DELISI
Land Use Planning & Water Policy

PROJECT SUMMARY - VERDANA

The proposed amendment (referred to in some documents/letters of availability as "Corkscrew Groves") seeks to incorporate approximately 1,460 acres of strategically located land into the Environmental Enhancement and Preservation Overlay. The subject property is located along Corkscrew Road, to the south of the recently approved Corkscrew Farms Development, and in the Tier 1 category of properties in the Density Reduction Ground Water Resources land use category in the Lee Plan.

The proposed plan amendment would convert an active citrus grove into a property that is primarily restored to its natural habitat and hydrology, with compact residential neighborhoods in areas outside of the restoration footprint. The restoration of this property will provide a key environmental link between natural lands to the north/Corkscrew Regional Mitigation Bank and the Panther Island Mitigation Bank (part of the Corkscrew Regional Ecosystem Watershed) to the south. The restoration of the property's hydrology will have both significant on site benefits as well as offsite benefits in maintain the proper flows and timing of flows to the south.

The conversion of the property has a significant benefit to the county's water supply and the protection of the Water Table Aquifer. The property currently has a permitted capacity of over 2.4 million gallons per day to pump from the Water Table aquifer, and additional permitted capacity from the Sandstone aquifer. The pumping of this water from the water table aquifer results in over a foot of drawdown on the surface, affecting the natural hydrology and the historic wetlands. In a restored state there will be no water pumped from the Water Table aquifer, and an approximately 80% drop in overall permitted water use.

The subject property's inclusion in the Environmental Enhancement and Preservation Overlay implements the purpose and intent of creating the overlay – restoration of important areas in the DR/GR that provide critical wildlife and hydrological linkages. The property's location is key to fulfilling the County's vision.

OPEN SPACE TABLE

INDIGENOUS / CONSERVATION AREA: 805 AC.± (55% MIN. / 803 AC.)

TOTAL OPEN SPACE: 60% MIN. / 876 AC.

TOTAL PROPERTY AREA: 1,460 AC.

NOTE:
THIS MAP IS FOR REFERENCE PURPOSES ONLY. DATA PROVIDED IS DERIVED FROM MULTIPLE SOURCES WITH VARYING LEVELS OF ACCURACY.

VERDANA

SITE PLAN

DeLisi Fitzgerald, Inc.
Planning – Engineering – Project Management
1605 Hendry Street
Fort Myers, FL 33901
P: (239) 418-0691
F: (239) 418-0692
Florida Certificate of Authorization:
Engineering LB #: 26978

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Lee County Board of County Commissioners
Department of Community Development
Division of Planning
Post Office Box 398
Fort Myers, FL 33902-0398
Telephone: (239) 533-8585
FAX: (239) 485-8344

APPLICATION FOR A COMPREHENSIVE PLAN AMENDMENT

PROJECT NAME: Corkscrw Groves

PROJECT SUMMARY:

An amendment to designate approximately 1,460 +/- acres along Corkscrew Road in the DR/GR as an "Environmental Enhancement and Preservation Community" in order to develop a residential community.

Plan Amendment Type: ☒ Normal ☐ Small Scale ☐ DRI

APPLICANT – PLEASE NOTE:

Answer all questions completely and accurately. Please print or type responses. If additional space is needed, number and attach additional sheets. The total number of sheets in your application is: _____

Submit **6** copies of the complete application and amendment support documentation, including maps, to the Lee County Division of Planning. Up to 90 additional copies will be required for Local Planning Agency, Board of County Commissioners hearings and the Department of Community Affairs' packages. Staff will notify the applicant prior to each hearing or mail out.

I, the undersigned owner or authorized representative, hereby submit this application and the attached amendment support documentation. The information and documents provided are complete and accurate to the best of my knowledge.

Signature of Owner or Authorized Representative

Date

Printed Name of Owner or Authorized Representative

I. **APPLICANT/AGENT/OWNER INFORMATION** (Name, address and qualification of additional planners, architects, engineers, environmental consultants, and other professionals providing information contained in this application.)

Applicant: Carlos C. Lopez-Cantera
Address: 150 Alhambra Circle, Suite 925
City, State, Zip: Coral Gables, FL 33134
Phone Number: (305) 461-0563 Email: clc@panamgroup.com

Agent*: Daniel DeLisi, AICP
Address: 15598 Bent Creek Rd.
City, State, Zip: Wellington, FL 33414
Phone Number: 239-913-7159 Email: dan@delisi-inc.com

Owner(s) of Record: Pan Terra Holdings LTD
Address: 50 Alhambra Circle, Suite 925
City, State, Zip: Coral Gables, FL 33134
Phone Number: (305) 461-0563 Email: clc@panamgroup.com

* This will be the person contacted for all business relative to the application.

II. REQUESTED CHANGE

A. TYPE: (Check appropriate type)

☒ Text Amendment
☒ Future Land Use Map Series Amendment (Maps 1 thru 24)
List Number(s) of Map(s) to be amended: 6, 7, 17

1. Future Land Use Map amendments require the submittal of a complete list, map, and two sets of mailing labels of all property owners and their mailing addresses, for all property within 500 feet of the perimeter of the subject parcel. An additional set of mailing labels is required if your request includes a change to the Future Land Use Map (Map 1, page 1). The list and mailing labels may be obtained from the Property Appraisers office. The map must reference by number or other symbol the names of the surrounding property owners list. The applicant is responsible for the accuracy of the list and map.

   At least 15 days before the Local Planning Agency (LPA) hearing, the applicant will be responsible for posting signs on the subject property, supplied by the Division of Planning, indicating the action requested, the date of the LPA hearing, and the case number. An affidavit of compliance with the posting requirements must be submitted to the Division of Planning prior to the LPA hearing. The signs must be maintained until after the final Board adoption hearing when a final decision is rendered.

III. PROPERTY SIZE AND LOCATION OF AFFECTED PROPERTY (for amendments affecting development potential of property)

A. Property Location:

1. Site Address: 19500 Corkscrew Road, Estero, FL 33928
2. STRAP(s): 29-46-27-00-00001.0000; 31-46-27-00-00001.1000; 32-46-27-00-00001.1000

B. Property Information:

Total Acreage of Property: 1,460 +/-

Total Acreage included in Request: 1,460 +/-

Total Uplands: 1,391.46 +/- acres

Total Wetlands: 69.32 +/- acres

Current Zoning: AG-2

Current Future Land Use Designation: DR/GR and Wetlands

Area of each Existing Future Land Use Category:

Existing Land Use: Active agriculture, citrus grove operation and row crops

C. State if the subject property is located in one of the following areas and if so how does the proposed change affect the area: N/A

Lehigh Acres Commercial Overlay:

Airport Noise Zone 2 or 3:

Acquisition Area:

Joint Planning Agreement Area (adjoining other jurisdictional lands):

Community Redevelopment Area:

D. Proposed change for the subject property:

Designation as an "Environmental Enhancement and Preservation Community"

E. Potential development of the subject property:

1. Calculation of maximum allowable development under existing FLUM:

Residential Units/Density 134 units

Commercial intensity

Industrial intensity

2. Calculation of maximum allowable development under proposed FLUM:

Residential Units/Density 1,460 units

Commercial intensity 60,000 sq. ft.

Industrial intensity

IV. AMENDMENT SUPPORT DOCUMENTATION

At a minimum, the application shall include the following support data and analysis. These items are based on comprehensive plan amendment submittal requirements of the State of Florida, Department of Community Affairs, and policies contained in the Lee County Comprehensive Plan. Support documentation provided by the applicant will be used by staff as a basis for evaluating this request. To assist in the preparation of amendment packets, the applicant is encouraged to provide all data and analysis electronically. (Please contact the Division of Planning for currently accepted formats.)

A. General Information and Maps

NOTE: For each map submitted, the applicant will be required to provide a reduced map (8.5" x 11") for inclusion in public hearing packets.

The following pertains to all proposed amendments that will affect the development potential of properties (unless otherwise specified).

1. Provide any proposed text changes.

2. Provide a current Future Land Use Map at an appropriate scale showing the boundaries of the subject property, surrounding street network, surrounding designated future land uses, and natural resources.

3. Provide a proposed Future Land Use Map at an appropriate scale showing the boundaries of the subject property, surrounding street network, surrounding designated future land uses, and natural resources.

4. Map and describe existing land *uses* (not designations) of the subject property and surrounding properties. Description should discuss consistency of current uses with the proposed changes.

5. Map and describe existing zoning of the subject property and surrounding properties.

6. The certified legal description(s) and certified sketch of the description for the property subject to the requested change. A metes and bounds legal description must be submitted specifically describing the entire perimeter boundary of the property with accurate bearings and distances for every line. The sketch must be tied to the state plane coordinate system for the Florida West Zone (North America Datum of 1983/1990 Adjustment) with two coordinates, one coordinate being the point of beginning and the other an opposing corner. If the subject property contains wetlands or the proposed amendment includes more than one land use category a metes and bounds legal description, as described above, must be submitted in addition to the perimeter boundary of the property for each wetland or future land use category.

7. A copy of the deed(s) for the property subject to the requested change.

8. An aerial map showing the subject property and surrounding properties.

9. If applicant is not the owner, a letter from the owner of the property authorizing the applicant to represent the owner.

B. Public Facilities Impacts

NOTE: The applicant must calculate public facilities impacts based on a maximum development scenario (see Part II.H.).

1. Traffic Circulation Analysis: The analysis is intended to determine the effect of the land use change on the Financially Feasible Transportation Plan/Map 3A (20-year horizon) and on the Capital Improvements Element (5-year horizon). Toward that end, an applicant must submit the following information:

   Long Range – 20-year Horizon:

   a. Working with Planning Division staff, identify the traffic analysis zone (TAZ) or zones that the subject property is in and the socio-economic data forecasts for that zone or zones;
   b. Determine whether the requested change requires a modification to the socio-economic data forecasts for the host zone or zones. The land uses for the proposed change should be expressed in the same format as the socio-economic forecasts (number of units by type/number of employees by type/etc.);
   c. If no modification of the forecasts is required, then no further analysis for the long range horizon is necessary. If modification is required, make the change and provide to Planning Division staff, for forwarding to DOT staff. DOT staff will rerun the FSUTMS model on the current adopted Financially Feasible Plan network and determine whether network modifications are necessary, based on a review of projected roadway conditions within a 3-mile radius of the site;
   d. If no modifications to the network are required, then no further analysis for the long range horizon is necessary. If modifications are necessary, DOT staff will determine the scope and cost of those modifications and the effect on the financial feasibility of the plan;
   e. An inability to accommodate the necessary modifications within the financially feasible limits of the plan will be a basis for denial of the requested land use change;
   f. If the proposal is based on a specific development plan, then the site plan should indicate how facilities from the current adopted Financially Feasible Plan and/or the Official Trafficways Map will be accommodated.

   Short Range – 5-year CIP horizon:

   a. Besides the 20-year analysis, for those plan amendment proposals that include a specific and immediated development plan, identify the existing roadways serving the site and within a 3-mile radius (indicate laneage, functional classification, current LOS, and LOS standard);
   b. Identify the major road improvements within the 3-mile study area funded through the construction phase in adopted CIP's (County or Cities) and the State's adopted Five-Year Work Program;
      Projected 2030 LOS under proposed designation (calculate anticipated number of trips and distribution on roadway network, and identify resulting changes to the projected LOS);
   c. For the five-year horizon, identify the projected roadway conditions (volumes and levels of service) on the roads within the 3-mile study area with the programmed improvements in place, with and without the proposed development project. A methodology meeting with DOT staff prior to submittal is required to reach agreement on the projection methodology;
   d. Identify the additional improvements needed on the network beyond those programmed in the five-year horizon due to the development proposal.

2. Provide an existing and future conditions analysis for (see Policy 95.1.3):
   a. Sanitary Sewer
   b. Potable Water
   c. Surface Water/Drainage Basins
   d. Parks, Recreation, and Open Space
   e. Public Schools.

   Analysis should include (but is not limited to) the following (see the Lee County Concurrency Management Report):
   - Franchise Area, Basin, or District in which the property is located;
   - Current LOS, and LOS standard of facilities serving the site;
   - Projected 2030 LOS under existing designation;
   - Projected 2030 LOS under proposed designation;
   - Existing infrastructure, if any, in the immediate area with the potential to serve the subject property.
   - Improvements/expansions currently programmed in 5 year CIP, 6-10 year CIP, and long range improvements; and
   - Anticipated revisions to the Community Facilities and Services Element and/or Capital Improvements Element (state if these revisions are included in this amendment).
   - Provide a letter of service availability from the appropriate utility for sanitary sewer and potable water.

   In addition to the above analysis for Potable Water:
   - Determine the availability of water supply within the franchise area using the current water use allocation (Consumptive Use Permit) based on the annual average daily withdrawal rate.
   - Include the current demand and the projected demand under the existing designation, and the projected demand under the proposed designation.
   - Include the availability of treatment facilities and transmission lines for reclaimed water for irrigation.
   - Include any other water conservation measures that will be applied to the site (see Goal 54).

3. Provide a letter from the appropriate agency determining the adequacy/provision of existing/proposed support facilities, including:
   a. Fire protection with adequate response times;
   b. Emergency medical service (EMS) provisions;
   c. Law enforcement;
   d. Solid Waste;
   e. Mass Transit; and
   f. Schools.

In reference to above, the applicant should supply the responding agency with the information from Section's II and III for their evaluation. This application should include the applicant's correspondence to the responding agency.

C. Environmental Impacts

Provide an overall analysis of the character of the subject property and surrounding properties, and assess the site's suitability for the proposed use upon the following:

1. A map of the Plant Communities as defined by the Florida Land Use Cover and Classification system (FLUCCS).

2. A map and description of the soils found on the property (identify the source of the information).

3. A topographic map depicting the property boundaries and 100-year flood prone areas indicated (as identified by FEMA).

4. A map delineating the property boundaries on the Flood Insurance Rate Map effective August 2008.

5. A map delineating wetlands, aquifer recharge areas, and rare & unique uplands.

6. A table of plant communities by FLUCCS with the potential to contain species (plant and animal) listed by federal, state or local agencies as endangered, threatened or species of special concern. The table must include the listed species by FLUCCS and the species status (same as FLUCCS map).

D. Impacts on Historic Resources

List all historic resources (including structure, districts, and/or archeologically sensitive areas) and provide an analysis of the proposed change's impact on these resources. The following should be included with the analysis:

1. A map of any historic districts and/or sites, listed on the Florida Master Site File, which are located on the subject property or adjacent properties.

2. A map showing the subject property location on the archeological sensitivity map for Lee County.

E. Internal Consistency with the Lee Plan

1. Discuss how the proposal affects established Lee County population projections, Table 1(b) (Planning Community Year 2030 Allocations), and the total population capacity of the Lee Plan Future Land Use Map.

2. List all goals and objectives of the Lee Plan that are affected by the proposed amendment. This analysis should include an evaluation of all relevant policies under each goal and objective.

3. Describe how the proposal affects adjacent local governments and their comprehensive plans.

4. List State Policy Plan and Regional Policy Plan goals and policies which are relevant to this plan amendment.

F. Additional Requirements for Specific Future Land Use Amendments

1. Requests involving Industrial and/or categories targeted by the Lee Plan as employment centers (to or from)
   a. State whether the site is accessible to arterial roadways, rail lines, and cargo airport terminals,
   b. Provide data and analysis required by Policy 2.4.4,
   c. The affect of the proposed change on county's industrial employment goal specifically policy 7.1.4.

2. Requests moving lands from a Non-Urban Area to a Future Urban Area

   a. Demonstrate why the proposed change does not constitute Urban Sprawl. Indicators of sprawl may include, but are not limited to: low-intensity, low-density, or single-use development; 'leap-frog' type development; radial, strip, isolated or ribbon pattern type development; a failure to protect or conserve natural resources or agricultural land; limited accessibility; the loss of large amounts of functional open space; and the installation of costly and duplicative infrastructure when opportunities for infill and redevelopment exist.

3. Requests involving lands in critical areas for future water supply must be evaluated based on policy 2.4.2.

4. Requests moving lands from Density Reduction/Groundwater Resource must fully address Policy 2.4.3 of the Lee Plan Future Land Use Element.

G. Justify the proposed amendment based upon sound planning principles
Be sure to support all conclusions made in this justification with adequate data and analysis.

H. Planning Communities/Community Plan Area Requirements
If located in one of the following planning communities/community plan areas, provide a meeting summary document of the required public informational session.

- [X] Not Applicable
- [ ] Alva Community Plan area [Lee Plan Objective 26.7]
- [ ] Buckingham Planning Community [Lee Plan Objective 17.7]
- [ ] Caloosahatchee Shores Community Plan area [Lee Plan Objective 21.6]
- [ ] Captiva Planning Community [Lee Plan Policy 13.1.8]
- [ ] North Captiva Community Plan area [Lee Plan Policy 25.6.2]
- [ ] Estero Planning Community [Lee Plan Objective 19.5]
- [ ] Lehigh Acres Planning Community [Lee Plan Objective 32.12]
- [ ] Northeast Lee County Planning Community [Lee Plan Objective 34.5]
- [ ] North Fort Myers Planning Community [Lee Plan Policy 28.6.1]
- [ ] North Olga Community Plan area [Lee Plan Objective 35.10]
- [ ] Page Park Community Plan area [Lee Plan Policy 27.10.1]
- [ ] Palm Beach Boulevard Community Plan area [Lee Plan Objective 23.5]
- [ ] Pine Island Planning Community [Lee Plan Objective 14.7]

AFFIDAVIT

I, _____, certify that I am the owner or authorized representative of the property described herein, and that all answers to the questions in this application and any sketches, data, or other supplementary matter attached to and made a part of this application, are honest and true to the best of my knowledge and belief. I also authorize the staff of Lee County Community Development to enter upon the property during normal working hours for the purpose of investigating and evaluating the request made through this application.

_____ _____

Signature of Applicant Date

_____

Printed Name of Applicant

STATE OF FLORIDA
COUNTY OF LEE

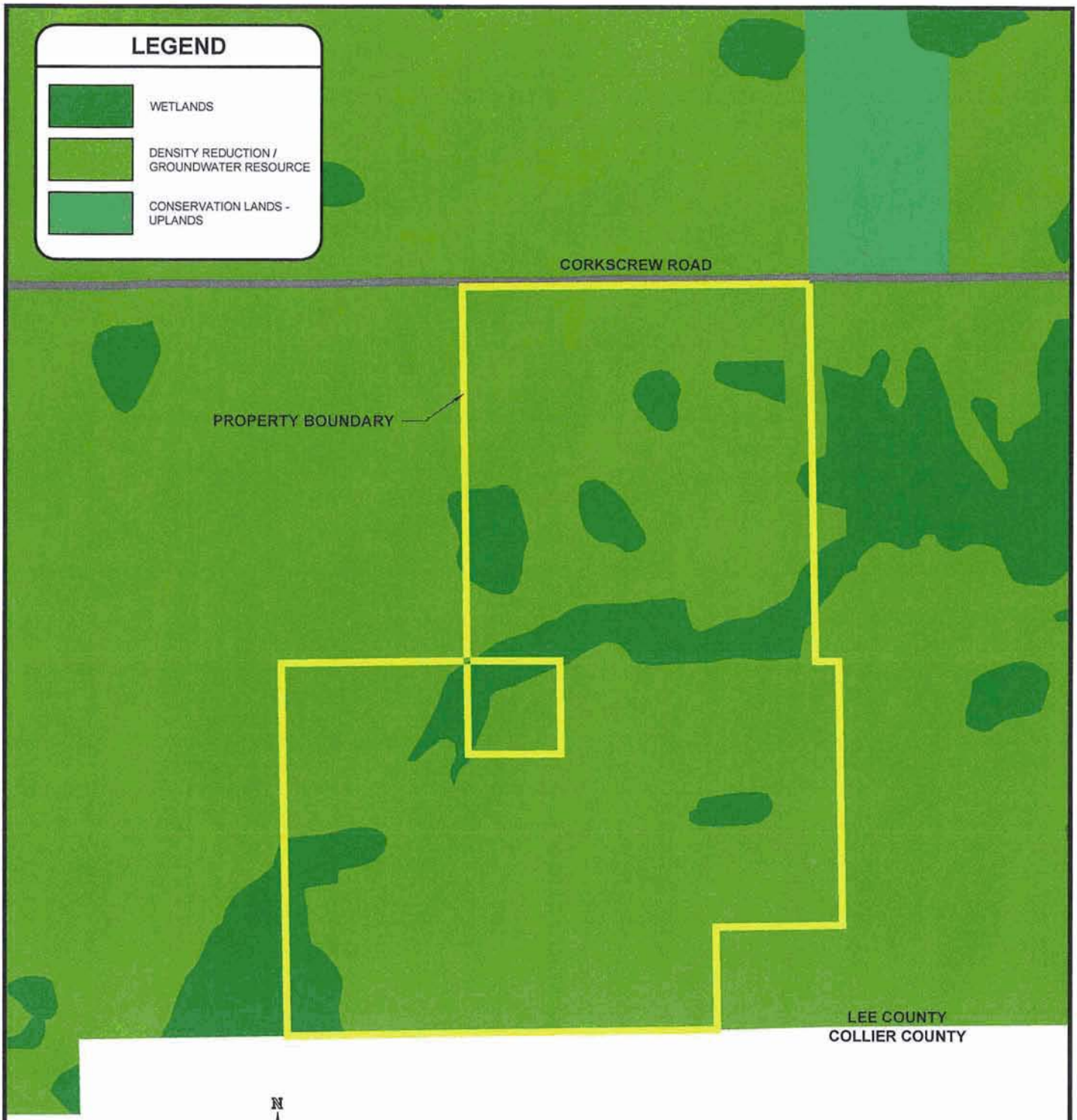
The foregoing instrument was sworn to (or affirmed) and subscribed before me on _____ (date) by _____ (name of person providing oath or affirmation), who is personally known to me or who has produced _____ (type of identification) as identification.

_____

Signature of Notary Public

_____

(Name typed, printed or stamped)



VERDANA

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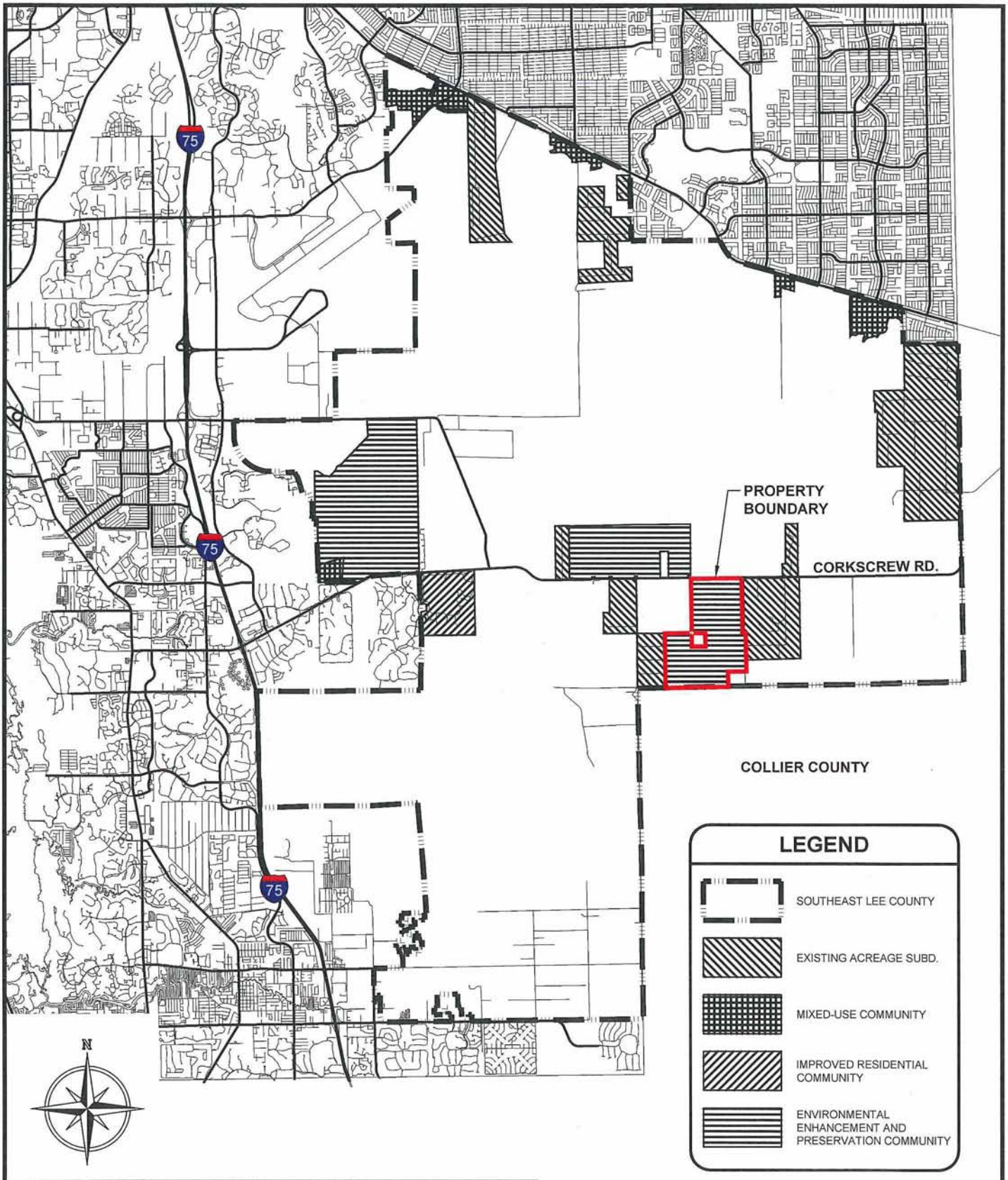
DAN@DELISI-INC.COM

PAN-TERRA HOLDINGS
150 ALHAMBRA CIRCLE, SUITE 915
CORAL GABLES, FL 33134

FUTURE LAND USE MAP



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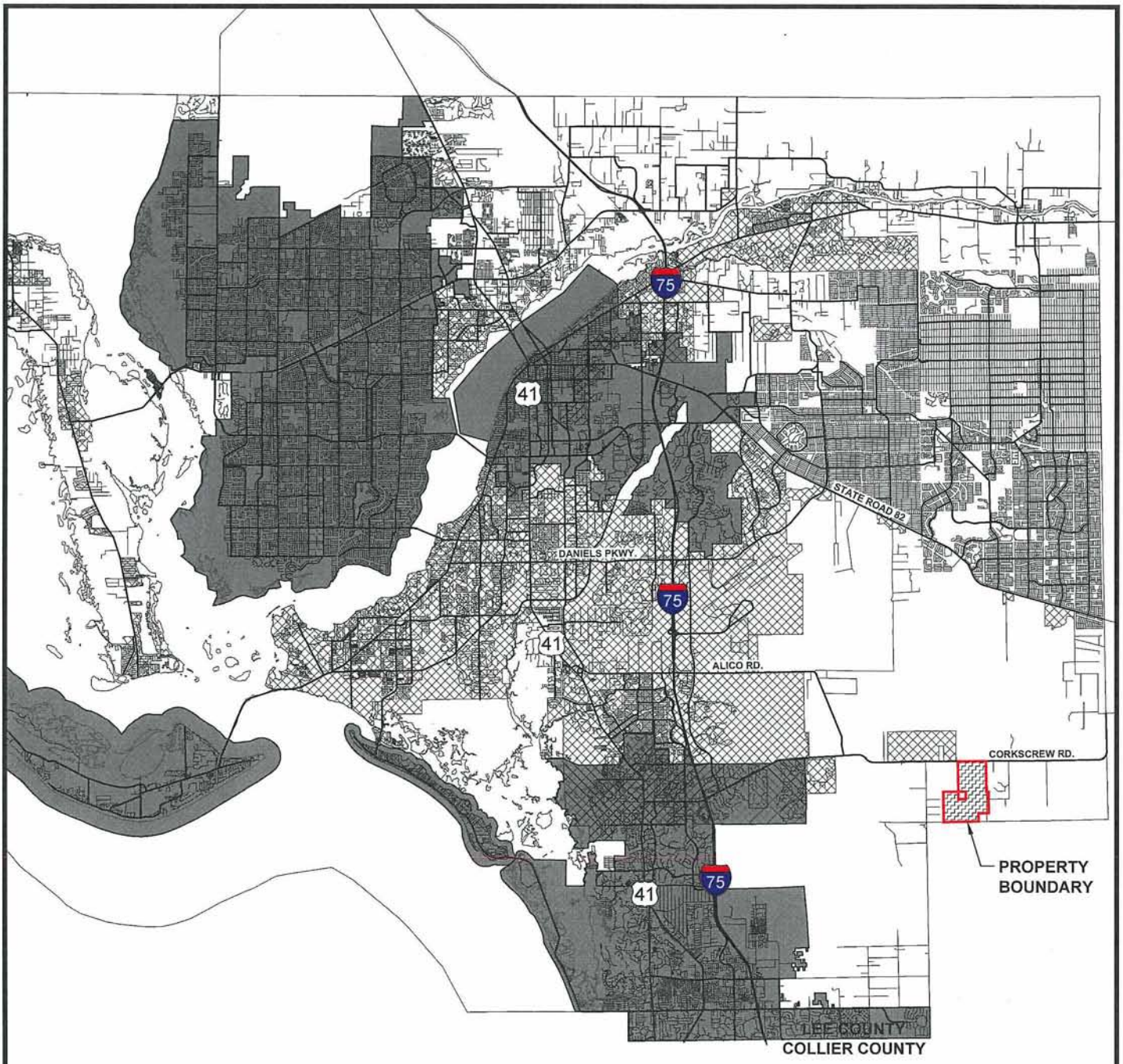
SOUTHEAST DR/GR RESIDENTIAL OVERLAY (LEE PLAN MAP 17)



LEGEND

- CITY LIMITS
- FUTURE WATER SERVICE AREA
- SUBJECT PROPERTY (FUTURE WATER SERVICE AREA)

N

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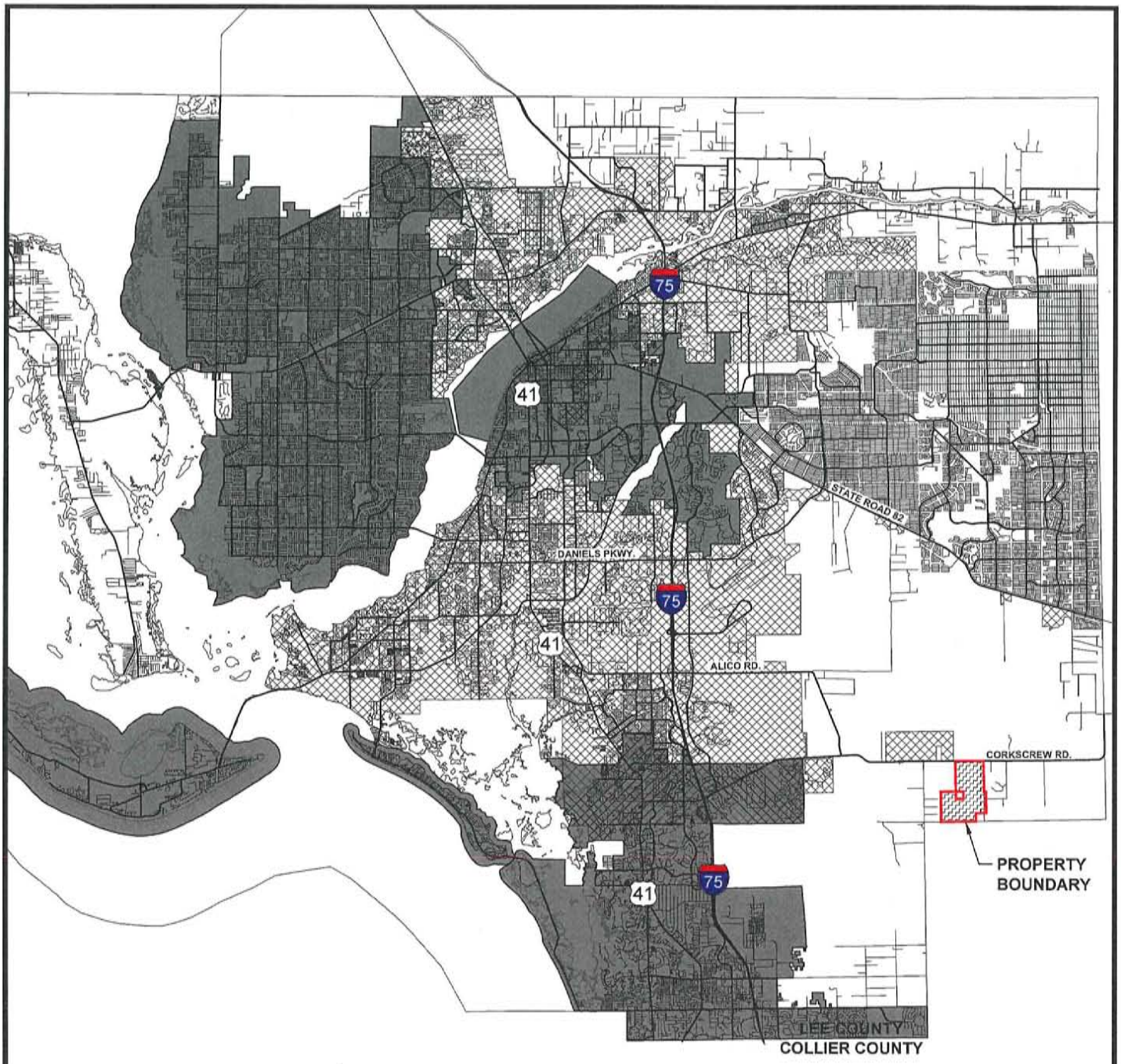
FUTURE SEWER SERVICE AREAS (MAP 7)



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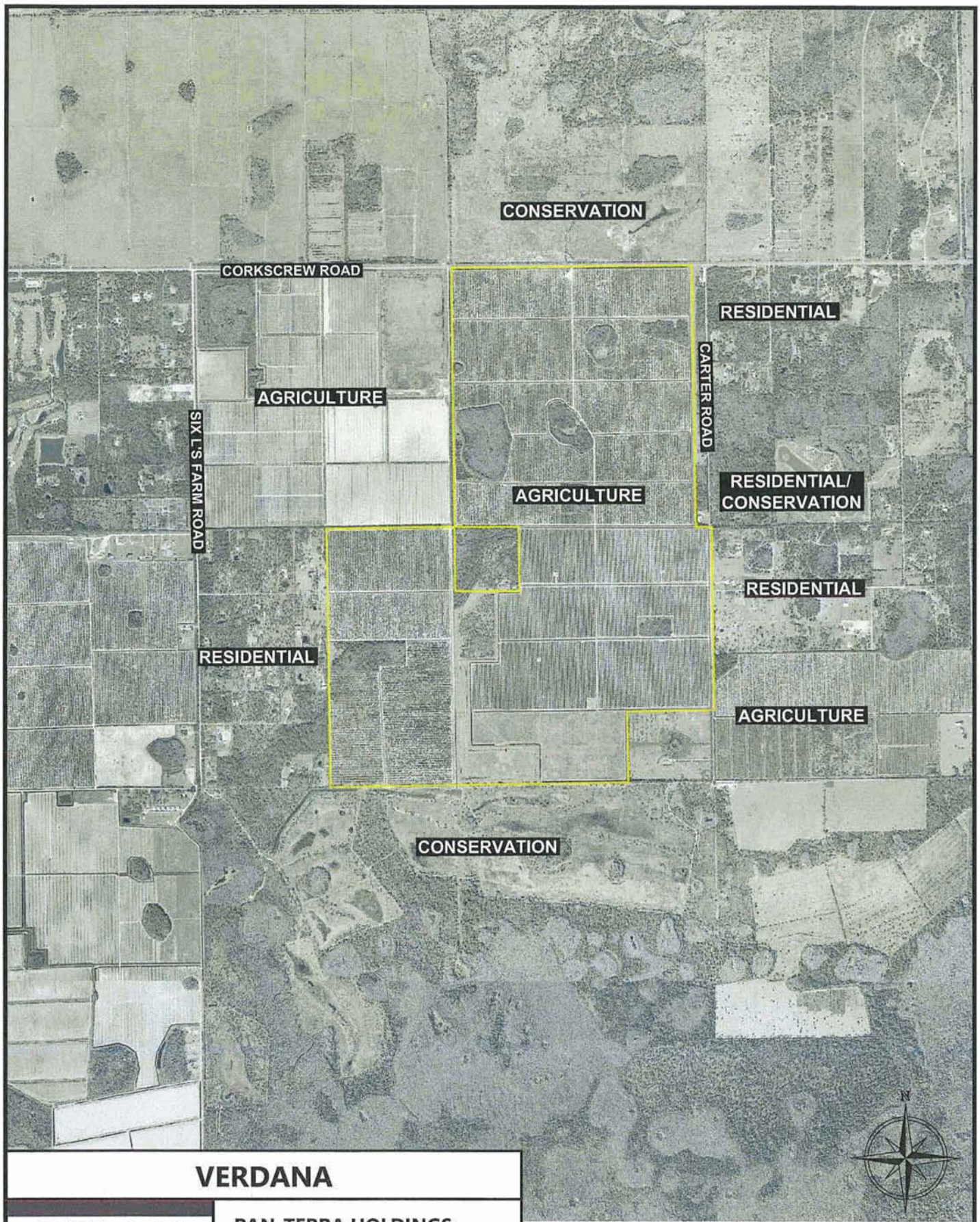
FUTURE WATER SERVICE AREAS (MAP 6)



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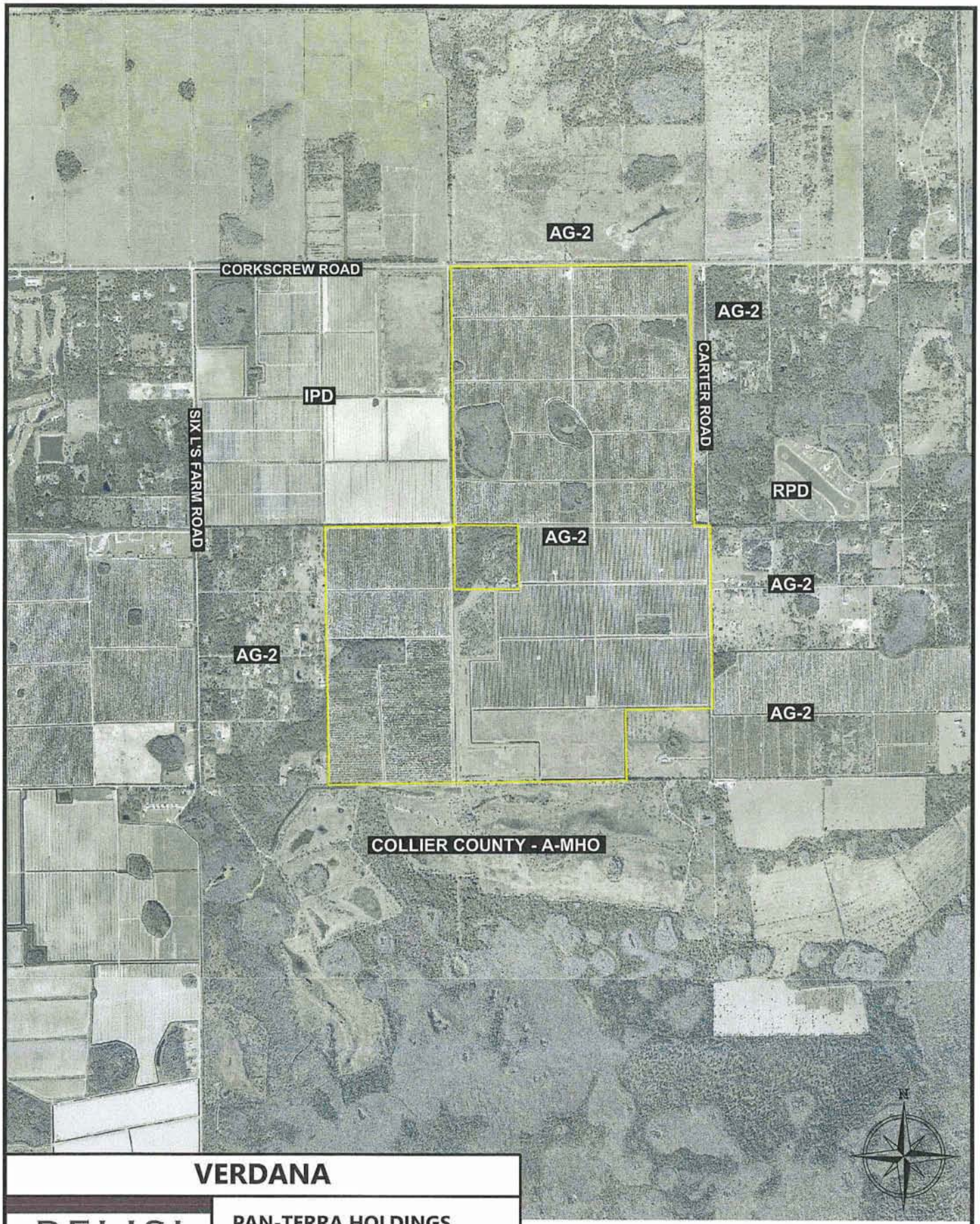
CORAL GABLES, FL 33134

MAP IV.A.4
EXISTING LAND USE



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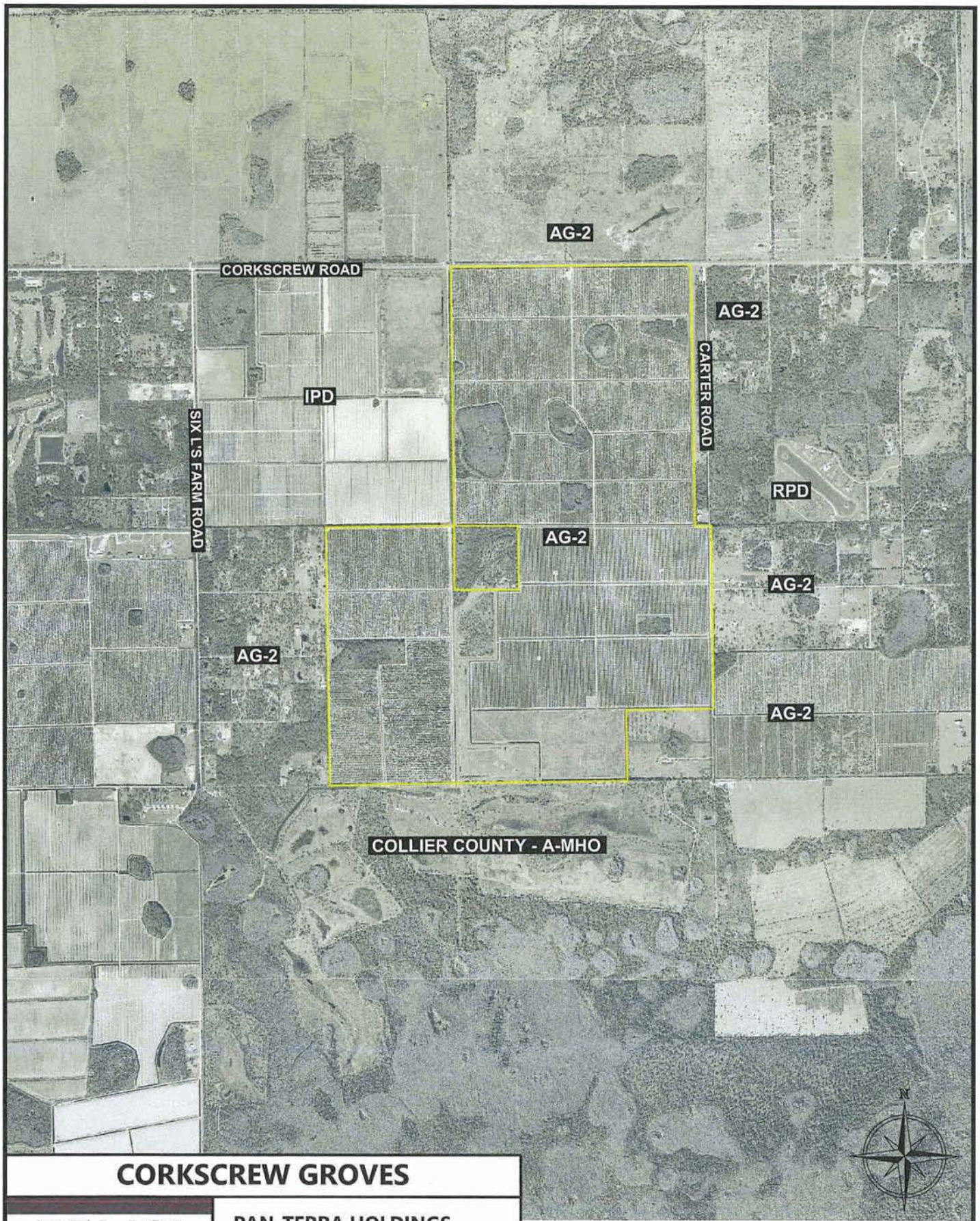
MAP IV.A.5
EXISTING ZONING



CORKSCREW GROVES

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150 ALHAMBRA CIRCLE, SUITE 915
CORAL GABLES, FL 33134

MAP IV.A.5
EXISTING ZONING

DELISI
Land Use Planning & Water Policy

CORKSCREW GROVES COMPREHENSIVE PLAN AMENDMENT
LEE PLAN COMPLIANCE NARRATIVE

Introduction

The Corkscrew Groves property is located along Corkscrew Road in the Southeast Lee County Planning Community. The property comprises approximately 1,460 acres on the south side of Corkscrew Road, adjacent at the southeast corner to the recently approved Corkscrew Farms development and extending from the Lee County mitigation property on the north to the Collier County line with conservation area owned by Audubon.

Due to its location and opportunity to provide critical surface water and wildlife linkages across Corkscrew Road, south to the greater Corkscrew Regional Ecosystem Watershed (CREW), this property is in an ideal location for an Environmental Enhancement and Preservation Community. The subject property is designated as Tier 1 on the Priority Restoration Overlay Map in the Lee County Comprehensive Plan, giving it the greatest priority for environmental enhancement incentives. Due to its current use in agricultural production, converting to a residential community with a minimum of 60% environmental preservation and restoration area, provides a significant area-wide benefit and implements numerous Goals, Objectives and Policies in the comprehensive plan.

PLANNING COMMUNITIES - SE LEE COUTNY

POLICY 1.4.5: The Density Reduction/Groundwater Resource (DR/GR) land use category includes upland areas that provide substantial recharge to aquifers most suitable for future wellfield development. These areas also are the most favorable locations for physical withdrawal of water from those aquifers. Only minimal public facilities exist or are programmed.

1. New land uses in these areas that require rezoning or a development order must demonstrate compatibility with maintaining surface and groundwater levels at their historic levels (except as provided in Policies 33.1.3 and 33.3.5) utilizing hydrologic modeling, the incorporation of increased storage capacity, and inclusion of green infrastructure. The modeling must also show that no adverse impacts will result to properties located upstream, downstream, as well as adjacent to the site. Offsite mitigation may be utilized, and may be required, to demonstrate this compatibility. Evidence as to historic levels may be submitted during the rezoning or development review processes.

   An analysis of restoring the property's historic ground water levels has been conducted by David Brown with Progressive Water Resources, LLC. The analysis demonstrates that the property in a post restoration/development state will have significant environmental benefits to surrounding areas. Some of the main benefits, as outlined in the report by PWR include:

   - *An 84 percent reduction in irrigated area, from 1,134 acres of citrus to approximately 182.2 acres of lawn and landscape (approximately 952 acres less) with a corresponding overall substantial decrease in consumptive use to about 1/10th the*

current consumptive use. More importantly though, the current allocation of just over 2.4 MGD from the surficial aquifer will be totally eliminated.

- *Elimination of all groundwater quantities withdrawn from wells completed into the SAS (Tamiami Formation).*
- *Elimination of drawdown from onsite SAS wells to Lee County's SAS public supply wells.*
- *Elimination of groundwater drawdowns from onsite SAS wells to onsite and nearby environmental systems, including both the Airport Mitigation Park to the north and the Panther Island Mitigation Bank to the south.*
- *Elimination of agricultural rim ditches around onsite wetlands.*
- *Improved surface water quality through the elimination of farming and the creation of engineered stormwater management "treatment" facilities*
- *Enhanced opportunities for recharge to the SAS through the creation of numerous stormwater management system lakes (stormwater retention).*
- *Creation of meandering flow-ways (interconnected linear stormwater lakes) to diversify and enhance onsite ecosystems and wildlife habitats.*
- *Substantial environmental restoration associated with the conversion of active citrus cultivation acreage into open space habitat.*
- *Preservation* and enhancement of onsite forested conservation areas.

The subject property also forms a donut hole between the hydrologic restoration efforts that have occurred in the area from north of Corkscrew Road to south to Corkscrew Swamp. To the north, environmental restoration efforts have occurred within the Corkscrew Mitigation Bank and Imperial Marsh Preserve. To the south, restoration efforts are on-going within the Panther Island Mitigation Bank. Conversion of the property to compact residential and natural restoration areas will allow the heavily drained areas of the agricultural facilities to be replaced with a water management system that provides water quality treatment, and has been designed to be consistent with hydrologic conditions of the preserve and restoration areas to the north and south. This will provide a hydrologic lift to the on-site wetlands, and to the area in general, over the heavily drained farm operations. This will eliminate the effects of the "doughnut hole" and restore flows from north to south.

2. Permitted land uses include agriculture, natural resource extraction and related facilities, conservation uses, public and private recreation facilities, and residential uses at a maximum density of one dwelling unit per ten acres (1 du/10 acres). See Policies 33.3.2, 33.3.3, 33.3.4, 33.3.5, and 33.3.6 for potential density adjustments resulting from concentration or transfer of development rights.

   a. For residential development, also see Objective 33.3 and following policies. Commercial and civic uses can be incorporated into Mixed-Use Communities to the extent specifically provided in those policies.

   The proposed plan amendment is consistent with the DR/GR in its designation as an Environmental Enhancement and Preservation Community in accordance with Objective 33.3 and Policy 33.3.4. Consistent with Objective 33.3, which states:

"specific properties which provide opportunities to protect, preserve, and restore strategic regional hydrological and wildlife connections (Environmental Enhancement and Preservation Communities)"

The subject property is strategically located to provide a critical connection from the preservation lands north of Corkscrew Road to the CREW lands south of the subject property. In accordance with Objective 33.3, an amendment to Policy 33.3.4 must be made as properties on the south side of Corkscrew Road can't make wildlife and hydrologic connections if the overlay does not extend far enough for those connections to be made. The proposed amendment is consistent with intent of Objective 33.3 and Policy 33.3.4 because it is uniquely situated to make strategic hydrological and wildlife connections.

POLICY 1.7.6: The Planning Communities Map and Acreage Allocation Table

This amendment does not propose changes to the Planning Communities Allocation Table. It appears that there is sufficient acreage in the DR/GR for residential use to accommodate the proposed compact footprint of development.

The subject property is an ideal location for the concentration of new units that would otherwise be spread out, or accommodated over a larger area of land. The property is located along an arterial road, across the street from a similar adopted development, and in an area where utilities are either already present, or are already being planned to serve new development.

GOAL 2: GROWTH MANAGEMENT. To provide for an economically feasible plan which coordinates the location and timing of new development with the provision of infrastructure by government agencies, private utilities, and other sources.

The proposed amendment provides for an economically feasible plan to extend urban services to the property and the area. The proposed plan amendment represents a well-timed orderly extension of urban development along a major residential corridor in Lee County. Please see the attached Growth Management Analysis for more discussion of Goal 2.

OBJECTIVE 2.1: DEVELOPMENT LOCATION. Contiguous and compact growth patterns will be promoted through the rezoning process to contain urban sprawl, minimize energy costs, conserve land, water, and natural resources, minimize the cost of services, prevent development patterns where large tracts of land are by-passed in favor of development more distant from services and existing communities. (Amended by Ordinance No. 94-30, 00-22)

The proposed amendment does not constitute urban sprawl. See the attached Growth Management analysis for further detail. The proposed plan amendment is in an area with existing and proposed residential development, agricultural land uses, mining and conservation properties. Residential subdivisions extend east along Corkscrew Road all of the way to the western edge of the Flint Penn Strand. Development is proposed on the north and the east of Flint Penn Strand as the natural extension of urban uses along the corridor.

The existing residential development pattern however, consists of large lot units, impacting large areas of land with few residential homes. This type of very low density development extends almost all of the way to the Collier County line on the east end of Corkscrew Road. The Environmental Enhancement and Preservation Community, which will define a form of development on the east side

of Flint Penn Strand, provides for an incentive to create a less impactful, environmentally beneficial land use form. With 60% open space and requirements for significant environmental lands restoration, the development footprint will be significantly compact, and opportunities will be created to provide new conservation lands on currently cleared actively farmed property. These opportunities will produce enhanced wildlife habitat and corridors across private property and a restoration of ground water levels and water flow in the area.

The overall consumptive use of water will substantially decrease to about 1/10th the current allocation. More importantly though, the current permitted allocation of just over 2.4 million gallons per day from the water table aquifer, will be totally eliminated. This elimination of the on-site water table aquifer wells is a significant improvement to the property's hydrology.

POLICY 2.1.1: Most residential, commercial, industrial, and public development is expected to occur within the designated Future Urban Areas on the Future Land Use Map through the assignment of very low densities to the non- urban categories.

The proposed amendment is for designation within an existing overlay that allows for urban development in a non-urban land use category as a tradeoff for significant environmental restoration obligations. The location of the development represents a natural extension of the urban area. The incentive for environmental restoration allows Lee County to achieve critical environmental restoration goals in Southeast Lee County that would otherwise not be possible.

OBJECTIVE 2.2: DEVELOPMENT TIMING. Direct new growth to those portions of the Future Urban Areas where adequate public facilities exist or are assured and where compact and contiguous development patterns can be created.

There are currently limited public facilities and services in the Southeast Lee County area, because public services are not financially feasible with the type of low density, spread out single use residential development pattern that is occurring under the current Lee Plan. This application continues with the application of an existing overlay that requires compact urban forms that would make the extension of public services financially feasible. The 60% open space requirement ensures that development footprints are minimal, with significant areas left to conservation and restoration of natural habitats.

POLICY 2.3.2: The cost for the provision and expansion of services and facilities that benefit new development will be borne primarily by those who benefit.

Lee County charges impact fees to ensure that the provision and expansion of services and facilities that benefit new development are paid for by that development. In addition, the proposed development will be required to pay for the cost of extending urban services to the property, including utility transmission lines and road costs, consistent with Policy 38.1.9.

POLICY 2.4.3: Future Land Use Map Amendments to the existing DR/GR areas south of SR 82 east of I-75, excluding areas designated by the Port Authority as needed for airport expansion, which increase the current allowable density or intensity of land use will be discouraged by the county. It is Lee County's policy not to approve further urban designations there for the same reasons that supported its 1990 decision to establish this category. In addition to satisfying the requirements in 163 Part II Florida Statutes, Rule 9J-5 of the Florida Administrative Code, the Strategic Regional Policy Plan, the State Comprehensive Plan, and all of the criteria in the Lee Plan, applicants seeking such an amendment must:

1. analyze the proposed allowable land uses to determine the availability of irrigation and domestic water sources; and,
2. identify potential irrigation and domestic water sources, consistent with the Regional Water Supply Plan. Since regional water suppliers cannot obtain permits consistent with the planning time frame of the Lee Plan, water sources do not have to be currently permitted and available, but they must be reasonably capable of being permitted; and,
3. present data and analysis that the proposed land uses will not cause any significant harm to present and future public water resources; and,
4. supply data and analysis specifically addressing the urban sprawl criteria listed in Rule 9J- 5.006(5) (g), (h), (i) and (j), FAC.

The application for the amendment to the Lee Plan to designate the subject property as an Environmental Enhancement and Preservation Community contains a groundwater analysis demonstrating the availability of irrigation and potable water sources. The total amount of pumping and water consumption will be significantly reduced over the current active grove operation. Overall consumptive use will be approximately 10% of the current grove operations with a 100% reduction in withdrawals from the surficial acquirer. The conversion to residential uses alone will have a net positive benefit to ground water supplies.

The analysis also shows that available capacity exists within the Lee County water use permit and the South Florida Water Management District's Lower West Coast Water Supply Plan does not show capacity concerns for this area through the 2030 timeframe.

For additional information about urban sprawl, please see the attached Growth Management analysis, which addresses the former criteria that relocated from the Florida Administrative Code to the Florida Statutes Chapter 163. Overall the analyses show that there will be an improvement in the hydrology and water resources of the property implementing the County's restoration goals for the area and protecting future groundwater supplies.

OBJECTIVE 2.7: HISTORIC RESOURCES. Historic resources will be identified and protected pursuant to the Historic Preservation element and the county's Historic Preservation Ordinance.

A Historic Resource Survey has been conducted for the subject property. The Survey is attached. There were no findings of archeological significance.

GOAL 4: SUSTAINABLE DEVELOPMENT DESIGN. To pursue or maintain land development regulations which encourage creative site designs and mixed use developments.

The Environmental Enhancement and Preservation Community designation essentially creates an overlay with additional development criteria to promote creative site designs with the specific intent of environmental sustainability.

Policy 4.1.1 - requires development to be integrated with the natural features of the site.

The proposed plan of development preserves the onsite wetlands and restores historic flowways, providing for a net environmental benefit with development of the property. Development areas are located in such a way to preserve the on site features and provide setbacks and environmental connections with adjacent properties. .

POLICY 5.1.1: Residential developments requiring rezoning and meeting Development of County Impact (DCI) thresholds must be developed as planned residential developments.

The proposed plan amendment has a planned development application submitted for concurrent review.

POLICY 5.1.2: Prohibit residential development where physical constraints or hazards exist, or require the density and design to be adjusted accordingly. Such constraints or hazards include but are not limited to flood, storm, or hurricane hazards; unstable soil or geologic conditions; environmental limitations; aircraft noise; or other characteristics that may endanger the residential community.

The proposed plan of development locates residential and commercial uses in previously impacted upland areas. Further, the development areas are located and designed in a way to allow for the restoration of significant historic natural areas and connections with off-site property. Development areas are designed with lakes to buffer the wildlife corridors from residential homes, creating a natural barrier and separation and setbacks from the property to the south are increased to allow for proper land management.

POLICY 5.1.5 – Protect existing and future residential areas from any encroachment of uses that are potentially destructive to the character and integrity of the residential environment.

The subject property was included in a 2007 application for mining uses over approximately 640 acres. The application was withdrawn in 2011. Through several planning efforts and zoning applications, Lee County raised concerns about the compatibility of mining, with associated blasting and truck traffic on the adjacent and nearby residential developments along Corkscrew Road. The proposed development of an Environmental Enhancement and Preservation Community is a shift away from a use the County deemed incompatible with adjacent residential uses to a land use that is residential. The proposed land use change implements Policy 5.1.5 by constructing residential development, restoring the natural environment and further establishing the Corkscrew Road corridor for environmentally sustainable residential communities.

STANDARD 11.1: WATER.
1. Any new residential development that exceeds 2.5 dwelling units per gross acre, and any new single commercial or industrial development in excess of 30,000 square feet of gross leasable (floor) area per parcel, must connect to a public water system (or a "community" water system as that is defined by Chapter 17-22, F.A.C.).

Although the proposed development has a gross density limit of 1 du/acre, in accordance with Policy 33.3.4, proposed development will be required to connect to public water and sewer service, and re-use when available.

STANDARD 11.2: SEWER.
1. Any new residential development that exceeds 2.5 dwelling units per gross acre, and any new single commercial or industrial development that generates more than 5,000 gallons of sewage per day, must connect to a sanitary sewer system.

Although the proposed development has a gross density limit of 1 du/acre, in accordance with Policy 33.3.4, proposed development will be required to connect to public water and sewer service, and re-use

when available.

OBJECTIVE 33.2: WATER, HABITAT, AND OTHER NATURAL RESOURCES. Designate on a Future Land Use Map overlay the land in Southeast Lee County that is most critical toward restoring historic surface and groundwater levels and for improving the protection of other natural resources such as wetlands and wildlife habitat.

POLICY 33.2.2: The DR/GR Priority Restoration overlay depicts land where protection and/or restoration would be most critical to restore historic surface and groundwater levels and to connect existing corridors or conservation areas (see Policy 1.7.7 and Map 1, Page 4). This overlay identifies seven tiers of land potentially eligible for protection and restoration, with Tier 1 and Tier 2 being the highest priority for protection from irreversible land-use changes.

The subject property is designated as a Tier 1 property demonstrating its valuable location for restoration of historic surface and groundwater levels and to connect existing corridors and conservation areas. Based on this designation, the Lee Plan provides for a density incentive to implement natural lands and hydrologic restoration of private property.

OBJECTIVE 33.3: RESIDENTIAL AND MIXED-USE DEVELOPMENT. Designate on a Future Land Use Map overlay areas that should be protected from adverse impacts of mining (Existing Acreage Subdivisions), specific locations for concentrating existing development rights on large tracts (Mixed-Use Communities), specific properties which provide opportunities to protect, preserve, and restore strategic regional hydrological and wildlife connections (Environmental Enhancement and Preservation Communities), and vacant properties with existing residential approvals that are inconsistent with the density Reduction/Groundwater Resource future land use category (Improved Residential Communities).

The subject property is being proposed as an Environmental Enhancement and Preservation Community in accordance with Objective 33.3. Given the location of the property, this proposed land use change provides a unique opportunity to protect, preserve, and restore strategic regional hydrological and wildlife connections. The property is situated between natural areas to the north and the south, with the ability to fill in and restore land that will provide a meaningful connection for wildlife and hydrologic restoration.

POLICY 33.3.3: Properties within the DR/GR that have existing approvals for residential development inconsistent with the current DR/GR density requirements, may damage surface and sub-surface water resources, impact habitat, and encroach on environmentally important land if developed consistent with the vested approvals. As an incentive to reduce these potential impacts additional densities may be granted if strict criteria improving the adverse impacts are followed.

A very thorough analysis of Policy 33.3.3 has been conducted by Progressive Water Resources, and is attached in their report in Section 6, Pages 8 – 18.

POLICY 33.3.4: Properties that provide a significant regional hydrological and wildlife connection have the potential to improve, preserve, and restore regional surface and groundwater resources and indigenous wildlife habitats. These properties, located along Corkscrew and Alico Roads, can provide important hydrological connections to the Flint Pen Strand and the Stewart Cypress Slough as well as important wildlife habitat connections between existing CREW and Lee County properties. As an incentive to improve, preserve, and restore regional surface and groundwater resources and wildlife habitat of state and federally listed species additional densities and

accessory commercial uses will be granted if the project is found consistent with and demonstrates through a Planned Development rezoning the following.

The subject property is located in the Tier 1 area within the Priority Restoration Overlay. The subject property, through the proposed Lee Plan amendment, will provide important hydrologic benefits to surrounding properties through improving the timing of off-site flows, providing significant water storage and water quality improvements and creating wildlife habitat for additional corridors for north-south wildlife movement.

The applicant is complying with all of the site design and development criteria in Policy 33.3.4, except where otherwise proposed to be amended. Overall, the property is approximately 1,460 acres, with approximately 876 acres being dedicated from open space. The site is designed to preserve all of the wetlands, and based on historic aerials, recreate the northeast to southwest flowway system through a site restoration. The restored natural areas will be separated from the residential uses by a lake system that serves the dual purpose of restoring the natural timing of flows across the property and creating a natural buffer between the residential areas and restored habitat to allow for more freedom of mammal movement across the property.

The site has been designed to have large contiguous open space areas in strategic locations to align offsite preserve areas and key restoration opportunities in key locations. On the south side of the property 500 feet of preservation set back is being provided as an increased buffer with the restoration activities of the Panther Island Mitigation Bank to the south of the property.

Conversion of the property to residential will allow the heavily drained areas of the agricultural facilities to be replaced with a water management system that provides water quality treatment, and has been designed to be consistent with hydrologic conditions of the preserve and restoration areas to the north and south. This will provide a hydrologic lift to the on-site wetlands, and to the area in general, over the heavily drained farm operations.

POLICY 38.1.9: Lee County will complete a study by July 1, 2017, with input from property owners, to determine the improvements necessary to address increased density within the Environmental Enhancement and Preservation Overlay (See Policy 33.3.4). The study will include a financing strategy for the identified improvements, including participation in a Proportionate Fair Share Program.

Lee County has issued the scope of services for the transportation study and is on track to complete the study within the timeframe of Policy 38.1.9. Any future development that occurs on the subject property will mitigate for transportation impacts in accordance with any proportionate fair share that may be adopted as a result of the study.

GOAL 60: COORDINATED SURFACE WATER MANAGEMENT AND LAND USE PLANNING ON A WATERSHED BASIS. To protect or improve the quality of receiving waters and surrounding natural areas and the functions of natural groundwater aquifer recharge areas while also providing flood protection for existing and future development.

Conversion of the property to a compact form of residential along with the restoration requirements of 60% of the property, will allow the heavily drained areas of the agricultural facilities to be replaced with a water management system that provides water quality treatment, and has been designed to be consistent with hydrologic conditions of the preserve and restoration areas to the north and south. This will provide a hydrologic lift to the on-site wetlands, and to the area in general, over the

heavily drained farm operations. These restoration activities on the subject property will improve the flow of water entering the CREW properties to the south.

POLICY 60.1.1: Develop surface water management systems in such a manner as to protect or enhance the groundwater table as a possible source of potable water.

Measures have been taken to identify and manage areas on the property that are within the Lee County wellfield protection zone. These areas have use restrictions that protect the County's potable water supply. The property's restoration plan will include measures to help restore the site's natural hydrology. By removing agricultural uses and replacing them with a restoration plan, the groundwater resources will be substantially enhanced. In addition, the current grove operation has a permitted consumptive use of 887.67 million gallons per year (2.43 million gallons per day) from the Water Table Aquifer. With the conversion of land uses, the drawdown from the surficial aquifer withdrawals will be entirely eliminated. Irrigation will be supplied by a mixture of on-site lake water blended with water supply from the Sandstone Aquifer. Potable water will be supplied by Lee County Utilities.

POLICY 60.1.2: Incorporate, utilize, and where practicable restore natural surface water flowways and associated habitats.

The goal and purpose of the Environmental Enhancement and Preservation Community is to implement this policy. Future development will be required to preserve and restore 60% of the property as open space as defined by Policy 33.3.4. This open space area will be designed to restore natural surface water, flowways and associated habitats.

The goal of the Environmental Enhancement and Preservation Community is to restore historic flows and the historic groundwater table to the greatest extent possible. The property has been previously cleared and is currently an active citrus grove. As an active grove, the groundwater levels are lowered as part of the farming operation and drainage has been altered, providing harmful flows, uncontrolled to the conservation areas to the south. The restoration of the historic groundwater table, combined with the substantial decrease in the number of individual groundwater wells and total consumptive use on the property (estimated at 1/10th of the current use), will result in increased aquifer recharge and better timing off site flows, improving instances of offsite flooding of natural lands to the south.

POLICY 60.1.3: The county will examine steps necessary to restore principal flow-way systems, if feasible, to assure the continued environmental function, value, and use of natural surface water flow-ways and associated wetland systems.

The designation as an Environmental Enhancement and Preservation Community will require the restoration of the historic surface water flowway that crossed the property from the northeast to Southwest. Restoration of the surface water system on the property will serve to also benefit the restoration areas to the south of the subject property, by providing for more natural and better timed flows, and create significant wildlife habitat that will fill in a corridor that extends from the Airport mitigation lands to the north through the CREW lands to the south.

OBJECTIVE 60.5: INCORPORATION OF GREEN INFRASTRUCTURE INTO THE SURFACE WATER MANAGEMENT SYSTEM. The long-term benefits of incorporating green infrastructure as part of the surface water management system include improved water quality, improved air quality, improved water recharge/infiltration, water storage, wildlife habitat, recreational opportunities, and visual relief within the urban environment.

As stated previously, the designation as an Environmental Enhancement and Preservation Community requires a minimum of 60% open space in order to create large contiguous tracts of green infrastructure. The proposed plan of development restores much of the property to a natural state. Through removal of the active citrus and other agriculture on site, the natural hydrology will be restored producing additional ecological benefits. The increase wetland and lake are of the property will have significant water quality benefits to surrounding natural lands.

POLICY 60.5.1: The County encourages new developments to design their surface water management systems to incorporate best management practices including, but not limited to, filtration marshes, grassed swales planted with native vegetation, retention/detention lakes with enlarged littoral zones, preserved or restored wetlands, and meandering flow-ways.

The applicant will work with Lee County staff and adjacent property owners on a restoration plan that incorporates these wetland features, including restoration of short hydro-period wetlands.

POLICY 60.5.2: The County encourages new developments to design their surface water management system to incorporate existing wetland systems.

The existing wetlands on site are being preserved and incorporated in to the open space/restoration areas.

POLICY 60.5.3: The County encourages the preservation of existing natural flow-ways and the restoration of historic natural flow-ways.

The applicant is proposing a hydrologic restoration of the property and a wildlife corridor that extends from the northeast of the property to the southwest, mirroring the historic flows across the property.

POLICY 60.5.5: The County will continue to coordinate the review of flow-ways with the other regulatory agencies and assist in the development of incentives and /or credits for implementation of regional surface water management systems that address flood protection, water quality/environmental enhancement and water conservation.

A review of historic flowways on the subject property was conducted through examining historic aerials. While no specific "flowways" stood out on the property, there was a clear wetland system that ran from the northeast to the southwest. Restoration of the property will concentrate on reestablishing the historic flow across the property as part of the overall restoration plan.

GOAL 61: PROTECTION OF WATER RESOURCES. To protect the county's water resources through the application of innovative and sound methods of surface water management and by ensuring that the public and private construction, operation, and maintenance of surface water management systems are consistent with the need to protect receiving waters.

The Environmental Enhancement and Preservation Overlay requires the restoration of historic flows

across the subject property. A restoration plan will be created that will improve the water quality and water flow timing across the property, aiding in the restoration efforts of the mitigation bank that is contiguous to the property to the south.

OBJECTIVE 61.2: MIMICKING THE FUNCTIONS OF NATURAL SYSTEM. Support a surface water management strategy that relies on natural features (flow ways, sloughs, strands, etc.) and natural systems to receive and otherwise manage storm and surface water.

Although there is not obvious flowway or slough that historically crossed the subject property, it is apparent from historic aerials that water was generally flowing from the northeast to the southwest across the property. Based on historic aerials, the planning for the subject property has been done to reserve a wildlife and nature lands restoration area that also runs from the northeast to the southwest across the property. The existing remaining wetlands on theproperty are being preserved and incorporated into the restoration plan.

POLICY 61.2.1: All development proposals outside the future urban areas must recognize areas where soils, vegetation, hydrogeology, topography, and other factors indicate that water flows or ponds; and require that these areas be utilized to the maximum extent possible, without significant structural alteration, for on-site stormwater management; and require that these areas be integrated into area-wide coordinated stormwater management schemes.

As stated above, the water management system and the natural lands restoration area is being designed to maintain and restore historic flows across the property from the northeast to the southwest. The natural topographic features of the site and existing wetlands are part of an overall plan to improve the water quality flowing off the property by restoring the natural hydrology to the greatest extent possible adding storage to restore the natural timing of flows.

GOAL 77: DEVELOPMENT DESIGN REQUIREMENTS. To require new development to provide adequate open space for improved aesthetic appearance, visual relief, environmental quality, preservation of existing native trees and plant communities, and the planting of required vegetation.

OBJECTIVE 77.3: New developments must use innovative open space design to preserve existing native vegetation, provide visual relief, and buffer adjacent uses and proposed and/or existing rights-of- way. This objective and subsequent policies are to be implemented through the zoning process.

The Environmental Enhancement and Preservation Overlay requires 60% of the site to be preserved in openspace. Within the openspace area, the project will restore the natural hydrology and create a wildlife corridor through the replanting of native vegetation. The existing wetlands on site are being preserved as part of the overall restoration plan. In addition there is a 250 foot perimeter buffer surrounding most of the site, increasing to 500 feet along the southern border.

Goal107: RESOURCE PROTECTION - manage county's wetland and upland ecosystems to maintain and enhance native habitats, floral and faunal species diversity, water quality and natural surface water characteristics.

Objective 107.1: RESOURCE MANAGEMENT PLAN - The county will continue to implement a resource management program that ensures the long-term protection and enhancement of the natural upland and wetland habitats through the retention of interconnected, functioning, and

maintainable hydroecological systems where the remaining wetlands and uplands function as a productive unit resembling the original landscape.

As stated above, *The Environmental Enhancement and Preservation Overlay requires 60% of the site to be preserved in openspace. The existing wetlands on site are being preserved as part of the overall restoration plan that will include replanting of native vegetation and hydrologic restoration of the property.*

POLICY 107.2.4: Encourage the protection of viable tracts of sensitive or high-quality natural plant communities within developments.

The property is currently being farmed as active agriculture. The few wetlands that remain on site are being preserved and incorporated into an overall land and hydrologic restoration for the property.

POLICY 107.2.8: Promote the long-term maintenance of natural systems through such instruments as conservation easements, transfer of development rights, restrictive zoning, and public acquisition.

In accordance with the environmental Enhancement and Preservation Overlay, 55% of the subject property is being placed in to a conservation easement after land restoration activities are complete. This is a significant benefit for the County and savings for the tax payers. The County saves on the costs of both restoration (which can be very significant) and land/easement acquisition through the inclusion of the property in the Environmental Enhancement and Preservation Overlay.

POLICY 107.2.9: Maintain regulations, incentives, and programs for preserving and planting native plant species and for controlling invasive exotic plants, particularly within environmentally sensitive areas.

Designation in the Environmental Enhancement and Preservation Overlay is an incentive to preserve and restore native habitats on site as well as restore the property's hydrology. The continued use of the Environmental Enhancement and Preservation Overlay implements this Policy.

POLICY 107.2.10: Development adjacent to aquatic and other nature preserves, wildlife refuges, and recreation areas must protect the natural character and public benefit of these areas including, but not limited to, scenic values for the benefit of future generations.

The subject property is contiguous to preservation lands within the CREW footprint to the south. The natural character of the subject property is not only being preserved, but is being enhanced through the designation of this overlay.

OBJECTIVE 107.3: WILDLIFE. Maintain and enhance the fish and wildlife diversity and distribution within Lee County for the benefit of a balanced ecological system.

The comprehensive plan amendment requires upland and wetland restoration and preservation to provide habitat diversity.

POLICY 107.3.1: Encourage upland preservation in and around preserved wetlands to provide habitat diversity, enhance edge effect, and promote wildlife conservation.

The existing wetland areas on the subject property are being preserved and incorporated into an

overall plan for restoration of the subject property. Upland areas will be preserved and restored around the wetland areas to provide habitat diversity, enhance edge effect, and promote wildlife conservation.

OBJECTIVE 107.4: ENDANGERED AND THREATENED SPECIES IN GENERAL. Lee County will continue to protect habitats of endangered and threatened species and species of special concern in order to maintain or enhance existing population numbers and distributions of listed species.

The comprehensive plan amendment requires 60% of the subject property be retained as open space and incorporated into an overall site restoration plan. The development is being designed to create a wildlife corridor for large mammals to cross the subject property, including Black Bear and Panthers. Littoral shelves on new lakes and new short hydro period wetlands will help increase the Woodstork habitat. The benefit of designation within the overlay is that Lee County goes beyond simply preserving native habitats, but through this plan amendment will increase native habitat for endangered and threatened wildlife.

POLICY 107.4.2: Conserve critical habitat of rare and endangered plant and animal species through development review, regulation, incentives, and acquisition.

Designation as an Environmental Enhancement and Preservation community is an incentive for a property owner to restore impacted property to a natural state and grant the County a conservation easement over 55% of the property.

POLICY 107.11.4: The county will continue to protect and expand upon the Corkscrew Regional Ecosystem Watershed Greenway, a regionally significant greenway with priority panther habitat, through continued participation in land acquisition programs and land management activities and through buffer and open space requirements of the Land Development Code.

The subject property is contiguous to the CREW footprint on the south. The restoration requirements of the Overlay will create a new wildlife corridor for mammals moving from the Airport mitigation property in and out of CREW. In essence, approval of the overlay will expand the CREW footprint over 55% of the subject property, without public funds being used for land acquisition or restoration.

OBJECTIVE 114.1: The natural functions of wetlands and wetland systems will be protected and conserved through the enforcement of the county's wetland protection regulations and the goals, objectives, and policies in this plan. "Wetlands" include all of those lands, whether shown on the Future Land Use Map or not, that are identified as wetlands in accordance with F.S. 373.019(17) through the use of the unified state delineation methodology described in FAC Chapter 17-340, as ratified and amended by F.S. 373.4211.

The on-site wetlands are being preserved as part of this comprehensive plan amendment. The natural functions will be restored with the hydrologic restoration of the property.

POLICY 115.1.2: New development and additions to existing development must not degrade surface and ground water quality.

The requirements of the Environmental Enhancement and Preservation Overlay will serve to significantly improve surface and ground water quality.

GOAL 117: WATER RESOURCES. To conserve, manage, and protect the natural hydrologic system of Lee County to insure continued water resource availability.

POLICY 117.1.4: Development designs must provide for maintaining surface water flows, groundwater levels, and lake levels at or above existing conditions.

The requirements of the Environmental Enhancement and Preservation Overlay will serve to improve surface and ground water flows through the hydrologic restoration of the property.

GOAL 135: MEETING HOUSING NEEDS. To provide decent, safe, and sanitary housing in suitable neighborhoods at affordable costs to meet the needs of the present and future residents of the county.

POLICY 135.1.9: The county will ensure a mix of residential types and designs on a countywide basis by providing for a wide variety of allowable housing densities and types through the planned development process and a sufficiently flexible Future Land Use Map.

The proposed development will add to a unique housing form in Lee County. The proposed development creates compact neighborhoods around large contiguous ecosystem restoration areas.

2. REQUESTS MOVING LANDS FROM A NON-URBAN AREA TO A FUTURE URBAN AREA

a. *Demonstrate why the proposed change does not constitute Urban Sprawl. Indicators of sprawl may include, but are not limited to: low-intensity, low-density, or single-use development; 'leap-frog' type development; radial, strip, isolated or ribbon pattern type development; a failure to protect or conserve natural resources or agricultural land; limited accessibility; the loss of large amounts of functional open space; and the installation of costly and duplicative infrastructure when opportunities for infill and redevelopment exist.*

Growth Management Analysis

The proposed designation of the subject property as an Environmental Enhancement and Preservation Community is consistent with good planning practice and is a natural extension of development along a corridor in Lee County that has been experience continued growth for over two decades. The proposed amendment represents a timely and orderly extension of development, while providing significant environmental restoration and enhancement opportunities to an area that has, in recent history, been over drained and significantly impacted by agricultural activity.

The Florida Statutes provide definition to how development should occur and the characteristics of development that discourages the proliferation of "urban sprawl". Chapter 163.3177 9.b. F.S. lists the development patterns and characteristics that are deemed to discourage the proliferation of urban sprawl. Below is a description of how the proposed amendment implements these development patterns. Below is an analysis of how the proposed development does <u>not</u> constitute urban sprawl as defined in Chapter 163.3177 9.a.

