Lee County Community Development

LEE COUNTY BOARD OF COUNTY COMMISSIONERS

ZONING
and
COMPREHENSIVE PLAN AMENDMENT HEARING
AGENDA

Wednesday, October 21, 2026
9:30AM

DCI2025-00017 Z-26-013	Crown Bridge Estates, RPD
DCI2026-00007 Z-26-015	Alessio Air Commerce Park
CPA2026-00003 Adoption	Lee Plan Cleanup Amendments
CPA2026-00004 Adoption	Southeast Lee County Update

SUMMARY SHEET
CPA2026-00004 – Southeast Lee County Update
ADOPTION HEARING

PROPOSED AMENDMENTS:
The proposed amendments to the Lee Plan's Future Land Use Element, Community Facilities and Services Element, Property Rights Element, Glossary, and Appendix to update the Southeast Lee Community Plan Area, to manage growth, streamline the Southeast Lee County overlays by relocating Planned Development requirements for Southeast Lee to the Land Development Code, reduce unnecessary regulations, and encourage development that will adequately protect water resources and wildlife habitat. This includes text amendments to Lee Plan Goal 33, Objectives 33.2, 33.3, and 33.4 and Policies 1.1.10, 1.1.13, 1.4.5, 1.6.10, 2.3.1, 2.3.2, 2.3.3, 6.1.2, 7.1.2, 33.1.1, 33.1.2, 33.1.3, 33.1.6, 33.1.7, 33.1.8, 33.2.1, 33.2.2, 33.2.3, 33.2.4, 33.2.5, 33.3.1, 33.3.2, and Chapter 14 (Glossary), and add new Goals, Objectives, and Policies. To support the proposed text amendments, amendments are also proposed to Maps 1-A, 1-D, 2-A, 2-D, 4-A, and 4-B, and Table 1(a).

BOARD DIRECTION and SUMMARY:
On April 21, 2026, the Board directed staff to prepare amendments to the Lee Plan, relating to the Southeast Lee County Community Plan Area. The proposed amendments comprehensively revise the Southeast Lee Community Plan Area and related Goals, Objectives, and Policies to facilitate wildlife and natural resource conservation while balancing growth pressures in this area of the County. Planning Staff coordinated the amendments with private stakeholders, members of the public, conservation groups, and County staff.

TRANSMITTAL HEARING:
Staff provided an extensive presentation on the proposed amendments, including the LPA's recommendations and additional changes to the draft following the LPA hearing. Nineteen (19) members of the public spoke during the hearing, expressing concerns about overdevelopment, lack of state review, and the timing of the amendments. Four speakers also spoke in favor of the amendments.

The Commission moved to ***transmit*** CPA2026-00004 as recommended by staff and the LPA. The motion passed 4 to 0.

STATE REVIEW:
Lee County received responses from the Florida Department of Commerce, the Florida Fish and Wildlife Conservation Commission (FWC), the Florida Department of Transportation (FDOT), the South Florida Water Management District (SFWMD), and the Florida Department of Environmental Protection (DEP) addressing the proposed amendment. Correspondence from the State Reviewing Agencies did not identify objections to the proposed amendments. FWC, and DEP provided technical assistance comments. The SFWMD requested additional analysis which has been provided in Attachment 3. Staff has incorporated additional changes to further address State Reviewing Agency comments, as discussed in the Staff Report and shown in Attachment 1.

STAFF RECOMMENDATION:
Staff recommends the BoCC **adopt** the amendments as provided in Attachment 1 to the Staff Report.

LEE COUNTY ORDINANCE NO. ____
Southeast Lee County Update Map and Text Amendments
CPA2026-00004

AN ORDINANCE AMENDING THE LEE COUNTY COMPREHENSIVE PLAN, COMMONLY KNOWN AS THE "LEE PLAN," ADOPTED BY ORDINANCE NO. 89-02, AS AMENDED, SO AS TO ADOPT AMENDMENT PERTAINING TO THE SOUTHEAST LEE COUNTY UPDATE MAP AND TEXT AMENDMENTS (CPA2026-00004) APPROVED DURING A PUBLIC HEARING; PROVIDING FOR PURPOSE, INTENT, AND SHORT TITLE; AMENDMENTS TO ADOPTED MAP AND TEXT; LEGAL EFFECT OF "THE LEE PLAN"; PERTAINING TO MODIFICATIONS THAT MAY ARISE FROM CONSIDERATION AT PUBLIC HEARING; GEOGRAPHICAL APPLICABILITY; SEVERABILITY, CODIFICATION, SCRIVENER'S ERRORS, AND AN EFFECTIVE DATE.

WHEREAS, the Lee County Comprehensive Plan ("Lee Plan") and Chapter XIII, provides for adoption of amendments to the Plan in compliance with State statutes and in accordance with administrative procedures adopted by the Board of County Commissioners ("Board"); and,

WHEREAS, the Board, in accordance with Section 163.3181, Florida Statutes, and Lee County Administrative Code AC-13-6, provides an opportunity for the public to participate in the plan amendment public hearing process; and,

WHEREAS, the Lee County Local Planning Agency ("LPA") held a public hearing on the proposed amendment in accordance with Florida Statutes and the Lee County Administrative Code on July 27, 2026; and,

WHEREAS, the Board held a public hearing for the transmittal of the proposed amendment on August 19, 2026. At that hearing, the Board approved a motion to send, and did later send, proposed amendment pertaining to Southeast Lee County Update Map and Text Amendments CPA2026-00004 to the reviewing agencies set forth in Section 163.3184(1)(c), F.S. for review and comment; and,

WHEREAS, at the August 19, 2026, meeting, the Board announced its intention to hold a public hearing after the receipt of the reviewing agencies' written comments; and,

WHEREAS, on October 21, 2026, the Board held a public hearing and adopted the proposed amendment to the Lee Plan set forth herein.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF LEE COUNTY, FLORIDA, THAT:

SECTION ONE: PURPOSE, INTENT AND SHORT TITLE

The Board of County Commissioners of Lee County, Florida, in compliance with Chapter 163, Part II, Florida Statutes, and with Lee County Administrative Code AC-13-6, conducted public hearings to review proposed amendments to the Lee Plan. The purpose of this ordinance is to adopt map and text amendments to the Lee Plan discussed at those meetings and approved by a majority of the Board of County Commissioners. The short title and proper reference for the Lee County Comprehensive Land Use Plan, as hereby amended, will continue to be the "Lee Plan." **This amending ordinance may be referred to as the "Southeast Lee County Update Map and Text Amendments Ordinance CPA2026-00004."**

SECTION TWO: ADOPTION OF COMPREHENSIVE PLAN AMENDMENT

The Lee Plan, initially adopted by Ordinance Number 89-02, is hereby amending the Lee Plan's Future Land Use Element, Community Facilities and Services Element, Property Rights Element, Glossary, and Appendix to update the Southeast Lee Community Plan Area, to manage growth, streamline the Southeast Lee County overlays by relocating Planned Development requirements for Southeast Lee to the Land Development Code, reduce unnecessary regulations, and encourage development that will adequately protect water resources and wildlife habitat. This includes text amendments to Lee Plan Goal 33, Objectives 33.2, 33.3, and 33.4 and Policies 1.1.10, 1.1.13, 1.4.5, 1.6.10, 2.3.1, 2.3.2, 2.3.3, 6.1.2, 7.1.2, 33.1.1, 33.1.2, 33.1.3, 33.1.6, 33.1.7, 33.1.8, 33.2.1 , 33.2.2, 33.2.3, 33.2.4, 33.2.5, 33.3.1, 33.3.2, and Chapter 14 (Glossary), and add new Goals, Objectives, and Policies. To support the proposed text amendments, amendments are also proposed to Maps 1-A, 1-D, 2-A, 2-D, 4-A, and 4-B, and Table 1 (a). known as Southeast Lee County Update Map and Text Amendments CPA2026-00004.

The corresponding Staff Reports and Analysis, along with all attachments and application submittals for this amendment are adopted as "Support Documentation" for the Lee Plan. Proposed amendments adopted by this Ordinance are attached as Exhibit A.

SECTION THREE: LEGAL EFFECT OF THE "LEE PLAN"

No public or private development will be permitted except in conformity with the Lee Plan. All land development regulations and land development orders must be consistent with the Lee Plan as amended.

SECTION FOUR: MODIFICATION

It is the intent of the Board of County Commissioners that the provisions of this Ordinance may be modified as a result of consideration that may arise during Public Hearing(s). Such modifications shall be incorporated into the final version.

SECTION FIVE: GEOGRAPHIC APPLICABILITY

The Lee Plan is applicable throughout the unincorporated area of Lee County, Florida, except in those unincorporated areas included in joint or interlocal agreements with other local governments that specifically provide otherwise.

