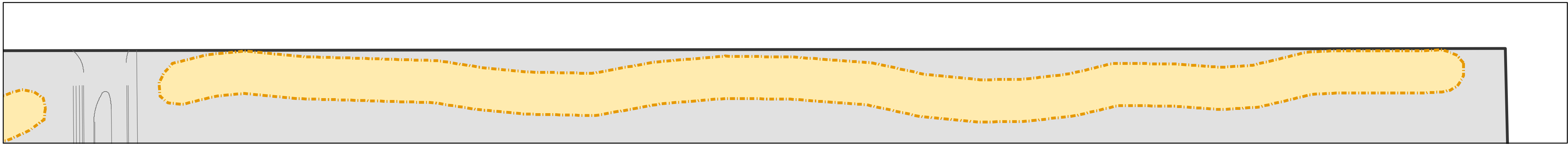
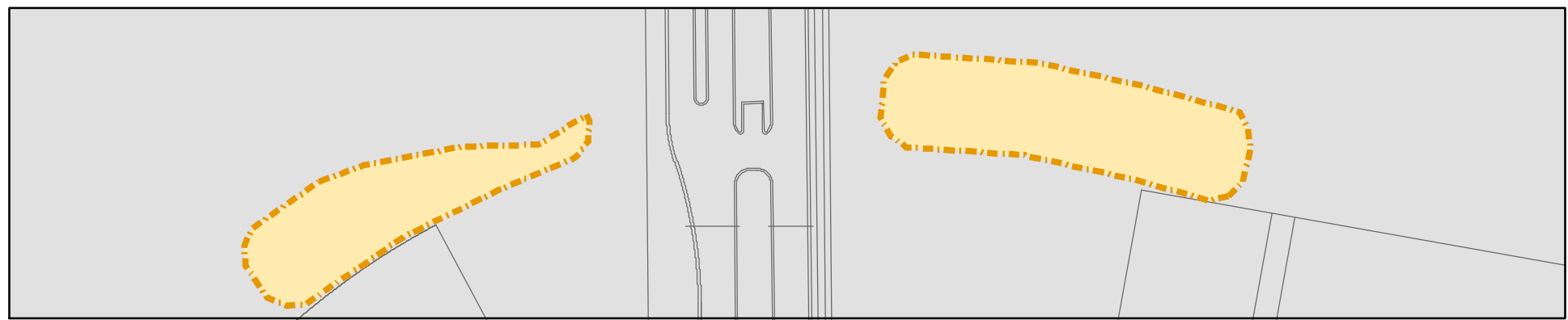
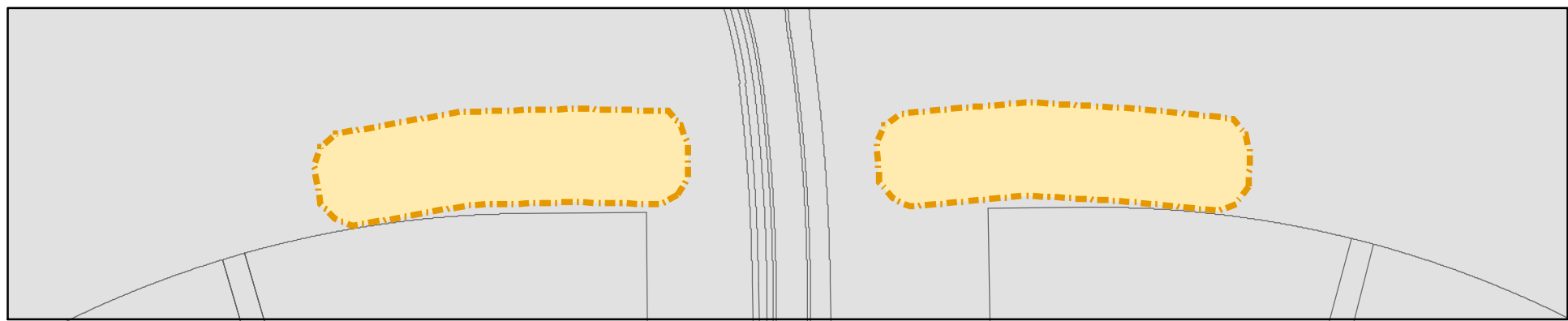
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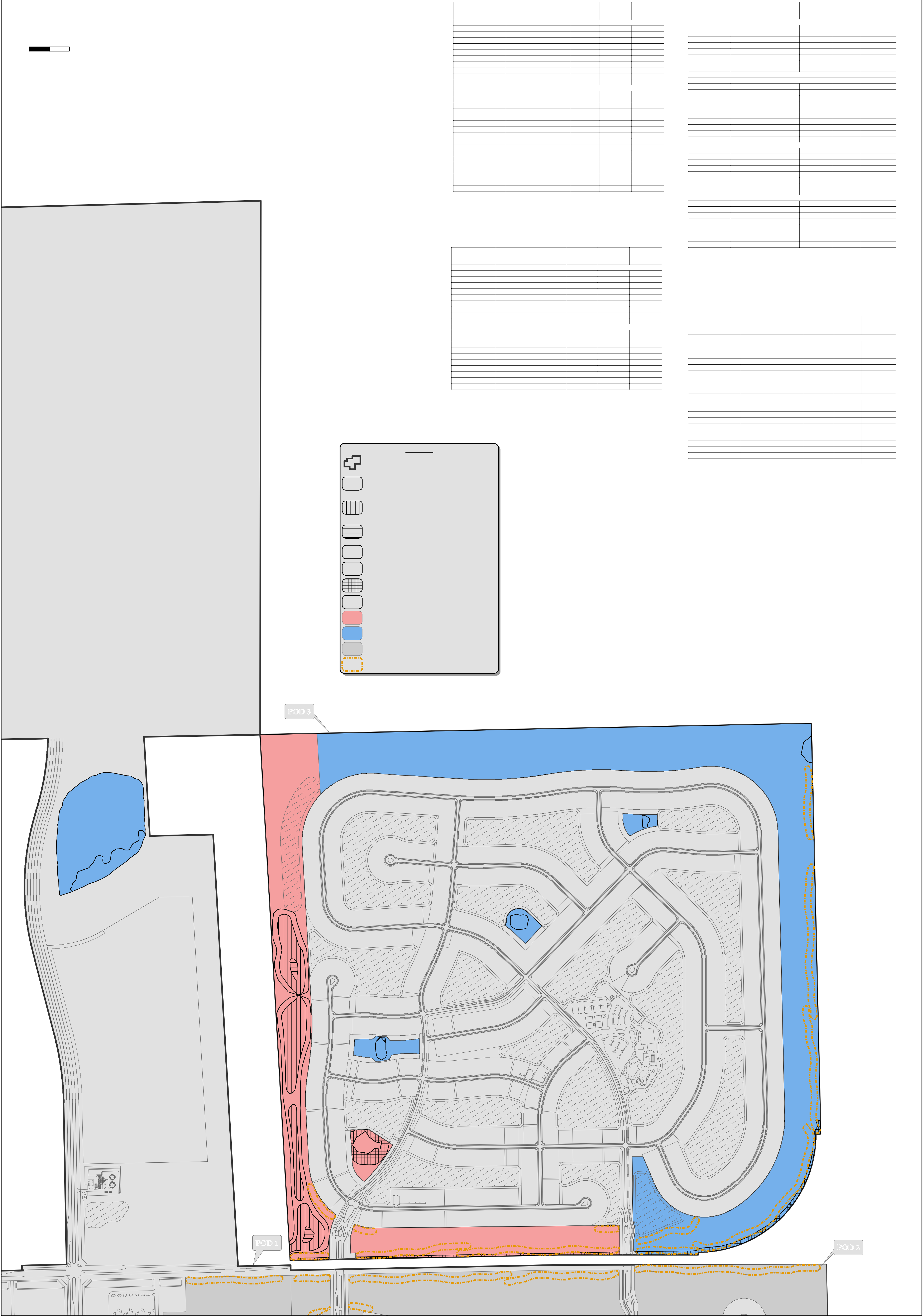
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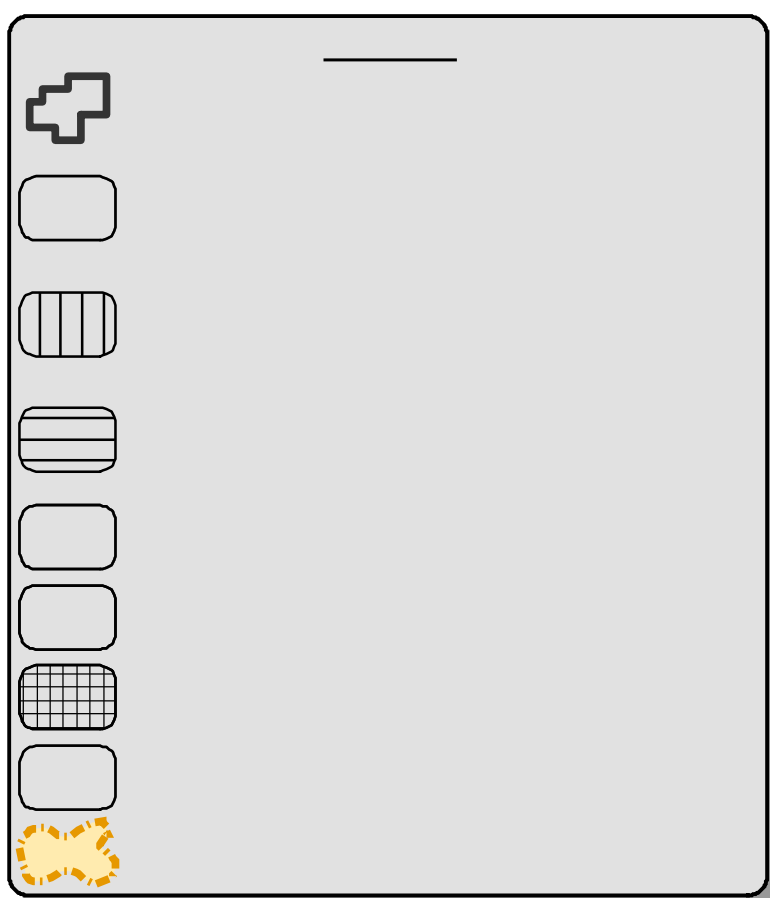
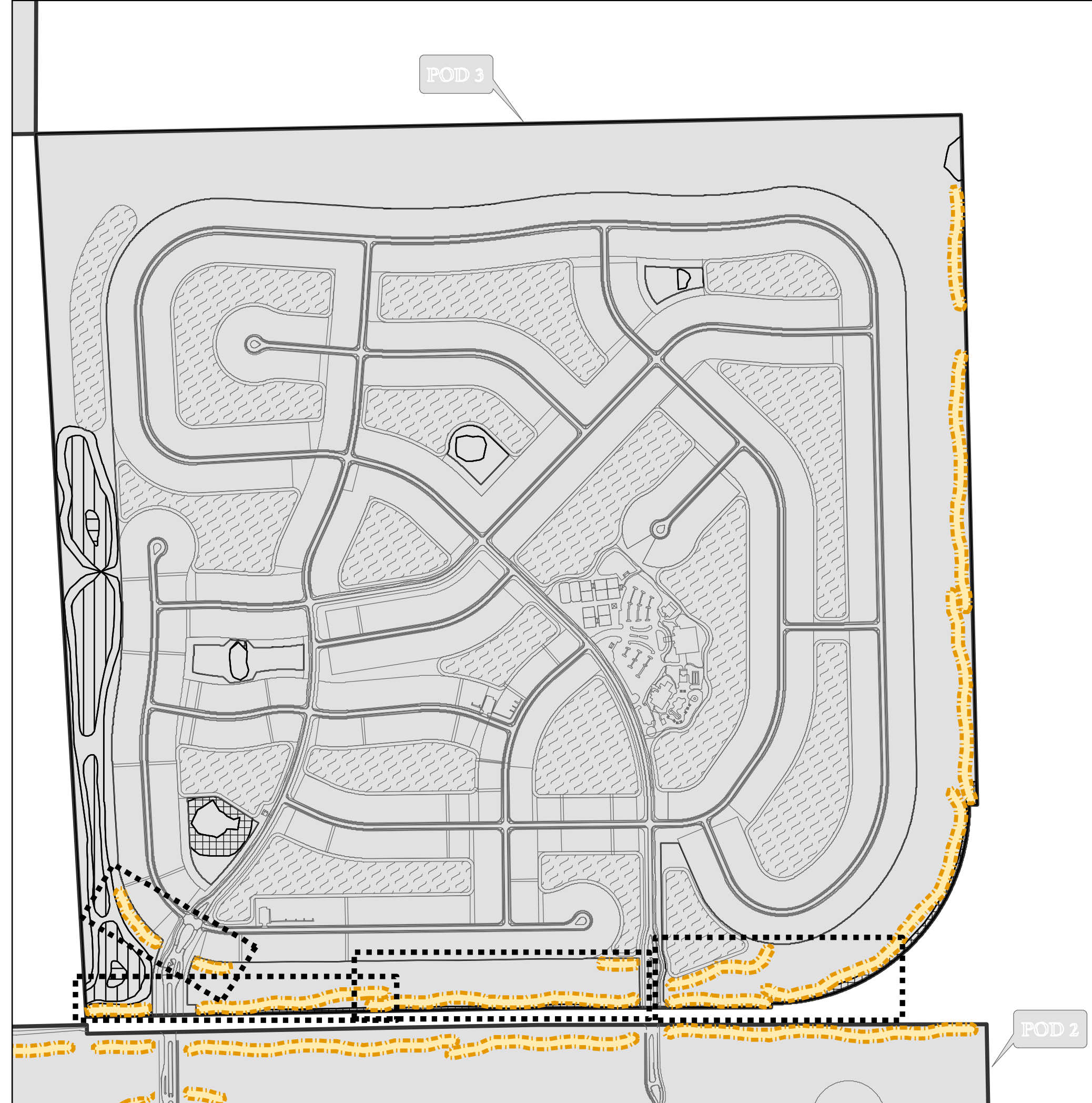
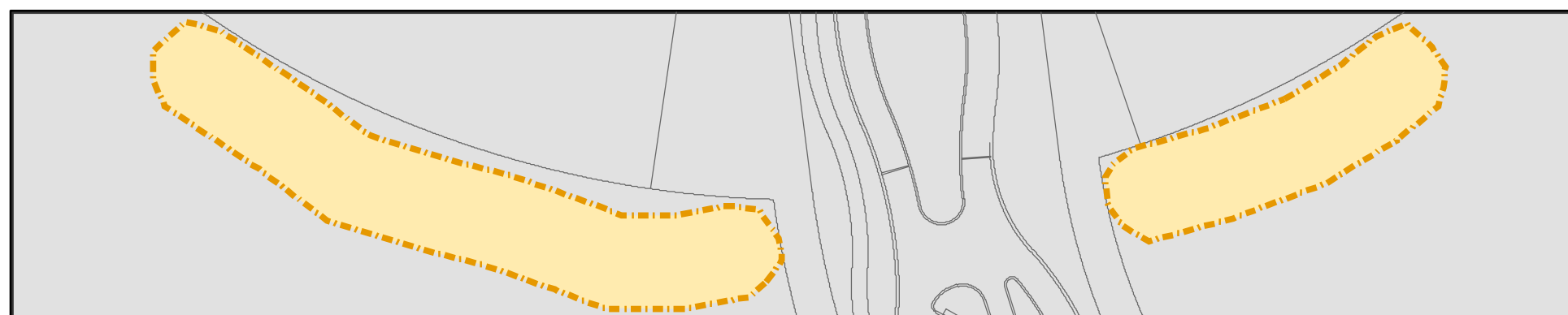
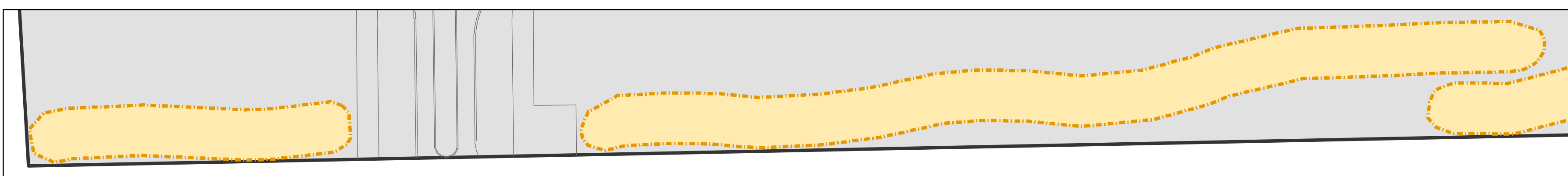
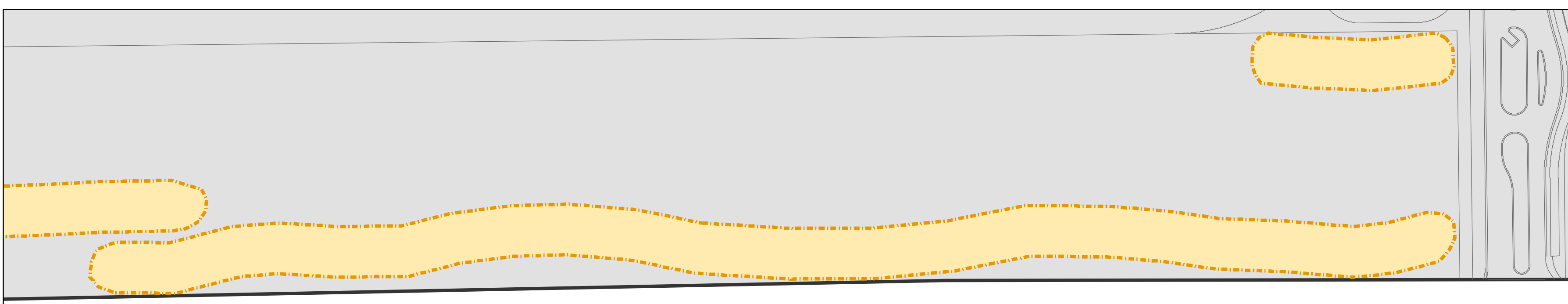
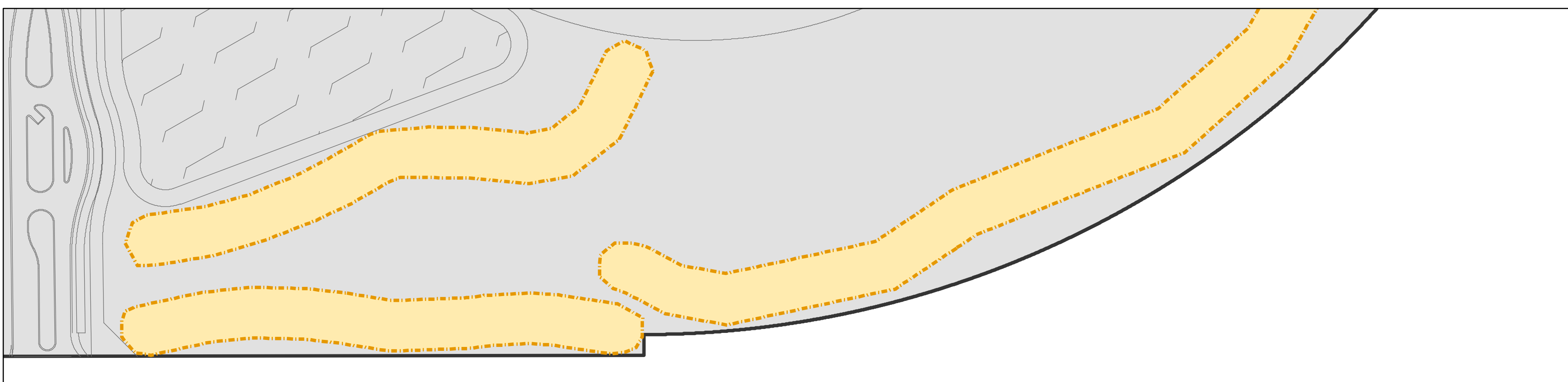


