Austin Environmental Consultants, Inc.
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January 23, 2019

Marc Ady
Environmental Supervisor
Orlando Regulatory Division
South Florida Water Management District
1707 Orlando Central Parkway, Suite 200
Orlando, Florida 32809

Re: Harmony Site – Harmony, Osceola County, Florida
SFWMD Permit No. 49-01058-P
SFWMD Applic. No. 991227-13
Third Annual Mitigation Monitoring Report (Fall 2019)

Mr. Ady:

This letter presents the results for the Third annual 2019 monitoring event that took place in January 2020 for the on-site wetland and upland preservation areas within the Harmony Community in east Osceola County. The following presents the results of this third annual monitoring event.

PROPERTY LOCATION

The property is located north of US-192 approximately 10 miles east of St. Cloud. The property is bound on the south and west by US-192, by Buck Lake to the north, and by Cat Lake and the Big Bend Swamp to the east. A location map and aerial photograph have been provided as **Location** and **Aerial** maps, respectively.

BACKGROUND

The monitoring activities are associated with compliance with the special conditions of SFWMD Environmental Resource Permit 49-01058-P, which authorized 21.79 acres of wetland impacts for the development of the 1,381-acre mixed-use development. As mitigation to offset these impacts, 464.80 acres of onsite wetlands were preserved as well as 2.5 acres of xeric oak uplands. These areas were placed under a conservation easement, and an associated monitoring/maintenance program was stipulated by permit.

MONITORING METHODOLOGY

The first annual monitoring event was conducted by Bio-Tech Consulting Inc. in April and August 2017. During this monitoring event, five (5) permanent monitoring transects

were established within the wetland preservation areas, and an additional three (3) monitoring transects were established within the xeric oak preservation areas. Photographs were taken in all cardinal directions at the beginning and end of each monitoring transect, and the locations of these endpoints (photo stations) were marked with PVC stakes and flagging. The locations of the photo stations and monitoring transects are depicted on Figure 3.

The qualitative monitoring conducted for this report consisted of wetland and upland habitats in the general area of where the original Biotech transects were included.

A photo station was selected in each transect area and flagged for future reference. Photos were taken of the vegetation along the transect line. Species lists, and estimations of the percent cover of native species as well as any observations of exotic/nuisance plant species were noted. The percent coverage of exotic/nuisance species was estimated to document compliance or non-compliance with the goals of the SFWMD approved mitigation plan. All wildlife observations were also noted.

RESULTS

Bruce Williams of AEC completed the fall monitoring event on January 17, 2020. A summary of observations in each area surveyed is provided below. Monitoring photographs from the fixed photo stations have been provided as Appendix 1.

Upland (Xeric Oak) Preservation Areas

Transect 1 Area

The xeric oak habitat along transect 1 is in excellent condition, with no observed exotic/nuisance plant species present. The plant community species composition is consistent with that described in the first annual monitoring report (see Appendix 2). Only a few scattered fallen sand pines (*Pinus clausa*) were observed, however, natural recruitment of desirable native species is evident.

Transect 2 Area

Exotic cogon grass (*Imperata cylindrica*) noted in the previous, Spring 2019 report, was not observed in the transect 2 area.

As with transect 1, which is located within the same area of xeric oak, the species present and percent coverage appeared consistent with that described in the first annual monitoring report.

Transect 3 Area

The xeric oak within transect 3 resembles a low oak hammock, with a very dense overstory and understory of sand live oak (*Quercus geminata*). Due to the long-term suppression of fire, the overstory has grown quite dense, and resulted in a thick layer of leaf litter, and sparse groundcover/shrub species. Species composition was consistent with the first monitoring report, and no exotic/nuisance plant species were observed.

Wetland Preservation Areas

Transect 1 Area

This portion of the wetland preservation area appears to be in good condition. Along the outer fringes in the upland portion of the wetland there was minor coverage of Caesar weed (*Urena lobata*).

Old world climbing fern (*Lygodium microphyllum*) recorded in the previous report was still prevalent during this monitoring event. This species represented a very minor component of the overall plant cover, however, due to its highly invasive nature, maintenance to prevent the spread of this species may be warranted. Management recommendations are outlined in a later section of this report.

Transect 2 Area

This portion of the wetland contains a mature canopy dominated largely by sweet bay (*Magnolia virginiana*) and pond cypress (*Taxodium ascendens*), with a very dense understory of immature sweet bay.

Observed vegetation in this transect area appeared consistent with those described in the first monitoring report. Old world climbing fern was not observed in this transect area and it may have been treated.