SECTION SIX: SEVERABILITY

The provisions of this ordinance are severable and it is the intention of the Board of County Commissioners of Lee County, Florida, to confer the whole or any part of the powers herein provided. If any of the provisions of this ordinance are held unconstitutional by a court of competent jurisdiction, the decision of that court will not affect or impair the remaining provisions of this ordinance. It is hereby declared to be the legislative intent of the Board that this ordinance would have been adopted had the unconstitutional provisions not been included therein.

SECTION SEVEN: INCLUSION IN CODE, CODIFICATION, SCRIVENERS' ERROR

It is the intention of the Board of County Commissioners that the provisions of this ordinance will become and be made a part of the Lee County Code. Sections of this ordinance may be renumbered or relettered and the word "ordinance" may be changed to "section," "article," or other appropriate word or phrase in order to accomplish this intention; and regardless of whether inclusion in the code is accomplished, sections of this ordinance may be renumbered or relettered. The correction of typographical errors that do not affect the intent, may be authorized by the County Manager, or his designee, without need of public hearing, by filing a corrected or recodified copy with the Clerk of the Circuit Court.

SECTION EIGHT: EFFECTIVE DATE

The plan amendments adopted herein are not effective until 31 days after the State Land Planning Agency notifies the County that the plan amendment package is complete. If timely challenged, an amendment does not become effective until the State Land Planning Agency or the Administration Commission enters a final order determining the adopted amendment to be in compliance. No development orders, development permits, or land uses dependent on this amendment may be issued or commence before the amendment has become effective. If a final order of noncompliance is issued by the Administration Commission, this amendment may nevertheless be made effective by adoption of a resolution affirming its effective status.

THE FOREGOING ORDINANCE was offered by Commissioner _____, who moved its adoption. The motion was seconded by Commissioner _____. The vote was as follows:

Kevin Ruane	_____
Cecil L. Pendergrass	_____
David Mulicka	_____
Brian Hamman	_____
Trish Petrosky	_____

DONE AND ADOPTED this ___ day of _____ 20__.

ATTEST:
KEVIN C. KARNES
CLERK OF CIRCUIT COURT

BY:_____
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS
OF LEE COUNTY FLORIDA

BY: _____
Cecil L. Pendergrass, Chair

DATE:_____

APPROVED AS TO FORM FOR THE
RELIANCE OF LEE COUNTY ONLY

_____
County Attorney's Office

Exhibit A (Adopted by BOCC October 21, 2026):

- Text Amendments

- Map Amendments
  - Map 1-A: Existing Future Land Use Map
  - Map 1-A: Proposed Future Land Use Map
  - Map 1-D: Existing Special Treatment Areas
  - Map 1-D: Proposed Special Treatment Areas
  - Map 2-A: Community Planning Areas
  - Map 2-D: Southeast DR/GR Residential Overlay
  - Map 4-A: LCU Future Water Service Area
  - Map 4-B: LCU Future Sewer Service Area

- Table Amendments
  - Table l(a) Summary of Residential Densities

EXHIBIT A

Note: Text depicted with underscore represents additions to the Lee Plan. Strike-through text represents deletions from the Lee Plan.

POLICY 1.1.10: The **Commercial** future land use category is located in areas where infrastructure is planned or in place and residential uses are not expected or incompatible due to surrounding land uses, environmental constraints, or proximity to the Coastal High Hazard Area. ~~the nature of surrounding land uses, location along major travel corridors, or where residential development would increase densities in Coastal High Hazard Areas or in Lehigh Acres, where residential uses are abundant and existing commercial areas serving the residential needs are limited. In these locations, the requisite infrastructure needed for commercial development is generally planned or in place.~~ The Commercial category is intended to support all types of commercial uses and limited light industrial uses, excluding outdoor storage.~~retail developments, hotels and motels, banks, all types of office development, research and development, public, and other similar development will be predominant in the Commercial future land use category. Limited light industrial uses are also permitted, excluding outdoor storage type uses.~~ Residential uses, other than bona fide caretaker residences, are not permitted in this future land use category. ~~Any redesignation of land to the Commercial future land use category should occur along major travel corridors and at road intersections. The planned development rezoning process must be used to prevent adverse impacts to the surrounding areas and to ensure that appropriate site development regulations are incorporated into the development plans of each site. New developments~~Development in this category must connect to a potable water and sanitary sewer system.

POLICY 1.1.13: The **Tradeport** future land use category includes areas of commercial and industrial lands adjacent to the Southwest Florida International Airport (RSW),~~the airport~~ or other major transportation infrastructure such as Florida's Strategic Intermodal System (SIS). These areas will include developments consisting of light manufacturing or assembly, data centers, warehousing, and distribution facilities; research and development activities; laboratories; ground transportation and airport-related terminals or transfer facilities; hotels/motels, meeting facilities; education and training facilities; and office uses.

Stand-alone retail commercial uses intended to support and complement the surrounding business and industrial land uses are permitted if they are approved as part of a ~~Development of Regional Impact (DRI) or~~ Planned Development rezoning. Stand-alone retail commercial uses are limited to 1 acre ~~out of~~for every 10 Tradeport and preserved wetland acres within the project. To provide an incentive to preserve upland habitat, ~~DRIs or~~ Planned Developments may also receive additional stand-alone retail acres at the rate of 1 additional acre ~~out of~~for every 10 acres of preserved and enhanced uplands within the project that protect wetlands, flow-ways, or occupied listed species habitat. Ancillary ~~retail~~ commercial uses related directly to the sale of products manufactured or services provided by the associated light industrial use are not considered stand-alone commercial ~~in Tradeport are allowed if they are part of a planned development~~. Residential uses, other than bona fide caretaker residences, are not permitted in this future land use category.

POLICY 1.1.16: The **Preservation and Innovation** future land use category is connected to central utilities and located along arterial or major collector roadways in the Southeast Lee County Community Plan Area, with the intent of balancing ecological, hydrological, and wildlife preservation with employment and commercial needs within the County. Office, light industrial, and commercial uses are encouraged when designed to preserve or restore surrounding natural resources. This category requires a large percentage of open space and the restoration of environmentally sensitive lands to protect the County's water resources and Southeast Lee County's natural resources. Uses that have a significant impact on ground and surface water levels or quality, are known producers or users of noxious gases or chemicals, or have other detrimental impacts on the natural environment, as demonstrated by appropriate data and analysis and verified by the County, may not be permitted. This land use category does not permit general residential uses. Caretaker's residences and dormitory-type accommodations for employees or individuals associated with the business may be permitted as part of the Floor Area Ratio (FAR) calculation when accessory to a nonresidential use. Development in this category is limited to an FAR of 0.25 and is encouraged to promote a park-like aesthetic, with pedestrian connections, extensive green spaces, and minimal linear commercial centers. Applications for rezoning must follow the planned development rezoning process in accordance with the Land Development Code.

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

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 utilizing hydrologic modeling, the incorporation of increased storage capacity and the 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 must be submitted as part of the rezoning application and updated, if necessary, as part of the mining development order application.~~ When land is removed from the DR/GR land use category, hydrologic modeling must be used to analyze the impacts of proposed development on historic surface and groundwater resources. The analysis must assess potential adverse effects on upstream and downstream lands, current and future water resources, and other natural systems. The Future Land Use Map Amendment requires an analysis based on the location's natural attributes, and the rezone application requires a detailed analysis of the proposed use, design, irrigation, and other specifics, which must then be confirmed or, when necessary, as determined by the Director or designee, reanalyzed in the development order application. All analyses must demonstrate that the proposed change will not significantly affect present or future water resources. Lee County's Department of Natural Resources will review and verify all proposed analyses, which should include an integrated surface and groundwater hydrologic model, in collaboration with the applicable state agencies. Applicants must submit evidence of historic hydrological levels with development applications.

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 standard density of one dwelling unit per ten acres (1 du/10 acres). ~~See Objectives 33.2 and 33.3 for potential density adjustments resulting from concentration or transfer of development rights.~~

3. Private Recreational Facilities may be permitted in accordance with the site locational requirements and design standards, as further defined in Goal 13. No Private Recreational Facilities may occur within the DR/GR land use category without a rezoning to an appropriate Planned Development zoning category, and compliance with the Private Recreation Facilities performance standards, contained in Goal 13.

POLICY 1.4.8: The **Conservation Community** future land use category denotes areas of low-density, clustered residential and mixed-use development within the Southeast Lee County Community Plan Area. Development in this category must connect to a potable water and sanitary sewer system and be located along arterial or major collector roadways in the Southeast Lee County Community Plan Area. This category requires a large percentage of open space and the restoration of environmentally sensitive lands to protect the County's water resources and Southeast Lee County's natural resources. The standard density is 1 unit per 10 acres, with a maximum density of 1.15 units per acre when the community is designed as a planned development in accordance with the Land Development Code. Development in this category is encouraged to promote a park-like aesthetic, with pedestrian connections and extensive green spaces. Nonresidential and multifamily uses may be allowed when developed within the same planned development as low-density residential uses. These uses are limited to a maximum total FAR of 0.15, based on the acreage allocated to non-residential and multi-family uses. A traditional Main Street design with vertically mixed buildings adjacent to park space is encouraged for developments that use the FAR allowance; standalone linear commercial development is discouraged.