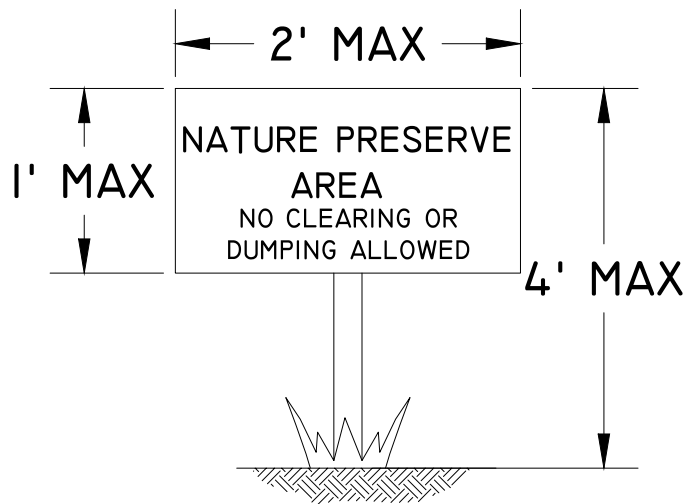


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PASSARELLA
& ASSOCIATES





**TYPICAL
PRESERVE SIGNAGE**
N.T.S.

APPENDIX I. TYPICAL PRESERVE SIGNAGE
KINGSTON

DRAWN BY	DATE
H.H.	05/05/24
REVIEWED BY	DATE
S.J.	05/05/24
REVISED	DATE



**KINGSTON
PROTECTED SPECIES MANAGEMENT AND
HUMAN-WILDLIFE COEXISTENCE PLAN**

Revised June 2024

Prepared For:

CAM7-Sub, LLC
21101 Design Parc Lane Suite 103
Estero, Florida 33928
(239) 425-8662

Prepared By:

Passarella & Associates, Inc.
13620 Metropolis Avenue, Suite 200
Fort Myers, Florida 33912
(239) 274-0067

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1.0 INTRODUCTION

This report documents the Protected Species Management and Human-Wildlife Coexistence Plan for Kingston (Project). The management plan contained in this report pertains to the Eastern indigo snake (*Drymarchon corais couperi*), gopher tortoise (*Gopherus polyphemus*), American alligator (*Alligator mississippiensis*), crested caracara (*Caracara cheriway*), Florida sandhill crane (*Grus canadensis pratensis*) and listed wading birds, imperiled beach-nesting birds, Florida burrowing owl (*Athene cunicularia*), Everglade snail kite (*Rostrhamus sociabilis plumbeus*), Big Cypress fox squirrel (*Sciurus niger avicennia*), Florida black bear (*Ursus americanus floridanus*), Florida panther (*Puma concolor coryi*), and Florida bonneted bat (*Eumops floridanus*).

The Project totals 6,687.50± acres and is located in Sections 2, 3, 10, 11, 14, 15, 23, 24, 25, 26, 34, 35, and 36; Townships 46 South; Range 27 East and Section 35, Township 45 South, Range 27 East, Lee County (Appendix A). The surrounding land uses include single-family home sites to the north; Corkscrew Swamp Sanctuary lands to the south; Corkscrew Regional Ecosystem Watershed (CREW) lands, single-family home sites, and a segment of Corkscrew Road to the east; and mining and agricultural uses to the west. Additionally, an east-to-west segment of Corkscrew Road bisects the property before it turns and heads north.

The majority of the site currently supports active citrus groves and other agricultural operations, while the remainder of the site contains native vegetation with varying amounts of disturbance and exotic vegetation. The native wetland habitats include, but are not limited to, cypress, hydric pine, cypress/pine/cabbage palm, mixed wetland forest, freshwater marsh, and wet prairie habitats. Native upland habitats on the Project site include, but are not limited to, palmetto prairie, pine, and pine flatwoods habitat types. As part of the historical agricultural surface water management, an extensive network of ditches, berms, and reservoirs have been constructed on the property, which has led to the isolation of native wetland systems within the site.

2.0 LEE COUNTY PROTECTED SPECIES SURVEYS

Passarella & Associates, Inc. (PAI) conducted a Lee County protected species survey (PSS) for 17 days between February 23 and September 23, 2022. The survey was conducted to meet Lee County Land Development Code (LDC) Chapter 10, Article III, Division 8 (Protection of Habitat) standards. The listed wildlife species and/or their sign (i.e., nests, scat, scratch trees, etc.) documented on the Project site include American alligator and alligator nests, a gopher tortoise burrow, crested caracara, little blue heron (*Egretta caerulea*), tri-colored heron (*Egretta tricolor*), snowy egret (*Egretta thula*), limpkin (*Aramus guarauna*), Florida sandhill crane, Everglade snail kite, wood stork (*Mycteria americana*), Big Cypress fox squirrel, Florida panther, Florida panther signs, Florida black bear, and Florida black bear signs.

Additionally, PAI conducted a Lee County protected species survey on 28.62± acres of land added to the Project on November 14, 2023. The survey used the same methodology utilized for the 2022 protected species survey. The American alligators, crested caracara, little blue herons, roseate spoonbills (*Platalea ajaja*), tri-colored herons, and wood storks were documented on the additional lands during the survey.

Table 1 summarizes the protected species that were documented during the 2022 survey conducted on the Project site.

Table 1. Protected Species Documented on the Project Site

Common Name	Scientific Name	Listing Status	
		FWCC	USFWS
Reptiles			
American alligator	<i>Alligator mississippiensis</i>	FT(S/A)	FT(S/A)
Gopher tortoise	<i>Gopherus polyphemus</i>	ST	*
Birds			
Crested caracara	<i>Caracara cheriway</i>	T	T
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	FE	E
Florida sandhill crane	<i>Grus canadensis pratensis</i>	ST	-
Limpkin	<i>Aramus guarauna</i>	**	-
Little blue heron	<i>Egretta caerulea</i>	ST	-
Roseate spoonbill	<i>Platalea ajaja</i>	ST	-
Snowy egret	<i>Egretta thula</i>	**	-
Tri-colored heron	<i>Egretta tricolor</i>	ST	-
Wood stork	<i>Mycteria americana</i>	FT	T
Mammals			
Big Cypress fox squirrel	<i>Sciurus niger avicennia</i>	ST	-
Florida black bear	<i>Ursus americanus floridanus</i>	**	-
Florida panther	<i>Puma concolor coryi</i>	FE	E

FWCC – Florida Fish and Wildlife Conservation Commission

USFWS – U.S. Fish and Wildlife Service

E – Endangered

FE – Federally Endangered

FT – Federally Threatened

FT(S/A) – Federally Threatened Due to Similarity of Appearance

ST – State Threatened

T – Threatened

*Currently listed as a candidate species by the USFWS

**Delisted at the state level but protected by an FWCC Management Plan

3.0 CONSERVATION AREAS

The proposed conservation areas total 3,295.60± acres. The conservation areas will be maintained in accordance with the Indigenous Preservation, Restoration, and Management Plan provided under separate cover. The conservation areas will be managed to provide habitat for listed species.

The Project has been designed to minimize impacts to the listed species that have been identified on the property and other listed wildlife species that could potentially utilize the site. The site plan minimizes impacts to existing native vegetation habitats and concentrates development primarily within the existing agricultural lands.

The preservation and enhancement of existing indigenous vegetation and the restoration of extensive areas of farm fields back to indigenous habitats will serve to provide significant regional flow-ways and wildlife corridors within the Project site.

The conservation areas will be managed for listed species based on habitat type and currently listed species utilization. Targeted listed species include the Eastern indigo snake, gopher tortoise, American alligator, crested caracara, Florida sandhill crane and listed wading birds, burrowing owl, Everglade snail kite, Big Cypress fox squirrel, Florida black bear, Florida bonneted bat, and Florida panther.

The conservation areas will be placed in an easement with inspection, enforcement, and approval rights granted to Lee County. The total preserve area to be placed under a conservation easement will be 3,295.60± acres.

4.0 WILDLIFE CROSSINGS

To maintain internal connectivity for wildlife and promote the restoration of historical flow-ways through the Project property, wildlife crossings will be installed where the proposed internal roads cross the conservation areas. An aerial depicting the proposed location of the wildlife crossings is provided as Appendix B. Two forms of wildlife crossings will be designed to accommodate the passage of both large and small mammals, as well as reptiles and amphibians. Wildlife crossings for large mammals will consist of a box culvert sized up to 6 x 10 feet. The large wildlife crossing proposed along Corkscrew Road will be funded by the developer through a Lee County proportionate share agreement; however, installation of the crossing will be completed by Lee County. Wildlife crossings for small mammals, reptiles, and amphibians will consist of reinforced concrete pipes (RCPs) sized up to 48 inches, although larger mammals may also utilize them. The invert of the box culverts and RCPs will be placed at natural grade. A section of low-level chain-link fencing will be installed on either side of the crossings to direct wildlife through the crossings.

Natural shrub and ground cover vegetation will be retained up to the wildlife crossing. Vegetation removed during construction phases will be replanted to provide cover for target wildlife species. Table 2 lists the native shrub and ground cover plant species, which will be used to revegetate areas at the entrances to the wildlife crossing on an as-needed basis.

Table 2. Supplemental Plantings List for Wildlife Crossings

Common Name	Scientific Name	Minimum Height	Minimum Container Size	Planting Density (On Center)
Shrub Plantings				
Buttonbush	<i>Cephalanthus occidentalis</i>	3 ft.	1 gal.	10 ft.
Gallberry	<i>Ilex glabra</i>	3 ft.	1 gal.	10 ft.
Myrsine	<i>Myrsine cubana</i>	3 ft.	1 gal.	10 ft.

Table 2. (Continued)

Common Name	Scientific Name	Minimum Height	Minimum Container Size	Planting Density (On Center)
Shrub Plantings				
Pond apple	<i>Annona glabra</i>	3 ft.	1 gal.	10 ft.
Wax myrtle	<i>Morella cerifera</i>	3 ft.	1 gal.	10 ft.
Ground Cover Plantings				
Arrowhead	<i>Sagittaria lancifolia</i>	12 in.	2 in.	3 ft.
Blue maidencane	<i>Amphicarpum muehlenbergianum</i>	12 in.	2 in.	3 ft.
Golden canna	<i>Canna flaccida</i>	12 in.	2 in.	3 ft.
Gulfdune paspalum	<i>Paspalum monostachyum</i>	12 in.	2 in.	3 ft.
Maidencane	<i>Hymenachne hemitomom</i>	12 in.	2 in.	3 ft.
Muhly grass	<i>Muhlenbergia capillaris</i>	12 in.	2 in.	3 ft.
Pickeralweed	<i>Pontederia cordata</i>	12 in.	2 in.	3 ft.
Sand cordgrass	<i>Spartina bakeri</i>	12 in.	2 in.	3 ft.
Sawgrass	<i>Cladium jamaicense</i>	12 in.	2 in.	3 ft.
Soft-stem bulrush	<i>Scirpus validus</i>	12 in.	2 in.	3 ft.
Spikerush	<i>Eleocharis interstincta</i>	12 in.	2 in.	3 ft.
Swamp lily	<i>Crinum americanum</i>	12 in.	2 in.	3 ft.
Wiregrass	<i>Aristida stricta</i>	12 in.	2 in.	3 ft.