Transect 3 Area

Transect 3 is located within a portion of the wetland that does not display signs of regular inundation. Vegetative composition within the canopy, subcanopy, and shrub/groundcover layers appears to be consistent with what was described in the first annual monitoring report. No exotic/nuisance species were encountered within this portion of the wetland.

Transect 4 Area

Species observed include loblolly bay (*Gordonia lasianthus*), slash pine (*Pinus elliottii*), and sweet bay (*Magnolia virginiana*) which is consistent with the prior monitoring report. The old world climbing fern mentioned in the previous report has been treated as the ground cover was dominated by treated/dead old world climbing fern.

Transect 5 Area

Transect 5 also occurs within a drier portion of the preserved wetlands. Although the observed tree and understory species appeared consistent with the first annual monitoring report, the fox grape (*Vitis rotundifolia*) and greenbriar (*Smilax spp.*) mentioned in the second report appeared to have died back and are not as prevalent as stated previously.

WILDLIFE OBSERVATIONS

The following table summarizes all wildlife observations made during the fall 2019 (January, 2020) monitoring event. Observations included direct observations, the presence of tracks, scat, or burrows, or audible observations of wildlife present.

Common Name	Scientific Name	Notes	Listed Status
BIRDS			
Coopers hawk	*Accipiter cooperii*	Direct Observation (nesting female)	N/a
Black vulture	*Coragyps atratus*	Direct observation	N/a
REPTILES			
Brown anole	*Anolis sagrei*	Direct observation	N/a
Carolina anole	*Anolis carolinensis*	Direct observation	N/a
AMPHIBIANS			
Leopard frog	*Rana sphenocephala*	Direct observation	N/a
Cricket frog	*Acris sp.*	Call	N/a
MAMMALS			
Feral hog	*Sus scrofa*	Tracks	N/a
Gray squirrel	*Sciurus carolinensis*	Direct observation	N/a

CONCLUSIONS AND RECOMMENDATIONS

The wetland and upland preservation areas appear to be in excellent condition. Signs of appropriate hydrology were evident, and with the exception of the spread of some exotic species within portions of the preservation areas, these areas appeared to be consistent with the conditions documented within the first monitoring report.

Maintenance of Caesar weed and old world climbing fern is recommended, particularly along monitoring transect 4, and along the perimeter of the wetland in the vicinity of transects 1 and 2.

Maintenance of Caesar weed would consist of herbicide spot spraying. The eradication and maintenance of old world climbing fern is best accomplished through a combination of chopping and spot spraying. As this fern reproduces (potentially very long distances) by airborne spores, hand removal is not recommended. This activity results in the agitation of the spores and their release. Effective maintenance involves herbicide spot spraying of this vining fern where it occurs at the ground or in the shrub layer; and where it has encroached into the canopy, chopping the vine approximately 3 feet above the ground and spot spraying below.

Maintenance of grape vines that remain along Transect 5 is also recommended to reduce this nuisance species and allow for other native species to proliferate.

If you have any questions, or require additional information, please do not hesitate to contact me.