POLICY 1.6.10: Lee Plan Map 1-D, Special Treatment Areas, depicts areas of the county with specific requirements, including the following overlays: ~~The Southeast Lee County Residential Overlay (Map 2 D) is described in Objective 33.2. This Overlay affects only Southeast Lee County and identifies five types of land:~~

1. "Existing Acreage Subdivisions:" Existing rural residential subdivisions that should be protected from adverse external impacts ~~such as natural resource extraction~~.
2. "Rural Golf Course Communities:" Potential locations for the concentration of development rights on property zoned Private Recreational Facilities Planned Development ~~and located in the Southeast DR/GR area~~.
3. ~~"Mixed Use Communities:" Locations where this concentration of development rights from large contiguous tracts within the DR/GR area that can be supplemented by transfer of development rights from non-contiguous tracts in the Southeast DR/GR area. See Objective 33.3 and following policies.~~

4. "Improved Residential Communities:" Property with existing residential approvals that are inconsistent with the Southeast DR/GR area that could be improved environmentally.
5. "Environmental Enhancement and Preservation Communities:" Properties adjacent to Corkscrew and Alico Roads that have the potential to improve and restore important regional hydrological and wildlife connections.

OBJECTIVE 2.3: FUTURE LAND USE MAP AMENDMENTS. To require formal findings for certain Future Land Use Map amendments.

POLICY 2.3.1: All proposed changes to the Future Land Use Map in critical areas for future potable water supply, such as (Lehigh Acres, as described in Policy 54.1.9, and all land in the Southeast Lee County Community Plan Area or the DR/GR land use category.) Map amendments for these areas will be subject to a special review by the staff of Lee County. This review will to analyze the potential impact of the land change on the proposed land uses to and determine the short-term and long-term availability of irrigation and domestic water sources and will assess whether the proposed land useschange would cause any significant impact on present or future water resources. If the Board of County Commissioners wishes to approve any such changes to the Future Land Use Map, it must make a formal finding that no significant impacts on present or future water resources will result from the change.

POLICY 2.3.2: Future Land Use Map amendments to the existing DR/GR areas within the Southeast Lee County Community Plan Area to a district other than Preservation and Innovation, Conservation Community, Wetlands, Conservation Lands, or Public Facilities will be discouraged by the County. 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 Ch. 163, Part II, Fla. Stat., 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 urban sprawl.

~~During the transmittal and adoption process, the Board of County Commissioners must review the application for all these analytical requirements and make a finding that the amendment complies with all of them.~~

~~**POLICY 2.3.3**: Lee Plan amendment applications to expand the Lee Plan's employment centers, which include light industrial, commercial retail and office land uses, will be evaluated by the Board of County Commissioners in light of the locations and cumulative totals already designated for such uses, including the 1994 addition of 1,400 acres to the Tradeport category just south of the Southwest Florida International Airport.~~

POLICY 6.1.2: Commercial development in non-urban future land use categories is limited to Minor Commercial, ~~except that~~ unless the Lee Plan specifically provides otherwise.~~:~~

- ~~Neighborhood Commercial uses are permitted in the Southeast Lee County Planning District as provided for in Objectives 13.3 and 33.2.5.~~

Minor Commercial development may include limited commercial uses serving rural areas and agricultural needs, and commercial marinas. Minor Commercial development must be located so that the retail use, including buildings and outdoor sales area, is located at the intersection (within 330 feet of the adjoining rights-of-way of the intersecting roads) of arterial and collector roads or two collector roads with direct access to both intersecting roads. Direct access may be achieved with an internal access road to either intersecting road. On islands, without an intersecting network of collector and arterial roads, commercial development may be located at the intersection of local and collector, or local and arterial, or collector and collector roads.

POLICY 7.1.2: Industrial development is encouraged through conventional zoning districts when the property is within the Industrial Development, Tradeport, and Industrial Interchange future land use categories or within a Future Urban Area, unless a Planned Development is specifically required by the Lee Plan or necessary to demonstrate compliance with Policy 5.1.5. ~~Industrial in these future land use categories requiring rezoning and meeting DCI thresholds must be rezoned to a Planned Development. All rezonings to allow industrial uses outside of the Industrial Development, Tradeport, or Industrial Interchange future land use categories must be rezoned to a Planned Development, except if located within the Mixed Use Overlay. The Planned Development must be designed to arrange uses as an integrated and cohesive unit in order to: promote compatibility and screening; reduce dependence on the automobile; promote pedestrian movement within the development; utilize joint parking, access and loading facilities; avoid negative impacts on surrounding land uses and traffic circulation; protect natural resources; and, provide necessary facilities and services where they are inadequate to serve the proposed use.~~

GOAL 33: SOUTHEAST LEE COUNTY. Protect Southeast Lee County's natural resources through public and private acquisition and restoration efforts. Development incentives will be utilized as a mechanism to preserve, enhance, and protect natural resources, such as regional flow-ways and natural habitat corridors, in the development of privately owned land. ~~Allowable land uses will include conservation, agriculture, public facilities, low density or clustered residential, natural resource extraction operations, and private recreation facilities; allowable land uses must be compatible with protecting Southeast Lee County's environment.~~ A variety of uses may be permitted when developed in accordance with the goals, objectives, and policies in the Lee Plan, the Wellfield Protection Ordinance, Land Development Code, and other applicable environmental protection requirements.

POLICY 33.1.1: Large-scale ecosystem integrity in Southeast Lee County should be maintained and restored through a coordinated effort between public, nonprofit, and private landowners to ensure wildlife corridor connectivity and habitat restoration, maintenance and establishment of conservation lands, and other general water and natural resource protections. Protection and/or restoration of land is of even higher value when it connects existing corridors and conservation areas. Restoration is also highly desirable when it can be achieved in conjunction with other uses on privately owned land, including agriculture.

POLICY 33.1.2: The County will create development incentives to offset the cost of creating, preserving, or re-establishing natural systems in the Southeast Lee County Community Plan Area. The incentive programs may be updated from time to time based on the changing needs of this area of the county. ~~The DR/GR Priority Restoration Strategy consists of seven tiers of 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 Map 1 D). Within these tiers, density incentives will be utilized as a mechanism to improve, preserve, and restore regional surface and groundwater resources and wildlife habitat of state and federally listed species; with Tier 1 and Tier 2 being the most incentivized tiers. Lee County may consider amendments to this Overlay based on changes in public ownership, land use, new scientific data, and/or demands on natural resources. This Overlay does not restrict the use of the land.~~

POLICY 33.1.3: Pursue acquisition ~~(partial or full interest)~~ of land via public investment, land swaps, conservation easements, or donation of critical lands within Southeast Lee County to augment preservation lands to improve, restore, or create water resources, natural ecosystems, and wildlife connections through a planned development, Development Agreement approved by the Board of County Commissioners, or other legally binding agreement accepted by the County Attorney's Office. ~~within the Tier 1 areas in the Priority Restoration Strategy Overlay through direct purchase; partnerships with other government agencies; long term purchase agreements; right of first refusal contracts; land swaps; or other appropriate means to provide critical connections to conservation lands that serve as the backbone for water resource management and wildlife movement within Southeast Lee County. Tier 2 lands are of equal ecological and water resource importance as Tier 1 but have better potential to remain in productive agricultural use. Tier 3 lands and the southern two miles of Tiers 5, 6, and 7 can provide an important wildlife connection to conservation lands in Collier County and an anticipated regional habitat link to the Okaloacoochee Slough State Forest. Tiers 1, 2, 3, and the southern two miles of Tiers 5, 6, and 7~~

~~may qualify for unique development incentives outlined in Objectives 33.2 and 33.3 due to the property's potential for natural resource benefits and/or wildlife connections. Additionally, the County may consider incentives, within all tiers, for private landowners to improve water resources and natural ecosystems.~~

POLICY 33.1.6: On existing farmland, the County will offer incentives to encourage the continuation of agricultural operations. Incentives will include the ability to concentrate all existing development rights while farming continues on the remainder of the tract; and, the ability to sever and sell all development rights while farming continues on the entire tract. Other incentives may be provided to agricultural operations that implement and maintain best management practices. ~~Continued agricultural use may be a desirable long-term use even within land designated on the Priority Restoration Strategy Overlay as potentially eligible for protection (see Policy 9.1.7).~~

POLICY 33.1.7: Impacts of proposed ~~land disturbances~~development on surface and groundwater resources ~~will~~must be analyzed using hydrologic modeling to assess potential adverse impacts to upstream and downstream lands, current and future water resources, and natural systems within Southeast Lee County. This analysis will occur at all levels of the development review process prior to permitting in Southeast Lee. Future Land Use changes must analyze the impact of the proposed change based on the site's attributes, with more specific use, design, irrigation, and other development details applied during the rezoning application process or development order application review~~, if rezoning is not required~~. The analysis will be proportionate to the proposed impacts and use integrated surface and groundwater models ~~that utilize~~with site-specific data. Lee County's Department of Natural Resources will review and verify all models to evaluate their design and outputs, ensuring the protection of the county's natural resources, in coordination with the applicable state agencies. ~~to assess potential adverse impacts on water resources, and natural systems within Southeast Lee County. Lee County Division of Natural Resources will determine if the appropriate model or models are being utilized, and assess the design and outputs of the modeling to ensure protection of Lee County's natural resources.~~

POLICY 33.1.8: The County supports a comprehensive and coordinated effort to manage water resources in a manner that ~~includes the protection and restoration of~~ protects and restores natural systems within Southeast Lee County.