> **9. The future land use element and any amendment to the future land use element shall discourage the proliferation of urban sprawl.**
>
> **b. The future land use element or plan amendment shall be determined to discourage the proliferation of urban sprawl if it incorporates a development pattern or urban form that achieves four or more of the following:**
>
> *The proposed plan amendment incorporates more than the required <u>four</u> of the following development characteristics.*
>
> **(I) Directs or locates economic growth and associated land development to geographic areas of the community in a manner that does not have an adverse impact on and protects natural resources and ecosystems.**
>
> *The goal of the Environmental Enhancement and Preservation Community Overlay is to create an area where government can leverage limited resources to restore impacted lands for conservation. Limited development is allowed in exchange for investing money to restore the natural environment and provide a minimum of 60% open space. The Overlay is put in place to restore the area's hydrology, habitat and historic flowways. In addition to preserving the on-*

site wetlands, new additional wetland and upland areas will be created and restored from active farm land. These restoration areas will provide critical habitat and hydrologic linkages in the area, having not only an on-site benefit, but a benefit to surrounding properties as well.

In addition, transitioning the property from an active citrus grove to restored natural lands with a compact residential community results in a dramatic decrease in the use of fertilizers and pesticides. Current agricultural operations both draw down the surficial aquifer, having a negative impact on surrounding wetlands, but also discharge runoff that contains fertilizers needed for agricultural production.

(II) Promotes the efficient and cost-effective provision or extension of public infrastructure and services.

The proposed development is located in an area, along a road corridor that represents a logical extension of the urban area. To the west are existing very low density residential homes and several properties that are currently being proposed for residential development. Over the last couple decades, the Corkscrew Road corridor has seen an orderly extension of both urban development and urban services, making the development of this property an orderly, logical next step.

(III) Promotes walkable and connected communities and provides for compact development and a mix of uses at densities and intensities that will support a range of housing choices and a multimodal transportation system, including pedestrian, bicycle, and transit, if available.

The proposed development will have a mix of uses, including residential and commercial development and recreational amenities. These uses will allow for the internal capture of trips. Further, the compact nature of the development areas, limited to 40% of the site, produce a development form that preserves and restores natural areas.

(IV) Promotes conservation of water and energy.

The proposed development will convert a current active agricultural area, with a high water usage, to restored natural areas and small lot, compact residential development. With this land use conversion, there is a significant decrease in the amount of water being consumed on site. According to the attached report by Progressive Water Resources, LLC, the construction of an Environmental Enhancement and Preservation Community in this location will result in:

- *An 84 percent reduction in irrigated area, from 1,134 acres of citrus to approximately 182.2 acres of lawn and landscape (approximately 952 acres less) and a corresponding drop in the consumptive use for the property.*
- *Elimination of all groundwater quantities withdrawn from wells completed into the SAS (Tamiami Formation).*
- *Elimination of drawdown from onsite SAS wells to Lee County's SAS public supply wells.*
- *Elimination of groundwater drawdowns from onsite SAS wells to onsite and nearby environmental systems, including both the Airport Mitigation Park to the north and the Panther Island Mitigation Bank to the south.*
- *Elimination of individual private potable supply and irrigation wells allowed by current zoning.*

- *A master-controlled irrigation system that regulates the initiation and overall duration of irrigation events to manage irrigation water use and greatly enhance water conservation.*
- *Enhanced opportunities for recharge to the SAS through the creation of numerous stormwater management system lakes (r retention).*

Furthermore, the development proposal will restore historic groundwater levels and flows, creating off site benefits to surrounding natural lands. According to the analysis by Andrew Fitzgerald, PE, the subject property forms a "donut hole" of hydrologic restoration efforts that have occurred in the area from north of Corkscrew Road to south to Corkscrew Swamp. To the north, environmental restoration efforts have occurred within the Corkscrew Mitigation Bank and Imperial Marsh Preserve. To the south, restoration efforts are on-going within the Panther Island Mitigation Bank. Conversion of the property to compact residential development will allow the heavily drained areas of the agricultural facilities to be replaced with a water management system that provides water quality treatment, and has been designed to be consistent with hydrologic conditions of the preserve and restoration areas to the north and south. This will provide a hydrologic lift to the on-site wetlands, and to the area to both the north and south, by restoring the natural north-south flow across the property.

(V) Preserves agricultural areas and activities, including silviculture, and dormant, unique, and prime farmlands and soils.

The proposed plan amendment does not preserve agriculture. The proposed plan amendment converts existing agricultural land back to natural conservations lands and limited development.

However, the significant amounts of conservation land and perimeter buffer areas serve to preserve the potential for agricultural use on other nearby properties by mitigating any compatibility problems that arise with the encroachment of urban development into agricultural areas.

(VI) Preserves open space and natural lands and provides for public open space and recreation needs.

The Environmental Enhancement and Preservation Community designation implements this design pattern by requiring a significant area (60%) for environmental restoration and preservation. The purpose of the land use designation is to preserve open space and natural lands and to recreate natural lands on properties that are already impacted and cleared by development of agricultural activities. The requirements of the Environmental Enhancement and Preservation overlay result in the restoration of historic flowways crossing the property and aiding in the off-site restoration efforts of several governmental entitles (Lee County, Lee County Port Authority, the South Florida Water Management District, Florida Department of Environmental Protection and the Florida Fish and Wildlife Conservation Commission) and well as private interests including the Florida Audubon Society.

(VII) Creates a balance of land uses based upon demands of the residential population for the nonresidential needs of an area.

The proposed plan of development locates a 60,000 square foot commercial retail parcel close to the development entrance along Corkscrew Road. The total area of development is approximately 40 sq ft. of retail per residential unit, generally considered the rule of thumb for

neighborhood retail needs. The proposed commercial development will be able to capture pass-by trips that are already on Corkscrew Road, as well as trips from planned residential development to the west. The presence of the small neighborhood levels of retail along Corkscrew Road will help create a more integrated community with fewer trips having to travel longer distances to the west for basic shopping needs.

In addition, the large areas of open space within the property create opportunities for passive open space throughout the community. The proposed development lends itself to a walkable active neighborhood with on-site parks and amenities.

(VIII) Provides uses, densities, and intensities of use and urban form that would remediate an existing or planned development pattern in the vicinity that constitutes sprawl or if it provides for an innovative development pattern such as transit-oriented developments or new towns as defined in s.163.3164.

The proposed development is neither transit oriented nor a new town as defined in s. 163.3164. However, the proposed development does provide a compact footprint with clustered housing, preserving and restoring large contiguous areas of open space and wildlife habitat. The compact development footprint allows for wildlife movement and restoration of historic water flows across the property. The compact form of development is a significant change in development form from the scattered very low density residential and mining uses that proliferate the area and fracture the landscape.

a. The primary indicators that a plan or plan amendment does not discourage the proliferation of urban sprawl are listed below. The evaluation of the presence of these indicators shall consist of an analysis of the plan or plan amendment within the context of features and characteristics unique to each locality in order to determine whether the plan or plan amendment:

(I) Promotes, allows, or designates for development substantial areas of the jurisdiction to develop as low-intensity, low-density, or single-use development or uses.

The proposed development is not "single use" in that it proposes a mix of commercial, residential and recreational amenities. On a larger scale, the Environmental Enhancement and Preservation Community Overlay allows for commercial development, a form of development that will become more feasible as more residential communities are introduced to the area. The current pattern of very low density residential development is single use and requires residents to travel long distances for basic needs, public facilities and recreational amenities. The proposed commercial area will not only help capture trips internal to the development, but benefit surrounding residential development by providing closer basic retail services.

(II) Promotes, allows, or designates significant amounts of urban development to occur in rural areas at substantial distances from existing urban areas while not using undeveloped lands that are available and suitable for development.

The proposed plan amendment represents an orderly progression of development along Corkscrew Road. All of the land to the west consists of large lot residential homes, environmental preservation or agricultural lands that are also being entitled for development.

The proposed development is in an area where urban services either exist or can be easily extended. Furthermore, the proposed compact development helps create the critical mass of people that make the extension of urban services financially feasible to serve the existing large lot residential development.

(III) Promotes, allows, or designates urban development in radial, strip, isolated, or ribbon patterns generally emanating from existing urban developments.

The proposed plan amendment seeks a comprehensive plan designation of Environmental Enhancement and Preservation Community. The Lee Plan policies governing Environmental Enhancement and Preservation Communities require the preservation and enhancement of natural lands on the site. As such, the development form that is created consists of small compact pods of residential uses nestled among large existing and restored wetland and upland habitat. The predominant feature of the site, post development, is a restored wetland and upland system that will serve as a regional wildlife corridor.

(IV) Fails to adequately protect and conserve natural resources, such as wetlands, floodplains, native vegetation, environmentally sensitive areas, natural groundwater aquifer recharge areas, lakes, rivers, shorelines, beaches, bays, estuarine systems, and other significant natural systems.

The Lee Plan policies that govern the Environmental Enhancement and Preservation Community are designed specifically to preserve and restore natural resources, provide new and enhanced wildlife corridors and restore the hydrology of the land. 60% of the property must be open space. 55% of the property must be encumbered in a conservation easement. The 60% open space area consists of preserved and restored wetland and upland areas as well as hydrological restoration features.

As stated above, the development proposal will restore historic groundwater levels and flows, creating off site benefits to surrounding natural lands. According to the analysis by Andrew Fitzgerald, PE, the subject property currently forms a "donut hole" of hydrologic restoration efforts that have occurred in the area from north of Corkscrew Road to south to Corkscrew Swamp. To the north, environmental restoration efforts have occurred within the Corkscrew Mitigation Bank and Imperial Marsh Preserve. To the south, restoration efforts are on-going within the Panther Island Mitigation Bank. Conversion of the property to compact residential will allow the heavily drained areas of the agricultural facilities to be replaced with a water management system that provides water quality treatment, and has been designed to be consistent with hydrologic conditions of the preserve and restoration areas to the north and south. This will provide a hydrologic lift to the on-site wetlands, and to the area in general, over the heavily drained grove operations.

(V) Fails to adequately protect adjacent agricultural areas and activities, including silviculture, active agricultural and silvicultural activities, passive agricultural activities, and dormant, unique, and prime farmlands and soils.

There are limited agricultural areas that are adjacent to the subject property. However, the 60% open space requirement creates a site plan that provides significant perimeter setbacks and buffer areas protecting adjacent agricultural areas from the typical incompatibilities of residential encroachment. With the environmental restoration and habitat corridor areas

being created on the property, the development areas are compact and set back from adjacent properties.

(VI) Fails to maximize use of existing public facilities and services.

Public facilities exist in the area or can easily be extended. Additional planning is currently in the process to extend additional facilities to the area right up to the property. Future development will, through the payment of impact fees and transportation proportionate share, off set any additional needed infrastructure.

(VII) Fails to maximize use of future public facilities and services.

The proposed development is located along a major transportation corridor that is the subject of a study for future road widening. Future water supplies are available in the area and utility lines are planned for extension to the property. With continued investment in infrastructure, additional development will maximize the use of these public and private expenditures for infrastructure.

(VIII) Allows for land use patterns or timing which disproportionately increase the cost in time, money, and energy of providing and maintaining facilities and services, including roads, potable water, sanitary sewer, stormwater management, law enforcement, education, health care, fire and emergency response, and general government.

The proposed Lee Plan amendment represents a natural progression of development along a corridor where public facilities exist or can easily be further extended. Additional costs to accommodate future development will be offset by payments from the developer through impact fees and proportionate share payment, to the extent that they are needed.

(IX) Fails to provide a clear separation between rural and urban uses.

The proposed plan amendment to allow for the development of an Environmental Enhancement and Preservation Community contains a requirement for 60% of the site to be dedicated as open space and conservation area. The effect of this requirement is a significant perimeter setback and buffer to adjacent uses. The compact development areas on site are nestled within large tracts of conservation area and separated from adjacent large lot residential and agricultural uses, mitigating any potential future compatibility concerns.

(X) Discourages or inhibits infill development or the redevelopment of existing neighborhoods and communities.

The proposed development has no impact on the market for infill development or the redevelopment of existing neighborhoods. Infill development is continuing in south Lee County along the Corkscrew Road corridor nearing full buildout of available properties.

(XI) Fails to encourage a functional mix of uses.

The proposed development program consists of compact residential neighborhoods and commercial development in an amenitized community. The commercial area is sized appropriately to capture the created and adjacent market from existing and proposed

residential units. Both the commercial and on site amenity features serve to capture trips internally within the development, minimizing reliance on the overall transportation network.

(XII) Results in poor accessibility among linked or related land uses.

The proposed amendment is designed to create linkages to off-site open space, natural lands and restoration of historic flowways. The 60% preservation and restoration area is being designed to link historic flows from the adjacent conservation lands owned by the South Florida Water Management District to the north to the conservation lands owned by the Audubon Society to the south. Through the sole expense of the development, a majority of the subject property will be restored to provide critical linkages for wildlife and water flow across the property.

(XIII) Results in the loss of significant amounts of functional open space.

The proposed amendment represents a substantial increase in functional open space. The current state of the property as active agriculture provides no open space that is functional for the general public or the natural environment. The Environmental Enhancement and Preservation Community designation requires a minimum of 60% open space that will function as restored natural habitat for a wildlife corridor and open space for the restoration of the area's hydrology.

Conclusion

The proposed Lee Plan amendment will have a measurable benefit to the environment through the restoration of the native ecosystem on the majority of the property. Further, there will be a significant off site benefit as well through the environmental linkages that this property will provide, creating new opportunities for wildlife movement and improving the hydrology of this and surrounding properties.

The compact form of development that is required adds new types of neighborhoods to Lee County's housing stock and increases functional open space. Surrounding uses are well buffered with clear separations around the property. The mix of uses and the contributions to infrastructure benefit the area through creating the feasibility for services that would otherwise not be available without development of this property. In conclusion, the proposed plan amendment does not represent urban sprawl and greatly contributes to Lee County's ecosystem restoration goals.

DELISI
Land Use Planning & Water Policy

STATE AND REGIONAL POLICY PLANS

The proposed Corkscrew Groves amendment to the Lee Plan aims to create a compact residential community that preserves and restores the natural environment in accordance with the Environmental Enhancement and Preservation Overlay guidelines. Development within the community will be designed to provide additional housing opportunities in Lee County while creating a new wildlife corridor and hydrologic restoration of a key property linking the Airport mitigation preserves on the north to the CREW lands to the south. Below is a description of how the proposed amendment is consistent with the State and Regional Policy Plans.

REGIONAL POLICY PLAN

Housing - Goal2 - Livable Communities

The compact land use form lends itself to the creation of a livable active community that is pedestrian oriented. There will be on-site recreational amenities and commercial along Corkscrew Road creating a positive living experience for future residents.

Economic Development- Goal1, Strategy 3: Maintain the physical infrastructure to meet growth demands

Action 1. *Review plan amendments, development proposals, and clearinghouse items for public facility deficits and encourage mitigation of those deficits.*

Action 3. *Review proposed public facilities to ensure their location in urban areas that have in place, or are covered by binding agreements to provide, the resources and facilities for desired growth in an environmentally acceptable manner.*

The proposed plan amendment will mitigate for its proportionate share of infrastructure costs, including the extension of utilities, payment of impact fees for school and a proportionate share payment for improvements to Corkscrew Road. The growth patter, with 60% open space, which is dedicated to restoration of natural areas and the property's hydrology, is being developed in an environmentally acceptable manner.

Goal 3, Strategy 1: Maintain and improve the natural, historic, cultural, and tourist-related resources as primary regional economic assets.

Action 3. *Review proposed development to require that natural and other resources of regional significance are maintained, enhanced, restored, or re-created, as appropriate.*

Large areas of the subject property, which are currently in active agricultural use, will be restored to the natural state. This will include both wetland and upland areas as well as a hydraulic restoration of the property as well.

Strategy2: Ensure sustainable volumes of natural resources for economic productivity.

Action 1. *Promote and assist resource planning programs to incorporate local government population projections and assessments of land consumption.*

The subject property will not consume any additional land for development that has not already been planned for.

NATURAL RESOURCES ELEMENT

Goal 2, Strategy 1: *To identify and include within a land conservation or acquisition program, those lands identified as being necessary for the sustainability of Southwest Florida, utilizing all land preservation tools available.*

Action 2. *Support continued acquisition of lands targeted for conservation and recreation by Public Land Acquisition Programs including CARL, SOR, Florida Communities Trust, Lee County CLASAC, CREW, WRDA and other efforts in the Region.*

The subject property is contiguous to the CREW boundary with the unique opportunity to provide a hydraulic and wildlife connection from the Airport mitigation lands to the north with the CREW lands to the South. After the 55% required area if the property is restored to natural state and placed under conservation easement, this acreage will effectively be incorporated into the CREW ecosystem at no cost to the public.

Goal 4: Livable communities designed to improve quality of life and provide for the sustainability of our natural resources.

The creation of a community at this location will require the restoration of environmentally sensitive lands and a significant improvement to the sustainability of the region's natural resources.

Transportation - Goal 2, Strategy 1 - Promote a good environment for driving, walking, bicycling, and public transit using a highly connected network of public streets, green space, and community centers.

The compact land use form lends itself to the creation of a livable active community that is pedestrian and bicycle friendly. Connections will be made to the green spaces throughout the development, the on-site recreational amenity and the commercial development.

STATE POLICY PLAN

The proposed Corkscrew Groves Environmental Enhancement and Preservation community is consistent with the State Comprehensive Plan. Below are specific policies as they relate to this proposed development.

(3) THE ELDERLY
Policy (b) 10. Improve and expand transportation services to increase mobility of the elderly.

The compact design of the community lends itself to walkability and more diverse mobility options for an active lifestyle and fulfillment of daily needs.

(4) HOUSING
Policy 3. *Increase the supply of safe, affordable, and sanitary housing for low income and moderate income persons and elderly persons by alleviating housing shortages...*

The proposed development will add additional housing stock in a unique environmental setting that will be both safe and clean. The addition of the housing opportunities helps to prevent supply shortages and overly expensive housing options.

(7) WATER RESOURCES.—
(a) Goal.—Florida shall assure the availability of an adequate supply of water for all competing uses deemed reasonable and beneficial and shall maintain the functions of natural systems and the overall present level of surface and ground water quality. Florida shall improve and restore the quality of waters not presently meeting water quality standards.

2. Identify and protect the functions of water recharge areas and provide incentives for their conservation.

The subject property is not considered a primary water recharge area to meet the future water supply needs as articulated in the South Florida Water Management District's Lower Westcoast Water Supply Plan. However, the requirements of the proposed development will ensure that the groundwater table is restored and additional water is available in the surficial aquifer.

4. Protect and use natural water systems in lieu of structural alternatives and restore modified systems.

Any proposed development will be required to remove the man-made water control structure on site and restore the property's hydrology. The process will restore a currently modified system.

5. Ensure that new development is compatible with existing local and regional water supplies.

The proposed development fits within both Lee County's level of service requirements and does not have any negative implications to the SFWMD Lower Westcoast Water Supply Plan.

10. Protect surface and groundwater quality and quantity in the state.

The policies that govern the development of Environmental Enhancement and Preservation community require an improvement to the area's surface and groundwater quality and quantity.

(9) NATURAL SYSTEMS AND RECREATIONAL LANDS.—
(a) Goal.—Florida shall protect and acquire unique natural habitats and ecological systems, such as wetlands, tropical hardwood hammocks, palm hammocks, and virgin longleaf pine forests, and restore degraded natural systems to a functional condition.

The proposed development will be required to preserve, enhance and restore natural habitats and ecological systems that are currently degraded and return them to a functional condition.

(14) PROPERTY RIGHTS.—
(a) Goal.—Florida shall protect private property rights and recognize the existence of legitimate and often competing public and private interests in land use regulations and other government action.

The proposed comprehensive plan amendment represents a compromise in the Lee County DR/GR from the historically proposed mining use on the property to a use that is more compatible and restores the environmental features of the site. With limited land use option, the Environmental Enhancement and Preservation Overlay is an appropriate designation for the subject property.

(15) LAND USE.—
(a) Goal.—In recognition of the importance of preserving the natural resources and enhancing the quality of life of the state, development shall be directed to those areas which have in place, or have agreements to provide, the land and water resources, fiscal abilities, and service capacity to accommodate growth in an environmentally acceptable manner.

The proposed amendment creates an opportunity to accommodate growth in an environmentally acceptable manner through restoration requirements in the Lee Plan. Additionally, other policies require the provision of infrastructure and the payment of a proportionate share contribution for the improvements to Corkscrew Road.

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IMPACTS TO ADJACENT LOCAL GOVERNMENTS

The subject property is adjacent to the northern boundary of Collier County. The land use to the south of the subject property in Collier County is conservation land and is part of the overall Corkscrew Regional Ecosystem Watershed (CREW) project. CREW is a landmark partnership between the South Florida Water Management District, Lee County, Collier County and several non-governmental organizations, with the goal of preserving an restoring the Corkscrew watershed.

The proposed plan amendment furthers this effort by restoring and dedicating a minimum of 876 acres of land in current agricultural production. The proposed plan amendment will serve to restore natural and historic flowways, enhance water quality, create expanded wildlife habitat and provide for enhanced opportunities for wildlife movement throughout this critical area.

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PUBLIC FACILITIES ANALYSIS

The analysis of parks and schools is based on the following assumption for the change in land use:

Current Density
DR/GR (uplands): 1,391.46 acres 130.9 units
Wetlands: 69.32 = 3.4 units
Total: 134 units

Proposed Environmental Enhancement and Conservation Community:
Total Units: 1,460

Total difference: 1,326

The following analysis, demonstrates how the proposed Corkscrew Groves Plan Amendment will be supported by public facilities to service the property.

Level of Service and generation rates for park and recreational facilities are adopted as part of the Lee County Comprehensive Plan in the Capital Improvements Element. The level of service for Parks is established in Policy 95.1.3.6 as follows:

NON-REGULATORY STANDARDS

6. Parks and Recreation Facilities:
Minimum Level of Service:

> *(a) Regional Parks - 6 acres of developed regional park land open for public use per 1000 total seasonal county population.*
>
> *(b) Community Parks - 0.8 acres of developed standard community parks open for public use per 1000 permanent population, unincorporated county only.*

According to the Lee County Concurrency Report for 2015:

> *The 7,235 acres of existing Regional Parks currently operated by the County, City, State and Federal governments is sufficient to meet the non-regulatory "Level of Service Standard" of six (6) acres per 1,000 total seasonal population in the County for the year 2014 and will continue to do so at least through the year 2019 as currently projected. The Regional Park acreage also met the non-regulatory "Desired Level of Service Standard" of eight (8) acres per 1,000 total seasonal County population in 2014 and will continue to do so at least through the year 2019 as currently projected.*

The 7,235 acres of Regional park area would serve a population of over 1 million people, well in excess of the current or planned County population with or without the proposed plan amendment. Therefore the proposed increase of 1,326 units will not create a level of service issue for regional park facilities.

Similarly, for Community Parks:

> *South District #53 (Table 11) – The Community Park District inventory of three-hundred forty- three (343) acres provided meets the non-regulatory Level of Service standard (132.4-acres in 2014). The non-regulatory "Desired" Level of Service was also met in 2014 (331.0-acres) but, as projected, will not be met after year 2016 even with the construction of the future planned Jerry Brooks Park Expansion.*

The addition of 1,326 new units will not change the non-regulatory level of service standard of .8 acres per 1,000 people. According to the Concurrency Report, as of 2014, there are 210.6 acres over the LOS standard, which would accommodate an additional 168,000 people in the South region of the County.

SCHOOLS

The Lee County School Board projects student generation by dwelling unit. According to the School Board, the school children generation rate for single family homes is .295 students per unit. This student generation rate is further broken down as follows:

For single-family homes, the generation rate is .295 and further broken down by grade level into the following, .147 for elementary, .071 for middle and .077 for high. A total of 390 school-aged children would be generated and utilized for the purpose of determining sufficient capacity to serve the development.

Student Generation Rates		
	Rate	Projected Students
Elementary	.147	195
Middle	.071	94
High	.077	102
Total	.295	391

Based on the analysis conducted by the School Board and submitted as part of this application, "*Capacities for elementary seats is not an issue within the Concurrency Service Area (CSA). For middle and high school, the development adds to the projected deficit for the CSA, however, there are sufficient seats available to serve the need within the contiguous CSA.*"

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TABLE 1(B) (PLANNING COMMUNITY YEAR 2030 ALLOCATIONS)

The proposed amendment designates approximately 1,460 acres of land in the DR/GR as an Environmental Enhancement and Preservation Community on Map 17 of the Future Land Use Map series. The underlying DR/GR classification does not change.

The requirements of the Environmental Enhancement and Preservation Community overlay require significant preservation of land for conservation, enhancement and reservation for wildlife movement. The amount of land that will be restored under this designation is far greater than the underlying land use category requires.

Table 1b of the Lee Plan, the 2030 Allocations table specifies the amount of net land area that is allowed for residential development in each land use category in each Planning Community through the year 2030. The amount of area allowable in the DR/GR is 4,000 acres, with 1,906 acres remaining. Because of the compact development footprint and the stringent requirements for preservation and environmental enhancement, the remaining allocation of 1,906 acres will be sufficient to accommodate the development footprint of the proposed plan amendment (approximately 584 acres).

Designation as an Environmental Enhancement and Preservation Community will increase the allowable residential density from approximately 134 residential units to 1,460 units, creating an increase in population accommodated by Table 1b, even though the development footprint will be significantly smaller.

LEE COUNTY
SOUTHWEST FLORIDA
BOARD OF COUNTY COMMISSIONERS

March 17, 2016

Daniel DeLisi, AICP
DeLisi Land Development
15598 Bent Creek Rd.
Wellington, FL 33414

SUBJECT: **Corkscrew Groves**
STRAP Nos. 29-46-27-00-00001.0000,
31-46-27-00-00001.1000 & 32-46-27-00-00001.1000
Letter of Availability

Dear Mr. DeLisi:

The Lee County Solid Waste Division is capable of providing solid waste collection service for the planned 1,460 residential dwelling units and the 60,000 sqft. commercial units for the proposed Corkscrew Groves development through Lee County's franchised hauling contractors. Disposal of the solid waste from this development will be accomplished at the Lee County Resource Recovery Facility and the Lee-Hendry Regional Landfill. Plans have been made, allowing for growth, to maintain long-term disposal capacity at these facilities.

Please review Lee County Land Development Code, Chapter 10, Section 261, with requirements for on-site space for placement and servicing of solid waste containers. Solid Waste Ordinance (11-27) defines those residential dwelling units that are eligible to receive curbside residential collection service and requirements for those identified as multi-family and/or commercial dwellings. It further establishes that Property Owners will be responsible for all future applicable solid waste assessments and fees.

If you have any questions, please call me at (239) 533-8000.

Sincerely,

Brigitte Kantor

Brigitte Kantor
Manager, Public Utilities
Lee County Solid Waste Division

FLORIDA DEPARTMENT of STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Ms. Marion Almy
Archaeological Consultants, Inc.
8110 Blaikie Court, Suite A
Sarasota, Florida 34240

March 07, 2016

RE: DHR Project File No.: 2016-941, Received by DHR: February 16, 2016
Cultural Resource Assessment Survey, Corkscrew Grove, Lee County Florida

Dear Ms. Almy:

We note that in January 2016, Archaeological Consultants, Inc. (ACI) conducted the above referenced survey on behalf of Pan Terra Holdings, Ltd. in anticipation of a request by the Florida Division of Historical Resources for a cultural resource assessment survey. Our office proceeded to review this report with the expectation that Pan Terra Holdings will be engaging in permitting processes that will require this office to comment on possible adverse impacts to cultural resources listed or eligible for listing in the *National Register of Historic Places (NRHP)*, or otherwise of historical, architectural, or archaeological significance.

ACI identified no cultural resources within the 1,460 acre project tract during the investigation.

ACI determined that the proposed project will have no effect on cultural resources listed, or eligible for listing in the NRHP, or otherwise of archaeological, historical, or architectural significance within the survey area. ACI recommends no further investigation of this project area.

Based on the information provided, our office concurs with these determinations and finds the submitted report complete and sufficient in accordance with Chapter 1A-46, *Florida Administrative Code.*

If you have any questions, please contact Mary Berman, Historic Site Specialist, by email at Mary.Berman@dos.myflorida.com, or by telephone at 850.245.6333 or 800.847.7278.

Sincerely,

Timothy A. Parsons, Ph.D.,
Interim Director, Division of Historical Resources
and State Historic Preservation Officer

Mike Scott
Office of the Sheriff

State of Florida
County of Lee

March 28, 2016

Daniel DeLisi
DeLisi, Inc.
15598 Bent Creek Rd.
Wellington, FL 33414

RE: 19500 Corkscrew Road, Estero

Mr. DeLisi,

The proposed Comprehensive Plan Amendment for 19500 Corkscrew Road in Estero would not affect the ability of the Lee County Sheriff's Office to provide core levels of service at this time. The project, which includes three parcels with the following STRAP numbers 29-46-27-00-00001.0000, 31-46-27-00-00001.1000 and 32-46-27-00-00001.1000, would expand the number of single family dwelling units from 140 to 1,460 and add 60,000 square feet of commercial floor area.

Law enforcement services will be provided from our South District office in Bonita Springs, with supplemental support from City of Bonita Springs contract deputies. As this development builds out, we will factor its impact into our annual manpower review and make adjustments accordingly. At the time of application for a Development Order or building permit, we request that the applicant provide a Crime Prevention Through Environmental Design (CPTED) report done by the applicant and given to the Lee County Sheriff's Office for review and comments.

Please address further correspondence to me at the address listed below. Please contact Community Relations Supervisor Beth Schell at 258-3287 with any questions regarding the CPTED study.

Respectfully,

Major Kathryn Rairden
Lee County Sheriff's Office

THE SCHOOL DISTRICT OF LEE COUNTY

2855 COLONIAL BLVD. ♦ FORT MYERS, FLORIDA 33966 ♦ WWW.LEESCHOOLS.NET

DAWN M HUFF
LONG-RANGE PLANNER
Planning, Growth & School Capacity
Phone: 239-337-8142
FAX: 239-335-1460

March 29, 2016

Daniel DeLisi, AICP
15598 Bent Creek Rd
Wellington, FL 33414

RE: CPA Corkscrew Groves

Dear Mr. DeLisi:

This letter is in response to your up revised request for comments dated March 24, 2016 for the Corkscrew Groves in regard to educational impact. This project is located in the South Choice Zone, Sub Zone 3.

The request is for a plan amendment to accommodate 1,460 single-family dwelling units. With regard to the inter-local agreement for school concurrency, the generation rates are created from the type of dwelling unit and further broken down by grade level.

For single-family homes, the generation rate is .295 and further broken down by grade level into the following, .147 for elementary, .071 for middle and .077 for high. A total of 431 school-aged children would be generated and utilized for the purpose of determining sufficient capacity to serve the development.

The Concurrency Analysis attached, displays the impact of this development. Capacities for elementary seats is not an issue within the Concurrency Service Area (CSA). For middle and high school, the development adds to the projected deficit for the CSA, however, there are sufficient seats available to serve the need within the contiguous CSA.

Thank you for your attention to this issue. If I may be of further assistance, please call.

Sincerely,

Dawn Huff

Dawn Huff,
Long Range Planner

Lee County
Southwest Florida
BOARD OF COUNTY COMMISSIONERS

March 18, 2016

Daniel DeLisi, AICP
DeLisi, Inc.
15598 Bent Creek Rd.
Wellington, FL 33414

Re: Request for Corkscrew Groves

Mr. DeLisi,

I am in receipt of your email dated March 14, 2016, requesting a letter to determine the adequacy of existing and proposed services for the development of Corkcrew Groves, located off Corkscrew Road. The property is referenced as STRAP numbers 29-46-27-00-00001.0000, 31-46-27-00-00001.1000, 32-46-27-00-00001.1000. The proposed use is 1,460 single family dwellings and 60,000 square feet of commercial space.

Lee County Emergency Medical Services is the primary EMS transport agency responsible for coverage at the address you have provided. We have two EMS stations that are approximately 7 miles from the proposed entrance off Corkscrew Road: Station 21 and Station 25.

An evaluation of current response times along Corkscrew Road in that vicinity, as well as drive time modeling, suggests we will not be able to meet existing service standards as required in County Ordinance 08-16. Therefore, we have concerns about our ability to provide service to this new development.

Should the plans for the property change, a new review of this impact would be required.

If you have any questions, please contact me at (239) 533-3961.

Sincerely,

Benjamin Abes
Interim Chief
Division of Emergency Medical Services

Estero Fire Rescue
21500 Three Oaks Parkway
Estero, Florida 33928
(239) 390.8000
(239) 390.8020 (Fax)
www.esterofire.org

March 14, 2016

Mr. Dan Delisi, AICP
15598 Bent Creek Road
Wellington, Florida 33414

Re: Corkscrew Groves

Mr. Delisi,

Please accept this transmission as a Letter of Service Availability for the property known as Corkscrew Groves. The strap numbers included in this request are; 29-46-27-00-00001.0000, 31-46-27-00-00001.1000 and 32-46-27-00-00001.1000.

Estero Fire Rescue can provide fire protection and Advanced Life Support non-transport emergency medical services from Fire Station 44 located at 21300 Firehouse Lane Estero, Florida.

Please note that the subject property is more than 5 miles from this fire station. A new fire station is planned in the general area of the subject property within the next 3 to 5 years.

If I may be of any further help please feel free to contact me at 239-390-8000.

Respectfully,

Phillip Green
Division Chief of Prevention

CULTURAL RESOURCE ASSESSMENT SURVEY
CORKSCREW GROVE
LEE COUNTY, FLORIDA

Performed for:

Pan Terra Holdings, Ltd.
150 Alhambra Circle, Suite 925
Coral Gables, Florida 33134

Prepared by:

Florida's First Choice in Cultural Resource Management

Archaeological Consultants, Inc.
8110 Blaikie Court, Suite A
Sarasota, Florida 34240
(941) 379-6206
Toll Free: 1-800-735-9906

Marion M. Almy

Marion M. Almy, RPA, President

February 2016

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Marion Almy - Project Manager
Christine Newman - Project Archaeologist
Justin Winkler - Archaeologist

February 2016

EXECUTIVE SUMMARY

Archaeological Consultants, Inc. (ACI) conducted a cultural resource assessment survey (CRAS) of the approximately 1,460-acre Corkscrew Grove property in Lee County, Florida. The purpose of this investigation was to locate and identify any cultural resources within the project area, and to assess their significance in terms of eligibility for listing in the National Register of Historic Places (NRHP).

The CRAS was conducted as due diligence; however, the survey and resulting report meet the requirements set forth in Chapters 267 and 373, *Florida Statutes (FS)*, Florida's Coastal Management Program, and implementing state regulations regarding possible impacts to significant historic properties, as well as Section 106 of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended in 1992; 36 C.F.R. Part 800. All work was carried out in conformity with the standards contained in the *Cultural Resource Management Standards and Operational Manual* (Florida Division of Historical Resources [FDHR] 2003). The resulting report meets specifications set forth in Chapter 1A-46, *Florida Administrative Code* (*FAC*). Additionally, the survey and report also comply with Section 10-110 of the Lee County Land Development Code, Ordinance Number 03-16. The cultural resource assessment survey was conducted in January 2016.

Archaeological background research and a review of the Florida Site File (FMSF) and the NRHP indicated that no archaeological sites have been recorded within or adjacent to the project area. A review of relevant site location information for environmentally similar areas within Lee County and the surrounding region indicated a low but variable probability for the occurrence of prehistoric sites within the property. The background research also indicated that sites, if present, would most likely be small artifact scatters proximate to naturally occurring wetlands. As a result of field survey which included the excavation of 274 shovel test pits, no archaeological sites were discovered.

Historical background research, including a review of the FMSF and the NRHP, indicated that no historic properties (50 years of age or older) have been previously recorded within the project area. As a result of field survey, no historic resources were discovered.

Given the results of background research and field survey, the development of the Corkscrew Grove project will have no effect on any archaeological sites or historic resources that are listed, determined eligible, or considered potentially eligible for listing in the NRHP. No further investigations are recommended.

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1.0 INTRODUCTION

1.1 Project Description

A Cultural Resource Assessment Survey (CRAS) of the approximately 1,460-acre Corkscrew Grove project area in Lee County, Florida was conducted for Pan Terra Holdings, Ltd. (**Figure 1.1**). The project area is located in Sections 29, 31, and 32 of Township 46 South, Range 27 East (United States Geological Survey [USGS] 1973). To the east of the property is Carter Road, to the north is Corkscrew Road, and to the south is the Lee County/Collier County boundary. Located to the west is agricultural land.

The survey was conducted as due diligence; however, the survey and resulting report meet the requirements set forth in Chapters 267 and 373, *Florida Statutes (FS)*, Florida's Coastal Management Program, and implementing state regulations regarding possible impacts to significant historic properties, as well as Section 106 of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended in 1992; 36 C.F.R. Part 800. All work was carried out in conformity with the standards contained in the *Cultural Resource Management Standards and Operational Manual* (Florida Division of Historical Resources [FDHR] 2003). The resulting report meets specifications set forth in Chapter 1A-46, *Florida Administrative Code* (*FAC*). Additionally, the survey and report comply with Section 10-110 of the Lee County Land Development Code, Ordinance Number 03-16. The cultural resource assessment survey was conducted in January 2016.

1.2 Purpose

The purpose of the cultural resource assessment survey was to locate and identify any prehistoric and historic period archaeological sites and historic resources located within the project area, and to assess their significance in terms of eligibility for listing in the National Register of Historic Places (NRHP). Field survey was preceded by background research. Such research served to provide an informed set of expectations concerning the kinds of cultural resources that might be anticipated to occur within the project area, as well as a basis for evaluating any newly discovered sites

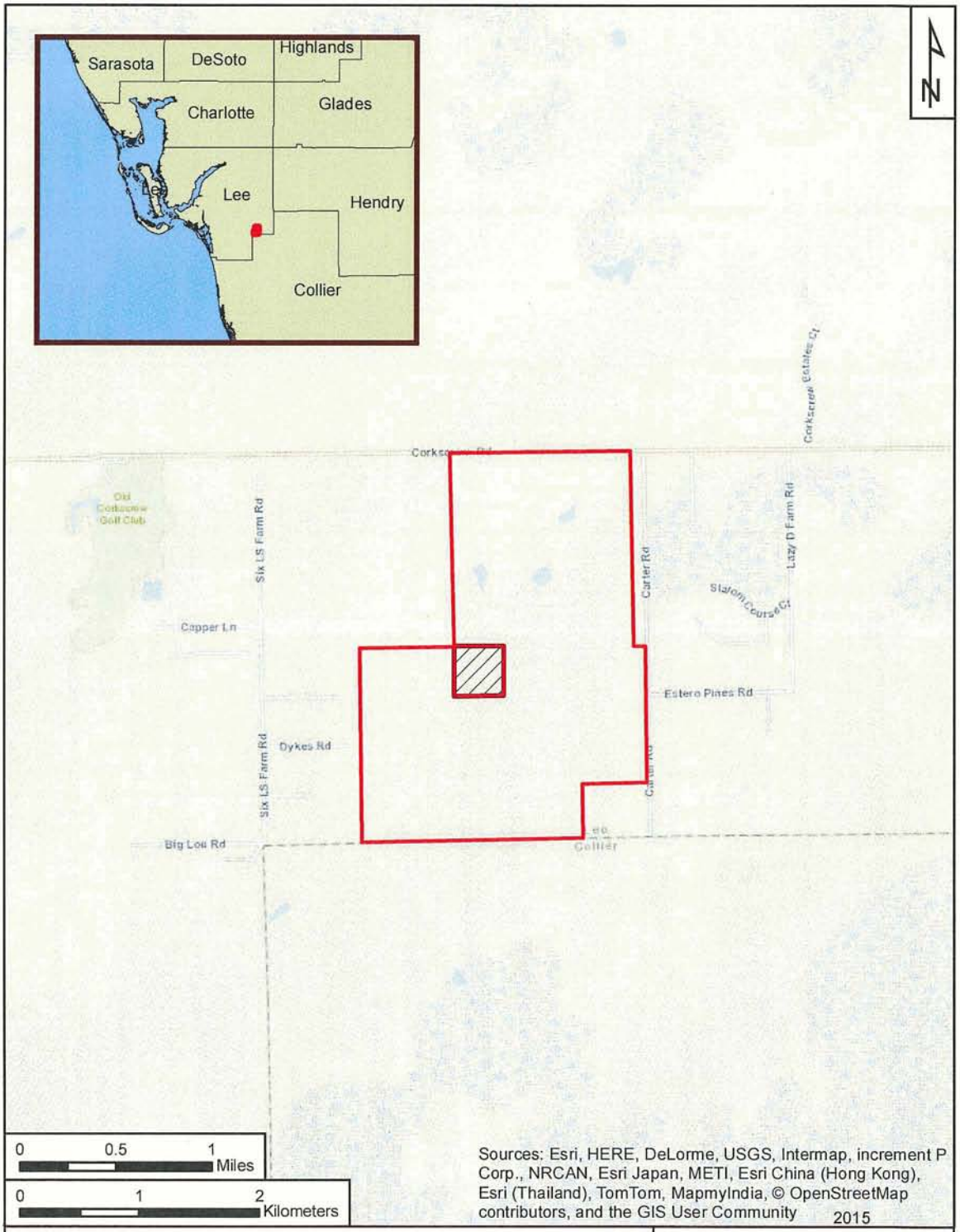


Figure 1.1. Location of the Corkscrew Grove project area, Lee County.

2.0 ENVIRONMENTAL SETTING

Environmental factors such as geology, topography, relative elevation, soils, vegetation, and water resources are important in determining where prehistoric and historic period archaeological sites are likely to be located. These variables influenced what types of resources were available for utilization in a given area. This, in turn, influenced decisions regarding settlement location and land-use patterns. Because of the influence of the local environmental factors upon the aboriginal inhabitants, a discussion of the effective environment is included.

2.1 Geology and Hydrology

Geologically, the project area is located within the Gulf Coastal Lowlands (White 1970). The Lowlands, for the most part, consist of level to nearly level plains where little stream dissection has taken place (USDA 1984). The northern portion of the project area lies within the Immokalee Rise, which is characterized by sand over shell or limestone units. The sand thickness on the Rise is greater than in other areas. The southern portion of the project area lies within the Southwestern Slope. Here, a relatively thin veneer of sand underlain by clayey, shelly, or limestone units exists (Lane 1980; White 1970). The prominent topographic features of the Gulf Coastal Lowland are scarps and terraces that formed during the Pleistocene sea level stands and are nearly level plains less than 100 feet (ft) above mean sea level (amsl) (USDA 1984:3). The Corkscrew Grove property is situated with the Pamlico Terrace, which has an elevation of 8 to 25 ft amsl (Healy 1975). The general area is underlain by the Plio-Pleistocene fossiliferous sediments (Scott 2001; Scott et al. 2001). The surficial lithology consists primarily of shelly sand and clay (Lane 1980). The elevation of the project are is approximately 20 to 27 ft amsl (USGS 1973) (**Figure 2.**1).

2.2 Soils and Vegetation

The project area is underlain by soils of the Immokalee-Pompano soil association, which is characterized as nearly level, poorly drained soils of the flatwoods and sloughs (USDA 1984, 2016). The specific soil types recorded within the project area and their environmental setting are presented in **Table 2.1**. Most of the soils are associated with flatwood, slough, and depression environments, and native vegetation consists of South Florida slash pine, saw palmetto, cabbage palm, waxmyrtle, pineland threeawn, panicums, sedges, maidencane, bluestem, fetterbush, dwarf huckleberry, gallberry, and inkberry. The depressional soils support baldcypress, waxmyrtle, St. Johnswort, maidencane, and water-tolerant grass and weeds. Currently, the project area is planted citrus.

The faunal resources that would have been available for exploitation by aboriginal inhabitants are dependent on the botanical resources. Openland habitat such as meadows, would have supported bobwhite quail, meadowlarks, doves, field sparrows, cottontail rabbit, and sandhill cranes. The woodland habitats with deciduous and/or coniferous plants associated with legumes, grasses and herbaceous plants, would have supported turkey, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bobcat. Wetland habitats of open, marshy, or swampy shallow water areas would have hosted ducks, egrets, herons, shorebirds, otters, mink, and ibis. In addition, standing water locales would have provided drinking water for animal and human populations.

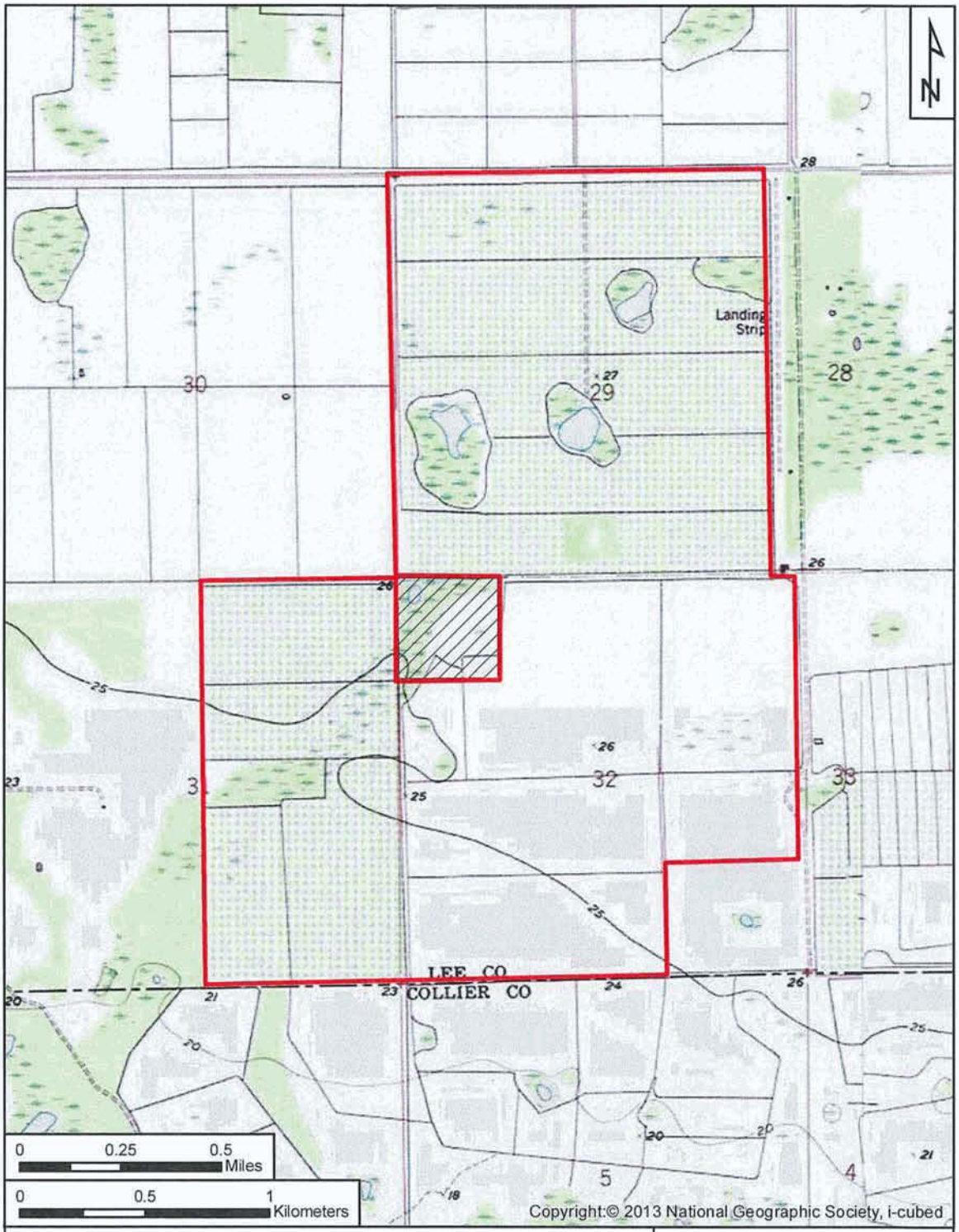


Figure 2.1. Environmental setting of the Corkscrew Grove project area; Sections 29, 31 and 32 of Township 46 South, Range 27 East (USGS Corkscrew NW, 1973).

Table 2.1. Soil types, relief, drainage, and environmental setting (USDA 1984, 2016).

Soil Type	Slope and Drainage	Environmental Setting
Anclote sand, depressional	nearly level, poorly drained	freshwater marsh and ponds
Boca fine sand	nearly level, poorly drained	flatwoods
Felda fine sand	nearly level, poorly drained	broad, nearly level sloughs
Felda fine sand, depressional	nearly level, poorly drained	depressions
Hallandale fine sand	nearly level, poorly drained	low, broad flatwoods
Immokalee sand	nearly level, poorly drained	flatwoods
Malabar fine sand	nearly level, poorly drained	flatwoods
Oldsmar sand	nearly level, poorly drained	flatwoods
Pineda fine sand	nearly level, poorly drained	sloughs
Pineda fine sand, depressional	nearly level, very poorly drained	depressions
Pompano fine sand, depressional	nearly level, poor drained	depressions
Valkaria fine sand	nearly level, poorly drained	sloughs

2.3 Paleoenvironmental Considerations

The current environment is not the same as that inhabited by the aboriginal and early historic populations of this region. Drainage of the area has been extensive, beginning in the late 1800s and early 1900s. Ten to twelve thousand years ago, sea levels were much lower, the climate was drier, and potable water was scarce. Dunbar (1981:95) notes that due to the arid conditions during the period 14,500 to 10,500 B.C.E., "the perched water aquifer and potable water supplies were absent." Pollen analyses from lake sediment cores performed by Watts (1969, 1971, 1975, 1980) suggest that a mosaic landscape of herb prairie and oak savanna covered central Florida prior to the arrival of the first human groups. Rosemary (*Ceratiola ericodes*), ragweed (*Ambrosia* sp.), grass species, and other composites covered the dune ridges. Scattered stands of sclerophyllous oak scrub grew in the lower, riparian areas. Pine species were rare in Florida 35,000 years ago (Watts 1975:345) but increased in abundance toward the end of the Pleistocene (Watts 1980:400). Drier conditions are suggested by hiatuses in lake sediment cores obtained from Mud Lake in north-central Florida, Lake Louise in southern Georgia, Scott Lake in west-central Florida, and Sheelar Lake in north-central Florida (Watts 1969, 1971; Watts and Stuiver 1980). The rise of sea levels severely reduced xeric habitats over the next several millennia.

Tanner's (1992:302-303) work on St. Vincent Island, Florida has shown that sea level was rising about 1000 years ago and by 1200 C.E. it began to fall. It reached its low level by 1400 C.E. That level represents the Little Ice Age (Lamb 1981). The sea level began to rise about 1750 C.E. and it continued to rise until at least 1900 C.E. Although sea level has not yet reached as high as it did on at least two previous occasions in the last 8000 years, it nevertheless now stands well above its average position for late Holocene time. Richards (1971) concluded that since the last interglacial, Florida has tectonically been stable. Studies in the Charlotte Harbor area agree in general within these conclusions (Stapor et al. 1987, 1991): from roughly 1 to 500 C.E. sea levels were roughly 1.2 meters (m) above today's level and there was another "high" stand (ca. 0.3 m above present levels) from roughly 1000 to 1500 C.E.

According to studies by Watts (1980), inundation of lowland lake basins in central Florida occurred about 6500 B.C.E. Dunbar and Waller (1983) have noted that many Paleo-Indian sites are located near or adjacent to open karst areas (e.g. Little Salt and Warm Mineral Springs). This supports the theory that surface water was quite rare during the early human occupation of Florida (Dunbar 1981, 1991).

By 5000 years ago, the mid-Holocene hypsithermal, a climatic event marking a brief return to Pleistocene climatic conditions, induced a change toward more open vegetation. Southern pine forests replaced the oak savannahs. Extensive marshes and swamps developed along the coasts and subtropical hardwood forests became established along the southern tip of Florida (Delcourt and Delcourt 1981). At Lake Annie, in south-central Florida, pollen cores were dominated by wax myrtle and pine. The assemblage suggests that by this time, a forest dominated by longleaf pine, along with cypress swamps and bayheads, existed in the area (Watts 1971, 1975). By about 3500 B.C.E., surface water was plentiful in karst terrains and the level of the Floridan aquifer rose to 1.5 m above present levels. After this time, modern floral, climatic, and environmental conditions began to be established. However, it should be noted that sea levels and climatic conditions have not remained constant (cf., Bryson et al. 1970; Stapor et al. 1991; Walker 1995).

Faunal changes are more difficult to document due to the mixing of the species record and the lack of accessibility of sites containing faunal remains. Webb (1981, 1990) has compiled a lists extinct mammal species that occupied the southeastern continent some 14,000 years ago. These include giant land tortoise, giant ground sloth, mastodon, mammoth, camel, bison, giant beaver, wolf, jaguar, and horse. The predominant species were large grazers, some of which were herd ungulates (Carbone 1983:10). Within Florida, the presence of the long nosed peccary, spectacled bear, southern llama, and giant armadillo indicate that this region possessed a rich and diverse environment. Many of these animals migrated north from South America during the Great American Interchange some two million years ago (MacFadden 1997).

2.4 Current Conditions

Currently, the project area is primarily planted citrus with six small to moderately sized wetlands (**Photos 2.1.-2.2**). A buried irrigation system, linked to each tree is present and a series of deep drainage/irrigation ditches segment the property (**Photo 2.3**). An outflow area, currently flooded, is located in southwestern quarter of the property (**Photo 2.4**).

Photo 2.1. Looking southwest at property conditions.

Photo 2.2. Looking south at citrus grove with wetland in background.

Photo 2.3. Looking west at one of several irrigation ditches on the property.

Photo 2.4. Looking west at the outflow area located in the southwestern quarter of the property.

3.0 CULTURE HISTORY

A discussion of the cultural chronology of a specific region provides a framework within which the local archaeological record can be examined. Archaeological sites and historic resources are not individual entities, but are the remains of once dynamic cultural systems. As a result, individual sites cannot be adequately examined interpreted, or evaluated without reference to other sites and resources in the region.

In general, archaeologists summarize the prehistory of a given area (i.e., an archaeological region) by outlining the sequence of archaeological cultures through time. These cultures are defined largely in geographical terms but also reflect shared environmental and cultural factors. Lee County is part of the Caloosahatchee archaeological area of the South Florida Region (Griffin 1988; Milanich 1994:xix). Geographically, the Caloosahatchee area extends from Charlotte Harbor on the north, to the northern border of the Ten Thousand Islands on the south (**Figure 3.1**), and eastward from the islands about 54 miles inland.

The sequence of cultural development for the South Florida Region is pan-regional during the earliest periods of human occupation: the Paleo-Indian and the Archaic. By approximately 500 B.C.E., distinctive regional cultures had developed as evidenced by differences in ceramic sequences. By this time, the prehistoric populations residing in the Caloosahatchee area developed a cultural assemblage distinct from those people inhabiting the Belle Glade (Okeechobee) and Everglades areas, the latter of which includes the Ten Thousand Islands District (Griffin 1988:120-121). The following summary follows closely the outlines presented by Griffin (1988), Marquardt (1992b, 1999a), and Widmer (1988).

The local history of the region is divided into four broad periods based initially upon the major governmental powers. The first period, Colonialism, occurred during the exploration and control of Florida by the Spanish and British from around 1513 until 1821. At that time, Florida became a territory of the U.S. and 21 years later became a State (Territorial and Statehood). The Civil War and Aftermath (1861-1899) period deals with the Civil War, the period of Reconstruction following the war, and the late 1800s, when the transportation systems were dramatically increased and development throughout the state expanded. The Twentieth Century period includes subperiods defined by important historic events such as the World Wars, the Boom of the 1920s, and the Depression. Each of these periods evidenced differential development and utilization of the region, thus effecting the historic site distribution.

3.1 Paleo-Indian (11,500 - 7500 B.C.E.)

Current archaeological evidence indicates that the earliest human occupation of the Florida peninsula occurred approximately 13,500 years ago or ca. 11,500 B.C.E. (Widmer 1988). The earliest occupation is referred to as the Paleo-Indian period. It lasted until approximately 7000 B.C.E. During the Paleo-Indian period, the climate of South Florida was much drier than today. Sea level was 130-165 ft lower than present and the coast extended approximately 100 miles seaward on the gulf coast. With lower sea levels, today's well-watered inland environments were arid uplands (Milanich 1994). Lake Okeechobee, the Caloosahatchee, Myakka, and Peace Rivers, as well as the Everglades, were probably dry. Because of drier global conditions and little or no surface water available for evaporation, Florida's rainfall was much lower than at present (Milanich and Fairbanks 1980:38-40). Potable water was obtainable at sinkholes where the lower

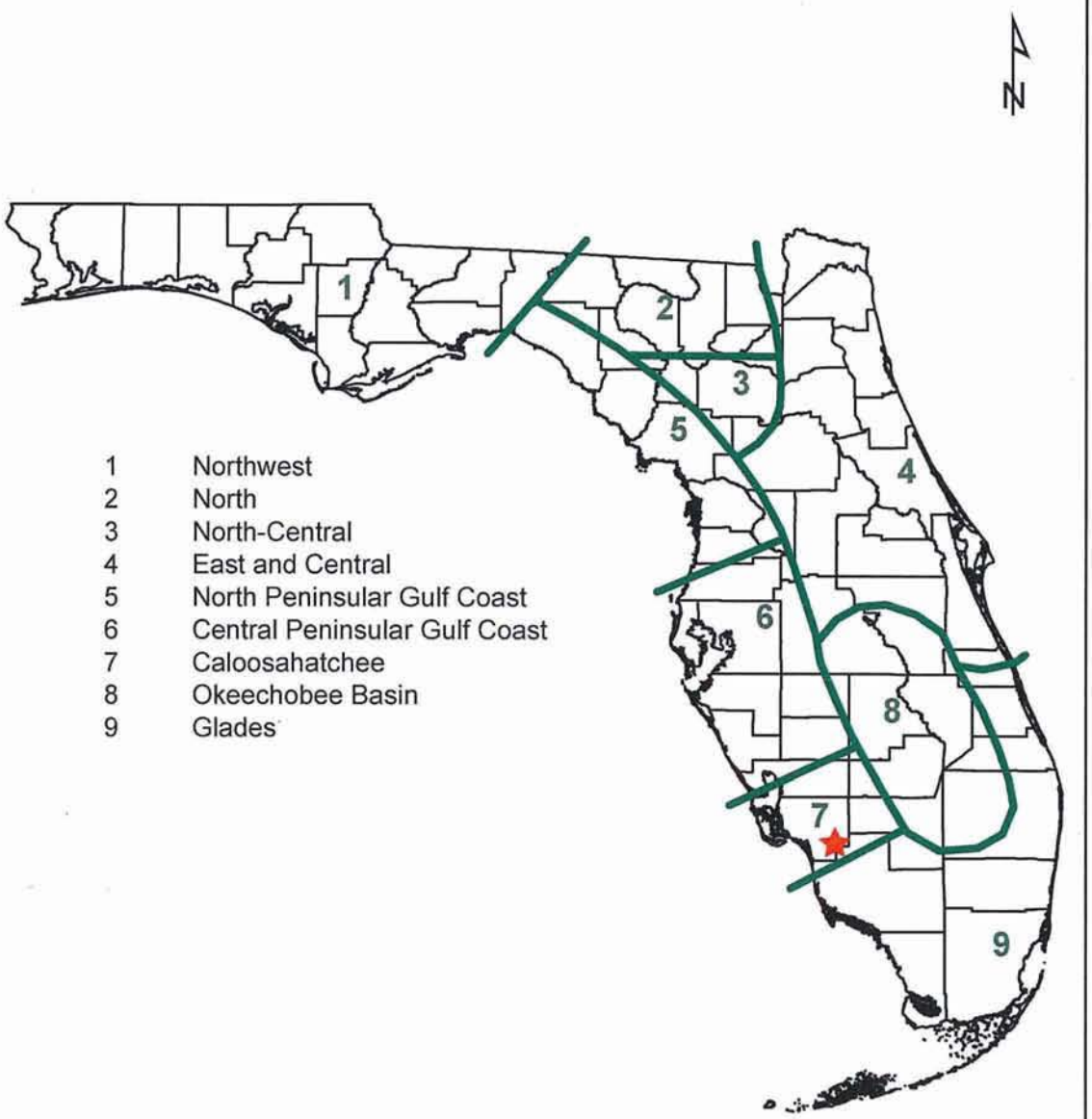


Figure 3.1. Florida Archaeological Regions. The project area (★) is within the Caloosahatchee Region.

water table could be reached. Plant and animal life were also more diverse around these oases, which were frequented by both people and game animals (Widmer 1988; Milanich 1994:40).

Thus, the prevailing environmental conditions were largely uninviting to human habitation during the Paleo-Indian period (Griffin 1988:191). Given the inhospitable climate, it is not surprising that the population was sparse and Paleo-Indian sites are uncommon in south Florida. Just to the north of Charlotte Harbor, however, evidence of Florida's earliest inhabitants has been uncovered. Underwater excavations at both Little Salt Spring (Clausen et al. 1979) and Warm Mineral Springs (Clausen et al. 1975; Cockrell and Murphy 1978) in Sarasota County have provided abundant data concerning this period. Work at the Cutler Fossil Site in Dade County, southeast of the Caloosahatchee region, has yielded two projectile points associated with a hearth area that has been radiocarbon dated to ca. 7760 B.C.E. (Carr 1986). In Lee County, a Santa Fe point, dating from the Late Paleo-Indian period (ca. 8000 B.C.E.), was recovered from Useppa Island and an earlier Suwannee point was reported to have come from Sanibel Island (Marquardt 1999b).

In general, the Paleo-Indian period is characterized by small nomadic groups with a hunting and gathering mode of subsistence. Permanent sources of water, scarce during this time, were very important in settlement selection (Daniel and Wisenbaker 1987). This settlement model, often referred to as the Oasis Hypothesis (Milanich 1994:41), has a high correlation with geologic features in southern Florida such as deep sinkholes like those noted in Sarasota and Dade Counties. Sites of this period are most readily identified on the basis of distinctive lanceolate-shaped stone projectile points including those of the Simpson and Suwannee types (Bullen 1975). The tool assemblage also included items manufactured of bone and wood, and very likely leather, as well as plant fibers (Clausen et al. 1979)

3.2 Archaic (7500-1000 B.C.E.)

The succeeding Archaic Tradition is divided into three temporal periods: the Early Archaic (ca. 7000 to 5000 B.C.E.), Middle Archaic (ca. 5000 to 2000 B.C.E.), and the Late Archaic (ca. 2000 to 500 B.C.E.). Sites from the Early Archaic are rare in southwestern Florida. Currently, the West Coral Creek Site (8CH00074) and Wrecked Site Shell Midden (8CH00075) in Charlotte County are the only known Early Archaic sites in the Caloosahatchee region (Ballo and Estabrook 1988; Hazeltine 1983) At the West Coral site, numerous chert and silicified coral tools and debitage were recovered from dredge spoil from the excavation of canals near a large slough. This may indicate that the site clustered around a once dependable water source.

Roughly 6500 years ago, marked environmental changes occurred. These had a profound influence upon human settlement and subsistence practices. Among the landscape alterations was a rise in sea and water table levels resulting in the creation of more available surface water. It was during this period that Lake Okeechobee, the Everglades, and the Caloosahatchee and Peace Rivers developed. In addition to changed hydrological conditions, this period is characterized by the spread of mesic forests and the beginnings of modern vegetation communities including pine forests and cypress swamps (Widmer 1988; Griffin 1988).

The archaeological record for the Middle Archaic is better understood than the Early Archaic. Among the material culture inventory are several varieties of stemmed, broad blade projectile points including the Newnan, Levy, Marion, Putnam, and Alachua types (Bullen 1975). At sites where preservation is good, such as sinkholes and ponds, an elaborate bone tool assemblage is recognized along with shell tools and complicated weaving (e.g., Beriault et al.

1981; Wheeler 1994). In addition, artifacts have been found in the surrounding upland areas, as exhibited in the projectile points found in the upland palmetto and pine flatwoods surrounding the Bay West Site (Beriault et al. 1981). Along the coast, excavations on both Horr's Island in Collier County, and Useppa Island in Lee County have uncovered pre-ceramic shell middens which date to the Middle Archaic period (Milanich et al. 1984; Russo 1991; Russo et al. 1991). Other sites dating to the Archaic period in Lee County are 8LL00027, 8LL00714, 8LL00716, 8LL00717, 8LL01843, 8LL01773, 8LL01792, 8LL01850, 8LL01982, 8LL01983, 8LL02007, and 8LL02020 (ACI 2000; Austin 1992; Beriault and Carr 2001a, 2001b; Carr and Davis 1993; Davis and Steele 1994; Dickel 1992; Janus Research 1994; Schober and Torrence 2002).

Mortuary sites, characterized by interments in shallow ponds and sloughs as discovered at the Little Salt Springs and Nona Sites in Sarasota County (Clausen et al. 1979; Luer 2002b), Republic Groves in Hardee County (Wharton et al. 1981), and the Bay West Site in Collier County (Beriault et al. 1981), are also distinctive of the Middle Archaic. At the latter site, the remains of 35 to 40 individuals were found, some of which had been placed on leafy biers, perhaps branches, laid down in graves dug into the peat deposits. Artifacts recovered included small wooden sticks possibly used as bow drills for starting fires, antler tools with wooden hafts that appear to be sections of throwing sticks, two throwing stick triggers, and bone points or pins (Milanich 1994:81). Evidence for this burial technique has not been discovered in the Caloosahatchee area. However, burials within midden deposits have been documented on Useppa Island (Torrence 1999).

Pre-ceramic cultural horizons beneath tree island sites have been reported in the eastern Everglades (Carr and Beriault 1984; Mowers and Williams 1972). Population growth, as evidenced by the increased number of Middle Archaic sites and accompanied by increased socio-cultural complexity, is also assumed for this time (Milanich and Fairbanks 1980; Widmer 1988). Marquardt, on the other hand, suggests that there was not so much of an increase in population, but a clustering of the population around wetland resources because of the drier climatic conditions (Marquardt 1999c:77).

The beginning of the Late (or Ceramic) Archaic Period is similar in many respects to the Middle Archaic but includes the addition of ceramics. The earliest pottery in the South Florida region is fiber-tempered, as represented at several sites on Key Marco and Useppa (Cockrell 1970; Widmer 1974). This pottery, referred to as the Orange series, was often decorated with incised lines. Orange Plain pottery is coeval with plain chalky and limestone tempered wares with the use of incising occurring as early as 1500 B.C.E. (Widmer 1988:69-72). In addition to fiber, sand and sponge spicules were often common components of the past (Cordell 2004; Russo and Heide 2004; Sassaman 2004; Saunders 2004). Projectile points of the Late Archaic are primarily stemmed and corner-notched, and include the Culbreath, Clay, and Lafayette types (Bullen 1975). Other lithic tools include hafted scrapers and ovate and trianguloid knives (Milanich and Fairbanks 1980). Archaeological evidence indicates that South Florida was sparsely settled during this time with only a few sites recorded. Some of these sites include 8LL00044 (Howard Mound), 8LL00045 (Calusa Island), 8LL00067 (Cayo Tuna), 8LL00717 (Boones Farm A), 8LL00718 (Spring Creek), and 8LL01843 (Little Boar) (Dickel 1992; FMSF; Schober and Torrence 2002; Walker et al. 1996).

The termination of the Late or Ceramic Archaic corresponds to a time of environmental change. The maturing of productive estuarine systems was accompanied by cultural changes leading to the establishment of what John Goggin originally defined as the "Glades Tradition" (Griffin 1988:133). Dominated by the presence of sand-tempered ceramics in the archaeological record, the Glades Tradition was also characterized by "the exploitation of the food resources of

the tropical coastal waters, with secondary dependence on game and some use of wild plant foods. Agriculture was apparently never practiced, but pottery was extensively used" (Goggin 1949:28). The Heineken Hammock (8CR00231), Howard Mound (8LL00044), Calusa Island (8LL00045), Edge of the Woods (8LL02049), and Useppa Island (8LL00051) (Beriault 2003b; Edic 1992; Lee et al. 1998; Torrence 1999) are reported to have components dating from this period.

3.3 Glades (1000 B.C.E.-1700 C.E.)

The Glades Tradition was initially defined by Goggin on the basis of work he conducted in South Florida in the 1930s and 1940s (Goggin 1947). Goggin noticed that the archaeological assemblage, beginning around 500 B.C.E., began to take on a distinct appearance. This reflected the adaptation to the tropical coastal environment of South Florida. By this time the estuarine systems, along with their high biological productivity and diversity, were well established. The archaeological record reveals a widespread population increase and an apparent fluorescence in the tool assemblages related to the exploitation of the marine environment. Unlike much of the rest of peninsular Florida, South Florida does not contain deposits of chert, and as such, stone artifacts are rare. Instead of stone, shell and bone were used as raw materials for tools (Milanich 1994:302). It was not until the 1970s that sufficient data had been gathered in South Florida to begin delimiting smaller cultural regions. At that time, Griffin divided South Florida into three smaller regions: Okeechobee (the Okeechobee Basin and adjacent areas to the east and west), Calusa (southwest coast), and Tekesta (remainder of South Florida, including the Keys) (Griffin 1974; Milanich 1994:277). More recent work has divided South Florida into four or five regions: Caloosahatchee, Okeechobee, East Okeechobee, Glades, and Ten Thousand Islands (cf., Carr and Beriault 1984; Griffin 1988; Milanich 1994; Wheeler et al. 2002; Widmer 1988).

Most information concerning the post-500 B.C.E. aboriginal populations is derived from coastal sites where the subsistence patterns are typified by the extensive exploitation of fish and shellfish, wild plants, and inland game, like deer. Inland sites, such as those in the Big Cypress Swamp, show a greater, if not exclusive, reliance on interior wetland resources. Known inland sites often consist of sand burial mounds and shell and dirt middens along major water courses (Lee and Beriault 1993) and small dirt middens containing animal bone and ceramic sherds in oak/palm hammocks or palm tree islands associated with freshwater marshes (Griffin 1988). These islands of dry ground provided space for settlements (Milanich 1994:298). The coastal area at this time was one of the most productive marine regions in the state (Milanich 1994:311), and as such, the intensive utilization of the bays and estuaries is evidenced by the extensive midden deposits along the shorelines and on the barrier islands.

The division of the Glades tradition into periods is based on changes in the ceramic assemblages as well as variations in subsistence patterns resulting from the changes in sea-level stands (cf., Cordell 1992; Marquardt 1992a, 1999c; Walker 1992; Widmer 1988). In this part of the state, the cultural chronology is referred to as Caloosahatchee. The settlement pattern at this time consisted of large villages (10 hectares [ha] in size with about 400 people), small villages (3-4 ha/50 people), and fishing hamlets and/or collection stations (< 1 ha, temporary, task specific site) (Widmer 1988). The larger sites are located in the coastal areas, whereas most of the interior sites are seen as short-term hunting stations occupied by special task groups from the permanent coastal villages (Widmer 1988: 226).

Caloosahatchee I (500 B.C.E. to 650 C.E.) is characterized by thick, sand-tempered plain sherds with rounded lips, some St. Johns Plain ceramics, the appearance of Pineland Plain

ceramics (tempered with sponge spicules and medium to fine quartz sand) and the absence of Belle Glade ceramics (Marquardt 1999c:85). Based on the faunal analysis from Useppa Island, fish was the primary meat source with whelks and conchs being the primary shellfish. Botanical materials utilized include chenopod, panic grass, talinum, mallow, red mangrove, wax myrtle, pine, mangrove, buttonwood, and seagrape (Marquardt 1999c:857). Data on burial customs for this time have not been obtained. The Wightman (Fradkin 1976; Wilson 1982), Solana (Widmer 1986), Useppa Island (Marquardt 1999c; Milanich et al. 1984), Josslyn Island (Marquardt 1992c), Bird Rookery (Patton 2000), Circle Pond Campsite (Dickel 1992), Little Boar, and Eagle Pond (Schober and Torrence 2002), and Cash Mound (Anon. 1987) sites have been dated to this period.

From 650 C.E. to 1200, the Caloosahatchee II period is marked by a dramatic increase of Belle Glade ceramics in the area (Widmer 1986:84). This ceramic ware is tempered with sand and the surface has been smoothed or tooled by scraping the almost dry clay with a wooden tool, leaving characteristic drag marks caused by the grains of sand being pulled across the surface. The lips of the bowls were often flatted with the same techniques (Milanich 1994:293). Austin (1996:75) modifies the type description someone in that the paste must also contain sponge spicules, although the sherd does not have to have a chalky feel. The shell tool assemblage became more diversified with hafted whelk and conch hammers and cutting edged tools being common (Marquardt 1992a:429). Cordell (1992) has divided the Caloosahatchee II period into IIA and IIB with the appearance of Belle Glade Red ceramics (ca. 800 C.E.) marking the beginning of IIB. The changes in ceramics may also correspond to the initial use of ceremonial mounds that characterize this period. Burials occurred in sand mounds and in natural sand ridges with both primary flexed and secondary bundle burials. At this time, the number of shell middens or village sites increased (Milanich 1994:319). In addition, the first evidence of ranked societies in southwest Florida begins at this time (Widmer 1988:93). The Wightman Site has three non-mortuary ceremonial mounds connected by shell causeways (Fradkin 1976). In addition, the large Pineland Canal appears to have been constructed at this time (Luer 1989a). It is possible that the large Pineland complex served as the center of Calusa society (cf. Milanich 1995:44). Archaeologists have postulated that sea levels were higher than during the Caloosahatchee I period, or that the coastal area was under greater influence from nearby ocean inlets. This is based on the higher diversity of faunal remains and the increased number of higher salinity-based food stuffs found at coastal sites (Marquardt 1999c:91). The John Quiet Site, on the Cape Haze Peninsula (Bullen and Bullen 1956), and the earliest occupation of the Buck Key Midden (Anon. 1987) date to this period. Other Caloosahatchee II period sites include Useppa Island, Buck Key, Pineland, Galt Island, Josslyn Island, Big Mound Key, Hooker Key, Mason Island, Bird Rookery and the Bonita Bay Sand Mound (Dickel 1992; Marquardt 1992b, 1999c; Patton 2000).

The Caloosahatchee III period, from 1200 to 1400 C.E., is identified in the archaeological record by the appearance of St. Johns Check-Stamped and Englewood ceramics (Cordell 1992:168; Widmer 1988:85). Belle Glade Plain ceramics continue to be the dominant type, but Sand-tempered Plain and Pineland Plain wares are also present. According to Marquardt (1992a:430), the climate was cooler and not as stormy as the Caloosahatchee IIB period. No changes in the subsistence economy or settlement patterns have been identified. Sand burial mounds continued to be used with Englewood and Safety Harbor ceramics occasionally associated with the burials. A number of mounds dating to this period evidence radially placed, extended burials within the mounds (Luer and Almy 1987). Josslyn Island, Buck Key, Mound Key, Aqui Esta Mound, Cayo Pelau, Pineland, Galt, Arcadia, Keen Mound, Mound Key, Hooker Key, Mason Island, East Terry Street Extension, and Broken Pot, among other sites, have Caloosahatchee III period materials (ACI 1990; Dickel 1992; Luer 2002a; Marquardt 1992a; Mitchem 1989; Patton 2000; Willey 1949; Willis and Johnson 1980).

From 1400 to 1513 C.E., the Caloosahatchee IV period is characterized by the appearance of numerous trade wares from all adjoining regions of Florida (Widmer 1988:86) and a decline in the popularity of Belle Glade Plain pottery (Milanich 1994:321). Sand-tempered Plain pottery, with square and flattened lips, is the most common (Cordell 1992:168). There is also an increase in Pineland Plain ceramics. Around 1400, the use of incising on ceramics in the Glades and Caloosahatchee regions ceased and the ceramic assemblages of the two areas were very homogeneous (Marquardt 1992a:431). Some archaeologists have suggested that this represents an expansion of the Calusa within this area (Griffin 1988; McGregor 1974). Certainly, there were close ties between the Caloosahatchee and Belle Glade populations (Milanich 1995). The trade wares include Glades Tooled and pottery of the Safety Harbor series, including Pinellas Plain. Buck Key and Josslyn Island, as well as Pineland, contain shell middens which date to this period (Marquardt 1992b:13). Other sites include Mound Key, Punta Rassa, Indian Field, Captiva Mound, Mason Island, Galt Burial Mound, Dr. Wilson's Sanctuary 3, and Boone's Farm Archaic Shell Enclosure (Dickel 1992; FMSF; Futch et al. 1980; Patton 2000; Wheeler 2001).

The Caloosahatchee V period (1513 to 1750 C.E.) is coterminous with the period of European contact. Sites of this time are marked by the appearance of European artifacts such as metal, beads, and olive jar sherds, found in association with aboriginal artifacts. There is a decline in the use of Belle Glade Plain pottery. Cultural materials from the Leon-Jefferson Mission period of north Florida have also been recovered (Bullen and Bullen 1956; Widmer 1988:86). European artifacts have been recovered from the Galt and Pineland burial mounds, the Keen Mound, the Cape Haze Peninsula, and on Cape Coral (Bullen and Bullen 1956; Marquardt 1992a; Sears 1967; Willis and Johnson 1980). Metal pendants also were being manufactured by aboriginal metal smiths at this time (Allerton et al. 1984).

In historic times, the Caloosahatchee area was the home territory of the Calusa, a sedentary, non-agricultural, highly stratified, and politically complex chiefdom. Calusa villages along the coast are marked by extensive shellworks and earthworks. In addition, numerous sites have been recorded inland along the Caloosahatchee River. The great Pine Island Canal, which runs across Pine Island in coastal Lee County, may have been dug after 1000 C.E. to bring trade goods and tribute to the Calusa from the interior (Luer 1989a). Based on the account of d'Escalante Fontaneda, who was shipwrecked in 1545, the extent of the Calusa influence extended throughout the Okeechobee Basin and had alliances with tribes along the Atlantic coast as well (Milanich 1995).

3.4 Colonial

When the Spanish arrived on the west coast of Florida they encountered a powerful, highly organized and socio-politically complex society referred to as the Calusa. On Friday, June 4, 1513, Ponce de Leon sailed into what is believed to be the area of Charlotte Harbor and was attacked by a group of hostile Indians. The Spanish held off the attack, but the next day the Indians returned with 80 canoes and attacked the Spanish again. This action demonstrates the sophistication and political complexity of a non-agricultural, Chiefdom level society (Widmer 1988).

During the Spanish years in South Florida, there were many attempts to establish missions. In 1567, a Spanish garrison (San Antonio) and a Jesuit mission were established in Calos, the capital town of the Calusa. This was believed to be on Mound Key in Estero Bay. By 1572, however, the Jesuits withdrew from Florida due to a lack of converts and difficulties with the native inhabitants. In 1697, five Franciscan friars from Cuba attempted to establish a mission

among the Calusa (Hann 1991). This was a short-lived endeavor, as by 1698 the mission was abandoned. The Calusa perceived that the acceptance of baptism would not bring gifts from the Spanish Crown, and with the realization that the friars were attempting to abolish their traditional forms of worship, hostility arose (Hann 1991:161). The friars were stripped of their possessions and deported to the Keys, from whence they returned to Cuba.

Trade relations existed between the Spanish and the Calusa until their populations were almost totally decimated by disease and their remaining population brought to Cuba in the mid-1700s (Milanich and Fairbanks 1980). Spanish fishing communities, or ranchos, were established around Gasparilla, Shell Island, Cayo Costa, Fisherman's Key, Punta Rassa, and Estero Island, but gradually fell into demise shortly after Spain lost Florida (Grismer 1949). At Pineland, the abundant large shell mounds were important because they provided high dry ground and had rich soil for gardening, as well as ample space for drying fish (Luer 1991). Several reported Cuban ranchos were on the island as well as a small colony of runaway slaves that made a living cutting timber and fishing (Covington 1959:121; Luer 1991).