Sincerely,

R. Bruce Williams,
Environmental Consultant

FIGURES

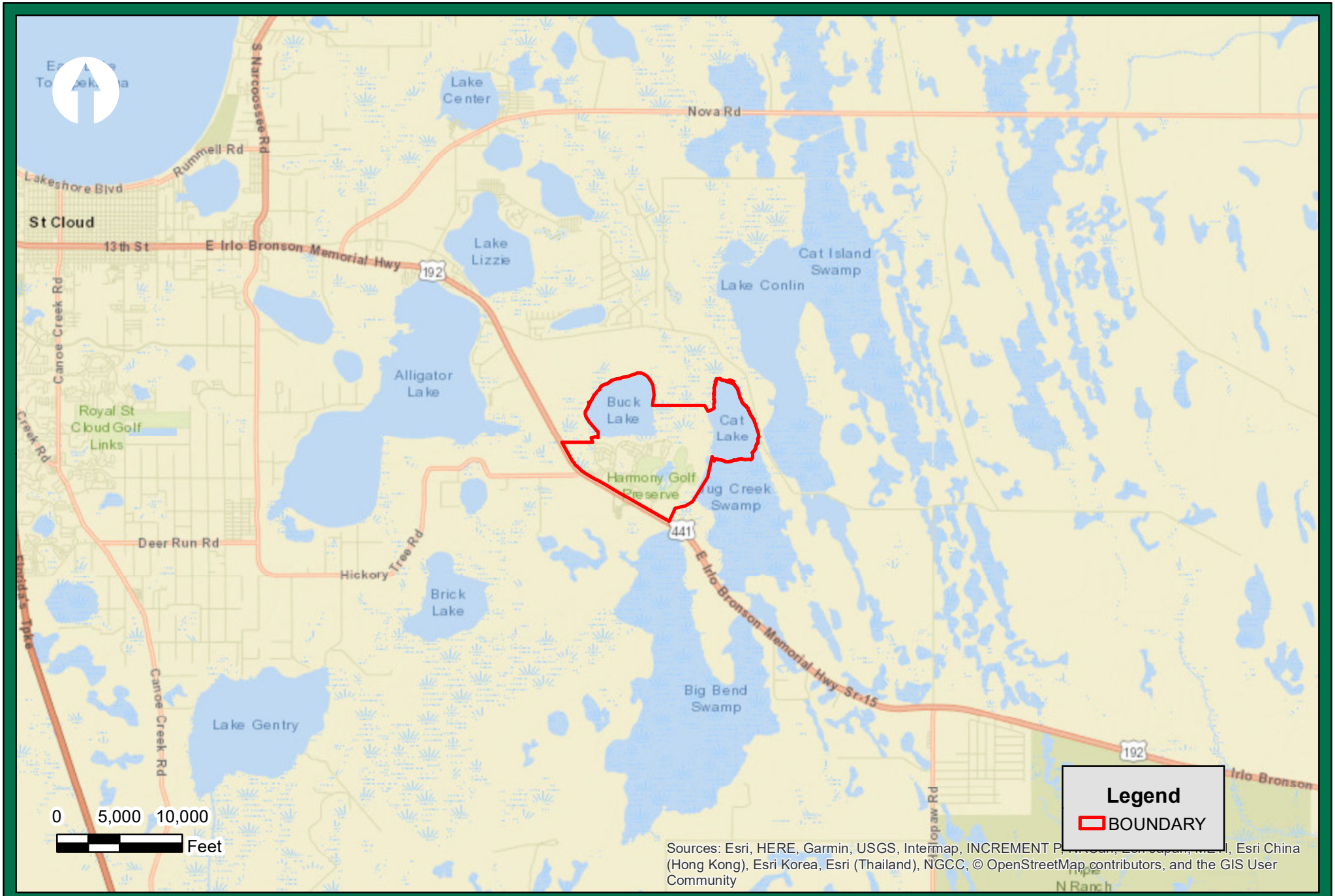

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FIGURE 1

LOCATION MAP

Harmony Community Conservation Monitoring
Osceola County, Florida

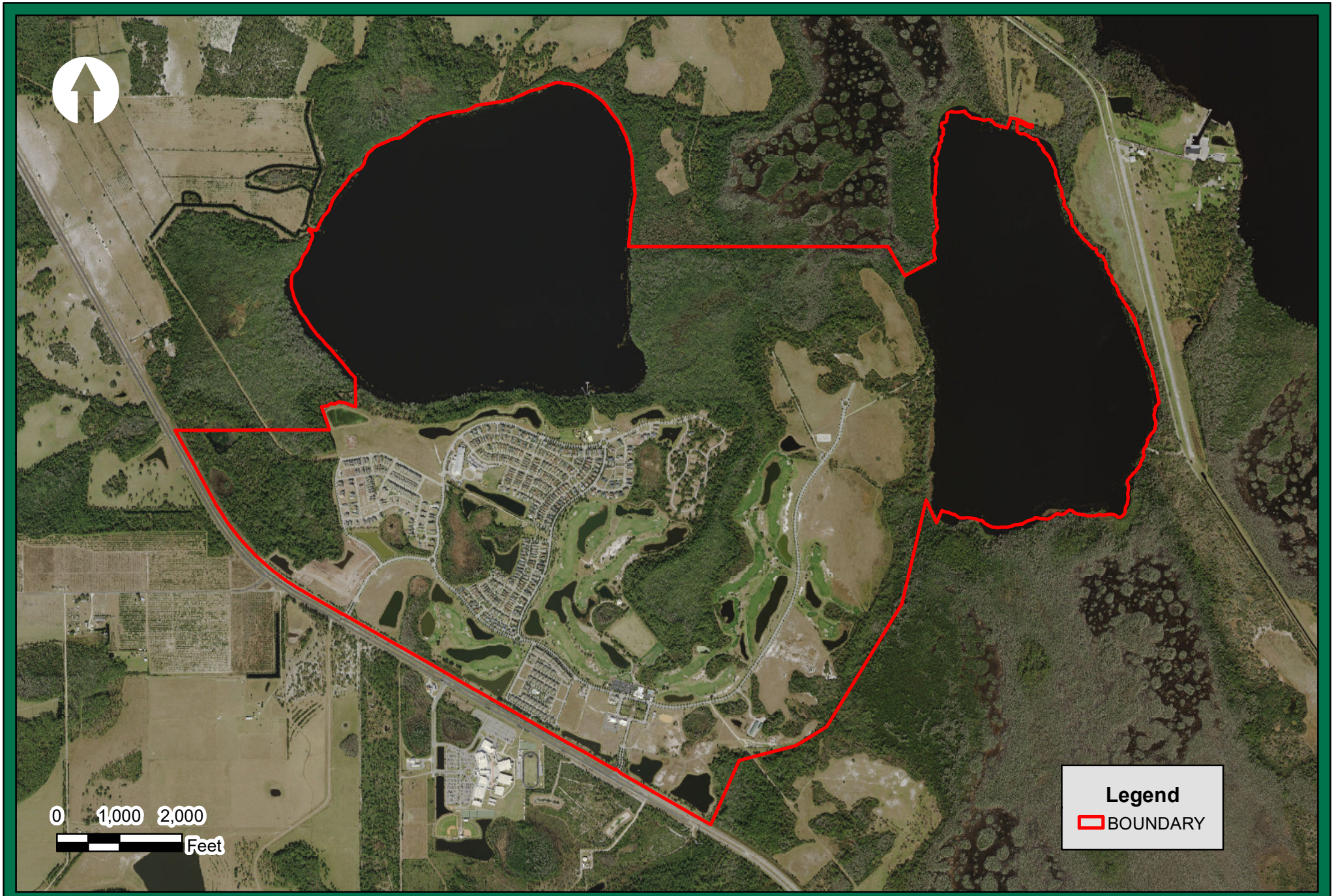

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FIGURE 2

AERIAL PHOTOGRAPH

Harmony Community Conservation Monitoring
Osceola County, Florida

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FIGURE 3

MONITORING TRANSECTS

Harmony Community Conservation Monitoring
Osceola County, Florida

APPENDIX 1- PHOTOGRAPHS

UPLAND TRANSECT 1 AREA PHOTO (FACING EAST)

UPLAND TRANSECT 1 AREA PHOTO (FACING WEST)