OBJECTIVE 33.2: RESIDENTIAL ~~AND MIXED USE~~ DEVELOPMENT. Residential development in Southeast Lee County in a land use category other than DR/GR and exceeding 1 unit per 10 acres must create, improve, preserve, and/or restore strategic surface and groundwater resources and indigenous wildlife habitats. ~~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 DR/GR future land use category (Improved Residential Communities).~~

POLICY 33.2.1: Residential development exceeding 1 unit per 10 acres within the Southeast Lee Community Plan Area must have a future land use designation of Conservation Community and

provide hydrological connections to regional watersheds, wildlife habitat connections to publicly or privately owned conservation lands, or strategic infrastructure connections to benefit the county's water and natural resources. Communities approved prior to DATE through a settlement agreement are exempt from this requirement under Lee Plan Chapter 13. ~~Existing acreage subdivisions are shown on Map 2-D. These subdivisions should be protected from adverse external impacts.~~

POLICY 33.2.2: The County will create a program to allow a maximum density of 1.15 units per acre for the Conservation Community future land use category in the land development code to offset the costs of improving, preserving, and restoring regional surface and groundwater resources and wildlife habitat for state- and federally listed species.

POLICY 33.2.3: Density in the Southeast Lee County Community Plan Area may not exceed 1.15 units per acre, regardless of land use category, even when the strategies in the land development code are met.

POLICY 33.2.4: Existing acreage subdivisions, as indicated in the Lee Plan Map 1-D, should be protected from adverse external impacts through appropriate mitigation measures such as, but not limited to, site configuration, setbacks, density distribution, buffers, and/or general design.

~~**POLICY 33.2.2:** Map 2-D identifies future locations for Mixed Use Communities where development rights can be concentrated from large Southeast Lee County tracts. The preferred pattern for residential development is to cluster density within Mixed Use Communities along existing roads and away from Future Limerock Mining areas.~~

~~1. Southeast Lee County Mixed Use Communities must be concentrated from contiguous property owned under single ownership or control. Residential density is calculated from the upland and wetland acreage of the entire contiguous Southeast Lee County property. Increases in residential densities may be approved through incentives as specified in the LDC for permanent protection of indigenous native uplands on the contiguous tract (up to one extra dwelling unit allowed for each five acres of preserved or restored indigenous native uplands) and through the acquisition of TDUs from TDR sending areas within Southeast Lee County as provided in Objective 33.3.~~

~~a. The maximum gross density is 5 dwelling units per acre of total land designated as a Mixed Use Community when TDUs are used.~~

~~b. Properties that concentrate development rights and/or use TDUs created from Southeast Lee County within the Mixed Use Communities identified on Map 2-D will be allowed to develop using permitted uses and the property development regulations for the C-2A zoning district.~~

c. Contiguous property under the same ownership may be developed as part of a Mixed Use Community provided it does not extend more than 400 feet beyond the perimeter of the Mixed Use Community as designated on Map 2 D.

d. Commercial uses developed as part of a Mixed Use Community will be consistent with Policy 33.2.5 and will not exceed the allowable total square footage for commercial uses in Southeast Lee County.

2. Contiguous property adjacent to the Mixed Use Community located within the Lehigh Acres Community Plan Area may sum allowable dwelling units for entire property. The resulting allowable dwelling units may be allocated across the project regardless of the underlying future land use category, provided:

a. The project is developed as a Planned Development, and

b. The project maintains 60% open space.

3. Central water and wastewater services are required to develop a Mixed Use Community.

POLICY 33.2.3: Properties within Southeast Lee County that have existing approvals for residential development inconsistent with the current DR/GR or Wetlands density requirements, may have a negative impact on surface and sub surface water resources, impact habitat, and may 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.

1. These properties may be designated on Map 2 D as "Improved Residential Communities," provided they meet all of the following requirements:
   a. Abut lands designated as future urban areas;
   b. Adjacent to and eligible for public water and sewer services;
   c. Can provide two direct accesses to an arterial roadway, and;
   d. Is not already designated on Lee Plan Map 2 D as an Existing Acreage Subdivision or a Mixed Use Community.

2. In order to request an increase in density, the property must be rezoned to a Residential Planned Development (RPD) that demonstrates and is conditioned to provide the following:
   a. Reduced stress to the onsite potable aquifers and is more consistent with water resource goals of Lee County in Southeast Lee County than the existing development approvals.
   b. Increased conservation areas, relative to the existing approvals, with a restoration plan and long term maintenance commitment.
   c. Active and passive recreational amenities.
   d. Demonstrates a net benefit for water resources, relative to the existing approvals that demonstrates the following.
      (1) Lower irrigation demand.
      (2) Eliminates private irrigation wells

(3) Protects Public wells by meeting or exceeding the requirements of the Well Field Protection Ordinance.
(4) Uses Florida Friendly Landscaping with low irrigation requirements in common elements.
(5) Connects to public water and sewer service, and must connect to reuse water when available.
(6) Reduces impervious area relative to existing approvals improving opportunities for groundwater recharge.
(7) Designed to accommodate existing or historic flow ways.

e. Includes an enhanced lake management plan, that addresses at a minimum the following issues:
(1) Best management practices for fertilizers and pesticides
(2) Erosion control and bank stabilization
(3) Lake maintenance requirements
(4) Public well field protection

f. Indigenous Management Plans must address human-wildlife coexistence.

3. Properties meeting the above criteria and requirements may be permitted additional residential dwelling units in addition to the already existing approvals, but in no case in excess of three dwelling units per DR/GR upland acre. The application for Residential Planned Development must identify the source of the additional residential dwelling units from the criteria below. Approval of the rezoning will be conditioned to reflect the source of additional dwelling units:

a. 2 dwelling units for every acre of offsite DR/GR property acquired for conservation purposes with the possibility of passive recreation activities.

b. 2 dwelling units for every additional acre of offsite DR/GR property put under a conservation easement dedicated to Lee County.

c. 1.5 dwelling units for every additional acre of onsite property put under a conservation easement.

d. 1 dwelling unit for every acre of onsite restoration, subject to restoration plan approval as part of the planned development rezoning process.

e. 2 dwelling units for every acre of non isolated DR/GR preserved primary and secondary panther habitat.

f. 2 dwelling units for every acre of protected onsite wetlands connected to a regionally significant flow way identified in the Lee Plan.

g. 1 dwelling unit for every $8,500 (the current estimated cost to purchase an acre of Southeast DR/GR land) the applicant provides to the County to extinguish density on other Southeast DR/GR parcels.

h. 1 dwelling unit for every $8,500 the applicant provides to the County to construct a planned large mammal roadway crossing in the Southeast DR/GR area.

The improvements or acquisition of properties serve to mitigate impacts of the increased density. Future "Improved Residential Communities" proposed to be added to Map 2-D must provide a reanalysis of the cost to purchase one acre of DR/GR property if criteria g. or h. are used to account for the increased density.

POLICY 33.2.4: Lands 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 lands, 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 commercial uses may be granted if the project is found consistent with and demonstrates through a planned development rezoning the following:

1. These lands are within the "Environmental Enhancement and Preservation Communities" Overlay as designated on Map 2 D of the Plan. Lands eligible for designation on the Environmental Enhancement and Preservation Communities Overlay must be consistent with the criteria below:
   - Provide significant regional hydrological and wildlife connections and have the potential to improve, preserve, and restore regional surface and groundwater resources and indigenous wildlife habitats; and
   - Be located west of Lee County 20/20 Imperial Marsh Preserve (Corkscrew Tract) and within one mile north or south of Corkscrew Road. Properties with frontage on Corkscrew Road designated as Tier 1 Priority Restoration Area may extend the Overlay an additional mile south to include contiguous Tier 1 properties where the extension will result in regional environmental benefits by connecting protected habitat north of Corkscrew Road to land in Collier County used for conservation purposes; or,
   - Be located west of the intersection of Alico Road and Corkscrew Road, north of Corkscrew Road and south of Alico Road.