3.5 Territorial and Statehood

In 1821, the United States purchased the Territory of Florida from Spain and the region was open for settlement, natural resource exploitation, and agricultural and commercial development. There was no settlement in this part of Lee County at this time, and it was not until the second and third Seminole Wars (1835-1858) that military maps were prepared of the uncharted and unmapped wilderness that is today's central and eastern Lee County.

The conflict between recent settlers and the Seminoles that began with negotiations over removal of the Seminoles in 1822, continued until 1858, making settlement difficult. The battles between Indians and whites could erupt any time, and settlement was almost impossible except at locations where protection was a factor. Evidence of Seminoles in the region has been recovered at Useppa (Marquardt 1999a) and a burial was uncovered at Indian Field (Luer 1989b). During the Second Seminole War (1835-1842), a strong force of American soldiers, commanded by Col. Persifer F. Smith, left Fort Basinger in January 1838, and entered Indian territory south of the Caloosahatchee River, traveling to Punta Rassa. Three supply depots were established along the way, two at the place Col. Smith crossed the river and a third at Punta Rassa (Grismer 1949). During the 1837-38 campaign, Smith was to take his troops up the Caloosahatchee and in theory meet up with three other columns to push the Seminoles into the Everglades where it was hopes that they would either surrender or die (Knetsch 2003:100). The few settlers in the area probably lived near these depots, which provided some protection. If not close to a depot, settlers homesteaded near coastal waterways or inland rivers, which provided food, a livelihood, fresh water, and a way into the interior. The swampy inland was a refuge for the Seminoles who did not want to be removed from Florida (Tebeau 1980).

Fort Dulany, at Punta Rassa, was used as the principal base and was expanded to include large barracks, warehouses, and a hospital. It continued to serve this function until it was destroyed by a hurricane on October 19, 1841 during which all the buildings were demolished and the area was covered by several feet of water. After the destruction of Fort Dulany, Capt. H. McKavit was sent to establish a location for a new fort to be built in an area less prone to flooding. He traveled up the Caloosahatchee River and came upon a hammock densely covered with towering palms, pines, and moss draped oaks. The land was elevated and dry, with few mosquitoes. It was at that location that he built Fort Harvie, the present location of Fort Myers. This fort was abandoned in 1842 at the close of the Second Seminole War (Mahon 1967). Col.

Smith established Fort Keis at the northern edge of the Big Cypress and Fort Center on the south bank of Fisheating Creek in 1838. These forts were established in an attempt to control any Seminole movement into the Big Cypress and northwest of Lake Okeechobee (Knetsch 2003:108).

Nutting (1986) writes, "During the conflicts with the Seminoles, the United States Army engineers had done some surveying of the region south of the Caloosahatchee and had mapped out the areas surveyed. One of these maps shows the stream, now known as the Imperial River, with the name "Corkscrew Creek", given to it by the engineers. Since the engineers camped along its banks it soon was referred to as Surveyors Creek, a name it bore until the boom days of the 1910 decade when it was christened Imperial River, a name more in keeping with the grandiose ideas of that era." The town that evolved around Surveyors Creek was aptly named Survey and was later renamed Bonita Springs.

Cattle ranching served as one of the earliest important economic activities reported in the region. Mavericks left by early Spanish explorers such as DeSoto and Narvaéz provided the stock for the herds raised by the mid-eighteenth century "cowkeeper" Seminoles. As the Seminoles were pushed further south during the Seminole Wars and their cattle were either sold or left to roam, settlers captured or bought the cattle. By the late 1850s, the cattle industry of southwestern Florida was developing on a significant scale. By 1860, cattlemen from all over Florida drove their herds to Fort Brooke (Tampa) and Punta Rassa for shipment to Cuba, at a considerable profit. During this period, Jacob Summerlin became the first cattle baron of southwestern Florida. Known as the "King of the Crackers," Summerlin herds ranged from Ft. Meade to Ft. Myers (Covington 1957).

Throughout the years that followed, increased hostilities between Indians and settlers intensified a campaign to remove all Seminoles from Florida, which had become a state in 1845 (Tebeau 1980). During the 1850s, the Seminoles eluded the army and would not accept subjugation or removal. President James Buchanan, realizing that the bloody hostilities were costly and failing, resorted to monetary persuasion to induce the remaining Seminoles to migrate west. By 1860, an estimated 300 Indians were allowed to remain in the Everglades.

3.6 Civil War and Aftermath

In the mid-nineteenth century, few white settlers were in the area. However, during the Civil War, cattlemen from all over Florida drove cattle to Punta Rassa to be shipped to Cuba at a considerable profit. One of the most successful blockade runners, James McKay, formed a partnership with Jacob Summerlin in 1860 (Buker 1993:37). Summerlin, a cattleman from around Fort Meade, originally had a contract with the Confederate government to market thousands of head a year at $8 to $10 a head (Akerman 1976:85). By driving his cattle to Punta Rassa and shipping them to Cuba, he received $25 a head. In one year in the 1870s, a Captain Hendry shipped 12,896 head of cattle from Punta Rassa to Key West at $15 a piece for approximately $200,000. There is no doubt that Fort Myers got its start as a cattle town. McKay's side-wheel steamer, *Scottish Chief*, made six runs to Cuba in 1862-63. At first, he shipped cattle, but when the cattle were needed for the Confederate troops, he switched to cotton (Buker 1993). In October 1863, the *Scottish Chief* was destroyed in Tampa Bay by Union forces as it was preparing to take another load of cotton to Cuba (Buker 1993:65).

In an attempt to limit the supply of beef transported to the Confederate government, Union troops stationed at Ft. Myers conducted several raids into the Peace River Valley to seize

cattle and destroy ranches. In response, Confederate supporters formed the Cattle Guard Battalion, consisting of nine companies under the command of Colonel Charles J. Mannerlyn (Akerman 1976:91-93). The lack of railway transport to other states, the federal embargo, and the enclaves of Union supporters and Union troops holding key areas such as Jacksonville and Ft. Myers prevented an influx of finished materials. As a result, settlement remained limited until after the Civil War.

Immediately following the war, the South underwent a period of "Reconstruction" to prepare the Confederate States for readmission to the Union. The program was administered by the U.S. Congress, and on July 25, 1868, Florida officially returned to the Union (Tebeau 1980). During this time, the U.S. Government began surveying land in southwest Florida, including the present Lee County. Records indicate that federal surveys began before the Civil War, but were generally discontinued for ten years. The exterior boundaries of Township 46 South, Range 27 East was surveyed in 1872 by W. L. Apthorp and the interior section lines were surveyed by M. H. Clay a year later (State of Florida 1872; 1873a; 1873b). The general project area, as described by Clay, was third rate pine with either saw palmetto, cypress swamps, or small timber (State of Florida 1873a:579, 587, 588). No historic features are noted proximate to the project area (State of Florida 1873a, 1873b).

The Corkscrew Grove project area was, at that time, part of the vast central Florida acreage, which remained unclaimed when Florida reached statehood. The Seminole Indian Wars, disease, and, the swamps discouraged many potential settlers. Surveyed almost thirty years after statehood, lands in the protected area were not sold until the 1880's when the state of Florida began a serious effort to get its commonwealth settled.

Prompting these surveys and land sales in the 1880s was the mounting pressure over the issue of public land ownership. On the eve of the Civil War, land had been pledged by the Internal Improvement Fund to underwrite railroad bonds. When the railroad failed after the war, the land reverted to the State. Almost one million dollars was needed to pay off the principal and accumulated interest on the state's debt in order to receive clear title. Hamilton Disston, son of a wealthy Philadelphia industrialist, saw this as an opportunity to expand his influence in Florida.

Disston and the State of Florida agreed to two large land deals - the Disston Drainage Contract and the Disston Land Purchase. The Drainage Contract allowed Disston and his associates to drain and reclaim overflow lands in exchange for one-half the acreage that could be reclaimed and made fit for cultivation. A contract was signed on March 10th, 1881 (Davis 1939). After 200,000 acres had been drained, Disston was to receive the alternate sections of the reclaimed land. As the work progressed, deeds were to be issued. Disston and his associates received 1,652,711 acres of land under the Drainage Contract, although they probably never permanently drained more than 50,000 acres (Tebeau 1980:280). The crux of the Disston land transactions was the distribution of large subsidies of reclaimed land by the state to railroad companies, inducing them to begin extensive construction programs for new lines throughout the state. The project area was purchased entirely by railroad companies (or their commercial divisions). Sections 29 and 31 were purchased by the Carrabelle, Tallahassee and Georgia Railroad Company and Section 32 was purchased by The Florida Commercial Company (State of Florida n.d.:85).

By 1885, there were approximately 50 families living within the town limits of Fort Myers. "The need for public improvements and better law enforcement led the residents to incorporate the settlement as a town" on August 12, 1885 and a mayor and councilmen were elected (Grismer 1949:255). These first permanent pioneers were farmers; the hunters and

fishermen who had preceded them established only temporary camps. As the land was largely impassable, their market was Key West, a growing city which produced almost none of its own food (Tebeau 1966:233-234). Dissatisfaction in northern Monroe County concerning the distance to the county seat of Key West led to the establishment of Lee County in 1887. Named for General Robert E. Lee, Lee County, at the time, was one of the largest counties in the state consisting of most of southwest Florida. The population for the entire county was recorded as 1,414 inhabitants in 1890.

By 1893, Dr. Cyrus Teed, founder of the Koreshan Unity Settlement (west of the project area adjacent to US 41), decided to establish a branch colony in Florida. Within a few months, on a return trip to Florida, he purchased 300 acres of land on the Estero River, several miles west of I-75. Shortly thereafter, a nucleus of colonists arrived to construct a community. The settlement was called "New Jerusalem," and Teed was known to his followers as "Koresh," the Hebrew translation of his given name Cyrus, which means "Shepard" in Hebrew. The Koreshan settlement was an experiment in utopian communal living that emphasized usefulness and service to God and neighbor, and the denial of personal gain (Rea 1994:1).

With Teed's death in 1908, the Koreshan movement declined. The church leaders' celibate lifestyle required new members to be recruited from outside the community. Although New Jerusalem continued without Teed's charismatic leadership, attracting new members proved more and more difficult (Rea 1994:58-59). By the late 1940s, dissolution of the community appeared eminent (Hedwig 1961). As a result of its unique purpose, the Koreshan Unity Settlement is now a state park and the settlement area within the park is listed on the NRHP (Florida Preservation Services 1986:53).

3.7 Twentieth Century

While the Koreshan Unity Settlement at Estero enjoyed its greatest prosperity and a population of over 200 people between 1900 and 1905, other settlements of present day Lee County were slow to develop. Typically, they were delayed until the Florida land boom of the 1920s that coincided with road development. The Tamiami Trail (today's US 41) is a north/south connector from Tampa to Miami, which was expected to open up Lee County. Preliminary survey of the roadway through the Everglades was conducted in 1915, but it wasn't until 1923 Barron G. Collier agreed to finish that section of road between Lee and Dade Counties, provided his lands in Lee County were established as a separate county (Scupholm 1997). Construction progressed slowly though, largely due to a lack of funding, and the Tamiami Trail was not officially opened until 1928, thirteen years after its inception (Anon. 1972). Built on fill material obtained from a continuous pit next to the road, construction resulted in a residue of ditches that were turned into canals (Duever 1986:246).

As US 41 was completed, it went right through the middle of Bonita Springs at the southern end of Lee County. First established as the community of "Survey", the name of the town was changed to Bonita Springs in 1912 to reflect the hotel (Bonita Villa) that was the centerpiece of the town, and the mineral springs that provided the town with a reputation as a health spa. While it no longer serves as a health resort, Bonita Springs continues to thrive on tourism due to its proximity to the Gulf beaches, the larger city of Naples to the south, and the vast, nearby Everglades.

Modest signs of growth in the area were halted by the "bust" of Florida real estate in 1926-27 and the Great Depression that followed soon after. Massive freight car congestion from

hundreds of loaded cars sitting in railroad yards caused the Florida East Coast Railway to embargo all but perishable goods in August of 1925 (Curl 1986:84-84). The embargo spread to other railroads throughout the state and, as a result, most construction halted. The 1926 real estate economy in Florida was based upon such wild land speculations that banks could not keep track of loans or property values (Eriksen 1994:172). By October, rumors were rampant in northern newspapers concerning fraudulent practices in the real estate market in south Florida. To counteract the reports, T. Coleman du Pont, chairman of the Mizner Development Corporation of Palm Beach County, held an open meeting to try to convince the public that the increase in property values represented real worth. However, the next week du Pont and several other board members resigned. After that, confidence in the Florida real estate market quickly diminished, investors could not sell lots, and the Great Depression struck Florida developers earlier than the rest of the nation (Curl 1986:84-84).

To make the situation worse, Lee County suffered agricultural and structural damage from two hurricanes that hit south Florida in 1926 and 1928. Preceded by the collapse of the Florida Land Boom, and followed by the October 1929 stock market crash, the hurricanes were part of a chain of events that left Lee County in a state of stagnation. As a participant in the federal government's programs designed to lift the country out of economic depression in the 1930s, Lee County found employment in government-planned construction projects that helped revive the economy of the state (Grismer 1949:257). These projects helped to employ several of the 14,990 inhabitants of Lee County. Some of these programs were instrumental in the construction of parks, bridges, and public buildings. Programs such as the Works Progress Administration completed projects in Fort Myers such as the Edison Bridge, the Fort Myers Yacht Basin, and the Lee Memorial Hospital (Board and Bartlett 1985:28).

The 1940 population of Lee County totaled 17,488; 10,604 of them living in Fort Myers (Grismer 1949:257). Because of the undeveloped nature of inland areas of Lee County, two sites were selected during World War II for the construction of air bases in the Fort Myers area, Buckingham and Page Fields. At its peak, Buckingham Field had 16,000 service personnel stationed there. Many of the troops stationed in the area returned with their families to make Fort Myers their home after the war, even though the bases were closed (Board and Bartlett 1985:28). This contributed to the continued, steady growth of Fort Myers. As veterans returned, the trend in new housing focused on the development of small tract homes in new subdivisions.

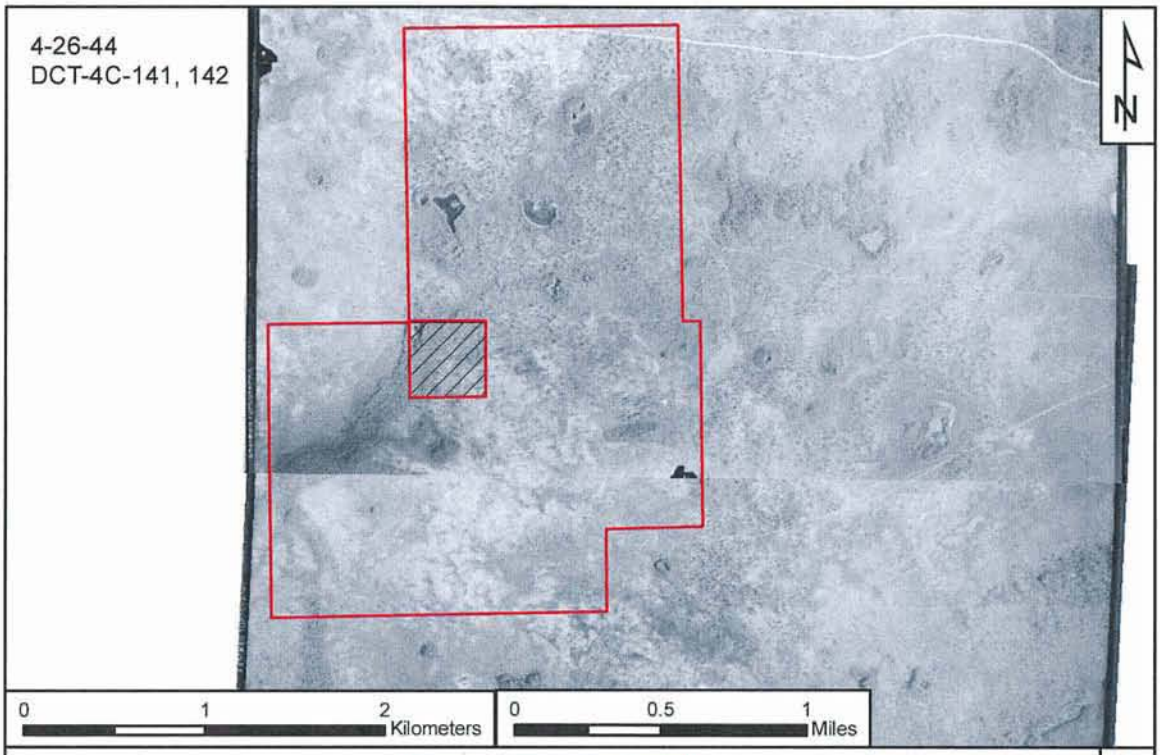
In many ways, the post-World War II development of Lee County is similar to that of the rest of America: increasing numbers of automobiles and asphalt, an interstate highway system, suburban sprawl, and strip development along major state highways. Florida's population increased from 1,897,414 to 2,771,305 between 1940 and 1950 (Tebeau 1980:431). After the war, car ownership increased and the American public became more mobile, many taking driving vacations to Florida and the Fort Myers area.

The construction of suburbs and malls, such as the Edison Mall in Fort Myers in 1965, changed the character of Florida cities by creating a string of development along coastal areas (Board and Bartlett 1985:28). Development and settlement patterns over the latter half of the twentieth century pushed outward along coastal areas and through the center of the state along the I-4 corridor. Construction, some of which was necessary because of the result of devastating Hurricane Donna, boomed in Lee County. Afterwards, millions of insurance dollars and an abundance of work revitalized a sluggish economy (Dean 1991:93) The completion of I-75 in the 1980s generated a spurt of activity that has continued into the 1990s (Board and Colcord 1992:12; Purdum 1994).

Private and commercial traffic into Lee County was enhanced with the construction of the Southwest Florida International Airport in the 1980s. Serving Fort Myers, the airport was built in an area that was primarily agricultural. With the exception of Fort Myers and a few small towns, the remainder of Lee County is devoted to citrus groves, vegetable farms, and cattle ranches. Today, Lee County, like other counties in Florida, is undergoing rapid development. Agricultural acreage is being developed as planned residential communities.

3.8 Project Specifics

The aerial photographs of the project area from 1944 and 1958, available from the Publication of Archival Library & Museum Materials (PALMM) website, and the USGS quadrangle map from 1958 (USDA 1944, 1958; USGS 1958a, 1958b, 1958c) show no structures within the project area (**Figure 3.2**). An examination of the aerials and USGS maps through time shows little change on the property until the 1970s when agricultural ditching is evident. Between 1973 and 1987, the property wetlands have decrease in size, although many are still evident today (USDA 1944, 1958; USGS 1958a, 1958b, 1958c). A review of the 2016 property appraiser's data indicates that no structures are located on the tract (Wilkinson 2016).



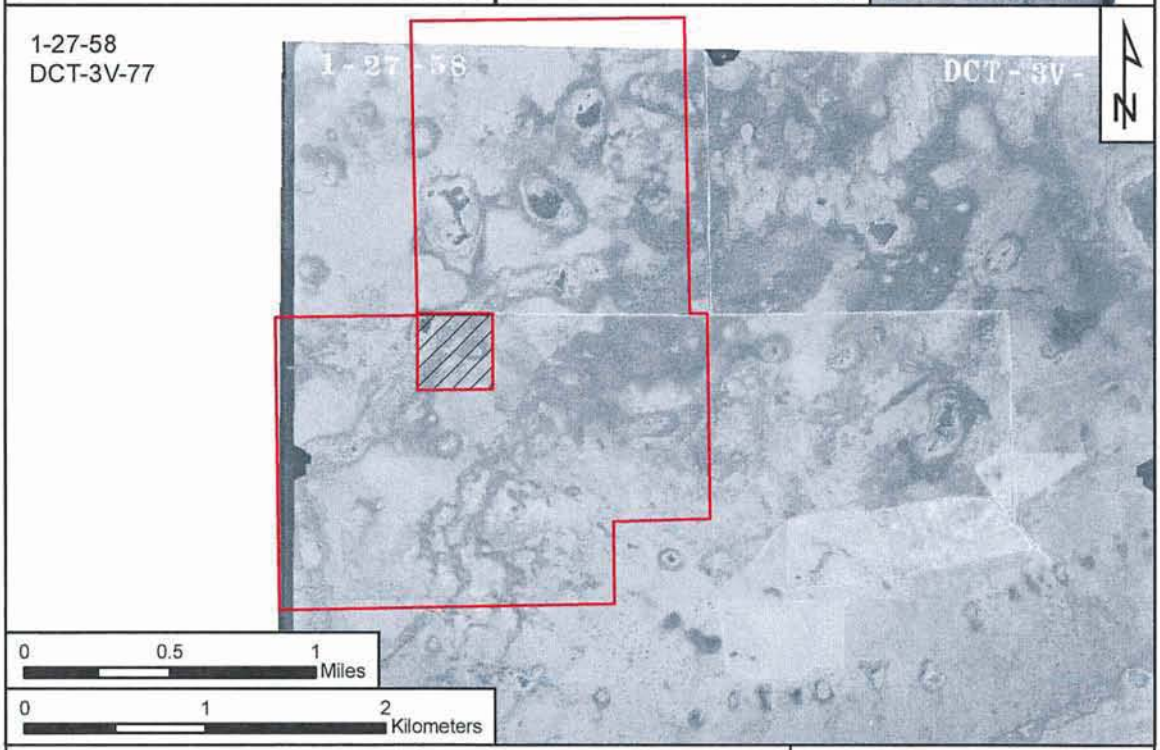


Figure 3.2. 1944 and 1958 aerial photographs of the Corkscrew Grove project area (USDA 1944, 1958).

4.0 RESEARCH CONSIDERATIONS AND METHODOLOGIES

4.1 Background Research and Literature Review

A comprehensive review of archaeological and historical literature, records and other documents and data pertaining to the project area was conducted. The focus of this research was to ascertain the types of cultural resources known in the project area and vicinity, their temporal/cultural affiliations, site location information, and other relevant data. This included a review of sites listed in the NRHP, the FMSF, cultural resource survey reports, published books and articles, unpublished manuscripts, maps, and information from the files of Archaeological Consultants, Inc. No informant interviews were conducted for this project.

It should be noted that FMSF data used in this report were obtained in January 2016 from the FMSF. However, according to the administrator of the FMSF, input may be up to a month behind receipt of reports and site files.

4.1.1 Archaeological Considerations

For archaeological survey projects of this kind, specific research designs are formulated prior to initiating fieldwork in order to delineate project goals and strategies. Of primary importance is an attempt to understand, based on prior investigations, the spatial distribution of known resources. Such knowledge serves not only to generate an informed set of expectations concerning the kinds of sites which might be anticipated to occur within the project area, but also provides a valuable regional perspective and, thus, a basis for evaluating any new sites discovered. In addition, the area is within a Lee County low to moderate zone of archaeological potential.

Background research indicates that no previously recorded cultural resources are located within the Corkscrew Grove tract and only one site (8CR00701) has been recorded within two miles of the project area (**Figure 4.1**). The Turtle Mound site, an elevated, prehistoric Glades period midden, measures 30 by 30 m in size. It is approximately 40 to 50 m from a cypress head and located within a grass prairie in the Corkscrew Swamp Sanctuary. The site was recorded in 1990 by J. Beriault and C.E. Strader (FMSF).

Ten cultural resource assessment surveys have been conducted in the general project area. These include an historical and architectural survey of Collier County (Florida Preservation Services 1986), a reconnaissance survey of the Panther Island Mitigation Bank (Beriault et al. 2010), and eight surveys conducted prior to development (Beriault and Carr 1999, 1998; Beriault 2003; Beriault et al. 2007, 2011; Beriault et al. 2008a, 2008b; Beriault, Carr, and Faulkner 2011). While sites were recorded as a result of the surveys, all within five miles of the project area were located on soils not found within the Corkscrew Grove parcel (FMSF).

As archaeologists have long realized, aboriginal populations did not select their habitation sites and special activity areas in a random fashion. Rather, many environmental factors had a direct influence upon site location selection. Variables such as soil drainage, distance to freshwater, relative topography, and proximity to food and other resources, including stone and clay, have proven to be good site indicators. In general, it has been repeatedly

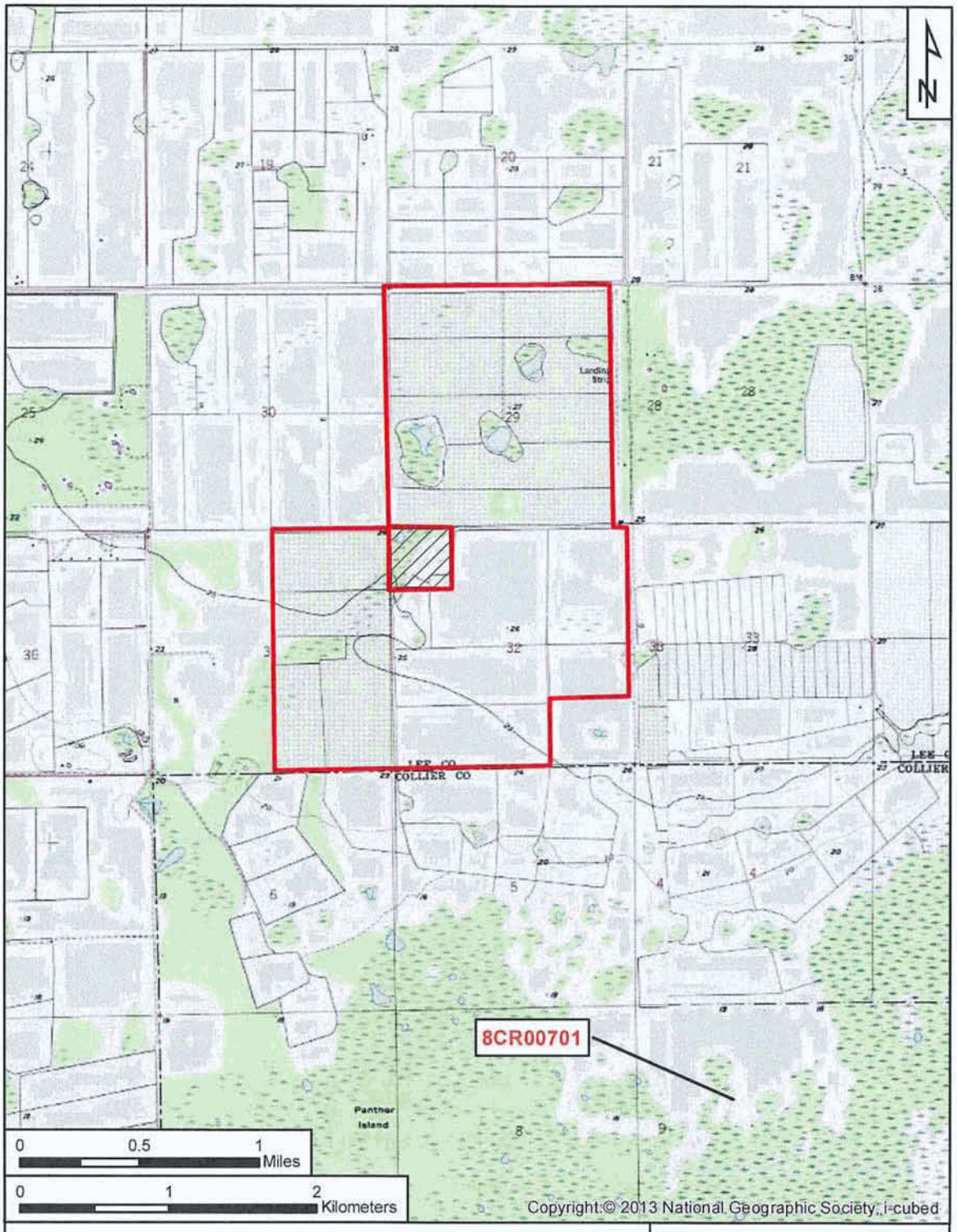


Figure 4.1. Location of the archaeological site within two miles of the Corkscrew Grove project area (USGS Corkscrew NW, 1973).

demonstrated that archaeological sites are most often located in proximity to a permanent or semi-permanent water source, and these sites are found, more often than not, on better drained soils, or at the better drained upland margins of marsh ponds, cypress sloughs, and seasonal wetlands. However, sites are also found in areas of high elevation regardless of soil drainage characteristics in what is referred to as a marginal environment typical of interior lowlands (Austin 1987:41). Sites expected to occur in a marginal environment are small, limited activity campsites such as lithic, artifact, or shell scatter type sites associated with the prehistoric exploitation of locally available resources; large, coastal villages are typically found directly on bays and creeks. Areas of low elevation relative to the surrounding terrain are considered less likely to contain evidence of prehistoric occupation, as these poorly drained areas are considered generally unsuitable for either habitation or special use campsites (Austin 1987; Bellomo and Fuhrmeister 1991).

It should be noted, however, that these settlement patterns cannot be applied to sites of the Paleo-Indian and Early Archaic periods which precede the onset of modern environmental conditions. During the Paleo-Indian and Early Archaic periods, archaeologists believe, settlement was restricted to areas near karst sinkholes or spring caverns (Milanich and Fairbanks 1980). None of those types of features are present within the project area.

Thus, it was anticipated that the project area had a low, but variable, potential for the occurrence of prehistoric archaeological sites. Small prehistoric artifact scatter type sites were anticipated proximate to naturally occurring wetlands. Given the results of the historic research, no 19th century homesteads, forts, military trails, or Indian encampments were expected within the project area.

4.1.2 Historical/Architectural Considerations

Examination of the FMSF and other historical data indicated that no historic structures (50 years of age or older) have been recorded within or proximate to the project area, nor were any properties listed in NRHP. A review of the Lee County Property Appraiser's website revealed that no historic structures were located within the project area (Wilkinson 2016).

4.2 Field Methodology

Archaeological field survey methods consisted of surface reconnaissance combined with systematic subsurface testing. Shovel tests were placed 50 m and 100 m (164 and 328 ft) intervals and judgmentally throughout the project area. Shovel tests were circular and measured approximately 50 centimeters (cm) (20 inches [in]) in diameter by at least 1 m (3.3 ft) in depth unless precluded by natural impediments. All soil removed from the shovel tests was screened through a 0.64 cm (0.25 in) mesh hardware cloth to maximize the recovery of artifacts. The locations of all shovel tests were recorded with a Trimble GeoXT, and, following the recording of relevant data such as environmental setting, stratigraphic profile, and artifact finds, all shovel tests were refilled.

Historical field methodology consisted of a visual reconnaissance of the project area to determine the location of all historic resources believed to be 50 years of age or older, and to ascertain if any resources within the property could be eligible for listing in the NRHP. However, no historic buildings or structures were observed.

4.3 Laboratory Methods and Curation

No artifacts were recovered, thus no laboratory methods were utilized.

The project-related records will be maintained at the ACI office in Sarasota unless the client requests otherwise.

4.4 Unexpected Discoveries

If human burial sites such as Indian mounds, lost historic and prehistoric cemeteries, or other unmarked burials or associated artifacts were found, then the provisions and guidelines set forth in Chapter 872.05, *FS* (Florida's Unmarked Burial Law) would be followed. Although burial mounds have been found a few miles west of the project area, none was expected in the project area.

5.0 SURVEY RESULTS AND RECOMMENDATIONS

5.1 Archaeological Results

The archaeological investigations conducted within the project area consisted of surface reconnaissance combined with systematic and judgmental subsurface testing. A total of 274 shovel tests were excavated. Of these, 129 tests were placed at 50 m (164 ft) intervals in areas adjacent to wetlands or along elevation contour lines. One hundred and forth-five (145) shovel tests were placed at 100 m (328 ft) intervals or judgmentally across the property (**Figure 5.1**).

While there was slight variability, the stratigraphy in general was 0 to 30 cm below surface (cmbs) (0 to 12 in) of gray sand followed by 30 to 100 cmbs (12 to 39 in) of either light yellowish brown sand or light gray sand. No cultural materials were recovered from the shovel tests or discovered on the surface.

5.2 Historical Results

As a result of the historical field survey, no historic structures were found on the property.

5.3 Conclusions

Given the results of background research and field survey, the development of the Corkscrew Grove project area will have no effect on any archaeological sites or historic resources that are listed, determined eligible, or considered potentially eligible for listing in the NRHP. No further investigations are recommended.

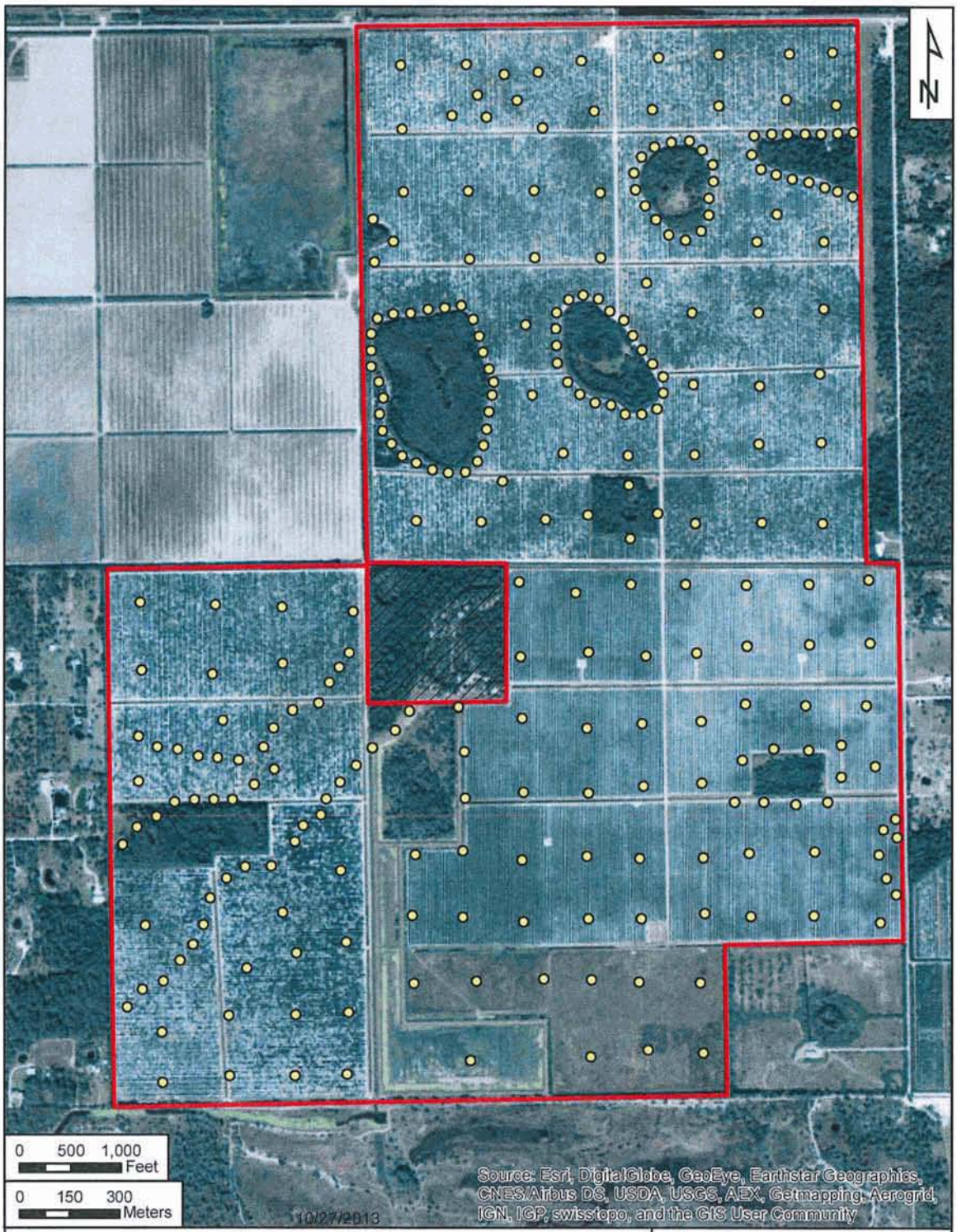


Figure 5.1. Location of the shovel tests (not to scale) within the Corkscrew Grove project area.

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APPENDIX A: Survey Log

Ent D (FMSF only)_____

Survey Log Sheet

Florida Master Site File
Version 4.1 1/07

Survey # (FMSF only) _____

Consult *Guide to the Survey Log Sheet* for detailed instructions.

Identification and Bibliographic Information

Survey Project (name and project phase) CRAS, Corkscrew Grove, Lee County, Florida, Phase I

Report Title (exactly as on title page) Cultural Resource Assessment Survey, Corkscrew Grove, Lee County, Florida

Report Authors (as on title page, last names first) 1. ACI 3. _____ 2. _____ 4. _____

Publication Date (year) 2016 **Total Number of Pages in Report** (count text, figures, tables, not site forms) 43

Publication Information (Give series, number in series, publisher and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*.)
ACI - P15155

Supervisors of Fieldwork (even if same as author) Names Almy, Marion; Newman, Christine; Winkler

Affiliation of Fieldworkers: Organization Archaeological Consultants Inc City Sarasota

Key Words/Phrases (Don't use county name, or common words like *archaeology, structure, survey, architecture, etc.*)

1. _____ 3. _____ 5. _____ 7. _____
2. _____ 4. _____ 6. _____ 8. _____

Survey Sponsors (corporation, government unit, organization or person directly funding fieldwork)

Name Pan Terra Holdings, Ltd. Organization _____

Address/Phone/E-mail 150 Alhambra Circle, Coral Gables, Florida 33134

Recorder of Log Sheet Newman, Christine **Date Log Sheet Completed** 1-19-2016

Is this survey or project a continuation of a previous project? ☒No ☐Yes: **Previous survey #s (FMSF only)** _____

Mapping

Counties (List each one in which field survey was done; attach additional sheet if necessary)

1. Lee 3. _____ 5. _____
2. _____ 4. _____ 6. _____

USGS 1:24,000 Map Names/Year of Latest Revision (attach additional sheet if necessary)

1. Name CORKSCREW NW Year 1973
2. Name _____ Year _____
3. Name _____ Year _____
4. Name _____ Year _____
5. Name _____ Year _____
6. Name _____ Year _____

Description of Survey Area

Dates for Fieldwork: Start 1-4-2016 End 1-13-2016 **Total Area Surveyed** (fill in one) _____ hectares 1,460 acres

Number of Distinct Tracts or Areas Surveyed 1

If Corridor (fill in one for each) **Width:** _____ meters _____ feet **Length:** _____ kilometers _____ miles

Survey Log Sheet

Survey #_____

Research and Field Methods

Types of Survey (check all that apply): ☒archaeological ☒architectural ☒historical/archival ☐underwater ☐damage assessment ☐monitoring report ☐other(describe): _____

Scope/Intensity/Procedures Background research, systematic & judgmental subsurface testing (N-274), 1 m deep, 50 cm diameter, 6.4 mm mesh screen, 129 at 50 m interval, 145 at 100 m interval and judgmental.

Preliminary Methods (check as many as apply to the project as a whole)

- ☐Florida Archives (Gray Building)
- ☐Florida Photo Archives (Gray Building)
- ☒Site File property search
- ☒Site File survey search
- ☒library research- *local public*
- ☐library-special collection - *nonlocal*
- ☒Public Lands Survey (maps at DEP)
- ☐local informant(s)
- ☒local property or tax records
- ☐newspaper files
- ☒literature search
- ☐Sanborn Insurance maps
- ☐other historic maps
- ☒soils maps or data
- ☒windshield survey
- ☒aerial photography
- ☐other (describe): _____

Archaeological Methods (check as many as apply to the project as a whole)

☐Check here if **NO** archaeological methods were used.

- ☐surface collection, controlled
- ☐surface collection, uncontrolled
- ☒shovel test-1/4"screen
- ☐shovel test-1/8" screen
- ☐shovel test 1/16"screen
- ☐shovel test-unscreened
- ☐shovel test-other screen size
- ☐water screen
- ☐posthole tests
- ☐auger tests
- ☐coring
- ☐test excavation (at least 1x2 m)
- ☐block excavation (at least 2x2 m)
- ☐soil resistivity
- ☐magnetometer
- ☐side scan sonar
- ☒pedestrian survey
- ☐unknown
- ☐other (describe): _____

Historical/Architectural Methods (check as many as apply to the project as a whole)

☐Check here if **NO** historical/architectural methods were used.

- ☐building permits
- ☐commercial permits
- ☐interior documentation
- ☐demolition permits
- ☒exposed ground inspected
- ☒local property records
- ☐neighbor interview
- ☐occupant interview
- ☐occupation permits
- ☐subdivision maps
- ☐tax records
- ☐unknown
- ☐other (describe): _____

Survey Results (cultural resources recorded)

Site Significance Evaluated? ☐Yes ☒No

Count of Previously Recorded Sites 0 **Count of Newly Recorded Sites** 0

Previously Recorded Site #'s with Site File Update Forms (List site #'s without "8". Attach additional pages if necessary.) N/A

Newly Recorded Site #'s (Are all originals and not updates? List site #'s without "8". Attach additional pages if necessary.) N/A

Site Forms Used: ☐Site File Paper Form ☒Site File Electronic Recording Form

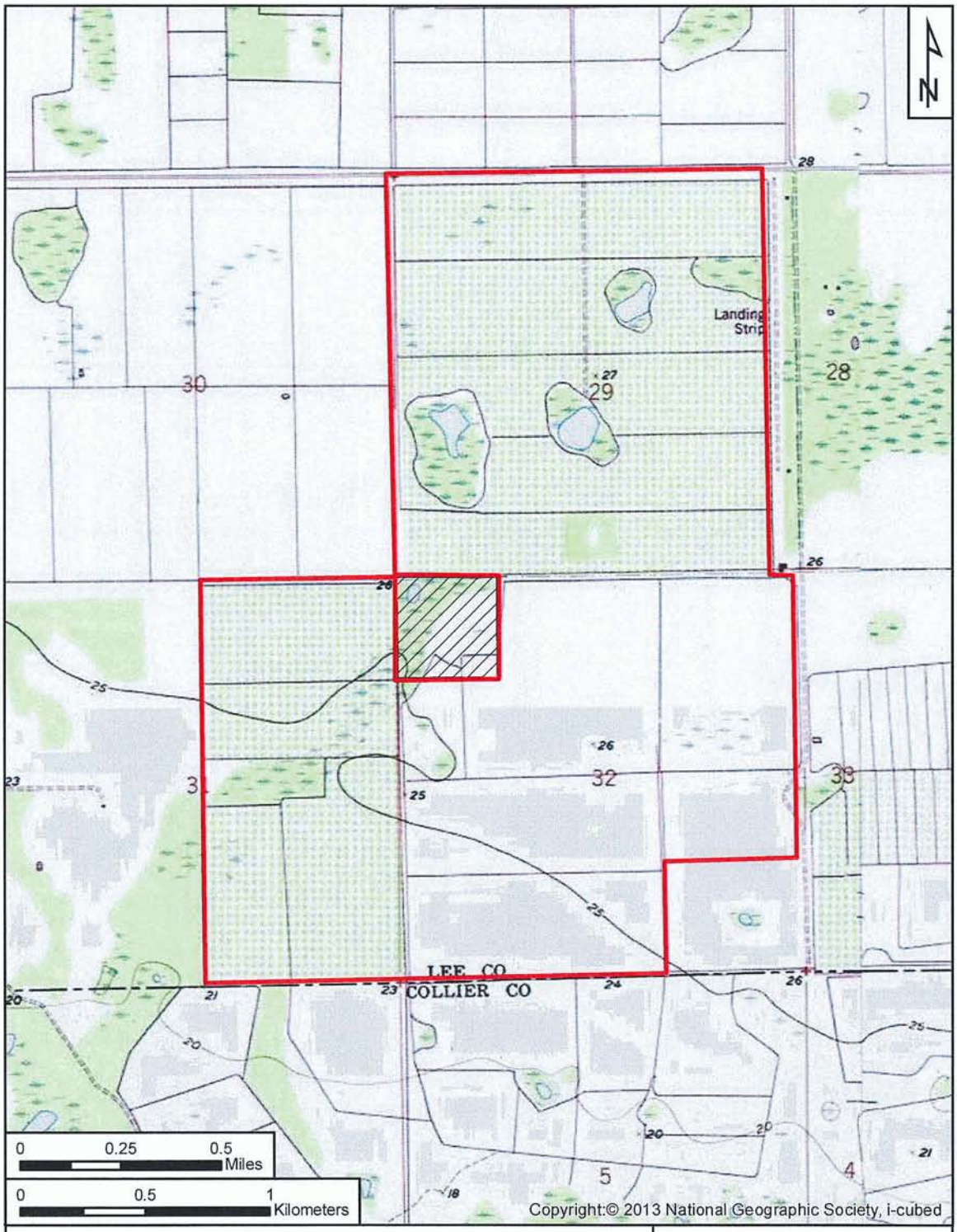
*****REQUIRED: ATTACH PLOT OF SURVEY AREA ON PHOTOCOPY OF USGS 1:24,000 MAP(S)*****

SHPO USE ONLY	SHPO USE ONLY	SHPO USE ONLY

Origin of Report: ☐872 ☐CARL ☐UW ☐1A32 # _____ ☐Academic ☐Contract ☐Avocational ☐Grant Project # _____ ☐Compliance Review: CRAT # _____

Type of Document: ☐Archaeological Survey ☐Historical/Architectural Survey ☐Marine Survey ☐Cell Tower CRAS ☐Monitoring Report ☐Overview ☐Excavation Report ☐Multi-Site Excavation Report ☐Structure Detailed Report ☐Library, Hist. or Archival Doc ☐MPS ☐MRA ☐TG ☐Other: _____

Document Destination: _____ **Plotability:** _____



Corkscrew Grove
Sections 29, 31 and 32 of Township 46 South, Range 27 East
USGS Corkscrew NW
Lee County

DeLisi Fitzgerald, Inc.
Planning – Engineering – Project Management

Verdana
Surface Water Level of Service Analysis:

I. Existing Facilities

The subject property consists of 1,461 acres and exists as an operating citrus grove located on the south side of Corkscrew Road. Based on topography and historical aerials, the general historic drainage pattern for the property is from the northeast to southwest to Corkscrew Swamp via an unnamed canal located within Panther Island Mitigation Bank. Existing topography for the property ranges from 26.0' NAVD in the northeast corner of the property to 20.3' NAVD in the southwest corner of the property.

Existing stormwater facilities serving the groves were permitted through the South Florida Water Management District as two (2) separate surface water management permits. The limits of each permit authorization for the property are depicted on *Exhibit A – Existing Facilities Map.* Both permits gave authorization to the property owners in 1982 to construct a system of field and perimeter ditches, culverts, and risers to serve the agricultural operations.

For the northern 600 acres of 918 acres authorized by permit #36-00027-S, a field inspection of the property observed a series of pipes discharging freely into the main north-south ditch located along the west property line of the northern half of the property. The main outfall ditch runs north to south from Corkscrew Road to Panther Island Mitigation Bank and serves as the main outfall for the subject property. While consistent with the originally permitted facilities, there were no facilities observed providing water quality or attenuation for the property other than adjustable risers connecting the field ditches to the main outfall ditch that are regulated to meet irrigation demands and crop protection.

For the remaining southwestern 318 acres of the 918 acres authorized by permit #36-0027-S, a field inspection observed two locations along the south property line where discharges to the south are maintained by riser pipes connecting to the Panther Island canal located along the south property line. No water quality or attenuation facilities were observed serving this portion of the property.

For the southeasterly 536 acres authorized by #36-00026-S, there exists an interconnected northern and southern reservoir along its western property line that provides a cascading system of water quality and attenuation prior to discharging to the main outfall ditch described above. The system as originally permitted in 1982 was modified in 2001 to allow for the agriculture uses to be converted to a grove operation from a row-crop operation. With the use conversion, the water management system was also modified to increase the control elevation of the southern reservoir from an elevation 16.3' NAVD to 19.3' NAVD to "assist in restoring historically impacted groundwater levels."

II. Proposed Facilities

The water management facilities for the proposed project will be designed to replace the existing ditch-dike system with a system of interconnected lakes that will be sized and analyzed to provide the required attenuation for the 25-year storm event with a maximum discharge of 25 cubic-feet-per-square-mile (CSM), and provide the required water quality treatment prior to discharging to Corkscrew Swamp in accordance with South Florida Water Management District (SFWMD) rules.

The control elevations for the proposed system will be established based on environmental factors contained on-site, and established control elevations of surrounding properties depicted on *Exhibit A*. This will take into account Panther Island Mitigation Bank to the south, and Imperial Marsh Preserve and Corkscrew Mitigation Bank to the north, in an effort to reestablish historical hydrological conditions for the property to the extent possible given the conditions of the surrounding properties that are located upstream of the project.

III. Lee Plan Policy 95.1.3.4 – Stormwater Water Management Facilities

a.) Existing Infrastructure/Interim Standard:

The 2015 Concurrency Report notes that none of the drainage crossings of evacuation routes in the studied watersheds, including Corkscrew Road, are anticipated to be flooded for more than 24 hours.

b.) Six Mile Cypress Watershed:

The subject property is not located in the Six Mile Cypress Watershed.

c.) Regulation of Private and Public Development:

The 2015 Concurrency Report deems all new developments which receive approval from the South Florida Water Management District, and that comply with standards in Chapter 17-3, 17-40, and 17-32 of the Florida Statues and Rule 40E-4 of the Florida Administrative Code, concurrent with the Level of Service standards set forth in the Lee Plan.

The surface water management system for project will be designed and permitted in accordance with all SFWMD requirements, including meeting the maximum allowable discharge of 25 CSM in the 25-year storm event. The conversion of the property to compact residential will allow for drainage connections to be provided to the east and northeast to allow for reestablishment of historical drainage patterns through the property by removal of the existing perimeter berms surrounding the groves. And removal of the agriculture use will eliminate agricultural pumping operations in heavy rainfall conditions that deliver untreated water from portions of the property to the Corkscrew Swamp.

CORKSCREW FARMS

CORKSCREW REGIONAL MITIGATION BANK
ADJUSTABLE WEIR ELEVATION = 25.13' NAVD

IMPERIAL MARSH PRESERVE
(SFWMD # 36-07404-P)
CONTROL ELEVATION = 27.80' NAVD

42" RCP CROSSING

CORKSCREW ROAD

OLD CORKSCREW GOLF COURSE

SIX L'S FARM ROAD

HARVEY BROTHERS CORKSCREW FARM
(SFWMD # 36-02292-S)
CONTROL ELEVATION = 25.30' NAVD

M & W GROVE II
(SFWMD # 36-00327-S)

CARTER ROAD

ULTIMATE SKI LAKE
(SFWMD # 36-05139-P)
CONTROL ELEVATION = 25.55' NAVD

NORTH RESERVOIR
ELEV. = 24.30' NAVD

SCHOENBRUN FARMS GROVE 1
(SFWMD # 36-00326-S)

M & W GROVE II
(SFWMD # 36-00327-S)

SOUTH RESERVOIR
ELEV. = 19.30' NAVD

UNNAMED CANAL
SHWT = 19.20' NAVD

CONTROL STRUCTURES

PANTHER ISLAND MITIGATION BANK
(SFWMD # 11-00002-M)

PANTHER ISLAND MITIGATION BANK
EXPANSION (SFWMD # 11-00002-M)
CONTROL ELEVATION = 22.80' NAVD

N
W E
S
0 500 1000 2000

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DELISI FITZGERALD, INC.
Planning - Engineering - Project Management
1605 Hendry Street
Fort Myers, FL 33901
239-418-0691 • 239-418-0692 Fax
Florida Certificate of Authorization: Engineering LB #: 28978

ENGINEER OF RECORD:
ANDREW D. FITZGERALD, P.E. (FOR THE FIRM)
FLORIDA P.E. NO. 56778

NOT VALID WITHOUT SEAL, SIGNATURE AND DATE

OWNER / DEVELOPER:
PAN TERRA HOLDINGS, LTD
150 ALHAMBRA CIRCLE, #925
CORAL GABLES, FL 33134

PROJECT:
VERDANA

PLAN REVISIONS

#	DATE	DESCRIPTION

EXHIBIT A
EXISTING
FACILITIES MAP

Project Manager:	ADF
Drawn By:	GWS
Checked By:	ADF
Project Number:	21375
Part of Section(s):	29, 31, 32
Township: 46 S | Range:	27 E
County, State:	LEE COUNTY, FL

Status:
FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION

Sheet Number: 1

CORKSCREW GROVE
ENVIRONMENTAL ASSESSMENT

DRAFT

March 2016

Prepared For:

Pan Terra Holdings, LLC
150 Alhambra Circle, Suite 925
Coral Gables, Florida 33134
(305) 461-0563

Prepared By:

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

Project No. 15BDG2365

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INTRODUCTION

An environmental assessment was conducted on Corkscrew Grove (Project) to document existing land uses and vegetative cover; document the presence of state jurisdictional wetlands; research potential utilization by wildlife and plant species listed by the Florida Fish and Wildlife Conservation Commission (FWCC), the Florida Department of Agriculture and Consumer Services (FDACS), and the U.S. Fish and Wildlife Service (USFWS) as Threatened, Endangered, or Species of Special Concern; and document listed species utilization on the Project site. The assessment included field surveys to map vegetation communities on the Project site, an office review of agency records for documented occurrences of listed species on and within the vicinity of the property, and field surveys to document listed species on the Project site. This report summarizes the results of the environmental assessment.

The Project totals 1,460.78± acres and is located in Sections 29, 31, and 32; Township 46 South; Range 27 East; Lee County (Figure 1). The Project is bounded by Corkscrew Road to the north. Pepperland, LLC is along the northwestern boundary and Keystone Grove, LLC is along the southeastern boundary. Low-density, single-family residences are adjacent to the Project's southwestern and northeastern boundaries. Panther Island Mitigation Bank is located along the southern boundary (Exhibit 1).

The property is currently an active citrus grove with scattered areas of remnant native vegetation. As part of the agricultural surface water management, extensive ditching and berms have been constructed on the property. The remnant native vegetation includes a mixture of Pine Flatwoods, Cypress, and Cypress/Pine/Cabbage Palm. These areas are typically bounded by berm and ditching associated with the surrounding citrus groves.

A South Florida Water Management District (SFWMD) Environmental Resource Permits (ERP) for a water use permit (ERP No. 36-00327), a new water use permit (ERP No. 36-00327), and a Surface Water Management permit (ERP Nos. 36-00321 and 36-00326) are currently in place for the Project site.

LAND USES AND VEGETATION ASSOCIATIONS

The vegetation mapping for the Project was conducted by Passarella & Associates, Inc. (PAI) using January 2015 Lee County rectified aerials. Groundtruthing to map the vegetative communities was conducted in October 2015 utilizing the Florida Land Use, Cover and Forms Classification System (FLUCFCS) Levels III and IV (Florida Department of Transportation 1999). Level IV FLUCFCS was utilized to denote hydrological conditions and disturbance. To identify levels of exotic infestation (i.e., melaleuca (*Melaleuca quinquenervia*) and Brazilian pepper (*Schinus terebinthifolius*)), "E" codes were used. AutoCAD Map 3D 2015 software was used to determine the acreage of each mapping area, produce summaries, and generate the FLUCFCS and wetlands map (Exhibit B). An aerial photograph of the property with an overlay of the FLUCFCS and wetlands map is provided as Exhibit C.

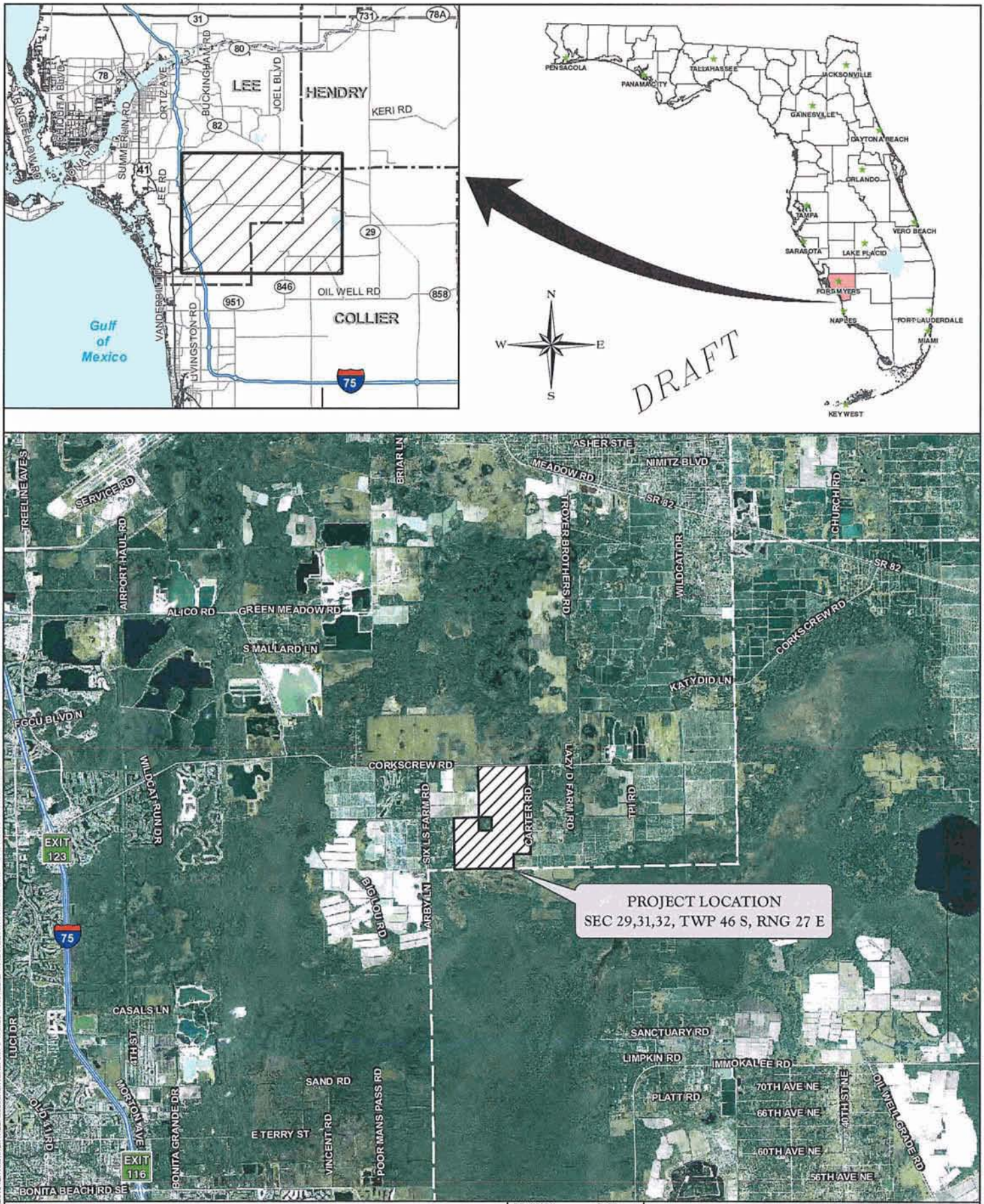

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FIGURE 1. PROJECT LOCATION MAP
CORKSCREW GROVE

DRAWN BY	DATE
H.H.	1/12/16
REVIEWED BY	DATE
C.G.	1/12/16
REVISED	DATE

PASSARELLA & ASSOCIATES INC
Consulting Ecologists

A total of 26 vegetation associations and land uses (i.e., FLUCFCS codes) were identified on the property. Active citrus groves occupy 1,166.02± acres or 79.8 percent of the site. The site contains a variety of disturbed upland and wetland native habitats. These remnant native habitats have been impacted by the surrounding citrus groves, agricultural ditching and berming, and exotic vegetation infestation. Exotic vegetation infestation, primarily Brazilian pepper and melaleuca, exceeds 75 percent in most of the remnant native habitat area. A summary of the FLUCFCS codes with acreage breakdown and description of each FLUCFCS code is presented in Exhibit D. No rare or unique uplands were identified within the Project site.

SOILS

The soils for the property, per the Natural Resource Conservation Service (formerly the Soil Conservation Service), are shown on Exhibit E. A brief description for each soil type per the Soil Survey of Lee County, Florida (Soil Conservation Service 1998) is presented in Exhibit F.

JURISDICTIONAL WETLANDS

The SFWMD jurisdictional wetlands for the Project are shown on Exhibits B and C. The wetlands by FLUCFCS code are summarized in Table 1. SFWMD wetlands constitute a total of 69.32± acres or approximately 4.8 percent of the site. SFWMD "other surface waters" (OSWs) constitute a total of 77.20± acres or approximately 5.3 percent of the site.

Table 1. Wetland Acreages by FLUCFCS Code

FLUCFCS Code	Description	SFWMD Jurisdictional Wetlands and OSW (Acres)
4241	Melaleuca, Hydric	4.36
514*	Ditch	54.68
6219 E1	Cypress, Disturbed (0-24% Exotics)	8.29
6219 E2	Cypress, Disturbed (25-49% Exotics)	23.37
6219 E3	Cypress, Disturbed (50-75% Exotics)	0.48
6219 E4	Cypress, Disturbed (76-100% Exotics)	12.11
6249 E1	Cypress/Pine/Cabbage Palm, Disturbed (0-24% Exotics)	1.36
6249 E2	Cypress/Pine/Cabbage Palm, Disturbed (25-49% Exotics)	5.60
6249 E3	Cypress/Pine/Cabbage Palm, Disturbed (50-75% Exotics)	6.54
6249 E4	Cypress/Pine/Cabbage Palm, Disturbed (76-100% Exotics)	2.08
6419 E1	Freshwater Marsh, Disturbed (0-24% Exotics)	0.34
6419 E2	Freshwater Marsh, Disturbed (25-49% Exotics)	1.79

Table 1. (Continued)

FLUCFCS Code	Description	SFWMD Jurisdictional Wetlands and OSW (Acres)
7401*	Disturbed Land, Other Surface Waters	22.52
7401	Disturbed Land, Hydric	3.00
Total		**146.52**

*Denotes "other surface waters"

The prominent wetland features on the Project consist of the cypress wetlands located within the existing orange grove. Hydrology of the on-site wetlands has been significantly impacted by the extensive North/South and East/West ditching. These ditches flow generally southward toward a large reservoir, and eventually flow off-site to Panther Island Mitigation Bank, which shares the south border of the Project. Historically, surface water flowed through naturally vegetated areas from the northeast corner of the property towards the southwest corner. A U.S. Geological Survey Quadrangle Map is provided as Exhibit G. This map generally depicts the location of the wetlands within the Project.

LISTED SPECIES

Listed wildlife species as listed by the FWCC and the USFWS (FWCC 2013) that have the potential to occur on the Project are listed in Table 2. Listed plant species as listed by the FDACS and the USFWS (FDACS Chapter 5B-40) that have the potential to occur on the Project are listed in Table 3. Information used in assessing the potential occurrence of these species included the Lee County Land Development Code, Field Guide to the Rare Plants of Florida (Chafin 2000), Atlas of Florida Vascular Plants (Wunderlin 2004), and professional experience and knowledge of the geographic region. In addition, the FWCC records for documented listed species were reviewed for listed species records on or adjacent to the property (Exhibit H).

Table 2. Listed Wildlife Species That Could Potentially Occur within Corkscrew Grove

Common Name	Scientific Name	Designated Status		Potential Habitats (FLUCFCS Code)
		FWCC	USFWS	
Amphibians and Reptiles				
American Alligator	*Alligator mississippiensis*	FT(S/A)	T(S/A)	514, 6219, 6419
Eastern Indigo Snake	*Drymarchon corais couperi*	FT	T	4119, 426
Gopher Frog	*Rana capito*	SSC	-	4119, 426
Gopher Tortoise	*Gopherus polyphemus*	ST	*	4119, 426

Table 2. (Continued)

Common Name	Scientific Name	Designated Status		Potential Habitats (FLUCFCS Code)
		FWCC	USFWS	
Birds				
Burrowing Owl	*Athene cunicularia*	SSC	-	
Crested Caracara	*Caracara cheriway*	T	T	
Everglades Snail Kite	*Rostrhamus sociabilis plumbeus*	FE	E	6419
Florida Sandhill Crane	*Grus canadensis pratensis*	ST	-	6419
Limpkin	*Aramus guarauna*	SSC	-	514, 6219, 6419
Little Blue Heron	*Egretta caerulea*	SSC	-	514, 6219, 6245, 6249, 6419
Red-Cockaded Woodpecker	*Picoides borealis*	FE	E	4119
Roseate Spoonbill	*Ajaia ajaja*	T	-	514
Snowy Egret	*Egretta thula*	SSC	-	514, 6219, 6245, 6249, 6419
Southeastern American Kestrel	*Falco sparverius paulus*	ST	-	4119
Tri-Colored Heron	*Egretta tricolor*	SSC	-	514, 6219, 6245, 6249, 6419
White Ibis	*Eudocimus albus*	SSC	-	
Wood Stork	*Mycteria americana*	FE	E	6215, 6219
Mammals				
Big Cypress Fox Squirrel	*Sciurus niger avicennia*	ST	-	4119
Everglades Mink	*Neovison vison evergladensis*	ST	-	514, 6419
Florida Black Bear	*Ursus americanus floridanus*	**	-	4119, 6215, 6219, 6245, 6249
Florida Bonneted Bat	*Eumops floridanus*	FE	E	4119, 6249
Florida Panther	*Puma concolor coryi*	FE	E	4119, 4349, 6215, 6219, 6245, 6249

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
SSC – Species of Special Concern
ST – State Threatened
T – Threatened
T(S/A) – Threatened due to similarity of appearance
*The gopher tortoise is currently listed as a candidate species by the USFWS.
**No longer listed by the FWCC; however, certain protection measures still apply.

American alligator (*Alligator mississippiensis*)
The American alligator could potentially occur within the hydric disturbed habitats, native herbaceous wetlands, and ditches within the site.

Eastern indigo snake (*Drymarchon corais couperi*)
The Eastern indigo snake could potentially occur within the native upland and wetland habitats on the Project site or in the citrus grove. The Eastern indigo snake is typically found in association with populations of gopher tortoise (*Gopherus polyphemus*).

Gopher frog (*Rana areolata*)
The gopher frog is typically found in association with populations of gopher tortoise. Preferred breeding habitat includes seasonally flooded, grassy ponds, and cypress ponds that lack fish populations (Moler 1992).

Gopher tortoise
Potential habitat for gopher tortoises on the Project site includes the upland pine habitats, disturbed lands, and berms.

Burrowing owl (*Athene cunicularia*)
Potential burrowing owl habitat exists within the upland disturbed land on the Project site.

Crested caracara (*Caracara cheriway*)
Potential foraging habitat for the crested caracara on the Project site includes the citrus groves, freshwater marshes, wet prairies, and disturbed lands. Its primary habitat in Florida is the native prairie with associated marshes and cabbage palm (*Sabal palmetto*) and cabbage palm-live oak (*Quercus virginiana*) hammocks (Rodgers *et al.* 1996).

Everglade snail kite (*Rostrhamus sociabilis plumbeus*)
Potential foraging habitat for the Everglade snail kite includes ditches, freshwater marshes, and hydric disturbed areas on the Project site.

Florida sandhill crane (*Grus canadensis pratensis*)
Potential foraging habitat for the Florida sandhill crane may exist within the Project's freshwater marshes, wet prairies, and hydric disturbed lands. Preferred sandhill crane habitat includes prairies and shallow marshes dominated by pickerelweed (*Pontedaria cordata*) and maidencane (*Panicum hemitomon*).

Limpkin (*Aramus guarauna*)
Potential habitat for the limpkin on the Project site includes the willow (*Salix* sp.), cypress (*Taxodium distichum*), freshwater marshes, as well as ditches and the edges of the disturbed hydric areas.

Little blue heron (*Egretta caerulea*), Snowy Egret (*Egretta thula*), Tri-Colored Heron (*Egretta tricolor*), and White Ibis (*Eudocimus albus*)
Potential foraging habitat for state-listed wading birds within the Project site includes the forested and herbaceous wetlands, freshwater marshes, as well as ditches and the edges of the hydric disturbed habitats.

Red-cockaded woodpecker (RCW) (*Picoides borealis*)
Potential habitat for the RCW on the Project site includes the pine flatwoods pine-cypress, and hydric pine habitats. The nearest recorded RCW colonies are located approximately 12 miles southwest and 12.5 miles northwest of the property.

Roseate spoonbill (*Ajaia ajaja*)
The Project site does not contain habitat appropriate for nesting for roseate spoonbill. Potential roseate spoonbill foraging habitat within the Project site includes the herbaceous wetlands, as well as ditches and the edges of the hydric disturbed habitats. Almost any wetland depression where fish tend to become concentrated, either through local reproduction by fishes or as a consequence of area drying, may be good for feeding habitat (Rodgers *et al.* 1996).

Southeastern American kestrel (*Falco sparverius paulus*)
Potential foraging habitat for the Southeastern American kestrel on the Project site may exist within the citrus groves, pine flatwoods, mixed hardwood/conifer habitats, and disturbed lands. Since 1980, observations of Southeastern American kestrel in Florida have occurred primarily in sandhill or sandpine scrub areas of North and Central Florida (Rodgers *et al.* 1996).

Wood stork (*Mycteria americana*)
Potential wood stork foraging habitat within the Project site includes the forested and herbaceous wetlands, as well as ditches and the edges of the hydric disturbed habitats. Almost any wetland depression where fish tend to become concentrated, either through local reproduction by fishes or as a consequence of area drying, may be good for feeding habitat (Rodgers *et al.* 1996).

Big Cypress fox squirrel (*Sciurus niger avicennia*)
Potential nesting and foraging habitat for the Big Cypress fox squirrel on the Project site includes the melaleuca, pine flatwoods, mixed hardwood/conifer, cypress, pine-cypress, and hydric pine areas. Dense interiors of mixed cypress-hardwood strands seem to be avoided by fox squirrels (Moler 1992).

Everglades mink (*Neovison vison evergladensis*)
The Everglades mink inhabits Southern Florida and in particular the shallow fresh water marshes of the Everglades and Big Cypress Swamp region. Most sightings and specimens have come from either Collier or Dade County, but the Everglades mink presumably inhabits Northern and Eastern Monroe County as well (Humphrey 1992). The Everglades mink is listed as a protected species by Lee County and could potentially utilize the hydric disturbed and wetland habitats on the Project site.

Florida black bear (*Ursus americanus floridanus*)
Potential habitat for the Florida black bear includes the native upland and wetland forested habitats on the Project site.

Florida bonneted bat (*Eumops floridanus*)
Florida bonneted bats could potentially roost within the forested upland and wetland habitats on the Project site, and/or forage over the herbaceous wetlands and ditches. The Florida bonneted bat is known to occur in cities and forested areas on both the east and west coasts of South Florida from Charlotte County to Palm Beach County (Marks and Marks 2006, Humphrey 1992).

Florida panther (*Puma concolor coryi*)
The Project is located within the panther secondary zone (Kautz *et al.* 2006). Telemetry points from radio-collared panthers have been recorded on the property (Exhibit H). The telemetry points are from Florida panther No. 197 once during April 2012 and Florida panther No. 198 during April and May 2012; August, September, and October of 2013; and April of 2014.

Table 3. Listed Plant Species That Could Potentially Occur within Corkscrew Grove

Common Name	Scientific Name	Designated Status		Potential Location (FLUCFCS Code)
		FDACS	USFWS	
Beautiful Paw-Paw	*Deeringothamus pulchellus*	E	E	4119
Satinleaf	*Chrysophyllum olivaeforme*	T	-	4119, 426
Spiny Hackberry	*Celtis pallida*	-	-	426
Prickly-Apple	*Cereus gracillis*	-	-	426
Iguana Hackberry	*Celtis iguanaea*	-	-	426
Joewood	*Jacquina keyensis*	-	-	426
Fakahatchee Burmannia	*Burmannia flava*	E	-	4119
Twisted Air Plant	*Tillandsia flexuosa*	C	-	426
Florida Coontie	*Zamia pumila*	C	-	4119, 426

FDACS – Florida Department of Agriculture and Consumer Services
USFWS – U.S. Fish and Wildlife Service
E – Endangered
C – Commercially Exploited
T – Threatened

A Lee County protected species survey was conducted on the Project site on the following dates: October 13, 14, 15, 19, and 28; November 3, 17, 18, and 19; December 21, 22, and 28, 2015; and February 10, 2016. Eleven Lee County protected species and/or their signs (i.e., tracks, scat, burrows) were observed during the surveys. The protected species documented on-site include 16 American alligators, an Eastern indigo snake, 12 roseate spoonbills, 8 little blue herons, 2 snowy egrets, 3 tri-colored herons, a Southeastern American kestrel, 71 wood storks, 6 crested caracaras, 4 Big Cypress fox squirrels, and a Florida panther.

A summary of the listed species observed within the Project is provided in Table 4. The locations of the observed listed species or their signs are depicted in Exhibit I.

Table 4. Listed Wildlife Species Observed within Corkscrew Grove

Common Name	Scientific Name	Designated Status		Observed Location (FLUCFCS Code)
		FWCC	USFWS	
Amphibians and Reptiles				
American Alligator	*Alligator mississipiensis*	FT(S/A)	T(S/A)	514
Eastern Indigo Snake	*Drymarchon corais couperi*	FT	T	221
Birds				
Crested Caracara	*Caracara cheriway*	T	T	221
Little Blue Heron	*Egretta caerulea*	SSC	-	514, 7401
Roseate Spoonbill	*Ajaia ajaja*	T	-	514
Snowy Egret	*Egretta thula*	SSC	-	514
Southeastern American Kestrel	*Falco sparverius paulus*	ST	-	221
Tri-Colored Heron	*Egrettta tricolor*	SSC	-	514
Wood Stork	*Mycteria americana*	FE	E	221, 514, 747
Mammals				
Big Cypress Fox Squirrel	*Sciurus niger avicennia*	ST	-	4119
Florida Panther	*Puma concolor coryi*	FE	E	221

FWCC – Florida Fish and Wildlife Conservation Commission
USFWS – U.S. Fish and Wildlife Service
E – Endangered
FE – Federally Endangered
FT(S/A) – Federally Threatened due to similarity of appearance
SSC – Species of Special Concern
ST – State Threatened
T(S/A) – Threatened due to similarity of appearance
*The gopher tortoise is currently listed as a candidate species by the USFWS.
**No longer listed by the FWCC; however, certain protection measures still apply.

SUMMARY

The Project totals 1,460.78± acres and is currently an active citrus grove. Vegetation and land use mapping of the property identified a total of 26 vegetative associations and land uses (i.e., FLUCFCS types) on the property. The dominant land use cover is citrus grove which occupies approximately 80 percent of the Project site. Native remnant and wetland habitats are scattered throughout the orange grove. No rare or unique uplands were identified on the Project site. The site contains 69.32± acres of SFWMD jurisdictional wetlands and 77.20± acres of OSWs. The prominent wetland features on the property are remnant cypress wetlands. Hydrology of the on-

site wetlands has been significantly impacted by the extensive network of ditches that direct surface water to the southern property boundary.

A Lee County protected species survey was conducted on the Project site. Eleven Lee County protected species were documented on the Project site during the survey. The documented protected wildlife species include the American alligator, Eastern indigo snake, roseate spoonbill, little blue heron, snowy egret, tri-colored heron, Southeastern American kestrel, wood stork, crested caracara, Big Cypress fox squirrel, and Florida panther. No listed plant species were identified on-site.

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Marks, C.S. and G.E. Marks. 2006. Bats of Florida. University Press of Florida, Gainesville, Florida.

Moler, P.E. 1992. Rare and Endangered Biota of Florida. Volume III. Amphibians and Reptiles. University Press of Florida, Gainesville, Florida.

Rodgers, J.A, H.W. Kale, and H.T. Smith. 1996. Rare and Endangered Biota of Florida. Volume V. Birds. University Press of Florida, Gainesville, Florida.

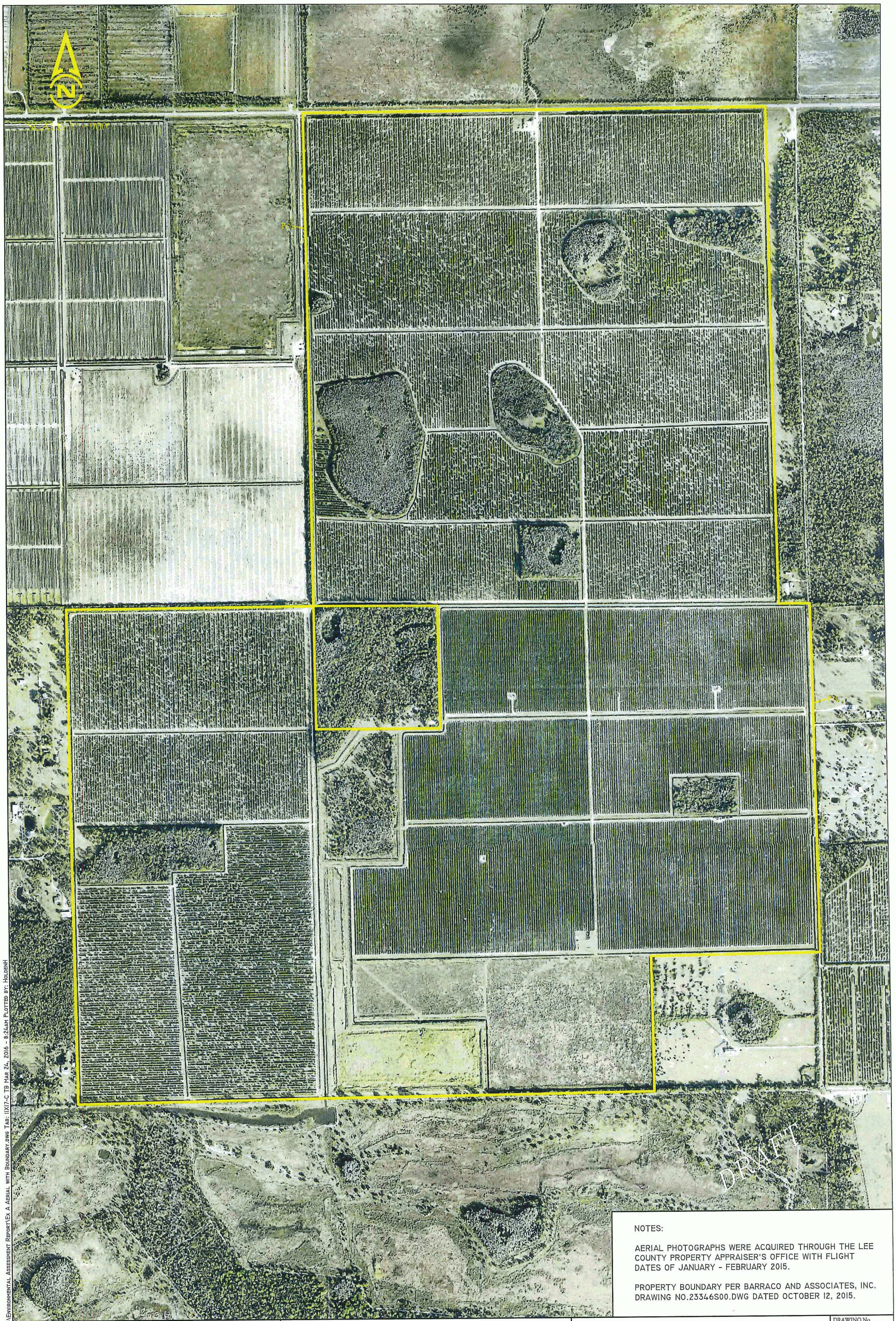
Soils Conservation Service. 1998. Soil Survey of Lee County, Florida.