5.0 PERIMETER BUFFER LAKES AND FENCING

The Project site design includes perimeter fencing between the development and conservation areas. The goal of the fencing is to help deter Florida panther, Florida black bear, and their prey species from entering residential and commercial areas. The fencing will also serve to accommodate the movement of wildlife among the conservation areas as described in Section 4.0 above.

The wildlife fencing will consist of a six-foot chain-link fence that has previously been approved by the Florida Fish and Wildlife Conservation Commission (FWCC) for projects in Southwest Florida. The locations of the proposed fencing are depicted on Appendix B. Further details regarding the location of the fencing will be provided at the time of the development order.

6.0 COMMERCIAL USES

The Project includes dedicated commercial uses adjacent to Corkscrew Road and State Road 82. To minimize potential human-wildlife interaction, educational brochures provided in this plan will be provided to commercial tenants. Commercial development will be required to minimize wildlife attractants by securing all exterior food and water sources.

Commercial uses, including restaurants, must secure exterior trash containers with locking lids and periodically clean cans to reduce residual odors. Bear-resistant dumpsters will be used in areas where communal garbage is collected. A list of companies obtained from the FWCC that provide bear-resistant garbage containers for commercial use is provided as Appendix C. In consultation with the local waste disposal company, bear-resistant dumpsters will be purchased from one of the listed companies or another company that is able to provide bear-resistant dumpsters that are compatible with local equipment. The bear-resistant dumpsters will be incorporated at the time Lee County's waste collection subcontractor makes them available for use.

To minimize disturbance to wildlife, lighting within the commercial parcel will not directly illuminate the adjacent preserve areas.

7.0 EASTERN INDIGO SNAKE MANAGEMENT PLAN

The Eastern indigo snake has not been documented on-site; however, the following plan outlines the protection guidelines that will be implemented for the Eastern indigo snake during clearing operations for the Project. The plan provides educational material and guidelines for construction personnel to follow in the event they encounter an Eastern indigo snake. The plan has been prepared following the guidelines established by the U.S. Fish and Wildlife Service (USFWS). The Eastern indigo snake is a federally threatened species and is listed by the Endangered Species Act (ESA). It is unlawful for anyone to injure, harm, harass, or kill this species. Persons who knowingly violate provisions of the ESA that afford this species protection may be subject to a fine and/or imprisonment.

7.1 Biology

The Eastern indigo snake is a large, non-poisonous, glossy black snake with smooth, iridescent scales. The chin and throat may be rusty or white-blotched. The juvenile snakes are similar to the adults but may be lighter and exhibit a blotched dorsal pattern. Adults can grow to lengths over eight feet. The Eastern indigo snake might be confused with the black racer (*Coluber constrictor*), but the black racer exhibits a white or brown throat and is smaller and lighter in build.

The Eastern indigo snake inhabits a range of habitat types, including pine flatwoods and wet prairies. Individuals are wide ranging and may utilize an area of 250 acres or more. Eastern indigo snakes are known to shelter in gopher tortoise burrows. The Eastern indigo snake is diurnal (active only during the daytime) and will actively search for prey. Prey may include frogs, snakes, birds, and small mammals. Very little is known of the reproduction of this species in the wild. Breeding is believed to occur during the winter and early spring months, with up to 11 large white eggs being deposited in late spring and early summer.

7.2 Management Plan

The USFWS's Standard Protection Measures for the Eastern Indigo Snake (2013) will be followed prior to and during construction activities. The Standard Protection Measures include the placement of posters at strategic locations on the construction site and along proposed access roads clearly visible to construction staff. The posters include a description and photograph of the Eastern indigo snake, its protection status, and instructions in the event that one is observed. In addition, informational brochures will be provided to all construction staff.

The Project will preserve, enhance, and restore 3,295.60± acres of existing vegetation on-site through the removal of exotic vegetation and supplemental plantings. The preserve areas will be maintained per the Project's Indigenous Preservation, Restoration, and Management Plan and will provide habitat for the Eastern indigo snake.

Problematic encounters between future residents and Eastern indigo snakes are not anticipated. Construction personnel, maintenance staff, and homeowners will be informed that the Eastern indigo snake is a protected species and informational brochures will be provided (Appendix D).

8.0 GOPHER TORTOISE MANAGEMENT PLAN

One gopher tortoise burrow was observed during the protected species surveys conducted by PAI. The following plan outlines the management activities that will be implemented for the gopher tortoise prior to the implementation of site clearing. The gopher tortoise is listed as threatened by the FWCC.

8.1 Biology

The gopher tortoise is a large, terrestrial turtle averaging 23 to 28 centimeters (9 to 11 inches) in shell length. Maximum length is around 38 centimeters (15 inches). The gopher tortoise is characterized by stumpy, elephantine hind feet and flattened, shovel-like forelimbs adapted for digging. The tan, brown, or gray carapace (top portion of the shell) is domed and oblong. The plastron (bottom portion of the shell) is somewhat concave in males. Growth annuli may be conspicuous, particularly in juveniles. Hatchlings are approximately 4.4 centimeters (1.7 inches) in length and are yellowish-orange in color.

The gopher tortoise occurs in the southeastern Coastal Plain of the United States, from eastern Louisiana to southeastern South Carolina and throughout Florida. In Florida, gopher tortoises occur in portions of all 67 counties. Gopher tortoises inhabit a wide variety of upland vegetative communities. Three environmental conditions are especially important for gopher tortoises: well-drained, sandy soil in which to burrow; adequate low-growing herbaceous ground cover for food; and relatively open, sunlit areas for nesting. The gopher tortoise is primarily associated with longleaf pine-scrub oak woodlands (sandhills), but it is also found in sand pine scrub, coastal strands, live oak hammocks, dry

prairies, pine flatwoods, and mixed hardwood-pine communities. Disturbed habitats, such as roadsides, fencerows, clearings, and old fields, often support relatively high tortoise densities.

Gopher tortoises excavate burrows averaging 4.5 meters (14.8 feet) in length and 2 meters (6.6 feet) in depth and wide enough to allow them to turn around at any point. These burrows provide protection from temperature extremes, desiccation, and predators and serve as refuges for a variety of other animals. The placement and depth of burrows vary with the soil type, geographic location, and groundwater levels. An individual tortoise may use more than one burrow and may excavate new burrows at any time during its life.

Gopher tortoise densities and movements are affected by the amount of herbaceous ground cover present. Generally, feeding activity is confined to within 50 meters (164 feet) of the burrow. Principal foods include grasses, legumes, and grass-like plants of the sedge and aster families. Legumes appear to be particularly important in the diet of juveniles. Fruits such as blackberries (*Rubus* sp.), pawpaws (*Asimina triloba*), gopher apples (*Licania michauxii*), and saw palmetto (*Serenoa repens*) berries are also consumed.

8.2 Management Plan

Prior to the commencement of clearing activities within the development footprint, a survey will be conducted to identify gopher tortoises or gopher tortoise burrows. If gopher tortoise burrows are located within the development footprint, the applicant will obtain a permit from the FWCC to relocate any gopher tortoises to a protected recipient site prior to initiating construction activities. The recipient site will be approved by the FWCC and managed in perpetuity, consistent with the FWCC's Gopher Tortoise Management Plan (2012).

9.0 AMERICAN ALLIGATOR MANAGEMENT PLAN

The American alligator and American alligator nests were observed on-site during the protected species surveys conducted by PAI. The following plan outlines the protection guidelines that will be implemented for the American alligator during clearing operations for the Project. The American alligator is listed as threatened (due to similarity of appearance) by the USFWS and the FWCC.

9.1 Biology

The American alligator is a reptile with an elongated, armored, lizard-like body with a muscular, flat tail. Adult alligators are dark with a pale underside, while juveniles have bright yellow stripes and blotches. The average size for adults is 8.2 feet for females and 11.2 feet for males. The body weight can reach up to a half-ton. American alligators inhabit all counties in the State of Florida and are most common in the major river drainage basins and large lakes in the central and southern portions of the state. They can also be found in marshes, swamps, ponds, drainage canals, phosphate-mine settling ponds, and ditches.

Alligators are tolerant of poor water quality and occasionally inhabit brackish marshes along the coast. A few even venture into saltwater. Individuals are wide ranging, and some males may utilize an area of two square miles or more. Individuals of both sexes are most likely to become more active and extend their ranges during the April to May courtship and breeding season. Prey may include frogs, snakes, birds, and small mammals, although alligators are opportunistic feeders and may prey on what is readily available. Larger individuals often prefer carrion to fresh meat.

9.2 Management Plan

The proposed Project will not impact the alligator. Alligators commonly move from water body to water body in response to factors such as season, disturbances, food supply, etc. The American alligator is listed as a federally threatened species due to similarity of appearance to the American crocodile (*Crocodylus acutus*). Only representatives of the FWCC are authorized to handle nuisance alligators. If an alligator is present within the limits of construction at the time of clearing, work within the immediate vicinity of the alligator will be halted and the animal will be allowed to move out and into safer territory. Once the alligator has moved, work can be restarted. If an active alligator nest is found, it will be temporarily protected with an adequate buffer zone until the hatchlings leave the nest.

Extensive, high-quality American alligator habitat will be provided throughout the Project property through wetland preservation, enhancement, and restoration. This includes the exotic vegetation removal within 1,179.74± acres of existing wetlands on the property. These wetlands are predominantly cypress forest, mixed wetland hardwoods, hydric pine forest, and freshwater marshes habitat types. Invasive exotic removal will result in wetland preserves that are more suitable to alligators and their prey species. In addition to the enhancement and restoration of existing wetlands, the Project will restore 422± acres of wetlands from existing farm fields, which will benefit the American alligator. The preserve areas will be maintained per the Project's Indigenous Preservation, Restoration, and Management Plan.

To avoid problematic encounters between future residents and American alligators, the FWCC's educational brochure entitled "A Guide to Living with Alligators" (Appendix E) will be provided to homeowners and maintenance staff (see Section 20.2).

10.0 CRESTED CARACARA MANAGEMENT PLAN

Crested caracara were observed during the protected species surveys conducted by PAI. As such, the following management plan outlines the protection guidelines that will be implemented for the crested caracara prior to clearing activities on the Project and addresses habitat enhancement and restoration on the site. The crested caracara is listed as threatened by the USFWS and the FWCC.

10.1 Biology

The crested caracara is a large, non-migratory raptor that feeds both on prey and carrion and is often found with flocks of turkey vultures (*Cathartes aura*) and black vultures (*Coragyps atratus*). The population of crested caracara found in peninsular Florida is genetically isolated from other populations of crested caracara subspecies found in the southwestern United States and portions of Central and South America (USFWS 1999). While other subspecies of crested caracara are not listed as threatened or endangered, the crested caracara subspecies found in Florida was listed in July 1987 as threatened under the ESA.

Crested caracaras primarily use open habitats, including native prairies; grasslands and cattle pastures with their associated freshwater marshes; and small clumps of cabbage palms (*Sabal palmetto*), live oak hammocks, and cypress (*Taxodium* spp.). Cabbage palms in open habitats are of high importance for nesting (Rodgers *et al.* 1996, Morrison 2001). The primary nesting season for the crested caracara is November through April. Egg-laying typically occurs December through February. Clutch size is one to three eggs, and incubation ranges from 28 to 32 days. Caracara young fledge at age seven to eight weeks, mostly in March and April (Wood 2001).

10.2 Pre-Construction Surveys

Prior to the commencement of clearing activities within 1,500 meters (4,920 feet) of the identified nest, a survey will be conducted during the crested caracara nesting season (January through April) to determine if the nest is active or if other crested caracara nests are present. The survey will be conducted in potential nesting and foraging habitat within 1,500 meters of the identified caracara nest, including land adjacent to the Project that is under the applicant's ownership. The crested caracara survey will be conducted according to the methodology described in the USFWS Crested Caracara Draft Survey Protocol (USFWS 2016). The locations of crested caracara nests and the movements and activities of caracara will be documented, if observed.

10.3 Crested Caracara Nest and Habitat Management Plan

In South Florida, the USFWS defines a primary zone for caracara nests as 300 meters (985 feet) and a secondary zone as 1,500 meters (4,920 feet) from the nest tree (USFWS 2004). The following conservation measures will be implemented within these zones:

- No clearing of major grading will be conducted within the primary or secondary zones of an active nest without prior authorization from the USFWS.
- Construction within the secondary zones of an active nest may only occur during the non-nesting season (May 1 through November 30) unless otherwise authorized by the USFWS. During the nesting season (December 1 through April 30), all construction activities within the primary or secondary zones of an active nest will be conducted in accordance with the recommendations from the USFWS.

- Monitoring of the nest will be undertaken on a regular basis during the nesting season with reports provided to the USFWS at the conclusion of each nesting season.
- If no nesting occurs for three consecutive years and is documented in monitoring reports, the nest site will be considered abandoned.

The completed Project will preserve, enhance, and restore 3,295.60± acres of native habitat. The conservation areas will include open freshwater marsh, pine, and other habitat types that will provide potential foraging opportunities for caracaras. Of the 3,295.60± acres, approximately 97.28± acres will be restored to crested caracara nesting and foraging habitat. The location of the crested caracara habitat restoration area is depicted on Appendix B. Specifically, this area will include upland prairie habitat with scattered clusters of cabbage palms that could be utilized for the species for nesting and roosting.

Problematic encounters between future residents and crested caracaras are not anticipated. Should a caracara choose to nest adjacent to the community or close to approved access areas within the preserves, the nest will be left undisturbed. If unanticipated nest disturbance is noted, then an appropriate no-entry buffer zone will be established around the nest with signage until the young fledge.

11.0 WADING BIRD AND FLORIDA SANDHILL CRANE MANAGEMENT PLAN

Florida sandhill cranes and listed wading bird species, including the little blue heron, tri-colored heron, wood stork, roseate spoonbill, and snowy egret were observed utilizing the Project site during the protected species surveys conducted by PAI. It is anticipated that these birds and others, including limpkin, may utilize the wetlands and other native habitats on the property. The following management plan has been prepared for the purpose of addressing the management of potential wading bird and Florida sandhill crane habitat on the site.

11.1 Management Plan

Prior to clearing activities, a qualified ecologist will survey the construction impact area and adjacent habitats for the presence of Florida sandhill crane and listed wading bird nests. If there is evidence of Florida sandhill crane or listed wading bird nesting, the appropriate FWCC-recommended buffer will be provided around the nest site(s) to avoid disturbance by human activities. If Florida sandhill crane or listed wading bird nesting is discovered after construction has begun or if maintaining the buffers is not possible, the applicant will coordinate with FWCC staff regarding permitting requirements.

The Project proposes the preservation and enhancement of wading bird habitat. Foraging areas will be provided through the preservation, enhancement, and restoration of 1,179.74± acres of existing wetlands. Enhancement and restoration of the preserved wetlands by removing invasive exotic plants and installing native plantings will result in habitats that are more suitable for wading bird foraging and roosting. In addition to enhancing and

restoring existing wetlands, the Project will restore 422± acres of wetlands from existing farm field, which will benefit Florida sandhill cranes and wading bird species.

Problematic encounters between future residents and Florida sandhill cranes or wading birds are not anticipated. Construction personnel, maintenance staff, and homeowners will be informed that the wading birds are protected species. Additionally, informational pamphlets will be provided to homeowners and maintenance staff (Appendix F) (see Section 20.3).

12.0 BURROWING OWL MANAGEMENT PLAN

No burrowing owls were observed on-site during the Project's protected species surveys or other fieldwork. However, there is potential for the species to be found in the open lands within the Project site.