2. The property is rezoned to a planned development that meets the following:
   a. Planned development must include a minimum of 60% open space, not including previously mined lakes, which will be used to accommodate the following:
      1. Restore and accommodate existing and historic regional flow ways where they currently or previously existed;
      2. Restore and accommodate existing and historic groundwater levels;
      3. Restore and preserve wetlands;
      4. Restore and preserve indigenous upland habitats;
      5. Provide critical wildlife connections to adjacent conservation areas; and
      6. Provide 100' foot buffer along Corkscrew Road East of Alico Road.
   b. Includes an enhanced lake management plan, that:
      1. Applies best management practices for fertilizers and pesticides;
      2. Provides erosion control and bank stabilization; and
      3. Establishes lake maintenance requirements.
   c. Develop a site specific ecological and hydrological restoration plan which includes at a minimum the following: preliminary excavation and grading plans, analysis of hydrological improvements and water budget narrative, replanting plan, habitat restoration plan, success criteria, long term monitoring and maintenance.
   d. Preservation areas must be platted in separate tracts and dedicated to an appropriate maintenance entity. For projects larger than 1,000 acres a CDD or a master home owners association must be created that will accept responsibility for perpetually maintaining the preservation requirements identified in the planned development, prior to issuance of certificate of compliance (CC) for first local development order.

e. Record a Conservation Easement for a minimum of 55% of the planned development, not including previously mined lakes, to be dedicated to the appropriate maintenance entity that provides Lee County or some other public agency, acceptable to Lee County, with third party enforcement rights. All Conservation Easements required as part of the planned development must be recorded within 5 years from first development order approval.
f. Indigenous management plans must address human-wildlife coexistence.
g. Uses Florida Friendly Landscaping with low irrigation requirements in common elements.
h. The stormwater management system must demonstrate through design or other means that water leaving the development meets state and federal water quality standards. The developer must obtain authorization from the Division of Natural Resources prior to discharge of stormwater from the development into the County's MS4 system directly or indirectly.
i. Irrigation and fertilizers (or other chemicals) for agricultural purposes must be entirely eliminated at time of first development order approval for row crops and no later than 5 years from first development order approval for citrus groves. If cessation of citrus groves is to be phased, a phasing plan provided at the time of zoning must demonstrate regional environmental benefits, including but not limited to regional or historic surface water and wildlife connections, occurring with the first phase of development.
j. Protects public wells through compliance with the requirements of the Well Field Protection Ordinance.
k. Each planned development within the Overlay will be required to mitigate the traffic impacts of the planned development and provide its proportionate share of the needed roadway improvements in accordance with Administrative Code (AC) 13-16. The proportionate share amount can be offset, in accordance with AC 13-16, by the dedication of needed right-of-way or the construction of improvements that would measurably lessen the need for roadway improvements, or by payment of impact fees, or use of impact fee credits, or as otherwise set forth in a written agreement between Lee County and the Developer. Prior to a final determination of a Project's proportionate share amount, compliance may be met through an enforceable instrument that obligates the property owners within a planned development to pay the Project's proportionate share, with said instrument being recorded prior to the issuance of any development order. For the developments known as WildBlue (CPA2014-00004) and Corkscrew Farms (CPA2015-00001) if the instrument is recorded prior to the final determination of the proportionate share amount, the proportionate share payment may not exceed $1,600 per unit above the road impact fee amount.
l. Connect to public water and sewer service. Connect to reuse water if available at time of development order approval.
m. Obtain written verification as to adequate public services for the planned development, from the sheriff, EMS, fire district, and Lee County School District.
n. Demonstrate that the planned development will not result in significant detrimental impacts on present or future water resources.

3. In recognition of the preservation, enhancement, and protection of regional flow ways and natural habitat corridors, the interconnection with existing off-site conservation areas, and the significant enhancement, preservation and protection of these lands, additional density may be approved through planned developments meeting the criteria and requirements outlined above as follows:

a. ~~Tier 1 lands within the Priority Restoration Strategy will be permitted a maximum density of 1 unit per acre.~~
b. ~~Tier 2 lands within the Priority Restoration Strategy will be permitted a maximum density of 1 unit per 2 acres.~~
c. ~~Other lands within the Environmental Enhancement and Preservation Overlay, outside of Tier 1 and Tier 2, meeting the requirements above will be permitted a maximum density of 1 unit per 3 acres.~~
d. ~~Density in the Environmental Enhancement and Preservation Overlay will be based upon the acreage of the entire planned development (i.e. all areas within the boundary of the planned development whether uplands, wetlands, or lakes).~~
e. ~~Additional dwelling units may be approved in the planned development by using any combination of the following:~~
~~1) Utilize the Southeast Lee County TDR program to transfer dwelling units from Southeast Lee County lands located outside of the planned development pursuant to Policy 33.3.2.~~
~~2) Provide all of the following as part of the planned development for a density increase of up to 15%:~~
~~i. A minimum of 65% open space, not including previously mined lakes; and~~
~~ii. Significant regional hydrological connections that further Lee County's flood mitigation and flow-way restoration efforts by providing:~~
~~a. Physical surface water connections to allow surface water to flow to and from adjacent properties and off-site flow ways (to be considered site-related improvements); and~~
~~b. Enhanced on-site surface water storage and flood attenuation.~~

~~4. Commercial uses may be approved as part of a mixed use planned development if the project is found consistent with all of the following:~~
~~a. The project is a minimum of 2,000 acres;~~
~~b. The project consists of both residential and commercial development and meets the minimum requirements of this policy;~~
~~c. Wetlands may not be impacted by the commercial development area;~~
~~d. The project will be consistent with Policy 33.2.5 and will not exceed the allowable total square footage for commercial uses in Southeast Lee County;~~
~~e. Commercial uses and maximum floor area is limited to Neighborhood Commercial, as defined, and must not include any of the following uses: auto parts stores, lawn and garden supply stores, fuel pump stations, drycleaners (on site), or any other use that is not compatible with protecting Southeast Lee County's environment;~~
~~f. Commercial development within the 6-month, 1-year, 5-year, or 10-year travel zones of the Wellfield Protection Ordinance must provide a total of 1½ inches of treatment, ½ inch of which must be completed via dry pretreatment, at a minimum. The entire commercial portion of the project will be considered to be within the most restrictive wellfield protection zone as provided in the Wellfield Protection Ordinance. Ground water quality monitoring well(s) for the Surficial Aquifer System must be provided and located between Lee County's nearest production well(s) and the commercial development; and~~

~~g. The human-wildlife coexistence plan required by subsection 2.f. of this policy must include a commercial component that at a minimum provides for bear-proof refuse containers, below ground grease traps, and prevents light spillage onto adjacent preserve areas.~~

~~**POLICY 33.2.5:** Commercial uses may only be permitted if incorporated into a Mixed Use Community, Environmental Enhancement and Preservation Community, or Rural Golf Course Community depicted on Map 2 D. The maximum commercial floor area that may be approved within the Southeast Lee County community plan area may not exceed 300,000 square feet.~~

OBJECTIVE 33.3: ~~SOUTHEAST LEE COUNTY TRANSFER OF DEVELOPMENT RIGHTS (Southeast Lee County TDR)~~LAND CONSERVATION PROGRAMS. To protect water resources and natural habitat of Southeast Lee County, Lee County establishes the Southeast Lee County Transferable Development Rights (TDR) and Flooding Mitigation programs. ~~may incorporate Southeast Lee County's purchase and transfer of development rights programs into the LDC.~~

POLICY 33.3.1 The ~~new~~ programs ~~may~~ create incentives for property owners or developers within Southeast Lee County to transfer development rights associated with ~~their~~ sending parcels to receiving lands outside the planning community.~~; or, residential areas identified on Map 2 D; Southeast DR/GR Residential Overlay as specified in Policy 33.3.2.~~

POLICY 33.3.2: The Southeast Lee County TDR program will have the following characteristics:

1. Creation of Transferable Development Units (Southeast Lee County TDUs).
   a. Up to one Southeast Lee County TDU may be created per five acres of preserved or indigenous wetlands.
   b. Up to two Southeast Lee County TDUs may be created from a single-family lot or parcel designated as wetlands that holds an affirmative Minimum Use Determination pursuant to Chapter XIII.
   c. Southeast Lee County TDU credits may be established from DR/GR designated lands as follows:
      1) Up to one Southeast Lee County TDU may be created for each ten upland acres encumbered by an agricultural easement.
      2) Up to one Southeast Lee County TDU may be created for each 5 upland acres with indigenous native or restored native vegetation encumbered by a conservation easement.
      ~~3) For each Southeast Lee County TDU credit allowed by c.1) or c.2) above, up to two extra TDU credits may be created if the sending area land is designated as Tier 1, Tier 2, Tier 3, or the southerly two miles of Tiers 5, 6, and 7 in the Priority Restoration Strategy (Map 1 D).~~

2. Receiving area density and intensity equivalents of Southeast Lee County TDUs.
   a. ~~In Mixed Use Communities in Southeast Lee County identified on Map 2 D, each Southeast Lee County TDU credit may be redeemed for a maximum of one dwelling unit plus a maximum of 800 square feet of non-residential floor area.~~

~~b. In Improved Residential Communities in Southeast Lee County identified on Map 2 D, each Southeast Lee County TDU credit may be redeemed for a maximum of one dwelling unit.~~

~~c. In Rural Golf Course Communities in Southeast Lee County identified on Map 2 D, each Southeast Lee County TDU credit may be redeemed for a maximum of one dwelling unit or two bed and breakfast bedrooms.~~

~~d. In Environmental Enhancement and Preservation~~ Properties within the Conservation Community ~~Communities~~ future land use category may redeem ~~identified on Map 2 D, each~~ Southeast Lee County TDU credits ~~may be redeemed~~ for a maximum of one dwelling unit per 10 acres ~~using~~when the credits are from DR/GR sending areas and a maximum of one dwelling unit per 20 acres ~~using~~ when credits are from wetland sending areas.