References (Continued)

Wunderlin, R. P., and B. F. Hansen. 2004. *Atlas of Florida Vascular Plants*. (http://www.plantatlas.usf.edu/).] Institute for Systematic Botany, University of South Florida, Tampa.

EXHIBIT A

AERIAL WITH BOUNDARY



NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH FLIGHT DATES OF JANUARY - FEBRUARY 2015.

PROPERTY BOUNDARY PER BARRACO AND ASSOCIATES, INC. DRAWING NO.23346S00.DWG DATED OCTOBER 12, 2015.

DRAWN BY	T.S.
DATE	1/12/16
REVIEWED BY	C.G.
DATE	1/12/16
REVISED	
DATE	

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Suite 200
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Phone (239) 274-0067
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Consulting Ecologists PASSARELLA & ASSOCIATES INC

CORKSCREW GROVE

AERIAL WITH BOUNDARY

DRAWING No. 15BDG2365

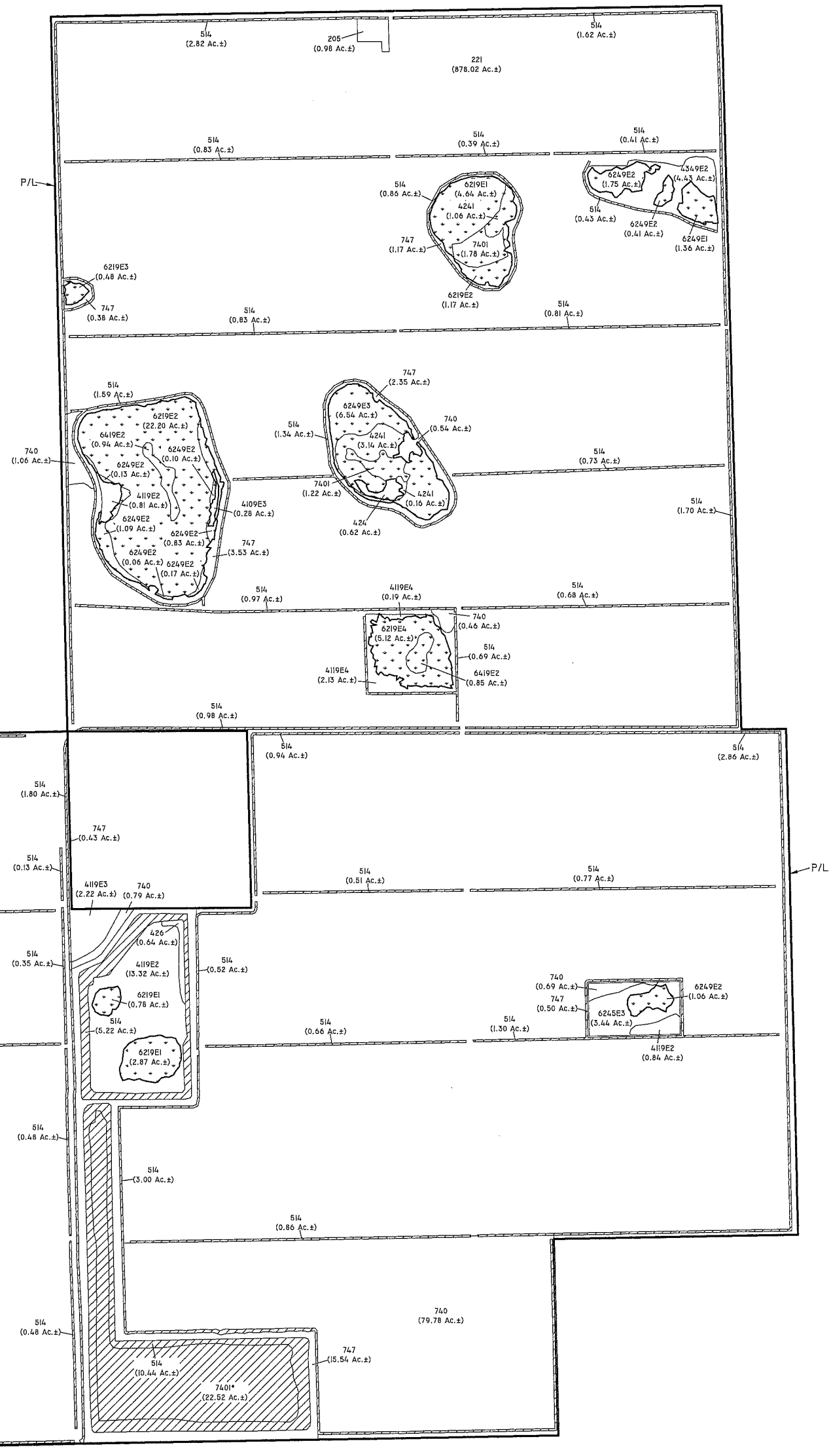
SHEET No. EXHIBIT A

J:\2015\15bdg2365\2016 Environmental Assessment Report\Ex A Aerial with Boundary.dwg Tab: 11X17-C TB Mar 24, 2016 - 8:24am Plotted by: HoldenH

EXHIBIT B

FLUCFCS AND WETLANDS MAP

SCALE: 1" = 900'



LEGEND:

SFWMD WETLANDS (69.32 Ac.±)

SFWMD "OTHER SURFACE WATERS" (77.20 Ac.±)

SURVEYED WETLAND LINE

DRAFT

FLUCFCS CODES	DESCRIPTIONS	ACREAGE	% OF TOTAL
205	AGRICULTURAL SUPPORT OPERATIONS	0.98 Ac.±	0.1%
221	CITRUS GROVE	1166.02 Ac.±	79.8%
4109 E3	UPLAND CONIFEROUS FORESTS, DISTURBED (50-75% EXOTICS)	0.28 Ac.±	0.0%
4119 E2	PINE FLATWOODS, DISTURBED (25-49% EXOTICS)	14.97 Ac.±	1.0%
4119 E3	PINE FLATWOODS, DISTURBED (50-75% EXOTICS)	2.22 Ac.±	0.2%
4119 E4	PINE FLATWOODS, DISTURBED (76-100% EXOTICS)	11.18 Ac.±	0.8%
424	MELALEUCA	0.62 Ac.±	0.0%
4241	MELALEUCA, HYDRIC	4.36 Ac.±	0.3%
426	TROPICAL HARDWOODS	0.64 Ac.±	0.0%
4349 E2	HARDWOOD/CONIFER MIXED, DISTURBED (25-49% EXOTICS)	4.43 Ac.±	0.3%
514*	DITCH	54.68 Ac.±	3.7%
6219 E1	CYPRESS, DISTURBED (0-24% EXOTICS)	8.29 Ac.±	0.6%
6219 E2	CYPRESS, DISTURBED (25-49% EXOTICS)	23.37 Ac.±	1.6%
6219 E3	CYPRESS, DISTURBED (50-75% EXOTICS)	0.48 Ac.±	0.0%
6219 E4	CYPRESS, DISTURBED (76-100% EXOTICS)	12.11 Ac.±	0.8%
6245 E3	CYPRESS/PINE, DISTURBED AND DRAINED (50-75% EXOTICS)	3.44 Ac.±	0.2%
6249 E1	CYPRESS/PINE/CABBAGE PALM, DISTURBED (0-24% EXOTICS)	1.36 Ac.±	0.1%
6249 E2	CYPRESS/PINE/CABBAGE PALM, DISTURBED (25-49% EXOTICS)	5.60 Ac.±	0.4%
6249 E3	CYPRESS/PINE/CABBAGE PALM, DISTURBED (50-75% EXOTICS)	6.54 Ac.±	0.4%
6249 E4	CYPRESS/PINE/CABBAGE PALM, DISTURBED (76-100% EXOTICS)	2.08 Ac.±	0.1%
6419 E1	FRESHWATER MARSH, DISTURBED (0-24% EXOTICS)	0.34 Ac.±	0.0%
6419 E2	FRESHWATER MARSH, DISTURBED (25-49% EXOTICS)	1.79 Ac.±	0.1%
740	DISTURBED LAND	85.56 Ac.±	5.9%
7401*	DISTURBED LAND, OTHER SURFACE WATERS	22.52 Ac.±	1.5%
7401	DISTURBED LAND, HYDRIC	3.00 Ac.±	0.2%
747	BERM	23.90 Ac.±	1.6%
	TOTAL	1460.78 Ac.±	100.0%

NOTES:

PROPERTY BOUNDARY PER BARRACO AND ASSOCIATES, INC. DRAWING NO.23346S00.DWG DATED OCTOBER 12, 2015.

SURVEY WETLAND LINES PER DELISI FITZGERALD, INC. DRAWING No. CORKSCREW GROVES.DWG DATED JANUARY 7, 2016.

FLUCFCS LINES ESTIMATED FROM 1"=200' AERIAL PHOTOGRAPHS AND LOCATIONS APPROXIMATED.

FLUCFCS PER FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) (FDOT 1999).

UPLAND/WETLAND LIMITS HAVE NOT BEEN REVIEWED BY ANY REGULATORY AGENCY AND ARE SUBJECT TO CHANGE.

J:\2015\15bdg2365\2016\ENVIRONMENTAL ASSESSMENT REPORT\EX B-C SFWMD FLUCFCS AND WETLANDS MAP.DWG TAB: EXHIBIT B MAR 24, 2016 - 8:48AM PLOTTED BY: HOLDENH

DRAWN BY	DATE
D.B./T.S.	2/17/16
REVIEWED BY	DATE
C.G.	2/17/16
REVISED	DATE

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Fax (239) 274-0069

PASSARELLA & ASSOCIATES INC
Consulting Ecologists

CORKSCREW GROVE

FLUCFCS AND WETLANDS MAP

DRAWING No. 15BDG2365

SHEET No. EXHIBIT B

EXHIBIT C

AERIAL WITH FLUCFCS AND WETLANDS MAP

FLUCFCS CODES	DESCRIPTIONS	ACREAGE	% OF TOTAL
205	AGRICULTURAL SUPPORT OPERATIONS	0.98 Ac.±	0.1%
221	CITRUS GROVE	1166.02 Ac.±	79.8%
4109 E3	UPLAND CONIFEROUS FORESTS, DISTURBED (50-75% EXOTICS)	0.28 Ac.±	0.0%
4119 E2	PINE FLATWOODS, DISTURBED (25-49% EXOTICS)	14.97 Ac.±	1.0%
4119 E3	PINE FLATWOODS, DISTURBED (50-75% EXOTICS)	2.22 Ac.±	0.2%
4119 E4	PINE FLATWOODS, DISTURBED (76-100% EXOTICS)	11.18 Ac.±	0.8%
424	MELALEUCA	0.62 Ac.±	0.0%
4241	MELALEUCA, HYDRIC	4.36 Ac.±	0.3%
426	TROPICAL HARDWOODS	0.64 Ac.±	0.0%
4349 E2	HARDWOOD/CONIFER MIXED, DISTURBED (25-49% EXOTICS)	4.43 Ac.±	0.3%
514*	DITCH	54.68 Ac.±	3.7%
6219 E1	CYPRESS, DISTURBED (0-24% EXOTICS)	8.29 Ac.±	0.6%
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6219 E4	CYPRESS, DISTURBED (76-100% EXOTICS)	12.11 Ac.±	0.8%
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6249 E1	CYPRESS/PINE/CABBAGE PALM, DISTURBED (0-24% EXOTICS)	1.36 Ac.±	0.1%
6249 E2	CYPRESS/PINE/CABBAGE PALM, DISTURBED (25-49% EXOTICS)	5.60 Ac.±	0.4%
6249 E3	CYPRESS/PINE/CABBAGE PALM, DISTURBED (50-75% EXOTICS)	6.54 Ac.±	0.4%
6249 E4	CYPRESS/PINE/CABBAGE PALM, DISTURBED (76-100% EXOTICS)	2.08 Ac.±	0.1%
6419 E1	FRESHWATER MARSH, DISTURBED (0-24% EXOTICS)	0.34 Ac.±	0.0%
6419 E2	FRESHWATER MARSH, DISTURBED (25-49% EXOTICS)	1.79 Ac.±	0.1%
740	DISTURBED LAND	85.58 Ac.±	5.9%
7401*	DISTURBED LAND, OTHER SURFACE WATERS	22.52 Ac.±	1.5%
7401	DISTURBED LAND, HYDRIC	3.00 Ac.±	0.2%
747	BERM	23.90 Ac.±	1.6%
	TOTAL	1460.78 Ac.±	100.0%

LEGEND:

SFWMD WETLANDS (69.32 Ac.±)

SFWMD "OTHER SURFACE WATERS" (77.20 Ac.±)

SURVEYED WETLAND LINE

DRAFT

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH FLIGHT DATES OF JANUARY - FEBRUARY 2015.

PROPERTY BOUNDARY PER BARRACO AND ASSOCIATES, INC. DRAWING NO.23346S00.DWG DATED OCTOBER 12, 2015.

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FLUCFCS PER FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) (FDOT 1999).

UPLAND/WETLAND LIMITS HAVE NOT BEEN REVIEWED BY ANY REGULATORY AGENCY AND ARE SUBJECT TO CHANGE.

DRAWN BY	DATE
D.B./T.S.	2/17/16
REVIEWED BY	DATE
C.G.	2/17/16
REVISED	DATE

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PASSARELLA & ASSOCIATES INC
Consulting Ecologists

CORKSCREW GROVE

AERIAL WITH FLUCFCS AND WETLANDS MAP

DRAWING No. 15BDG2365

SHEET No. EXHIBIT C

J:\2015\15bdg2365\2016 ENVIRONMENTAL ASSESSMENT REPORT\Ex B-C SFWMD FLUCFCS AND WETLANDS MAP.DWG TAB: EXHIBIT C MAR 24, 2016 - 8:48AM PLOTTED BY: HOLDENH

EXHIBIT D

EXISTING LAND USE AND COVER SUMMARY TABLE AND FLUCFCS DESCRIPTIONS

CORKSCREW GROVE
EXISTING LAND USE AND COVER SUMMARY TABLE
AND FLUCFCS DESCRIPTIONS

The following table summarizes the Florida Land Use, Cover and Forms Classification System (FLUCFCS) codes and provides an acreage breakdown of the habitat types found on Corkscrew Groves (Project), while a description of each of the FLUCFCS classifications follows.

Table 1. Existing Land Use and Cover Summary

FLUCFCS Code	Description	Acreage	Percent of Total
205	Agricultural Support Operations	0.98	0.1
221	Citrus Grove	1,166.02	79.8
4109 E3	Upland Coniferous Forests, Disturbed (50-75% Exotics)	0.28	<0.1
4119 E2	Pine Flatwoods, Disturbed (25-49% Exotics)	14.97	1.0
4119 E3	Pine Flatwoods, Disturbed (50-75% Exotics)	2.22	0.2
4119 E4	Pine Flatwoods, Disturbed (76-100% Exotics)	11.18	0.8
424	Melaleuca	0.62	<0.1
4241	Melaleuca, Hydric	4.36	0.3
426	Tropical Hardwoods	0.64	<0.1
4349 E2	Hardwood/Conifer Mixed, Disturbed (25-49% Exotics)	4.43	0.3
514*	Ditch	54.68	3.7
6219 E1	Cypress, Disturbed (0-24% Exotics)	8.29	0.6
6219 E2	Cypress, Disturbed (25-49% Exotics)	23.37	1.6
6219 E3	Cypress, Disturbed (50-75% Exotics)	0.48	<0.1
6219 E4	Cypress, Disturbed (76-100% Exotics)	12.11	0.8
6245 E3	Cypress/Pine, Disturbed and Drained (50-75% Exotics)	3.44	0.2
6249 E1	Cypress/Pine/Cabbage Palm, Disturbed (0-25% Exotics)	1.36	0.1
6249 E2	Cypress/Pine/Cabbage Palm, Disturbed (25-49% Exotics)	5.60	0.4
6249 E3	Cypress/Pine/Cabbage Palm, Disturbed (50-75% Exotics)	6.54	0.4
6249 E4	Cypress/Pine/Cabbage Palm, Disturbed (76-100% Exotics)	2.08	0.1
6419 E1	Freshwater Marsh, Disturbed (0-24% Exotics)	0.34	<0.1
6419 E2	Freshwater Marsh, Disturbed (25-49% Exotics)	1.79	0.1
740	Disturbed Land	85.58	5.9
7401*	Disturbed Land, Other Surface Waters	22.52	1.5
7401	Disturbed Land, Hydric	3.00	0.2
747	Berm	23.90	1.6
	TOTAL	**1,460.78**	**100.0**

*Denotes "other surface waters"

Agricultural Support Operations (FLUCFCS Code 205)
This upland area occupies 0.98± acre or 0.1 percent of the property and is cleared of vegetation and is used as a staging and preparation area for the surrounding agriculture operations.

Citrus Grove (FLUCFCS Code 221)
This upland community type occupies 1,166.02± acres or 79.8 percent of the property. The canopy contains citrus trees. The sub-canopy is open. The ground cover is dominated by bahiagrass (*Paspalum notatum*) with crowfoot grass (*Dactyloctenium aegyptium*), natalgrass (*Rhynchelytrum repens*), and Southern sandspur (*Cenchrus echinatus*).

Upland Coniferous Forests, Disturbed (50-75% Exotics) (FLUCFCS Code 4109 E3)
This upland community occupies 0.28± acre or less than 0.1 percent of the property. The vegetation of this upland community consists of primarily slash pine (*Pinus elliottii*) with 50 to 75 percent melaleuca (*Melaleuca quinquenervia*), earleaf acacia (*Acacia auriculiformis*), and/or Brazilian pepper (*Schinus terebinthifolius*) in the canopy and sub-canopy.

Pine Flatwoods, Disturbed (25-49% Exotics) (FLUCFCS Code 4119 E2)
This upland community occupies 14.16± acres or 1.0 percent of the property. The canopy of this upland habitat contains slash pine, laurel oak (*Quercus laurifolia*), earleaf acacia, cabbage palm (*Sabal palmetto*), ficus (*Ficus* sp.), and melaleuca. The sub-canopy contains Brazilian pepper, Southern bayberry (*Morella cerifera*), earleaf acacia, and slash pine. The ground cover includes muscadine (*Vitis rotundifolia*), laurel oak, cabbage palm, Virginia creeper (*Parthenocissus quinquefolia*), earleaf greenbrier (*Smilax auriculata*), saw palmetto (*Serenoa repens*), caesarweed (*Urena lobata*), and cocoplum (*Chrysobalanus icaco*).

Pine Flatwoods, Disturbed (50-75% Exotics) (FLUCFCS Code 4119 E3)
This upland community occupies 2.22± acres or 0.2 percent of the property. The vegetation composition of this upland community is similar to FLUCFCS Code 4119 E2, but contains 50 to 75 percent melaleuca, earleaf acacia, and/or Brazilian pepper in the canopy and sub-canopy.

Pine Flatwoods, Disturbed (76-100% Exotics) (FLUCFCS Code 4119 E4)
This upland community occupies 11.18± acres or 0.8 percent of the property. The vegetation composition of this upland community is similar to FLUCFCS Code 4119 E2, but contains 76 to 100 percent melaleuca, earleaf acacia, and/or Brazilian pepper in the canopy and sub-canopy.

Melaleuca (FLUCFCS Code 424)
This community occupies 0.62± acre or less than 0.1 percent of the property. The canopy and sub-canopy of this upland area are dominated by melaleuca. The ground cover contains smutgrass (*Sporobolus indicus*), rusty flat sedge (*Cyperus odoratus*), and caesarweed.

Melaleuca, Hydric (FLUCFCS Code 4241)
This wetland community occupies 4.36± acres or 0.3 percent of the property. The canopy of this wetland area is dominated by melaleuca with scattered slash pine. The sub-canopy contains melaleuca with scattered Brazilian pepper. The ground cover contains swamp fern (*Blechnum serrulatum*), sensitive fern (*Mimosa pudica*), caesarweed, and muscadine.

Tropical Hardwoods (FLUCFCS Code 426)
This upland community occupies 0.64± acre or less than 0.1 percent of the property. The canopy of this forest type is dominated by eucalyptus (*Eucalyptus* sp.). The sub-canopy consists of scattered slash pine and cabbage palm. The ground cover is dog fennel (*Eupatorium capillifolium*), caesarweed, Virginia creeper, balsam apple (*Momordica charantia*), marsh brittle grass (*Setaria parviflora*), pennywort (*Hydrocotyle umbellata*), zarzabacoa-comun (*Desmodium incanum*), sensitive fern, pinewoods finger grass (*Eustachys petraea*), bushy bluestem (*Andropogan glomeratus*), bahiagrass, and beggarticks (*Bidens alba*).

Hardwood/Conifer Mixed, Disturbed (25-49% Exotics) (FLUCFCS Code 4349 E2)
This forested area comprises 4.43± acres or 0.3 percent of the property. The canopy of this area is such that neither upland conifers nor hardwoods achieve a 66 percent crown canopy dominance, and contains 25 to 49 percent melaleuca, earleaf acacia, and/or Brazilian pepper in the canopy and sub-canopy.

Ditch (FLUCFCS Code 514*)
This open area occupies 54.68± acres or 3.7 percent of the property. The canopy of this open water area is open. The sub-canopy contains scattered Brazilian pepper. The ground cover includes cattail (*Typha latifolia*), Mexican primrose-willow (*Ludwigia octovalvis*), marsh pennywort (*Hydrocotyle vulgaris*), Asiatic pennywort (*Centella asiatica*), dayflower (*Commelina diffusa*), torpedograss (*Panicum repens*), and West Indian marsh grass (*Hymenache amplexicaulis*).

Cypress, Disturbed (0-24% Exotics) (FLUCFCS Code 6219 E1)
This wetland community occupies 8.29± acres or 0.6 percent of the property. The canopy of this wetland habitat contains bald cypress (*Taxodium distichum*) and cabbage palm. The sub-canopy consists of Brazilian pepper, cabbage palm, and Southern bayberry. The ground cover includes caesarweed, pennywort, and swamp fern. The canopy and sub-canopy contains 0 to 24 percent Brazilian pepper and/or melaleuca.

Cypress, Disturbed (25-49% Exotics) (FLUCFCS Code 6219 E2)
This wetland community occupies 23.37± acres or 1.6 percent of the property. The vegetation composition of this wetland community is similar to FLUCFCS Code 6219 E1 but contains 25 to 49 percent Brazilian pepper and/or melaleuca in the canopy and sub-canopy.

Cypress, Disturbed (50-75% Exotics) (FLUCFCS Code 6219 E3)
This wetland community occupies 0.48± acre or less than 0.1 percent of the property. The vegetation composition of this wetland community is similar to FLUCFCS Code 6219 E1 but contains 50 to 75 percent Brazilian pepper and/or melaleuca in the canopy and sub-canopy.

Cypress, Disturbed (76-100% Exotics) (FLUCFCS Code 6219 E4)
This wetland community occupies 12.11± acres or 0.8 percent of the property. The vegetation composition of this wetland community is similar to FLUCFCS Code 6219 E1 but contains 76 to 100 percent Brazilian pepper and/or melaleuca in the canopy and sub-canopy.

Cypress/Pine/Cabbage Palm, Disturbed and Drained (50-75% Exotics) (FLUCFCS Code 6245 E3)
This wetland community occupies 3.44± acres or 0.2 percent of the property. The canopy of this wetland habitat consists of slash pine, bald cypress, laurel oak, and scattered cabbage palm. The sub-canopy consists of bald cypress, cabbage palm, Brazilian pepper, and pond-apple (*Annona glabra*). The ground cover consists primarily of swamp fern. This community contains 76 to 100 percent melaleuca and/or Brazilian pepper in the canopy and sub-canopy, and is void of its natural hydrological features.

Cypress/Pine/Cabbage Palm, Disturbed (0-24% Exotics) (FLUCFCS Code 6249 E1)
This wetland community occupies 1.36± acres or 0.1 percent of the property. The vegetation composition of this wetland community is similar to FLUCFCS Code 6245, but it retains its natural hydrological features. This area contains up to 24 percent Brazilian pepper and/or melaleuca in the canopy and sub-canopy.

Cypress/Pine/Cabbage Palm, Disturbed (25-49% Exotics) (FLUCFCS Code 6249 E2)
This wetland community occupies 5.60± acres or 0.4 percent of the property. The vegetation composition of this wetland community is similar to FLUCFCS Code 6249 E1 with 25 to 49 percent Brazilian pepper in the canopy and sub-canopy.

Cypress/Pine/Cabbage Palm, Disturbed (50-75% Exotics) (FLUCFCS Code 6249 E3)
This wetland community occupies 6.54± acres or 0.4 percent of the property. The vegetation composition of this wetland community is similar to FLUCFCS Code 6249 E1 with 50 to 75 percent Brazilian pepper in the canopy and sub-canopy.

Cypress/Pine/Cabbage Palm, Disturbed (50-75% Exotics) (FLUCFCS Code 6249 E4)
This wetland community occupies 2.08± acres or 0.1 percent of the property. The vegetation composition of this wetland community is similar to FLUCFCS Code 6249 E1 with 76 to 100 percent Brazilian pepper in the canopy and sub-canopy.

Freshwater Marsh, Disturbed (0-24% Exotics) (FLUCFCS Code 6419 E1)
This wetland community occupies 0.34± acre or less than 0.1 percent of the property. The canopy and sub-canopy of this wetland habitat is typically open, with scattered Carolina willow (*Salix caroliniana*). The ground cover includes fireflag (*Thalia geniculata*). This area contains 0 to 24 percent coverage by melaleuca, torpedograss, and/or cattail.

Freshwater Marsh, Disturbed (25-49% Exotics) (FLUCFCS Code 6419 E2)
This wetland community occupies 1.79± acres or 0.1 percent of the property. The vegetation composition of this wetland community is similar to FLUCFCS Code 6419 E1 with 25 to 49 percent coverage by melaleuca, torpedograss, and/or cattail.

Disturbed Land (FLUCFCS Code 740)
This upland community occupies 85.58± acres or 5.9 percent of the property. The canopy and sub-canopy of this upland area are open. The ground cover includes smut grass and Peruvian primrose-willow (*Ludwigia peruviana*).

Disturbed Land, Other Surface Waters (FLUCFCS Code 7401*)

This wetland community occupies 22.52± acres or 1.5 percent of the property. It is classified as "other surface waters", and is periodically flooded due to farming and drainage operations on the property. The ground cover includes Mexican primrose-willow, caesarweed, willow, sawgrass (*Cladium jamaicense*), cattail, mangrove flat sedge (*Cyperus ligularis*), cogongrass (*Imperata cylindrica*), water lettuce (*Pistia stratiotes*), and paragrass (*Urochloa mutica*), Southern beak sedge (*Rhynchospora microcarpa)*, yellow-eyed grass (*Xyris* sp.), torpedograss, smutgrass, marsh bristlegrass (*Setaria parviflora*), marsh pennywort, rosy camphorweed (*Pluchea rosea*), dayflower, and buttonweed (*Diodia virginiana*).

Disturbed Land, Hydric (FLUCFCS Code 7401)

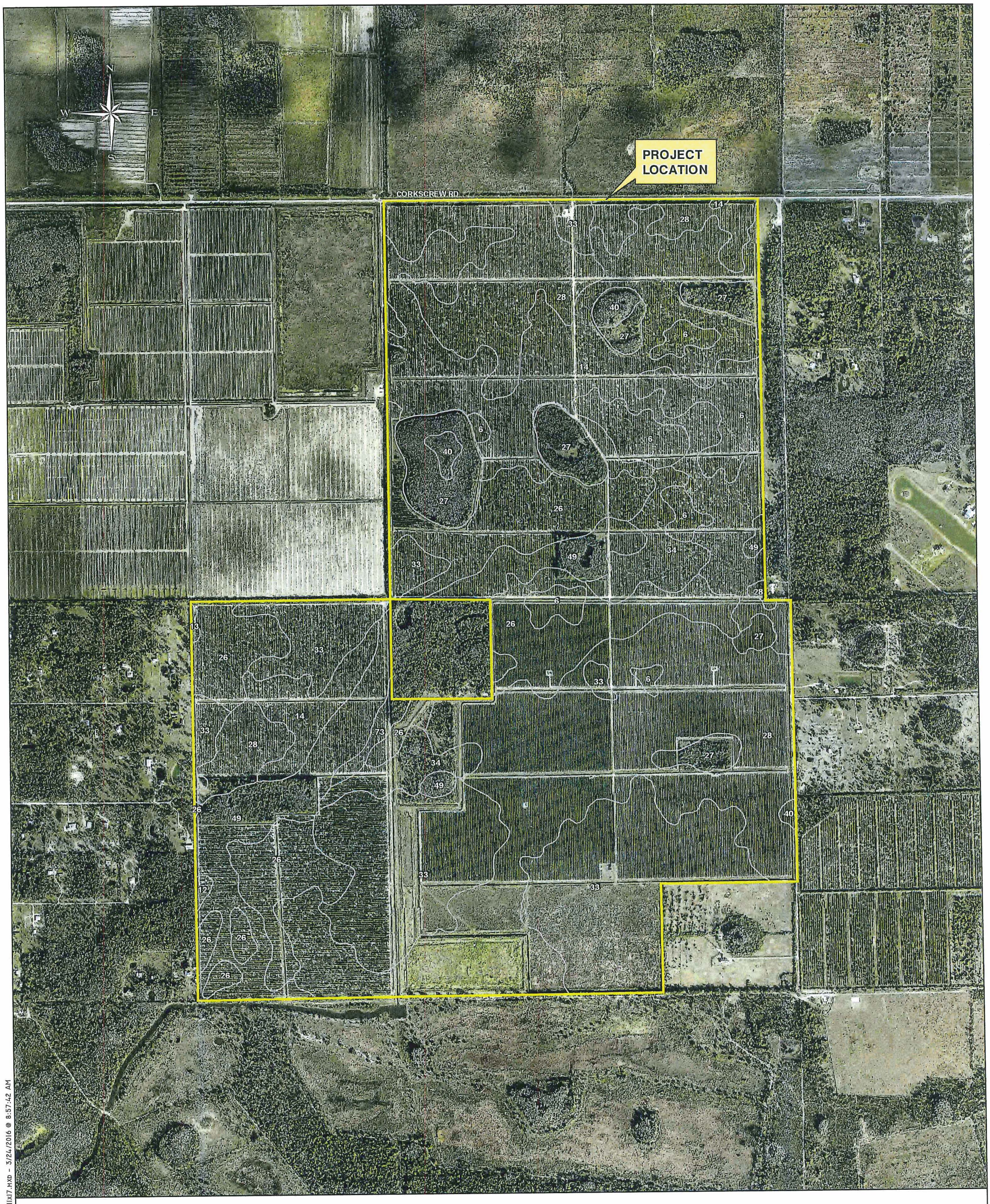
This wetland community occupies 3.00± acres or 0.2 percent of the property. The vegetation of this area is similar to FLUCFCS 7401*, except with a canopy of scattered melaleuca, with scattered Carolina willow in the sub-canopy.

Berm (FLUCFCS Code 747)

This upland community occupies 24.71± acres or 1.7 percent of the property. The canopy of this upland area is open. The sub-canopy consists of Brazilian pepper, slash pine, and earleaf acacia. The ground cover contains caesarweed, Brazilian pepper, Virginia creeper, saw palmetto, crowfoot grass, beggar ticks, Southern sandspur, maidencane (*Panicum hemitomon*), ragweed (*Ambrosia artemisiifolia*), panicum (*Panicum* sp.), and smutgrass.

EXHIBIT E

SOILS MAP



Soil Unit	Description
6	HALLANDALE FINE SAND
12	FELDA FINE SAND
13	BOCA FINE SAND
14	VALKARIA FINE SAND
26	PINEDA FINE SAND
27	POMPANO FINE SAND, DEPRESSIONAL
28	IMMOKALEE SAND
33	OLDSMAR SAND
34	MALABAR FINE SAND
40	ANCLOTE SAND, DEPRESSIONAL
49	FELDA FINE SAND, DEPRESSIONAL
73	PINEDA FINE SAND, DEPRESSIONAL

LEGEND

CORKSCREW GROVE

DRAFT

0 1,000 2,000

Feet

NOTES:

ROADWAY NETWORKS WERE ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

SOILS MAPPING WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE OCTOBER 2007 AND CREATED BY THE NATURAL RESOURCES CONSERVATION SERVICE 1990.

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH FLIGHT DATES OF JANUARY - FEBRUARY 2015.

DRAWN BY	T.S.
DATE	12/11/15
REVIEWED BY	T.D.
DATE	12/11/15
REVISED	
DATE	

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PASSARELLA & ASSOCIATES INC
Consulting Ecologists

CORKSCREW GROVE

SOILS MAP

DRAWING No. 15BDG2365

SHEET No. EXHIBIT E

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EXHIBIT F

SOILS SUMMARY TABLE AND DESCRIPTIONS

CORKSCREW GROVE
SOILS SUMMARY TABLE AND DESCRIPTIONS

Table 1. Soils Listed by the Natural Resource Conservation Service on the Project

Mapping Unit	Description
6	Hallandale Fine Sand
12	Felda Fine Sand
13	Boca Fine Sand
14	Valkaria Fine Sand
26	Pineda Fine Sand
27	Pompano Fine Sand, Depressional
28	Immokalee Sand
33	Oldsmar Sand
34	Malabar Fine Sand
40	Anclote Sand, Depressional
49	Felda Fine Sand, Depressional
73	Pineda Fine Sand, Depressional

6 – Hallandale Fine Sand

This is a nearly level, poorly drained soil on low, broad flatwoods areas. Slopes are smooth and range from 0 to 2 percent. Typically, the surface layer is gray fine sand about two inches thick. The subsurface layer is light gray fine sand about 5 inches thick. The substratum is very pale brown fine sand about 5 inches thick. At a depth of 12 inches is fractured limestone bedrock that has solution holes extending to a depth of 25 inches. These solution holes contain mildly alkaline, loamy material. In most years, under natural conditions, the water table is less than 10 inches below the surface for 1 to 3 months. It recedes below the limestone for about 7 months.

12 – Felda Fine Sand

This is a nearly level, poorly drained soil on broad, nearly level sloughs. Slopes are smooth to concave and range from 0 to 2 percent. Typically, the surface layer is dark gray fine sand about 8 inches thick. The subsurface layer is light gray and light brownish gray fine sand about 14 inches thick. The subsoil is light gray loamy fine sand about 16 inches thick and is underlain by gray and light gray fine sand that extends to a depth of 80 inches or more. In most years, under natural conditions, the soil has a water table within 10 inches of the surface for 2 to 4 months. The water table is 10 to 40 inches below the surface for about 6 months. It is more than 40 inches below the surface for about 2 months. During periods of high rainfall, the soil is covered by a shallow layer of slowly moving water for periods of about 7 to 30 days or more.

13 – Boca Fine Sand

This is a nearly level, poorly drained soil on flatwoods. Slopes are smooth and range from 0 to 2 percent. Typically, the surface layer is gray fine sand about 3 inches thick. The subsurface layer is fine sand about 22 inches thick. The upper 11 inches is light gray and the lower 11 inches is very pale brown. The subsoil, about 5 inches thick, is gray fine sandy loam with brownish yellow mottles and calcareous nodules. At a depth of 30 inches is a layer of fractured limestone.

In most years, under natural conditions, the water table is within 10 inches of the surface for 2 to 4 months. It recedes below the limestone for about 6 months.

14 – Valkaria Fine Sand

This is a nearly level, poorly drained soil on sloughs. Slopes are smooth to concave and range from 0 to 1 percent. Typically, the surface layer is about 2 inches of dark grayish brown fine sand. The subsurface layer is 5 inches of very pale brown fine sand. The subsoil is loose fine sand to a depth of 80 inches or more. The upper 9 inches is yellow, the next 4 inches is brownish yellow, the next 6 inches is yellowish brown, and the lowermost 54 inches is pale yellow, yellow, brown, and very pale brown. In most years, under natural conditions, the water table is at a depth of less than 10 inches for 1 to 3 months. It is at a depth of 10 to 40 inches for about 6 months and recedes to a depth of more than 40 inches for about 3 months. During periods of high rainfall, the soil is covered by slowly moving water for periods of about 7 to 30 days or more.

26 – Pineda Fine Sand

This is a nearly level, poorly drained soil on sloughs. Slopes are smooth to slightly concave and range from 0 to 1 percent. Typically, the surface layer is black fine sand about 1 inch thick. The subsurface layer is very pale brown fine sand about 4 inches thick. The upper part of the subsoil is brownish yellow fine sand about 8 inches thick. The next 10 inches is strong brown fine sand. The next 6 inches is yellowish brown fine sand. The next 7 inches is light gray fine sand with brownish yellow mottles. The lower part of the subsoil is light brownish gray fine sandy loam with light gray sandy intrusions about 18 inches thick. The substratum is light gray fine sand to a depth of 80 inches or more. In most years, under natural conditions, the water table is within 10 inches of the surface for 2 to 4 months. It is 10 to 40 inches below the surface for more than 6 months, and it recedes to more than 40 inches below the surface during extended dry periods. During periods of high rainfall, the soil is covered by a shallow layer of slowly moving water for periods of about 7 to 30 days or more.

27 – Pompano Fine Sand, Depressional

This is a nearly level, poorly drained soil in depressions. Slopes are concave and less than 1 percent. Typically, the surface layer is gray fine sand about 3 inches thick. The substratum is fine sand to a depth of 80 inches or more. The upper 32 inches is light brownish gray with few, fine, faint yellowish brown mottles. The lower 45 inches is light gray. In most years, under natural conditions, the water table is within 10 inches of the surface for 2 to 4 months and stands above the surface for about 3 months. It is 10 to 40 inches below the surface for more than 5 months.

28 – Immokalee Sand

This is a nearly level, poorly drained soil in flatwoods areas. Slopes are smooth to convex and range from 0 to 2 percent. Typically, the surface layer is black sand about 4 inches thick. The subsurface layer is dark gray sand in the upper 5 inches and light gray sand in the lower 27 inches. The subsoil is sand to a depth of 69 inches. The upper 14 inches is black and firm, the next 5 inches is dark reddish brown, and the lower 14 inches is dark yellowish brown. The substratum is very pale brown sand to a depth of 80 inches or more. In most years, under natural conditions, the water table is within 10 inches of the surface for 1 to 3 months and 10 to 40

inches below the surface for 2 to 6 months. It recedes to a depth of more than 40 inches during extended dry periods.

33 – Oldsmar Sand

This is a nearly level, poorly drained soil on low, broad flatwoods areas. Slopes are smooth to slightly convex and range from 0 to 2 percent. Typically, the surface layer is black sand about 3 inches thick. The subsurface layer is gray and light gray sand about 39 inches thick. The upper part of the subsoil is very dark gray sand about 5 inches thick. The lower part of the subsoil is yellowish brown and mixed light brownish gray and brown fine sandy loam about 11 inches thick. Pale brown sand extends to a depth of 80 inches or more. In most years, under natural conditions, the water table is at a depth of less than 10 inches for 1 to 3 months. It is at a depth of 10 to 40 inches for more than 6 months, and it recedes to a depth of more than 40 inches during extended dry periods.

34 – Malabar Fine Sand

This is a nearly level, poorly drained soil on sloughs. Slopes are smooth to concave and range from 0 to 1 percent. Typically, the surface layer is dark gray fine sand about 5 inches thick. The next 12 inches is light gray and very pale brown fine sand. Below this is a 16-inch layer of light yellowish brown fine sand with yellow mottles and a 9-inch layer of brownish yellow fine sand. The subsoil layer is gray loamy fine sand about 9 inches thick with large yellowish brown mottles. The next 8 inches is gray fine sandy loam with large brownish yellow mottles. Below is light gray loamy fine sand with yellowish brown mottles to a depth of 80 inches or more. In most years, under natural conditions, the water table is at a depth of less than 10 inches for 2 to 4 months. It is at a depth of 10 to 40 inches for more than 6 months, and it recedes to a depth of more than 40 inches during extended dry periods. During periods of high rainfall, the soil is covered by a shallow layer of slowly moving water for periods of about 7 to 30 days or more.

40 – Anclote Sand, Depressional

This is a nearly level, very poorly drained soil in isolated depressions. Slopes are smooth to concave and less than 1 percent. Typically, the surface layer is about 22 inches thick. The upper 8 inches is black sand, and the lower 14 inches is black sand with common light gray pockets and streaks throughout. The substratum is sand to a depth of 80 inches or more. The upper 18 inches is light brownish gray, and the lower 40 inches is light gray. Included with this soil in mapping are small areas of Pompano and Floridana soils. Included soils make up about 10 to 15 percent of any mapped area. In most years, under natural conditions, the soil is ponded for more than 6 months.

49 – Felda Fine Sand, Depressional

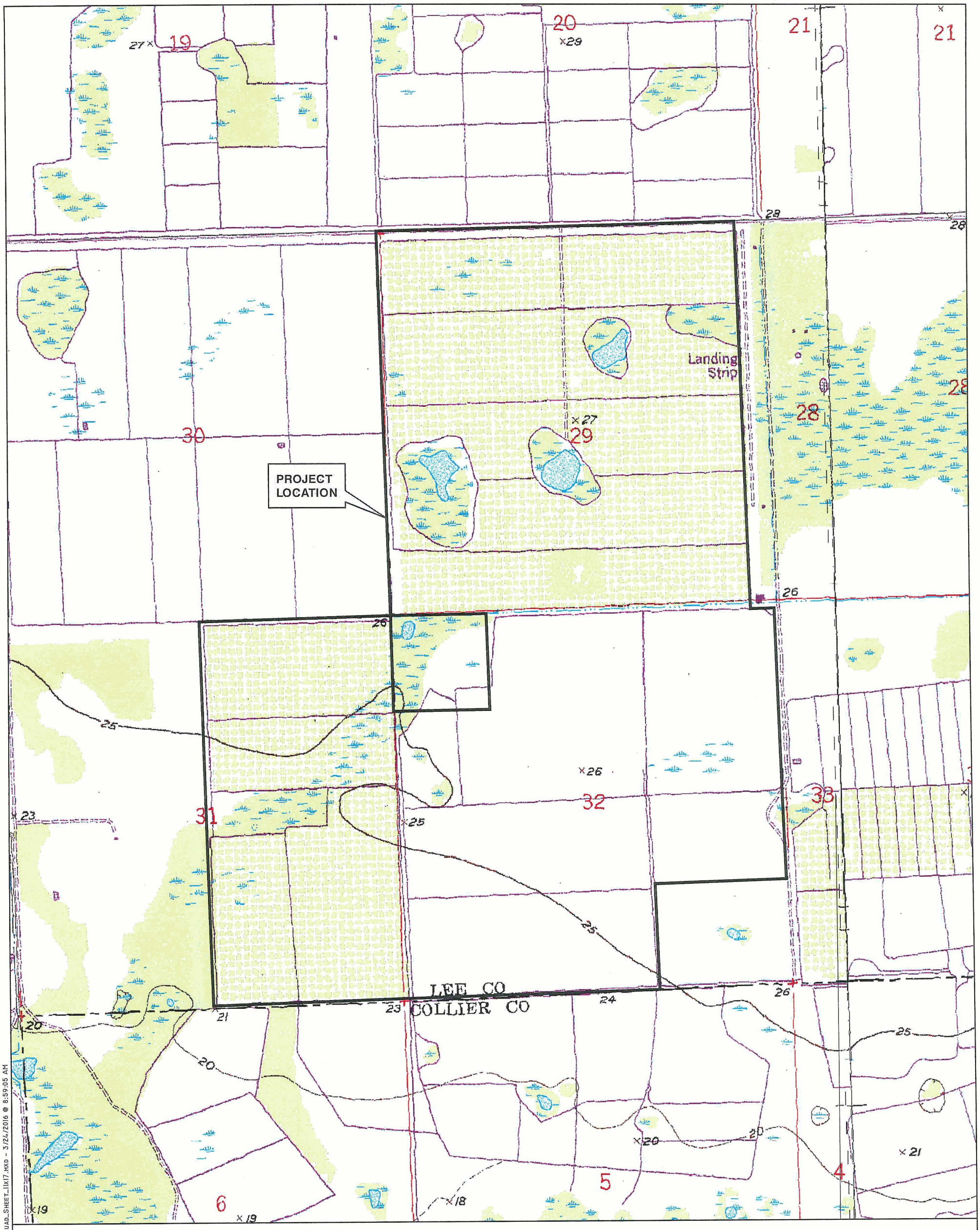
This is a nearly level, poorly drained soil in depressions. Slopes are concave and less than 1 percent. Typically, the surface layer is gray fine sand about 4 inches thick. The subsurface layers extend to a depth of 35 inches. The upper 13 inches is grayish brown fine sand and the lower 18 inches is light gray fine sand with yellowish brown mottles. The subsoil is about 17 inches thick. The upper 6 inches is gray sandy loam and the lower 11 inches is sandy clay loam with many yellowish brown and strong brown mottles. Below this is light gray fine sand to a depth of 80 inches or more. In most years, under natural conditions, the soil is ponded for about 3 to 6 months or more. The water table is within a depth of 10 to 40 inches for 4 to 6 months.

73 – Pineda Fine Sand, Depressional

This is a nearly level, very poorly drained soil in depressions. Slopes are concave and less than 1 percent. Typically, the surface layer is dark gray fine sand about 3 inches thick. The subsurface layer is fine sand to a depth of 31 inches. The upper 9 inches is light gray, the next 7 inches is very pale brown with yellowish brown mottles, and the lower 12 inches is brownish yellow with many iron-coated sand grains. The subsoil is fine sandy loam to a depth of 55 inches. The upper 8 inches is gray with very pale brown sandy intrusions and yellowish brown mottles. The lower 16 inches is gray. Below that and extending to a depth of 80 inches is light gray loamy sand. In most years, under natural conditions, the soil is ponded for about 3 to 6 months or more. The water table is within a depth of 10 to 40 inches for 4 to 6 months.

EXHIBIT G

QUAD SHEET



LEGEND

CORKSCREW GROVES

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NOTES:

COUNTY INFORMATION AND ROADWAY NETWORKS WERE ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

DIGITAL RASTER GRAPHIC USGS TOPOGRAPHIC QUADRANGLES WERE ACQUIRED FROM THE LAND BOUNDARY INFORMATION SYSTEM (LABINS) WEBSITE JULY 2007.

DRAWN BY	DATE
T.S.	1/25/16
REVIEWED BY	DATE
C.G.	1/25/16
REVISED	DATE

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Fort Myers, Florida 33912
Phone (239) 274-0067
Fax (239) 274-0069

PASSARELLA & ASSOCIATES, LLC
Consulting Ecologists

CORKSCREW GROVE
QUAD SHEET

DRAWING No. 15BDG2365

SHEET No. EXHIBIT G

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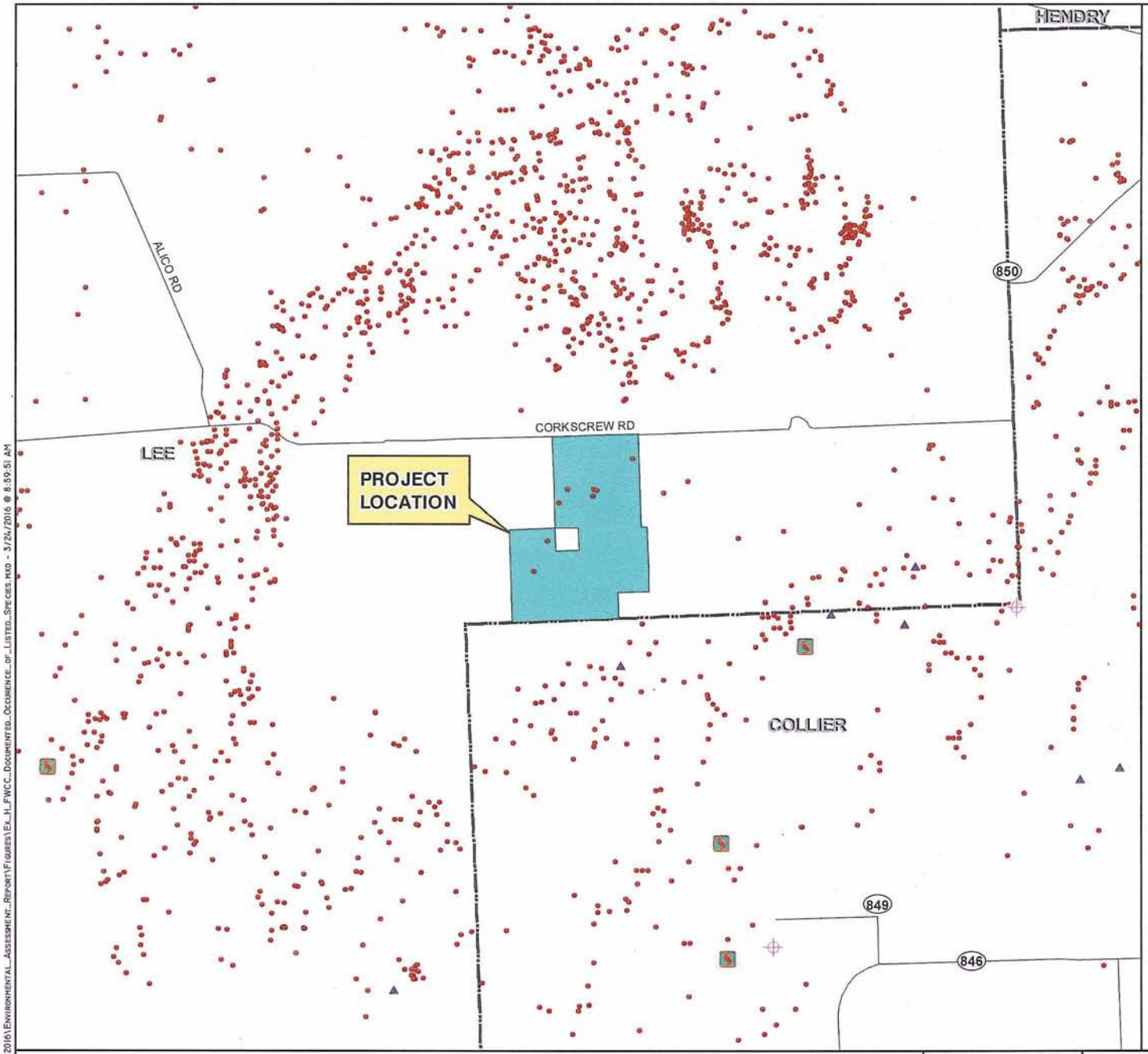
EXHIBIT H

DOCUMENTED OCCURRENCES OF LISTED SPECIES



LEGEND

- CORKSCREW GROVES
- BALD EAGLE NEST
- FLORIDA PANTHER TELEMETRY
- FWCC BLACK BEAR LOCATIONS
- FWCC WADING BIRD LOCATIONS

N
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DRAFT

NOTES:

EAGLE NEST LOCATIONS WERE ACQUIRED FROM THE FWCC AUGUST 2015.

BLACK BEAR LOCATIONS WERE ACQUIRED FROM THE FWCC AUGUST 2015 AND IS CURRENT TO 2007.

PANTHER TELEMETRY WAS ACQUIRED FROM THE FWCC SEPTEMBER 2015 AND IS CURRENT TO JUNE 2015.

WADING BIRD ROOKERIES WERE ACQUIRED FROM THE FWCC AUGUST 2015 AND ARE CURRENT TO 1999.

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EXHIBIT H. DOCUMENTED OCCURRENCES OF LISTED SPECIES
CORKSCREW GROVE

DRAWN BY	DATE
H.H.	3/1/16
REVIEWED BY	DATE
C.G.	3/1/16
REVISED	DATE

Consulting Ecologists
PASSARELLA & ASSOCIATES INC

EXHIBIT I

AERIAL WITH FLUCFCS, WETLANDS, SURVEY TRANSECTS, AND SPECIES LOCATION MAP

LEGEND:

- SFWMD WETLANDS (69.32 Ac.±)
- SFWMD "OTHER SURFACE WATERS" (77.20 Ac.±)
- SURVEYED WETLAND LINE
- APPROXIMATE LOCATION OF WALKED TRANSECTS
- AA AMERICAN ALLIGATOR
- BCFS BIG CYPRESS FOX SQUIRREL
- CC CRESTED CARACARA
- EIS EASTERN INDIGO SNAKE
- FP FLORIDA PANTHER
- ICC IMMATURE CRESTED CARACARA
- KE KESTREL
- LBH LITTLE BLUE HERON
- PT PANTHER TRACKS
- RS ROSEATE SPOONBILL
- SE SNOWY EGRET
- TH TRICOLORED HERON
- WS WOOD STORK

FLUCFCS CODES	DESCRIPTIONS	ACREAGE	% OF TOTAL
205	AGRICULTURAL SUPPORT OPERATIONS	0.98 Ac.±	0.1%
221	CITRUS GROVE	1166.02 Ac.±	79.8%
4109 E3	UPLAND CONIFEROUS FORESTS, DISTURBED (50-75% EXOTICS)	0.28 Ac.±	0.0%
4119 E2	PINE FLATWOODS, DISTURBED (25-49% EXOTICS)	14.97 Ac.±	1.0%
4119 E3	PINE FLATWOODS, DISTURBED (50-75% EXOTICS)	2.22 Ac.±	0.2%
4119 E4	PINE FLATWOODS, DISTURBED (76-100% EXOTICS)	11.18 Ac.±	0.8%
424	MELALEUCA	0.62 Ac.±	0.0%
4241	MELALEUCA, HYDRIC	4.36 Ac.±	0.3%
426	TROPICAL HARDWOODS	0.64 Ac.±	0.0%
4349 E2	HARDWOOD/CONIFER MIXED, DISTURBED (25-49% EXOTICS)	4.43 Ac.±	0.3%
514*	DITCH	54.68 Ac.±	3.7%
6219 E1	CYPRESS, DISTURBED (0-24% EXOTICS)	8.29 Ac.±	0.6%
6219 E2	CYPRESS, DISTURBED (25-49% EXOTICS)	23.37 Ac.±	1.6%
6219 E3	CYPRESS, DISTURBED (50-75% EXOTICS)	0.48 Ac.±	0.0%
6219 E4	CYPRESS, DISTURBED (76-100% EXOTICS)	12.11 Ac.±	0.8%
6245 E3	CYPRESS/PINE, DISTURBED AND DRAINED (50-75% EXOTICS)	3.44 Ac.±	0.2%
6249 E1	CYPRESS/PINE/CABBAGE PALM, DISTURBED (0-24% EXOTICS)	1.36 Ac.±	0.1%
6249 E2	CYPRESS/PINE/CABBAGE PALM, DISTURBED (25-49% EXOTICS)	5.60 Ac.±	0.4%
6249 E3	CYPRESS/PINE/CABBAGE PALM, DISTURBED (50-75% EXOTICS)	6.54 Ac.±	0.4%
6249 E4	CYPRESS/PINE/CABBAGE PALM, DISTURBED (76-100% EXOTICS)	2.08 Ac.±	0.1%
6419 E1	FRESHWATER MARSH, DISTURBED (0-24% EXOTICS)	0.34 Ac.±	0.0%
6419 E2	FRESHWATER MARSH, DISTURBED (25-49% EXOTICS)	1.79 Ac.±	0.1%
740	DISTURBED LAND	85.58 Ac.±	5.9%
7401*	DISTURBED LAND, OTHER SURFACE WATERS	22.52 Ac.±	1.5%
7401	DISTURBED LAND, HYDRIC	3.00 Ac.±	0.2%
747	BERM	23.90 Ac.±	1.6%
	TOTAL	1460.78 Ac.±	100.0%

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH FLIGHT DATES OF JANUARY - FEBRUARY 2015.

PROPERTY BOUNDARY PER BARRACO AND ASSOCIATES, INC. DRAWING NO.23346S00.DWG DATED OCTOBER 12, 2015.

SURVEY WETLAND LINES PER DELISI FITZGERALD, INC. DRAWING No. CORKSCREW GROVES.DWG DATED JANUARY 7, 2016.

FLUCFCS LINES ESTIMATED FROM 1"=200' AERIAL PHOTOGRAPHS AND LOCATIONS APPROXIMATED.

FLUCFCS PER FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) (FDOT 1999).

UPLAND/WETLAND LIMITS HAVE NOT BEEN REVIEWED BY ANY REGULATORY AGENCY AND ARE SUBJECT TO CHANGE.

DRAWN BY	DATE
D.B./T.S.	2/24/16
REVIEWED BY	DATE
C.G.	2/24/16
REVISED	DATE

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Consulting Ecologists

CORKSCREW GROVE
AERIAL WITH FLUCFCS, WETLANDS, SURVEY TRANSECTS, AND SPECIES LOCATIONS MAP

DRAWING No. 15BDG2365

SHEET No. EXHIBIT I

J:\2015\15bdg2365\2016\Environmental Assessment Report\Ex I Aerial with SFWMD FLUCFCS Wetlands Transects and Species Map.dwg Tab: 11x17-C TB Mar 24, 2016 - 11:34am Plotted by: holdenh

Verdana
Sewer and Water Level of Service Analyses:

I. UTILITIES

a. Demand Projections

Under the current land use designations of the Lee County Comprehensive Plan, the 1,460-acre property can be developed with a total of 134 units. With the proposed amendment, a total of 1,460 residential dwelling units, 15,000 S.F. of clubhouse amenities, and 60,000 S.F. of commercial retail and office will be allowed.

Table 1 below provides a summary of projected utility demands in gallons-per-day (GPD) for the development based on Lee County Utilities (LCU) design standards and Chapter 64E-6 of the Florida Statutes, and using demand assumptions commonly accepted for planning purposes.

Table 1. Estimated Utility Demands for Build-out:

Development Type	Cumulative Units	Unit Demand	Total Demand (GPD)
Residential Units	1,460 d.u.	250 GDP	365,000
Commercial Retail	60,000 S.F.	0.15 GPD/S.F.	9,000
Clubhouse Amenities	15,000 S.F.	1 GPD/S.F.	15,000
		Total	**389,000**

Under the current land use designation, the utility demand for 134 residential units is 33,500 GPD. Under the proposed land use designation with the projected development parameters, the estimated utility demand for the property will be increased by 355,500 GPD to a total demand of 389,000 GPD at build-out.

b. Wastewater Level of Service

For wastewater service, the property is located in close proximity to Lee County Utilities' wastewater franchise area that was recently extended to the property known as Corkscrew Farms. Corkscrew Farms is a 1,361-acre project located on the north side of Corkscrew Road just west of the subject property. The County's wastewater franchise area will be amended to include the subject property as well.

Lee County Utilities maintains existing wastewater facilities along Corkscrew Road west of the subject property. Those facilities will be extended to the subject property, and other facility improvements made as needed, in order for the project to be adequately

served by LCU's system. Opportunities are also available to combine facilities planned for the Corkscrew Farms project with the needs of this project to provide for a more cost effective collection system along Corkscrew Road that will serve both projects.

LCU's Three Oaks Regional Wastewater Treatment Plant is the closest facility available to serve the property, and serves other developments west of the subject property along Corkscrew Road. According to the 2015 Lee County Concurrency Report, the Three Oaks facility is permitted with a capacity of 6.0 million gallons per day (MGD) and is projected to operate at 3.3 MGD in 2016. Therefore, there is sufficient capacity within the existing plant to serve the 355,500 GPD increase in demand from this project at build-out.

c. Potable Water Level of Service

For potable water service, the project is intending to connect to LCU's water distribution system provided along Corkscrew Road west of the property. As described above, the property is also in close proximity to LCU's water franchise area that was extended to serve Corkscrew Farms. The County's water franchise area will be amended to include this property as well.

Lee County Utilities maintains a 30" water distribution main at the intersection of Alico Road and Corkscrew Road that is fed by the Corkscrew Regional Water Treatment Plant located on Alico Road just north of Corkscrew Road. Service to the property will be provided by connecting to the existing 30" water main and extending a water main to the property along Corkscrew Road. Opportunities are also be available to combine facilities planned for the Corkscrew Farms project with the needs for this project to provide a more cost effective distribution system for both projects.

According to the 2015 Lee County Concurrency Report, the Corkscrew Regional Water Treatment Plant is permitted to serve 15.0 MGD and is projected to operate at 12.0 MGD for 2016. Therefore, there is sufficient capacity within the existing plant to serve the 355,500 GPD increase in demand from this project at build-out.

VERDANA
COMPREHENSIVE PLAN AMENDMENT
TRAFFIC STUDY

Project #15556

August 22, 2016

Prepared by:
DAVID PLUMMER & ASSOCIATES, INC.
2149 McGregor Boulevard
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VERDANA
COMPREHENSIVE PLAN AMENDMENT
TRAFFIC STUDY

Introduction

Verdana (the Project) is a planned, residential community with approximately 1,460 single-family units and 17 to 20 acres of amenities to serve the community's residents. There will also be a 5-acre commercial parcel (with approximately 60,000 sq. ft. of general retail) on the south side of Corkscrew Road that will be accessible to both the general public and the residents of the Project. The property is located on the south side of Corkscrew Road about four miles east of Alico Road, Exhibit 1. The Project will be a mixed use development with build-out anticipated to be completed by 2025.

This traffic study is in support of the Comprehensive Plan Amendment (CPA) application. Consistent with Lee County's Application for a CPA, this CPA traffic study provides both a Long Range 20-Year Horizon analysis and a Short Range 5-Year CIP Horizon analysis.

The Long Range 20-Year Horizon analysis provides a comparison of future road segment traffic conditions in 2040 on the Lee County MPO's 2040 Highway Cost Feasible Plan road network, both with and without the proposed CPA.

The Short Range 5-Year CIP Horizon analysis provides an assessment of future road segment traffic conditions in 2020, both with and without the proposed CPA.

Summary of Conclusions

The results of the Long Range 20-Year Horizon analysis and Short Range 5-Year CIP Horizon analysis are summarized below.

1. No new road improvements are needed as a result of the proposed CPA.

2. The Long Range 20-Year Horizon analysis indicates that no road segments within a three mile radius of the site are expected to have level of service issues in 2040, either with or without the proposed CPA. Therefore, no modifications to the Lee County MPO 2040 Highway Cost Feasible Plan or Lee Plan Map 3A are needed as a result of the proposed CPA.

3. The Short Range 5-Year CIP Horizon analysis indicates that no road segments within a three mile radius are expected to have level of service issues in 2020, either with or without the proposed CPA. Therefore, no modifications to the County's five year work program are needed as a result of the proposed CPA.

Transportation Methodology

A CPA transportation methodology outline dated January 6, 2016 was prepared consistent with Lee County's Application for a Comprehensive Plan Amendment and provided to the Lee County staff for review and comment. The methodology outline was discussed with the County staff at a methodology meeting held on January 8, 2016.

The CPA methodology outline was then updated to reflect the discussion at the meeting and redistributed to the staff on January 15, 2016. No further comments were received from the staff regarding the methodology. The methodology outline dated Revised January 15, 2016, is included in Appendix A.

This CPA traffic study was prepared consistent with the agreed upon methodology.

Study Area

In accordance with Lee County's Application for a Comprehensive Plan Amendment, the study includes a review of projected roadway conditions within a 3-mile radius of the site. The study area therefore extends west along Corkscrew Road to Alico Road and east along Corkscrew Road for three miles.

Existing Road Network

The existing road network is shown in Exhibit 1. The primary east-west road serving the area is Corkscrew Road, which connects US 41 in Lee County with SR 82 in Collier County. Alico Road extends from Corkscrew Road north to Green Meadows Road and then west to US 41. Both of these roads are two-lane roads within the study area.

Scheduled and Planned Road Improvements

Roadway improvements scheduled for construction within the next three years in the County's current five-year work program were considered committed improvements for purposes of the Short Range 5-Year CIP Horizon analysis. The only committed improvement in the general area is the widening of Alico Road to four lanes from Ben Hill Griffin Parkway to Airport Haul Road, which is scheduled for construction by the County in FY 17/18. There are no committed or scheduled improvements within the three-mile study area.

Roadway improvements included in the MPO's 2040 Highway Cost Feasible Plan were considered planned improvements for purposes of the Long Range 20-Year Horizon analysis. The adopted 2040 LRTP Cost Feasible Project List includes the widening of Corkscrew Road to four lanes from Ben Hill Griffin Parkway to The Preserve Entrance in FY 2021-2025 and the widening of Corkscrew Road to four lanes from The Preserve Entrance to Alico Road in FY 2026-2030. Currently, there are no planned improvements within the three-mile study area.

CPA Development Parameters

The Project will be a mixed use development with build-out anticipated to be completed by 2025. The horizon years for this study, however, are 2040 for the Long Range 20-Year Horizon analysis and 2020 for the Short Range 5-Year CIP Horizon analysis.

The proposed CPA for the Project would allow up to 1,460 single-family residential units, with an amenity center for the residents, and a 5-acre commercial parcel. For the Long Range 20-Year Horizon analysis, full build-out of the Project was assumed. 1,460 single-family residential units were reflected in the traffic analysis as a maximum impact scenario. For the Short Range 5-Year CIP Horizon analysis, it was estimated that 400 units and the amenities would be built and generating traffic by 2020, but that the commercial parcel would not yet be developed.

The property's current land use would allow up to 134 single-family units. These units were assumed to be in place for the future scenarios without the proposed CPA.

Trip Generation

The adopted Lee County MPO 2040 travel model was used to estimate the trip generation for the Project for the Long Range 20-Year Horizon (2040) analysis with the proposed CPA. A single traffic analysis zone, TAZ 5050, was used to represent the Project. This new zone connects with Corkscrew Road about four miles east of Alico Road. The units and employment at build-out of the Project were input into this zone.

Consistent with Section 4.d in the agreed upon CPA methodology, the trip generation for the 400 units in the Short Range 5-Year CIP Horizon (2020) with the proposed CPA was estimated based on ITE Trip Generation, 9th Edition, using the Online Traffic Impact Study Software (OTISS). The ITE trip generation estimates are provided below in the discussion regarding the Short-Range 5-Year CIP Horizon analysis.

Long Range 20-Year Horizon (2040) Analysis

The adopted Lee County MPO travel model was used to project future 2040 traffic conditions, both with and without the proposed CPA. As explained above, the future road network used for these travel model assignments was the Lee County MPO 2040 Highway Cost Feasible Plan network.

As discussed during the methodology meeting, for these model assignments, the MPO 2040 model zonal data was adjusted to more closely reflect existing and approved developments along Corkscrew Road east of Ben Hill Griffin Parkway. These developments included Stoneybrook, Wildcat Run, Corkscrew Crossing, The Preserve at Corkscrew, Bella Terra and Corkscrew Shores. The revisions to the MPO zonal data for these developments are shown in Exhibit 2.

In addition, three new zones were added to the model assignment to reflect three new developments: WildBlue, The Place and Verdana. The units and employment in these three new zones are shown in Exhibit 3. Full build-out is reflected for the Project.

The FSUTMS input and output files for the travel model assignments can be found on DPA's ftp website at this link: ftp://ftpfm.dplummer.com/Public/15556_Verdana_CPA. These files will be available for download from the DPA website for approximately two months.

The projected 2040 peak season weekday volumes were adjusted to annual average daily traffic (AADT) using peak season factors from Lee County 2015 permanent count station data and then adjusted to derive peak season, peak hour, directional volumes using Lee County 2015 permanent count station adjustment factors. The volumes were then compared to Lee County Generalized Peak Hour Directional Service Volumes (May 2014) to estimate the projected 2040 levels of service on the road segments.

Exhibit 4 shows future traffic conditions in 2040 without the proposed CPA. This assignment included the 134 units allowed under the current plan. As shown in Exhibit 4, no road segments within the study area are expected to have level of service issues in 2040 without the proposed CPA.

Exhibit 5 shows future traffic conditions in 2040 with the proposed CPA. This assignment included 1,460 single-family units and the 5-acre commercial parcel in the Project, reflective of the proposed CPA. As shown in Exhibit 5, no road segments within the study area are expected to have level of service issues in 2040 with the proposed CPA.

Therefore, no modifications to the Lee County MPO 2040 Highway Cost Feasible Plan or Lee Plan Map 3A are needed as a result of the proposed CPA.

Short Range 5-Year CIP (2020) Analysis

Consistent with the agreed upon methodology, the trip generation for the Short-Term 5-Year CIP analysis was based on the trip generation rates and equations in the Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition, using the Online Traffic Impact Study Software (OTISS).

The OTISS worksheets are provided in Appendix B. The ITE trip generation rates and equations used for this study are shown in the OTISS worksheets in Appendix B.

The resultant ITE/OTISS total trip generation estimates for build-out of the Project are provided in Exhibit 6 for the 400 single-family residential units expected in the year 2020 and the extensive amenities, which are expected to be in place early in Project development.

Consistent with Section 4.d of the methodology, adjustments were made to account for internal capture due to the extensive amenities. These adjustments and the resultant net new external trips are provided in Exhibit 7.

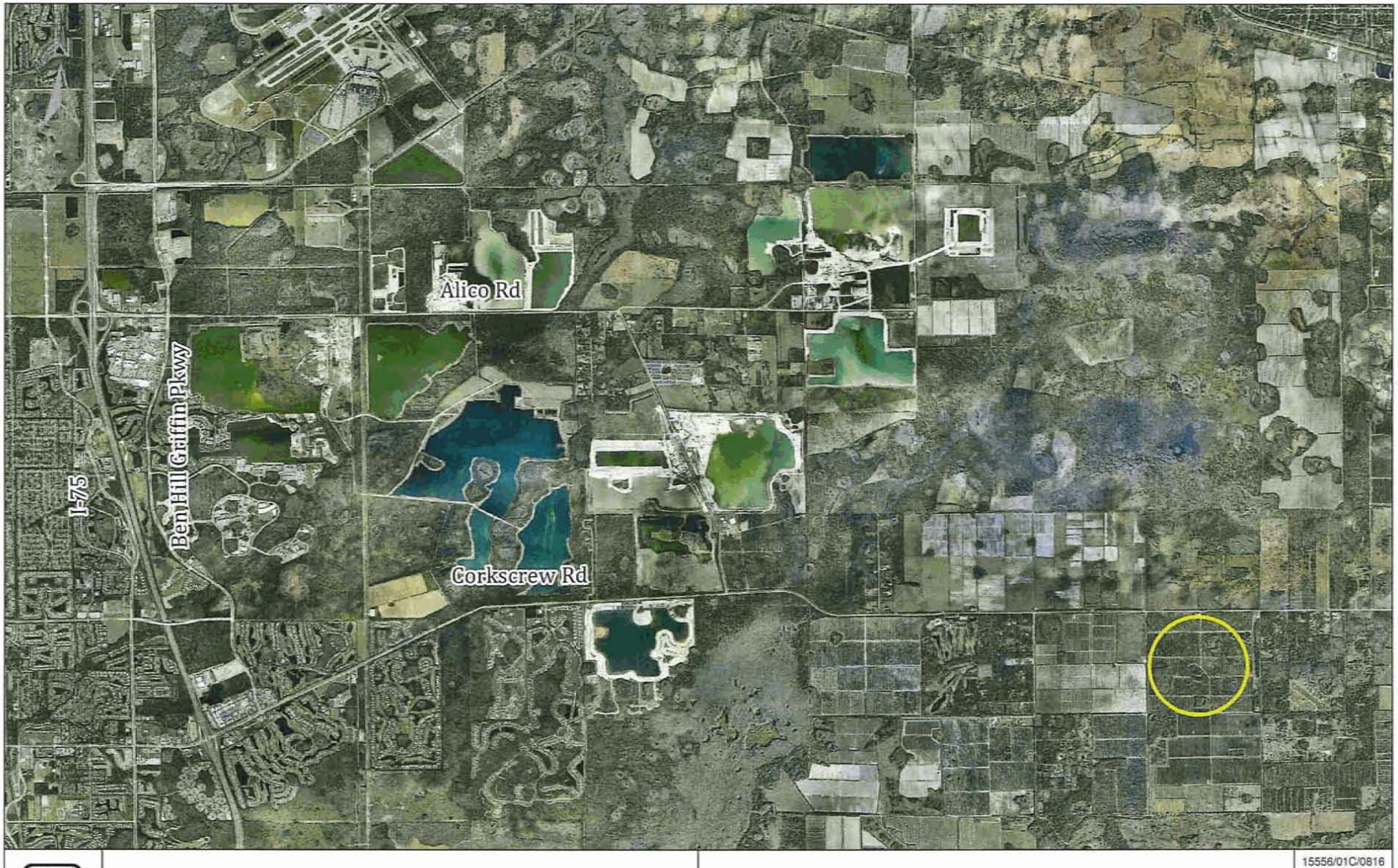
Existing traffic conditions are shown in Exhibit 8. Existing AADT volumes were taken from the Lee County 2015 Traffic Count Report. These existing counts were adjusted to derive peak season, peak hour, directional volumes using 2015 Lee County permanent count station adjustment factors. The volumes were then compared to Lee County Link-Specific Peak Hour Directional Service Volumes (May 2014) to estimate the existing level of service on the road segments.

As agreed, historic traffic growth trends were used to project background traffic for the short term analysis. As shown in Appendix C, historic AADT volumes from the Lee County 2015 Traffic Count Report or the Lee County Traffic Count Database System were used to develop an initial linear growth rate to apply to the latest segment volume count to estimate 2020 background traffic volumes without the CPA. The initial growth rates for both count stations in or near the study area were negative. So, a minimum traffic growth rate of 1% per year was used. In addition, projected volumes from the recently approved WildBlue and The Place were added to the background traffic.

Future 2020 traffic conditions without the CPA are presented in Exhibit 9. This scenario assumes that 134 single-family units would be built and generating traffic by 2020, as allowed under the current land use. No level of service issues are projected in 2020 without the CPA.

Future 2020 traffic conditions with the CPA are presented in Exhibit 10. This scenario assumes that 400 single-family units would be built and generating traffic by 2020 under the proposed CPA. No level of service issues are projected in 2020 with the CPA.

Therefore, no modifications to the County's five year work program are needed as a result of the proposed CPA.



dpa	VERDANA	PROJECT LOCATION	15556/01C/0816 1

EXHIBIT 2

CORKSCREW AREA DEVELOPMENT
CURRENT TRAFFIC ANALYSIS ZONES

	TAZ	Approved	LC Aerial Rooftops	MPO Zonal Data 2010	MPO Zonal Data 2026	MPO Zonal Data 2040	Revised Zonal Data 2026	Revised Zonal Data 2040
Stoneybrook	3651							
SF		NA	634	979	1,057	1,126	635	635
MF		NA	382	248	314	372	382	382
Total		1,285	1,016	1,227	1,371	1,498	1,017	1,017
Commercial Employees		1,126	NA	130	84	44	400	500
Service Employees		360	NA	409	556	685	NA	NA
School Enrollments		NA	NA	909	958	1,000	NA	NA
Hotel		125	0	0	0	0	NA	125
Wildcat Run	3654							
SF		358	297	249	288	323	NA	NA
MF		292	108	63	72	79	NA	NA
Total		650	405	312	360	402	NA	NA
Commercial Employees		0	0	8	12	15	NA	NA
Service Employees		0	0	194	212	228	NA	NA
Corkscrew Crossing	3655							
SF		563	0					
MF		62	0					
Total		625	0					
The Preserve at Corkscrew	3655							
SF		520	252					
MF		0	0					
Total		520	252					
Commercial Employees [1]		75 [1]	0					
Service Employees [1]		40 [1]	0					
Bella Terra	3655							
SF		1,054	1,076					
MF		876	816					
Total		1,930	1,892					
Commercial Employees [2]		225 [2]	0					
Service Employees [2]		120 [2]	0					
Corkscrew Shores (Woods)	3655							
SF		648 [3]	0					
MF		0	0					
Total		648	0					
Commercial Employees [4]		44	0					
Service Employees [4]		0	0					
Aggregated totals for 4 developments	3655							
SF		2,785	1,328	1,109	1,257	1,386	1,800	2,200
MF		938	816	263	321	354	820	850
Total		3,723	2,144	1,372	1,578	1,740	2,620	3,050
Commercial Employees		344	NA	58	36	17	230	280
Service Employees		160	NA	159	216	265	NA	NA

Footnotes:
[1] Lee Co. List of Approved Projects -- 40,000 sq. ft. of mixed commercial, assumed to include 30,000 sq. ft. retail and 10,000 sq. ft. office.
[2] Lee Co. List of Approved Projects -- 120,000 sq. ft. of total commercial, assumed to include 90,000 sq. ft. retail and 30,000 sq. ft. office.
[3] News-Press, July 13, 2014 -- just opened for sales; when completed, 648 homes.
[4] Corkscrew Woods Rezoning TIS, April 10, 2012 -- 2,500 sq. ft. of high turnover sit down restaurant and 15,000 sq. ft. of special retail center.

EXHIBIT 3

CORKSCREW AREA DEVELOPMENT
NEW TRAFFIC ANALYSIS ZONES

	TAZ	Approved	LC Aerial Rooftops	MPO Zonal Data 2010	MPO Zonal Data 2026	MPO Zonal Data 2040	Revised Zonal Data 2026	Revised Zonal Data 2040
WildBlue	5056							
SF		1,000	0	0	0	0	700	800
MF		0	0	0	0	0	0	0
Total		1,000	0	0	0	0	700	800
Commercial Employees [1]		100	0	0	0	0	70	100
Service Employees		0	0	0	0	0	0	0
School Enrollments		0	0	0	0	0	0	0
Corkscrew Farms	5062							
SF		1,325	0	0	0	0	928	1,060
MF		0	0	0	0	0	0	0
Total		1,325	0	0	0	0	928	1,060
Commercial Employees		0	0	0	0	0	0	0
Service Employees		0	0	0	0	0	0	0
School Enrollments		0	0	0	0	0	0	0
Verdana	5050							
SF		1,460	0	0	0	0	1,460	1,460
MF		0	0	0	0	0	0	0
Total		1,460	0	0	0	0	1,460	1,460
Commercial Employees [2]		150	0	0	0	0	105	150
Service Employees		0	0	0	0	0	0	0
School Enrollments		0	0	0	0	0	0	0

Footnotes:

[1] Approved Project includes 40,000 sq. ft. of commercial retail: 40,000 sq. ft x 2.5 employees per 1,000 sq. ft. = 100 commercial employees.

[2] Proposed Project includes 60,000 sq. ft. of commercial retail: 60,000 sq. ft x 2.5 employees per 1,000 sq. ft. = 150 commercial employees.