The following management plan outlines the protection guidelines that will be implemented for the burrowing owl if they are to be found on-site. The burrowing owl is listed as threatened by the FWCC.

12.1 Biology

The burrowing owl lives and breeds in varied habitats throughout the Florida peninsula, with the primary natural habitat occurring in dry prairie and, during the dry season, the edges of depressional marshes. Presently, the burrowing owl inhabits several ruderal areas, including pastures, golf courses, airports, athletic fields, school campuses, vacant areas in residential or industrial neighborhoods, and road rights-of-way (Hipes *et al.* 2001). One of the largest subpopulations of burrowing owls is located on the Cape Coral peninsula in Lee County.

Burrowing owls nest and inhabit underground burrows that they excavate or adopt from other burrowing animals, such as gopher tortoises. Culverts, PVC pipes, and spaces underneath sidewalks and roofs also serve as nesting locations for the burrowing owl. Predominately, the burrowing owl is non-migratory and resides within the vicinity of the burrow. They are territorial around their burrows and mostly monogamous. During the nesting season, burrows are adorned with various materials, such as grasses and palm fronds, before egg-laying. Subsequent to the laying of eggs, the entrance to the burrow is decorated with highly visible, non-natural objects such as tinfoil and plastics.

In southern Florida, the burrowing owl feeds primarily on the brown anole (*Anolis sagrei*), marine toad (*Bufo marinus*), and Cuban treefrog (*Osteopilus septentrionalis*). To a lesser extent, other amphibians, small rodents, insects, arachnids, and crayfish provide supplemental sustenance. The majority of foraging occurs at dusk, but they also will hunt from perches or burrow entrances during the day. Fence posts serve as a main source for perching (Wood 2001).

12.2 Pre-Construction Surveys

Prior to clearing activities, a qualified biologist will survey the construction impact area and adjacent habitats for the presence of owl burrows. Inactive (i.e., containing no eggs or flightless chicks) nest burrows within the proposed impact area will be removed with an FWCC permit and in accordance with State and Federal regulations. Nest burrows can generally be considered inactive from July 10 to February 15, although some nesting occurs as early as October each year. Between February 15 and July 10, burrows attended by one or more burrowing owls are considered active nests unless information is available to suggest otherwise (i.e., proof that young fledged from the nest prior to July 10). Burrows within the impact area that are determined to be active will be temporarily protected from clearing by a 50-foot radius of undisturbed buffer (staked and/or roped-off) until the young fledge, as confirmed by a qualified biologist. These burrows will then be removed with an FWCC permit and in accordance with state regulations.

12.3 Management Plan

Efforts will be made to leave existing burrows undisturbed, where feasible. The owls, burrows, and their eggs are protected from harassment and/or disturbance by state law. Burrowing owls are also protected by the federal Migratory Bird Treaty Act. Maintenance staff and construction personnel will be notified that the Florida burrowing owl is a protected species and instructed to report malicious destruction or harassment of burrowing owls or their nests to 888-404-FWCC (888-404-3922).

13.0 IMPERILED BEACH-NESTING BIRD MANAGEMENT PLAN

Although no Imperiled Beach-Nesting Birds (IBNBs) (e.g., least terns (*Sterna antillarum*)) were observed on-site during the Project's protected species survey or other fieldwork, clearing associated with construction may create conditions favorable for IBNB colonies. If IBNBs are observed nesting during construction or maintenance activities, FWCC staff will be notified and a buffer will be provided to the nest(s) to avoid disturbance. Research conducted recommends a nest buffer of 180 meters (about 197 yards) for species such as least terns (FWCC 2013). If maintaining a 180-meter buffer is not possible, FWCC staff will be contacted to discuss methods to reduce disturbance to the nest.

Problematic encounters with IBNBs are not anticipated. Construction personnel and maintenance staff will be informed that IBNBs are protected.

14.0 EVERGLADE SNAIL KITE MANAGEMENT PLAN

Everglade snail kites were observed utilizing the Project during the protected species surveys conducted by PAI. The following management plan has been prepared for the purpose of addressing the conservation of Everglade snail kite habitat on the Project site. The Everglade snail kite is listed as threatened by the USFWS.

14.1 Biology

The snail kite is a non-migratory, medium-sized raptor (Sykes *et al.* 1995) that feeds almost exclusively on apple snails (*Pomacea paludosa*) (Cary 1985). Its current range encompasses six large freshwater watersheds, including the Upper St. Johns, Kissimmee Valley, Lake Okeechobee, Loxahatchee Slough, the Everglades, and the Big Cypress Basin. Their habitats consist of freshwater marshes and the shallow vegetated edges of lakes (natural and man-made) where apple snails can be found (Bailey 1978). They require foraging areas that are relatively clear and open in order to visually search for apple snails. Therefore, dense growth of herbaceous or woody vegetation is not conducive to efficient foraging (Sykes 1979, Beissinger 1988).

Nesting almost always occurs over water, which deters predation (Sykes 1987a). Nesting substrates include small trees (usually less than ten meters in height), including Carolina willow (*Salix caroliniana*), bald cypress (*Taxodium distichum*), pond cypress (*Taxodium distichum* var. *nutans*), melaleuca (*Melaleuca quinquenervia*), sweetbay (*Magnolia virginiana*), swamp bay (*Persea palustris*), pond apple (*Annona glabra*), and dahoon holly (*Ilex cassine*). Shrubs used for nesting include wax myrtle (*Morella cerifera*), cocoplum (*Chrysobalanus icaco*), buttonbush (*Cephalanthus occidentalis*), sesbania (*Sesbania* sp.), elderberry (*Sambucus canadensis*), and Brazilian pepper (*Schinus terebinthifolia*). Nesting can also occur in herbaceous vegetation, such as sawgrass (*Cladium jamaicense*), cattail (*Typha* sp.), soft-stem bulrush (*Scirpus validus*), and reed (*Phragmites australis*) (Sykes *et al.* 1995). Nests are more frequently placed in herbaceous vegetation around Lake Kissimmee and Lake Okeechobee during periods of low water, when dry conditions beneath the willow stands (which tend to grow to the landward side of the cattails, bulrushes, and reeds) prevent snail kites from nesting in woody vegetation. Nests constructed in herbaceous vegetation on the waterward side of the lake littoral zones are more vulnerable to collapse due to the weight of the nests, wind, waves, and boat wakes and are more exposed to disturbance by humans (Chandler and Anderson 1974; Sykes and Chandler 1974; Sykes 1987b; Beissinger 1986, 1988; Snyder *et al.* 1989). It is important to note that suitable nesting substrate must be close to suitable foraging habitat, so extensive areas of contiguous woody vegetation are generally unsuitable for nesting.

Roosting sites are also almost always located over water. Roost sites are in taller vegetation among low-profile marshes. Snail kites tend to roost around small openings in willow stands at heights of 1.8 to 6.1 meters and in stand sizes of zero to five hectares. Roosting in melaleuca or pond cypress is in stands with tree heights of 4 to 12 meters (Sykes 1985).

14.2 Management Plan

Extensive, high-quality Everglade snail kite habitat will be provided throughout the Project property through wetland preservation, enhancement, and restoration. This includes exotic vegetation removal within 1,179.74± acres of existing wetlands on the property. These wetlands are predominantly cypress forest, mixed wetland hardwoods, hydric pine forest, and freshwater marshes habitat types. Invasive exotic removal will result in wetland preserves that are more suitable to Everglade snail kites. In addition to enhancing and

restoring existing wetlands, the Project will restore 422± acres of wetlands from existing farm fields, which will benefit the Everglade snail kite. The preserve areas will be maintained per the Project's Indigenous Preservation, Restoration, and Management Plan.

15.0 BIG CYPRESS FOX SQUIRREL MANAGEMENT PLAN

One Big Cypress fox squirrel was observed utilizing forested and disturbed areas on the Project during the protected species surveys conducted by PAI. The following management plan has been prepared for the purpose of addressing the conservation of Big Cypress fox squirrel habitat on the Project site and outlines the protection guidelines that will be implemented for the Big Cypress fox squirrel prior to, during, and after construction of the Project. The Big Cypress fox squirrel is listed as threatened by the FWCC. There is no federal listing for the Big Cypress fox squirrel in Florida.

15.1 Biology

The Big Cypress fox squirrel lives and breeds in varied habitats in Southwest Florida, including cypress swamps, pine flatwoods, tropical hardwood forests, live oak woods, mangrove forests, and suburban habitats such as golf courses, city parks, and residential areas in native vegetation (Humphrey 1992). Dense cypress/hardwood swamps are avoided. This may be due to the competition for food and habitat with the Eastern gray squirrel (*Sciurus carolinensis*). Little data is available on the preferred forage habitat of the Big Cypress fox squirrel. Big Cypress fox squirrels prefer to feed on the male and female cones of slash pine (*Pinus elliottii*). Cabbage palm fruits, bromeliad (*Bromeliaceae* sp.) buds, and acorns are also important food items. A smaller percentage of the diet may consist of seasonal fruits, berries, and seeds (Humphrey 1992).

Big Cypress fox squirrels often form platform nests in pines and hardwoods, and moss-and-stick nests in cypress, tops of cabbage palms, and large clumps of bromeliads. Cabbage palms and bromeliads are especially important because they can provide immediate shelter, which allows the squirrel to travel over large areas without requiring a daily return to a permanent nesting facility (Humphrey 1992).

Big Cypress fox squirrels are solitary animals. Interaction between animals occurs primarily during mating season. Mating chases occur frequently throughout the months of May through August. During the non-mating season, interactions are infrequent and often occur around food sources. Young remain in the nest for approximately 90 days. Home ranges are 40 hectares (approximately 100 acres) for males and 20 hectares (approximately 50 acres) for females (Humphrey 1992).

15.2 Pre-Construction Surveys

A qualified ecologist will be on-site to supervise Big Cypress fox squirrel management and monitoring activities as detailed in this plan. Prior to clearing activities, the preserve areas will be staked in the field and clearly identified with silt fencing or an equivalent barrier.

The fencing will be inspected by the preserve manager prior to clearing activities. The operation and storage of construction equipment and the stockpiling of fill and construction material will be prohibited within the fenced preserve areas. The fencing identifying the limits of the preserves will be maintained for the duration of construction activities.

Also, prior to the commencement of clearing activities in the development area and removal of exotic trees within the preserve areas, a survey will be conducted by a qualified ecologist to identify potential Big Cypress fox squirrel nests. If potential nests are identified within the clearing limits or within the preserve areas, observations will be conducted to determine if the nests are being utilized by Big Cypress fox squirrels. The FWCC will be notified of nests determined to be utilized by Big Cypress fox squirrels. Active nests will be temporarily protected from clearing by a 125-foot-radius undisturbed buffer until juvenile fox squirrels have vacated the nest(s), as confirmed by a qualified ecologist. After completion of nesting and observations documenting that juvenile fox squirrels have vacated the nest(s), a written request to remove the nest tree(s) will be made to the FWCC. After receipt of the written authorization from the FWCC, the nest tree and buffer can then be cleared.

15.3 Management Plan

Enhancement and restoration of the preserve areas will be conducted as detailed in the Indigenous Preservation, Restoration, and Management Plan. Prescribed fires may be used within the preserved habitats to help maintain an open understory. The preserve areas will provide foraging and nesting habitats for Big Cypress fox squirrels.

Problematic encounters between future residents and Big Cypress fox squirrels are not anticipated. The typical nest location, high within the tree canopy, will ensure against disturbance to fox squirrel nests. Construction personnel, maintenance staff, and homeowners will be informed that the Big Cypress fox squirrel is a protected species.

16.0 FLORIDA BLACK BEAR MANAGEMENT PLAN

Florida black bear and black bear signs (i.e., scratch tree) were documented on the Project site during the protected species surveys conducted by PAI. The following habitat management plan has been prepared for the purpose of addressing the conservation of Florida black bear habitat on the Project site. The Florida black bear is not listed by the FWCC or the USFWS. However, the FWCC and the Lee County LDC have specific management activities for this species.

16.1 Biology

The Florida black bear is a subspecies of the American black bear (*Ursus americanus*). The Florida black bear is a solitary animal that inhabits heavily wooded terrain and is most often found in large tracts of swamp forest and undisturbed upland forest. Some of the most important habitat types for the Florida black bear include pine flatwoods, hardwood swamps, cypress swamps, cabbage palm forests, sand pine scrub, and mixed hardwood

hammocks. Denning often occurs in remote swamps or thickets with dense vegetation. Adult females breed in alternating years during the months of June and July. In Florida, hibernation may be restricted to females producing cubs. Hibernation most often occurs during the winter months. The diet of Florida black bears is highly variable and includes both plants and animals, including saw palmetto berries, honeybees (*Apis* sp.), ants (*Formicidae* sp.), armadillo (*Dasypus novemcinctus*), feral hog (*Sus scrofa*), and white-tailed deer (*Odocoileus virginianus*) (Humphrey 1992).

16.2 Management Plan

In order to deter the potential for interactions between humans and large mammals such as the Florida black bear, perimeter fencing will be utilized between the development and conservation areas to deter large mammals from accessing the development areas.

The preserved, enhanced, and restored habitat within the conservation areas will provide habitat for the Florida black bear and associated prey species. Enhancement activities will provide higher quality habitat for the Florida black bear than what currently exists within the site.

To avoid problematic encounters between future residents and Florida black bears, the FWCC's educational brochure entitled "A Guide to Living in Bear Country" (Appendix G) will be provided to homeowners and maintenance staff (see Section 20.4).

17.0 FLORIDA PANTHER MANAGEMENT PLAN

Florida panther and panther sign (i.e., scat, tracks) were observed on the Project site during the protected species surveys conducted by PAI. The property is located within both the USFWS's Primary and Secondary Zones for the Florida panther. In addition, FWCC Florida panther telemetry has been recorded on the Project site and adjacent properties. The following habitat management plan has been prepared for the purpose of addressing the conservation of Florida panther habitat on the Project site. The Florida panther is listed as endangered by the FWCC and the USFWS.

17.1 Biology

The Florida panther is a large, long-tailed cat with a great deal of color variation: pale brown or rusty upper parts; dull white or buff-colored underparts; and dark brown or blackish tail tip, back of ears, and sides of the nose. Mature males have an average weight range between 100 to 150 pounds and measure nearly seven feet from nose to tip of the tail. Females are considerably smaller, with a weight range of 50 to 100 pounds and measuring about six feet (USFWS 1987). Panthers subsist on a variety of mammalian prey, dominated by white-tailed deer, feral hog, and, in some areas, raccoon (*Procyon lotor*) (Maehr 1988a). Existing data on Florida panther reproduction indicates that breeding occurs throughout the year with a peak in the winter/spring period, a gestation period of around 90 to 95 days, litter sizes of one to four kittens, and a breeding cycle of two years.

for females successfully raising young to dispersal (which occurs around 18 to 24 months) (Belden 1988, Maehr 1988b).

In terms of population size and occupied range, the Florida panther population is at least stable, and at best expanding, as evidenced by natality rates exceeding mortality rates and by recent dispersals north of the Caloosahatchee River (Land *et al.* 2000). According to Maehr *et al.* (1991), home ranges average 200 square miles for resident adult males, 75 square miles for adult females, 241 square miles for transient males, and 69 square miles for subadult females. Florida panthers inhabit large remote tracts of land with adequate prey and cover and occupy a variety of habitat types, including hardwood hammocks, pine flatwoods, mixed hardwood swamps, and cypress swamps. Appropriate cover is an important component of habitats used, especially during hunting, denning, and day-bedding. Recent information based on global positioning system (GPS) telemetry data collected during nocturnal and diurnal periods indicate that forests are the habitats selected by panthers (Land *et al.* 2008).