UPLAND TRANSECT 2 AREA PHOTO (FACING EAST)

UPLAND TRANSECT 2 AREA PHOTO (FACING WEST)

UPLAND TRANSECT3 AREA PHOTO (FACING NORTH)

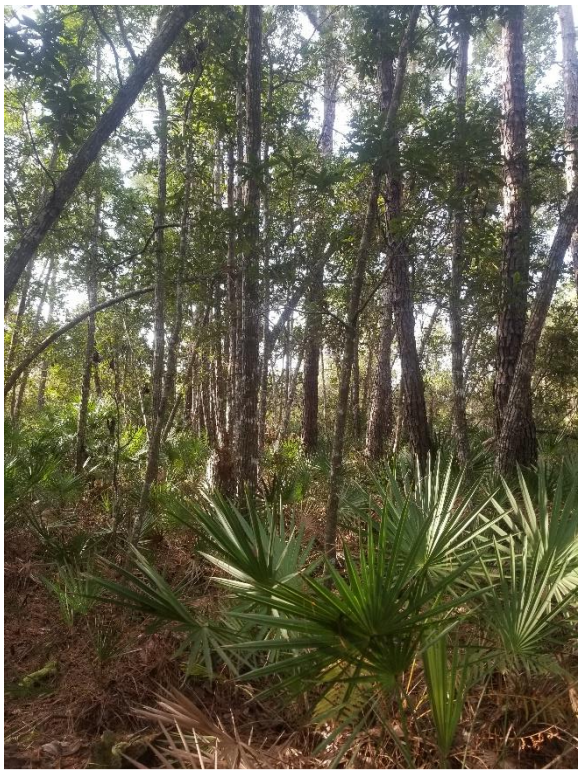
UPLAND TRANSECT3 AREA PHOTO (FACING SOUTH)

WETLAND TRANESECT 1 AREA PHOTO (FACING SOUTH)

WETLAND TRANSECT 1 AREA PHOTO (FACING NORTHEAST)

WETLAND TRANSECT 2 AREA PHOTO (FACING EAST)

WETLAND TRANSECT 2 AREA PHOTO (FACING WEST)



WETLAND TRANSECT 3 AREA PHOTO (FACING EAST)

WETLAND TRANSECT 3 AREA PHOTO (FACING WEST)

WETLAND TRANSECT 4 AREA PHOTO (FACING EAST)

WETLAND TRANSECT 4 AREA PHOTO (FACING WEST)

WETLAND TRANSECT 5 AREA PHOTO (FACING EAST)

WETLAND TRANSECT 5 AREA PHOTO (FACING WEST)