EXHIBIT 4

VERDANA COMPREHENSIVE PLAN AMENDMENT

LONG RANGE 20-YEAR HORIZON ANALYSIS

FUTURE (2035) TRAFFIC CONDITIONS WITHOUT CPA (134 Units)

DIRECTIONAL PEAK HOUR (K100), PEAK SEASON

ROADWAY	FROM	TO	(1) # of Lanes	(2) LOS Std	(3) PCS No.	(4) 2040 PSWADT Traffic	(5) PSWADT/ AADT	AADT	(5) K100 Factor	Two-Way Peak Hour Volume	(5) D100 NE	(5) D100 SW	2035 Directional Peak Hr. Vol. NE	2035 Directional Peak Hr. Vol. SW	(6) Directional Service Volumes LOS "A"	LOS "B"	LOS "C"	LOS "D"	LOS "E"	LOS Std		V/C NE	V/C SW	LOS NE	LOS SW
CORKSCREW RD	ALICO RD	CORKSCREW FARMS	2	E	70	12,698	1.157	10,975	0.096	1,054	0.54	0.46	569	485	120	420	840	1,190	1,640	1,640	(7)	0.35	0.30	C	C
	CORKSCREW FARMS	PROJECT	2	E	70	7,406	1.157	6,401	0.096	614	0.54	0.46	332	282	120	420	840	1,190	1,640	1,640	(7)	0.20	0.17	B	B
	PROJECT	TPI RD	2	E	70	6,914	1.157	5,976	0.096	574	0.54	0.46	310	264	120	420	840	1,190	1,640	1,640	(7)	0.19	0.16	B	B
	TPI RD	EAST	2	E	70	2,343	1.157	2,025	0.096	194	0.54	0.46	105	89	120	420	840	1,190	1,640	1,640	(7)	0.06	0.05	A	A

Footnotes:

(1) Lee County MPO 2040 Long Range Transportation Plan Highway Cost Feasible Plan number of lanes.
(2) Lee County roadway LOS standard.
(3) Permanent Count Station from Lee County 2015 Traffic Count Report.
(4) PSWDT from 2040 travel model assignment without proposed CPA (current LU designation) on MPO 2040 Cost Feasible Plan road network.
(5) Adjustment factors per Permanent Count Stations in Lee County 2015 Traffic Count Report.
(6) Lee County Generalized Peak Hour Service Volumes (September 2013).
(7) Uninterrupted flow service volumes.

EXHIBIT 5

VERDANA COMPREHENSIVE PLAN AMENDMENT

LONG RANGE 20-YEAR HORIZON ANALYSIS

FUTURE (2040) TRAFFIC CONDITIONS WITH CPA (1,460 Units)

DIRECTIONAL PEAK HOUR (K100), PEAK SEASON

ROADWAY	FROM	TO	(1) # of Lanes	(2) LOS Std	(3) PCS No.	(4) 2040 PSWADT Traffic	(5) PSWADT/ AADT	AADT	(5) K100 Factor	Two-Way Peak Hour Volume	(5) D100 NE	(5) D100 SW	2035 Directional Peak Hr. Vol. NE	2035 Directional Peak Hr. Vol. SW	(6) Directional Service Volumes LOS "A"	LOS "B"	LOS "C"	LOS "D"	LOS "E"	LOS Std		V/C NE	V/C SW	LOS NE	LOS SW
CORKSCREW RD	ALICO RD	CORKSCREW FARMS	2	E	70	17,203	1.157	14,869	0.096	1,427	0.54	0.46	771	656	120	420	840	1,190	1,640	1,640	(7)	0.47	0.40	C	C
	CORKSCREW FARMS	PROJECT	2	E	70	12,938	1.157	11,182	0.096	1,074	0.54	0.46	580	494	120	420	840	1,190	1,640	1,640	(7)	0.35	0.30	C	C
	PROJECT	TPI RD	2	E	70	8,232	1.157	7,115	0.096	683	0.54	0.46	369	314	120	420	840	1,190	1,640	1,640	(7)	0.22	0.19	B	B
	TPI RD	EAST	2	E	70	2,849	1.157	2,462	0.096	236	0.54	0.46	127	109	120	420	840	1,190	1,640	1,640	(7)	0.08	0.07	B	A

Footnotes:

(1) Lee County MPO 2040 Long Range Transportation Plan Highway Cost Feasible Plan number of lanes.
(2) Lee County roadway LOS standard.
(3) Permanent Count Station from Lee County 2015 Traffic Count Report.
(4) PSWDT from 2040 travel model assignment with proposed CPA on MPO 2040 Cost Feasible Plan road network.
(5) Adjustment factors per Permanent Count Stations in Lee County 2015 Traffic Count Report.
(6) Lee County Generalized Peak Hour Service Volumes (September 2013).
(7) Uninterrupted flow service volumes.

EXHIBIT 6

VERDANA CPA
ITE/OTISS TRIP GENERATION FOR SHORT RANGE HORIZON
TOTAL AM, PM AND WEEKDAY TRIP ESTIMATES

Project Information	
Project Name:	Verdana CPA Short Range
No:	15556
Date:	1/28/2016
City:	
State/Province:	Florida
Zip/Postal Code:	33901
Country:	
Client Name:	
Analyst's Name:	RT
Edition:	ITE-TGM 9th Edition

Land Use	Size	AM Peak Hour		PM Peak Hour		Weekday	
		Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	400 Dwelling Units	73	217	231	135	1880	1880
Reduction		0	0	0	0	0	0
Internal		0	0	0	0	0	0
Pass-by		0	0	0	0	0	0
Non-pass-by		73	217	231	135	1880	1880
495 - Recreational Community Center	15 1000 Sq. Feet Gross Floor Area	20	11	20	21	254	253
Reduction		0	0	0	0	0	0
Internal		0	0	0	0	0	0
Pass-by		0	0	0	0	0	0
Non-pass-by		20	11	20	21	254	253
492 - Health/Fitness Club	10 1000 Sq. Feet Gross Floor Area	7	7	20	15	165	164
Reduction		0	0	0	0	0	0
Internal		0	0	0	0	0	0
Pass-by		0	0	0	0	0	0
Non-pass-by		7	7	20	15	165	164
820 - Shopping Center	0 1000 Sq. Feet Gross Leasable Area	0	0	0	0	0	0
Reduction		0	0	0	0	0	0
Internal		0	0	0	0	0	0
Pass-by		0	0	0	0	0	0
Non-pass-by		0	0	0	0	0	0
Total		100	235	271	171	2299	2297
Total Reduction		0	0	0	0	0	0
Total Internal		0	0	0	0	0	0
Total Pass-by		0	0	0	0	0	0
Total Non-pass-by		100	235	271	171	2299	2297

EXHIBIT 7

VERDANA CPA
TRIP GENERATION SUMMARY FOR SHORT RANGE HORIZON [1]

	LUC	SIZE	AM PEAK HOUR In	Out	Total	%	PM PEAK HOUR In	Out	Total	%	Weekday	%
RESIDENTIAL												
Single Family (Detached)	210	400 d.u.	73	217	290		231	135	366		3,760	
Amenity Internal Capture			13	19	32	*11%*	25	28	53	*15%*	585	*16%*
Commercial Internal Capture			3	6	9	*3%*	30	11	41	*11%*	0	*0%*
Driveway Volume			57	192	250		176	96	272		3,175	
Pass-by			0	0	0		0	0	0		0	
Net New External			57	192	250		176	96	272		3,175	
AMENITY COMPLEX												
Recreational Community Center	495	15,000 sq. ft.	20	11	31		20	21	41		507	
Health/Fitness Club	492	10.000 sq. ft.	7	7	14		20	15	35		329	
Total		25,000 sq. ft.	27	18	45		40	36	76		836	
Internal Capture			19	13	32	*70%* [2]	28	25	53	*70%* [2]	585	*70%* [2]
Driveway Volume			8	5	14		12	11	23		251	
Pass-by			0	0	0		0	0	0		0	
Net New External			8	5	14		12	11	23		251	
COMMERCIAL PARCEL												
General Retail	820	0 sq. ft.	0	0	0		0	0	0		0	
Internal Capture			0	0	0		0	0	0		0	
Driveway Volume			0	0	0		0	0	0		0	
Pass-by			0	0	0		0	0	0		0	
Net New External			0	0	0		0	0	0		0	
TOTAL			100	235	335		271	171	442		4,596	
INTERNAL CAPTURE			35	38	72	*21%*	83	64	147	*33%*	1,170	*25%*
DRIVEWAY VOLUME			66	198	263		188	107	295		3,426	
PASS-BY			0	0	0		0	0	0		0	
NET NEW EXTERNAL			66	198	263		188	107	295		3,426	

Footnotes:

(1) Trip generation estimates based on ITE Trip Generation, 9th Edition, and OTISS software.

(2) Amenity internal capture rates based on DPA professional judgement.

EXHIBIT 8

VERDANA CPA

EXISTING (2014) TRAFFIC CONDITIONS

DIRECTIONAL PEAK HOUR (K100), PEAK SEASON

ROADWAY	FROM	TO	(1) # of Lanes	(2) LOS Std	(3) PCS #	Count Year	(4) Existing AADT		(5) K100 Factor	Two-Way Peak Hr. Volume	(5) D100 NE	(5) D100 SW	Existing Directional Peak Hr. Vol. NE	Existing Directional Peak Hr. Vol. SW	(6) Directional Service Volumes LOS A	LOS B	LOS C	LOS D	STD LOS E	V/C NE	V/C SW	LOS NE	LOS SW
CORKSCREW RD	ALICO RD	CORKSCREW FARMS	2	E	70	2014	3,109	(7)	0.096	298	0.54	0.46	161	137	90	290	530	730	1,080	0.15	0.13	B	B
	CORKSCREW FARMS	PROJECT	2	E	70	2014	3,109	(7)	0.096	298	0.54	0.46	161	137	90	290	530	730	1,080	0.15	0.13	B	B
	PROJECT	TPI RD	2	E	70	2014	3,109	(7)	0.096	298	0.54	0.46	161	137	90	290	530	730	1,080	0.15	0.13	B	B
	TPI RD	EAST	2	E	70	2014	3,109	(7)	0.096	298	0.54	0.46	161	137	90	290	530	730	1,080	0.15	0.13	B	B

Footnotes:

(1) Existing Number of Lanes.
(2) Roadway LOS standard from The Lee Plan.
(3) Permanent Count Station from Lee County 2015 Traffic Count Report.
(4) Most current AADT volume from Lee County 2015 Traffic Count Report; Alico Rd count is from 2010.
(5) Adjustment factors from appropriate Permanent Count Station data in Lee County 2015 Traffic Count Report.
(6) Lee County Link-Specific Peak Hour Service Volumes (May 2014).
(7) Most current AADT volume from Lee County Traffic Count Database System (TCDS).

EXHIBIT 9

VERDANA CPA -- SHORT RANGE HORIZON

FUTURE (2020) TRAFFIC CONDITIONS WITHOUT PROJECT (134 SF UNITS)

DIRECTIONAL PEAK HOUR (K100), PEAK SEASON

ROADWAY	FROM	TO	(1) # of Lanes	(2) LOS Std	(3) 2020 Background Directional Peak Hr. Vol. NE	(3) 2020 Background Directional Peak Hr. Vol. SW	(4) WildBlue Directional Peak Hr. Vol. NE	(4) WildBlue Directional Peak Hr. Vol. SW	(5) The Place Directional Peak Hr. Vol. NE	(5) The Place Directional Peak Hr. Vol. SW	Revised 2020 Background Directional Peak Hr. Vol. NE	Revised 2020 Background Directional Peak Hr. Vol. SW	(6) Current Zoning Traffic Distribution FSUTMS	(6) Current Zoning Traffic Distribution %	(7) Current Zoning Directional Pk. Hr. Volume NE	(7) Current Zoning Directional Pk. Hr. Volume SW	Total 2026 Directional Pk. Hr. Volume NE	Total 2026 Directional Pk. Hr. Volume SW	(8) Directional Service Volumes LOS A	LOS B	LOS C	LOS D	STD LOS E	V/C NE	V/C SW	LOS NE	LOS SW
CORKSCREW RD	ALICO RD	CORKSCREW FARMS	2	E	171	145	2	2	219	210	392	357	5,852	63.2%	54	33	448	389	90	290	530	730	1,080	0.41	0.36	C	C
	CORKSCREW FARMS	PROJECT	2	E	171	145	2	2	15	14	188	161	7,110	76.8%	66	39	254	200	90	290	530	730	1,080	0.23	0.19	B	B
	PROJECT	TPI RD	2	E	171	145	2	2	15	14	188	161	2,153	23.3%	12	20	200	181	90	290	530	730	1,080	0.18	0.17	B	B
	TPI RD	EAST	2	E	171	145	2	2	15	14	188	161	2,153	23.3%	12	20	200	181	90	290	530	730	1,080	0.18	0.17	B	B

Footnotes:

(1) Existing plus Committed Number of Lanes (E+C).
(2) Roadway LOS standard from The Lee Plan.
(3) Existing volume + 1% per year for all roads.
(4) WildBlue peak hour traffic volumes reported in Exhibit 7 of WildBlue CPA Traffic Study (March 11, 2014).
(5) Corkscrew Farms (The Place) peak hour traffic volumes reported in Exhibit 7 of Corkscrew Farms CPA Traffic Study (December 18, 2014).
(6) PSWDT volumes from Corkscrew Groves rezoning travel model assignment used to produce trip distribution by percentage.
(7) ITE trip generation allocated to road segments based on percentage trip distribution.
(8) Lee County Link-Specific Peak Hour Service Volumes (May 2014).

FSUTMS
9,260

ITE Trip Gen - Net New PM	
Enter	66
Exit	71
Total	137

EXHIBIT 10

VERDANA CPA -- SHORT RANGE HORIZON

FUTURE (2020) TRAFFIC CONDITIONS WITH PROJECT (400 SF UNITS)

DIRECTIONAL PEAK HOUR (K100), PEAK SEASON

ROADWAY	FROM	TO	(1) # of Lanes	(2) LOS Std	(3) Revised 2020 Background Directional Peak Hr. Vol. NE	(3) Revised 2020 Background Directional Peak Hr. Vol. SW	(4) Proposed CPA Traffic Distribution FSUTMS	(4) Proposed CPA Traffic Distribution %	(5) CPA Directional Pk. Hr. Volume NE	(5) CPA Directional Pk. Hr. Volume SW	Total 2020 Directional Pk. Hr. Volume NE	Total 2020 Directional Pk. Hr. Volume SW	(6) Directional Service Volumes LOS A	LOS B	LOS C	LOS D	STD LOS E	V/C NE	V/C SW	LOS NE	LOS SW
CORKSCREW RD	ALICO RD	CORKSCREW FARMS	2	E	392	357	5,852	63.2%	221	136	613	493	90	290	530	730	1,080	0.57	0.46	D	C
	CORKSCREW FARMS	PROJECT	2	E	188	161	7,110	76.8%	221	136	409	297	90	290	530	730	1,080	0.38	0.28	C	C
	PROJECT	TPI RD	2	E	188	161	2,153	23.3%	25	44	213	205	90	290	530	730	1,080	0.20	0.19	B	B
	TPI RD	EAST	2	E	188	161	899	9.7%	10	18	198	179	90	290	530	730	1,080	0.18	0.17	B	B

Footnotes:

(1) Existing plus Committed Number of Lanes (E+C).
(2) Roadway LOS standard from The Lee Plan.
(3) Background traffic brought forward from previous exhibit.
(4) PSWDT volumes from rezoning travel model assignment used to produce trip distribution by percentage.
(5) ITE trip generation allocated to road segments based on percentage trip distribution.
(6) Lee County Link-Specific Peak Hour Service Volumes (May 2014).

FSUTMS	
9,260	

ITE Trip Gen - Net New	
Enter	188
Exit	107
Total	295

APPENDIX A

METHODOLOGY OUTLINE

CORKSCREW GROVES
COMPREHENSIVE PLAN AMENDMENT
TRANSPORTATION METHODOGY OUTLINE

Project #15556

January 6, 2016
Revised January 15, 2016

Prepared by:
DAVID PLUMMER & ASSOCIATES, INC.
2149 McGregor Boulevard
Fort Myers, Florida 33901

CORKSCREW GROVES COMPREHENSIVE PLAN AMENDMENT
TRANSPORTATION METHODOLOGY OUTLINE
(Revised January 15, 2016)

Introduction

Corkscrew Groves is a planned residential community, with approximately 1,400 to 1,500 single-family units and 17 to 20 acres of amenities to serve the community's residents. There will also be a 5-acre commercial parcel (with approximately 60,000 sq. ft. of general retail) on the south side of Corkscrew Road that will be accessible to both the general public and the residents of Corkscrew Groves. Residents will be able to access the commercial parcel without traveling on Corkscrew Road. The property is located on the south side of Corkscrew Road about four miles east of Alico Road, Exhibit 1.

Corkscrew Groves will be a single phase development with build-out anticipated in 2025. However, for Comprehensive Plan Amendment (CPA) purposes, the long-range horizon year for this study is the year 2040, consistent with the Lee County MPO's recently-adopted 2040 Highway Cost Feasible Plan.

Under the current land use plan, the subject property could accommodate up to 146 single-family dwelling units. Therefore, the scenario for future traffic conditions without the proposed CPA will include these 146 units.

This traffic study will be in support of the Comprehensive Plan Amendment (CPA) application for Corkscrew Groves and will be prepared consistent with Lee County's Application for a Comprehensive Plan Amendment. For purposes of this methodology, it has been assumed that the adopted MPO 2040 LRTP travel model will be available for use in this study. If it is not available, then an alternative methodology will be developed.

Methodology Meeting

A transportation methodology meeting was held with Lee County on January 8, 2016. The proposed methodologies for preparing the transportation studies in support of the comprehensive plan amendment and the rezoning, as presented in the reports titled Corkscrew Groves Comprehensive Plan Amendment Transportation Methodology Outline and Corkscrew Groves Rezoning Transportation Methodology Outline (dated January 6, 2016), were discussed at the meeting. Those in attendance included the following.

David Loveland	Lee County DCD
Brandon Dunn	Lee County DCD
Chip Block	Lee County DCD
Marcus Evans	Lee County DCD

Andy Getch	Lee County DOT
Lili Wu	Lee County DOT
Mark Gillis	DPA
Ron Talone	DPA

The Corkscrew Groves Comprehensive Plan Amendment Transportation Methodology Outline and Corkscrew Groves Rezoning Transportation Methodology Outline have been revised and dated Revised January 15, 2016 to reflect the direction received at the January 8, 2016 meeting.

Methodology

The methodology for the CPA traffic study is summarized below.

1. According to Lee County's Application for a Comprehensive Plan Amendment, the study area should include projected roadway conditions within a 3-mile radius of the site. Therefore, the study area will extend west along Corkscrew Road to Alico Road and east along Corkscrew Road for three miles.

2. The trip generation for the 2040 CPA analysis will be established through the adopted Lee County travel model.

3. For the required Long Range 20-Year Horizon analysis, peak hour, peak season (K_{100}), directional roadway segment analysis will be provided for the year 2040, based on Lee County travel model assignments, both with and without the CPA.

    a. The adopted Lee County MPO 2040 Highway Cost Feasible Plan travel model, zonal data and road network will be used to project total traffic for future 2040 traffic conditions, both without and with the CPA.
        - The travel model and zonal data will be checked and adjusted, if necessary, to reflect the recently-adopted WildBlue and Corkscrew Farms projects and other developments including Stoneybrook, Wildcat Run and Bella Terra.
    b. For future 2040 traffic conditions without the CPA, the 146 single-family units, which are allowed on the property under the current land use designation, will be input into the model ZDATA1 file, using appropriate land use adjustment factors.
    c. For future 2040 traffic conditions with the CPA, the 1,400 to 1,500 single-family units and the commercial parcel in Corkscrew Groves under the proposed zoning will be input into the model ZDATA1 and ZDATA2 files, respectively, using appropriate land use adjustment factors.
    d. Total volumes on a road segment will be taken from the nearest link to the CPA to insure that the highest CPA volume is used.
    e. The roadway adjustment factors, service volumes and LOS standards used to estimate levels of service in 2040 will be as described in Section 5 below.
    f. Projected 2040 traffic volumes and levels of service without and with the CPA

will be compared.

4. For the required Short Range 5-Year CIP Horizon analysis, peak hour, peak season (K_{100}), directional roadway segment analysis will be provided for the year 2020, both with and without the CPA. Background traffic will be based on recent traffic counts and growth trends. CPA traffic will be distributed and assigned on a percentage basis by the Lee County travel model.

    a. The traffic counts reported in the most recent Lee County Traffic Count Report available at the time that the analysis is done will be used to establish base year traffic volumes.
        - The traffic counts reported in the most recent Traffic Count Report will be supplemented by AADT traffic counts on Corkscrew Road reported online on the Lee County Traffic Count Database System (TCDS).
        - The roadway adjustment factors, service volumes and LOS standards used to estimate levels of service will be as described in Section 5 below.

    b. Background traffic will be projected to the year 2020 based on recent traffic counts reported in the most recent Lee County Traffic Count Report and historic traffic growth trends developed primarily from the 2005-2014 traffic counts reported in the Traffic Count Report.
        - A minimum annual growth rate of 1% per year will be assumed.
        - Adjustments will be made to reflect WildBlue and Corkscrew Farms. The level of development reflected in the short term CPA analyses conducted in support of those two developments will be reflected in this analysis.

    c. The MPO travel model will be used to distribute and assign CPA traffic to road segments.

    d. ITE Trip Generation, 9th Edition, will be used to estimate the trip generation associated with the five-year level of development.
        - CPA trip generation will be limited to those units expected to be built, occupied and generating traffic by the year 2020.
        - If there is a mix of uses with the five-year level of development, then appropriate adjustments will be made for internal capture.
        - The following recently completed or scheduled improvements will be included in the E+C network:
            - Corkscrew Road Safety Improvements (2LD) from east of Ben Hill Griffin Parkway to Wildcat Run and at Bella Terra
            - I-75 Airport Direct Connect
            - Alico Road widening (4LD) from Ben Hill Griffin Parkway to Airport Haul Road (CST FY 17/18)
        - For the FSUTMS travel model assignment, the zonal data for the year 2020 will be interpolated based on the MPO adopted base year (2010) and LRTP horizon year (2040) zonal data.
        - Select Zone analysis will be performed to determine the CPA trip

assignment to the surrounding area road network.
    - CPA road segment volumes will be taken from the nearest link to the CPA to insure the highest CPA volume is used.

e. The CPA traffic on each road segment will be added to the background traffic projected using growth trends to estimate total PM peak hour, directional traffic with the CPA in 2020.
f. The roadway adjustment factors, service volumes and LOS standards used to estimate levels of service will be as described in Section 5 below.
g. Projected 2020 traffic volumes and levels of service without and with the CPA will be compared.

5. Levels of service (LOS) on the study area road segments will be estimated for peak season, peak hour (K_{100}), peak direction, using the following adjustment factors, service volumes and LOS standards.

    a. The LOS standards in the The Lee Plan will be used for all County roads.
    b. Current Lee County K, D and peak season factors for applicable Permanent Count Stations will be used to estimate background road segment peak hour traffic volumes on all County roads.
    c. Lee County generalized service volumes (Sept. 2013) will be used for all County roads for the Long Range 20-Year Horizon (2040) analysis.
    d. Lee County link-specific service volumes (May 2014) will be used for all County roads for the Short Range 5-Year CIP Horizon (2020) analysis.

6. The CPA traffic study findings and conclusions, plus supporting documentation, will be submitted to Lee County, along with the corresponding FSUTMS travel model input/output files, for sufficiency review. The CPA traffic study will, of course, be subject to review and acceptance by Lee County.

dpa	CORKSCREW GROVES	PROJECT LOCATION	15566/01A/1215 1

APPENDIX B

OTISS WORKSHEETS

PERIOD SETTING

Analysis Name :	AM Peak Hour		
Project Name :	Corkscrew Groves Current Plan	**No :**	#15556
Date:	1/28/2016	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:	Ron Talone	**Edition:**	ITE-TGM 9th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
210 - Single-Family Detached Housing	Dwelling Units	134	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Best Fit (LIN) T = 0.7 (X)+9.74	26 25%	78 75%	104

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
210 - Single-Family Detached Housing	0 %	26	0 %	78

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
210 - Single-Family Detached Housing	104	0 %	0	104

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Landuse — No deviations from ITE.

Methods — No deviations from ITE.

External Trips — 210 - Single-Family Detached Housing
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	26
Total Exiting	78
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	26
Total Exiting Non-Pass-by Trips	78

PERIOD SETTING

Analysis Name :	PM peak hour		
Project Name :	Corkscrew Groves Current Plan	**No :**	#15556
Date:	1/28/2016	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:	Ron Talone	**Edition:**	ITE-TGM 9th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
210 - Single-Family Detached Housing	Dwelling Units	134	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LOG) Ln(T) = 0.9Ln(X) +0.51	86 63%	51 37%	137

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
210 - Single-Family Detached Housing	0 %	86	0 %	51

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
210 - Single-Family Detached Housing	137	0 %	0	137

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.

Landuse — No deviations from ITE.

Methods — No deviations from ITE.

External Trips — 210 - Single-Family Detached Housing
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	86
Total Exiting	51
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	86
Total Exiting Non-Pass-by Trips	51

PERIOD SETTING

Analysis Name :	Weekday		
Project Name :	Corkscrew Groves Current Plan	**No :**	#15556
Date:	1/28/2016	**City:**	
State/Province:		**Zip/Postal Code:**	
Country:		**Client Name:**	
Analyst's Name:	Ron Talone	**Edition:**	ITE-TGM 9th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
210 - Single-Family Detached Housing	Dwelling Units	134	Weekday	Best Fit (LOG) Ln(T) = 0.92Ln(X) +2.72	688 50%	687 50%	1375

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
210 - Single-Family Detached Housing	0 %	688	0 %	687

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
210 - Single-Family Detached Housing	1375	0 %	0	1375

ITE DEVIATION DETAILS

Weekday

Landuse — No deviations from ITE.

Methods — No deviations from ITE.

External Trips — 210 - Single-Family Detached Housing
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	688
Total Exiting	687
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	688
Total Exiting Non-Pass-by Trips	687

PERIOD SETTING

✓ DATA PROVI

Specify the Independent Variable, Time Period, and Calculation Method to be used in the calculation of the of Trips generated in the analysis. To record any notes, click Add Notes above.

PROJECT NAME: CORKSCREW GROVES CPA SHORT RANGE

ANALYSIS NAME: AM Peak Hour

LAND USE	INDEPENDENT VARIABLE	SIZE	TIME PERIOD	METHOD	ENTRY
210 - Single-Family Detached Housing	Dwelling Units	400	Weekday, Peak Hou	Best Fit (LIN) T = 0.7(X) + 9.74	73
495 - Recreational Community Center	1000 Sq. Feet Gross	15(0)	Weekday, Peak Hou	Average 2.05	20
492 - Health/Fitness Club	1000 Sq. Feet Gross	10(0)	Weekday, Peak Hou	Average 1.41	7
820 - Shopping Center	1000 Sq. Feet Gross	0(0)	Weekday, Peak Hou	Average 0.96	0

(0) indicates size out of range.

TRAFFIC REDUCTIONS

Specify a percentage by which the Entry Trip and Exit Trip will be reduced for each Land Use. This reducti applied to the Entry Trip and Exit Trip from the previous section. To record any notes, click Add Notes al

LAND USE	ENTRY REDUCTION	ADJUSTED ENTRY	EXIT REDUCTION	ADJ
210 - Single-Family Detached Housing	0 %	73	0 %	
495 - Recreational Community Center	0 %	20	0 %	
492 - Health/Fitness Club	0 %	7	0 %	
820 - Shopping Center	0 %	n/a	0 %	

INTERNAL TRIPS

Specify the percentage of trips that occur between the Land Use on the left and the Land Use on the right. below displays the total number of trips that have been reduced from a particular Land Use. The total numb Internal Trips for each Land Use will be deducted from the adjusted Entry Trips and Exit Trips from the pre section. To record any notes, click the icon above. For recommended values see the ITE Handbook or 684.

210 - Single-Family Detached Housing
Exit 217 Demand Exit: 0 % (0) Balanced: 0 **495 - Recreational Commu**
Entry 73 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

210 - Single-Family Detached Housing
Exit 217 Demand Exit: 0 % (0) Balanced: 0 **492 - Health/Fi**
Entry 73 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

210 - Single-Family Detached Housing
Exit 217 Demand Exit: 0 % (0) Balanced: 0 **820 - Shopp**
Entry 73 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

495 - Recreational Community Center
Exit 11 Demand Exit: 0 % (0) Balanced: 0 **492 - Health/Fi**
Entry 20 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

495 - Recreational Community Center
Exit 11 Demand Exit: 0 % (0) Balanced: 0 **820 - Shopp**
Entry 20 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

492 - Health/Fitness Club
Exit 7 Demand Exit: 0 % (0) Balanced: 0 **820 - Shopp**
Entry 7 Balanced: 0 Demand Entry: 0 % (0)

Demand Entry: 0 % (0) Demand Exit: 0 % (0)

210 - Single-Family Detached Housing

	TOTAL TRIPS	INTERNAL TRIPS				EXTI
		495 - Recreational Community Center	492 - Health/Fitness Club	820 - Shopping Center	Total	
Entry	73 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Exit	217 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2
Total	290 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2

495 - Recreational Community Center

	TOTAL TRIPS	INTERNAL TRIPS				EXTI
		210 - Single-Family Detached Housing	492 - Health/Fitness Club	820 - Shopping Center	Total	
Entry	20 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Exit	11 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Total	31 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	

492 - Health/Fitness Club

	TOTAL TRIPS	INTERNAL TRIPS				EXTI
		210 - Single-Family Detached Housing	495 - Recreational Community Center	820 - Shopping Center	Total	
Entry	7 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Exit	7 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Total	14 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	

820 - Shopping Center

	TOTAL TRIPS	INTERNAL TRIPS				EXTI
		210 - Single-Family Detached Housing	495 - Recreational Community Center	492 - Health/Fitness Club	Total	
Entry	n/a	0 (0%)	0 (0%)	0 (0%)	n/a	
Exit	n/a	0 (0%)	0 (0%)	0 (0%)	n/a	
Total	n/a	0 (0%)	0 (0%)	0 (0%)	n/a	

EXTERNAL TRIPS

Specify the percentage of Pass-by Trips for each Land Use. The percentage will be reduced from the total External Trips from the previous section. To record any notes, click Add Notes above.

The icon preceding the Pass-by% value indicates data provided by ITE. Clicking the icon changes a cus by% value to data provided by ITE.

LAND USE	EXTERNAL TRIPS	PASS-BY%	PASS-BY TRIPS	NO
210 - Single-Family Detached Housing	290	0 %	0	
495 - Recreational Community Center	31	0 %	0	
492 - Health/Fitness Club	14	0 %	0	
820 - Shopping Center	n/a	0 %	n/a	

Print Preview Save Analysis

PERIOD SETTING

✓ DATA PROVI

Specify the Independent Variable, Time Period, and Calculation Method to be used in the calculation of the of Trips generated in the analysis. To record any notes, click Add Notes above.

PROJECT NAME: CORKSCREW GROVES CPA SHORT RANGE

ANALYSIS NAME: PM Peak Hour

LAND USE	INDEPENDENT VARIABLE	SIZE	TIME PERIOD	METHOD	ENTRY
210 - Single-Family Detached Housing	Dwelling Units	400	Weekday, Peak Hou	Best Fit (LOG) Ln(T) = 0.9Ln(X) + 0.51	231
495 - Recreational Community Center	1000 Sq. Feet Gross	15(0)	Weekday, Peak Hou	Average 2.74	20
492 - Health/Fitness Club	1000 Sq. Feet Gross	10(0)	Weekday, Peak Hou	Average 3.53	20
820 - Shopping Center	1000 Sq. Feet Gross	0(0)	Weekday, Peak Hou	Average 3.71	0

(0) indicates size out of range.

TRAFFIC REDUCTIONS

Specify a percentage by which the Entry Trip and Exit Trip will be reduced for each Land Use. This reductic applied to the Entry Trip and Exit Trip from the previous section. To record any notes, click Add Notes al

LAND USE	ENTRY REDUCTION	ADJUSTED ENTRY	EXIT REDUCTION	ADJ
210 - Single-Family Detached Housing	0 %	231	0 %	
495 - Recreational Community Center	0 %	20	0 %	
492 - Health/Fitness Club	0 %	20	0 %	
820 - Shopping Center	0 %	n/a	0 %	

INTERNAL TRIPS

Specify the percentage of trips that occur between the Land Use on the left and the Land Use on the right. below displays the total number of trips that have been reduced from a particular Land Use. The total numb Internal Trips for each Land Use will be deducted from the adjusted Entry Trips and Exit Trips from the pre section. To record any notes, click the icon above. For recommended values see the ITE Handbook or N 684.

210 - Single-Family Detached Housing — **495 - Recreational Commu**

Exit 135 Demand Exit: 0 % (0) Balanced: 0 Demand Entry: 0 % (0)

Entry 231 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

210 - Single-Family Detached Housing — **492 - Health/Fi**

Exit 135 Demand Exit: 0 % (0) Balanced: 0 Demand Entry: 0 % (0)

Entry 231 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

210 - Single-Family Detached Housing — **820 - Shopp**

Exit 135 Demand Exit: 0 % (0) Balanced: 0 Demand Entry: 0 % (0)

Entry 231 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

495 - Recreational Community Center — **492 - Health/Fi**

Exit 21 Demand Exit: 0 % (0) Balanced: 0 Demand Entry: 0 % (0)

Entry 20 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

495 - Recreational Community Center — **820 - Shopp**

Exit 21 Demand Exit: 0 % (0) Balanced: 0 Demand Entry: 0 % (0)

Entry 20 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

492 - Health/Fitness Club — **820 - Shopp**

Exit 15 Demand Exit: 0 % (0) Balanced: 0 Demand Entry: 0 % (0)

Entry 20 Balanced: 0

Demand Entry: 0 % (0)

Demand Exit: 0 % (0)

210 - Single-Family Detached Housing

	TOTAL TRIPS	INTERNAL TRIPS				EXTI
		495 - Recreational Community Center	492 - Health/Fitness Club	820 - Shopping Center	Total	
Entry	231 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2
Exit	135 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1
Total	366 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3

495 - Recreational Community Center

	TOTAL TRIPS	INTERNAL TRIPS				EXTI
		210 - Single-Family Detached Housing	492 - Health/Fitness Club	820 - Shopping Center	Total	
Entry	20 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Exit	21 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Total	41 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	

492 - Health/Fitness Club

	TOTAL TRIPS	INTERNAL TRIPS				EXTI
		210 - Single-Family Detached Housing	495 - Recreational Community Center	820 - Shopping Center	Total	
Entry	20 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Exit	15 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Total	35 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	

820 - Shopping Center

	TOTAL TRIPS	INTERNAL TRIPS				EXTI
		210 - Single-Family Detached Housing	495 - Recreational Community Center	492 - Health/Fitness Club	Total	
Entry	n/a	0 (0%)	0 (0%)	0 (0%)	n/a	
Exit	n/a	0 (0%)	0 (0%)	0 (0%)	n/a	
Total	n/a	0 (0%)	0 (0%)	0 (0%)	n/a	

EXTERNAL TRIPS

Specify the percentage of Pass-by Trips for each Land Use. The percentage will be reduced from the total External Trips from the previous section. To record any notes, click Add Notes above.

The icon preceding the Pass-by% value indicates data provided by ITE. Clicking the icon changes a cus by% value to data provided by ITE.

LAND USE	EXTERNAL TRIPS	PASS-BY%	PASS-BY TRIPS	NO
210 - Single-Family Detached Housing	366	0 %	0	
495 - Recreational Community Center	41	0 %	0	
492 - Health/Fitness Club	35	0 %	0	
820 - Shopping Center	n/a	45 %	n/a	

Print Preview Save Analysis

PERIOD SETTING

✓ DATA PROVI

Specify the Independent Variable, Time Period, and Calculation Method to be used in the calculation of the of Trips generated in the analysis. To record any notes, click Add Notes above.

PROJECT NAME: CORKSCREW GROVES CPA SHORT RANGE

ANALYSIS NAME: Weekday

LAND USE	INDEPENDENT VARIABLE	SIZE	TIME PERIOD	METHOD	ENTRY
210 - Single-Family Detached Housing	Dwelling Units	400	Weekday	Best Fit (LOG) Ln(T) = 0.92Ln(X) + 2.72	1880
495 - Recreational Community Center	1000 Sq. Feet Gross	15(0)	Weekday	Average 33.82	254(1)
492 - Health/Fitness Club	1000 Sq. Feet Gross	10(0)	Weekday	Average 32.93	165(1)
820 - Shopping Center	1000 Sq. Feet Gross	0(0)	Weekday	Average 42.7	0

(0) indicates size out of range.
(1) indicates small sample size, use carefully.

TRAFFIC REDUCTIONS

Specify a percentage by which the Entry Trip and Exit Trip will be reduced for each Land Use. This reductic applied to the Entry Trip and Exit Trip from the previous section. To record any notes, click Add Notes al

LAND USE	ENTRY REDUCTION	ADJUSTED ENTRY	EXIT REDUCTION	ADJ
210 - Single-Family Detached Housing	0 %	1880	0 %	
495 - Recreational Community Center	0 %	254	0 %	
492 - Health/Fitness Club	0 %	165	0 %	
820 - Shopping Center	0 %	n/a	0 %	

INTERNAL TRIPS

Specify the percentage of trips that occur between the Land Use on the left and the Land Use on the right. below displays the total number of trips that have been reduced from a particular Land Use. The total numb Internal Trips for each Land Use will be deducted from the adjusted Entry Trips and Exit Trips from the pre section. To record any notes, click the icon above. For recommended values see the ITE Handbook or M 684.

210 - Single-Family Detached Housing
Exit 1880 Demand Exit: 0 % (0) Balanced: 0 **495 - Recreational Commu** Demand Entry: 0 % (0)
Entry 1880 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

210 - Single-Family Detached Housing
Exit 1880 Demand Exit: 0 % (0) Balanced: 0 **492 - Health/Fi** Demand Entry: 0 % (0)
Entry 1880 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

210 - Single-Family Detached Housing
Exit 1880 Demand Exit: 0 % (0) Balanced: 0 **820 - Shopp** Demand Entry: 0 % (0)
Entry 1880 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

495 - Recreational Community Center
Exit 253 Demand Exit: 0 % (0) Balanced: 0 **492 - Health/Fi** Demand Entry: 0 % (0)
Entry 254 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

495 - Recreational Community Center
Exit 253 Demand Exit: 0 % (0) Balanced: 0 **820 - Shopp** Demand Entry: 0 % (0)
Entry 254 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

492 - Health/Fitness Club
Exit 164 Demand Exit: 0 % (0) Balanced: 0 **820 - Shopp** Demand Entry: 0 % (0)

Entry 165 Demand Entry: 0 % (0) Balanced: 0 Demand Exit: 0 % (0)

210 - Single-Family Detached Housing

	TOTAL TRIPS	INTERNAL TRIPS				EXTE
		495 - Recreational Community Center	492 - Health/Fitness Club	820 - Shopping Center	Total	
Entry	1880 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	18
Exit	1880 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	18
Total	3760 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	37

495 - Recreational Community Center

	TOTAL TRIPS	INTERNAL TRIPS				EXTE
		210 - Single-Family Detached Housing	492 - Health/Fitness Club	820 - Shopping Center	Total	
Entry	254 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2
Exit	253 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2
Total	507 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	5

492 - Health/Fitness Club

	TOTAL TRIPS	INTERNAL TRIPS				EXTE
		210 - Single-Family Detached Housing	495 - Recreational Community Center	820 - Shopping Center	Total	
Entry	165 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1
Exit	164 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1
Total	329 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3

820 - Shopping Center

	TOTAL TRIPS	INTERNAL TRIPS				EXTE
		210 - Single-Family Detached Housing	495 - Recreational Community Center	492 - Health/Fitness Club	Total	
Entry	n/a	0 (0%)	0 (0%)	0 (0%)	n/a	
Exit	n/a	0 (0%)	0 (0%)	0 (0%)	n/a	
Total	n/a	0 (0%)	0 (0%)	0 (0%)	n/a	

EXTERNAL TRIPS

Specify the percentage of Pass-by Trips for each Land Use. The percentage will be reduced from the total External Trips from the previous section. To record any notes, click Add Notes above.

The icon preceding the Pass-by% value indicates data provided by ITE. Clicking the icon changes a cus by% value to data provided by ITE.

LAND USE	EXTERNAL TRIPS	PASS-BY%	PASS-BY TRIPS	NO
210 - Single-Family Detached Housing	3760	0 %	0	
495 - Recreational Community Center	507	0 %	0	
492 - Health/Fitness Club	329	0 %	0	
820 - Shopping Center	n/a	0 %	n/a	

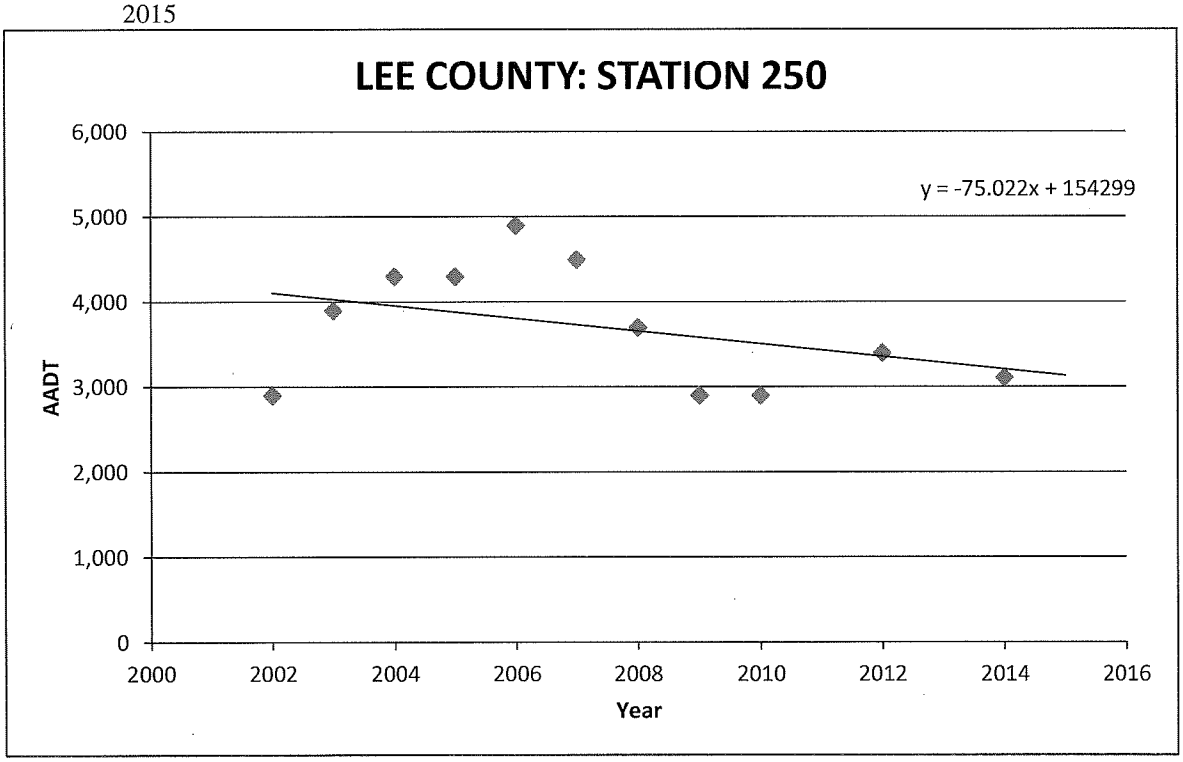
Print Preview Save Analysis

APPENDIX C

TRAFFIC GROWTH TRENDS

CORKSCREW ROAD
LEE COUNTY: STATION 250
CORKSCREW ROAD EAST OF ALICO ROAD

Year	AADT		Equation			Growth
2002	2,900	(1)	y1	x1		-1.83% per year
2003	3,900	(1)	4,105	2002		
2004	4,300	(1)				
2005	4,300	(1)	y2	x2		
2006	4,900	(1)	3,130	2015		
2007	4,500	(1)				
2008	3,700	(1)				
2009	2,900	(1)				
2010	2,900	(1)				
2011						
2012	3,400	(2)				
2013						
2014	3,109	(2)				
2015						



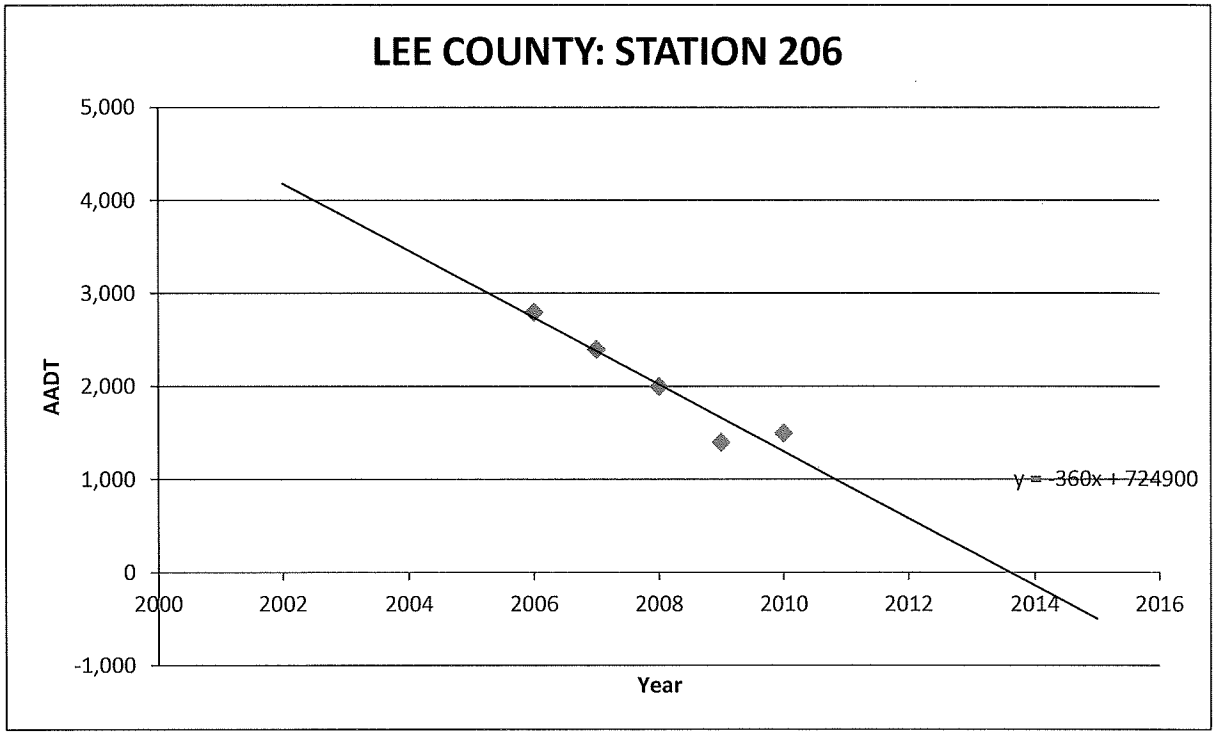
Footnotes:

(1) Historical AADT for Station 250 reported in Lee County Traffic Database System website: http://lee.ms2soft.com/tcds/tsearch.asp?loc=Lee&mod=

(2) Historical AADT for Station 250 reported in Lee County 2015 Traffic Count Report: http://www.leegov.com/dot/traffic/trafficcountreports

ALICO ROAD
LEE COUNTY: STATION 206
ALICO ROAD NORTH OF CORKSCREW ROAD

Year	AADT		Equation			Growth
2002			y1	x1		-8.61% per year
2003			4,180	2002		
2004						
2005			y2	x2		
2006	2,800	(1)	-500	2015		
2007	2,400	(1)				
2008	2,000	(1)				
2009	1,400	(1)				
2010	1,500	(1)				
2011						
2012						
2013						
2014						
2015						



Footnotes:

(1) Historical AADT for Station 206 reported in Lee County Traffic Database System website: http://lee.ms2soft.com/tcds/tsearch.asp?loc=Lee&mod=

DELISI
Land Use Planning & Water Policy

Brandon D Dunn, Principal Planner
Planning Section
Lee County Department of Community Development
1500 Monroe Street
Fort Myers, FL 33902

February 2, 2017

Re: Verdana CPA
CPA2016-00009
Sufficiency #1 submittal

Mr. Dunn,

In response to the comment letter dated October 10, 2016, please find the following items for your review:

1. 24x36 soils map
2. 24x36 size topo map
3. 24x36 size wetlands map and aquifer recharge map
4. Listed Species map
5. Revised Legal Description
6. Revised Text Amendment
7. Revised site plan
8. Aerial with Conservation Lands – Passarella Exhibit A
9. Historic, Existing and Proposed Drainage Maps - Passarella Exhibits B, C and D
10. Enhanced Lake Management Plan
11. Transportation Responses – David Plummer and Associates

In addition, based on our meeting on November 7, 2016, and other meetings that the applicant has been having with area residents and environmental organizations, the applicant has made significant revisions to the proposed plan of development. The change to the plans requires updates to several submittal items. The written responses to the comments that are provided below have been addressed in the context of the new site plan.

APPLICATION MATERIALS COMMENTS:

1. Please provide full size 24x36 soils map as well as topo maps. Also, include the wetlands and aquifer recharge areas on a full size map.

Full size maps of soils, wetlands, and topo are attached as requested. The entire project site is classified as Ground Water Recharge Category 8 and a note indicating this has been added to the wetlands map.

2. Please include recent information on 2016 Panther Telemetry, Wood Stork Nest sites, caracara nest locations and other listed species.

Additional species information is presented on the revised Exhibit H (attached) of the Environmental Assessment.

3. Please provide the required metes and bounds legal description for the entire perimeter boundary of the property.

Please see the attached metes and bounds legal description for the entire perimeter of the property.

4. Please further explain the rationale for expanding the overlay and what other properties could benefit from the expansion. The application materials do not fully recognize the potential impacts to public facilities that expansion of the overlay would have.

Please see the attached revised Text Amendment. Per our meeting in November, we have revised the text amendment so that the expansion would only apply to Tier one properties that have the ability to make a hydrologic and wildlife connection from north to south. There are no other properties that can meet both of these goals. Therefore, the revised language applies only to the subject property. One of the county goals is to connect natural preserve areas and restore flowways. If the Verdana project does not provide the connection to the south the county does not have a corridor that goes from the CREW lands on the south to the County mitigation property north of Corkscrew. The connection allows for the wildlife corridor and for a drainage connection, and improved water quality.

5. The narrative implies that compact residential pods are proposed; however, this is not illustrated on the site plans provided within the technical documents. Please correct for consistency.

Please see the attached revised colored site plan. The attached plan has been revised from the previous plan to incorporate staff comments and concerns about the compactness of development and the restoration of historic flow ways. The revised plan can be characterized as "compact" in that it clusters all of the residential areas in to three pods leaving large contiguous open space areas for flow way and habitat restoration. The development footprint has been significantly reduced over the last plan and the area of restoration has been increased.

6. The August 16th "Characterization of Ground and Surface Water Resources" provides a consistency with the Lee Plan narrative that states the proposed development should be designated as an "Improved Residential Community," while the rest of the application materials request that the subject property be included within the Environmental Enhancement and Preservation Communities Overlay. Please clarify the request, fix any inconsistencies within the application and if necessary update the Ground and Surface Water analysis to demonstrate consistency with the appropriate overlay.

The term "Improved Residential Community" was stated only once in the Characterization of Ground and Surface Water Resources analysis (Section 6.0) and was simply referencing language included in The Lee Plan. To clarify, the Characterization of Ground and Surface Water Resources report is consistent with the request that the development be included within the Environmental Enhancement and Preservation Communities Overlay and the technical analyses included clearly illustrate the substantial improvements to environmental systems and shallow groundwater resources resulting from the proposed Verdana development.

LEE PLAN CONSISTENCY COMMENTS:

1. Policy 4.1.1 states that "development designs will be evaluated to ensure that land uses and structures are well integrated, properly orientated, and functionally related to the topographic and natural features of the site..." The proposed site design identified in the application materials does not appear to be consistent with this policy based on the soil types, ground elevations and historic flow ways. For example, it appears that the residential areas are concentrated in areas of low land elevation and that potential flow way enhancements and connections will be impacted by the project's design. Will this create the need for additional fill materials? Please demonstrate consistency.

The Verdana project site, in its current condition, has been significantly altered from historic conditions. The property is currently an active citrus grove and the land surface is typically leveled and adjusted to provide for proper drainage within the grove, reliance on soil types and documentation generated prior to the adjustments for the grove would not lead to an accurate understanding of current site conditions. With the exception of the remnant wetland areas, the historic native vegetative communities were previously cleared for construction of the citrus grove on the property.

Topography of the site was altered to provide areas of uniform elevations conducive for citrus grove irrigation and drainage. Relative historic elevations of the site can be inferred from the vegetative communities evident on historic aerials which suggest lower elevations existed in the areas identified as wetlands. By contrast, current LIDAR imagery of the site (reference Figure 3 Site Topography from the previously submitted Characterization of Ground and Surface Water Resources document) clearly shows current site topography has been significantly altered. While the overall site still generally slopes from north to south, areas of lower topography where wetlands and flowways that historically existed have been filled and leveled for many years.

The provided soils map for the Verdana project is based on historic conditions prior to the clearing of native vegetation and filling of lower areas to facilitate agricultural use. Further, the excavation of drainage ditching and filling for raised planting areas, which was done over several decades ago for citrus, has also disturbed and redistributed soils within the site.

The proposed restoration for Verdana incorporates the remnant wetlands on-site into a larger flowway/wildlife corridor that mimics to the extent possible the historic conditions. Per meetings with Lee County staff, the Verdana concept plan has been revised to create a larger block of restoration in the southwest corner of the site and provides the opportunity for Pepperland to connect into the proposed restoration on-site.

Please refer to responses to Natural Resource Comments 1 through 4 below for additional details.

2. The application materials do not demonstrate how the project is being designed to provide significant regional hydrological and wildlife connections. Policy 33.3.4 (2)(a}, requires restoration and accommodation of existing and historic regional flowways both where they currently exist or previously existed as well as wildlife connections. The site plan included in the Characterization of Ground and Surface Water Resources document indicate a site design within historical flowway and impeding wildlife movement. Please clearly demonstrate and illustrate that the subject property can provide the required regional benefits to be eligible to be included within the Environmental Enhancement and Preservation Communities Overlay and support with data and analysis.

Please see responses to Natural Resource Comments 1 through 4, below.

3. Policy 107.2.13 promotes optimal conditions rather than minimum conditions for the natural system as the basis for sound planning. Again, the site plan included in the application materials does not promote optimal conditions for the natural system. The historic flowways are not being incorporated into overall design making it unclear how the project is consistent with Policy 33.3.4 and eligible for inclusion in the Environmental Enhancement and Preservation Communities Overlay.

Please refer to responses to Comment 1 above and Natural Resource Comments 1 through 4 below

4. Please clarify the intent of the untitled document that provides an analysis of moving lands from a non-urban area to a future urban area. The Environmental Enhancement and Preservation Communities Overlay is not considered a future urban area as defined in the Lee Plan. Please correct and make consistent throughout the application.

While technically the Environmental Enhancement and Preservation Communities Overlay is an option for development in a non-urban area, the analysis was included to make clear that the proposed plan amendment <u>does not</u> constitute urban sprawl.

5. As provided for in the back-up materials to the ordinances that established the Overlay, one of the primary goals was to identify lands that can provide strategic regional benefits while minimizing new and adverse impacts that would be inconsistent with Lee County's goals for Southeast Lee County by locating the development in proximity to Corkscrew and Alico Road. Therefore, infrastructure expansion (internal roads and utilities) should be

concentrated within one mile of Corkscrew Road. How is the proposed expansion with concentrated density and infrastructure within 500 feet of the south property line a benefit to adjacent conservation properties? It would seem that to better protect and enhance the adjacent properties additional preservation and restoration should be proposed within the expanded overlay area to provide an improved transition from lands that are 55% conservation to lands that are 100% conservation.

The property needs to be evaluated as a whole to identify the best locations for hydraulic connections and wildlife corridors. The concentration of all of the units on the northern one mile does not do the best job of achieving the environmental and drainage benefits encouraged by the Overlay. The applicant does not propose to place the entire southern mile of the subject property in conservation. The southern mile is presently an active producing citrus grove. The cost of demolishing an active productive agricultural operation is not warranted by a requirement that the entire property be converted into conservation. While the Lee Plan identifies all Tier 1 properties as targeted for public acquisition, no part of the property is in conservation or has been suggested for acquisition in any meaningful way. While it may seem ideal to assume that the southern mile adjacent to CREW is undeveloped and therefore does not impact the adjacent conservations lands, the reality of an operating citrus grove is much different.

The current grove operations create a significant drawdown of the groundwater table and discharges in to the Panther Island Mitigation Bank. Without extending the overlay, there is no incentive to preserve the southern mile, and no opportunity or a very limited opportunity for the County, or anyone else, to provide hydrologic restoration.

With that in mind, design of the site was a careful balance between trying to restore the historic flow pattern (northeast to southwest), provide for a mammal wildlife corridor and concentrate the largest contiguous restoration area at the lowest point of the property adjacent to Panther Island (the southwest corner).

The revised site plan significantly reduced the amount of development within the southern mile by removing the parcel that had been located south of the Pepperland project. The 500 foot setback was designed to provide an adequate separation for land management activities.

6. The intent of Objective 107.4 is to maintain or enhance existing population numbers and distributions of listed species. Have wildlife corridors been identified? What wildlife corridors are benefited by expanding the overlay boundary to the south? What are the impacts to wildlife corridors by the location of the residential areas in the southern portions of the property?

The Verdana site is an active citrus grove, which has limited benefits to wildlife. The proposed restoration of the site and implementation of the Wildlife-Human Coexistence Plan for the project will significantly increase the on-site habitat values for wildlife species. Corkscrew Regional Mitigation Bank to the north is comprised of property that has been restored and is currently being managed to maintain wetland and wildlife

habitat functions. Likewise, Panther Island Mitigation Bank to the south has been restored and is currently managed to maintain wetland and wildlife habitat functions (see attached Exhibit A). The establishment of the Verdana restoration plan for the full distance between these two mitigation banks will provide an essential element in the connection of these two regionally significant conservation projects.

NATURAL RESOURCES COMMENTS:

1. Please provide three different layouts of this project demonstrating historic, existing, and proposed drainage patterns on the site. Use flow arrows to show directions of flow. Explain how the regional flow patterns were altered by the existing activities. Explain measures taken to restore historic flow ways during the proposed development.

A 1958 aerial of the Verdana project site (and adjacent lands) with historic flow arrows is attached as Exhibit B. Historic regional flow patterns generally conveyed surface water from the northeast to southwest as indicated. Off-site flows onto the lands now proposed as the Verdana project came primarily from the east and northeast, flowed through the site, and exited to the southwest.

A 2016 aerial of the Verdana project site (and adjacent lands) with current flow routing is attached as Exhibit C. No off-site flows currently enter the Verdana project site. As the flow arrows indicate, under current conditions, flows from the north of the site are intercepted and generally routed westward by the ditch along the north side of Corkscrew Road. There are no water conveyance structures under Corkscrew Road along the northern boundary of the Verdana site. At higher water levels within the ditch, water does flow southward through a culvert under Corkscrew Road a mile east of the Verdana site. Flows from the east of the Verdana site are currently intercepted and routed south through an existing ditch along the east side of Carter Road as shown on Exhibit C.

Under current conditions, no off-site flows enter into, or are conveyed through, the Verdana project site. Also, the Verdana project site is currently bermed along the entire property perimeter per the agricultural operation's surface water management permits. Within the project site, a series of drainage ditches currently route water to an internal ditch system that discharges to the south into a settling pond on to the existing Panther Island Mitigation Bank site.

A 2016 aerial of the Verdana project site and adjacent lands with proposed flowways and flow routing is attached as Exhibit D. As discussed above in the response to Lee Plan Consistency Comment 1, essentially all of the vegetation and topography that previously defined the historic flowway has been removed or altered by years of ongoing agricultural development and activity. The primary goal of the restoration plan for the Verdana site is to establish a viable area of flowway and natural vegetation to serve as an essential part of establishing a regional wildlife and hydrologic connection from the conservation lands of Corkscrew Regional Mitigation Bank/Imperial Marsh in the north to the conservation lands of Panther Island Mitigation Bank/CREW to the south. The

project's proposed restoration will provide a continuous linkage from the northeast portion of the site, across from Corkscrew Regional Mitigation Bank, to the southwest portion of the site, adjacent to Panther Island Mitigation Bank. The revised Verdana site plan features a single road crossing of the proposed restoration zone and an appropriate wildlife underpass will be provided to facilitate safe wildlife movement under the road. Additionally, at the County's request the restoration plan has been designed to accommodate flows potentially entering the site from the adjacent Pepperland Ranch project to the west and potential future off-site flows from the east.

2. What actions/measures will be taken to interconnect the historical flowways from the North of Corkscrew Rd and Eastern Border to the project site and continue to CREW lands to the south?

The Verdana site plan is proposed as a regional link to accommodate the re-establishment of a wildlife and hydrologic connection from lands to the north (Corkscrew Regional Mitigation Bank/Imperial Marsh lands) and lands to the south (Panther Island Mitigation Bank/CREW lands). Surface water hydrology in the DRGR area typically flows from the northeast to the southwest with Corkscrew Road serving as a partial interruption to general water flow patterns. The existing pattern of residential and agricultural development north and south of Corkscrew Road has limited the opportunity for re-establishment of hydrologic and wildlife corridor connections across Corkscrew Road (see attached Exhibit A, Verdana Aerial with Regional Conservation Lands). The Verdana project has been designed to accommodate flows from the north, west and east. The actual connection of flows from off-site north and east involves properties outside the control of the applicant. The actual siting and construction of hydrologic and wildlife crossings is a regional issue beyond the scope of the Verdana project. Instead, the Verdana project has been design to accommodate such potential off-site flows which significantly increases the opportunity for hydrologic and wildlife connectivity under Corkscrew Road and/or from the west of the project site.

3. The applicant is advised to reconfigure development pods in order to accommodate restoration of historical flow ways and hydrology.

As recommended by County staff during recent meetings, the development pods have been reconfigured allowing increase potential for off-site flow accommodation and reduced road crossings of the hydrologic and wildlife restoration corridor. The concept plan has been revised to include a larger block of restoration area in the southwest corner of the site and incorporates greater connectivity to proposed restoration activities located on the adjacent Pepperland property.

4. To develop an effective restoration plan for the historical flowways, applicant is advised to meet with the neighboring development (i.e. Pepperland Ranch), CREW and LC DNR staff. The existing wetlands, depressions, and straddling flowways over the two development sites (plus the offsite inflows and outflows) warrant for a combined evaluation of the two sites to come up with a synchronized and continuous flowway system.

The applicant met with representatives for Pepperland on May 2, 2016 and CREW on January 22, 2016, prior to formulating the project's initial design. In addition, the applicant has also had several meetings with other environmental organizations and the residents along Glades Farm Road. The applicant met with LC DNR several times over the last year and will continue to meet with them throughout this process. Based on these meetings the initial site plan has been revised to remove the western most parcel, two road crossing of the restored flow way and wildlife corridor, and to cluster more development to the north.

As discussed above, the separation of surface water flows between Pepperland Ranch and Verdana still exists today. The internal Stormwater Management facilities for the Pepperland Ranch property discharges to the west, adjacent to Six L's Farms Road and Verdana's existing permitted outfall occurring to the south, towards Collier County, as shown on the attached Exhibit C. Due to the separation in stormwater discharge locations, any proposed connection of surface water flows between the properties will likely require a perpetual cross-drainage agreement that, given the existing permitted locations, may need the approval from the South Florida Water Management District (SFWMD).

Nonetheless, the applicant is committed to the overall improvement and enhancement of the DR/GR and is agreeable to considering allowing Pepperland to make the hydrologic interconnection as desired by staff when the on-site flowway has been constructed. If such a hydrologic connection is established the perpetual cross-drainage agreement would have to address the specific conditions under which surface water flows would occur, including but not limited to the maximum rates and volume of flows. Regular testing and potential contamination and clean-up responsibility will have to be addressed in order to ascertain the water quality being introduced into the proposed Verdana flow-way. In addition, construction costs, permitting or other regulatory requirements from SFWMD or other agencies, if any, would need to be the responsibility of Pepperland Ranch.

It should be noted that if the overlay were not to be extended south of the current 1 mile limit, the restoration activity of the historic flowway, which is located more than 1-mile south of Corkscrew Road would not be possible. The area to the south of Pepperland would remain in active citrus farming and the desired flow way connections would not be possible.

5. Please provide details of any investigations conducted to check the presence of chemical or other forms of contaminants onsite that may have potential for leaching into groundwater or surface water runoff. If none were performed please explain why.

Prior to purchasing the property, Pan Terra Holdings, Ltd. engaged the services of U.S. South Engineering and Testing Lab, Inc. (USETL) from Miami Lakes, Florida. The USETL Limited Phase II Environmental Site Assessment (ESA) was performed in accordance

with the American Society of Testing and Materials (ASTM) Standard Practices for ESA'a (ASTM Practice E1903-11) and indicates that that all of the soil samples, for all of the compounds tested, were below the detection limit (BDL) as set forth by Chapter 62-777 Florida Administrative Code (FAC).

Forty-six (46) soil samples were collected from 0 to 2 feet below land surface (bls) and analyzed for arsenic (a compound commonly found in citrus groves) and twenty-three (23) soil samples were analyzed for EPA Method 8081, 8041, and 8151 (herbicides and pesticides). Therefore, based on the USETL testing, there is no indication that contaminants have leached into the underlying groundwater or have discharged offsite in surface water runoff. The proposed residential development eliminates the citrus grove which dramatically reduces the application of pesticides, herbicides and fertilizers. As a result, the potential for future impacts to the water resources will be significantly reduced as part of the proposed land use.

6. Are stormwater lakes the most appropriate means for managing water quantity and quality within an environmental enhancement area? The stormwater runoff must be directed to specifically designed and designated stormwater treatment areas; it must not be directly diverted or placed into the proposed lakes.

Stormwater lakes are considered an effective treatment method for the uptake of nutrients generated by the development areas for compliance with Policy 33.3.4.2.h. All lakes are to be contained within the stormwater treatment system behind a control structure, with concentrated littoral zones, designed to meet regulatory water quality and quantity treatment requirements prior discharging to the environmental preservation areas on the property. Additional treatment of the water will also occur naturally within the preservation areas prior to discharge off-site.

7. A groundwater monitoring network will be required to protect the public water supply system. Please incorporate groundwater monitoring into the Water Quality Monitoring Plan.

As shown on Figure 1, there is only one (1) stormwater management lake partially located within the County's recently updated travel time map. As shown, the 10-year travel time area (blue shaded area) partially crosses the proposed northwestern-most stormwater management lake. In addition, the same lake is well outside of the 5-year travel time area (red shaded area). The long travel time is due to local groundwater gradients and the fact that the County's nearest potable well site is over 1,000 feet distant from this feature. The travel time areas clearly illustrate that that the proposed development has an extremely remote chance of adversely impacting Lee County's public water supply wells.

To provide additional safeguards for the County's nearest public supply wells, an Enhanced Lake Management Plan (ELMP) has been developed that includes detailed water quality monitoring of the nearest stormwater management system lake as well as other lakes within the proposed development. Seven (7) lake sampling locations are proposed as part of this ELMP and are illustrated in Figure 6. The level of water quality

assurance offered by the ELMP, coupled with Lee County's 5 to 10-year prediction of groundwater travel times, offers abundant assurance that if degradation of water quality or contamination is observed or detected that ample time exists in which to initiate remedial measures.

Such measures could include some or all of the following actions; 1) The installation of monitoring wells between the nearest stormwater management system lake and Lee County's public supply wells; 2) If deemed necessary, the construction and operation of groundwater intercept or recovery wells; 3) The implementation of increased water quality testing; and 4) Measures to augment the lake with groundwater for dilution, and if necessary withdraw the water from the lake for treatment. These remedial actions would be triggered by an accidental spill and or detection of high concentrations above the Maximum Contaminant Levels (MCL) for the compounds listed in the attached ELMP.

The aforementioned lake is also proposed to be incorporated into the development's conjunctive use irrigation system which combines groundwater replenishment and the subsequent withdrawal (repump) of both groundwater and stormwater for irrigation. This type of system is expected to not only maintain water quality in the feature but also allows for the repeated dilution and subsequent withdrawal of water supplies from the referenced lake. Additional details regarding the proposed water quality monitoring are provided in the attached ELMP.

8. Will the applicant be utilizing the groundwater to replenishment water taken from onsite lakes as the irrigation source? Is the applicant proposing a centralized irrigation system for everyone's use? Please provide water budget for the project's historic, existing and proposed activities. Identify source of water in the water budget.

As stated in PWR's August 2016 Characterization of Ground and Surface Water Resources Report, the development proposes to use groundwater to periodically replenish several dedicated stormwater lakes for use in irrigating lawn and landscaped areas. The conjunctive use of groundwater and surface water (detained stormwater) from the dedicated irrigation ponds will help to maximize the conservation of the water resources by combining two water sources.

Conjunctive use of irrigation supply sources, combined with the proposed significant lowering of irrigation demands (approximately 76% lower for the proposed residential development) will help to conserve and enhance the water resources of the DR/GR. Conservation efforts will be further increased by the implementation of a centrally-controlled irrigation system whereby no individual homeowner can initiate or extend the duration of irrigation cycles. The centrally-controlled system will also facilitate a more unified and water-conscious approach to seasonal irrigation demands. In addition, as also noted in PWR's report, the Applicant proposes to eliminate all existing permitted groundwater withdrawals from the shallow Water Table Aquifer. Currently approximately 77% of the citrus irrigation quantities are authorized to be withdrawn from the unconfined Water Table Aquifer.

The proposed development also offers to improve the water budget for the property. Table 1 provides a listing of basic water resource parameters (water budget parameters) for predevelopment (i.e. native conditions), the existing citrus grove, and the proposed residential development. Prior to the property's conversion into a 1,134-acre citrus operation, it was characterized by 1,460 acres of native vegetation, with isolated and interconnected wetland systems supported by seasonal rainfall and undisturbed groundwater levels. The predevelopment water budget was driven by natural rainfall variability and relatively stable evapotranspiration (ET) rates. An ET rate for the original native landscape is unknown, but can be approximated from nearby hydrologic data and an ET rate of roughly 42.66 inches per year is estimated for the site based on a study performed by PWR in southern Charlotte County.

Table 1. Water Resource Parameters

	Predevelopment Conditions	*Existing Conditions*	*Proposed Development Conditions*	*Comments*
Land Cover	*Native*	*Citrus Grove*	*Restoration/Development*	*Proposed 55% Preserve / Indigenous*
Average (mean) Rainfall	*50.46 inches*	*50.46 inches*	*50.46 inches*	*SFWMD Blaney- Criddle Data*
Drought Rainfall	*32.83 inches*	*32.83 inches*	*32.83 inches*	*1964 Florida Climate Center data*
Average Effective Rainfall	*Unknown*	*24.78 inches*	*26.42 inches*	*SFWMD Blaney- Criddle Data*
1-in-10 Effective Rainfall	*Unknown*	*20.32 inches*	*21.64 inches*	*SFWMD Blaney- Criddle Data*
Evapotranspiration	*42.66 inches**	*50.20 inches*	*58.62 inches*	*FAWN and SFWMD Blaney-Criddle*
Irrigation (w/ mean rainfall)	*N/A*	*25.42 inches*	*32.20 inches*	*SFWMD Blaney- Criddle Data*
Irrigation (w/ drought rainfall)	*N/A*	*29.88 inches*	*36.98 inches*	*SFWMD Blaney- Criddle Data*
Irrigation Sources(s)	*N/A*	*Groundwater*	*Ground/Surface Water*	*Proposed Reduced Irrigation*

**Note: Data taken from FAWN (University of Florida's Florida Automated Weather Network) Palmdale Station*

Alterations in the water balance for the site resulted when it was developed for agriculture, when native vegetation and predevelopment drainage and topography were modified resulting in approximately 78% of the property being converted. As shown in Table 1, both the citrus grove and proposed development potentially increase ET. However, the revised site plan proposes that 55% of total property area be restored as native preserve and indigenous areas. Therefore, large areas of the existing grove are proposed to be graded (citrus beds leveled) and reestablished with native vegetation, which is expected to reduce ET rates to near predevelopment conditions (i.e. pre-citrus grove). Restoration of citrus areas and the corresponding reduction in ET is expected to contribute significantly the hydrologic restoration of the property.

Likewise, supplemental irrigation of the property commenced with the creation of the existing citrus grove, and irrigation quantities greatly altered the water budget for the site. Therefore, reducing irrigation demands is also an important step in realigning the water budget. This is accomplished in the proposed post-development water balance by significantly reducing irrigated area from 1,134 acres of citrus to approximately 203 acres of lawn and landscape. As a result there will be a

corresponding significant reduction permitted quantities from approximately 1,150 million gallons per year (MGY) currently to approximately 265 MGY after the development is fully built out.

As stated above, a large percentage of the proposed reductions in permitted irrigation quantities will occur from the shallow Water Table Aquifer. Therefore, with the proposed significant reductions in irrigated area and overall permitted quantities, particularly those from the Water Table Aquifer, the proposed development plan will appreciably contribute to the hydrologic restoration of the site. These efforts combined with the estimated reductions in ET rates for restored areas will functionally transform large sections of the property back towards predevelopment, native water balance conditions.

9. Will the applicant be proposing dewatering? Please provide details.

Temporary construction dewatering will occur during the excavation of the lakes and the installation of drainage/utilities. The dewatering containment basins will be designed and constructed to maintain zero discharge from the construction areas. A SFWMD dewatering permit will be obtained and a copy of the dewatering plan will be submitted to Lee County as part of any Development Order for development within the project that requires dewatering.

10. Please provide a lake management plan that, at a minimum, addresses the following issues:

- Best management practices for fertilizers and pesticides,
- Erosion control and bank stabilization including any proposed boat slips,
- Lake maintenance requirements and deep lake management for lakes exceeding 12 feet BLS,
- Water Quality Monitoring Plan which will document the specifics of the surface water and groundwater monitoring networks, and
- Wellfield protection

Please see that attached Enhanced lake Management Plan (ELMP).

11. It appears that there are number of wells on the property. Will these wells be abandoned? Please note: any wells that are not being used must be properly abandoned by a State of Florida licensed water well contractor prior to issuance of the first Development Order.

As shown on Figure 2 there are twenty-three (23) existing irrigation wells that are used to irrigate and cold protect the 1,134-acre citrus crop, five (5) of which are located in the northern development pod. As stated in a previous response, a majority of the existing wells (19) withdraw from the shallow, unconfined Water Table Aquifer. Four wells located in the southeastern section of the property withdraw from the deeper, confined Sandstone Aquifer.

Based on the current development plan, all of the shallow Water Table Aquifer wells will eventually be plugged and abandoned by a licensed Well Drilling Contractor in accordance with South Florida Water Management District (SFWMD) Rule 40E-3.531 F.A.C. In addition, it appears that the Sandstone Aquifer Wells located in the southern development pod will need to be plugged and abandoned in a similar manner, based on the current site plan. However, it is the Applicant's desire to both phase-in the residential development and to phase-out the citrus operation in a coordinated manner. Therefore, the Applicant respectfully requests that the requirement to plug and abandon the existing irrigation wells be a requirement of each residential development order rather than be required to complete such work prior to the first development order issuance.

12. Will the applicant be proposing the use of water craft on the lake? If so, provide details.

It is not anticipated that motorized watercraft will not be proposed on any of the lakes.

13. How deep are the proposed Lakes? Explain how the lake depth was determined.

The lakes are proposed with depths of a minimum of 8' to a maximum of 12'. The 8' minimum is considered the minimum depth necessary to discourage nuisance vegetation, such as cattails, from propagating within the lakes. The 12' maximum depth is the maximum depth allowed by Lee County code without having to follow a deep lake management plan.

14. The applicant may be required to obtain a wellfield protection permit.

Understood.

TRANSPORTATION COMMENTS:

1. The application shows different areas for the CPA in the proposed change to Map 17, the text amendment to Policy 33.3.4(1) "or two miles south" and the project location map attached to the CPA transportation analysis. Alico Road from Corkscrew Road to Airport Haul Road and Corkscrew Road from Alico Road to Ben Hill Griffin Parkway are within a three mile radius of the proposed text amendment area. Will the applicant include these segments of Alico Road and Corkscrew Road in the analysis?

Please see the attached responses from David Plummer and Associates.

2. Alico Road and Corkscrew Road were also included in the transportation analysis for the concurrent CPA2016-00003 Pepperland. CPA2016-00003 was submitted after the methodology meeting for the proposed CPA but is not addressed in this application.

Please see the attached responses from David Plummer and Associates.

3. The application and applicant's traffic study indicate 1,460 SF dwelling units and 60,000 square feet of retail. The applicant's traffic study does not full recognize impacts of the proposed text amendments.

Please see the attached responses from David Plummer and Associates.

Please feel free to contact me if you have any questions.

DeLisi, Inc.

Daniel DeLisi, AICP

DELISI
Land Use Planning & Water Policy

PROPOSED CHANGES TO THE LEE COUNTY COMPREHENSIVE PLAN

The following are the text and map amendments that are being proposed to the Lee County Comprehensive Plan.

Map Amendments:

1. Map 6 – Future Water Service Area (attached)
2. Map 7 – Future Sewer Service Area (attached)
3. Map 17 – SE DR/GR Residential Overlay (attached)

Text Amendments:

Policy 33.3.4(1)

These lands are within the "Environmental Enhancement and Preservation Communities" overlay as designated on Map 17 of the Plan. Lands eligible for the Environmental Enhancement and Preservation Communities overlay must be consistent with one of the criteria below;

a. Lands located west of Lee County 20/20 Imperial Marsh Preserve (Corkscrew Tract), and within one mile north or south of Corkscrew Road. Properties south of Corkscrew Road may extend the overlay an additional mile south only for properties fronting on Corkscrew Road, where the extension will result in connecting conservation land from the north of Corkscrew Road to conservation land in the CREW area.
b. Lands located west of the intersection of Alico Road and Corkscrew Road must be located north of Corkscrew Road and south of Alico Road.

Policy 33.3.4 (2) i.

Elimination of any agricultural row crop uses at the time of development order for the area encompassed within the development order application.

Narrative Justification

The purpose and intent of the "Environmental Enhancement and Preservation Communities" is to provide an incentive for environmental restoration so that environmental corridors and wildlife connections can be established. The existing limitation of extending the overlay to only within one mile south of Corkscrew Road, simply does not achieve this purpose for properties south of Corkscrew Road.

The proposed amendment has been revised to only affect the Verdana property. Within the overlay area, the subject property is the only property that has both frontage on Corkscrew

Road and can connects to CREW to the south within a two-mile distance. The attached "EEPC Overlay Exhibit shows the specific areas that are within two miles of Corkscrew Road within the Overlay. Areas 2 and 3 do not have access to Corkscrew Road and would be unable to fulfill the requirements by making a connection to Corkscrew Road. Area 1 has access to Corkscrew Road, but is further separated from CREW by an additional two miles to the south and a platted residential area to the east. Both the agricultural operation south of the 2-mile area and the residential lots to the east would block any ability to make a connection under the proposed language.

The proposed plan amendment provides an opportunity for the County to provide this critical connection from preserve lands north Corkscrew Road to preserve south or Corkscrew Road, restoring flows and providing a critical wildlife corridor. Additionally, the extension of the 1-mile area allows the county to redirect water that currently flows down 6Ls Farms Road (where the residents experience flooding events).

The Corkscrew Regional Ecosystem Watershed (CREW) project boundary is located south of Corkscrew Road and provides an incredibly valuable service for the area's water flow, water quality and wildlife movement. CREW, which is a partnership effort between the South Florida Water Management District, Lee County, Collier County, adjacent private land owners and local environmental organizations to acquire and preserve land within the 60,000 acre footprint area, has been successful in setting aside and restoring large areas of natural lands. Creating Environmental Enhancement and Preservation Communities along the northern edge of CREW, in essence extending the natural environment and wildlife habitat, by restoring lands at no cost to the tax payer, fits well within the purpose of the Environmental Enhancement and Preservation Communities.