17.2 Management Plan

To deter the potential for interactions between humans and large mammals such as the Florida panther, perimeter fencing will be utilized between the development and conservation areas to deter large mammals from accessing the development areas.

The preserved, enhanced, and restored habitat within the conservation areas will provide habitat and a wildlife corridor for the Florida panther and associated prey species. Enhancement activities will provide higher quality habitat for the Florida panther than what currently exists within the site.

To avoid problematic encounters between future residents and Florida panthers, the educational brochure entitled “A Guide to Living with Florida Panthers” (Appendix H), prepared by the FWCC and the USFWS, will be provided to homeowners and maintenance staff (see Section 20.5).

18.0 FLORIDA BONNETED BAT MANAGEMENT PLAN

No Florida bonneted bats were documented utilizing the Project site during the protected species surveys conducted by PAI. However, Florida bonneted bats were documented foraging on the Project site during an acoustic survey conducted by PAI in September and October 2022. The management plan details for the Florida bonneted bat are provided below.

18.1 Biology

The Florida bonneted bat is the largest species of bat found in Florida, with an average wingspan of 490 to 530 millimeters (19.3 to 20.9 inches) and an average length of 130 to 165 millimeters (5.1 to 6.5 inches). They are members of the Molossidae family, commonly referred to as free-tailed bats. As the name suggests, Molossids, including Florida bonneted

bats, have tails that extend well beyond their short tail membrane. Also similar to other free-tailed bats, the Florida bonneted bat has small eyes, large upper lips, and long, narrow wings (Marks and Marks 2006). Their fur is short and glossy with sharply bicolored hairs with a white base (Timm and Genoways 2004). Their fur ranges from dark gray to brownish gray or cinnamon brown on its dorsal side, with lighter, grayish fur underneath. The Florida bonneted bat is characterized by its large size and its large, broad ears that slant forward over the eyes and join together along the midline of the head. Their big ears protrude over their head like a bonnet, giving them their name (Marks and Marks 2006).

The current range of the Florida bonneted bat is known to include both the east and the west coast of southern Florida (excluding the Keys), and includes Charlotte, Collier, Lee, Miami-Dade, Okeechobee, and Polk Counties.

Habitat for the Florida bonneted bat consists mainly of foraging areas and roosting sites, including some artificial structures in both urban and forested areas (USFWS 2014). They are known to roost in rock crevices, tree cavities, buildings, and bat boxes (Marks and Marks 2008). South Florida bonneted bats roost primarily in trees and in man-made artificial structures, with roost availability indicated as an important limiting factor (USFWS 2014). Foraging habitat includes areas over open fresh water, such as ponds, streams, and wetlands; and they will drink when flying over open water (USFWS 2014). They will also forage for insects over treetops and other open areas such as golf courses (Marks and Marks 2006).

18.2 Management Plan

The Project will have no adverse impacts on the bonneted bat. The preservation, enhancement, and restoration of native habitats will significantly increase biological diversity and species richness of wildlife on-site. This will provide a significantly increased prey base for the bonneted bat. The restored wetlands will provide quality foraging habitat for the bonneted bat. In addition, restored uplands will provide additional foraging and roosting habitat for the species.

Prior to the commencement of clearing activities in the development areas and removal of exotic trees within the preserve areas, a cavity tree survey and/or emergence survey will be conducted by a qualified ecologist to identify potential Florida bonneted bat roosts. The results of the cavity tree and/or emergence survey will be coordinated with Lee County and the USFWS.

The Project will implement Best Management Practices (BMPs) that are in accordance with the USFWS Consultation Key for the Florida bonneted bat (USFWS 2019). The following BMPs will be implemented for the Project:

- A 250-foot buffer will be maintained around known or suspected Florida bonneted bat roosts when using heavy equipment to limit disturbance to roosting bats.

- The creation of the Project's buffer lake system and the preservation, enhancement, and restoration of 1,179.74± acres of existing wetlands on-site through the Project's wetland mitigation program will promote Florida bonneted bat foraging opportunities.
- Riparian habitat will be enhanced by the planting of native vegetation along the lake shorelines (i.e., littoral zone plantings).
- Widespread application of insecticides will be avoided in areas where Florida bonneted bats are known or expected to forage and/or roost.
- Native trees and shrubs will be planted within open space and buffer areas to promote insect diversity, availability, and abundance.
- Mature trees and snags that could provide roosting habitat will be retained within the conservation areas.

Problematic encounters between future residents and bonneted bats are not anticipated. Should a bonneted bat choose to roost adjacent to the community, the roost will be left undisturbed.

19.0 PRESCRIBED FIRE

Prescribed burning may be used as a management tool to maintain the native vegetation communities within the conservation areas. Prescribed burns help maintain vegetative communities in their natural state, reduce fuel loads and the danger of wildfire, aid with the eradication and control of exotic and nuisance vegetation species, and improve wildlife habitat. The objectives of prescribed burning in the conservation areas will be to aid in the control of exotic vegetation and woody shrubs (e.g., wax myrtle and saltbush (*Baccharis halimifolia*)), and to stimulate the growth and diversity of herbaceous vegetation.

If utilized, the burning frequency for the conservation areas will be two to four years, which is consistent with the natural fire regime for mesic flatwoods, wet flatwoods, and wet prairies described by Florida Natural Areas Inventory in the *Guide to the Natural Communities of Florida* (2010). The edges of the Project's freshwater marshes will be burned when the fire moves through the adjacent pine and prairie habitats. The fire will be allowed to extinguish naturally within the wetter marsh habitats.

Prescribed burning is typically conducted during the winter or early spring when temperatures are reduced and wind direction is more constant. The initial burn is anticipated to occur during the late winter. Winter burns are preferred to reduce high fuel loads. Growing-season burns may also be conducted as conditions allow. Changes in annual weather cycles determine when burn permits will be available, and burns may be conducted only on the day(s) of Florida Forest Service (FFS) permission. Fires will be excluded from planted areas for at least ten years to allow plantings to mature enough to survive fires.

Controlled burns will be conducted only when authorized with a permit by the FFS. In addition, notice will be given to the local fire district. Coordination with CREW and the South Florida Water Management District will occur before burning. Burning will not be conducted if smoke is anticipated to encroach upon Corkscrew Road, State Road 82, or adjacent residences. Information on prescribed fire will be incorporated into the property owner association or developer's agreement documents (Appendix I).

20.0 HUMAN-WILDLIFE COEXISTENCE PLAN

The following Human-Wildlife Coexistence Plans will be incorporated into the declaration of covenants of the Project's Homeowners' Association or Community Development District documents.

20.1 Eastern Indigo Snake

As previously noted, the USFWS's Standard Protection Measures for the Eastern Indigo Snake (2013) will be followed prior to and during construction activities. The USFWS's Standard Protection Measures, including the poster and brochure, can be found at <http://www.fws.gov/verobeach/listedspeciesreptiles.html>. A copy of the brochure is provided as Appendix D.

20.2 American Alligator

Signs will be posted on the Project property to instruct on-site workers and homeowners not to feed or harass the American alligator. The signs will indicate that the offense is punishable by law. The typical signage is provided as Appendix J. Signs will be spaced a maximum of 300 feet apart. The FWCC's educational brochure entitled "A Guide to Living with Alligators" (Appendix E) will be provided to homeowners and maintenance staff. The brochure can be found at http://myfwc.com/media/152524/Alligator_Brochure.pdf. Construction personnel and homeowners will be instructed that in the event there is a problem with a persistent nuisance alligator, they should contact the FWCC's Nuisance Alligator Hotline at 866-FWC-GATOR (866-392-4286). The FWCC is the only agency empowered to handle nuisance alligators.

20.3 Wading Bird

A wading bird informational brochure entitled "Wading Bird Informational Pamphlet" (Appendix F) will be provided to homeowners and maintenance staff. The brochure provides wading bird information and methods to prevent human-wading bird interactions. In addition, the brochure informs residents of the need to avoid disturbance around a nest(s), should a wading bird nest(s) be identified on the Project property in the future.

20.4 Florida Black Bear

Residents will be educated about the presence of black bears in their community. FWCC's educational brochure entitled "A Guide to Living in Bear Country" (Appendix G) will be provided to homeowners and maintenance staff. This brochure can be found at <http://myfwc.com/wildlifehabitats/managed/bear/brochures/>.

20.5 Florida Panther

Residents will be educated about the presence of Florida panthers in their community. The educational brochure entitled "A Guide to Living with Florida Panthers" (Appendix H), prepared by the FWCC and the USFWS, will be provided to homeowners and maintenance staff. This brochure provides safety tips and instructions for panther encounters. The brochure can be found on the FWCC website, located at <http://myfwc.com/conservation/you-serve/wildlife/panthers/>.

21.0 PRESERVE SIGNAGE AND COMMUNITY EDUCATION PLAN

Signs identifying the conservation areas as a "nature preserve area" will be installed along the boundary of the preserve. The signage will include language stating, "No dumping allowed" (Appendix J). The signs will be spaced a maximum of 300 feet apart, will be no closer than 10 feet from residential property lines, and will be limited to a maximum height of 4 feet and a maximum size of two square feet.

Periodic seminars may be held to further educate the community about the conservation areas, wetland benefits, coexistence with and protection of wildlife, and the benefits of prescribed fire. Community informational and educational brochures, such as those describing the benefits of prescribed fire (Appendix I), may be created and provided as needed to keep residents in compliance with conservation easements, wildlife regulations, etc. Continued education will ensure that the community is well informed regarding the preserves and wildlife coexistence.

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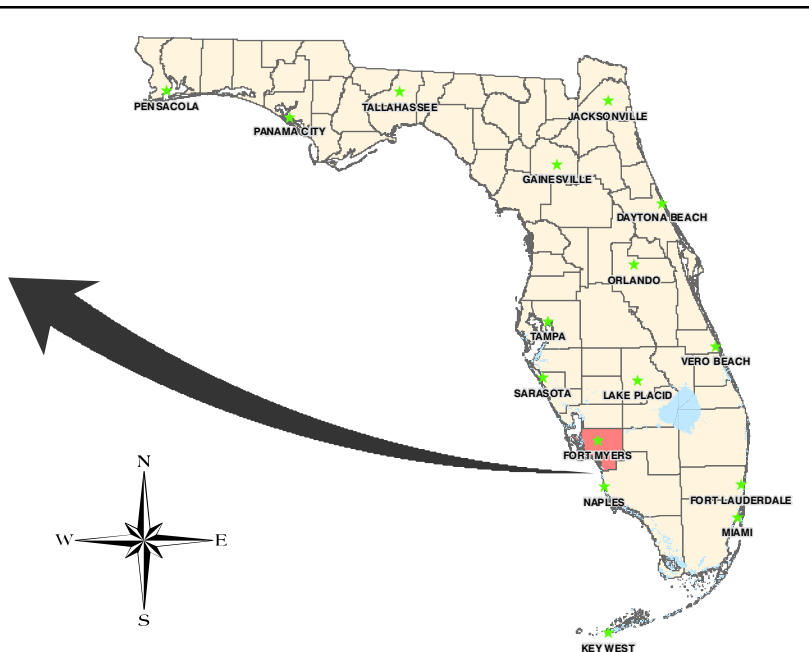
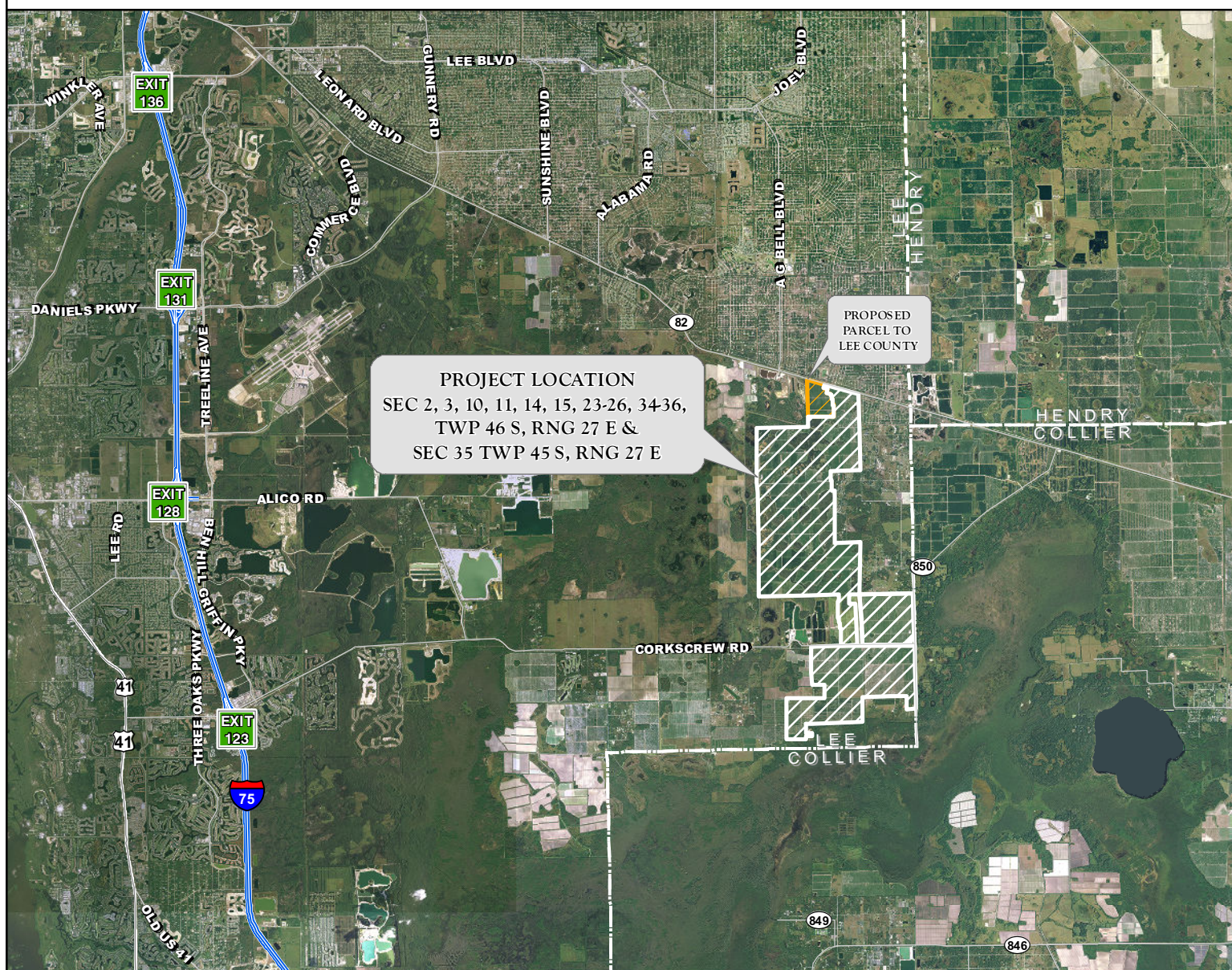
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APPENDIX A
PROJECT LOCATION MAP



DRAWN BY	DATE
H.H.	03/14/22
REVIEWED BY	DATE
S.J.	03/14/22
REVISED	DATE



PASSARELLA & ASSOCIATES

APPENDIX B

**AERIAL WITH CONSERVATION AREAS AND
PROPOSED LOCATION OF WILDLIFE CROSSING AND
FENCING PLAN**



- LEGEND:
- ON-SITE PROPOSED CONSERVATION AREAS
 - OFF-SITE CONSERVATION AREAS
 - LAKES
 - CRESTED CARACARA HABITAT RESTORATION AREA (97.28 AC.±)
 - PROPOSED WILDLIFE FENCING
 - PROPOSED SMALL ANIMAL CROSSING (UP TO 48IN RCP)
 - PROPOSED LARGE ANIMAL CROSSING (UP TO 6X10 BOX CULVERT)
 - APPROXIMATE LOCATION OF FUTURE LARGE ANIMAL CROSSING (UP TO 6X10 BOX CULVERT)

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH FLIGHT DATES OF JANUARY - MARCH 2021.