~~e~~b. No more than 2,000 dwelling units may be placed on receiving parcels within the Southeast Lee County Community Plan Area~~identified in subsections a. through d. above using the Southeast Lee County TDR program~~.

~~f~~c. Properties outside of the Southeast Lee County Community Plan area with ~~In the~~ Intensive Development, Central Urban, Urban Community, or General Interchange future land use ~~categories outside of Southeast Lee County, each Southeast Lee County TDU~~ may ~~be~~ redeem~~ed~~ Southeast Lee County TDUs for up to two dwelling units an acre. Southeast Lee County TDUs may not be redeemed for non-residential floor area in these future urban areas.

3. The LDC may include regulations that permit the County to evaluate the effectiveness of the Southeast Lee County TDR program and make changes that may further condition or restrict the use of Southeast Lee County TDUs.

POLICY 33.3.4: Southeast Lee County Flooding Mitigation Lands Program allows developers to purchase property in the Southeast Lee County Community Plan Area identified for strategic county hazard mitigation projects in exchange for development approvals. Purchased property must be approved and dedicated to the county. The Flooding Mitigation Lands Program will be allocated per the following:

1. For projects within the Southeast Lee County Community Plan Area, incentives will be provided per the thresholds described in the LDC.

2. For projects outside of the Southeast Lee County Community Plan Area:

    a. Additional density may be applied to the receiving site at a rate of 2 units per acre of purchased and transferred land. The maximum density may not exceed the Bonus Density allowances of the land use category.

    b. Open space at a 1-acre for every 5 acres of purchased and transferred land. No more than 25% of the required open space may be offset by this allowance.

OBJECTIVE 33.4: NONRESIDENTIAL USES. Livability in Southeast Lee County requires the allowance of nonresidential uses in addition to the uses allowed in the DR/GR to provide employment opportunities and reduce the number and duration of vehicle trips. Due to the potential environmental

impacts of certain nonresidential uses in land use categories other than the DR/GR, limitations are required to protect the County's water resources and safeguard natural resources. Similar to residential development in Southeast Lee County, nonresidential development must create, improve, preserve, and/or restore strategic surface and groundwater resources and indigenous wildlife habitats while balancing the need for commercial, industrial, and office uses to support the existing and anticipated surrounding residential development.

POLICY 33.4.1: Commercial, light industrial, and office uses within the Southeast Lee County Community Plan Area must have a future land use designation of Preservation and Innovation or Conservation Community and provide hydrological connections to regional watersheds, wildlife habitat connections to publicly- or privately-owned conservation lands, or strategic infrastructure connections to benefit the county's water resources.

POLICY 33.4.2: The County will create LDC requirements for nonresidential uses in the Southeast Lee County Community Plan Area.

POLICY 33.4.3: Nonresidential development in Southeast Lee County must demonstrate compliance with the established LDC requirements through a planned development and, when necessary, a development agreement accepted by the County Attorney's Office.

POLICY 33.4.4: To preserve open space and ensure lower-intensity development, nonresidential development in Southeast Lee County may not exceed a Floor Area Ratio of 0.25.

POLICY 56.1.10: The County will support expansion of utility service areas for all lands within a Basin Management Action Plan (BMAP) to minimize pollutants related to the use of private septic systems. The County will continue to coordinate the expansion of wastewater utilities with other private and municipal utility providers within its jurisdiction per the wastewater feasibility plans as outlined in the Clean Waterways Act (403.067(7)(a)9, F.S.).

XII. Property Rights Element

GOAL 165: In accordance with §163.3177(6)(i), Fla. Stat., the following rights will be considered in local decision-making:

1. The right of a property owner to physically possess and control his or her interests in the property, including easements, leases, or mineral rights.
2. The right of a property owner to use, maintain, develop, and improve his or her property for personal use or for the use of any other person, subject to state law and local ordinances.
3. The right of the property owner to privacy and to exclude others from the property to protect the owner's possessions and property.
4. The right of a property owner to dispose of his or her property through sale, ~~or~~ gift, or other legal conveyance.

GOAL 166: County-initiated amendments may be made from time to time to update the Lee Plan, Future Land Use Map, or other regulatory documents to further the County's long-term vision for development.

OBJECTIVE 166.1: In certain instances where a county-initiated map or text amendment to the Lee Plan, Land Development Code, or zoning map changes the allowances on a property, the previous density and use allowances may be utilized in lieu of the changes.

POLICY 166.1.1: Properties previously identified as Mixed Use Community and Rural Golf Community in the Southeast Lee County Community Plan area may choose to develop under the regulations in effect prior to DATE by ORDINANCE, including requirements to concentrate development rights through the Southeast Lee County TDU program.

POLICY 166.1.2: Properties in the Southeast Lee County Community Plan Area whose land use was changed from DR/GR to Preservation and Innovation future land use category may retain the use and density allowances effective prior to DATE of Ordinance, in lieu of the Preservation and Innovation allowances. However, in no instance shall the density exceed 1 unit per 10 acres.

XIV. Glossary

COMMERCIAL DEVELOPMENT -- A use involving, in whole or in part, the sale of merchandise, materials, or services. Commercial development may include retail, wholesaling, personal services, temporary accommodations, recreation, office, or other uses that involve the transfer or sale of goods or services.

MINOR – Commercial development that ~~provides for the sale of convenience goods and services and~~ contains less than 30,000 square feet of gross floor area.

NEIGHBORHOOD – Commercial development that ~~provides for the sale of convenience goods and personal services, such as food, drug, sundries, and hardware items and~~ has a gross floor area range of 30,000 to 100,000 square feet.

COMMUNITY – Commercial development that ~~provides for the sale of retail goods such as clothing, variety items, appliances, and furniture as well as goods that may be found in a neighborhood commercial development and~~ has a gross floor area range of 100,000 to 400,000 square feet.

REGIONAL – Commercial development ~~that provides some functions of community commercial, in addition to providing a full range and variety of shopping goods for comparative shopping (such as general merchandise, apparel, furniture, and home furnishings) and~~ has a gross floor area range of 400,000 to 1 million square feet.

DISCOURAGED – To dissuade or attempt to dissuade from doing something, but not to prohibit outright; an unwanted action, not a prohibited one.

ENCOURAGED – A wanted action, but not the only action that may be acceptable.

FUTURE NON-URBAN AREAS – Those categories on the Future Land Use Map that are designated primarily for single use developments with a density equal to or less than 1 unit per acre unless otherwise allowed within a special treatment area identified in Objective 1.7: Rural, Rural Community Preserve, Coastal Rural, Outer Island, Open Lands, Wetlands, Conservation Lands (upland and wetland), New