However, by stopping the overlay short of the CREW boundary, the County is creating an arbitrary barrier that would only serve to limit the benefits gained by the restoration of the property's hydrology and the benefits to wildlife movement. By not extending south of the 1-mile limit, the existing man-made farming barrier would continue to negate many of the benefits that could otherwise be gained through hydrologic and habitat restoration and limiting future properties' utility in restoration.

The proposed plan amendment demonstrates the value of providing these north/south connections. The proposed plan restores historic flows across the property from the northeast to the southwest, into the Panther Island Mitigation Bank in Collier County. In addition, because the property will connect to environmental lands to the south, the opportunity exists to divert water from the Pepperland project to the west and divert flow away from 6Ls Farms Road.

Restoring the timing and distribution of flows to the south will benefit the current restoration efforts of Panther Island Mitigation Bank. Having a separation of long term active agriculture between a restored property and the Audubon lands would negate many of the water timing and distribution benefits. The plan also demonstrates how extending the area south to the CREW boundary helps facilitate wildlife movement the creation/establishment of a new wildlife corridor.

OPEN SPACE TABLE

INDIGENOUS / CONSERVATION AREA: 805 AC.± (55% MIN. / 803 AC.)

TOTAL OPEN SPACE: 60% MIN. / 876 AC.

TOTAL PROPERTY AREA: 1,460 AC.

NOTE:
THIS MAP IS FOR REFERENCE PURPOSES ONLY. DATA PROVIDED IS DERIVED FROM MULTIPLE SOURCES WITH VARYING LEVELS OF ACCURACY.

VERDANA

SITE PLAN

DeLisi Fitzgerald, Inc.
Planning – Engineering – Project Management

1605 Hendry Street
Fort Myers, FL 33901
P: (239) 418-0691
F: (239) 418-0692

Florida Certificate of Authorization:
Engineering LB #: 26978

N
W E
S

K:\21375 - CORKSCREW GROVES\EXHIBITS\COMP PLAN EXHIBITS\21375-01-OPEN-SPACE-EXHIBIT.DWG
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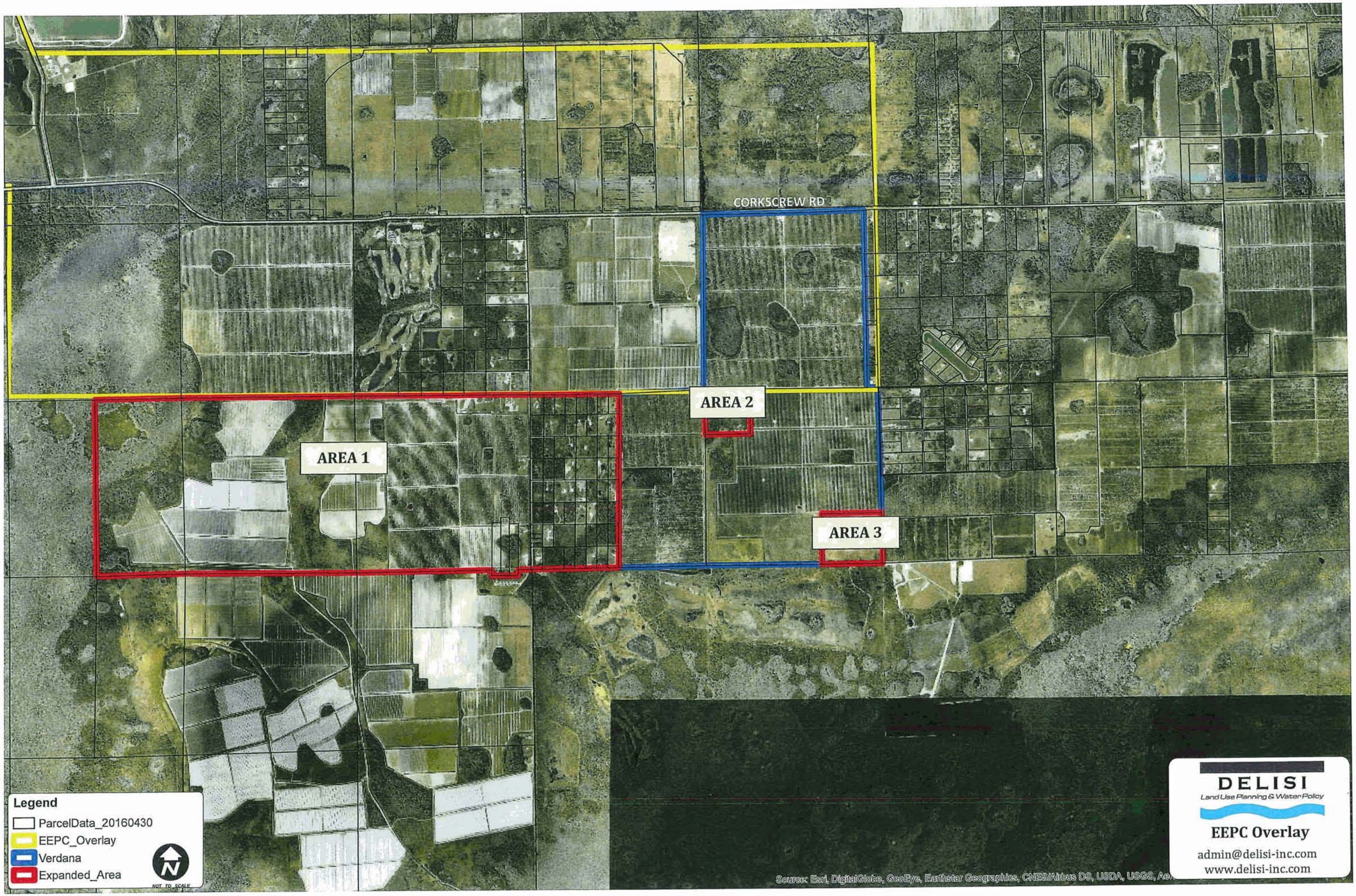
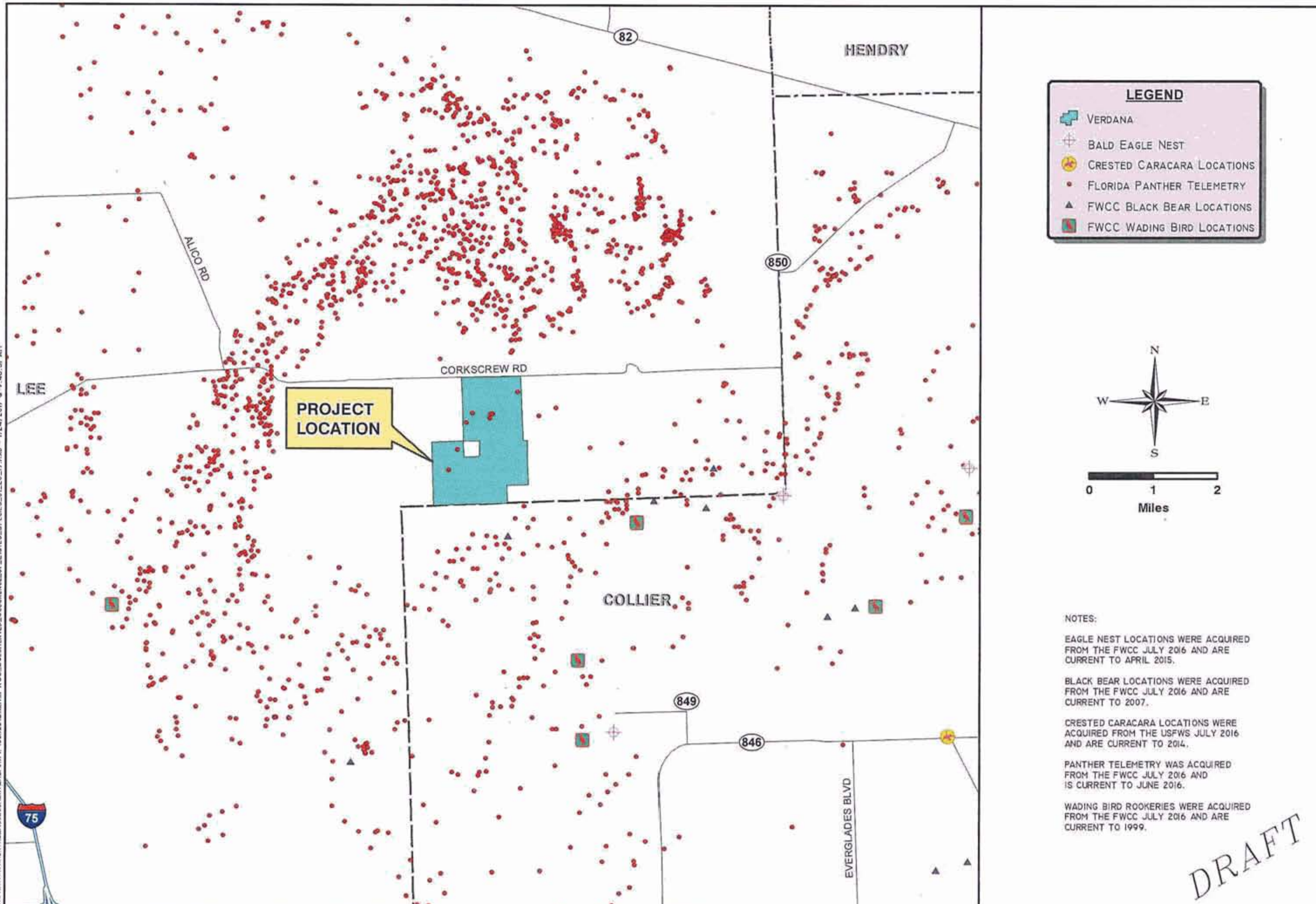

CORKSCREW RD
AREA 1
AREA 2
AREA 3
Legend
ParcelData_20160430
EEPC_Overlay
Verdana
Expanded_Area
NOT TO SCALE
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, Ae
DELISI
Land Use Planning & Water Policy
EEPC Overlay
admin@delisi-inc.com
www.delisi-inc.com



NOTES:

EAGLE NEST LOCATIONS WERE ACQUIRED FROM THE FWCC JULY 2016 AND ARE CURRENT TO APRIL 2015.

BLACK BEAR LOCATIONS WERE ACQUIRED FROM THE FWCC JULY 2016 AND ARE CURRENT TO 2007.

CRESTED CARACARA LOCATIONS WERE ACQUIRED FROM THE USFWS JULY 2016 AND ARE CURRENT TO 2014.

PANTHER TELEMETRY WAS ACQUIRED FROM THE FWCC JULY 2016 AND IS CURRENT TO JUNE 2016.

WADING BIRD ROOKERIES WERE ACQUIRED FROM THE FWCC JULY 2016 AND ARE CURRENT TO 1999.

EXHIBIT H. DOCUMENTED OCCURRENCES OF LISTED SPECIES
VERDANA

DRAWN BY	DATE
H.H.	3/1/16
REVIEWED BY	DATE
C.G.	3/1/16
REVISED	DATE
D.B.	1/20/17

PASSARELLA & ASSOCIATES INC
Consulting Ecologists

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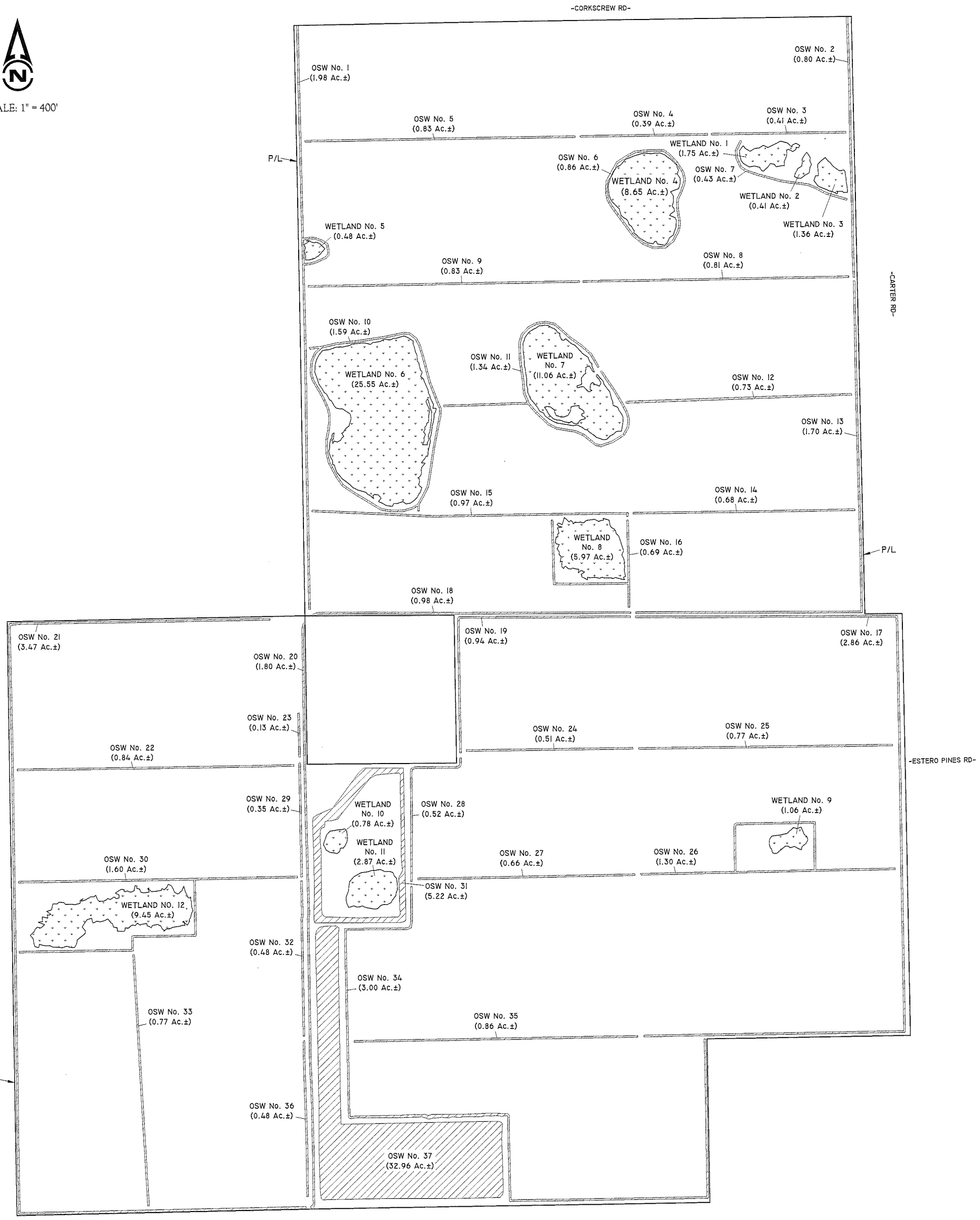

LEGEND:

- SFWMD WETLANDS (69.39 Ac.±)
- SFWMD "OTHER SURFACE WATERS" (75.54 Ac.±)
- SURVEYED WETLAND LINE

WETLAND NO.	ACREAGE
1	1.75 Ac.±
2	0.41 Ac.±
3	1.36 Ac.±
4	8.65 Ac.±
5	0.48 Ac.±
6	25.55 Ac.±
7	11.06 Ac.±
8	5.97 Ac.±
9	1.06 Ac.±
10	0.78 Ac.±
11	2.87 Ac.±
12	9.45 Ac.±
TOTAL	69.39 Ac.±

OSW NO.	ACREAGE
1	1.98 Ac.±
2	0.80 Ac.±
3	0.41 Ac.±
4	0.39 Ac.±
5	0.83 Ac.±
6	0.86 Ac.±
7	0.43 Ac.±
8	0.81 Ac.±
9	0.83 Ac.±
10	1.59 Ac.±
11	1.34 Ac.±
12	0.73 Ac.±
13	1.70 Ac.±
14	0.68 Ac.±
15	0.97 Ac.±
16	0.69 Ac.±
17	2.86 Ac.±
18	0.98 Ac.±
19	0.94 Ac.±
20	1.80 Ac.±

OSW NO.	ACREAGE
21	3.47 Ac.±
22	0.84 Ac.±
23	0.13 Ac.±
24	0.51 Ac.±
25	0.77 Ac.±
26	1.30 Ac.±
27	0.66 Ac.±
28	0.52 Ac.±
29	0.35 Ac.±
30	1.60 Ac.±
31	5.22 Ac.±
32	0.48 Ac.±
33	0.77 Ac.±
34	3.00 Ac.±
35	0.86 Ac.±
36	0.48 Ac.±
37	32.96 Ac.±
TOTAL	75.54 Ac.±

NOTES:

PROPERTY BOUNDARY PER DELISI FITZGERALD, INC. DRAWING No. 21375-VERDANA-SITE-PLAN-2017-01-04.DWG DATED JANUARY 17, 2017.

SURVEYED WETLAND LINES PER DELISI FITZGERALD, INC. DRAWING No. CORKSCREW GROVES.DWG DATED JANUARY 7, 2016.

SURVEYED WETLAND LINES WERE APPROVED BY THE SFWMD ON MAY 18, 2016.

DRAWN BY	DATE
D.B.	1/19/17
DESIGNED BY	DATE
T.D.	1/19/17
REVISED	DATE

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

PASSARELLA & ASSOCIATES INC
Consulting Ecologists

VERDANA

SFWMD WETLAND MAP

DRAWING No. 15BDG2365

SHEET No.

LEGEND
VERDANA

N
W E
S

1 inch = 400 feet

Soil Unit	Description
6	HALLANDALE FINE SAND
12	FELDA FINE SAND
13	BOCA FINE SAND
14	VALKARIA FINE SAND
26	PINEDA FINE SAND
27	POMPANO FINE SAND, DEPRESSIONAL
28	IMMOKALEE SAND
33	OLDSMAR SAND
34	MALABAR FINE SAND
40	ANCLOTE SAND, DEPRESSIONAL
49	FELDA FINE SAND, DEPRESSIONAL
73	PINEDA FINE SAND, DEPRESSIONAL

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH A FLIGHT DATE OF JANUARY 2016.

COUNTY INFORMATION AND ROADWAY NETWORKS WERE ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

SOILS MAPPING WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE OCTOBER 2007 AND CREATED BY THE NATURAL RESOURCES CONSERVATION SERVICE 1990.

DRAWN BY	DATE
T.S., D.B.	1/31/17
REVIEWED BY	DATE
T.D.	1/31/17
REVISED	DATE

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PASSARELLA & ASSOCIATES INC
Consulting Ecologists

VERDANA
SOILS MAP

DRAWING No. 15BDG2365
SHEET No.

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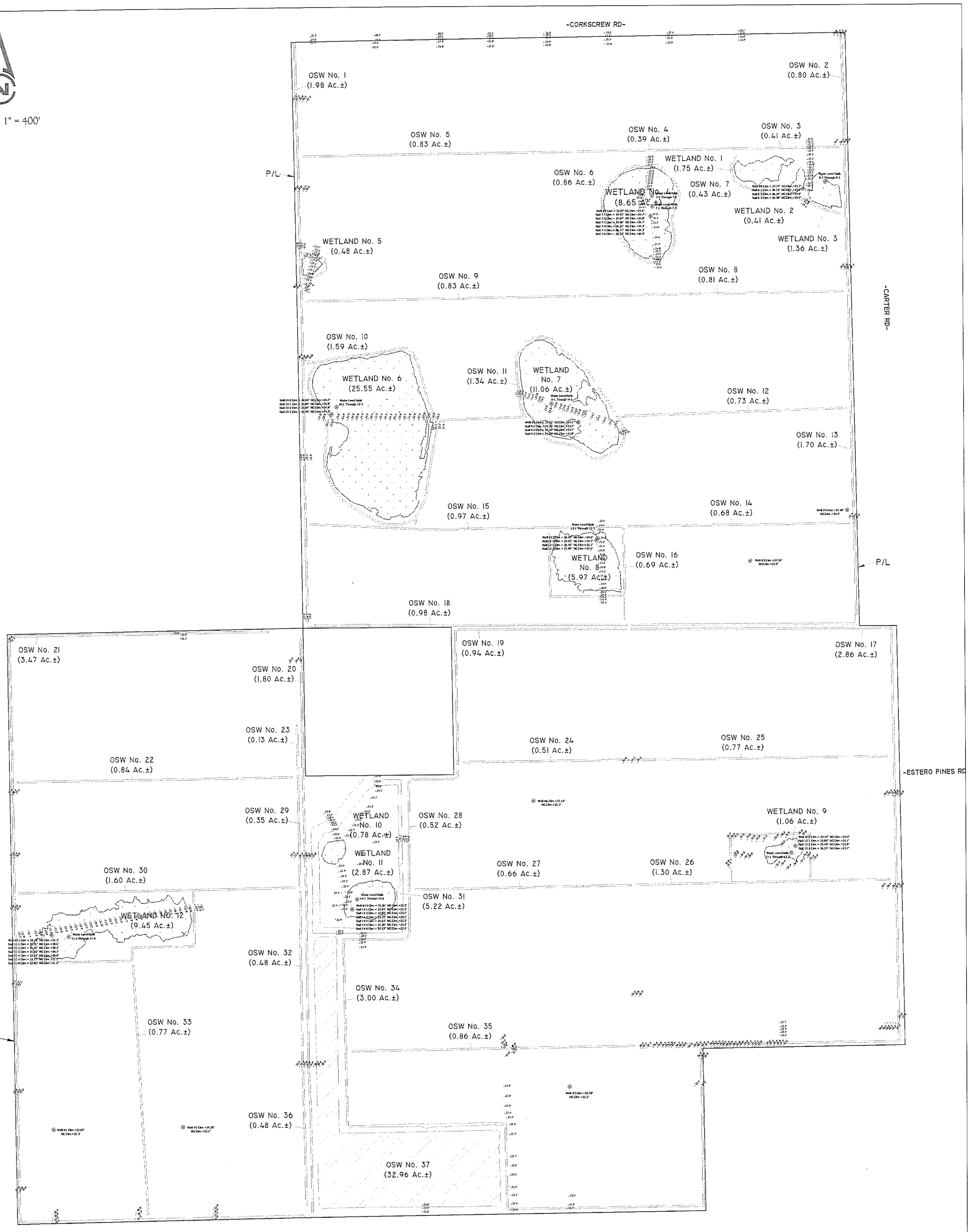

LEGEND:

- SFWMD WETLANDS (69.39 Ac.±)
- SFWMD "OTHER SURFACE WATERS" (75.54 Ac.±)
- SURVEYED WETLAND LINE
- WETLAND TOPOGRAPHIC POINT AND ELEVATION (NAVD88)

WETLAND NO.	ACREAGE
1	1.75 Ac.±
2	0.41 Ac.±
3	1.36 Ac.±
4	8.65 Ac.±
5	0.48 Ac.±
6	25.55 Ac.±
7	11.06 Ac.±
8	5.97 Ac.±
9	1.06 Ac.±
10	0.78 Ac.±
11	2.87 Ac.±
12	9.45 Ac.±
TOTAL	69.39 Ac.±

OSW NO.	ACREAGE
1	1.98 Ac.±
2	0.80 Ac.±
3	0.41 Ac.±
4	0.39 Ac.±
5	0.83 Ac.±
6	0.86 Ac.±
7	0.43 Ac.±
8	0.81 Ac.±
9	0.83 Ac.±
10	1.59 Ac.±
11	1.34 Ac.±
12	0.73 Ac.±
13	1.70 Ac.±
14	0.68 Ac.±
15	0.97 Ac.±
16	0.69 Ac.±
17	2.86 Ac.±
18	0.98 Ac.±
19	0.94 Ac.±
20	1.80 Ac.±

OSW NO.	ACREAGE
21	3.47 Ac.±
22	0.84 Ac.±
23	0.13 Ac.±
24	0.51 Ac.±
25	0.77 Ac.±
26	1.30 Ac.±
27	0.66 Ac.±
28	0.52 Ac.±
29	0.35 Ac.±
30	1.60 Ac.±
31	5.22 Ac.±
32	0.48 Ac.±
33	0.77 Ac.±
34	3.00 Ac.±
35	0.86 Ac.±
36	0.48 Ac.±
37	32.96 Ac.±
TOTAL	75.54 Ac.±

NOTES:

PROPERTY BOUNDARY PER DELISI FITZGERALD, INC. DRAWING No. 21375-VERDANA-SITE-PLAN-2017-01-04.DWG DATED JANUARY 17, 2017.

SURVEYED WETLAND LINES PER DELISI FITZGERALD, INC. DRAWING No. CORKSCREW GROVES.DWG DATED JANUARY 7, 2016.

TOPOGRAPHIC INFORMATION PER DELISI-FITZGERALD, INC. DRAWING No. CORKSCREW GROVES.DWG DATED APRIL 6, 2016.

SURVEYED WETLAND LINES WERE APPROVED BY THE SFWMD ON MAY 18, 2016.

DRAWN BY	DATE
D.B.	1/19/17
DESIGNED BY	DATE
T.D.	1/19/17
REVISED	DATE

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Phone (239) 274-0067
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PASSARELLA & ASSOCIATES INC
Consulting Ecologists

VERDANA

WETLAND TOPOGRAPHIC MAP

DRAWING No. 15BDG2365

SHEET No.

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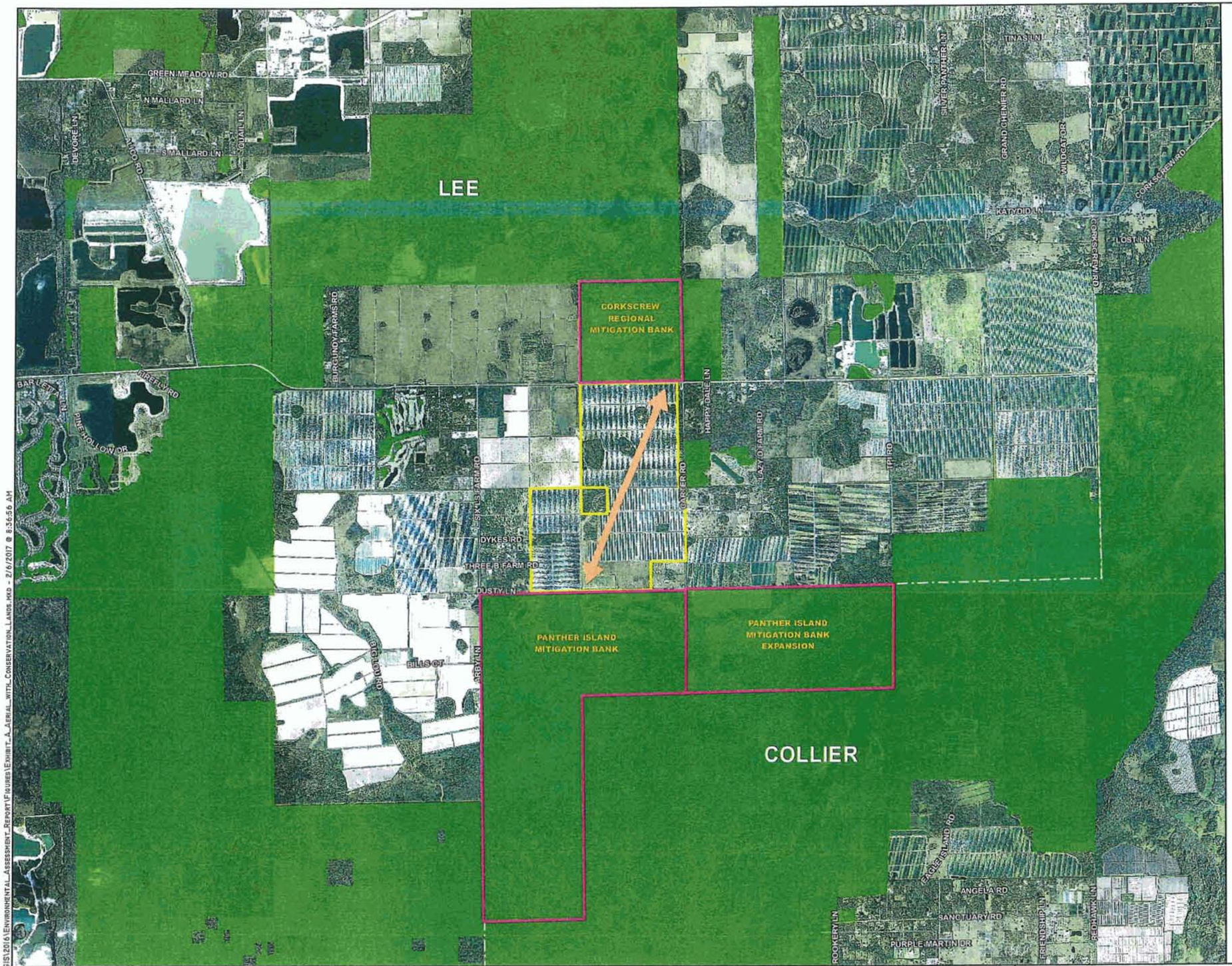

LEGEND

- VERDANA
- EXISTING CONSERVATION LANDS
- POTENTIAL HYDROLOGIC AND WILDLIFE CONNECTION

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED FROM THE USDA-FSA AERIAL PHOTOGRAPHY FILED OFFICE AND WERE FLOWN IN THE YEAR 2013.

REVISIONS	DATE

DRAWN BY	D.B.	DATE 1/19/17
DESIGNED BY	T.D.	DATE 1/19/17
REVIEWED BY		DATE

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Consulting Ecologists
PASSARELLA & ASSOCIATES INC

VERDANA

AERIAL WITH CONSERVATION LANDS

DRAWING No. 15BDG2365

SHEET No. EXHIBIT A

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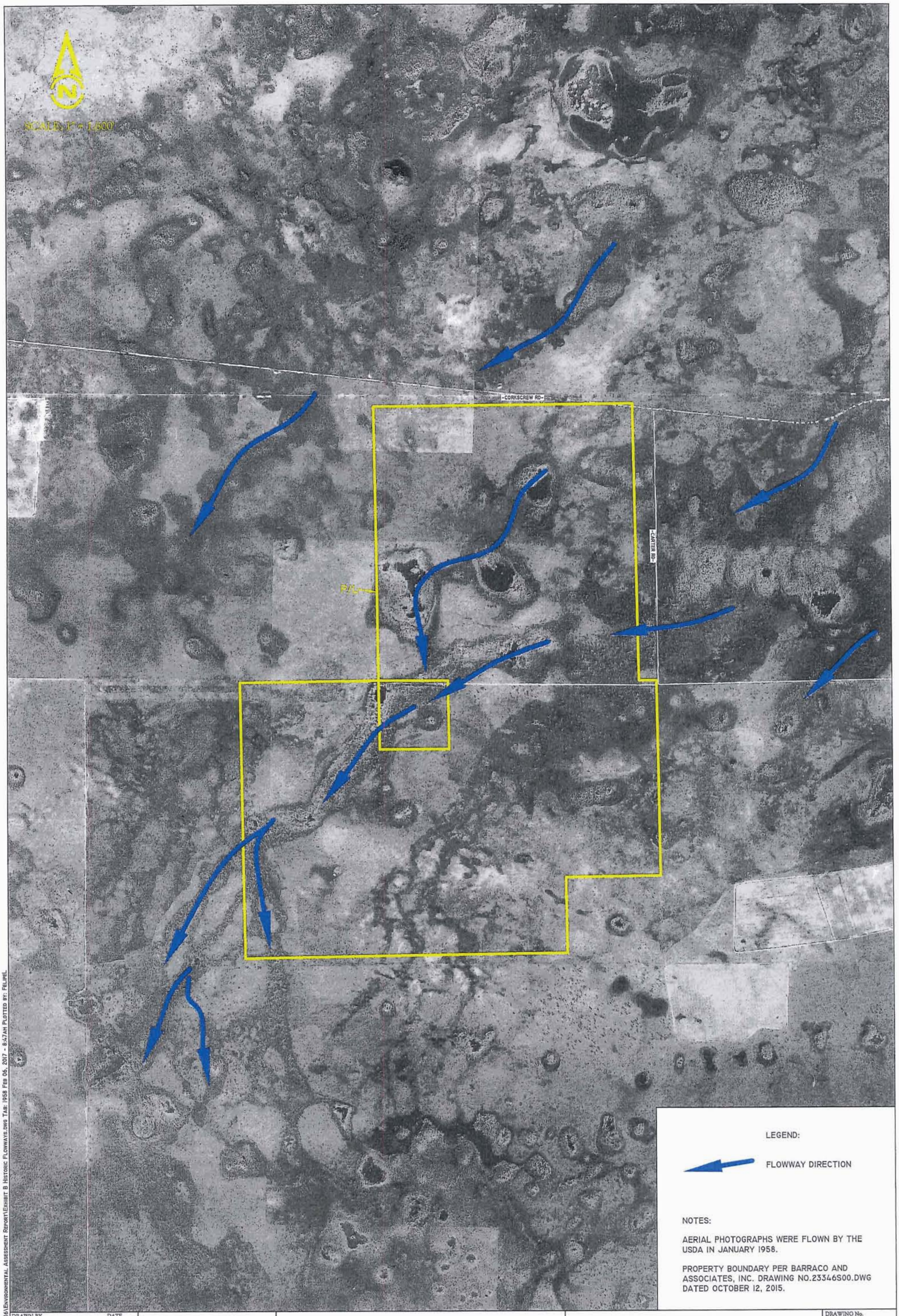

LEGEND:

FLOWWAY DIRECTION

NOTES:

AERIAL PHOTOGRAPHS WERE FLOWN BY THE USDA IN JANUARY 1958.

PROPERTY BOUNDARY PER BARRACO AND ASSOCIATES, INC. DRAWING NO.23346S00.DWG DATED OCTOBER 12, 2015.

DRAWN BY: D.B.	DATE: 1/19/17
REVIEWED BY: T.D.	DATE: 1/19/17
REVISED	DATE

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VERDANA

AERIAL WITH HISTORIC FLOWWAYS

DRAWING No. 15BDG2365

SHEET No. EXHIBIT B

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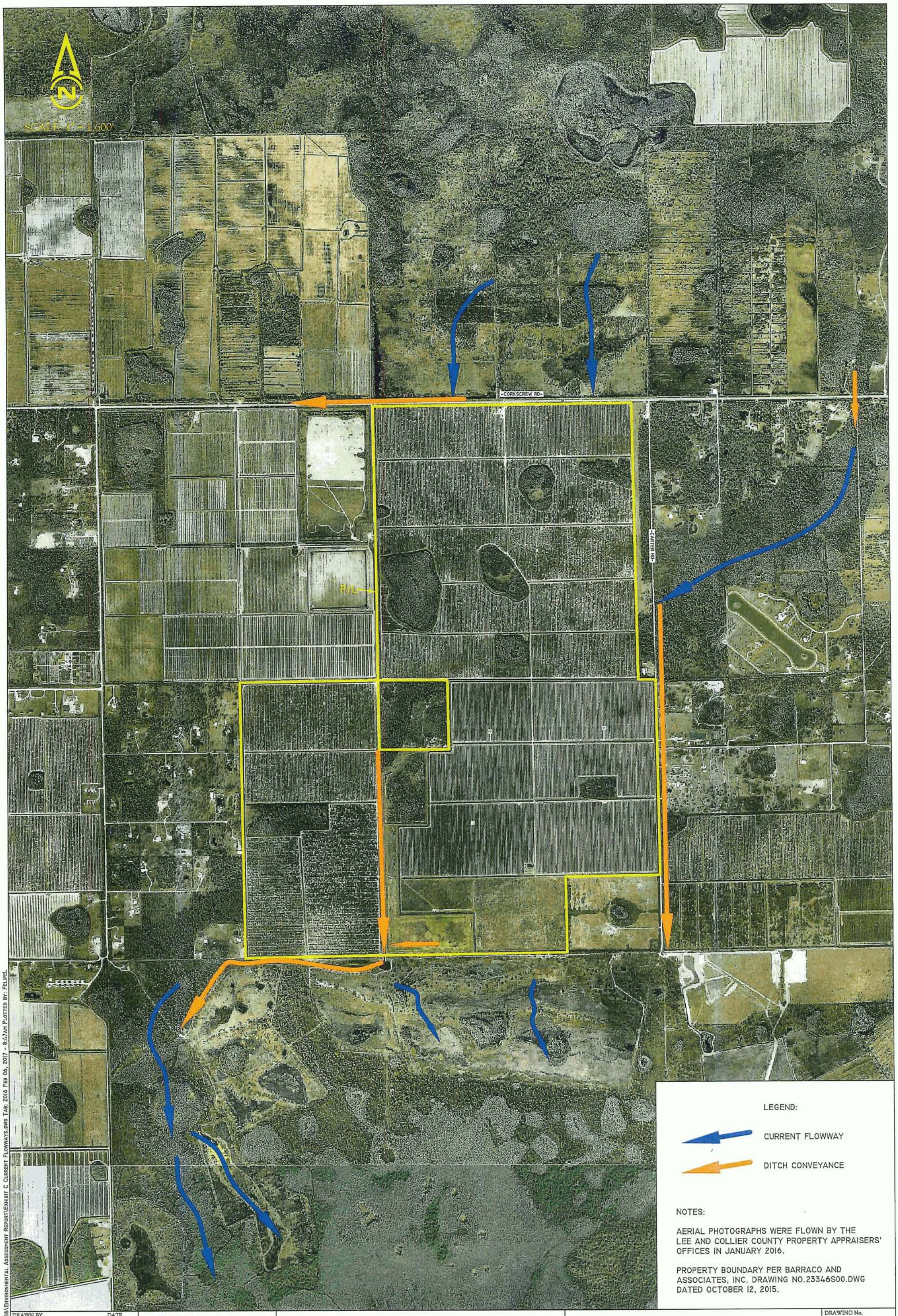

LEGEND:

CURRENT FLOWWAY

DITCH CONVEYANCE

NOTES:

AERIAL PHOTOGRAPHS WERE FLOWN BY THE LEE AND COLLIER COUNTY PROPERTY APPRAISERS' OFFICES IN JANUARY 2016.

PROPERTY BOUNDARY PER BARRACO AND ASSOCIATES, INC. DRAWING NO.23346S00.DWG DATED OCTOBER 12, 2015.

DRAWN BY	DATE
D.B.	1/19/17
REVIEWED BY	DATE
T.D.	1/19/17
REVISED	DATE

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PASSARELLA & ASSOCIATES INC.
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VERDANA

AERIAL WITH CURRENT FLOWWAYS

DRAWING No. 15BDG2365

SHEET No. EXHIBIT C

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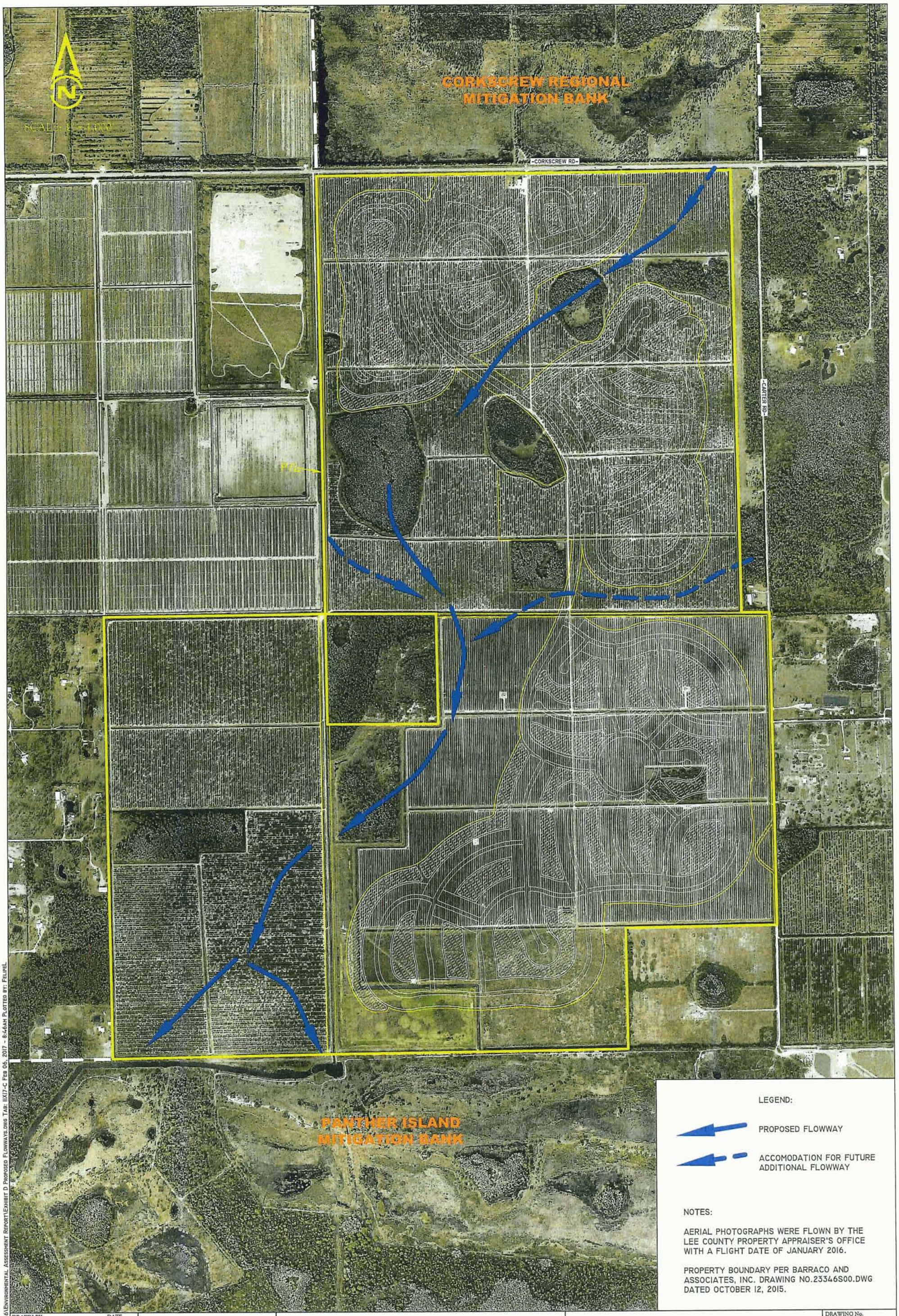

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DRAWN BY: D.B.	DATE: 1/19/17
REVIEWED BY: T.D.	DATE: 1/19/17
REVISED	DATE

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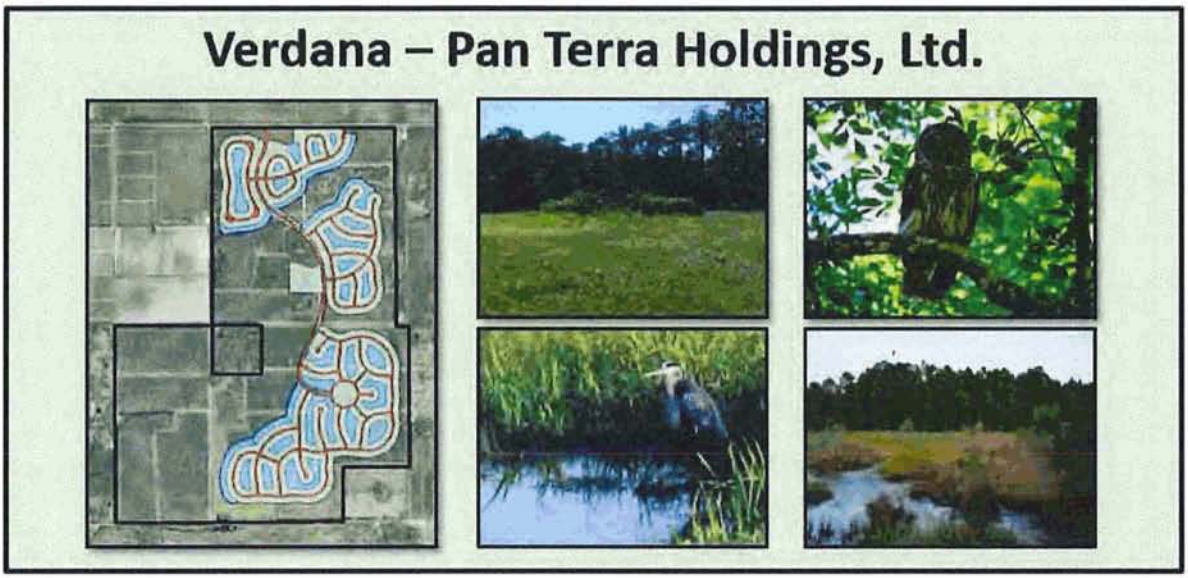
PASSARELLA & ASSOCIATES INC
Consulting Ecologists

VERDANA
AERIAL WITH PROPOSED FLOWWAYS

DRAWING No. 15BDG2365
SHEET No. EXHIBIT D

Enhanced Lake Management Plan

For Verdana



January 2017

Progressive Water Resources, LLC
6561 Palmer Park Circle, Suite D
Sarasota, Florida 34238

Table of Contents

Introduction

The proposed residential development (i.e. Verdana) demonstrates a substantial net benefit to the water resources within the project area and Lee County's Density Reduction/Groundwater Resource (DR/GR) area as compared to the current agricultural land use. The Verdana property encompasses approximately 1,460 acres, of which 1,134 acres (78 percent) are currently planted in citrus. The project site has a long farming history and has been continuously used for agricultural purposes since the early 1960's. In accordance with Lee County's Comprehensive Plan (The Lee Plan), proposed developments within the DR/GR must demonstrate the protection, preservation and enhancement of groundwater resources and environmental (wetland) systems. Transitioning this site into a compact Residential Planned Development results in the following benefits:

1. Irrigated area is reduced by approximately 931 acres (approximately 82 percent) which results in a proposed retirement of approximately 885,010,000 gallons of permitted groundwater use on an annual basis and approximately 154,890,000 gallons on a maximum or peak month basis. In addition, 21,050,000 gallons of groundwater permitted for each cold protection (freeze) event will also be retired.

2. Elimination of all groundwater quantities withdrawn from wells completed into the Water Table Aquifer (887,670,000 gallons on an annual basis) resulting in improved local water resources in the DR/GR due to elimination of groundwater drawdowns to nearby environmental systems, including both the Airport Mitigation Park to the north and the Panther Island Mitigation Bank to the south.

3. Implementation of an integrated ground and surface water irrigation system, whereby groundwater quantities withdrawn from the Sandstone Aquifer for irrigation are used to supplement surface water supplies within dedicated irrigation ponds. Irrigation supplies will then be withdrawn from the dedicated irrigation ponds to irrigate lawns and the landscaped area. The conjunctive use of both ground and surface water supplies are anticipated to additionally reduce withdrawals from the Sandstone Aquifer when adequate surface water supplies are available, furthering the conservation of groundwater resources within the DR/GR.

4. A master-controlled irrigation system that regulates the initiation and overall duration of irrigation events to manage irrigation water use and greatly enhance water conservation (i.e. no individual homeowner irrigation timers).

5. The connection to public utilities for both potable supply and wastewater, effectively eliminating up to 134 individual private, potable supply and irrigation wells and 134 individual septic tanks that could be installed today under the existing Allowable Residential Land Use.

6. Improved surface water quality and enhanced opportunities for recharge to the Water Table Aquifer through the creation of numerous engineered stormwater management system lakes (including elimination of "grandfathered" facilities authorized under ERP No. 36-00327-S).

7. Significant reduction of the amount of fertilizers, herbicides and pesticides that are currently applied by the existing 1,134-acre farming operation, which is exempt from Lee County's Fertilizer Ordinance No. 08-08. The Residential Planned Development will be mandated to adhere to this ordinance.

8. Creation of a northeast-southwest meandering flow-way (to mimic historical hydrologic features to help diversify and enhance onsite ecosystems and wildlife habitats).

9. Elimination of agricultural "rim ditches" around onsite wetlands.

10. Substantial environmental restoration associated with the conversion of active citrus cultivation acreage into open space habitat, including the preservation and enhancement of onsite forested conservation areas.

Collectively, these improvements represent a much higher standard of water resource protection as compared to the currently authorized land use. Water resource benefits incorporated into the proposed compact Residential Planned Development meet, and in many cases, exceed, the future land use requirements contemplated by Lee County's Comprehensive Plan.

The change in land use, coupled with the management practices contained within the Enhanced Lake Management Plan (ELMP) herein, provides for a high standard of water resource protection. For ease of use and understanding, the proposed ELMP contains several sections that address key elements, with each of the main ELMP sections in turn having subsections that provide specificity regarding the management actions necessary to safeguard the water resources. Where applicable, Best Management Practices (BMPs) are provided in bold text to highlight the water resource protection measures included in this ELMP.

Section 1. Historic Surface Water Hydrology

To better understand the proposed water resource management actions contained within this ELMP, it is important to understand historic surface water flows on the property. The project site is relatively flat, with the highest land surface elevations of approximately 27 feet NAVD located on the northern sections of the property, immediately south of Corkscrew Road. The lowest land surface elevations are located in the southwest corner of the property at approximately 19 feet NAVD. A Digital Elevation Model (DEM) produced by Lidar data is included as **Figure 1** and clearly portrays the southwesterly topographic gradient of the project site. Please note that the upper range of land surface elevations portrayed in the DEM includes the berms associated with the grove's stormwater management system Above Ground Impoundment (AGI), while the DEM's low range elevation values are representative of the inverts of the existing agricultural ditches. Therefore, the DEM elevation scale has a larger topographic range of approximately 34.8 to 17.4 feet NAVD.

Prior to agricultural development, the project site was characterized as open rangeland and pine Flatwoods interspersed with wet prairies, marshes and cypress forest. The 1953 historic aerial

photography revealed what appears to be a northeast to southwest trending shallow slough system that transected the property and conveyed surface water towards a large wetland system now referred to as the "Corkscrew Swamp Sanctuary" and the Flint Pen Strand, both of which are part of the Corkscrew Regional Ecosystem Watershed (CREW).

With the development of the citrus grove in the early 1960's, surface water was redirected to the south along the western boundary of Section 32 and into the northern section of what is now the Panther Island Mitigation Bank where it again flows westerly towards additional CREW lands. The Corkscrew Regional Mitigation Bank (Mitigation Bank), owned by the South Florida Water Management District (SFWMD), is located immediately north of the project site. Stormwater flows from the Mitigation Bank do not enter the project site, but are directed to the west, towards the CREW, along the north side of Corkscrew Road.

Section 2. Water Resources Best Management Practices

As the project evolves from predominately a "construction phase" to "partial construction" and ultimately to a "post-construction" residential phase, the BMPs must also evolve to maintain water resource protection. Construction of the proposed development may take up to 10 years, depending on market conditions. However, after initiation of construction, the vast majority of major earthwork is anticipated to be completed by the end of the 5th year.

A. Construction Phase BMPs

During construction of the proposed development, the greatest potential for impacts is associated with increased turbidity and/or potential spills of fuels/oils (hydrocarbons), otherwise known as Volatile Organic Compounds (VOCs) used to power earthmoving equipment, etc. Specific BMPs associated with the construction phase are provided below. The Developer will be responsible for maintaining compliance with all ELMP BMPs and requirements until such time that control of the development is transitioned to the Homeowner's Association (HOA) and/or Community Development District (CDD).

Construction Phase BMPs

1. The site's general contractor shall be responsible for assuring that each contractor or subcontractor evaluates the work area before construction is initiated to determine if site conditions may pose particular problems for the safe and secure handling of any regulated substances.

2. If any regulated substances are stored on the construction site during the construction process, they shall be stored in a location and manner which will minimize any possible risk of release to the environment. There will be no intention to use, handle, produce or store regulated substances in violation of the Lee County Land Development Code Section 14-477 Stormwater Pollution Prevention Plan (SWP3) criteria.

3. Each contractor/subcontractor shall familiarize themselves with the manufacturer's safety data sheet supplied with each material containing a regulated substance and shall be familiar with procedures required to contain and clean up any releases of the regulated substance. Any tools or equipment necessary to accomplish the same shall be available in case of an accidental release.

4. In the event of a spill of a regulated substance, the contractor/subcontractor will immediately notify the Developer, who will in turn notify the Lee County Division of Natural Resources Director at (239) 533-8109 and the FDEP South District Office at (239) 344-5600. Additional measures, such as those described in the Lake Maintenance Plan (Section 3), may also apply.

5. Upon completion of construction, all unused quantities of regulated substances and their containment systems shall be completely removed from the construction site.

6. Proper turbidity abatement measures, as required by the SFWMD, The Florida Stormwater Sedimentation Control Inspector's Manual standards, and the FDEP National Pollutant Discharge Elimination System (NPDES) permit criteria will be maintained while construction is ongoing or until adequate vegetation or other stabilization measures have been established.

B. Post-Construction Phase BMPs

After Lee County Certificate of Compliance or SFWMD stormwater management system certification is completed in a particular phase of the development, the primary focus of the ELMP will be maintaining the stormwater management system lakes, since all runoff will be routed to these features for treatment. It is also anticipated that the Developer will establish and create an HOA and/or a CDD that will be responsible for the maintenance of all aspects of the stormwater management system including the lakes and associated stormwater conveyance and control components, in perpetuity. At a minimum, the operation and maintenance of the stormwater management system and water quality testing will require compliance with the terms and conditions as contained within the ELMP. Additional details on BMPs, including the monitoring of surface water, is provided in the Lake Maintenance Section (Section 3).

Section 3. Lake Maintenance

A. General Provisions

Proper lake maintenance is an integral aspect of this ELMP since stormwater runoff is directed to these features for treatment and attenuation. As previously described, the lakes will be excavated into the top of the Water Table Aquifer. As an added protection to underlying groundwater resources, the excavation of the lakes will not penetrate underlying clays or limestone, whichever is encountered first. In addition, the groundwater withdrawn from the proposed (new) onsite wells will be constructed into the deeper

Intermediate Aquifer System (Sandstone Aquifer) and will replenish lakes proposed for use in the master irrigation system, seven (7) of which are proposed for water quality sampling as shown in **Figure 2**.

Surface water irrigation pumps will "repump" groundwater supplies and retained stormwater (surface water) for the irrigation of the residential development. The recycling of surface water quantities is expected to further improve water quality on the property and maintain high water quality in the lakes. The stormwater lakes must be maintained in perpetuity and the following management actions are proposed. Specific post-construction BMPs are also provided.

B. Nuisance and Exotic Vegetation Control

The HOA and/or CDD will be responsible for the removal (in perpetuity) of all nuisance and exotic vegetation from the stormwater management system as defined by the Lee County Land Development Code.

Nuisance and Exotic Vegetation Control BMPs

1. Lakes must be inspected annually and any prohibited vegetation must be removed by the use of hand-clearing or appropriate treatment. Only aquatic approved compounds may be utilized in the stormwater management system lakes.

2. Herbicides and/or algaecides may only be applied by a licensed professional applicator, who meets the requirements of Lee County, and in accordance with manufacturer specifications. All applicable local, state and/or federal guidelines and requirements will also be followed.

C. Littoral Vegetation Preservation

Littoral zone vegetation is required to be installed by the Developer and maintained by the HOA and/or CDD, in perpetuity, for lakes within the project area. Littoral zones provide habitats for wading birds, fish and aquatic invertebrates. Littoral vegetation also helps stabilize lake shorelines and prevents erosional problems.

Littoral Vegetation Preservation BMPs

1. Littoral plants that die will be replaced in accordance with Lee County Land Development Code requirements. The presence of littoral plants throughout the lakes is desirable and may also help to improve the water quality within the lakes.

2. The spread of littoral plants will be encouraged throughout the designated planted littoral shelves.

3. Mechanical trimming, mowing or the use of herbicides on desirable littoral plants will be prohibited. Any trimming or removal of vegetation required to promote the survival and viability

of littoral vegetation will be performed by hand or by approved aquatic herbicides and methods.

D. Fertilizer Application

Strict adherence will be maintained with Lee County's Fertilizer Ordinance. Individual lot owners shall be prohibited from applying fertilizer to their lots. Any person(s) applying fertilizers must have received a limited certification in compliance with Florida Statute 482.1562 prior to application of any and all fertilizers. Additionally, fertilizer content and application rate must be in compliance with Lee County's Fertilizer Ordinance.

Fertilizer Application BMPs

1. All professional landscape businesses must register with Lee County prior to performing landscape fertilization services within unincorporated Lee County.

2. At least one (1) employee of a firm employed to perform landscape fertilization services must be a Certified Professional Landscaper.

3. Proof of completion of a Lee County-approved BMP training program must be provided to the Division of Lee County Natural Resources.

4. At least one (1) BMP-trained employee must be on site while fertilizers are applied. A registration decal provided by the division must be displayed on all company vehicles.

E. Erosion Protection and Lake Bank Maintenance

Lake banks are generally susceptible to erosion due to overland flow of stormwater runoff, wave action, and the natural seasonal fluctuation of water levels. Accordingly, lake banks within the project are designed to minimize this potential for erosion.

Erosion Protection and Lake Bank Maintenance

1. Lake banks will be inspected annually to identify areas of erosion. Once identified, the erosion will be repaired and the source of erosion shall be eliminated if possible.

2. Where excessive erosion occurs, repair of the lake banks and/or enhancement of stabilization measures may be necessary.

3. No motorized boats will be allowed within any of the onsite stormwater management lakes.

F. Lake Education Program

A narrative explaining the benefits of littoral vegetation, lake maintenance, and surface and groundwater quality will be made available to residents.

Lake Education Program BMPs

1. Lake experts will be encouraged to attend the HOA and/or CDD meetings annually to discuss the lake system operation and maintenance requirements.

2. Individual homeowners within the property will be informed that they are prohibited from removing or trimming littoral vegetation.

   Additionally, the homeowners will be made aware of the extreme importance related to the elimination of any introduction of hazardous materials or substances into the lakes.

G. Pesticide, Herbicide or Fungicide Applications

All applications of pesticides, herbicides, algaecides and/or fungicides shall be applied by a licensed professional applicator, meet the requirements of Lee County, be applied in accordance with the manufacturer's specifications, and shall meet all applicable local, state and/or federal guidelines and requirements. Only approved aquatic herbicides may be used to treat the stormwater management system.

Pesticide, Herbicide, Algaecide or Fungicide Application BMPs

1. Individual lot owners shall be prohibited from applying pesticides, herbicides and/or fungicides to their lots. These activities will only be performed by certified contractors approved by the HOA and/or CDD.

2. The use of any chemical product in a manner that will allow airborne or waterborne entry of such products into the surface water management system is prohibited. This rule shall not apply to the use of chemical agents by certified lake management specialists for the control of algae and nuisance vegetation within the stormwater management system lakes. However, application of such agents shall be in compliance with the requirements of Lee County, applied in accordance with the manufacturer specifications, and meet all applicable local, state and/or federal guidelines and requirements.

3. Pesticides, fungicides, and herbicides will be used only in response to a specific problem and in the manner and amount recommended by the manufacturer to address the specific problem. Broad application of pesticides, fungicides and herbicides as a preventative measure is strongly discouraged.

Section 4. Corkscrew Wellfield Protection

A. Corkscrew Wellfield Protection

As shown in **Figure 2**, Verdana is predominantly located outside of the Lee County Wellfield Protection Zones with only the northwestern-most stormwater management lake partially intersecting the ten (10) year travel time zone (blue shaded area). As also shown, the same lake is well outside of the five (5) year travel time area (red shaded area). The long travel time is due to local groundwater gradients and the fact that the nearest Lee County potable well site is located over 1,000 feet from this proposed feature.

However, to safeguard the County's nearest public supply wells, this ELMP has been developed that includes detailed water quality monitoring of the nearest stormwater management system lake as well as other lakes within the proposed development. The level of water quality assurance offered by this ELMP coupled with Lee County's 5 to 10-year prediction of groundwater travel times offers abundant assurance that if some form of degradation of water quality or contamination occurs, that ample time exists to initiate remedial measures.

Such measures could include some or all of the following actions; 1) The installation of monitoring wells between the nearest stormwater management system lake and Lee County's wells; 2) If deemed necessary, the construction and operation of groundwater intercept or recovery wells; 3) The implementation of increased water quality testing; and 4) Measures to replenish the lake with groundwater for dilution and if necessary withdraw the water from the lake for treatment. These remedial actions would be triggered by an accidental spill and or detection of high concentrations, above the Maximum Contaminant levels (MCL) for the compounds listed in **Table 1**.

Section 5. Surface Water Quality Monitoring Program

A. General Data Quality Objectives

All water quality samples will be collected in accordance with Chapter 62-160, Florida Administrative Code (F.A.C.), and the FDEP's Standard Operating Procedures (SOPs) DEP-SOP-001/01 FQ 1000 Field Quality Control Requirements.

All surface water quality samples will be collected in accordance with FDEP-SOP-001/01 FS 2100 Surface Water Sampling. A summary of the proposed surface water sampling schedule is provided in the attached **Table 1**.

B. Surface Water Monitoring Goals

The purpose of the surface water monitoring program is to assure stormwater discharges from the subject property meet all applicable requirements of the SFWMD Environmental Resource Permit (ERP) program authorized pursuant to Part IV of Chapter 373, F.S. and all applicable requirements of Chapter 62-302, F.A.C., Surface Water Quality Standards before discharging surface water from the stormwater management system. Additionally, monitoring of the lakes will allow management actions to assure the lakes' health for the residents' enjoyment. Please note that additional surface water quality parameters may be required if the FDEP determines that the sub-watershed or FDEP Water Body Identification (WBID) No. 3258C becomes impaired.

C. Surface Water Quality Monitoring

Immediately after the operational completion of the proposed stormwater management system (see **Figure 2**), seven (7) lakes will be sampled quarterly (March, June, September and December). Surface water quality grab samples will be collected per FDEP protocol and analyzed by a NELAC/TNI-certified laboratory. The surface water quality parameters to be tested are listed below and summarized in **Table 2**. In addition, **Table 2** also includes the laboratory's Accuracy, Precision and minimum Method Detection Limit (MDL). Please note that the Practical Quantitation Limit (PQL) for each parameter vary between laboratories, however the PQL typically equates to 4 times the MDL.

- **Field Parameters: Depth of Water, % Dissolved Oxygen Saturation, Dissolved Oxygen, pH, Temperature and Specific Conductivity**

- **Lab Parameters: Total Nitrogen, Nitrite + Nitrate, Ammonium, Ammonia, Total Kjeldahl Nitrogen, Total Phosphorus, Chlorophyll-a, and Orthophosphate.**

Quarterly surface water quality monitoring shall be continued for a minimum of five (5) years after operational completion of the stormwater management system. After five (5) consecutive years of testing, a request for discontinuation or reduction in the monitoring requirements will be proposed to the Lee County Natural Resources Department if it can be demonstrated that water quality is being maintained within applicable State standards.

D. Water Quality Data Reporting and Analysis

Surface water data will be submitted to Lee County Natural Resources Department staff in an approved electronic format within 30 days of receiving the water quality results from the contract laboratory. The submittal will include all field notes, field and laboratory water quality data results and all previously collected water quality data, i.e. the period of record. The submittals will also include a brief narrative on the most recent sample collection, sample chain of custody, descriptions of any re-testing of erroneous values, and any water quality exceedances.

By **March 1 of each year,** a Water Quality Summary Report for the preceding calendar year shall be supplied to Lee County Natural Resources staff that summarizes the surface water testing results for the development. The results will include a summary table that lists all the field and laboratory parameters

for the monitoring locations. Laboratory parameter concentrations that fall below the Practical Quantitation Limit (PQL) for that parameter will be reported with no value; however, a value qualifier of "I" (between the MDL and PQL) or "U" (below the MDL) will be included in the summary table.

All water quality data for the analytes listed in **Table 2** that are detected in concentrations above the laboratory PQL will be reviewed, graphed and statistically analyzed for trends and exceedances above two (2) standard deviations of the mean of all values. Any reported concentrations above the Maximum Contamination Level (MCL) will be clearly identified as well as remedial actions that were used to timely reduce that particular analyte's concentration. Details regarding remedial actions are provided in the Remedial Actions section (Section E) of this ELMP.

E. Remedial Actions

In the unforeseen event that any significant surface water impacts (as defined below) are identified as a result of a hydrocarbon spill or pesticide/herbicide application at the property, the Developer or designee of the HOA and/or CDD will notify the Director of the Natural Resources Division within no more than 12 hours (or next business day). If a spill or release "presents an immediate threat to human health and/or the environment" the FDEP Office of Emergency Response ("OER") will be contacted within 24 hours. Guidance outlining the definition of a release as well as reporting procedures is presented in the OER Web page located at:

http://www.dep.state.fl.us/per/reportable incident.htm.

The Developer or their successor(s) will coordinate contamination assessment and remediation efforts with Lee County and will comply with applicable local, state and federal permitting requirements. The initial phase of the remediation plan may consist of temporary monitoring wells installed for short-term temporal monitoring of potential subsurface impacts and to evaluate the horizontal and vertical distribution of the impacted area. Based on the findings of the initial phase, if necessary, a comprehensive assessment may be required.

In Conclusion

The information and technical requirements in this ELMP are provided to the Developer or designee of the HOA and/or CDD to assist with the understanding of the importance of a well maintained and fully functioning stormwater management system. The stormwater management system lakes within the development are not only required by state law, but can be a source of beauty and enjoyment for the residents while maintaining the value and integrity of the water resources.

Table 1

Water Quality Sampling Schedule

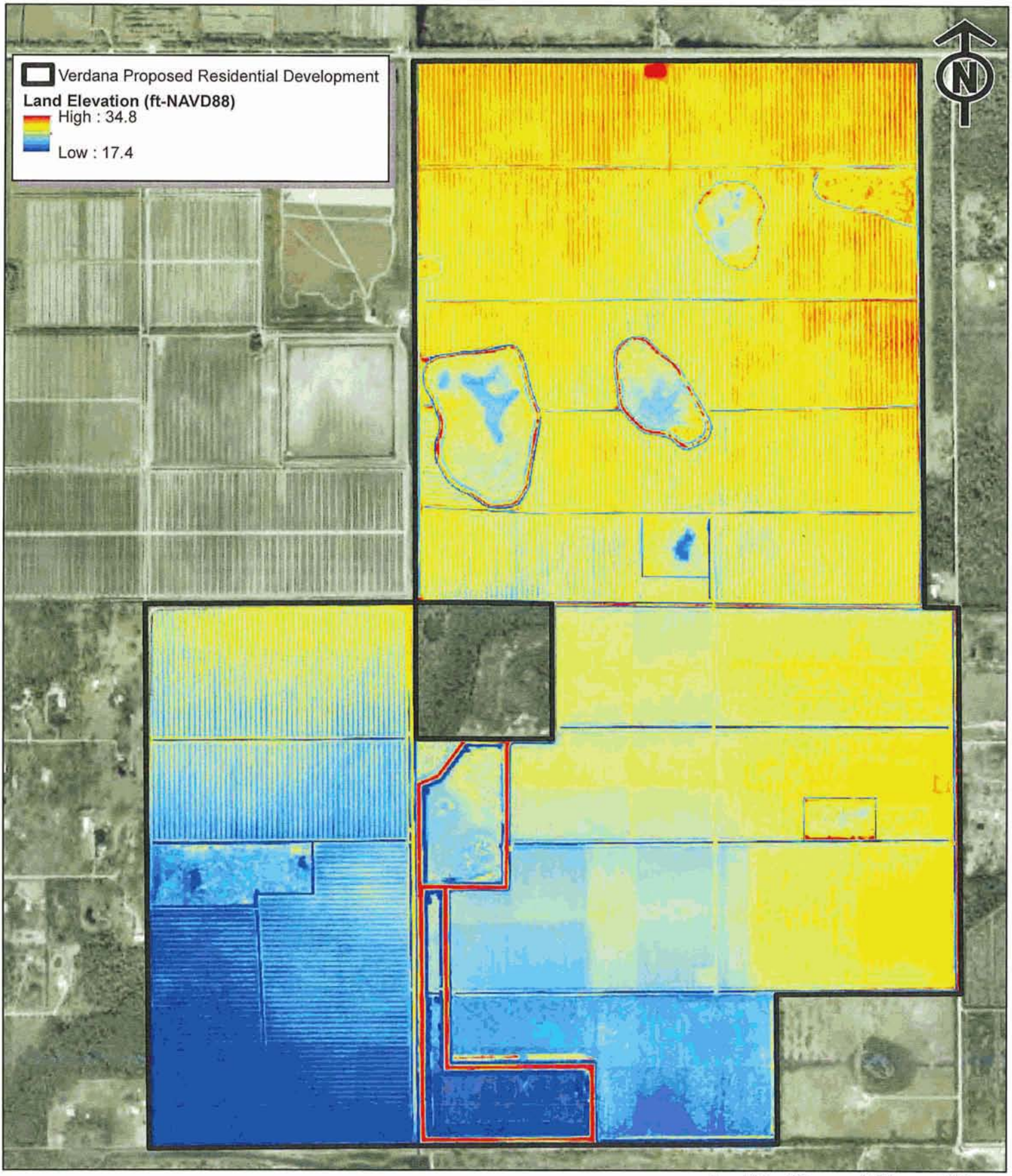
Date	Sample Type	Sample Location
January-31	N/A	N/A
February-28	N/A	N/A
March-31	Surface Water	7 Stormwater Lakes*
April-30	N/A	N/A
May-31	N/A	N/A
June-30	Surface Water	7 Stormwater Lakes*
July-31	N/A	N/A
August-31	N/A	N/A
September-30	Surface Water	7 Stormwater Lakes*
October-31	N/A	N/A
November-30	N/A	N/A
December-31	Surface Water	7 Stormwater Lakes*

*See Figure 2 for surface water quality sampling locations.

Table 2

Surface Water Quality Analytes and Schedule for Sampling

Field Parameters					
Parameter	**Units**	**Precision (%RPD)**	**Accuracy (%Recovery)**	**MDL**	**Sampling Frequency**
Depth of Water	Feet	0.01	NA	NA	Quarterly
Dissolved Oxygen	mg/L	FT 1000-1	FT 1000-1	NA	Quarterly
pH	SU	FT 1000-1	FT 1000-1	NA	Quarterly
Temperature	Deg C	FT 1000-1	FT 1000-1	NA	Quarterly
Specific Conductivity	µs/cm	FT 1000-1	FT 1000-1	NA	Quarterly
Laboratory Parameters (Nutrients)					
Total Nitrogen	mg/L	CALC	CALC	CALC	Quarterly
Nitrite + Nitrate	mg/L	5	90-110	0.004	Quarterly
Ammonium	mg/L	CALC	CALC	CALC	Quarterly
Ammonia	mg/L	17	90-110	0.008	Quarterly
Total Kjeldahl Nitrogen	mg/L	11	90-110	0.05	Quarterly
Total Phosphorus	mg/L	10	90-110	0.008	Quarterly
Chlorophyll-a	mg/L	20	93-108	0.25	Quarterly
Ortho-phosphate	mg/L	10	88-118	0.002	Quarterly



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0 395 790 1,580 2,370 Feet

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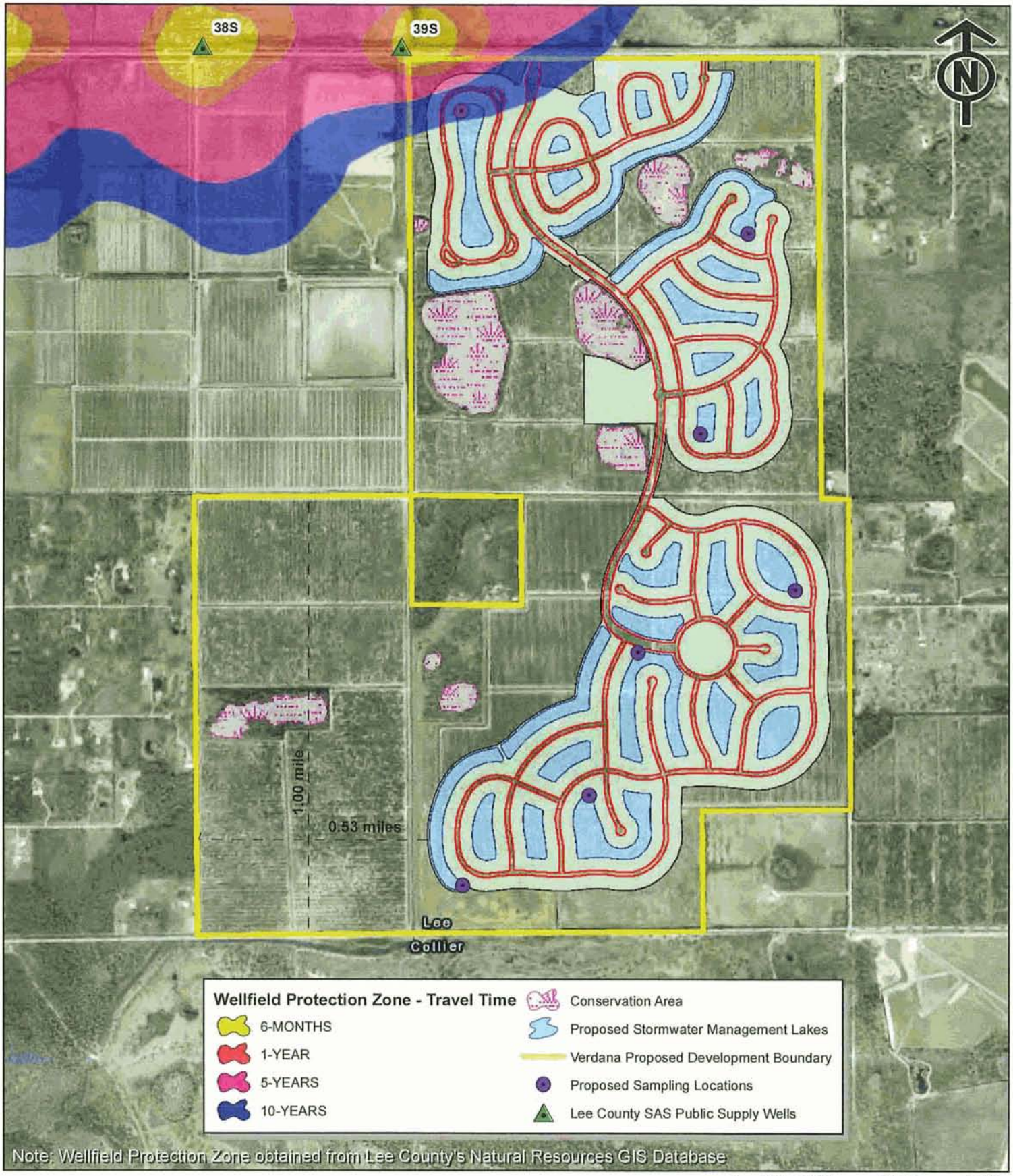
Figure 1
Site Topography
Verdana
Lee County, Florida

Progressive Water Resources
Integrated Water Resource Consultants



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Progressive Water Resources has provided the images or data presented in this map for informational purposes only. This data is not intended to be used in lieu of official survey data provided by a Professional Surveyor licensed by the State of Florida

Figure 2
Wellfield Protection Zones and ELMP Sampling Locations
Verdana
Lee County, FL

Progressive Water Resources
Integrated Water Resource Consultants

VERDANA CPA
RESPONSE TO SUFFICIENCY COMMENTS, OCTOBER 10, 2016
LEE COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT
CPA2016-00009
TRAFFIC COMMENTS

Project # 15556

December 1, 2016

Prepared by:
DAVID PLUMMER & ASSOCIATES
2149 McGregor Boulevard
Fort Myers, Florida 33901

Verdana CPA
Response to Sufficiency Comments, October 10, 2016
Lee County Department of Community Development
CPA2016-00009

TRAFFIC COMMENTS:

Comment: 1. The application shows different areas for the CPA in the proposed change to Map 17, the text amendment to Policy 33.3.4(1) "or two miles south" and the project location map attached to the CPA transportation analysis. Alico Road from Corkscrew Road to Airport Haul Road and Corkscrew Road from Alico Road to Ben Hill Griffin Parkway are within a three mile radius of the proposed text amendment area. Will the applicant include these segments of Alico Road and Corkscrew Road in the analysis?

Response: The project location map as shown in the CPA transportation analysis was presented to simply provide an approximate depiction of the project location in reference to Corkscrew Road and Alico Road. The detailed CPA application should be relied on for a more definitive depiction of the project location and boundaries.

It appears that the reviewer is measuring the three mile radius from the proposed text amendment area and not from the edge of the project's property boundary. If measured from the project boundary, the study area limits as suggested above are well beyond a three mile radius.

However, to be responsive to the review agencies, it was agreed at a meeting between the County staff and the applicant's traffic consultant on November 11, 2016 that the traffic analysis would be revised to reflect an expanded study area. The expanded study area now includes the additional road segments requested by the County staff: Corkscrew Road, from Alico Road to Ben Hill Griffin Parkway, and Alico Road, from Corkscrew Road to Airport Haul Road.

In regards to the additional Corkscrew Road segment, the Lee County Traffic Count Report shows one very long road segment for Corkscrew Road from Ben Hill Griffin Parkway to Alico Road and one traffic volume for the entire segment. The volume reported in the Lee County Traffic Count Report for the entire road segment is the volume just east of Ben Hill Griffin Parkway. Applying this one volume to the entire segment of Corkscrew Road overestimates the traffic volumes for the entire roadway; overstates the magnitude of emerging level of service issues; and overstates the magnitude of any needed improvements. Using one long road segment and one traffic volume for the entire roadway is not the proper way to assess traffic conditions and impacts.

When Corkscrew Road, from Alico Road to Ben Hill Griffin Parkway, was added to the analysis, this very long roadway segment was broken down into several segments. The segment delineations were based on major traffic generators or destinations along the roadway. The segments include: Alico Road to Bella Terra; Bella Terra to Wildcat Run; and Wildcat Run to Ben Hill Griffin Parkway.

A review of recent (2014 and 2015) 24-hour machine counts and intersection turning movement counts, clearly demonstrate a trip decay (or a reduction in traffic volumes) on Corkscrew Road from Ben Hill Griffin Parkway to Alico Road. A significant reduction is realized in the vicinity of Wildcat Run (30% to 35%) and another significant reduction is found in the vicinity of Bella Terra (67% to 68%). These trip decay adjustments have been made in the analysis to the existing traffic volume reported on Corkscrew Road just east of Ben Hill Griffin Parkway. Using these multiple road segments and different traffic

volumes for each segment, in our opinion, results in a clearer understanding of the traffic volumes along this roadway; a better reflection of the level of service issue; and a more defined identification of the need for and timing of improvements.

The long range 2040 analyses and short range 2020 analyses have been revised to include the requested segments of Corkscrew Road and Alico Road. The following exhibits have been updated to include the additional road segments.

Exhibit 4 (Revised) Future (2040) Traffic Conditions Without CPA
Exhibit 5 (Revised) Future (2040) Traffic Conditions With CPA
Exhibit 8 (Revised) Existing Traffic Conditions
Exhibit 9 (Revised) Future (2020) Traffic Conditions Without Project
Exhibit 10 (Revised) Future (2020) Traffic Conditions With Project

The revised exhibits are included in Attachment S-1A, Verdana Comprehensive Plan Amendment Traffic Study Revised Exhibits, Revised December 1, 2016.

The conclusions of the updated analysis are summarized as follows.

1. No new road improvements are needed as a result of the proposed CPA.

2. The Long Range 20-Year Horizon analysis indicates that no road segments within the expanded study area are expected to have level of service issues in 2040, either with or without the proposed CPA. Therefore, no modifications to the Lee County MPO 2040 Highway Cost Feasible Plan or Lee Plan Map 3A are needed as a result of the proposed CPA.