PROPERTY BOUNDARY AND SITE PLAN PER J.R. EVANS, INC. DRAWING NO. 00857-01-S101.DWG DATED MAY 22, 2024.

FLORIDA MANAGED AREAS WERE ACQUIRED FROM THE FLORIDA NATURAL AREAS INVENTORY WEBSITE ON SEPTEMBER 2021.

CONSERVATION COLLIER LAND ACQUISITION WAS ACQUIRED FROM THE COLLIER COUNTY GOVERNMENT ON SEPTEMBER 2021.

COLLIER FLU WAS ACQUIRED FROM THE COLLIER COUNTY GIS WEBSITE ON SEPTEMBER 2021.

LEE 2020 WAS ACQUIRED FROM THE LEE COUNTY GIS WEBSITE ON SEPTEMBER 2021.

FSA AND HSA AREAS WERE ACQUIRED FROM THE COLLIER COUNTY GOVERNMENT WEBSITE ON MAY 2019.

SFWM CONSERVATION EASEMENTS WERE ACQUIRED FROM THE SFWM WEBSITE ON SEPTEMBER 2021.

REVISIONS	DATE	DRAWN BY	DATE
Revised site plan	09/13/22	H.H.	04/04/22
Added Boardwalk	11/11/22	S.J.	04/04/22
Site plan update	06/06/24	S.J.	04/04/22

13620 Metropolis Avenue
Suite 200
Ft. Myers, FL 33912
Phone (239) 274-0067
Fax (239) 274-0069



KINGSTON

AERIAL WITH CONSERVATION AREAS AND PROPOSED LOCATION
OF WILDLIFE CROSSING AND FENCING PLAN

DRAWING No.
21CCCL3707
SHEET No.
APPENDIX B

APPENDIX C

BEAR-RESISTANT CONTAINER LIST



BEAR RESISTANT TRASH & RECREATIONAL STORAGE CONTAINERS

Residential Poly Carts and Cans



BearProofInc

234 S. Golden Dr.
Silt, CO 81652
Ph: (970) 309-2460
Fax: (970) 876-0420
E-mail: Info@BearProofInc.com
Website: <http://www.bearproofinc.com/>

Metal Roll Away Container

95 gallon

* Metal food and trash lockers also available



Bear Proofing-R-US

(no address available)
Ph: (865) 430-8902
E-mail: akruk@charter.net
Website: <http://www.bearproofing-r-us.com/>

Residential Street-side

Trash Can

96 gallon

*dumpster lids, loaders, and bird feeders also available



Bear Proof Systems, LLC

7855 E. Lark Dr.
Parker, CO 80138
Phone: (303) 840-3390/1-800-944-7973
Fax: (303) 840-3460
E-mail: solidws@comcast.net
Website: <http://www.bearproofsystems.com/>

Curbside Carts

64 gallon

94 gallon

*Also make various metal containers



BearSaver – USA Sales

Steve Thompson

Ph: 1-800-851-3887
Fax: 909-605-7780
E-mail: sales@bearsaver.com
Website: <http://www.bearsaver.com/>

Bear Resistant Residential Poly Carts

Model PC-95

95 gallon (min order 24)

Model PC-65

65 gallon (min order 20)

Model PC-32

32 gallon (min order 20)

*Commercial Yard Dumpsters also available



BEAR RESISTANT TRASH & RECREATIONAL STORAGE CONTAINERS



Cascade Industries

The Learning Community
3400 Innovation Court SE
Grand Rapids, MI 49512-2085
Ph. (616)-975-4800

Fax: (616) 254-4174

E-mail: info@cascadeng.com

<http://www.cascadeng.com/markets/waste/index.htm>

"Cascade Cart"

35 gallons

64 gallons

96 gallons

Bear Resistant Cascade Cart

96 gallons



DAWG, Inc.

25 Lassy Court
Terryville, CT 06786
Phone: 1-800-YEL-DAWG (935-3294)
Fax: 1-800-LIL-PAWS (545-7297)
website: www.dawginc.com

Bearicuda Bin

"Critter Can" Model
Mobile Screw Top Model
Mobile Bearicuda Bin
BEARier Bins

Residential Trash Storage Containers



BearGuard Co. Ltd.

P.O. Box 89
Tahoe City, CA. 96145-0089
Phone/Fax (530) 581-2211
E-mail: sales@BearGuardInfo.com
Website: <http://www.bearguardinfo.com/index.html>

Green and Brown Containers

Various sizes



Carson Valley Welding

1046 Mallory Way
Carson City NV. 89701
PH: (775) 884-9353
Cell: (530) 318-1136
Fax: (775) 884-9354
Email: Don@nobearcan.com
Website: <http://www.nobearcan.com/index.html>

"No Bear Can"

Model B-5030 \$999.00

Model B-5036 \$1149.00

See also the following companies:

Bear Proof Inc.
Bear Proofing-R-US
Bear Proof Systems

Info. above



BEAR RESISTANT TRASH & RECREATIONAL STORAGE CONTAINERS

Animal Resistant Dumpsters



Capital Industries, Inc.

5801 Third Avenue South
Seattle WA 98108
Phone: (206) 762-8585/1-800-967-8585
FAX: (206) 762-5455
E-mail: sales@capitalind.com
Website: <http://www.capitalind.com/main/>

**Bear Resistant
Metal Containers & Lids**
Various designs



Haul-All Equipment Systems

(no address available)
Phone: 1-888-428-5255
Fax: (403) 328-9956
E-mail: solutions@haulall.com
Website: <http://www.haulall.com/index.htm>

Hyd-A-Way Model
Several options available
for garbage disposal
and storage

See also the following companies:

Bear Proof Inc.
Bear Proofing-R-US
Bear Proof Systems
BearSaver-USA Sales

Info. above

Recreational Storage Containers

Panniers (for cooler storage)



Bear-Aware

(no address available)
Phone: 800-568-8990 / 818-504-3518
Contact Jeff Berns
E-mail: jmberns@bear-aware.com
Website: <http://www.bear-aware.com/>

Dry & Ice Panniers

24" Medium Dry
28" Large Dry
28" Slim Dry
24" Medium Ice
28" Large Ice



Outfitters Supply

7373 US Highway 2E
Columbia Falls, MT 59912
Phone: 888-467-2256/ 406-892-3650
Fax: 406-892-4234
E-mail: gopackn@outfitterssupply.com
Website: <http://www.outfitterssupply.com/>

Pack Panniers



Pack Saddle Shop

3071 West Twin Rd
Moscow Idaho 83843
Phone: 208-882-1791
E-mail: support@packsaddleshop.com
Website:
<http://www.packsaddleshop.com/Bearpan.html>

Aluminum Panniers

Medium
Large
Sold with and without
hardware



BEAR RESISTANT TRASH & RECREATIONAL STORAGE CONTAINERS

Food Storage Lockers



See the following companies:

BearProofInc
BearSaver – USA Sales
Haul-All Equipment Systems (product shown)

Info. above

Ask your local waste service provider if they offer wildlife resistant canisters. For example, Waste Pro Inc. and Waste Management Inc. have offered wildlife resistant containers for both residential and commercial locations. In some areas the Waste Service Provider has retrofitted the existing dumpster to a wildlife resistant design.

All images/photos are copyright of their respective company/website.

APPENDIX D

EASTERN INDIGO SNAKE INFORMATIONAL PAMPHLET

Killing, harming, or harassing indigo snakes is strictly prohibited and punishable under State and Federal Law.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

LEGAL STATUS: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. “Taking” of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. “Take” is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of \$25,000 for civil violations and up to \$50,000 and/or imprisonment for criminal offenses, if convicted.



August 12, 2013

ATTENTION:
THREATENED EASTERN INDIGO
SNAKES MAY BE PRESENT ON
THIS SITE!!!



Please read the following information provided by the U.S. Fish and Wildlife Service to become familiar with standard protection measures for the eastern indigo snake.

**IF YOU SEE A LIVE EASTERN
INDIGO SNAKE ON THE SITE:**

- Cease clearing activities and allow the eastern indigo snake sufficient time to move away from the site without interference.
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, **and** the appropriate U.S. Fish and Wildlife Service (USFWS) office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

**IF YOU SEE A DEAD EASTERN
INDIGO SNAKE ON THE SITE:**

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

**USFWS Florida Field Offices to be
contacted if a live or dead eastern indigo
snake is encountered:**

North Florida ES Office – (904) 731-3336
Panama City ES Office – (850) 769-0552
South Florida ES Office – (772) 562-3909

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

APPENDIX E

AMERICAN ALLIGATOR INFORMATIONAL PAMPHLET

■ Never feed alligators – it's dangerous and illegal. When fed, alligators can overcome their natural wariness and learn to associate people with food. When this happens, some of these alligators have to be removed and killed.

■ Dispose of fish scraps in garbage cans at boat ramps and fish camps. Do not throw them into the water. Although you are not intentionally feeding alligators when you do this, the result can be the same.

■ Seek immediate medical attention if you are bitten by an alligator. Alligator bites can result in serious infections.

■ Observe and photograph alligators only from a distance. Remember, they're an important part of Florida's natural history as well as an integral component of aquatic ecosystems.

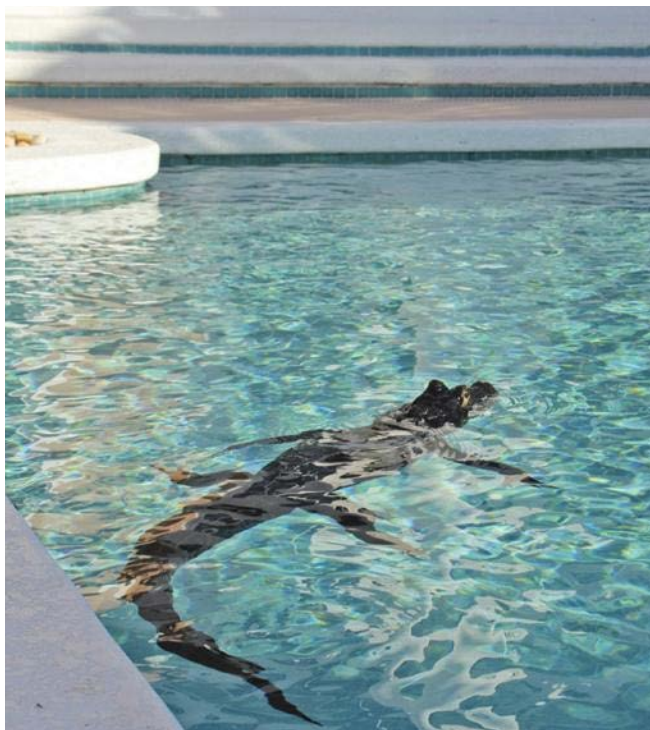


Janice Plain

To report nuisance alligators call
866-FWC-GATOR (866-392-4286).



MyFWC.com/Alligator



Tim Donovan, FWC

Call 866-FWC-GATOR (392-4286) to report nuisance alligators.

A Guide to Living with **Alligators**



Jamie Feddersen



Florida Fish and Wildlife
Conservation Commission
MyFWC.com



Lizabeth West, FWC

Do not swim outside of posted swimming areas or in waters that may be inhabited by alligators.

Living with Alligators

In Florida, the growing number of people living and recreating near water has led to a steady rise in the number of alligator-related complaints. The majority of these complaints relate to alligators being where they simply aren't wanted. Because of these complaints, the Florida Fish and Wildlife Conservation Commission's Statewide Nuisance Alligator Program permits the killing of approximately 7,000 nuisance alligators each year. Using this approach, and through increased public awareness, the rate of alligator bites on people has remained constant despite the increased potential for alligator-human interactions as Florida's human population has grown.

Alligators are an important part of Florida's landscape and play a valuable role in the ecology of our state's wetlands. Alligators are predators and help keep other aquatic animal populations in balance. A better understanding of the facts and information presented in this brochure will help ensure that people and alligators can continue to coexist.

Visit MyFWC.com/Gators for more information about alligators and the latest nuisance alligator program statistics.



Tim Donovan, FWC

Alligators and People

Alligators are a fundamental part of Florida's wetlands, swamps, rivers and lakes, and they are found in all 67 counties. Florida continues to experience human population growth. Many new residents seek waterfront homes, resulting in increased interactions between people and alligators.

Although most Floridians understand that we have alligators living in our state, the potential for conflict exists. Because of their predatory nature, alligators may target pets and livestock as prey. Unfortunately, people also are occasionally bitten. Since 1948, Florida has averaged about five unprovoked bites per year. During that period, a little more than 300 unprovoked bites to people have been documented in Florida, with 22 resulting in deaths.

In the past 10 years, the Florida Fish and Wildlife Conservation Commission has received an average of nearly 16,000 alligator-related complaints per year. Most of these complaints deal with alligators occurring in places such as backyard ponds, canals, ditches and streams, but other conflicts occur when alligators wander into garages, swimming pools and golf course ponds. Sometimes, alligators come out of the water to bask in the sun or move between wetlands. In many cases, if left alone, these alligators will eventually move on to areas away from people.

Safety Tips

■ Generally, alligators less than four feet in length are not large enough to be dangerous unless handled. However, if you encounter any alligator that you believe poses a threat to people, pets or property,

call the Nuisance Alligator Hotline at 866-FWC-GATOR (866-392-4286). Please be aware, nuisance alligators are killed, not relocated.

■ Be aware of the possibility of alligators when you are in or near fresh or brackish water. Bites may occur when people do not pay close enough attention to their surroundings when working or recreating near water.

■ Do not swim outside of posted swimming areas or in waters that might be inhabited by large alligators.

■ Alligators are most active between dusk and dawn. Therefore, avoid swimming at night.

■ Dogs and cats are similar in size to the natural prey of alligators. Don't allow pets to swim, exercise or drink in or near waters that may contain alligators. Dogs often attract an alligator's interest, so do not swim with your dog.

■ Leave alligators alone. State law prohibits killing, harassing or possessing alligators. Handling even small alligators can result in injury.



Tim Donovan, FWC

A young alligator wanders onto a porch in a residential neighborhood.

APPENDIX F

WADING BIRD INFORMATIONAL PAMPHLET

**Action to be taken if you
observe someone
harassing a
wading bird:**

**Promptly notify the FWCC
1-888-404-FWCC**

**Tips for living with
wading birds**

- Do not feed wading birds.
- Keep out of vegetated areas surrounding lakes and marshes.
- Keep pets leashed to avoid coming into contact with wading birds.
- Properly dispose of fishing line to avoid bird entanglement.

Prepared By:

 **PASSARELLA
& ASSOCIATES** INC

*13620 Metropolis Avenue, Suite 200
Fort Myers, Florida 33912
(239) 274-0067*

**WADING
BIRD
INFORMATIONAL
PAMPHLET**



KINGSTON

Description:

Wading birds are a diverse group of birds which utilize shallow marsh areas as foraging and breeding habitats. They are typically characterized as having long necks, legs and bills, which allows them to feed in shallow water. Wading birds can be found in Florida year round. Examples of wading birds include: great egrets, great blue herons, white ibises, little blue herons and snowy egrets.