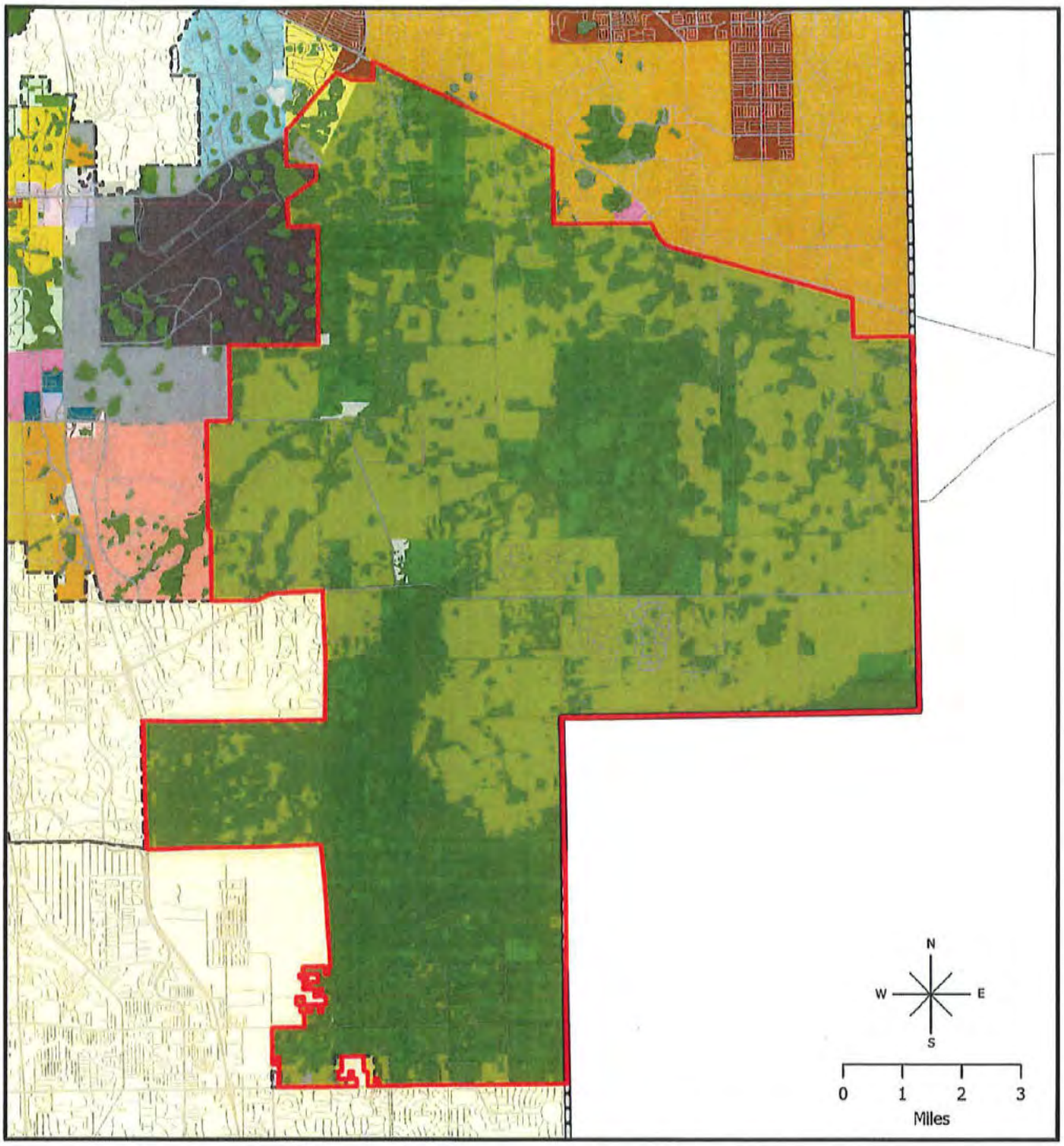
Community within the North Olga Planning Community, Conservation Community, and Density Reduction/Groundwater Resource.

FUTURE SUBURBAN AREAS – Those future urban categories on the Future Land Use Map that are designated primarily for single use developments: Suburban, Outlying Suburban, Sub-Outlying Suburban, Industrial Development, Airport, Tradeport, Innovation and Preservation, Commercial, Industrial Interchange, General Commercial Interchange, Industrial Commercial Interchange, University Village Interchange, University Community, Public Facilities, and the New Community within the Gateway/Airport Planning Community.

INDUSTRIAL DEVELOPMENT – A business use or activity involving manufacturing, fabrication, assembly, warehousing, and/or storage.

> **INDUSTRIAL, HEAVY** – Manufacturing, resource refinement or extraction, other enterprises with significant external effects, or enterprises that pose significant risks due to the involvement of explosives, radioactive materials, poisons, pesticides, herbicides, or other hazardous materials in manufacturing or other processes. The location of a use does not indicate whether it is considered heavy industrial. Heavy Industrial uses can be inside or outside a building.
>
> **INDUSTRIAL, LIGHT** – A use that involves the manufacturing, production, processing, fabrication, testing, assembly, treatment, repair, packaging, or warehousing of finished products within a building, without a noticeable amount of noise, dust, odor, smoke, glare, or vibrations.

Exhibit A "Map Amendments"



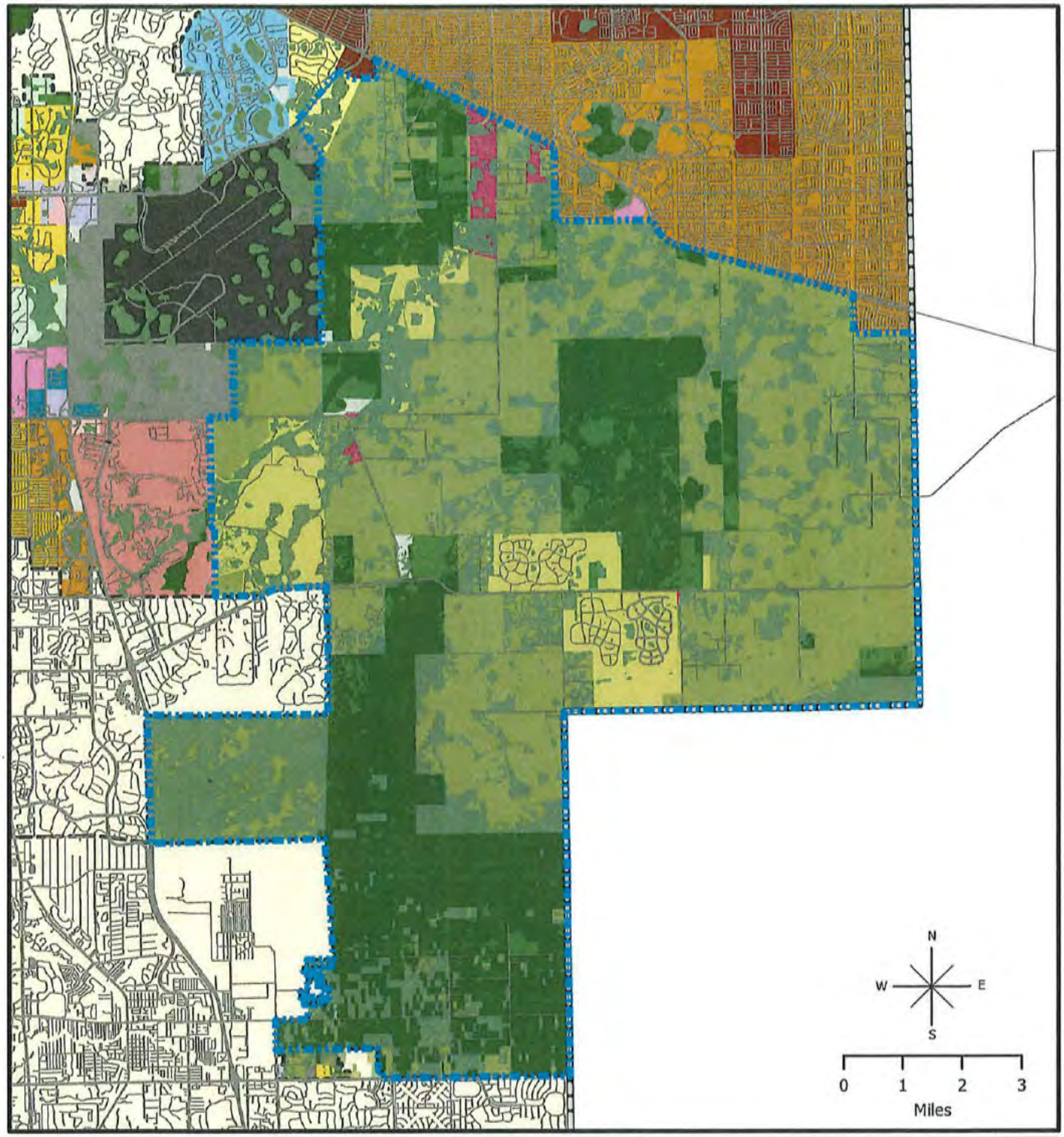
CPA2026-00004

Existing Future Land Use

- Airport
- Central Urban
- Conservation Lands Upland
- Conservation Lands Wetland
- Density Reduction/ Groundwater Resource
- General Interchange
- Industrial Commercial Interchange
- Industrial Development
- Intensive Development
- New Community
- Outlying Suburban
- Public Facilities
- Rural
- Sub-Outlying Suburban
- Suburban
- Tradeport
- University Community
- University Village Interchange
- Urban Community
- Wetlands
- Southeast Lee County
- City Limits

Lee County

Map Generated: July 2026



CPA2026-00004

Proposed Future Land Use

Existing Future Land Use Categories

- Airport
- Central Urban
- Conservation Lands Upland
- Conservation Lands Wetland
- Density Reduction/ Groundwater Resource
- General Interchange
- Industrial Commercial Interchange
- Industrial Development
- Intensive Development
- New Community
- Outlying Suburban
- Public Facilities
- Rural
- Sub-Outlying Suburban
- Suburban
- Tradeport
- University Community
- University Village Interchange
- Urban Community
- Wetlands