3. The Short Range analysis indicates that no road segments within a three mile radius or within the expanded study area are expected to have level of service issues in 2020, either with or without the proposed CPA. Therefore, no modifications to the County's five year work program are needed as a result of the proposed CPA.

4. The Short Range analysis of the expanded study area indicates that level of service issues begin to emerge on Corkscrew Road after the five-year horizon. As expected, the initial segment with emerging level of service issues will be from Ben Hill Griffin Parkway to Wildcat Run. That segment will then be followed by the segment from Wildcat Run to Bella Terra. These conclusions are anticipated to be evaluated in the County's cumulative traffic study of the Corkscrew Road area which is currently underway. That study will identify the ultimate roadway improvements needed, the timing of those improvements, and funding alternatives.

Comment: 2. Alico Road and Corkscrew Road were also included in the transportation analysis for the concurrent CPA2016-00003 Pepperland. CPA2016-00003 was submitted after the methodology meeting for the proposed CPA but is not addressed in this application.

Response: As agreed at the meeting with the County staff on November 11, 2016, the traffic study exhibits have been updated and revised to include the two road segments requested by the County staff. It was also agreed with the County staff at that meeting that the updated analysis did not have to include the Pepperland project.

The updated and revised traffic study exhibits are included in Attachment S-1A, Verdana Comprehensive Plan Amendment Traffic Study Revised Exhibits, Revised December 1, 2016.

Comment: 3. The application and applicant's traffic study indicate 1,460 SF dwelling units and 60,000 square feet of retail. The applicant's traffic study does not fully recognize impacts of the proposed text amendment.

Response: This comment is being addressed by a rewording of the application. At the November 11, 2016 meeting with County staff, it was agreed that with modifications to the wording of the application, no further traffic analyses would be necessary to address the comment.

ATTACHMENT S-1A

VERDANA COMPREHENSIVE PLAN AMENDMENT TRAFFIC STUDY
REVISED EXHIBITS
REVISED DECEMBER 1, 2016

EXHIBIT 4 (REVISED)

VERDANA COMPREHENSIVE PLAN AMENDMENT

LONG RANGE 20-YEAR HORIZON ANALYSIS

FUTURE (2040) TRAFFIC CONDITIONS WITHOUT CPA (134 Units)

DIRECTIONAL PEAK HOUR (K100), PEAK SEASON

ROADWAY	FROM	TO	(1) # of Lanes	(2) LOS Std	(3) PCS No.	(4) 2040 PSWADT Traffic	(5) PSWADT/ AADT	AADT	(5) K100 Factor	Two-Way Peak Hour Volume	(5) D100 NE	(5) D100 SW	2040 Directional Peak Hr. Vol. NE	2040 Directional Peak Hr. Vol. SW	(6) Directional Service Volumes LOS "A"	LOS "B"	LOS "C"	LOS "D"	LOS "E"	LOS Std		V/C NE	V/C SW	LOS NE	LOS SW
CORKSCREW RD - EAST	ALICO RD	CORKSCREW FARMS	2	E	70	12,698	1.157	10,975	0.096	1,054	0.54	0.46	569	485	130	420	850	1,210	1,640	1,640	(7)	0.35	0.30	C	C
	CORKSCREW FARMS	PROJECT	2	E	70	7,406	1.157	6,401	0.096	614	0.54	0.46	332	282	130	420	850	1,210	1,640	1,640	(7)	0.20	0.17	B	B
	PROJECT	TPI RD	2	E	70	6,914	1.157	5,976	0.096	574	0.54	0.46	310	264	130	420	850	1,210	1,640	1,640	(7)	0.19	0.16	B	B
	TPI RD	EAST	2	E	70	2,343	1.157	2,025	0.096	194	0.54	0.46	105	89	130	420	850	1,210	1,640	1,640	(7)	0.06	0.05	A	A
CORKSCREW RD - WEST	ALICO RD	BELLA TERRA	4	E	70	17,115	1.157	14,793	0.096	1,420	0.54	0.46	767	653	1,060	1,810	2,560	3,240	3,590	3,590	(7)	0.21	0.18	A	A
	BELLA TERRA	WILDCAT RUN	4	E	70	30,270	1.157	26,162	0.096	2,512	0.54	0.46	1,356	1,156	-	250	1,840	1,960	1,960	1,960		0.69	0.59	A	A
	WILDCAT RUN	BEN HILL GRIFFIN PKWY	4	E	70	36,587	1.157	31,622	0.096	3,036	0.54	0.46	1,639	1,397	-	250	1,840	1,960	1,960	1,960		0.84	0.71	A	A
ALICO RD - SOUTH	CORKSCREW RD	ALICO EXTENSION	2	E	53	8,363	1.360	6,149	0.109	670	0.47	0.53	315	355	130	420	850	1,210	1,640	1,640	(7)	0.19	0.22	B	B
ALICO RD EXT	ALICO RD	AIRPORT HAUL RD	4	E	53	28,448	1.360	20,918	0.109	2,280	0.47	0.53	1,072	1,208	1,060	1,810	2,560	3,240	3,590	3,590	(7)	0.30	0.34	B	B

Footnotes:

(1) Lee County MPO 2040 Long Range Transportation Plan Highway Cost Feasible Plan number of lanes.
(2) Lee County roadway LOS standard.
(3) Permanent Count Station from Lee County 2015 Traffic Count Report.
(4) PSWDT from 2040 travel model assignment without proposed CPA (current LU designation) on MPO 2040 Cost Feasible Plan road network.
(5) Adjustment factors per Permanent Count Stations in Lee County 2015 Traffic Count Report.
(6) Lee County Generalized Peak Hour Service Volumes (April 2016).
(7) Uninterrupted flow service volumes.

EXHIBIT 5 (REVISED)

VERDANA COMPREHENSIVE PLAN AMENDMENT

LONG RANGE 20-YEAR HORIZON ANALYSIS

FUTURE (2040) TRAFFIC CONDITIONS WITH CPA (1,460 Units)

DIRECTIONAL PEAK HOUR (K100), PEAK SEASON

ROADWAY	FROM	TO	(1) # of Lanes	(2) LOS Std	(3) PCS No.	(4) 2040 PSWADT Traffic	(5) PSWADT/ AADT	AADT	(5) K100 Factor	Two-Way Peak Hour Volume	(5) D100 NE	(5) D100 SW	2040 Directional Peak Hr. Vol. NE	2040 Directional Peak Hr. Vol. SW	(6) Directional Service Volumes LOS "A"	LOS "B"	LOS "C"	LOS "D"	LOS "E"	LOS Std		V/C NE	V/C SW	LOS NE	LOS SW
CORKSCREW RD - EAST	ALICO RD	CORKSCREW FARMS	2	E	70	17,203	1.157	14,869	0.096	1,427	0.54	0.46	771	656	130	420	850	1,210	1,640	1,640	(7)	0.47	0.40	C	C
	CORKSCREW FARMS	PROJECT	2	E	70	12,938	1.157	11,182	0.096	1,074	0.54	0.46	580	494	130	420	850	1,210	1,640	1,640	(7)	0.35	0.30	C	C
	PROJECT	TPI RD	2	E	70	8,232	1.157	7,115	0.096	683	0.54	0.46	369	314	130	420	850	1,210	1,640	1,640	(7)	0.22	0.19	B	B
	TPI RD	EAST	2	E	70	2,849	1.157	2,462	0.096	236	0.54	0.46	127	109	130	420	850	1,210	1,640	1,640	(7)	0.08	0.07	A	A
CORKSCREW RD - WEST	ALICO RD	BELLA TERRA	4	E	70	19,681	1.157	17,010	0.096	1,633	0.54	0.46	882	751	1,060	1,810	2,560	3,240	3,590	3,590	(7)	0.25	0.21	A	A
	BELLA TERRA	WILDCAT RUN	4	E	70	32,576	1.157	28,156	0.096	2,703	0.54	0.46	1,460	1,243	-	250	1,840	1,960	1,960	1,960		0.74	0.63	A	A
	WILDCAT RUN	BEN HILL GRIFFIN PKWY	4	E	70	38,457	1.157	33,239	0.096	3,191	0.54	0.46	1,723	1,468	-	250	1,840	1,960	1,960	1,960		0.88	0.75	A	A
ALICO RD - SOUTH	CORKSCREW RD	ALICO EXTENSION	2	E	53	8,778	1.360	6,454	0.109	704	0.47	0.53	331	373	130	420	850	1,210	1,640	1,640	(7)	0.20	0.23	B	B
ALICO RD EXT	ALICO RD	AIRPORT HAUL RD	4	E	53	29,295	1.360	21,540	0.109	2,348	0.47	0.53	1,104	1,244	1,060	1,810	2,560	3,240	3,590	3,590	(7)	0.31	0.35	B	B

Footnotes:

(1) Lee County MPO 2040 Long Range Transportation Plan Highway Cost Feasible Plan number of lanes.
(2) Lee County roadway LOS standard.
(3) Permanent Count Station from Lee County 2015 Traffic Count Report.
(4) PSWDT from 2040 travel model assignment with proposed CPA on MPO 2040 Cost Feasible Plan road network.
(5) Adjustment factors per Permanent Count Stations in Lee County 2015 Traffic Count Report.
(6) Lee County Generalized Peak Hour Service Volumes (April 2016).
(7) Uninterrupted flow service volumes.

EXHIBIT 8 (REVISED)

VERDANA CPA

EXISTING TRAFFIC CONDITIONS

DIRECTIONAL PEAK HOUR (K100), PEAK SEASON

ROADWAY	FROM	TO	(1) # of Lanes	(2) LOS Std	(3) PCS #	Count Year	(4) Existing AADT		(5) K100 Factor	Two-Way Peak Hr. Volume	(5) D100 NE	D100 SW	Existing Directional Peak Hr. Vol. NE	Existing Directional Peak Hr. Vol. SW	(6) Directional Service Volumes LOS A	LOS B	LOS C	LOS D	STD LOS E	LOS Std	V/C NE	V/C SW	LOS NE	LOS SW
CORKSCREW RD - EAST	ALICO RD	CORKSCREW FARMS	2	E	70	2014	3,109	(7)	0.096	298	0.54	0.46	161	137	90	310	570	790	1,140	1,140	0.14	0.12	B	B
	CORKSCREW FARMS	PROJECT	2	E	70	2014	3,109	(7)	0.096	298	0.54	0.46	161	137	90	310	570	790	1,140	1,140	0.14	0.12	B	B
	PROJECT	TPI RD	2	E	70	2014	3,109	(7)	0.096	298	0.54	0.46	161	137	90	310	570	790	1,140	1,140	0.14	0.12	B	B
	TPI RD	EAST	2	E	70	2014	3,109	(7)	0.096	298	0.54	0.46	161	137	90	310	570	790	1,140	1,140	0.14	0.12	B	B
CORKSCREW RD - WEST	ALICO RD	BELLA TERRA	2	E	70	2015	3,432	(8)	0.096	329	0.54	0.46	178	151	90	310	570	790	1,140	1,140	0.16	0.13	B	B
	BELLA TERRA	WILDCAT RUN	2	E	70	2015	10,920	(8)	0.096	1,048	0.54	0.46	566	482	90	310	570	790	1,140	1,140	0.50	0.42	C	C
	WILDCAT RUN	BEN HILL GRIFFIN PKWY	2D	E	70	2015	15,598	(7)	0.096	1,497	0.54	0.46	808	689	0	820	1,200	1,200	1,200	1,200	0.67	0.57	B	B
ALICO RD	CORKSCREW RD	AIRPORT HAUL RD	2	E	53	2010	1,500		0.109	164	0.47	0.53	77	87	70	280	540	760	1,100	1,100	0.07	0.08	B	B

Footnotes:

(1) Existing Number of Lanes.
(2) Roadway LOS standard from The Lee Plan.
(3) Permanent Count Station from Lee County 2015 Traffic Count Report.
(4) Most current AADT volume from Lee County 2015 Traffic Count Report; Alico Rd count is from 2010.
(5) Adjustment factors from appropriate Permanent Count Station data in Lee County 2015 Traffic Count Report.
(6) Lee County Link-Specific Peak Hour Service Volumes (June 2016).
(7) Most current AADT volume from Lee County Traffic Count Database System (TCDS) and Lee County 2015 Traffic Count Report.
(8) Volume based on trip decay from Ben Hill Griffin Parkway to Alico Road. Using 24-hour machine counts and intersection turning movement counts, and using the traffic volume from Ben Hill Griffin Parkway to Wildcat Run as the control, decay measured as approximately 70% from Wildcat Run to Bella Terra and approximately 22% east of Bella Terra to Alico Road.

EXHIBIT 9 (REVISED)

VERDANA CPA – SHORT RANGE HORIZON

FUTURE (2020) TRAFFIC CONDITIONS WITHOUT PROJECT (134 SF UNITS)

DIRECTIONAL PEAK HOUR (K100), PEAK SEASON

					(3)		(4)		(5)		Revised		(6)		(7)				(8)									
					2020 Background Directional		WildBlue Directional		The Place Directional		2020 Background Directional		Current Zoning		Current Zoning Directional		Total 2026 Directional		Directional Service Volumes									
			(1)	(2)	Peak Hr. Vol.		Peak Hr. Vol.		Peak Hr. Vol.		Peak Hr. Vol.		Traffic Distribution		Pk. Hr. Volume		Pk. Hr. Volume						STD	LOS	V/C		LOS	
ROADWAY	FROM	TO	# of Lanes	LOS Std	NE	SW	NE	SW	NE	SW	NE	SW	FSUTMS	%	NE	SW	NE	SW	LOS A	LOS B	LOS C	LOS D	LOS E	Std	NE	SW	NE	SW
CORKSCREW RD - EAST	ALICO RD	CORKSCREW FARMS	2	E	171	145	2	2	219	210	392	357	5,852	63.2%	54	32	445	389	90	310	570	790	1,140	1,140	0.39	0.34	C	C
	CORKSCREW FARMS	PROJECT	2	E	171	145	2	2	15	14	188	161	7,110	76.8%	66	39	254	200	90	310	570	790	1,140	1,140	0.22	0.18	B	B
	PROJECT	TPI RD	2	E	171	145	2	2	15	14	188	161	2,153	23.3%	12	20	200	181	90	310	570	790	1,140	1,140	0.18	0.16	B	B
	TPI RD	EAST	2	E	171	145	2	2	15	14	188	161	899	9.7%	5	8	193	170	90	310	570	790	1,140	1,140	0.17	0.15	B	B
CORKSCREW RD - WEST	ALICO RD	BELLA TERRA	2	E	187	159	3	3	144	138	334	300	3,865	41.7%	38	21	370	321	90	310	570	790	1,140	1,140	0.32	0.28	C	C
	BELLA TERRA	WILDCAT RUN	2	E	594	506	100	96	144	138	838	740	3,298	35.6%	31	18	869	758	90	310	570	790	1,140	1,140	0.76	0.67	E	D
	WILDCAT RUN	BEN HILL GRIFFIN PKWY	2D	E	848	723	100	96	130	124	1,078	943	3,298	35.6%	31	18	1,109	962	0	820	1,200	1,200	1,200	1,200	0.92	0.80	C	C
ALIDO RD	CORSCREW RD	AIRPORT HAUL RD	2	E	85	96	2	2	58	65	145	163	1,819	19.6%	10	17	155	180	70	280	540	760	1,100	1,100	0.14	0.16	B	B

Footnotes:

(1) Existing plus Committed Number of Lanes (E+C).
(2) Roadway LOS standard from The Lee Plan.
(3) Existing volume from Exhibit 8 (revised) and 1% per year for all roads.
(4) WildBlue peak hour traffic volumes reported in Exhibit 7 of WildBlue CPA Traffic Study (March 11, 2014).
(5) Corkscrew Farms (The Place) peak hour traffic volumes reported in Exhibit 7 of Corkscrew Farms CPA Traffic Study (December 18, 2014).
(6) PSWDT volumes from Corkscrew Groves rezoning travel model assignment used to produce trip distribution by percentage.
(7) ITE trip generation allocated to road segments based on percentage trip distribution.
(8) Lee County Link-Specific Peak Hour Service Volumes (June 2015).

FSUTMS
9,260

ITE Trip Gen - Net New PM

Enter	85
Exit	52
Total	137

EXHIBIT 10 (REVISED)

VERDANA CPA – SHORT RANGE HORIZON

FUTURE (2020) TRAFFIC CONDITIONS WITH PROJECT (400 SF UNITS)

DIRECTIONAL PEAK HOUR (K100), PEAK SEASON

ROADWAY	FROM	TO	(1) # of Lanes	(2) LOS Std	(3) Revised 2020 Background Directional Peak Hr. Vol. NE	(3) Revised 2020 Background Directional Peak Hr. Vol. SW	(4) Proposed CPA Traffic Distribution FSUTMS	(4) Proposed CPA Traffic Distribution %	(5) CPA Directional Pk. Hr. Volume NE	(5) CPA Directional Pk. Hr. Volume SW	Total 2020 Directional Pk. Hr. Volume NE	Total 2020 Directional Pk. Hr. Volume SW	(6) Directional Service Volumes LOS A	LOS B	LOS C	LOS D	STD LOS E	LOS Std	V/C NE	V/C SW	LOS NE	LOS SW
CORKSCREW RD - EAST	ALICO RD	CORKSCREW FARMS	2	E	392	357	5,852	63.2%	119	68	510	425	90	310	570	790	1,140	1140	0.45	0.37	C	C
	CORKSCREW FARMS	PROJECT	2	E	188	161	7,110	76.8%	144	82	332	243	90	310	570	790	1,140	1140	0.29	0.21	C	B
	PROJECT	TPI RD	2	E	188	161	2,153	23.3%	25	44	213	205	90	310	570	790	1,140	1140	0.19	0.18	B	B
	TPI RD	EAST	2	E	188	161	899	9.7%	10	18	198	179	90	310	570	790	1,140	1140	0.17	0.16	B	B
CORKSCREW RD - WEST	ALICO RD	BELLA TERRA	2	E	334	300	3,865	41.7%	78	45	412	344	90	310	570	790	1,140	1140	0.36	0.30	C	C
	BELLA TERRA	WILDCAT RUN	2	E	838	740	3,298	35.6%	67	38	905	778	90	310	570	790	1,140	1140	0.79	0.68	E	D
	WILDCAT RUN	BEN HILL GRIFFIN PKWY	2D	E	1,078	943	3,298	35.6%	67	38	1,145	982	0	820	1,200	1,200	1,200	1200	0.95	0.82	C	C
ALICO RD	CORSCREW RD	AIRPORT HAUL RD	2	E	145	163	1,819	19.6%	21	37	166	200	70	280	540	760	1,100	1100	0.15	0.18	B	B

Footnotes:

(1) Existing plus Committed Number of Lanes (E+C).
(2) Roadway LOS standard from The Lee Plan.
(3) Background traffic brought forward from previous exhibit.
(4) PSWDT volumes from rezoning travel model assignment used to produce trip distribution by percentage.
(5) ITE trip generation allocated to road segments based on percentage trip distribution.
(6) Lee County Link-Specific Peak Hour Service Volumes (June 2016).

FSUTMS	ITE Trip Gen - Net New	
9,260	Enter	188
	Exit	107
	Total	295

DELISI
Land Use Planning & Water Policy

Brandon D Dunn, Principal Planner
Planning Section
Lee County Department of Community Development
1500 Monroe Street
Fort Myers, FL 33902

March 30, 2017

Re: Verdana CPA
CPA2016-00009
Sufficiency #2 submittal

Mr. Dunn,

In response to the comment letter dated October 10, 2016, please find the following responses for your review:

1. PREVIOUS COMMENT: Please further explain the rationale for expanding the overlay and what other properties could benefit from the expansion. The application materials do not fully recognize the potential impacts to public facilities that expansion of the overlay would have.

   Staff recognizes the changes that were made to the proposed language to address these concerns, but staff does not agree with your conclusion that the subject property would be the only property that the proposed text could apply. The narrative response on page 2, number 4, says the expansion will only apply to Tier 1, but this is not provided for in the proposed text amendment.

   In addition, the EEPC Overlay exhibit at page 23 of 53 of your February 3rd resubmittal identifies "Expanded Area" 1, 2, and 3. This exhibit seems to indicate that the overlay would be expanded to these areas. Please withdraw or modify the exhibit as necessary.

   The text amendment has been revised to specifically state that the amendment is only applicable to Tier 1 properties. The EEPC Overlay Exhibit is to demonstrate that no additional properties within 2 miles on the south side of Corkscrew Road will benefit from the proposed text amendment. The areas that are labeled as "expansion areas" are simply those areas within 2 miles of Corkscrew Road.

   It is important to reiterate that the purpose of the Environmental Enhancement and Preservation Overlay is to restore hydrology, protect groundwater resources and restore wildlife corridors. Because water flows from northeast to southwest in the DR/GR, the desired restoration, per the Lee Plan, cannot occur unless a project, or the County, is able to connect to an area of conservation so that the hydrologic and wildlife benefits are restored and not interrupted and "undone" by residential or agricultural development located between restoration areas that require drained

land. The text amendment is written to allow the increase in density only where properties are providing an <u>uninterrupted</u> wildlife corridor and flow way.

2. Currently the Lee Plan allows the Overlay to extend one mile north and south along Corkscrew Road in the vicinity of the subject property in order to minimize additional infrastructure and facilities that must be constructed within Southeast Lee County. Please provide additional justification for locating more than 50 percent of the units more than one mile south of Corkscrew Road.

While the overlay area may limit the total number of units developed along east Corkscrew Road, the 1-mile line runs counter to the goal of wildlife corridor creation and flowway restoration in the DR/GR. The 1 mile area was established based on the extent of the first two projects utilizing the Overlay, not based on the goal of restoring flow way and wildlife connections to the South.

The intent of the Overlay is to incentivize the restoration of the major conservation and wildlife destination - the Corkscrew Regional Ecosystem Watershed (CREW), many of the benefits achieved with an individual project's on-site restoration will be undone the moment water or wildlife leave the site headed toward CREW. Policy 33.3.4. provides that the Overlay is targeting "a significant regional hydrological and wildlife connection and have the potential to improve, preserve, and restore regional surface and groundwater resources and indigenous wildlife habitat. The purpose of the Overlay as it currently is written doesn't include all of the significant property that can provide the desired connections.

This was a point raised by the Florida Wildlife Federation during the adoption of the initial overlay. Since the overlay was adopted concurrent with two proposed amendments north of Corkscrew Road, the focus was on the two projects under consideration and there was not sufficient consideration given to how far the overlay should extend south of Corkscrew Road. However, as stated by the FWF in their June 25, 2015 letter to the Department of Economic Opportunity commenting on the Corkscrew Farms application which established the overlay:

> **"The Federation advocates that the Environmental Enhancement and Preservation Communities overlay not be restricted to one mile north and south of Corkscrew Road east of Alico Road to Imperial Marsh Preserve.** Two miles bisected by a busy roadway does not provide strategic and critical wildlife connections.
>
> **The Environmental Enhancement and Preservation Communities overlay should include all Tier 1 and Tier 2 lands south of Corkscrew Road east of Alico Road.** These lands provide the regional opportunities to restore wildlife habitat links south to conservation lands. (Attachments 2 and 3)"

The exhibits that FWF attached in their letter showed Lee Plan Map 1, Page 4, the Priority Restoration Map, and a map showing that wildlife movement traverses

Tier 1 properties moving toward CREW lands. Wildlife do not simply traverse a 1-mile area along Corkscrew Road where they would otherwise be vulnerable to vehicular accidents.

Ms. Payton was correct in her assessment of the shortcomings of the Overlay. Policy 33.3.4 states that Overlay properties should:

> ***"provide important hydrological connections to the Flint Pen Strand and the Stewart Cypress Slough as well as important wildlife habitat connections between existing CREW and Lee County properties."***

Making a connection to CREW would require contiguity to CREW. The 1-mile limit of the overlay negates any hope of providing a hydrologic or wildlife connection to any property in CREW. The 1-mile limit simply creates an artificial separation between restoration activities within the Overlay and the CREW properties, which start at the County line in this area.

The design of the development allows for an uninterrupted wildlife corridor connecting the Corkscrew Regional Mitigation Bank to the north with the Panther Island Mitigation Bank to the south. Placing more units in the north would serve simply to constrict the wildlife corridor. From a growth management stand point, there is no benefit to having more units closer or farther from Corkscrew Road, other than internal trip lengths to access Corkscrew Road.

The primary site planning goal of the property to maximize the hydrologic restoration and the ability of wildlife to move across the property. This was done because the property owner was aware of the strategic importance of the property's location adjacent to regional mitigation banks to <u>both</u> the north and to the south. As already mentioned, placing more units in the northern mile would constrict the wildlife corridor Whereas in the southern area there is more land width providing more design flexibility in creating a larger contiguous wildlife and flow way restoration area.

The design of the site clusters development in areas outside of existing wetlands and historic flow ways, both the major flow way shown on the County's historic flow way map, and the "minor" flow way that was not shown on the County's map. The units were located to accommodate the natural flow of water and to connect the existing preserve areas, and the units were located in a manner consistent with the corridors. The county will not be extending infrastructure on-site, the developer will be undertaking that effort. The property is already developed with Citrus and the residential units will have far less impact than the active agriculture.

3. The intent of Objective 107.4 is to maintain or enhance existing population numbers and distributions of listed species. The proposed wildlife corridors identified in the concurrent zoning are constricted in the northern section. Staff is

concerned that the configuration shown will not provide regional wildlife habitat benefits as required to be included within the Environmental Enhancement and Preservation Communities Overlay.

Please demonstrate that large mammals will be able to easily move through the site to access conservations lands to the north and south of the subject property.

The intent of Objective 107.4. is implemented through the implementing polices. Policy 107.4.2. indicates that the county will conserve critical habitat through development review, regulation, incentives, and acquisition. The applicant is providing a connection that does not presently exist. The connection should be incentivized. Policy 107.4.4. provides that new development is to protect remnants of viable habitat. The applicant has proposed a corridor that vastly exceeds the provision of a remnant. Remnant areas do not have to be provided if alternative mitigation is provided and yet impacts to onsite existing remnant wetlands are negligible. The property that is proposed for protection is not denning habitat for large mammals, but is a corridor. The corridor is sufficient to permit the safe passage of large mammals. It should be noted that what is occurring in this instance is restoration in addition to protection which has a significantly higher cost.

At its narrowest point, the restoration area at the north end of the project has a width of 480' of restored habitat. In addition, the buffer lakes on either side of the restoration area add 280' for a total distance between development areas of 760'. This width is consistent with the design of other previously approved projects in the EEPC Overlay. While the buffer lakes are not being considered as conservation or restoration area to meet the 55% preserve requirement, they do act as a valuable natural buffer separating developed area from the corridor. In addition, Darrell Land of Florida Fish and Wildlife Conservation Commission reviewed the Verdana plan during a meeting on March 3, 2017 and did not express any concerns with the plan and the restoration zone widths as they pertained to potential utilization and panther movements.

4. Please demonstrate that the easements (OR 1287, PG 349 and OR 1415, PG 1742) will not impact the ability of the subject property to regional surface water flows as required to be included within the Environmental Enhancement and Preservation Communities Overlay. The indigenous preservation, restoration and management plans do not indicate restoration of the easements. Policy 33.3.4 requires improvement, preservation and restoration of regional surface and groundwater resources. How is this being addressed if the easements are not restored? Please address who has rights to use the various easements on the property? Will the easements be vacated? Do the easements contain culverts to allow surface or groundwater flow or will those be installed?

The two right of way easements that extend north to Corkscrew Road (OR 1415, PG 1742) and east to Carter Road (OR1287, PG 349) have negligible use. The narrow (30' & 40') easements are in favor of the 40 acre outparcel on the western side of the

property and are for the stated purpose of providing access to the 40 acre parcel. It is not the intention to vacate the easements as they do not in any way alter the proposed restoration plan or diminish its effectiveness. The easement areas will remain unpaved and pervious. Where necessary, the easement areas will have culverts installed under them to allow northeast to southwest flow of surface water through the restoration area. While the easements will be generally clear of vegetation they will not represent obstacles to the movement of wildlife or the flow of surface water. Future use cannot increase to any significant degree to create an adverse impact to the proposed restoration activities.

5. Please indicate who staff should coordinate with to schedule a site visit of the property.

   Please feel free to coordinate with me to set up an appropriate time for a site visit.

Please feel free to contact me if you have any questions.

DeLisi, Inc.

Daniel DeLisi, AICP
cc. Pan Terra Holdings, LTD
Neale Montgomery, Pavese Law Firm

DELISI
Land Use Planning & Water Policy

PROPOSED CHANGES TO THE LEE COUNTY COMPREHENSIVE PLAN

The following are the text and map amendments that are being proposed to the Lee County Comprehensive Plan.

Map Amendments:

1. Map 6 – Future Water Service Area (attached)
2. Map 7 – Future Sewer Service Area (attached)
3. Map 17 – SE DR/GR Residential Overlay (attached)

Text Amendments:

Policy 33.3.4(1)

These lands are within the "Environmental Enhancement and Preservation Communities" overlay as designated on Map 17 of the Plan. Lands eligible for the Environmental Enhancement and Preservation Communities overlay must be consistent with one of the criteria below;

a. Lands located west of Lee County 20/20 Imperial Marsh Preserve (Corkscrew Tract), and within one mile north or south of Corkscrew Road. Properties south of Corkscrew Road designated as Tier 1 Priority Acquisition may extend the overlay an additional mile south only for properties fronting on Corkscrew Road, where the extension will result in connecting conservation land the north of Corkscrew Road to conservation land in the CREW area.
b. Lands located west of the intersection of Alico Road and Corkscrew Road must be located north of Corkscrew Road and south of Alico Road.

Policy 33.3.4 (2) i.

Elimination of any agricultural row crop uses at the time of ~~first~~ development order for the area encompassed within the development order application.

Narrative Justification
The purpose and intent of the "Environmental Enhancement and Preservation Communities" is to provide an incentive for environmental restoration so that environmental corridors and wildlife connections can be established. The existing limitation of extending the overlay to only within one mile south of Corkscrew Road, simply does not achieve this purpose for properties south of Corkscrew Road.

The proposed amendment has been revised to only affect the Verdana property. Within the overlay area, the subject property is the only property that has both frontage on Corkscrew

Road and can connects to CREW to the south within a two-mile distance. The attached "EEPC Overlay Exhibit shows the specific areas that are within two miles of Corkscrew Road within the Overlay. Areas 2 and 3 do not have access to Corkscrew Road and would be unable to fulfill the requirements by making a connection to Corkscrew Road. Area 1 has access to Corkscrew Road, but is further separated from CREW by an additional two miles to the south and a platted residential area to the east. Both the agricultural operation south of the 2-mile area and the residential lots to the east would block any ability to make a connection under the proposed language.

The proposed plan amendment provides an opportunity for the County to provide this critical connection from preserve lands north Corkscrew Road to preserve south or Corkscrew Road, restoring flows and providing a critical wildlife corridor. Additionally, the extension of the 1-mile area allows the county to redirect water that currently flows down 6Ls Farms Road (where the residents experience flooding events).

The Corkscrew Regional Ecosystem Watershed (CREW) project boundary is located south of Corkscrew Road and provides an incredibly valuable service for the area's water flow, water quality and wildlife movement. CREW, which is a partnership effort between the South Florida Water Management District, Lee County, Collier County, adjacent private land owners and local environmental organizations to acquire and preserve land within the 60,000 acre footprint area, has been successful in setting aside and restoring large areas of natural lands. Creating Environmental Enhancement and Preservation Communities along the northern edge of CREW, in essence extending the natural environment and wildlife habitat, by restoring lands at no cost to the tax payer, fits well within the purpose of the Environmental Enhancement and Preservation Communities.

However, by stopping the overlay short of the CREW boundary, the County is creating an arbitrary barrier that would only serve to limit the benefits gained by the restoration of the property's hydrology and the benefits to wildlife movement. By not extending south of the 1-mile limit, the existing man-made farming barrier would continue to negate many of the benefits that could otherwise be gained through hydrologic and habitat restoration and limiting future properties' utility in restoration.

The proposed plan amendment demonstrates the value of providing these north/south connections. The proposed plan restores historic flows across the property from the northeast to the southwest, into the Panther Island Mitigation Bank in Collier County. In addition, because the property will connect to environmental lands to the south, the opportunity exists to divert water from the Pepperland project to the west and divert flow away from 6Ls Farms Road.

Restoring the timing and distribution of flows to the south will benefit the current restoration efforts of Panther Island Mitigation Bank. Having a separation of long term active agriculture between a restored property and the Audubon lands would negate many of the water timing and distribution benefits. The plan also demonstrates how extending the area south to the CREW boundary helps facilitate wildlife movement the creation/establishment of a new wildlife corridor.

FLORIDA WILDLIFE FEDERATION

Affiliated With National Wildlife Federation

Southwest Florida Office
2590 Golden Gate Parkway, Suite 105
Naples, Florida 34105

Office Phone: (239) 643-4111
Cell: (239) 784-5119
Email: nancypayton@fwfonline.org

June 25, 2015

Ray Eubanks, Plan Processing Administrator
State Land Planning Agency
Caldwell Building
107 East Madison – MSC 160
Tallahassee, Florida 32399

Re: Amendment to Lee Plan
CPA2015-01, Corkscrew Farms

Dear Mr. Eubanks:

Florida Wildlife Federation participated in the June 17, 2015, Corkscrew Farms Transmittal Hearing and supported transmittal with lingering questions about Objective 33.3 and the proposed Environmental Enhancement and Preservation Communities overlay.

Objective 33.3 states that the properties in the Environmental Enhancement and Preservation Communities overlay "provide opportunities to protect, preserve, and restore strategic regional…wildlife connections."

Corkscrew Farms does not provide significant, important, or regional wildlife connections. It does offer "short cuts" to conservation lands (Attachment 1) bordering on the east and north; and it is to be commended for fencing off the residential pods to keep wildlife from backyards and moving south onto the road.

The Federation advocates that the Environmental Enhancement and Preservation Communities overlay not be restricted to one mile north and south of Corkscrew Road east of Alico Road to Imperial Marsh Preserve. Two miles bisected by a busy roadway does not provide strategic and critical wildlife connections.

The Environmental Enhancement and Preservation Communities overlay should include all Tier 1 and Tier 2 lands south of Corkscrew Road east of Alico Road. These lands provide the regional opportunities to restore wildlife habitat links south to conservation lands. (Attachments 2 and 3)

The overlay requires a problematic 100' vegetative buffer on both sides of the entire length of Corkscrew Road east of the Alico Road to Imperial Marsh Preserve. This four-mile 200' linear natural area split by a road will likely increase vehicular collisions with black bear, Florida panther and other wildlife.

The Federation understands that the scope of work for the proposed Traffic Study (Policy 38.1.9) will include a wildlife movement study that addresses habitat connectivity and underpasses. The Federation urges that Lee County release the scope of work as soon as possible so Department of Economic Opportunities, Florida Fish and Wildlife Conservation Commission, the Federation, and others can grasp the regional wildlife benefits of the Environmental Enhancement and Preservation Communities overlay and how Corkscrew Farms supplements a "strategic regional" habitat network.

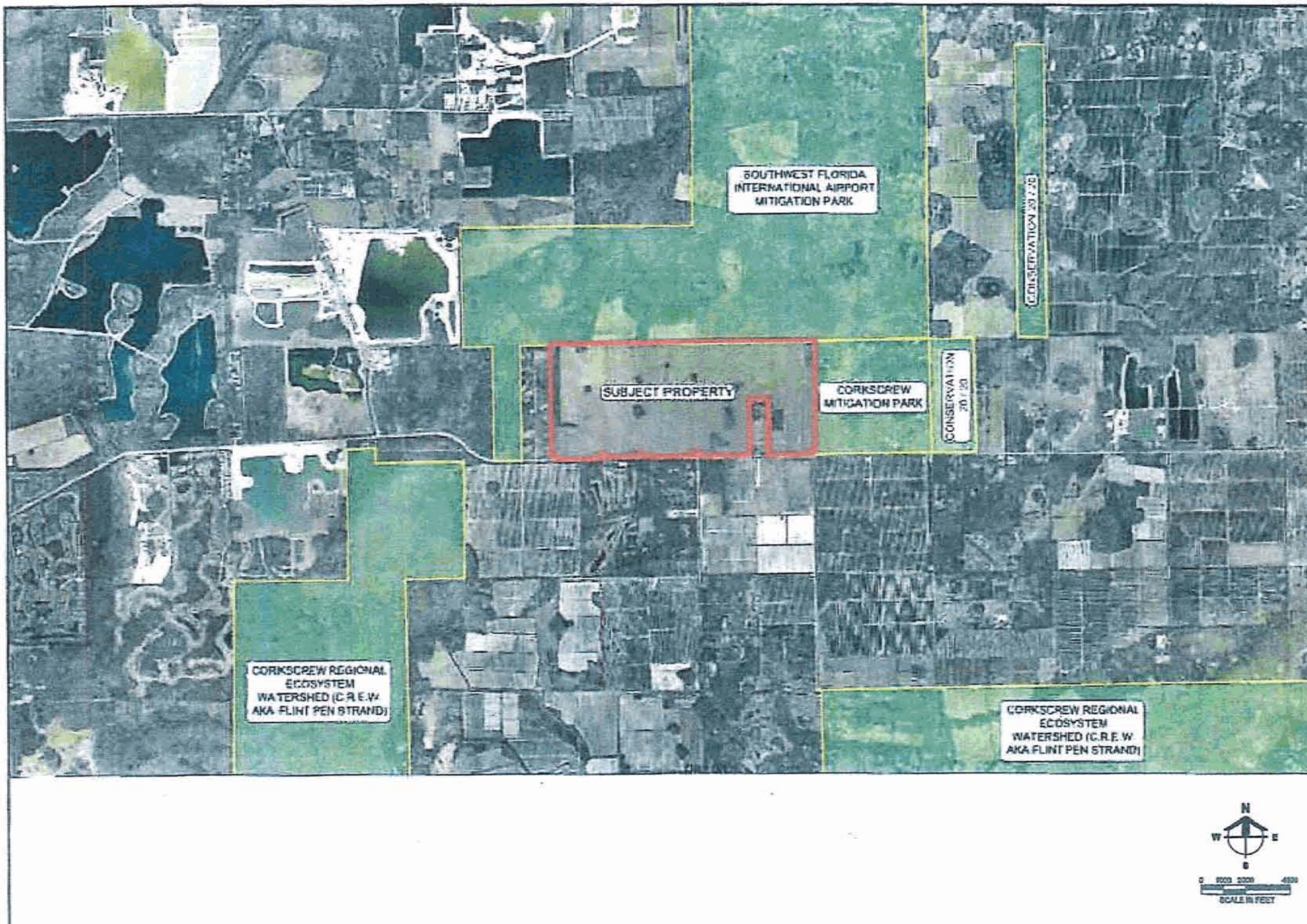
In summary, the Federation supported the transmittal of the Corkscrew Farms amendment for its positive benefits to wetland, wetland dependent species, and water quality. However, its regional benefits to wildlife, particularly Florida panther and black bear, have yet to be demonstrated by Lee County.

Sincerely,

Nancy A. Payton
Southwest Florida Field Representative

Attachments: 3

cc: Brandon Dunn, Lee County
Ray Blackwell, Camprop, Inc (Corkscrew Farms)
Scott Sanders, Florida Fish and Wildlife Conservation Commission



Barraco and Associates, Inc.

www.barraco.net

CAMPROP INC.

1360 ACRES CORKSCREW FARMS

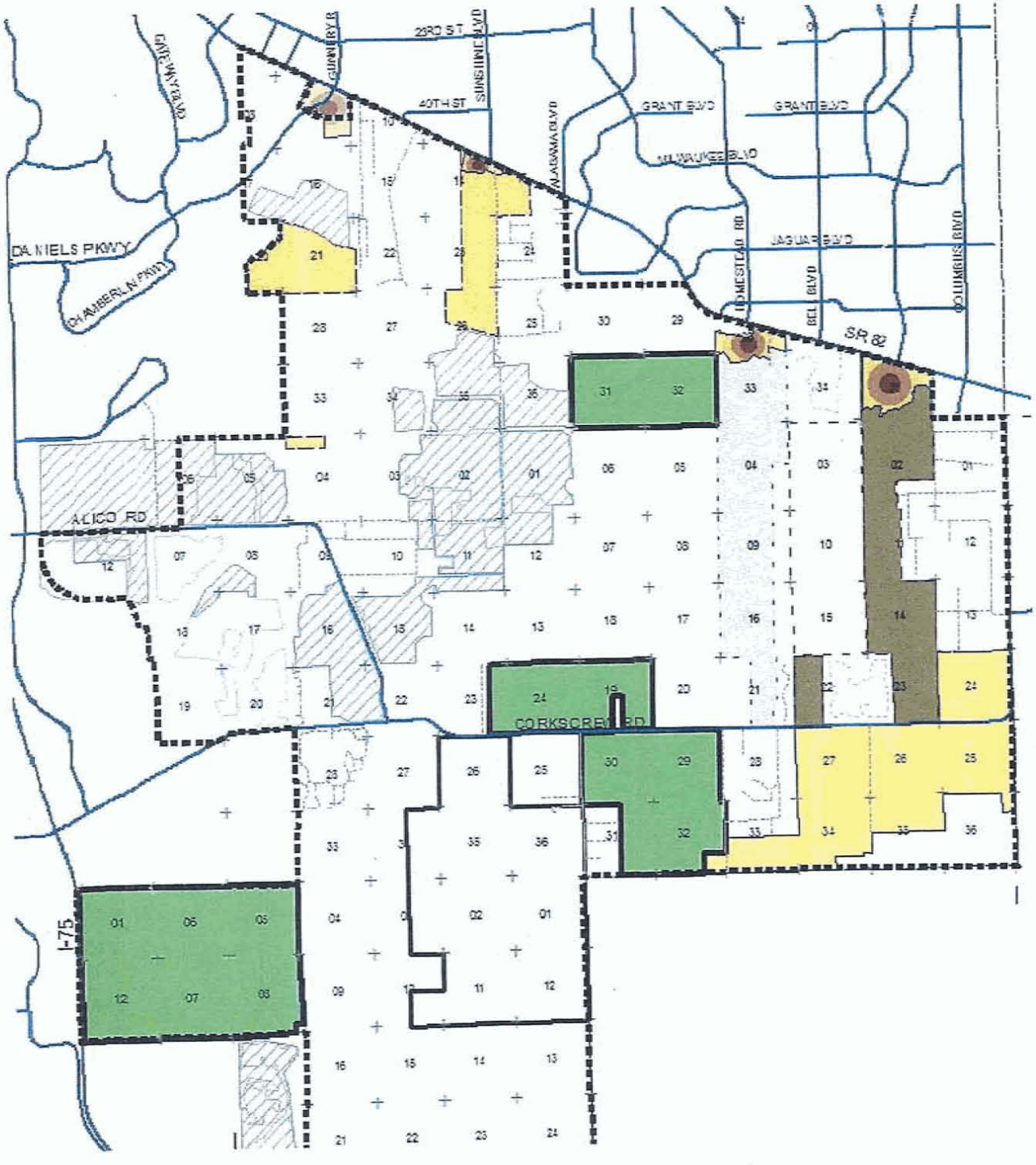
THIS PLAN IS PRELIMINARY AND INTENDED FOR CONCEPTUAL PLANNING PURPOSES ONLY.

SITE LAYOUT AND LAND USE INTENSITIES OR DENSITIES MAY CHANGE SIGNIFICANTLY BASED UPON SURVEY, ENGINEERING, ENVIRONMENTAL AND / OR REGULATORY CONSTRAINTS AND / OR OPPORTUNITIES.

NOT FOR CONSTRUCTION

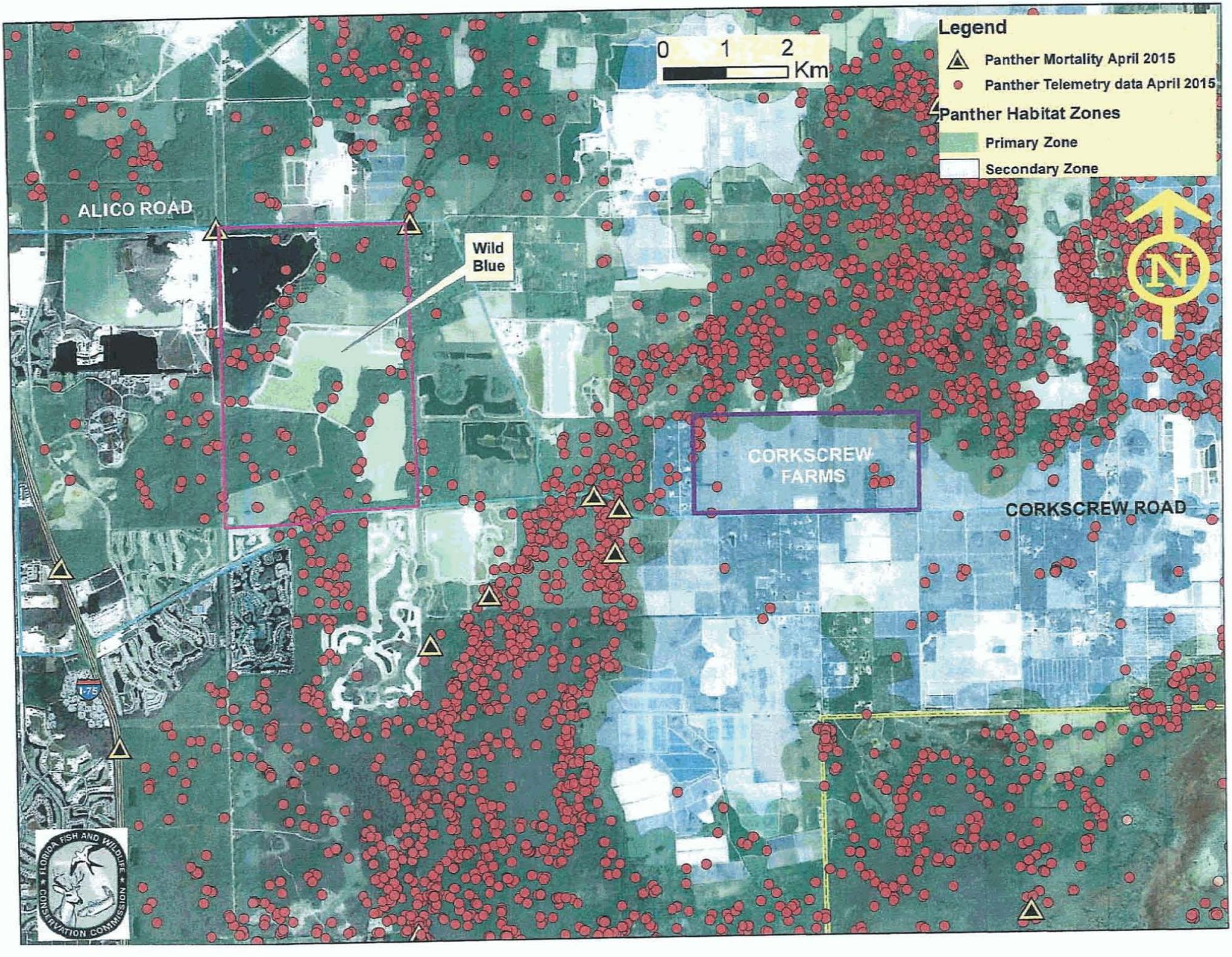
SURROUNDING CONSERVATION LANDS MAP

23244



Priority Restoration Strategy

- Tier 1 (highest priority)
- Tier 2
- Tier 3
- Tier 4
- Tier 5
- Tier 6
- Tier 7
- Public lands
- Mixed-Use Communities
- Future Limerock Mining overlay
- Existing & approved limerock pits
- Major roads
- DR/ GR perimeter


Legend
Panther Mortality April 2015
Panther Telemetry data April 2015
Panther Habitat Zones
Primary Zone
Secondary Zone
0 1 2
Km
ALICO ROAD
Wild Blue
CORKSCREW FARMS
CORKSCREW ROAD
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FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Characterization of Ground and Surface Water Resources
Verdana - Compact Residential Planned Development
Pan Terra Holdings, Ltd.
Lee County, Florida

August 2016

Progressive Water Resources
Integrated Water Resource Consultants

6561 Palmer Park Circle • Suite D • Sarasota, Florida 34238 • (941) 552-5657

Characterization of Ground and Surface Water Resources
Verdana – Compact Residential Planned Development
Pan Terra Holdings, Ltd.

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Executive Summary

Pan Terra Holdings, Ltd.'s (Applicant's) property known as Verdana is located south of Corkscrew Road, east of Interstate 75, in southeastern Lee County, Florida. The property encompasses approximately 1,460 acres, of which approximately 1,134 acres (78 percent) are currently planted in citrus. The Verdana property is located within Lee County's Density Reduction/Groundwater Resource (DR/GR) area.

The Applicant proposes to transition the site into a compact Residential Planned Development, including a minor commercial enterprise area, and in doing so proposes to reduce the irrigated area by approximately 952 acres (approximately 84 percent) which results in the proposed retirement of approximately 911,900,000 gallons of permitted groundwater use on an annual basis and approximately 158,220,000 gallons on a maximum or peak month basis. In addition, 21,050,000 gallons of groundwater permitted for each cold protection (freeze) event will also be retired. A vast majority of the groundwater quantities proposed for retirement are currently permitted by the South Florida Water Management District (SFWMD) to be withdrawn from the shallow, unconfined Water Table Aquifer (887,670,000 gallons).

The proposed elimination of all groundwater withdrawals from the unconfined Water Table Aquifer is predicted to significantly improve the local water resources of the DR/GR by reducing the permitted drawdown impacts to Lee County's public supply wells and nearby environmental systems, including both the Airport Mitigation Park to the north and the Panther Island Mitigation Bank to the south. Groundwater withdrawn from the deeper, confined Sandstone Aquifer is also currently permitted by the SFWMD for irrigation of the grove and its use is also proposed to be reduced (approximately 10 percent) which further reduces drawdown impacts to Lee County's public supply wells.

To irrigate the compact Residential Planned Development, the Applicant proposes to implement an integrated ground and surface water irrigation system, whereby groundwater quantities withdrawn from the Sandstone Aquifer for irrigation are used to supplement surface water supplies within dedicated irrigation ponds. The conjunctive use of both ground and surface water supplies are anticipated to additionally reduce withdrawals from the Sandstone Aquifer when adequate surface water supplies are available, furthering the conservation of groundwater resources within the DR/GR.

Water quality within the DR/GR is also anticipated to be improved. Conversations with Lee County Utilities indicate that the County is able to supply both potable and wastewater services which effectively eliminates up to 134 individual private, potable supply and irrigation wells and 134 individual septic tanks that could be installed today under the existing Allowable Residential Land Use. The proposed compact Residential Planned Development will also significantly reduce the amount of fertilizers, herbicides and pesticides that are currently applied by the existing farming operation, which is exempt from Lee County's Fertilizer Ordinance No. 08-08.

The vast proposed reduction in irrigated area and the associated permitted groundwater quantities, in addition to other proposed water resource benefits, are anticipated to result in substantial improvements to both the shallow groundwater resources and environmental systems within the DR/GR. Collectively, the water resource benefits incorporated into the proposed compact Residential Planned Development meet, and in many cases exceed, the future land use requirements contemplated by Lee County's Comprehensive Plan.

1.0 Introduction

Pan Terra Holdings, Ltd.'s (Applicant's) property known as Verdana (project site) is located south of Corkscrew Road, approximately 8.5 miles east of Interstate 75, in southeastern Lee County, Florida. More specifically, the site is located in Sections 29, 31, and 32, Township 46 South, Range 27 East and encompasses approximately 1,460 acres, of which approximately 1,134 acres (78%) are currently planted in citrus. The project site has a long farming history and has been continuously used for agricultural purposes since the early 1960's. The project site is also located within Lee County's Density Reduction/Groundwater Resource (DR/GR) area as shown on **Figure 1**.

The DR/GR future land use designation was applied to most of southeast Lee County in 1990. In accordance with Lee County's Comprehensive Plan (The Lee Plan), proposed developments within the DR/GR must demonstrate the protection, preservation, and enhancement of groundwater resources and environmental (wetland) systems. The "Groundwater Resource" term was included in the land use category to emphasize the need to protect the County's shallow aquifers, particularly in regards to existing and future drinking water supplies.

Since the Applicant proposes to transition the site into a compact Residential Planned Development, including a minor commercial enterprise area, it is critical to understand the site's past and current land use and associated water resource characteristics to fully appreciate the significant improvements presented by the Applicant. As provided herein, the proposed compact Residential Planned Development reduces the irrigated area by approximately 952 acres and results in the proposed retirement of approximately 911,900,000 gallons of authorized groundwater use on an annual basis and approximately 158,220,000 gallons on a maximum or peak month basis. In addition, 21,050,000 gallons of groundwater permitted for each cold protection (freeze) event will also be retired.

The Applicant's proposed land use not only dramatically reduces groundwater quantities resulting from the substantial reduction in irrigated area, but also significantly reduces the amount of fertilizers, herbicides and pesticides that are currently applied by the existing farming operation. The highly significant reduction in irrigated area and associated permitted groundwater quantities, in addition to other proposed resource benefits, are anticipated to result in substantial improvements to both environmental systems and the shallow groundwater resources of the DR/GR.

2.0 Property Setting

Prior to agricultural development, the project site was characterized as open rangeland and pine Flatwoods, interspersed with wet prairies, marshes, and cypress forest. As shown on the 1953 aerial photograph mosaic included as **Figure 2**, there also appears to be a northeast to southwest trending shallow slough system (historic flow-way highlighted in blue) that transected the property and conveyed surface water flows from northeast to the southwest. The flow-way historically conveyed surface water towards a large wetland system now referred to as the "Corkscrew Swamp Sanctuary" and the Flint Pen Strand, both of which are part of the Corkscrew Regional Ecosystem Watershed (CREW).

With the development of the citrus grove in the early 1960's, surface water was redirected to the south, along the western boundary of Section 32 and into the northern section of what is now the Panther Island Mitigation Bank where it again flows westerly towards the CREW lands. The Southwest International Airport

Mitigation Park (Mitigation Park), maintained by the Port Authority on lands owned by the South Florida Water Management District (SFWMD), is located immediately north of the project site. Stormwater flows from the Mitigation Park do not enter the project site, but are directed to the west, towards the CREW, along the north side of Corkscrew Road.

The project site is relatively flat, with the highest land surface elevations of approximately 27 feet NAVD located on the northern sections of the property, immediately south of Corkscrew Road. The lowest land surface elevations are located in the southwest corner of the property at approximately 19 feet NAVD. A Digital Elevation Model (DEM) produced by Lidar data is included as **Figure 3** and clearly portrays the southwesterly topographic gradient of the project site. Close inspection of the DEM image indicates a possible relic topographic expression of the historic flow-way portrayed in **Figure 2**, a majority of which was removed as part of the citrus grove development. Please note that the upper range of land surface elevations portrayed in the DEM includes the berms associated with the grove's stormwater management system Above Ground Impoundment (AGI), while the DEM's low range elevation values are representative of the inverts of the existing agricultural ditches. Therefore, the DEM elevation scale has a larger topographic range of approximately 34.8 to 17.4 feet NAVD.

Figure 3 also clearly shows the parallel, crowned citrus tree beds and numerous drainage ditches associated with the existing citrus grove. The "rim-ditching" around the onsite isolated wetlands is also clearly evident and is a common feature of farming operations. The extensive ditching and draining observed in the DEM is typical of southwest Florida Flatwoods citrus operations and is necessary due to citrus trees' extreme vulnerability to excess water and elevated water tables. Therefore, water table elevations in Flatwoods citrus operations must be carefully controlled and maintained below the citrus tree root zones. Consequently the grove was designed to drain and quickly remove stormwater.

The predominant soil type is *Immokalee Sand* interspersed with *Oldsmar Sand* and *Valkaria Sand*. The Natural Resource Conservation Service (NRCS) defines *Immokalee Sand* as a poorly-drained soil occurring in marine deposit Flatwoods. Although PWR's research indicates that detailed flood maps have not yet been produced for the project site, the Federal Emergency Management Agency's (FEMA) National Flood Hazard Map shows that the property lies within Flood Zone X which is defined as an Area of Minimal Flood Hazard.

The property is also located within the State of Florida's Water Body Identification (WBID) No. 3259B1 as shown on **Figure 4**. A WBID represents a sub-watershed delineated by the Florida Department of Environmental Protection (FDEP) and is based on the United States Geological Survey (USGS) Hydrologic Use Codes (HUC). Through evaluation of surface water quality data collected within WBID No. 3259B1, the FDEP has determined that the WBID is verified impaired for iron. The impairment for iron is not surprising since PWR's work experience indicates that shallow groundwater in the vicinity of the Applicant's property is naturally high in iron.

3.0 Existing Groundwater Resources

There are three (3) principal aquifer systems underlying the site: 1) the unconfined Surficial Aquifer System, colloquially known as the "Water Table Aquifer"; 2) the confined Intermediate Aquifer System, and; 3) the confined Upper Floridan Aquifer System (UFAS). In southeastern Lee County, groundwater quality decreases rapidly with depth and suitable irrigation and potable supplies are generally found within 300 to 400 feet of

land surface. Below these depths, groundwater becomes highly mineralized and saline. Consequently, groundwater is primarily withdrawn from the shallow Surficial Aquifer System (Water Table Aquifer) and the upper producing unit of the Intermediate Aquifer System (Sandstone Aquifer). Since suitable water quality is required for citrus cultivation, nineteen (19) of the twenty-three (23) existing irrigation wells are completed into the Water Table Aquifer and four (4) existing irrigation wells are completed into the Sandstone Aquifer. As shown in **Table 1**, a vast majority (77 percent) of the groundwater supplies currently authorized for irrigation are derived from the Water Table Aquifer.

Please note that in order to simplify the nomenclature used in this report, the colloquial term "Water Table Aquifer" will be used interchangeably to describe the Surficial Aquifer System and "Sandstone Aquifer" will be used to describe the upper producing unit of the Intermediate Aquifer System.

3.1 Surficial Aquifer System (Water Table Aquifer)

The unconfined Surficial Aquifer System (Water Table Aquifer) originates at land surface and is composed of approximately 10 to 20 feet of unconsolidated surficial deposits composed of gray-to-dark brown, fine-grained, silty quartz sand, with minor shell content. Below the surficial sands, thin discontinuous deposits of clayey sands can sometimes overlay the uneven, upper contact of limestones associated with the Tamiami Formation. Consistent with the stratigraphic delineations in the Florida Geological Survey (FGS) Open File Report No. 37, the Tamiami Formation includes the Ochopee and Buckingham Limestone Members and the Pinecrest Sand Member.

Based on Lee County Utilities (LCU) Well Completion Reports in the vicinity of the project site, the limestones, sands and marls of the Tamiami Formation extend to approximately 130 to 150 feet below land surface (bls) and are major regional sources of groundwater supply due to their shallow depth (near land surface) and high transmissivity. It is therefore understandable why the Tamiami Formation has been extensively utilized by agricultural operations within the DR/GR for decades.

In some areas of Lee County the sediments of the Tamiami Formation can be subdivided into "Upper" and "Lower" units that are separated by low permeability (i.e. clayey sediments). When present, only the upper unit is described as occurring within the Water Table Aquifer. A generalized hydrogeologic cross-section illustrating this separation is provided in **Figure 5**. Please note that PWR's review of LCU's Well Completion Reports for both Lee County's public supply wells and the existing citrus irrigation wells does <u>not</u> indicate the presence of a consistent confining unit separating the Upper and Lower sediments of the Tamiami Formation in the vicinity of the project site. Therefore, locally the Water Table Aquifer is considered to include the full vertical extent of the Tamiami Formation and to extend to approximately 130 to 150 feet bls.

The Water Table Aquifer is also used as a major supply source for several of Lee County's public supply wellfields and six (6) public supply well sites are located along Corkscrew Road to the northwest of the project site as shown on **Figure 6**. The wells represent the easternmost extent of Lee County's Corkscrew Public Supply Wellfield and each of the six (6) well sites has paired Water Table Aquifer and Sandstone Aquifer wells that allow for withdrawals from both aquifer systems. The Corkscrew Wellfield is protected under Lee County's Wellfield Protection Ordinance No. 07-35, which specifies four (4) protection zones that were based upon the physical characteristics of the aquifer and the theoretical groundwater travel times are based on natural groundwater gradients and drawdowns resulting from wellfield operation. The four (4)

protection zones represent groundwater travel times of 6 months, 1 year, 5 years, and 10 years. The Wellfield Protection Ordinance restricts certain types of land use activities, with restrictions increasing closer to the wellheads.

The limestones of the Tamiami Formation have also been extracted by local mining operations to depths nearing approximately 100 feet bls and several active mining operations are found in proximity to the project site and the Corkscrew Wellfield. As shown on **Figure 7**, Lee County Well Site No. 39 is located nearest to the project site. Due to the proximity of this Lee County well site, the Wellfield Protection Ordinance travel time zones for the Water Table Aquifer extend into the northwestern section of the property.

The Lee Plan's DR/GR land use category also includes areas that have been designated as important recharge areas for the shallow Surficial Aquifer System. As shown on **Figure 8**, the reported recharge rate for the project site is estimated to be between 0 and 10 inches per year (Source: USGS/SFWMD report entitled *Recharge to the Surficial Aquifer System in Lee and Hendry Counties, Florida*, 1995). However, based on the design of the existing citrus stormwater management system to quickly remove water from the site, opportunity for recharge to the underlying Water Table Aquifer is considered low. The proposed stormwater management system for the compact Residential Planned Development is anticipated to dramatically improve opportunity for increased recharge to the Water Table Aquifer.

3.2 Intermediate Aquifer System (IAS)

Immediately beneath the Tamiami Formation are low permeability sediments that separate the Water Table Aquifer from the underlying "Sandstone Aquifer" of the Intermediate Aquifer System. The top of the Sandstone Aquifer occurs at depths of approximately 160 to 180 feet bls and the aquifer extends to approximately 300 feet bls. The Sandstone Aquifer is composed of sandy limestone, cemented sands (sandstone), sandy dolomite and calcareous sands. Due to the occurrence of the low permeability sediments separating the Water Table Aquifer from the Sandstone Aquifer, groundwater withdrawals from the Sandstone Aquifer substantially impede potential impacts to features at land surface. Due to the reduction in potential withdrawal-related impacts, SFWMD prefers that new wells be completed into the Sandstone Aquifer to reduce or potentially eliminate drawdown upon wetland systems.

4.0 Regulatory Authorizations

There are four (4) permits issued by the SFWMD that relate to the project site which are comprised of two (2) Water Use Permits (WUPs) and two (2) Environmental Resource Permits (ERPs). WUP Nos. 36-00327-W and 36-01530-W authorize the use of groundwater for the irrigation of citrus and are summarized in **Table 1** with permit boundaries shown on **Figure 9**. ERP Nos. 36-00326-S and 36-00327-S authorize the operation and maintenance of the Surface Water Management (SWM) systems serving the project's agricultural activities, and have the same boundaries as the WUPs as shown on **Figure 9**. These four (4) permits are individually addressed in detail below.

4.1 Water Use Permit No. 36-00327-W

WUP No. 36-00327-W was issued by the SFWMD on March 7, 2011 and has an expiration date of March 7, 2031. The WUP encompasses the northern and southwestern grove areas as shown on **Figure 9** and

authorizes the use of groundwater from the Water Table Aquifer for the irrigation of 730 acres of citrus. Permitted quantities are presented in **Table 2** below.

Table 2. Summary of Permitted Irrigation Quantities WUP No. 36-00327-W

Irrigated Area:	730 Acres
Permitted Groundwater Quantities:	740.2 million gallons (mg) Annually / 2.03 mgd
Aquifer System:	Water Table Aquifer
Maximum Monthly Allocation:	121.1 mg / 3.91 mgd
Freeze Allocation:	14.18 mgd

Fifteen (15) wells are included on this WUP and are authorized for both irrigation and freeze protection. All fifteen (15) groundwater wells are reported to withdraw exclusively from the Water Table Aquifer, have 12-inch diameter casings, and total depths ranging from 110 to 140 feet bls. The proposed irrigation system for the compact Residential Planned Development eliminates all groundwater withdrawals from Water Table Aquifer.

4.2 Water Use Permit No. 36-01530-W

WUP No. 36-01530-W was also issued by the SFWMD on March 7, 2011, and has a similar expiration date of March 7, 2031. The WUP encompasses the southeastern grove areas as shown on **Figure 9** and authorizes the use of groundwater from the Water Table Aquifer and Sandstone Aquifer for the irrigation of 404 acres of citrus. Permitted quantities are presented below in **Table 3**.

Table 3. Summary of Permitted Irrigation Quantities WUP No. 36-01530-W

Irrigated Area:	404 Acres
Permitted Groundwater Quantities:	409.64 mg Annually / 1.12 mgd
Aquifer System:	Water Table and Sandstone Aquifers
Maximum Monthly Allocation:	67 mg / 2.16 mgd
Freeze Allocation:	6.87 mg

Eight (8) wells are included on WUP No. 36-01530-W, four (4) of which are completed into the Water Table Aquifer, with the remaining four (4) wells completed into the Sandstone Aquifer. As stated above, the proposed irrigation system for the compact Residential Planned Development will eliminate all groundwater withdrawals from the Water Table Aquifer (887,670,000 gallons on an annual basis) and reduce withdrawal-related drawdowns in the Sandstone Aquifer.

4.3 Environmental Resource Permit No. 36-00326-S

ERP No. 36-00326-S was first issued in June 1982 and authorized the operation of a SWM system serving 320 acres of agriculture. Limited information is available in the SFWMD's File of Record (FOR) regarding this original system. Since the date of issuance, multiple modifications associated with the design of the system

have been authorized. In June 2001, the ERP was modified to incorporate two (2) AGIs into the SWM system that would serve an expanded footprint of approximately 530 acres of land, of which 480 acres are citrus groves.

The SWM system utilizes a network of internal ditches, laterals, culverts, risers, and two (2) surface water pumps (P-1 and P-2) to convey runoff to the two (2) onsite AGIs. The AGIs provide water quality treatment and stormwater attenuation but are not permitted as a source of surface water for irrigation or freeze protection. The two (2) AGIs form a cascading system in which the Northern Reservoir (cell) outfalls at a control elevation of 25.5 feet NGVD directly into the Southern Reservoir (cell).

The Southern Reservoir then discharges at a control elevation of 20.5 feet NGVD into an existing, north-south outfall canal that borders the western boundary of Section 32. This canal serves as the primary drainage path for the project site and conveys surface water runoff south through the Panther Island Mitigation Bank. The project has a permitted design discharge rate of 33.7 cubic feet per second (cfs). In addition to the primary discharge structures, each AGI is also equipped with an emergency overflow structure that allows water to be released back into the grove during extreme storm events.

4.4 Environmental Resource Permit No. 36-00327-S

ERP No. 36-00327-S was first issued in June 1982 and authorized the operation of a SWM system serving 918 acres of agriculture. The design of the system is much simpler and the permitted discharge structures are described as ten (10) 36-inch diameter culverts and two (2) 54-inch diameter culverts with an allowable discharge rate of 62 cfs. This older system design has not been modified to incorporate AGIs and is considered "grandfathered" in its current configuration. The locations of each ERP are provided on **Figure 9**.

5.0 Proposed Compact Residential Planned Development

In order for a compact Residential Planned Development as depicted in **Figure 10** to be considered, a rigorous set of criteria must be successfully met as outlined in Policy 33.3.3 of The Lee Plan. In order to meet, and in many cases exceed these criteria, much effort was dedicated to the overall site plan to maximize benefits to water resources and environmental systems. As shown in the bulleted list provided below, the proposed compact Residential Planned Development has incorporated substantial benefits to the water resources and environmental systems:

5.1 Proposed Project Benefits

- 84 percent reduction in irrigated area, from 1,134 acres of citrus to approximately 182.3 acres of lawn and landscape (reduced by approximately 952 acres).
- The retirement of approximately 911,900,000 gallons of permitted groundwater use on an annual basis, the retirement of approximately 158,220,000 gallons on a maximum month basis, and the retirement of 21,050,000 gallons permitted for each cold protection (freeze) event.
- Elimination of all groundwater quantities withdrawn from wells completed into the Water Table Aquifer (887,670,000 gallons on an annual basis).
- Elimination of drawdown from onsite Water Table Aquifer wells to Lee County's nearby public supply wells finished into the same aquifer.

- Elimination of groundwater drawdowns from onsite Water Table Aquifer wells to nearby environmental systems, including both the Airport Mitigation Park to the north and the Panther Island Mitigation Bank to the south.
- Elimination of up to 134 individual private, potable supply and irrigation wells allowed by the existing Allowable Residential Land Use. Elimination of up to 134 individual septic tanks allowed by the existing Allowable Residential Land Use.
- Lee County Utilities is to supply both potable and wastewater services and it is the Applicant's understanding that required capacity is already included in future utility projections.
- Improved surface water quality through the creation of engineered stormwater management facilities (including elimination of "grandfathered" facilities authorized under ERP No. 36-00327-S).
- Significant reduction in the amount of fertilizers, herbicides and pesticides that are currently applied by the existing farming operation by eliminating approximately 952 acres of farming area.
- A mandate that the compact Residential Planned Development adheres to Lee County's Fertilizer Ordinance No. 08-08. The existing citrus farm is currently exempt from the ordinance.
- Implementation of an integrated ground and surface water irrigation system, whereby groundwater quantities withdrawn from the Sandstone Aquifer for irrigation are used to supplement surface water supplies in dedicated irrigation ponds. Irrigation supplies will then be withdrawn from the dedictated irrigation ponts to irrigate lawn and landscaped area. The conjunctive use of both ground and surface water supplies can further reduce withdrawals from the Sandstone Aquifer when adequate surface water supplies are available, furthering the conservation of groundwater resources within the DR/GR.
- A master-controlled irrigation system that regulates the initiation and overall duration of irrigation events to manage irrigation water use and greatly enhance water conservation (no individual homeowner irrigation timers).
- Enhanced opportunities for recharge to the Water Table Aquifer through the creation of numerous stormwater management system lakes (stormwater detention).
- Creation of a north-south meandering flow-way (to mimic historical hydrologic features to help diversify and enhance onsite ecosystems and wildlife habitats).
- Elimination of agricultural "rim ditches" around onsite wetlands.
- Substantial environmental restoration associated with the conversion of active citrus cultivation acreage into open space habitat, including the preservation and enhancement of onsite forested conservation areas.

6.0 Consistency with The Lee Plan

As stated in The Lee Plan, properties within the DR/GR may be granted additional density, above that allowed by the existing allowable land use, if potential impacts to the water resources and environmental systems are reduced and the proposed development can be designated as an "Improved Residential Community". In order to assist Lee County staff in their understanding of the project and how the proposed compact Residential Planned Development meets or exceeds the elements of The Lee Plan's Policy 33.3.3, each Policy element is provided in bold text, followed by a detailed description of how the Policy elements are met or exceeded.

6.1 Reduced Stress to Onsite Potable Aquifers

As stipulated in The Lee Plan, in order to request an increase in density above that currently allowed the property must be rezoned to a compact Residential Planned Development that demonstrates, and is conditioned to provide, the following:

Policy 33.3.3 2(a) **Reduced stress to the on-site potable aquifers and is more consistent with water resource goals of Lee County in the DR/GR than existing development approvals.**

Accordingly, The Lee Plan Policy 2.4.2 states that changes to the Future Land Use Map in critical areas for future potable water supply (i.e. DR/GR land use category) will be subject to a special review by Lee County staff. This review will analyze the proposed land uses to determine the short-term and long-term availability of irrigation and domestic water supplies and will assess whether the proposed land uses would cause any significant impact on present or future water resources. Details addressing both the Existing Allowable and Proposed Allowable Land Uses are provided below and demonstrate how the Proposed Allowable Land Use (compact Residential Planned Development) will significantly reduce stress to the regional and onsite potable aquifers and be more consistent with the water resource goals of Lee County in the DR/GR than the existing allowable density.

6.1.1 Existing Agriculture Land Use

The SFWMD has authorized the withdrawal of groundwater from both the Water Table Aquifer and Sandstone Aquifer for the irrigation of the existing citrus grove. Two (2) WUPs, No. 36-01530-W and 36-00327-W, allow groundwater withdrawals to irrigate and freeze-protect 1,134 acres of citrus. Combined, the SFWMD WUPs authorize a total annual irrigation allocation of 1,149.84 million gallons and a total maximum monthly allocation of 188.2 million gallons. The citrus irrigation system is currently authorized to be supplied by nineteen (19) Water Table Aquifer wells and four (4) Sandstone Aquifer wells. In addition to the agricultural groundwater withdrawals onsite, there are six (6) LCU public supply well sites, known as the Corkscrew Wellfield, located to the northwest of the property, with each well site having one (1) Water Table Aquifer and one (1) Sandstone Aquifer well.

To more clearly understand the withdrawal-related impacts from the citrus irrigation wells on the Corkscrew Wellfield's production wells, nearby environmental features, and local water resources, an analytical groundwater flow model (AquiferWin 32) was evaluated by the SFWMD during the permit review process. Using the same analytical model, methodologies and practices prescribed by the SFWMD WUP Applicant's Handbook, withdrawal-related impacts resulting from the use of the citrus irrigation wells were re-simulated by PWR.

The analytical groundwater flow simulation was run with maximum monthly withdrawals for 90 days with no recharge from rainfall. The model results (drawdowns) for the Water Table Aquifer are presented in **Figure 11**. In addition, **Table 4** below summarizes the currently permitted water table drawdowns resulting from groundwater withdrawals at several onsite "reference" wetlands, the property boundaries adjacent to both the Airport Mitigation Park (Northern Property Boundary) and the Panther Island Mitigation Bank (Southern Property Boundary), and the nearest LCU Corkscrew Wellfield production wells (Well Site No. 39). These reference drawdown locations are shown on **Figure 11**. Additionally, the analytical groundwater flow model

was also used to predict existing permitted drawdowns for the Sandstone Aquifer, which is provided in **Figure 12** and also summarized below in **Table 4**.

Table 4. Summary of Maximum Monthly SFWMD Authorized Impacts

Reference Point	Water Table Aquifer Drawdown (feet)	Sandstone Aquifer Drawdown (feet)
Wetland 1	1.9	-
Wetland 2	2.6	-
Wetland 3	2.9	-
Wetland 4	2.4	-
Wetland 5	1.6	-
Wetland 6	2.3	-
Wetland 7	2.1	-
Northern Property Boundary	2.2	1.4
Southern Property Boundary	1.5	3.0
LCU Well 39S (SAS)	1.2	-
LCU Well 39I (IAS)	-	1.1

As shown in **Table 4**, substantial groundwater drawdowns are authorized to occur in the Water Table Aquifer underneath both onsite wetlands and nearby mitigation banks.

6.1.2 Existing Allowable Residential Land Use

The property is currently zoned to conceptually allow up to approximately 134 residential lots. If constructed, the Existing Allowable Residential Land Use would replace the existing agricultural operation with large, low density residential lots. Given the Existing Allowable Residential Land Use's low level of service, the site's potable and irrigation residential supplies would undoubtedly be derived from 134 individual domestic self-supply wells. Conceivably, all such wells could be constructed into the Water Table Aquifer, the same aquifer system as a majority of the existing agricultural wells (19 out of 23) described above. Consistent with similar low density residential areas, wastewater from the 134 residential lots would be disposed of by 134 individual septic systems, dispersed across the property. The site's septic systems would also be constructed into the upper portion of the Water Table Aquifer. In addition, it is plausible that two (2) additional wells could be used for irrigation of the entrance(s), common and amenity areas, for a total of 136 wells.

To more clearly understand the theoretical self-supply water use demands associated with 134 residential home sites, potable water demand projections were estimated consistent with The Lee Plan Policy 2.4.3. Based on conversations with LCU, the level of service assumed for indoor use equates to a per capita use rate (PCUR) of approximately 100 gallons per day (gpd). In addition, Lee County assumes 2.5 persons per household.

Based on these values, the annual indoor potable water demand for the Existing Allowable Residential Land Use is projected to be approximately 12.23 million gallons per year or approximately 33,500 gpd. Seasonal fluctuations in potable demands are variable, with maximum monthly daily demands equaling approximately

1.3 times the average daily demand. According to the Lee County Water Supply Facilities Work Plan, the peaking factor of 1.3 accounts for seasonal variation in water consumption due, in part, to seasonal residents and visitors. Based on this multiplier, a maximum monthly demand of approximately 1.31 million gallons (43,600 gpd) is derived.

Outdoor water supply demands (irrigation) for the Existing Allowable Residential Land Use would likely be sourced from the same domestic self-supply wells. Using the 134 lots and a conservative assumption that an average of approximately one (1) acre of each lot would be landscaped and irrigated, the total residential irrigated area would equal approximately 134 acres. Assuming approximately 2 additional irrigated acres for entrances(s), common areas, buffer areas and amenities are sourced from two (2) additional dedicated community irrigation wells, the Existing Allowable Land Use would equate to a total of 136 individual wells.

Using the modified Blaney-Criddle Irrigation Model developed by the SFWMD to establish annual irrigation water allocations for lawn and landscape, up to 177.51 million gallons (486,329 gpd) could be conceptually withdrawn from the 136 individual wells during a 1-in-10 drought condition. In addition, the dry season, or maximum monthly demand for lawn and landscape irrigation, for the Existing Allowable Residential Land Use could reach approximately 22.32 million gallons (734,210 gpd).

Table 5. SFWMD Blaney-Criddle Irrigation Demands for Individual Lots and Common Areas

Calculations of Irrigation Requirements (1-in-10)

Rainfall Station:	Immokalee	1-in-10	Crop No.: 1
Irrigation System:	Sprinkler		Parcel Name:
Irrigated Acreage:	136.00		Crop No. in Parcel: 1
Crop:	Turf Grass		
Soil Type:	0.80		
Multiplier	1.30		
Efficiency	0.77		

Calculations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average Rainfall (inches)	2.14	2.26	3.09	2.23	4.23	8.61	7.48	7.35	6.71	2.90	1.95	1.51	50.46
Evapotranspiration (inches)	1.86	2.16	3.68	4.91	6.57	7.34	7.75	7.46	7.07	4.84	2.81	2.17	58.62
Average Effective Rainfall (inches)	0.99	1.05	1.51	1.21	2.34	4.49	4.08	3.95	3.58	1.53	0.96	0.73	26.42
1-in-10 Effective Rainfall (inches)	0.81	0.86	1.24	0.99	1.92	3.68	3.34	3.24	2.93	1.25	0.78	0.60	21.64
Average Irrigation (inches)	0.87	1.11	2.17	3.70	4.23	2.85	3.67	3.51	3.49	3.31	1.85	1.44	32.20
1-in-10 Irrigation (inches)	1.05	1.30	2.44	3.92	4.65	3.66	4.41	4.22	4.14	3.59	2.03	1.57	36.98

1-in-10 Annual Supplemental Crop Requirement = 36.98 inches

Annual Supplemental Crop Water Use:

36.98 inches X 136 Acres X 1.3 X 0.02715 MG/AC-IN = 177.51 MG

1-in-10 Maximum Monthly Supplemental Crop Requirement = 4.65 inches

Maximum Monthly Supplemental Crop Water Use:

4.65 inches X 136 Acres X 1.3 X 0.02715 MG/AC-IN = 22.32 MG

Based on the water use estimates, a combined annual potable and irrigation water supply demand of approximately 189.74 million gallons (519,836 gpd) could be withdrawn from 136 individual Water Table Aquifer wells to supply the Existing Allowable Residential Land Use. There could also be periods during a peak dry season when maximum monthly potable and irrigation water demands of approximately 23.63 million gallons (777,303 gpd) could be withdrawn from the Water Table Aquifer.