Habitat:

Wading birds inhabit all counties in the state of Florida and are most common in the shallow marsh or wetland areas throughout the state. They can also be found in both coastal and inland areas, salt marshes, swamps, ponds, drainage canals, and ditches. Wading birds breed and nest in colonies which consist of various species of other wading birds. Breeding generally occurs just prior to or during the wet season. Stick nests are built in trees or bushes near wetland areas and above the water line.

Wading birds feed in shallow water areas where prey is most concentrated. They feed by spearing prey with their bills or by straining small species out of the water and sediment. Prey may include small fish, invertebrates or other aquatic organisms. Wading birds have also been known to consume snakes, frogs and small rodents.

Protection:

Most wading birds are listed as species of special concern by the State of Florida. Some species such as wood storks are listed as endangered by both the State of Florida and the U.S. Fish and Wildlife Service. It is unlawful for anyone to disturb or take nests or eggs, feed, injure, harm, harass, or kill any wading birds species. Persons who knowingly violate the law may be subject to fines and/or jail time.

If wading birds form a nesting colony on the property in the future, avoid activities within 330 feet of the colony during the nesting season (March 1 to August 1).

APPENDIX G

FLORIDA BLACK BEAR INFORMATIONAL PAMPHLET



Eslin AFB

Secure your garbage

- Store garbage in a secure area, such as a sturdy shed or garage, until the morning of pickup, or
- Build a small shed to store trash cans. Be sure there are no gaps along the shed's edges and use screws. If the shed is curbside, call your waste service provider to ensure it will still service your trash cans, or
- Modify your regular trash can to make it bear-resistant by adding hardware. To be successful, the lid must not be flexible and the can must not collapse when you stand on its side. Call your waste service provider to ensure it will service a modified trash can, or
- Request a commercially manufactured bear-resistant trash can from your waste service provider. If they do not provide these cans, you can special order one from a hardware store, but ensure your waste service provider will service it.



Funds from Florida's "Conserve Wildlife" license plate help conserve bears and reduce human-bear conflicts. Buy one today through your local tax collector's office or online at BuyAPlate.com.



Millie Fox

How FWC responds to conflicts

The FWC addresses human-bear conflicts in a variety of ways, including providing technical assistance over the phone, conducting an in-person visit with the resident, using deterrents (such as an electric fence), attempting to scare the bear away, or, in rare cases, attempting to trap the bear.

While most conflicts can be avoided by securing attractants, biologists assess each situation on a case-by-case basis and use FWC policies and guidelines to help decide on the most appropriate response.

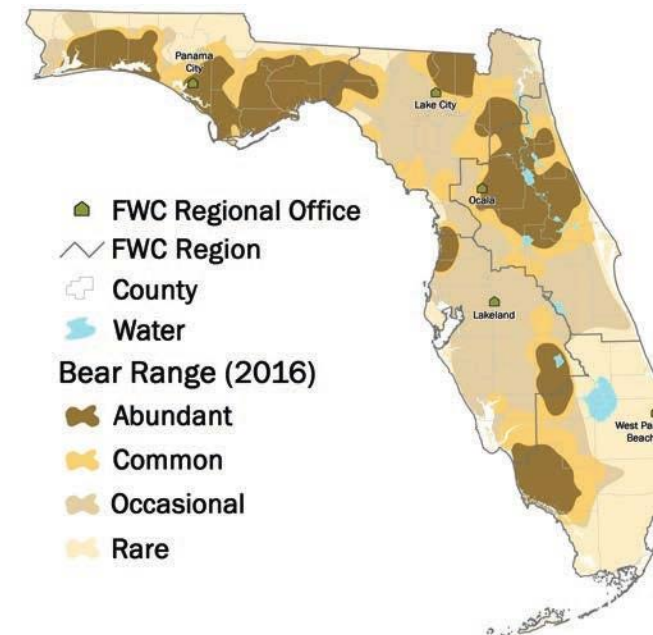
The earlier the FWC is notified, the more response options are available.

The longer a conflict situation continues, the more likely the bear will develop behaviors that present a risk to public safety, such as entering a dwelling, harming a leashed dog or injuring a person.

Once this happens, it is too late to try to change the bear's behavior and it must be humanely killed.

Warning! It is illegal to take, possess, injure, shoot, collect or sell black bears under Florida state law unless authorized by an FWC-issued permit. If you are found guilty, you could face fines and/or jail time.

Where bears live in Florida



If you are experiencing bear conflicts, please contact the nearest FWC regional office. The sooner the FWC knows about bear activity, the more options are available to prevent a bear from becoming a public safety risk.

North Central	Lake City	(386) 758-0525
Northeast	Ocala	(352) 732-1225
Northwest	Panama City	(850) 265-3676
South	West Palm Beach	(561) 625-5122
Southwest	Lakeland	(863) 648-3200

In an emergency or if you suspect illegal activity, call the Wildlife Alert Hotline at 888-404-FWCC (3922).

Follow us on:



Florida Fish and Wildlife
Conservation Commission
MyFWC.com/Bear

A guide to living in bear country



Ashley Hockenberry



Florida Fish and Wildlife
Conservation Commission
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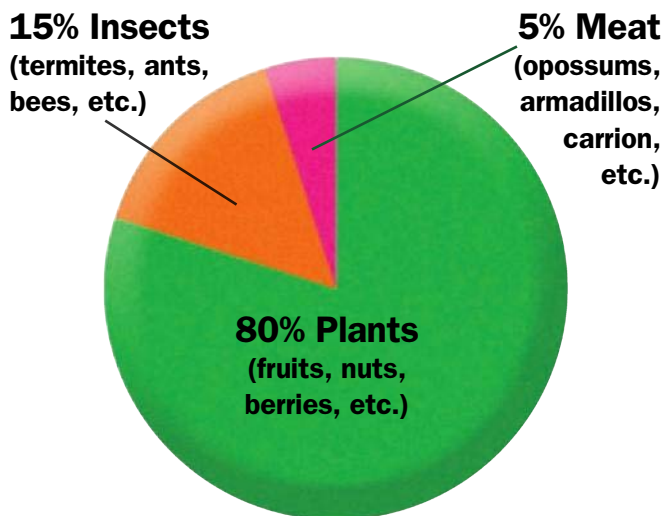


Ashley Hockenberry

The bear facts

- Black bears are the only species of bear in Florida.
- Biologists estimate approximately 4,000 black bears roam Florida today, compared to as few as 300 bears in the 1970s.
- Bears can pick up scents from over a mile away: that's seven times better than a bloodhound and the best of any land mammal.
- Adult bears typically weigh between 150 to 400 pounds, with males often twice the size of females.
- Females have their first litter around 3 years of age, with one to three cubs born every other year.
- Breeding occurs from June to August, with cubs born around February 1.
- On average, females range over 15 square miles and males range over 60 square miles.

A bear's diet



Bear behavior and you

Black bears are shy and generally not aggressive. When seen near homes or workplaces, bears are often just passing through. When frightened, bears typically run away or climb a tree. If a bear is in a tree, it is either feeding or trying to escape danger. Keep people and pets away, and the bear will leave on its own, usually after dark.

When a bear stands on its hind legs, it is trying to get a better view or scent. Black bears may huff, snap their jaws, swat the ground or “bluff charge” when cornered, threatened or defending food or young. If this happens, stop, hold your ground and then slowly back away.

Remember bears are large, powerful, wild animals that can act unpredictably and become dangerous. Bears who receive food from people may lose their natural fear of them and are more likely to damage property or become a public safety risk. NEVER feed or attract bears. If a bear is eating something on your property, take note of what it is and secure it after the bear has left the area.



Learn all about
Florida's bears and
being BearWise at
MyFWC.com/BearWise.



BearWise tips:

- Never approach a bear. Keep as much distance between you and the bear as possible.
- If a bear changes its behavior because you're there, you are too close.
- If you encounter a bear at close range, stand with arms raised, back up slowly and speak to the bear in a calm, assertive voice.
- Do not turn your back, play dead or run from a black bear.
- Make sure you are in a secure area, such as a car or building, and the bear has a clear escape route, then scare the bear away with loud noises, like yelling, blowing a whistle, or using an air or car horn.
- Install a motion-activated device, such as flood lights, a water sprinkler or audio alarm, to scare a bear away from a location when you are not present.
- Report any bear threatening the safety of people, pets or livestock, or causing property damage, to the FWC (see back cover).
- Walk dogs on a non-retractable leash and be aware of your surroundings. Dogs can trigger defensive behaviors from bears.

Encourage your school system to use the *Florida Black Bear Curriculum Guide*. The guide is designed for grades 3 to 8 and is correlated to state education standards.



Avoid attracting bears

Bears do not hang around people if they do not find food. Properly storing or securing garbage and other attractants is a proven method of preventing bear conflicts. However, it takes a community-wide effort to keep bears wild and away from neighborhoods.

- Use electric fencing to protect gardens, garbage, compost piles, beehives, fruit trees and livestock.



John Bailey

- Keep garage doors closed when not in use.
- Feed pets indoors or bring food dishes (even empty ones) inside at night.
- Store pet and livestock feed in bear-resistant containers or inside a secure area.
- Remove or modify bird and wildlife feeders and ensure the ground is free of all feed debris.
- Properly harvest ripe nuts, fruits, and vegetables and remove rotten fruits and vegetables.
- Create an “unwelcome” mat by driving finishing nails, heads up, into a sheet of anchored plywood to keep bears away from a specific area, such as under a window, door or fence.
- Keep outdoor refrigerators and freezers in a secure location or lock up with super-adhesive anchors, like Marine Locks™.
- Clean meat smokers and barbecue grills with a degreasing detergent and store in a secure area. Dispose of food remnants/grease after each use.

A screened-in porch will not keep bears out!

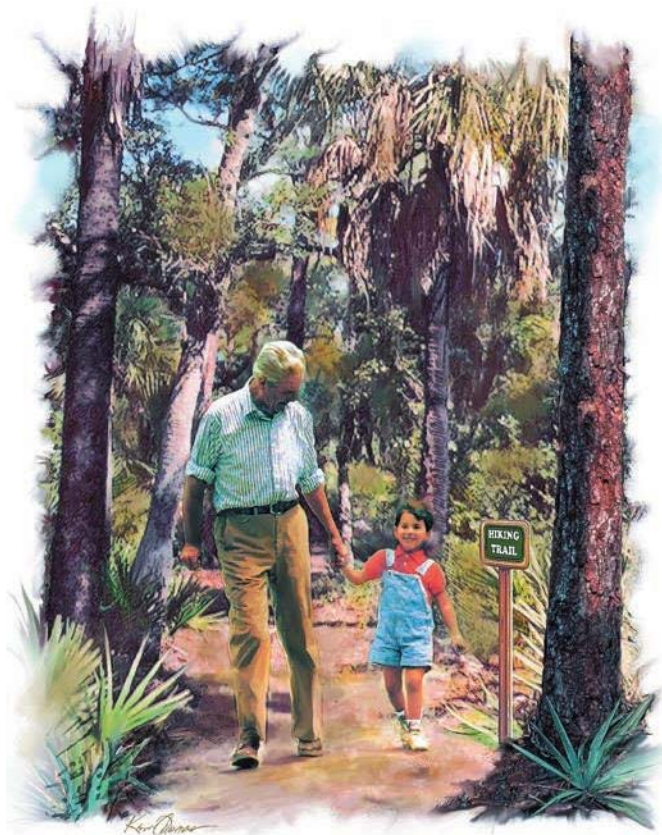
APPENDIX H

FLORIDA PANTHER INFORMATIONAL PAMPHLET

You live in Florida panther country

Florida panthers are reclusive and rarely seen by people. They normally live in remote, undeveloped areas. However, as the number of people in southern Florida grows, there is an increased chance of an encounter with a Florida panther.

This brochure contains some guidelines to help you live safely in Florida panther country.



Keep children within sight and close to you, especially outdoors between dusk and dawn.

If you feel threatened by a panther, or have lost pets or livestock to a panther, please call the Florida Fish and Wildlife Conservation Commission's Wildlife Alert Hotline at 1-888-404-FWCC (3922).

If you see a Florida panther

The Florida panther moves primarily at night. The chances of seeing a panther are slim. But if you live in Florida panther country, you need to know what to do if you see one.

-  **Keep children within sight and close to you.** Pick up any small children so they don't panic and run. Try to do this without bending over or turning away from the Florida panther.
-  **Give them space.** Florida panthers typically will avoid a confrontation. Give them a way to escape.
-  **Do not run.** Running may stimulate a panther's instinct to chase. Stand and face the animal. Make eye contact to let the panther know you are aware of its presence.
-  **Avoid crouching or bending over.** Squatting or bending makes you look smaller, resembling a prey-sized animal.
-  **Appear larger.** Make gestures that indicate you are not prey and that you may be a danger to the panther. Raise your arms. Open your jacket. Throw stones, branches or whatever you can reach without crouching or turning your back. Wave your arms slowly and speak firmly in a loud voice.
-  **Fight back if attacked.** There has never been a reported panther attack in Florida. In western states, where attacks by cougars have occurred very rarely, potential victims have fought back successfully with rocks, sticks, caps, jackets, garden tools and their bare hands. Since large cats usually try to bite the head or neck, try to remain standing and face the animal.



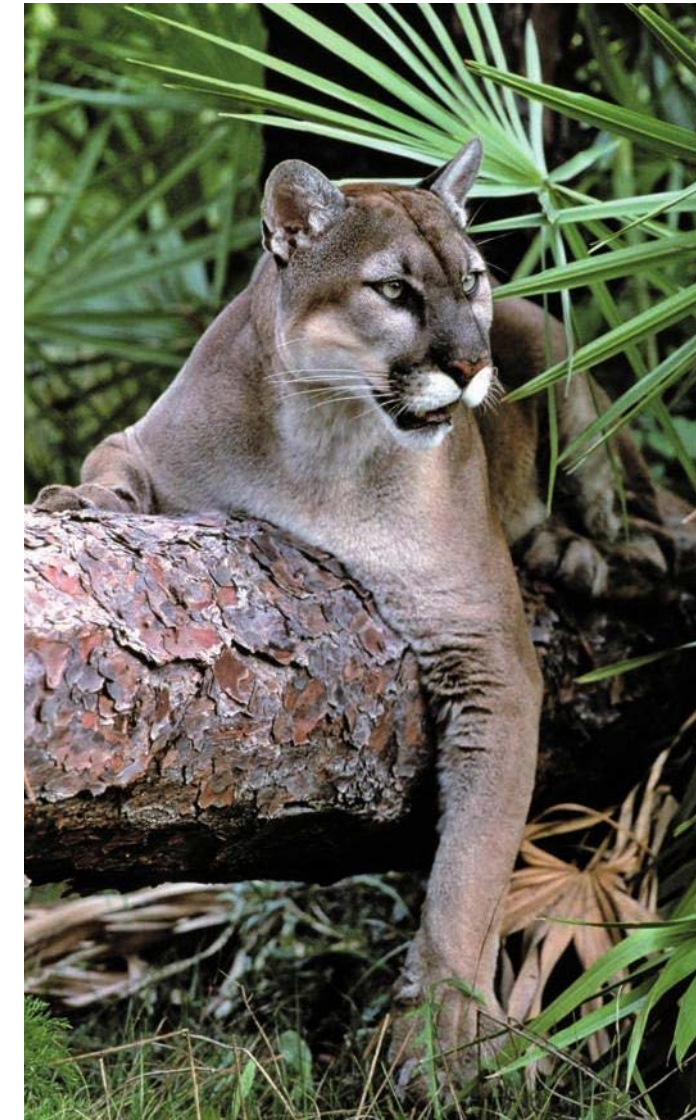
Mark Lotz

printed on recycled paper



Florida Fish and Wildlife
Conservation Commission
620 S. Meridian Street
Tallahassee, FL 32399-1600
MyFWC.com/Panther

A guide to living with Florida Panthers



© Lynn Stone

MyFWC.com/Panther

7 ways to live safely in Florida panther country

While these guidelines are meant to help you live safely in Florida panther habitat, they also apply to living with more commonly encountered wildlife, including raccoons, snakes, bears and alligators.

1. Be alert from dusk 'til dawn (and whenever deer are active)

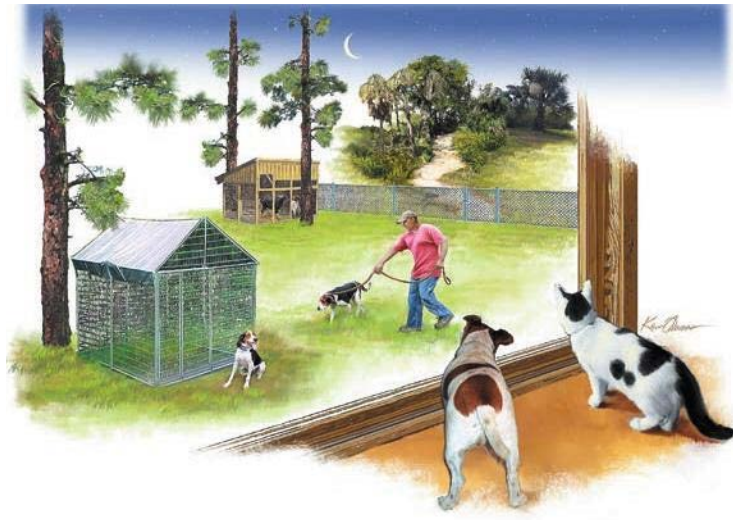
Florida panthers primarily are active at night. Exercise more caution at dawn, dusk or dark.

2. Keep panther prey away

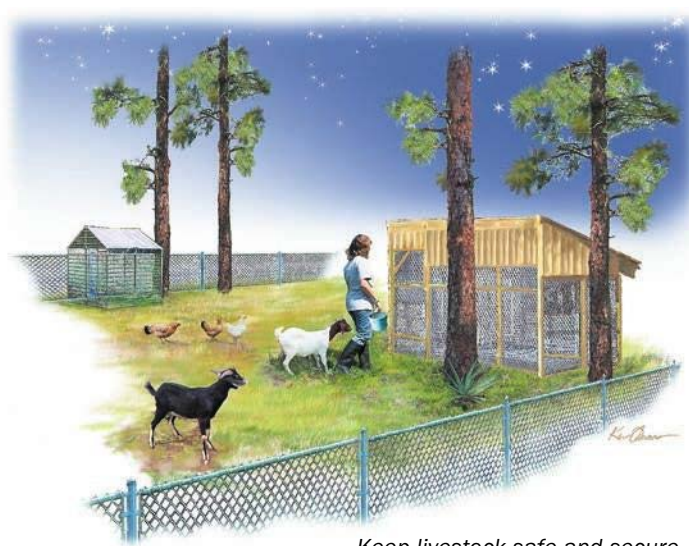
Deer, raccoons, rabbits, armadillos and wild hogs are prey for the Florida panther. By feeding deer or other wildlife, people inadvertently may attract panthers. Do not leave potential wildlife food outside, such as unsecured garbage or pet food. Consider fencing vegetable gardens.

3. Keep pets secure

Free-roaming pets, or pets that are tethered and unfenced, are easy prey for predators, including panthers. Bring pets inside or keep them in a secure and covered kennel at night. Feeding pets outside also may attract raccoons and other panther prey; do not leave uneaten pet food available to wildlife.



Keep your pets safe and secure. Bring pets inside or keep them in a secure and covered kennel at night.



Keep livestock safe and secure.

4. Keep domestic livestock secure

Where practical, place chickens, goats, hogs or other livestock in enclosed structures at night. Electric fencing can be an effective predator deterrent.

5. Landscape for safety

Remove dense or low-lying vegetation that would provide hiding places for panthers and other predatory animals near your house.

- Remove plants that deer like to eat.
- Choose plants that do not attract deer or other panther prey species. For information on plants that deer do not like to eat, visit edis.ifas.ufl.edu/UW137.
- Appropriate fencing will make your yard or play area uninviting to prey animals such as deer.

6. Consider other deterrents

Outdoor lighting, motion sensors and electric fencing also may deter prey animals and panthers from entering your yard. Outdoor lighting also will make approaching prey and panthers more visible to you.

7. Hike or bike with a friend

When recreating outdoors, it's a good practice to let friends or family know your whereabouts and when you expect to return. Better yet, take a friend with you!

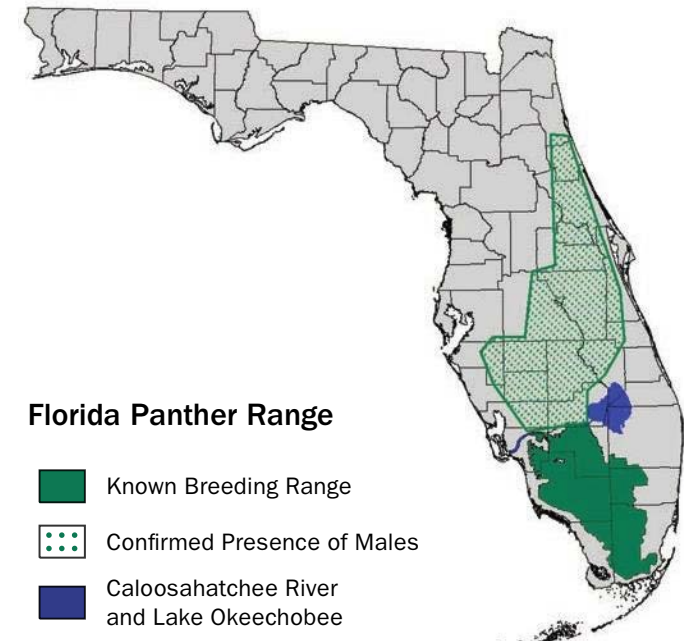
Florida panther facts

- The Florida panther is a subspecies of puma, also known as a mountain lion or cougar. It is the last subspecies still surviving in the eastern United States.
- Biologists estimate roughly 100-160 adult and subadult Florida panthers remain in the wild. Most panthers live in southwest Florida, south of the Caloosahatchee River, although some panthers have been documented traveling as far north as central Georgia.
- The Florida panther's decline occurred prior to 1950, when it still was legal to hunt panthers. It was listed as endangered in 1967 and is protected under federal and state laws.
- Florida panther numbers declined to roughly 30 cats by the early 1980s. Severe inbreeding resulted in many health and physical problems. A genetic restoration project in 1995 was successful in improving the genetic health and vigor of the panther population.
- Florida panthers are found primarily in the Big Cypress/Everglades ecosystem in Collier, Lee, Hendry, Monroe and Miami-Dade counties.
- Florida panthers' home range sizes vary by sex and by individual. Female home ranges are typically 60-75 square miles whereas males' are typically 160-200 square miles.



FWC panther team

- There is no record of a Florida panther attacking a person. Florida panthers are rarely seen.
- The biggest threat to the future of the Florida panther is habitat loss. A number of panthers also die each year due to vehicle strikes on roadways.
- The Florida panther was chosen as the State Animal of Florida in 1982 by a vote of elementary school students throughout the state.



Florida Panther Range

- Known Breeding Range
- Confirmed Presence of Males
- Caloosahatchee River and Lake Okeechobee



This brochure was produced through a partnership of the Audubon Society of Florida, Conservancy of Southwest Florida, Defenders of Wildlife, Florida Fish and Wildlife Conservation Commission, Florida Wildlife Federation, Friends of the Florida Panther Refuge, Mountain Lion Foundation, National Park Service, National Wildlife Federation, Seminole Tribe of Florida, University of Florida and the U.S. Fish and Wildlife Service.

Funding provided by the Florida Fish and Wildlife Conservation Commission, Friends of the Florida Panther Refuge and the National Fish and Wildlife Foundation.

APPENDIX I

PRESCRIBED BURNING INFORMATION

Florida Landowner Assistance Program

Practice Standard - Prescribed Burning



Definition

The controlled application of fire in accordance with a written prescription for vegetative fuels under specified environmental conditions while following appropriate precautionary measures that insure that the fire is contained to a predetermined area to improve habitat for resident and migratory wildlife species.

Purposes

This practice may be applied as part of a conservation management system to support one or more of the following purposes:

- To improve habitat for various wildlife species, including imperiled species.
- To control invasive and/or exotic vegetation.
- To control plant diseases affecting native vegetation.
- To reduce wildfire hazards.
- To enhance native ground cover plants and seed production.
- To restore and maintain fire dependent ecological sites.

Conditions Where Practice Applies

This practice may be applied on any private land, where deemed needed, to improve overall wildlife habitat conditions.

Criteria

I. General Criteria Applicable to All Purposes

The method(s) of prescribed burning to improve wildlife habitat structure and composition shall be determined by the assigned biologist conducting the Needs Assessment. Application of the prescribed treatment will be based on the GIS analysis, site examination, and local wildlife species present. The landowner shall obtain all necessary burn authorizations and/or permits before implementation of the practice. Planning and application shall comply with all Federal, State, and local laws, rules, and regulations. The procedure, equipment, and number of trained personnel shall be adequate to accomplish the intended purposes as stated in the burn plan. The expected weather conditions, human and vehicular traffic that may be impeded by heat or smoke, liability, and safety and health precautions shall be integrated into the timing, location and expected intensity of the burn. Timing of burning will be commensurate with soil and site conditions to maintain site productivity and minimize effects on soil erosion and soil properties. Firebreak construction and maintenance are not included as a cost-shared treatment.

II. Specific Criteria to Improve Wildlife Habitat

The appropriate season of burning, burning technique, burning frequency, and size of burn shall be selected based on the wildlife habitat needs and site limitations. Where practical, prescribed burning shall be planned and applied in a manner that creates a "patchy" mosaic of burned and unburned vegetation.

III. Specific Criteria to Control Undesirable Vegetation

Prescribed burns to control brush or other undesirable vegetation shall consider the anticipated seed production and re-sprouting response of the targeted species. The frequency and intensity of the planned burn shall be based on the re-growth of the target species, weighed against wildlife habitat considerations. Prescribed burns planned for areas with known infestations of invasive and/or exotic species shall address anticipated response of those species during and following the prescribed burn. Re-establishment of native vegetation shall be planned for burned areas, where needed, to prevent encroachment of undesirable plants, control soil erosion, and restore historic plant communities.

IV. Specific Criteria to Improve Native Plant Production Quantity and/or Quality

Prescribed burns shall be planned to provide optimum benefit to the native plant species of concern. When possible, prescribed burns shall be conducted during periods of adequate soil moisture to encourage desirable plant recovery following the burn. Appropriate protection from livestock, human, and wildlife activities shall be implemented to allow desirable vegetation to recover from the stress of the burn. Burned areas shall be protected until the vegetation has recovered sufficiently to allow use to be restored without damaging the vegetation.

Considerations

Prescribed burns should be cost-effective and efforts to protect any threatened and endangered species, cultural resources, wildlife habitat, water resources, and identified unique natural areas should be considered. Personal safety should also be considered during all prescribed burning activities. Where practical, the season, frequency, duration, and intensity of prescribed burns should mimic the natural occurrence of fire typical of the ecological community being managed. Consider the use of existing barriers, such as lakes, streams, wetlands, roads, and existing firebreaks in the design and layout of the burn. To minimize smoke related issues, burn frequently under acceptable weather conditions and complete all burns as quickly as practical.

Operation and Maintenance

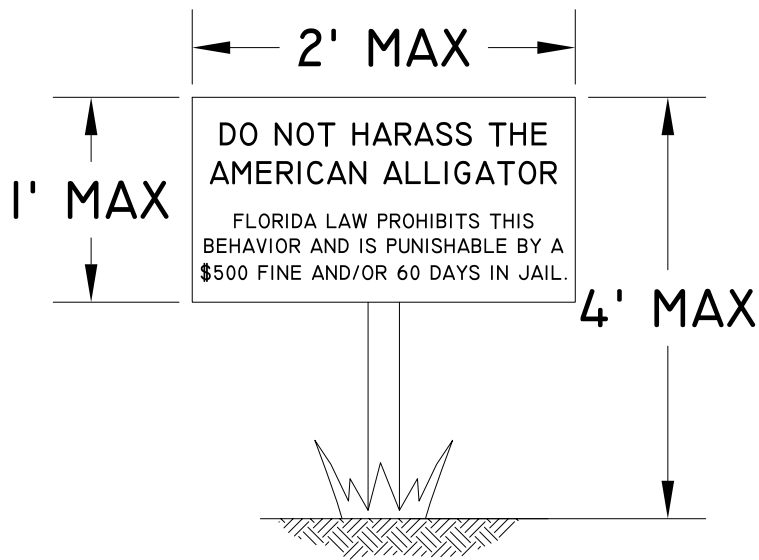
The following actions shall be carried out to insure that this practice functions as intended throughout its expected life: 1) Evaluations to determine if the stated objectives were met and to improve coordination of future burns, 2) Initial evaluations should be conducted within 2 weeks following the burn, 3) Long term evaluations should be conducted during or after the first growing season following the burn.

Items to consider in these evaluations include:

- a. Were the pre-burn preparations properly completed?
- b. Were the initial objectives met?
- c. Was the burn prescription followed?
- d. Were deviations from the burn prescription documented?
- e. Was the burning technique(s) adequate to meet the planned objectives?
- f. Were weather conditions, fire behavior, and smoke dispersion within the planned limits of the prescription?
- g. What were the effects on the soil, vegetation, water, and wildlife resources?
- h. Did the fire escape the planned area?
- i. How could future burns be improved?
- j. Were the post-burn activities applied correctly to meet the stated purpose or objective of the burn?

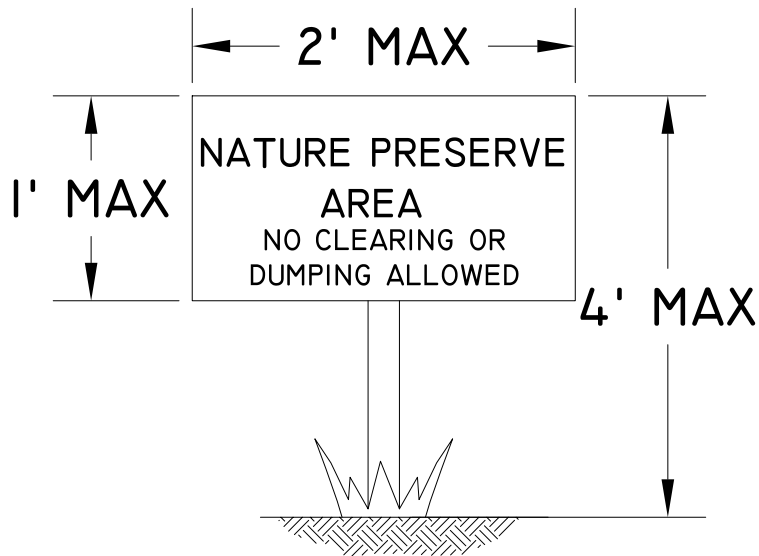
APPENDIX J

AMERICAN ALLIGATOR MANAGEMENT AND PRESERVE SIGNAGE



**TYPICAL AMERICAN
ALLIGATOR SIGNAGE**

N.T.S.



**TYPICAL
PRESERVE SIGNAGE**

N.T.S.