The Existing Allowable Residential Land Use water supply demands (individual potable supply and irrigation wells) from the Water Table Aquifer are conceivably allowable, would not be subject to any Water Use Permitting by the SFWMD, and would not be prohibited by Lee County within the DR/GR. Even though the groundwater supply demands theoretically associated with the Existing Allowable Residential Land Use are less than those associated with the citrus grove, these wells (and septic tanks) could still impart stress to the water resources in the DR/GR. Dispersed residential home sites and associated septic tanks could also potentially increase impacts (sanitary hazards) to the Corkscrew Wellfield, based on their proximity.

6.1.3 Proposed Allowable Residential Land Use

The Proposed Allowable Residential Land Use is based upon LCU supplying the compact Residential Planned Development with potable water and wastewater services, thereby eliminating the potential impacts to the Water Table Aquifer from 136 individual wells in addition to potential water quality issues associated with 134 individual septic systems. Proposed Allowable Residential Land Use satisfies the guiding principles of The Lee Plan Policy 2.4.2, prescribing the reduction of impacts to present and future water resources in the DR/GR. In compliance with The Lee Plan Policy 2.4.3, the LCU has informed the Applicant that they are able to supply both potable and wastewater services and it is the Applicant's understanding that required capacity is already included in future utility projections. It is also important to note that if approved, all twenty-three (23) existing citrus irrigation wells will be capped and eventually plugged and abandoned.

Discussions with LCU also indicate that no reuse quantities are currently available. Consequently, the only onsite water supply source required for the Proposed Allowable Residential Land Use is for lawn and landscape irrigation, which is proposed to be supplied through a centralized, master-controlled irrigation system supplied by ten (10) proposed new Sandstone Aquifer wells. The wells will be part of an integrated ground and surface water irrigation system, whereby groundwater quantities withdrawn from the Sandstone Aquifer for irrigation are used as a secondary source to supplement surface water supplies in dedicated irrigation ponds. Irrigation supplies will then be withdrawn from the dedicated irrigation ponds to irrigate lawn and landscaped areas.

The conjunctive use of both ground and surface water supplies can serve to further reduce withdrawals from the Sandstone Aquifer when adequate surface water supplies are available, furthering the conservation of groundwater resources within the DR/GR. The total acreage of the proposed residential lots and entrance/common/amenity areas is approximately 339.7 acres of which approximately 182.3 acres (approximately 54%) is proposed to be irrigated.

When using the SFWMD's modified Blaney-Criddle Irrigation Model to estimate irrigation water demands for the 182.3 acres of lawn and landscape irrigation, the results show an annual demand of approximately 237.94 million gallons (651,890 gpd). In addition, the dry season or maximum monthly demand for the lawn and landscaped areas could reach approximately 29.92 million gallons (984,210 gpd) as shown in **Table 6**.

Table 6. Proposed Allowable Residential Land Use Irrigation Demands

Calculations of Irrigation Requirements (1-in-10)

Rainfall Station:	Immokalee	1-in-10	Crop No.: 1
Irrigation System:	Sprinkler		Parcel Name:
Irrigated Acreage:	182.30		Crop No. in Parcel: 1
Crop:	Turf Grass		
Soil Type:	0.60		
Multiplier	1.30		
Efficiency	0.77		

Calculations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average Rainfall (inches)	2.14	2.26	3.09	2.23	4.23	8.61	7.48	7.35	6.71	2.90	1.95	1.51	50.46
Evapotranspiration (inches)	1.86	2.16	3.68	4.91	6.57	7.34	7.75	7.46	7.07	4.84	2.81	2.17	58.62
Average Effective Rainfall (inches)	0.99	1.05	1.51	1.21	2.34	4.49	4.08	3.95	3.58	1.53	0.96	0.73	26.42
1-in-10 Effective Rainfall (inches)	0.81	0.86	1.24	0.99	1.92	3.68	3.34	3.24	2.93	1.25	0.78	0.60	21.64
Average Irrigation (inches)	0.87	1.11	2.17	3.70	4.23	2.85	3.67	3.51	3.49	3.31	1.85	1.44	32.20
1-in-10 Irrigation (inches)	1.05	1.30	2.44	3.92	4.65	3.66	4.41	4.22	4.14	3.59	2.03	1.57	36.98

1-in-10 Annual Supplemental Crop Requirement = 36.98 inches

Annual Supplemental Crop Water Use:

36.98 inches X 182.3 Acres X 1.3 X 0.02715 MG/AC-IN = 237.94 MG

1-in-10 Maximum Monthly Supplemental Crop Requirement = 4.65 inches

Maximum Monthly Supplemental Crop Water Use:

4.65 inches X 182.3 Acres X 1.3 X 0.02715 MG/AC-IN = 29.92 MG

In order to assess the withdrawal of groundwater from the proposed ten (10) Sandstone Aquifer irrigation wells and their potential influence on the LCU's nearest Sandstone Aquifer production well, the same analytical groundwater flow model was employed using maximum monthly withdrawals for 90 days with no recharge. Using the analytical model and methodologies and practices prescribed by the SFWMD WUP Applicant's Handbook, withdrawal-related impacts resulting from the use of the irrigation wells were simulated and are presented in **Figure 13**.

As shown in **Figure 13**, the predicted drawdown to LCU's nearest Sandstone Aquifer well, No. 39, is the same (1.1 feet) as is currently permitted under the existing citrus grove WUP. The drawdown or cone of depression for the Sandstone Aquifer is similar in shape and extent but not as circular in shape due to the dispersed nature of the ten (10) proposed Sandstone Aquifer wells across the property. As shown, no new impacts to LCU's public supply wells or other existing legal users are predicted. It is also important to note that all of the

Water Table Aquifer impacts portrayed in **Figure 11** will be eliminated due to the proposed retirement of all groundwater quantities withdrawn from wells completed into the Tamiami Formation.

Based on PWR's groundwater flow modeling, irrigation of the Proposed Allowable Residential Land Use will have a significantly positive influence on LCU's ability to withdraw groundwater at their existing production wells. In fact, it is anticipated that water levels in the Water Table Aquifer may rebound and recover from current conditions which further benefits the water resources of the DR/GR. The groundwater flow modeling demonstrates that the Proposed Allowable Residential Land Use meets The Lee Plan Policy set forth in Section 2.4.2 regarding reduction of impacts to water resources within the DR/GR and Policy 2.4.3 by demonstrating that the proposed land use will not cause significant harm to the present and future public water resources.

In summary, the Proposed Allowable Residential Land Use represents an opportunity to avoid the construction of approximately 136 wells and an opportunity to reduce existing Water Table Aquifer impacts through a reduction in overall irrigated acreage and the corresponding decrease in onsite irrigation demands as compared to the current land use (citrus cultivation). The Proposed Allowable Residential Land Use would also avoid the construction of approximately 134 individual septic systems in the vicinity of LCU public supply production wells. Additionally, the Proposed Allowable Residential Land Use drastically reduces current impacts to the Water Table Aquifer and is anticipated to potentially contribute to increased water levels in the southern section of the Airport Mitigation Park and the northern section of the Panther Island Mitigation Bank.

Policy 33.3.3 2(d) **Demonstrates a net benefit for water resources, relative to the existing approvals that demonstrates the following.**

Policy 33.3.3 2(d) 1 **Lower irrigation demand.**

The Proposed Allowable Residential Land Use represents a lower irrigation demand than the agricultural WUP currently authorized by the SFWMD. Elimination of Water Table Aquifer groundwater withdrawals authorized for agriculture and replacement with wells that withdraw exclusively from the Sandstone Aquifer will greatly reduce drawdown in the Water Table Aquifer and will cause no new impacts to Lee County's public supply wells. Therefore, the proposed land use would provide a significant net benefit to the water resources of the DR/GR as shown in **Table 7**.

Table 7. Water Table Aquifer Groundwater Withdrawals

SFWMD Existing Agriculture Land Use			Existing Allowable Residential Land Use - 134 Lots			Proposed Allowable Residential Land Use - 1,460 Lots		
Irrigated Acres	Annual Irrigation (mg)	Max Month Irrigation (mg)	Irrigated Acres	(Potable + Irr.) Annual Demand (mg)	(Potable + Irr.) Max Month Irrigation (mg)	Irrigated Acres	Annual Irrigation (mg)	Max Month Irrigation (mg)
1,134	887.67	145.23	136	189.74	23.63	182.3	0	0

Notably, the proposed integration of stormwater through conjunctive use and the planned water conservation and irrigation demand management techniques will potentially further reduce overall groundwater usage. In addition, the recycling of stormwater (surface water used for irrigation) should also improve surface water quality. All residential irrigation is proposed to be controlled by a centralized system that will utilize weather station information, moisture sensing systems, rainfall cutoff sensors, evapotranspiration rates, and zone control to maximize water conservation.

The centralized control systems will also allow for increased irrigation efficiency since individual residences will not be able to control irrigation schedules independently (no irrigation timers at individual residences). In addition, the system will use online controls that will monitor "real time" pressures and flows allowing for rapid and efficient leak detection and repair by controlling each zone with isolation valves. The proposed system should therefore increase efficiency and lower overall irrigation demands. Further, it is anticipated that limiting conditions contained within the SFWMD lawn and landscape WUP (to be pursued after approval of the requested land use change) will require metering and reporting of total irrigation water withdrawals. In addition, the proposed centralized irrigation system will enable restriction of irrigation water use to those periods mandated by SFWMD rule (e.g. Chapter 40E-24, Florida Administrative Code [FAC]) and to any periodic SFWMD-declared water shortages. Furthermore, the Proposed Allowable Residential Land Use will benefit the water resources by eliminating chemigation and fertigation on hundreds of acres.

The lowering of overall irrigation demands, the implementation of enhanced irrigation conservation, the implementation of the highest achievable efficiency afforded by the central controlled irrigation system, and the elimination of agricultural chemigation and fertigation practices is fully consistent with the goals of the DR/GR and specifically with The Lee Plan Policies 2.4.2 and 2.4.3, which require the short-term and long-term availability of irrigation water sources to be met without causing any significant harm to present or future water sources.

As shown on **Figure 14**, water levels in the Sandstone Aquifer (USGS Well L-2192) appear to have risen over the period of record (1975 to present). Due to more favorable Sandstone Aquifer water level conditions as illustrated by this USGS well located on the northern boundary of the project site, the proposed continued use of this source for irrigation supply is not considered to adversely impact the water resources of the Sandstone Aquifer.

Policy 33.3.3 2d (2) Eliminates private irrigation wells

The Proposed Allowable Residential Land Use will prevent the installation of an estimated 136 private irrigation wells. The master-controlled central irrigation system will utilize ten (10) proposed wells that will withdraw exclusively from the Sandstone Aquifer. All Water Table Aquifer wells will be retired from use. The master-controlled central irrigation system will not be controlled by individual homeowners and any requested new individual wells will be prohibited.

Policy 33.3.3 2d (3) Protects Public wells by meeting or exceeding the requirements of the Wellfield Protection Ordinance.

The Proposed Allowable Residential Land Use borders LCU's Corkscrew Wellfield Protection Zone 2 and is within Zones 3 and 4. It is important to note that water levels collected onsite for the Water Table Aquifer indicate that the groundwater gradient is to the south-southwest and away from LCU's wellfield as shown in

Figure 15. The wellfield protection zones adopted under Lee County Land and Development Code, Chapter 14, Article III, Ordinance No 07-33, regulate the following:

The use, handling, production or storage of regulated substances... in quantities greater than those set forth in Section 14-208.

The Proposed Allowable Residential Land Use is a compact Residential Planned Development. Therefore, regulated substances will not be permitted to be used, handled or stored onsite in quantities greater than those set forth in Section 14-208. As per Section 14-208, there will not be an aggregate of any one, or all, regulated substances on a given parcel or in a certain building exceeding 110 gallons if the substance is a liquid, or 1,110 pounds if the substance is a solid.

Wastewater effluent disposal, except that public access reuse of reclaimed water and land application under the conditions set forth in F.A.C. 62-610, Part III, may be permitted. Where public access reuse is permitted the chloride content must be no greater than 500 milligrams per liter.

The Proposed Allowable Residential Land Use eliminates the possibility that up to 134 individual septic systems would be installed near existing LCU Water Table Aquifer production wells. There will not be any wastewater disposal onsite. Currently, public access reuse water is not available.

Liquid waste disposal and solid waste disposal.

The proposed land use is a compact Residential Planned Development. There will be no liquid or solid waste disposal onsite.

Stormwater or surface water discharged within this protection zone must conform to existing South Florida Water Management District and State Department of Environmental Protection rules.

The stormwater and surface water management system will be subjected to review and approval from the SFWMD and the Florida Department of Environmental Protection (FDEP). All discharges will be incompliance with their existing ERP rules.

Sanitary Hazard Zone. Sanitary hazards are prohibited within a 100-foot radius around an existing or proposed public water supply well.

There will be no onsite septic systems and no sanitary hazards within a 100-foot radius of existing and proposed public water supply wells.

Abandoned wells on property lying within the ten-year travel time zone of wells regulated by this article will be physically plugged in accordance with the provisions of Lee County Ordinance No. 06-09, Section 9.3.4.

All of the twenty-three (23) existing citrus irrigation wells proposed to be capped and properly plugged and abandoned as per Lee County Ordinance No. 06-09, Section 9.3.4, as well as adhering to proper plugging and abandonment requirements of SFWMD Rule 40E-3.531(3) F.A.C.

The Proposed Allowable Residential Land Use will meets and in many cases exceeds the requirements of the Lee County Wellfield Protection Ordinance.

Policy 33.3.3 2d (4) Uses Florida-Friendly plantings with low irrigation requirements in Common Elements.

Florida-Friendly landscaping will be incorporated to the greatest extent practical in the design of the residential and common area elements. The University of Florida Institute of Food and Agriculture Science's (IFAS) Florida Friendly Yards and Neighborhoods Handbook will be used as a guide in developing the landscape architecture. The goal will be to develop quality landscapes that incorporate drought tolerant plantings and the use of micro-jet irrigation to maximize water conservation.

Policy 33.3.3 2d (5) Connects to public water and sewer service, and must connect to reclaimed water when available.

LCU has the capacity to serve potable water and the wastewater treatment plant capacity to serve the Proposed Allowable Residential Land Use.

Policy 33.3.3 2d (6) Reduces impervious area relative to existing approvals improving opportunities for groundwater recharge.

Impervious area will be minimized to the greatest extent possible. The Proposed Allowable Residential Land Use will enhance recharge opportunities across the property through the use of approximately 225.81 acres of onsite stormwater lakes. The proposed lakes will help detain stormwater volumes that are currently discharged from the citrus grove, providing an opportunity to substantially benefit the DR/GR and, as such, meet the intent and objectives of The Lee Plan Policies 2.4.2 and 2.4.3 by providing opportunity for enhancement of present and future water resources.

Policy 33.3.3 2d (7) Designed to accommodate existing or historic flow-ways.

The Proposed Allowable Residential Land Use will maintain to the greatest extent practicable the current land elevations and gradients. Therefore, the drainage pattern will generally maintain the historic northeast to southwest flow-way patterns, while maintaining the hydroperiods of the onsite wetlands, in addition to accommodating runoff into the proposed stormwater lakes. The development of the site is also subject to SFWMD ERP rules which require that development of the site cannot cause flooding or adverse impacts to wetlands and other water resources.

Policy 33.3.3 2(e) Include an enhanced lake management plan that addresses at a minimum the following issues:

Policy 33.3.3 2(e)(1) Best Management Plan (BMP) for fertilizers and pesticides

With the elimination of the citrus grove, the quantities of fertilizers and pesticides used on the project site are expected to be immediately reduced. All future applications of fertilizers and pesticides applied will be performed in accordance with the manufacturers recommended rates and quantities. In addition, all fertilizers will be applied by certified professionals in accordance with Ordinance 08-08 which requires that

individuals complete the BMP training program offered by Lee County. As stipulated, at least one (1) BMP-trained employee must be onsite while fertilizers are applied to ensure compliance.

Policy 33.3.3 2e (2) Erosion Control and bank stabilization

Erosion control and bank stabilization measures used on the onsite lakes will be designed, constructed and maintained in accordance with SFWMD ERP rules and state regulations.

Policy 33.3.3 2e (3) Lake maintenance requirements

All onsite lakes will be maintained in accordance with SFWMD rules and regulations. In addition, all lake maintenance activities will be performed in accordance with Lee County ordinances and requirements. The stormwater and surface water discharged from any onsite lakes will conform to existing SFWMD and FDEP rules and Lee County Wellfield Protection Ordinances, all of which are intended to protect water resources and existing legal users of water.

Policy 33.3.3 2e (4) Public Wellfield Protection

The proposed project significantly reduces groundwater impacts to LCU's nearby public supply wells and as described above, all requirements of Lee County's Well Protection Ordinance will be met.

individuals complete the BMP training program offered by Lee County. As stipulated, at least one (1) BMP-trained employee must be onsite while fertilizers are applied to ensure compliance.

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Policy 33.3.3 2e (4) Public Wellfield Protection

The proposed project significantly reduces groundwater impacts to LCU's nearby public supply wells and as described above, all requirements of Lee County's Well Protection Ordinance will be met.

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Table 1

(See Report for Tables 2-7)

Table 1. Existing Irrigation Wells and Permitted Maximum Monthly Quantities

WUP No.	Well ID	Source	Pumping Rate (GPD)*	Dia. (in)	Total Depth (ft)	Casing Depth (ft)	X	Y
36-00327-W	29-1	Surficial Aquifer	260,526	12	140	60	776050.3613	769334.7226
	29-2	Surficial Aquifer	260,526	12	140	60	776312.2939	768608.1283
	29-3	Surficial Aquifer	260,526	12	140	60	774073.5007	769283.1142
	29-4	Surficial Aquifer	260,526	12	140	60	774039.7084	768579.7497
	29-5	Surficial Aquifer	260,526	12	140	60	775844.8973	766796.3066
	29-6	Surficial Aquifer	260,526	12	110	60	774414.3651	767203.5329
	29-7	Surficial Aquifer	260,526	12	140	60	776214.4257	765754.6826
	29-8	Surficial Aquifer	260,526	12	140	60	776481.4413	765193.2347
	29-9	Surficial Aquifer	260,526	12	140	60	774300.8962	765143.5737
	31-1	Surficial Aquifer	260,526	12	140	60	771764.5331	763868.9667
	31-2	Surficial Aquifer	260,526	12	140	60	771138.0216	763897.8068
	31-3	Surficial Aquifer	260,526	12	140	60	771530.3555	763000.874
	31-4	Surficial Aquifer	260,526	12	140	60	772762.3487	760462.826
	31-5	Surficial Aquifer	260,526	12	140	60	771383.3844	760416.2461
	31-6	Surficial Aquifer	260,526	12	140	60	770807.1345	760177.8263
36-00327-W Total Permitted Quantities			**3,907,894**					
36-01530-W	32-1	Sandstone Aquifer	343,959	8	200	145	777114.2632	763386.6412
	32-2	Sandstone Aquifer	343,959	8	200	145	776059.385	763333.9199
	32-3	Sandstone Aquifer	343,959	8	200	145	774923.6247	763326.491
	32-4	Surficial Aquifer	196,723	8	95	45	774584.3872	761576.989
	32-5	Surficial Aquifer	196,723	8	95	45	775476.0004	761946.9657
	32-6	Sandstone Aquifer	343,959	8	200	145	777119.1287	761990.5418
	32-7	Surficial Aquifer	196,723	9.5	95	45	776135.3647	760516.1238
	32-8	Surficial Aquifer	196,723	12	95	45	775453.1676	760497.7928
36-01530-W Total Permitted Quantities			**2,162,726**					
Combined Total Permitted Quantities			**6,070,619**					

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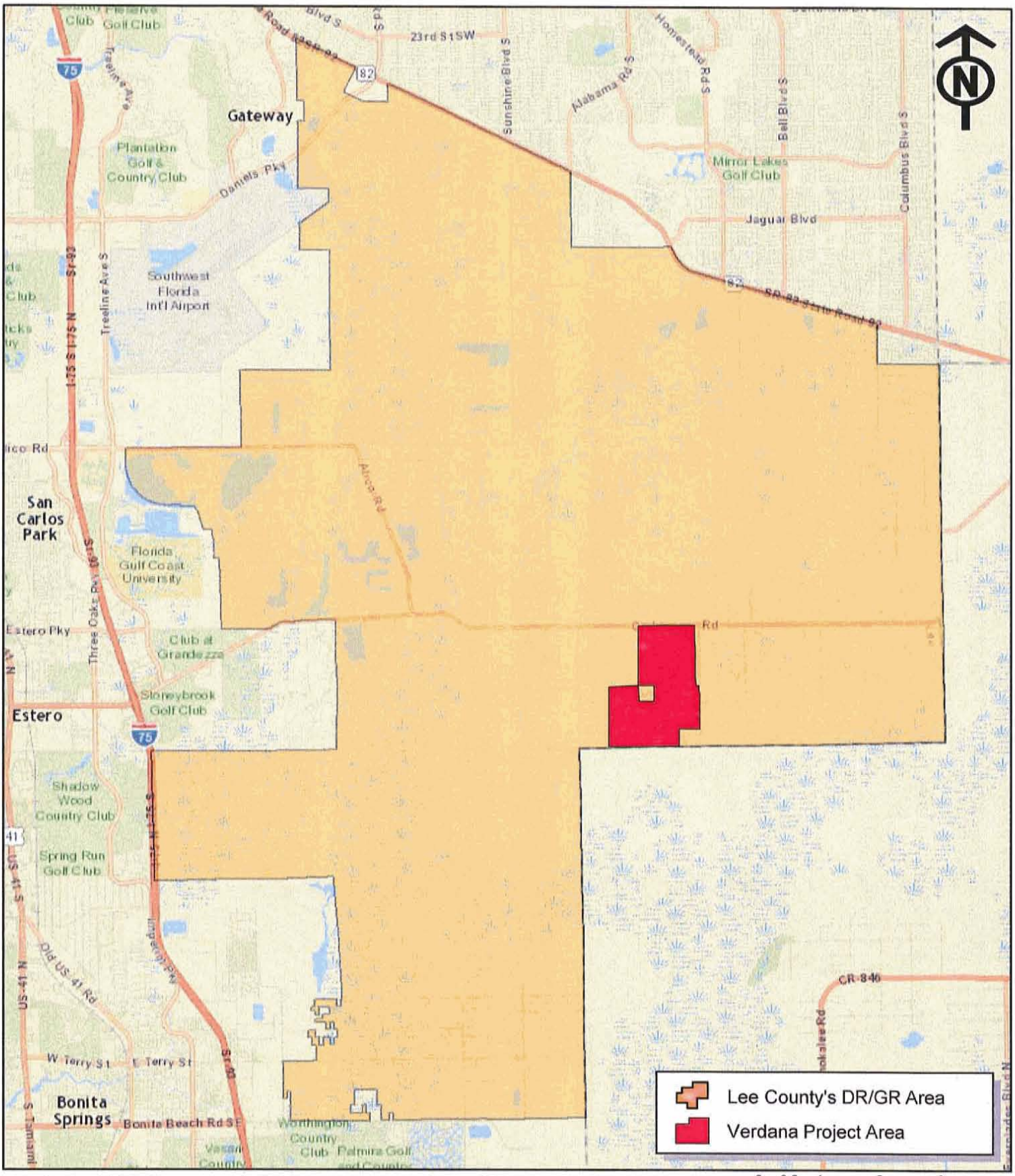
Figures



Scale: 1:130,000 3/31/2016 Image: World Street Map

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Figure 1
Verdana and the DR/GR
Pan Terra Holdings, Ltd.
Lee County, Florida

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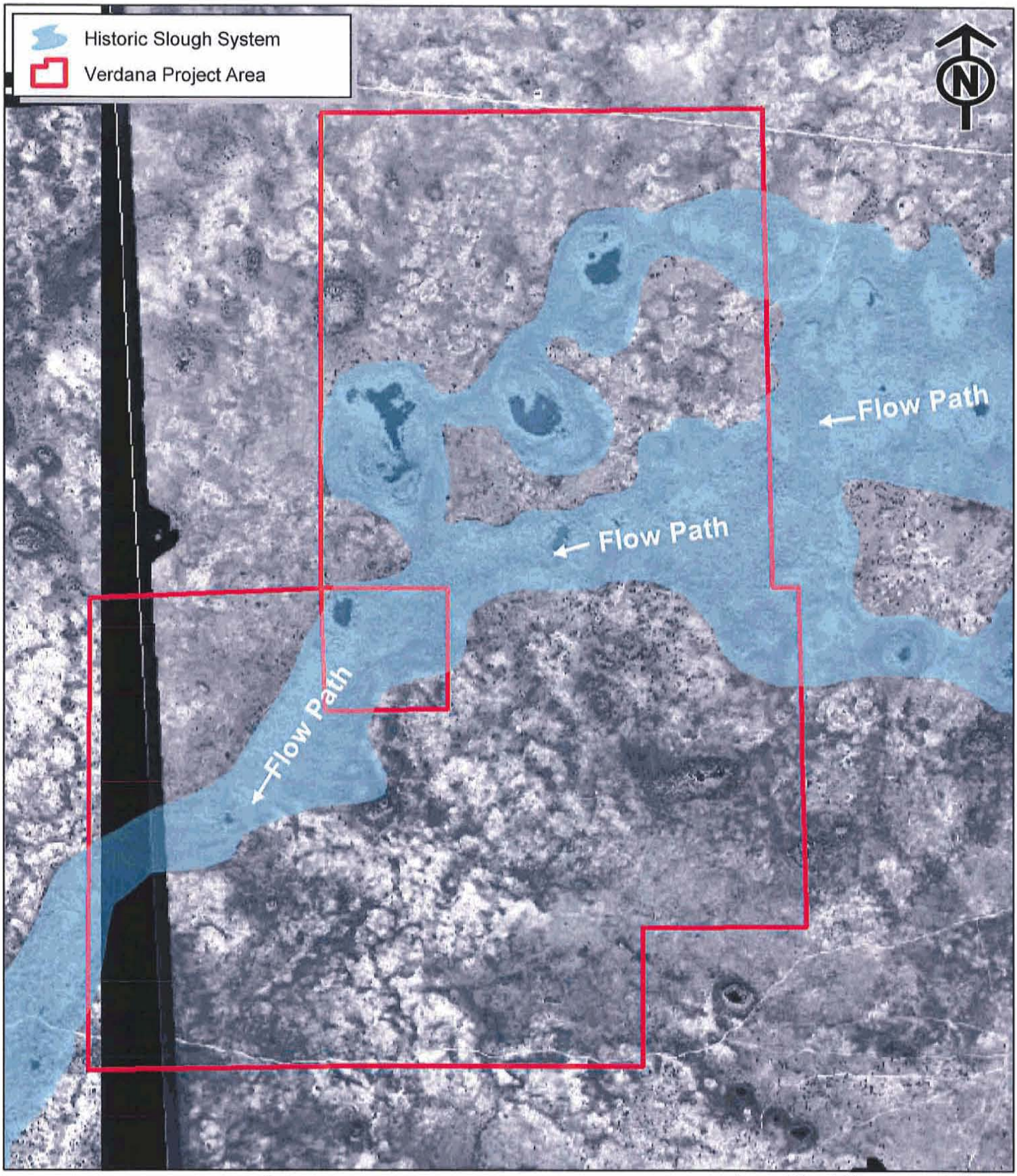
Integrated Water Resource Consultants



Scale: 1:16,500 3/31/2016 Image: 1953 Aerial

0 600 1,200 2,400 Feet

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Figure 2
1953 Aerial
Pan Terra Holdings, Ltd.
Lee County, Florida

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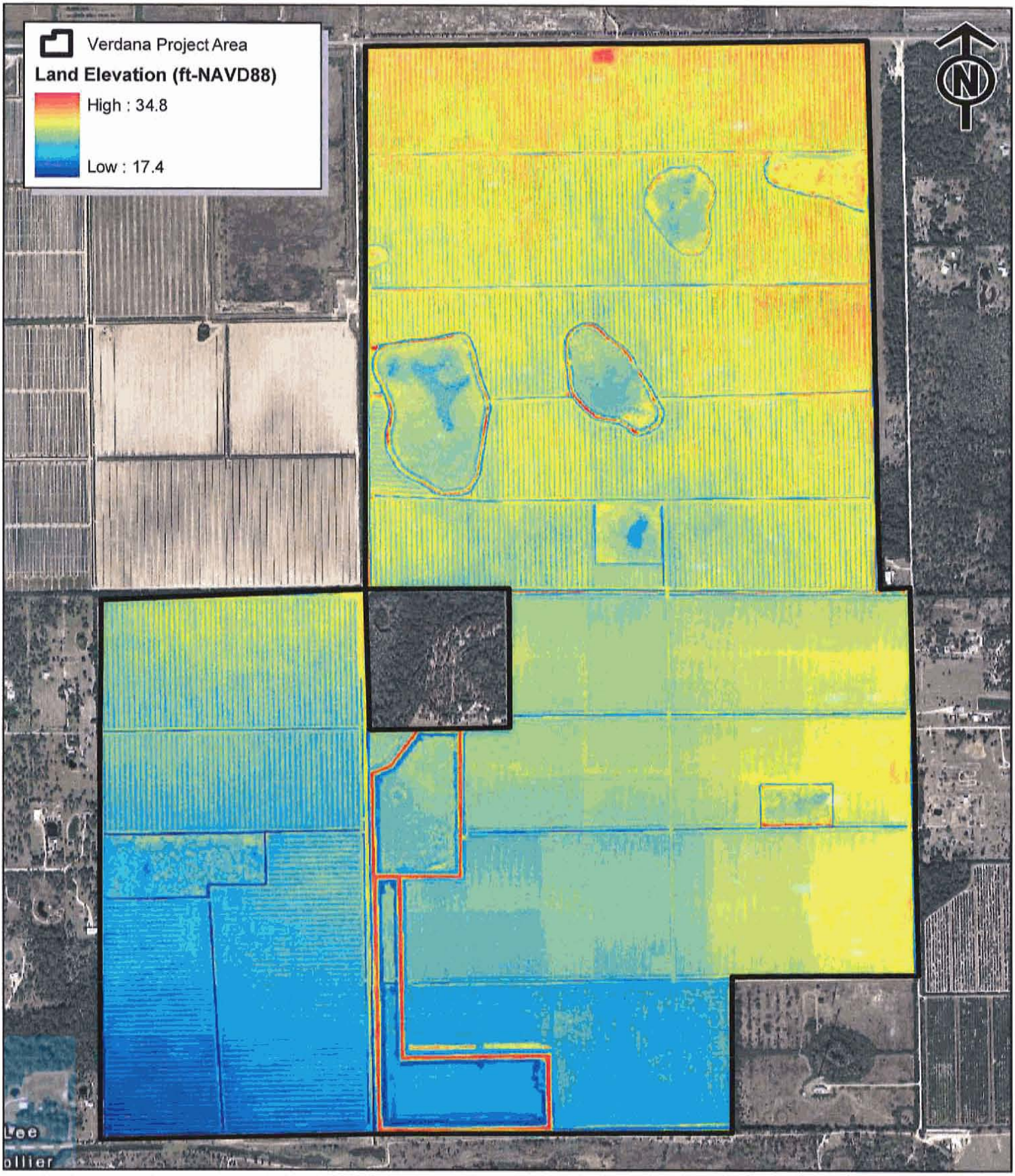
Integrated Water Resource Consultants



Scale: 1:14,450 3/31/2016 Image: 2014 Aerial

0 500 1,000 2,000 Feet

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Figure 3
Site Topography
Pan Terra Holdings, Ltd.
Lee County, FL

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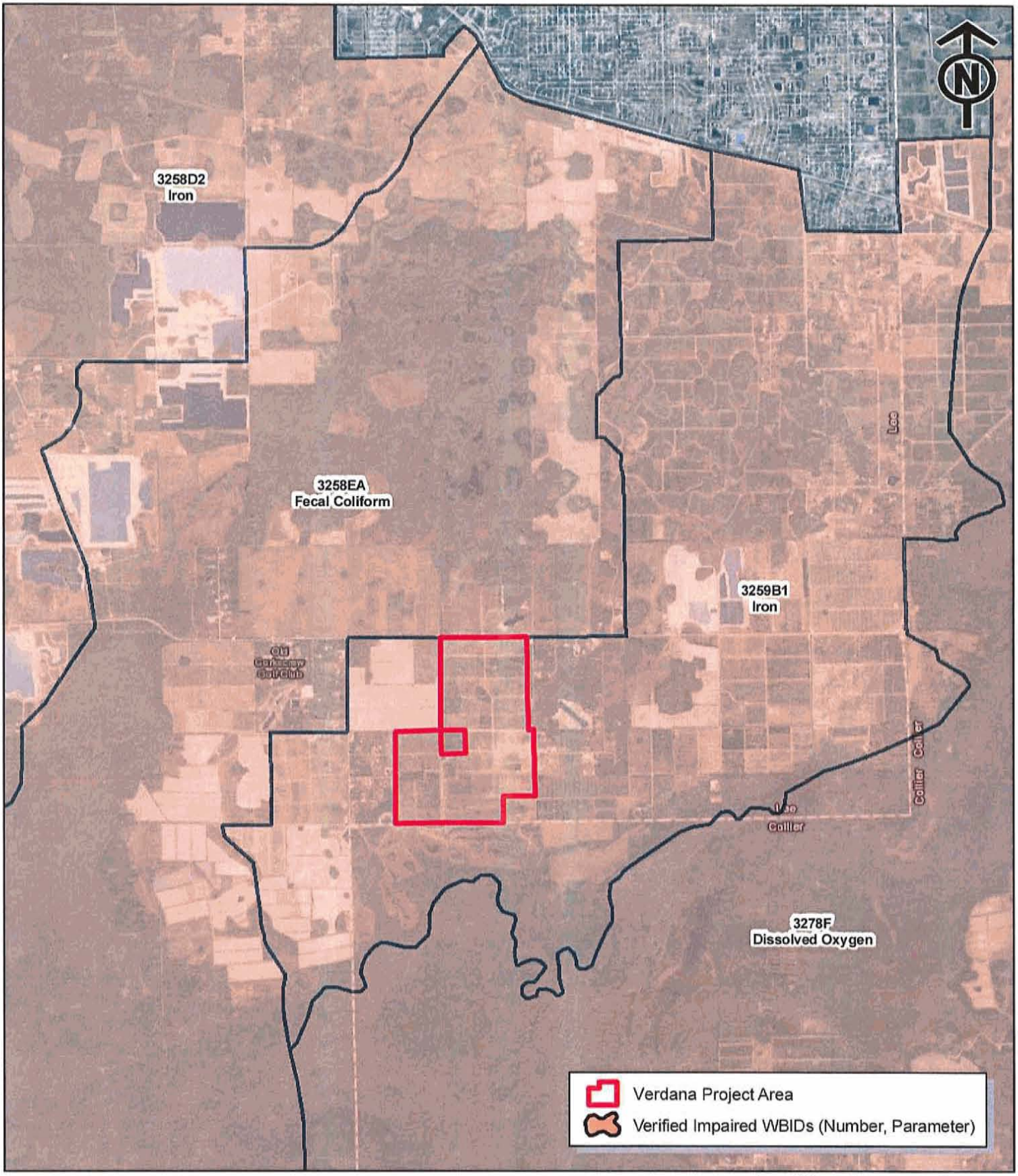

Scale: 1:85,000 3/31/2016 Image: 2014 Aerial 0 0.5 1 2 Miles

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Figure 4
Verified Impaired WBIDs
Pan Terra Holdings, Ltd.
Lee County, FL

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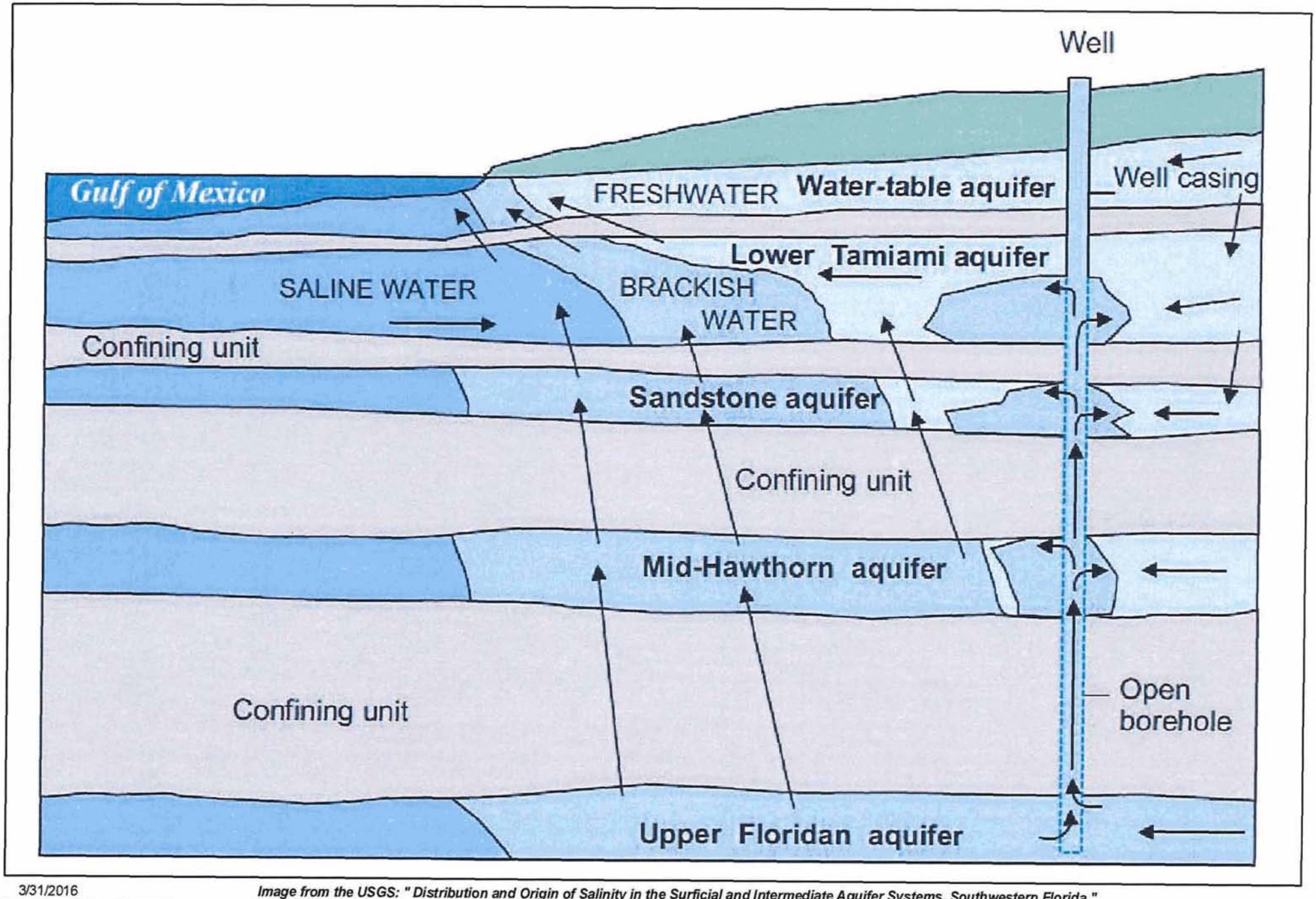
Integrated Water Resource Consultants



3/31/2016

Image from the USGS: " Distribution and Origin of Salinity in the Surficial and Intermediate Aquifer Systems, Southwestern Florida."

Figure 5
Generalized Hydrogeologic Cross-Section of Southwestern Florida
Pan Terra Holdings, Ltd.

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Integrated Water Resource Consultants

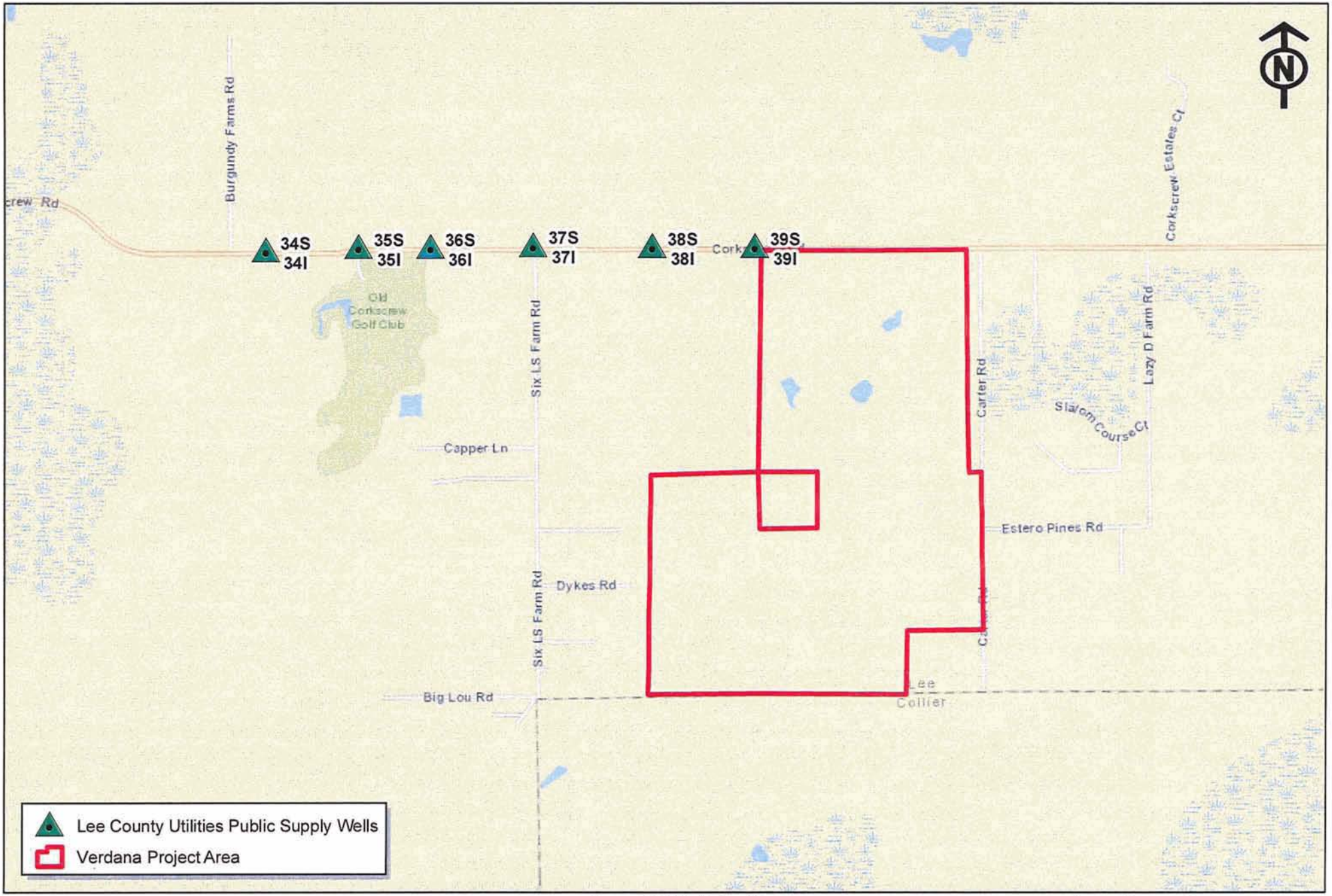

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Figure 6
Lee County Utilities Water Table and Sandstone Aquifer Public Supply Wells
Pan Terra Holdings, Ltd.
Lee County, FL

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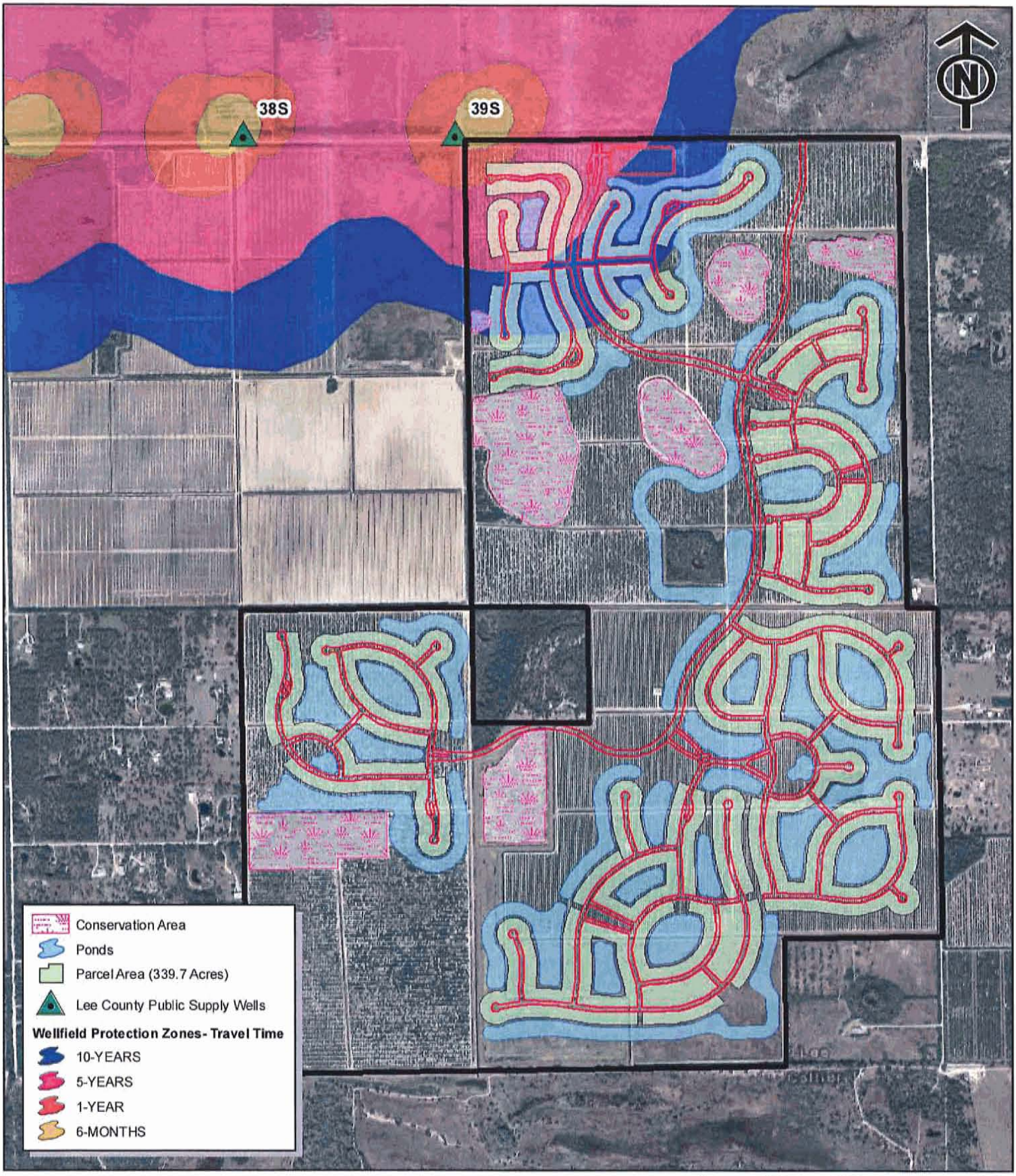
Integrated Water Resource Consultants



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0 800 1,600 3,200 Feet

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Figure 7
Wellfield Protection Zones
Pan Terra Holdings, Ltd.
Lee County, FL

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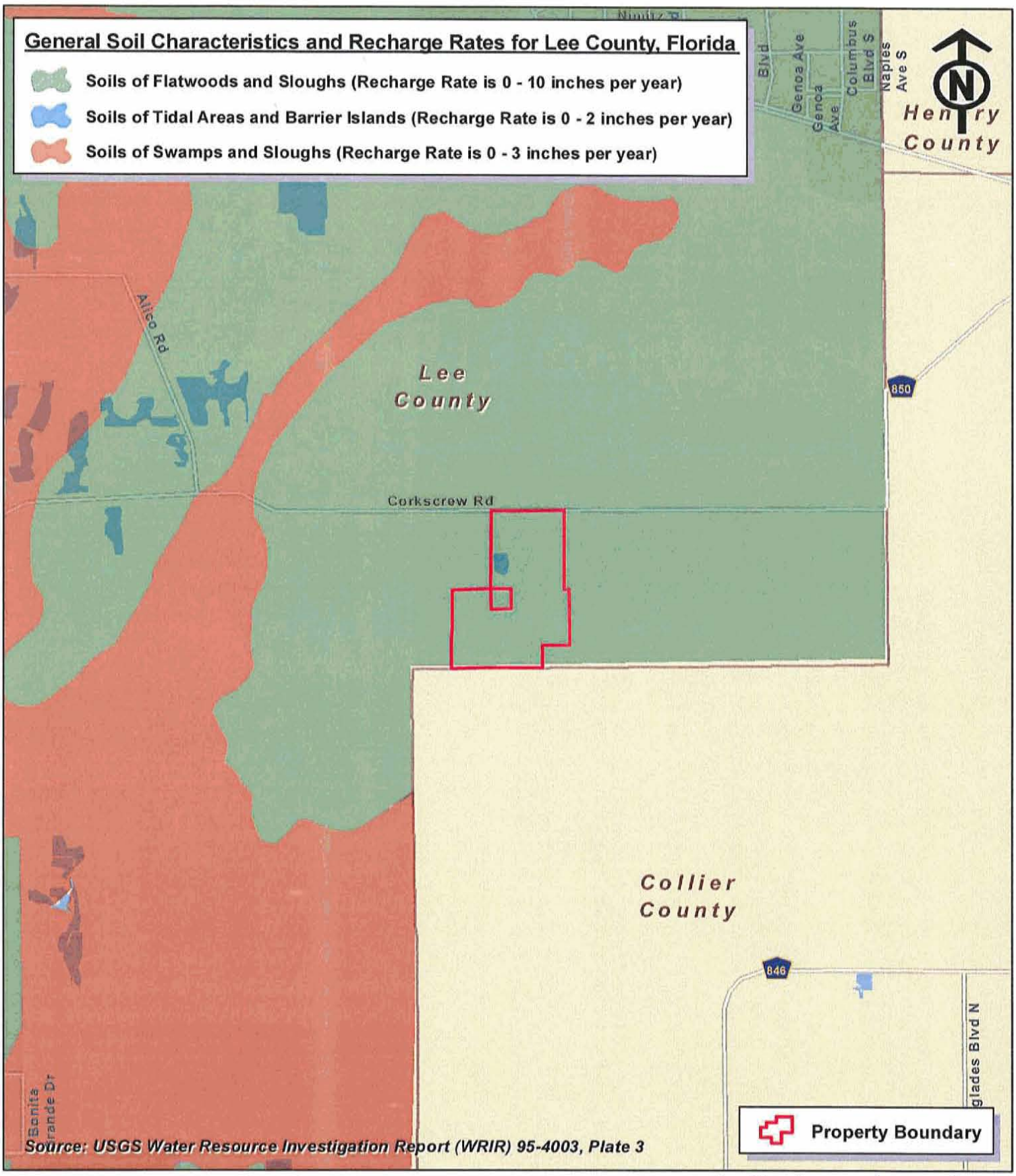

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Figure 8

Pan Terra Holdings, Ltd.

General Soil Characteristics and Recharge Rates

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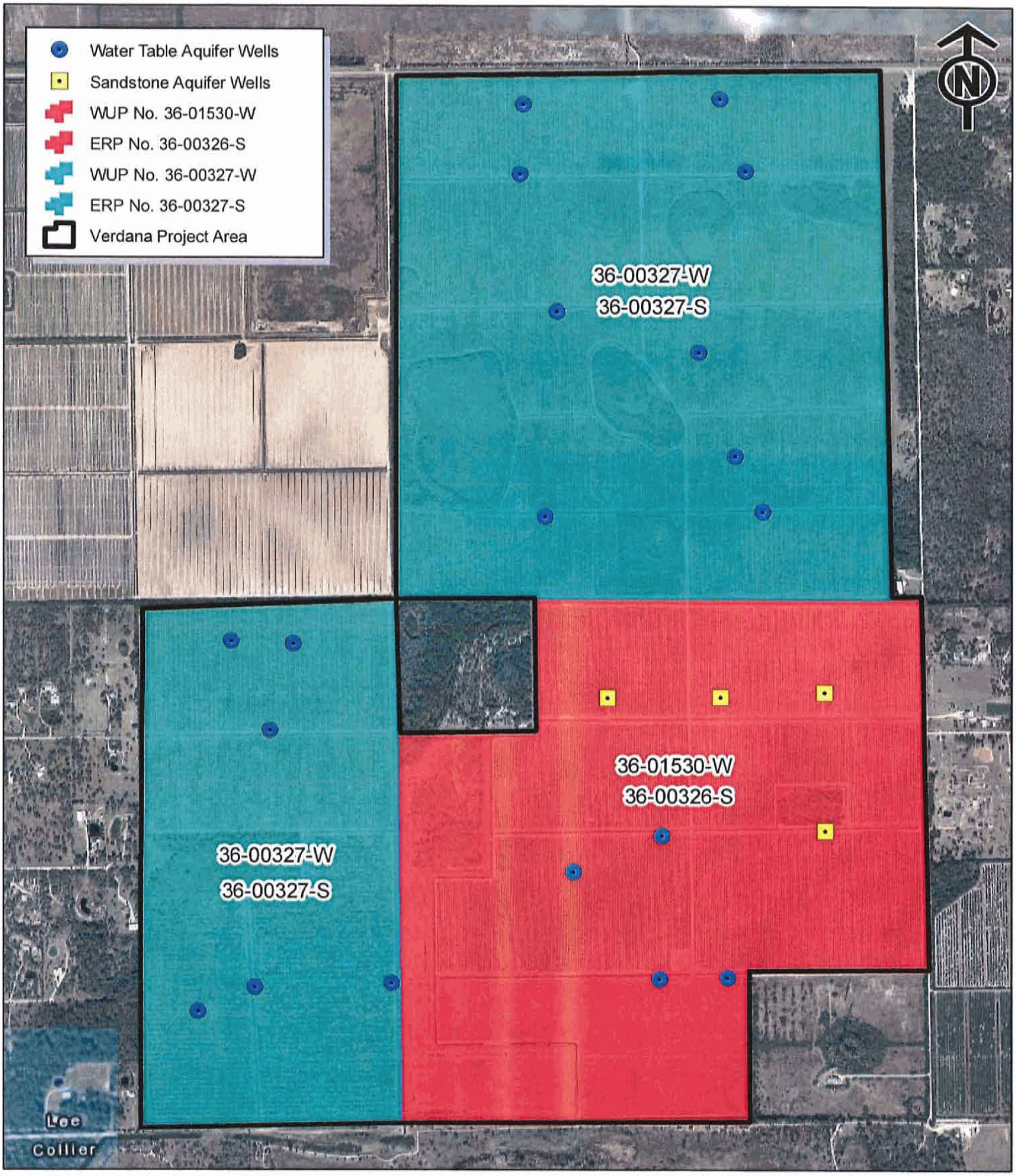

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0 700 1,400 2,800 Feet

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Figure 9
Water Use Permits &
Environmental Resource Permits
Pan Terra Holdings, Ltd.
Lee County, FL

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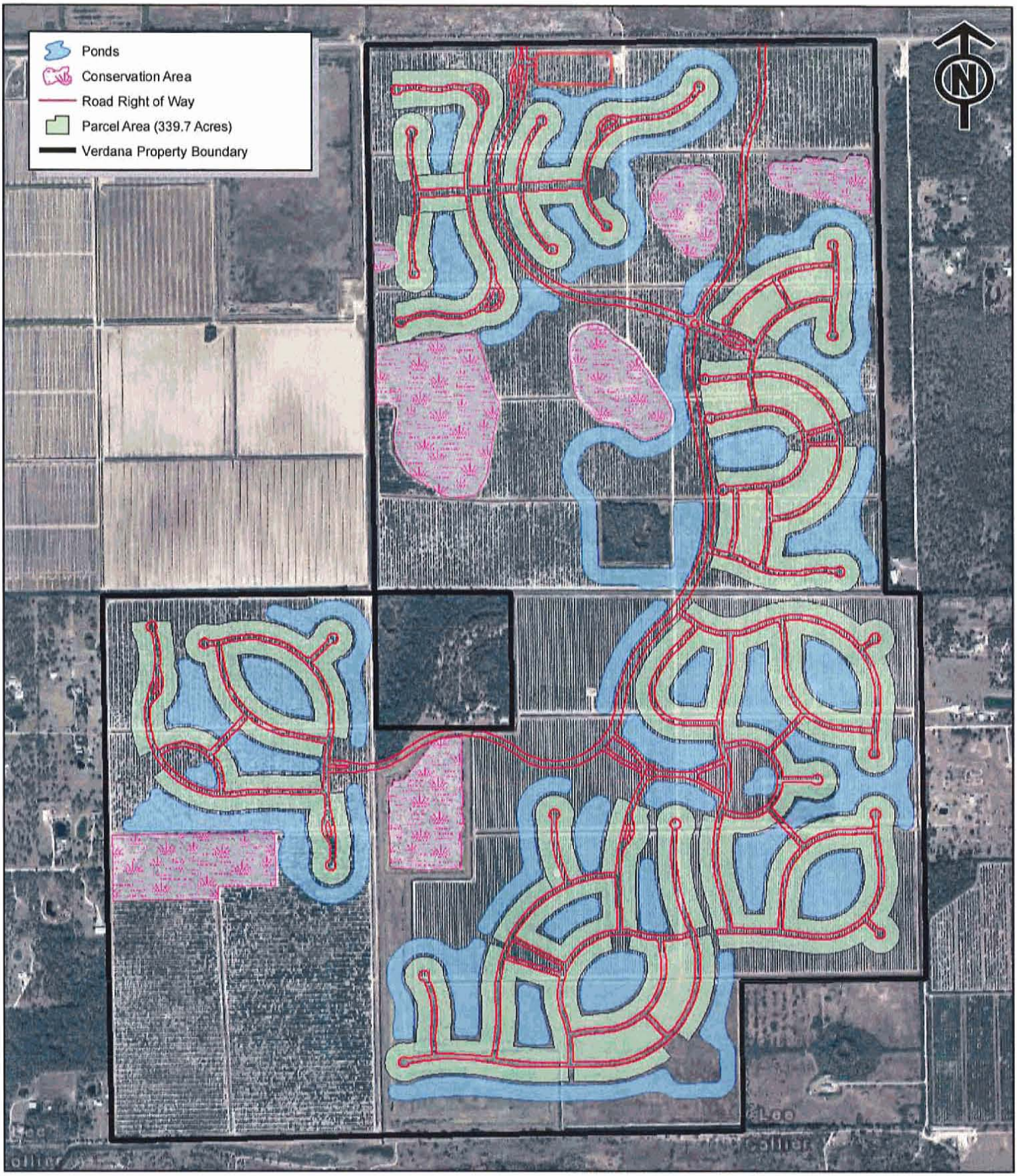
Integrated Water Resource Consultants



Scale: 1:14,500 3/31/2016 Image: 2014 Aerial

0 750 1,500 3,000 Feet

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Figure 10
Proposed Residential Planned Development
Pan Terra Holdings, Ltd.
Lee County, FL

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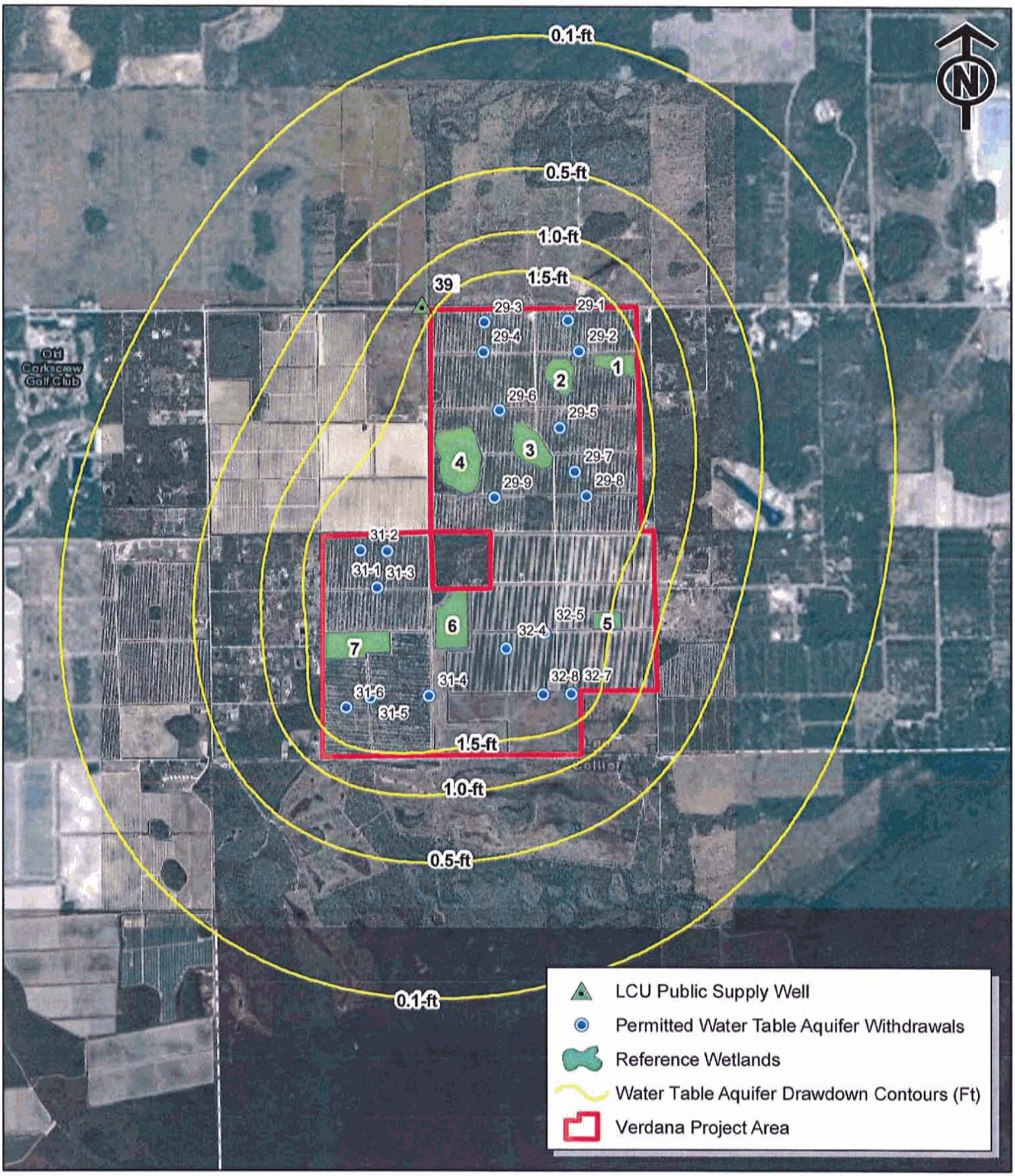

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0 0.25 0.5 1 Miles

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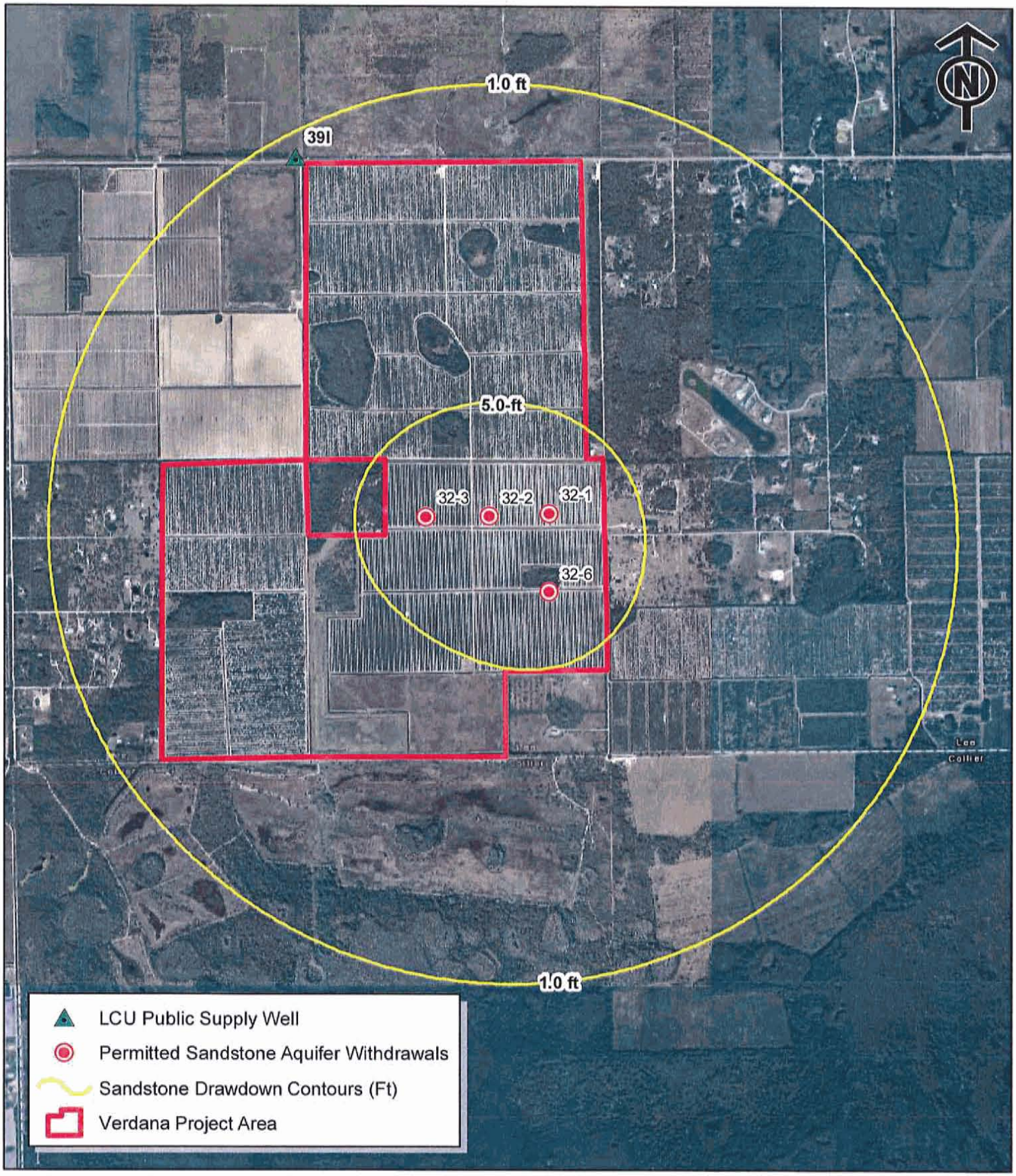
Figure 11
Permitted Water Table Aquifer Drawdown
Pan Terra Holdings, Ltd.
Lee County, FL

Progressive Water Resources
Integrated Water Resource Consultants



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0 1,250 2,500 5,000 Feet

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Figure 12
Permitted Sandstone Aquifer Drawdown
Pan Terra Holdings, Ltd.
Lee County, FL

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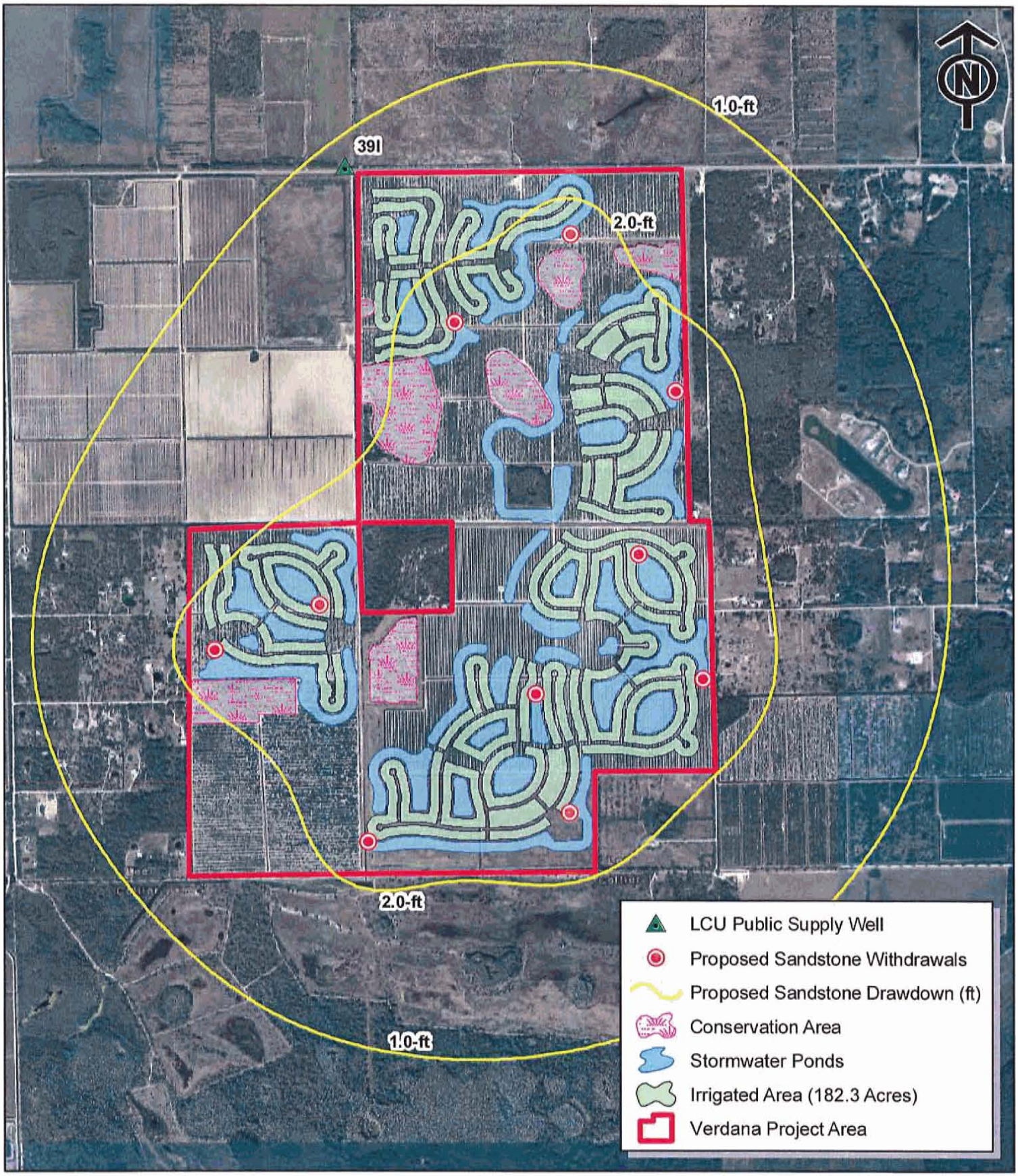
Integrated Water Resource Consultants



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0 1,000 2,000 4,000 Feet

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Figure 13
Proposed Sandstone Aquifer Drawdown
Pan Terra Holdings, Ltd.
Lee County, FL

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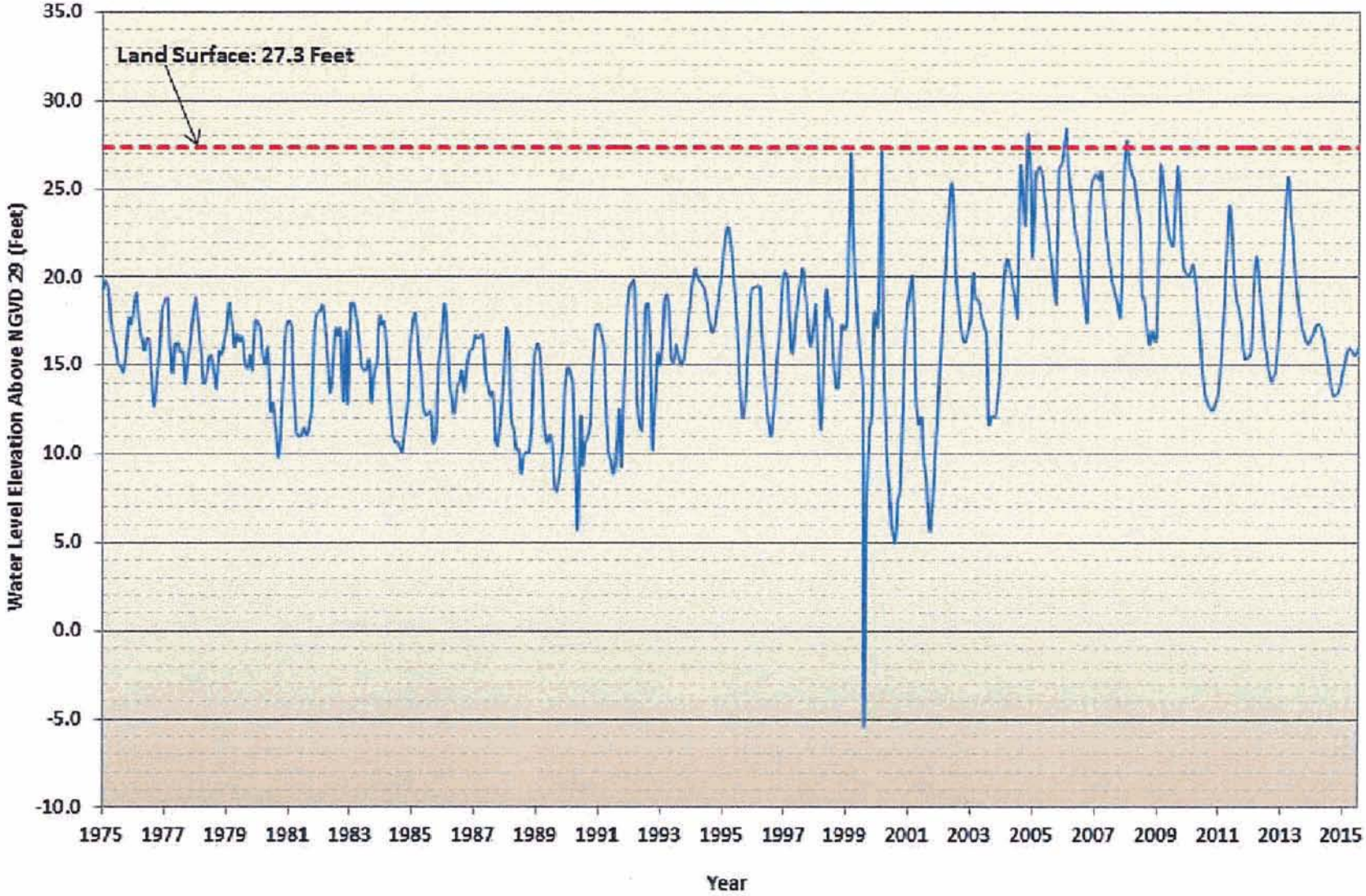
Integrated Water Resource Consultants

L-2192 Sandstone Aquifer

USGS Monitoring Well 262659081382501

Water Level Data (1975 - 2016)

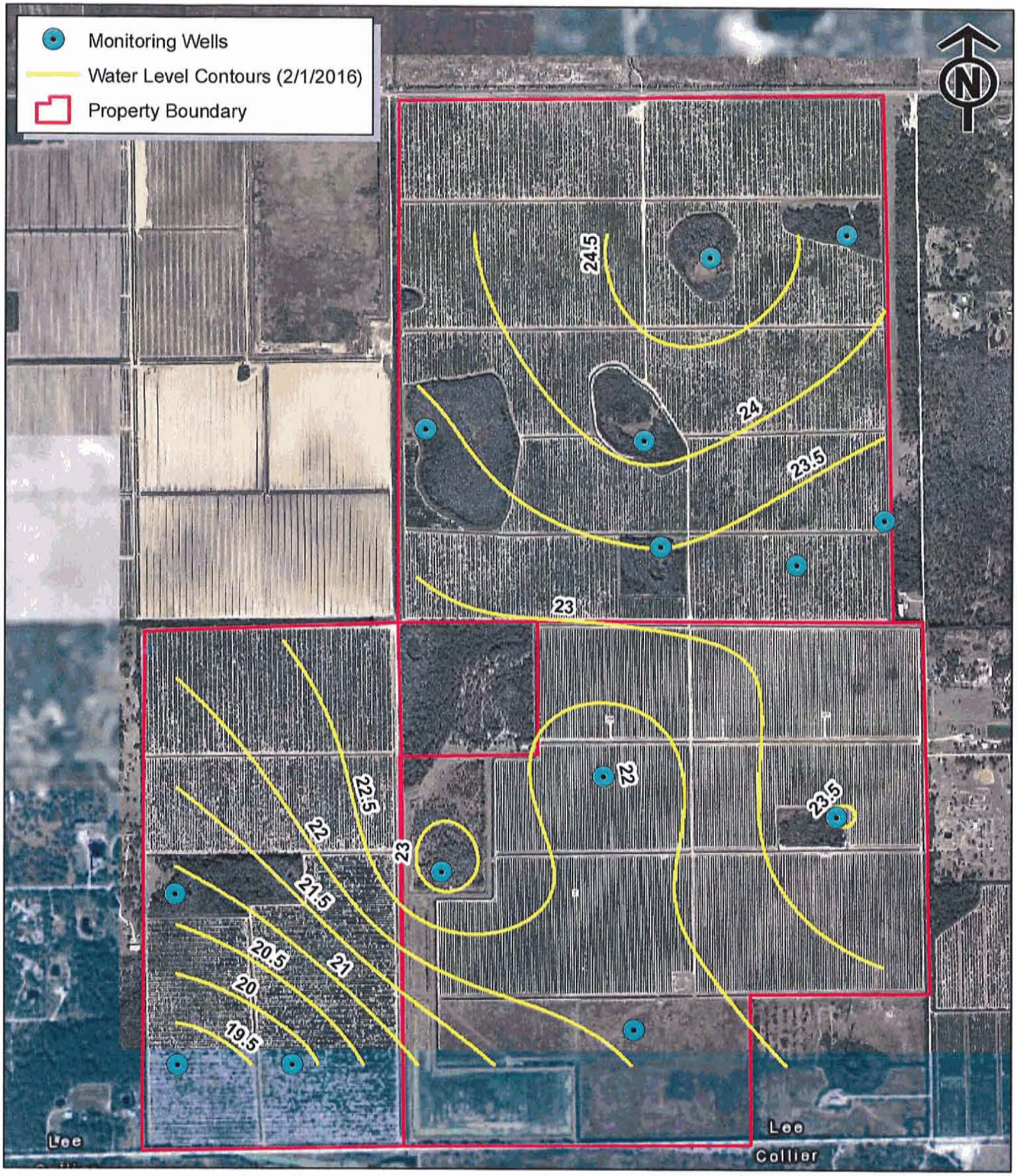


3/31/2016

Image: Excell Format Graphic

Figure 14
Annual Hydrograph of the Sandstone Aquifer
Lee County, Florida

Progressive Water Resources
Integrated Water Resource Consultants



Scale: 1:15,000 3/31/2016 Image: 2014 Aerial

0 375 750 1,500 2,250 Feet

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Figure 15
Potentiometric Contour Map
Water Table Aquifer
Pan Terra Holdings, Ltd.
Lee County, Florida

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