Proposed Future Land Use Categories

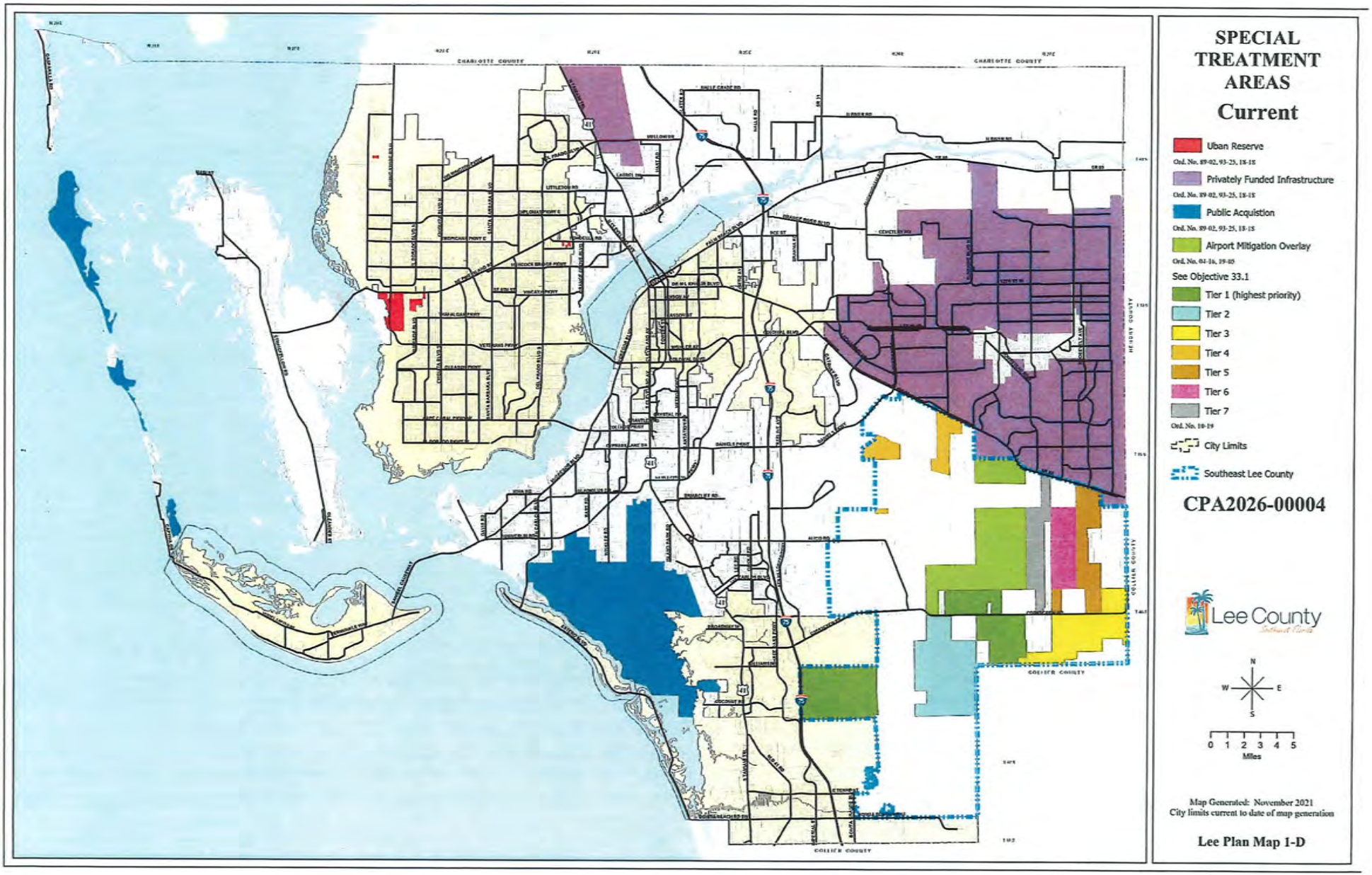
- Preservation and Innovation
- Conservation Community

Southeast Lee County

City Limits

Lee County
Southwest Florida

Map Generated: July 2026



SPECIAL TREATMENT AREAS

Current

- Uban Reserve
  Ord. No. 89-02, 93-25, 18-18
- Privately Funded Infrastructure
  Ord. No. 89-02, 93-25, 18-18
- Public Acquistion
  Ord. No. 89-02, 93-25, 18-18
- Airport Mitigation Overlay
  Ord. No. 04-16, 19-05

See Objective 33.1

- Tier 1 (highest priority)
- Tier 2
- Tier 3
- Tier 4
- Tier 5
- Tier 6
- Tier 7

Ord. No. 10-19

- City Limits
- Southeast Lee County

CPA2026-00004

Lee County

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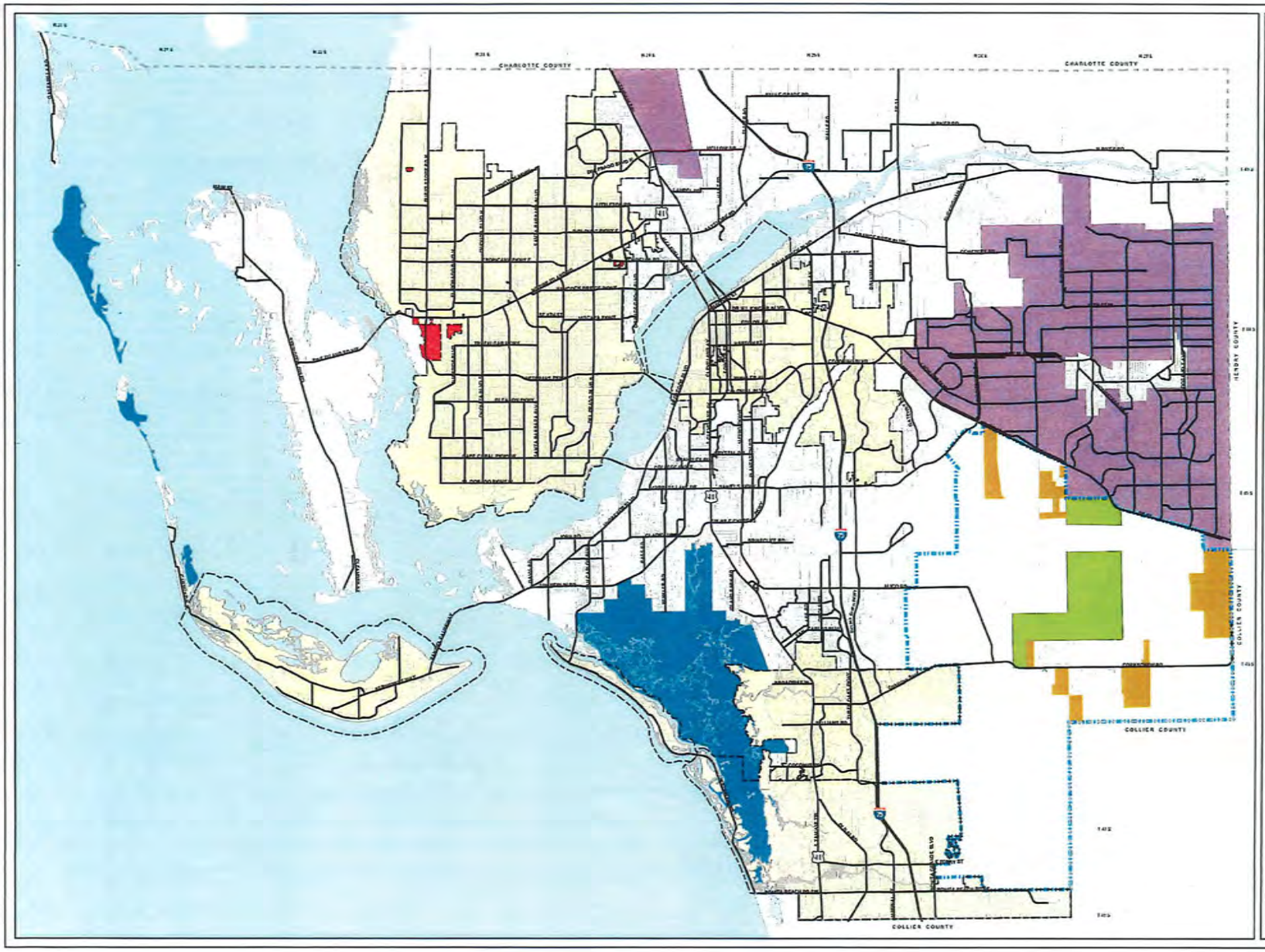
Map Generated: November 2021
City limits current to date of map generation

Lee Plan Map 1-D



SPECIAL TREATMENT AREAS

PROPOSED

- Urban Reserve
  Ord. No. 89-02, 93-25, 18-18
- Privately Funded Infrastructure
  Ord. No. 89-02, 93-25, 18-18
- Public Acquistion
  Ord. No. 89-02, 93-25, 18-18
- Airport Mitigation Overlay
  Ord. No. 04-16, 19-05

Rural Residential Overlay

- Existing Acreage Subd.
- Rural Golf Course Community

Ord. No. 18-19, 18-21, 18-43, 12-24, 14-21, 15-13, 15-14, 17-06, 17-23, 17-24, 19-24

- City Limits
- Southeast Lee County

CPA2026-00004

Lee County
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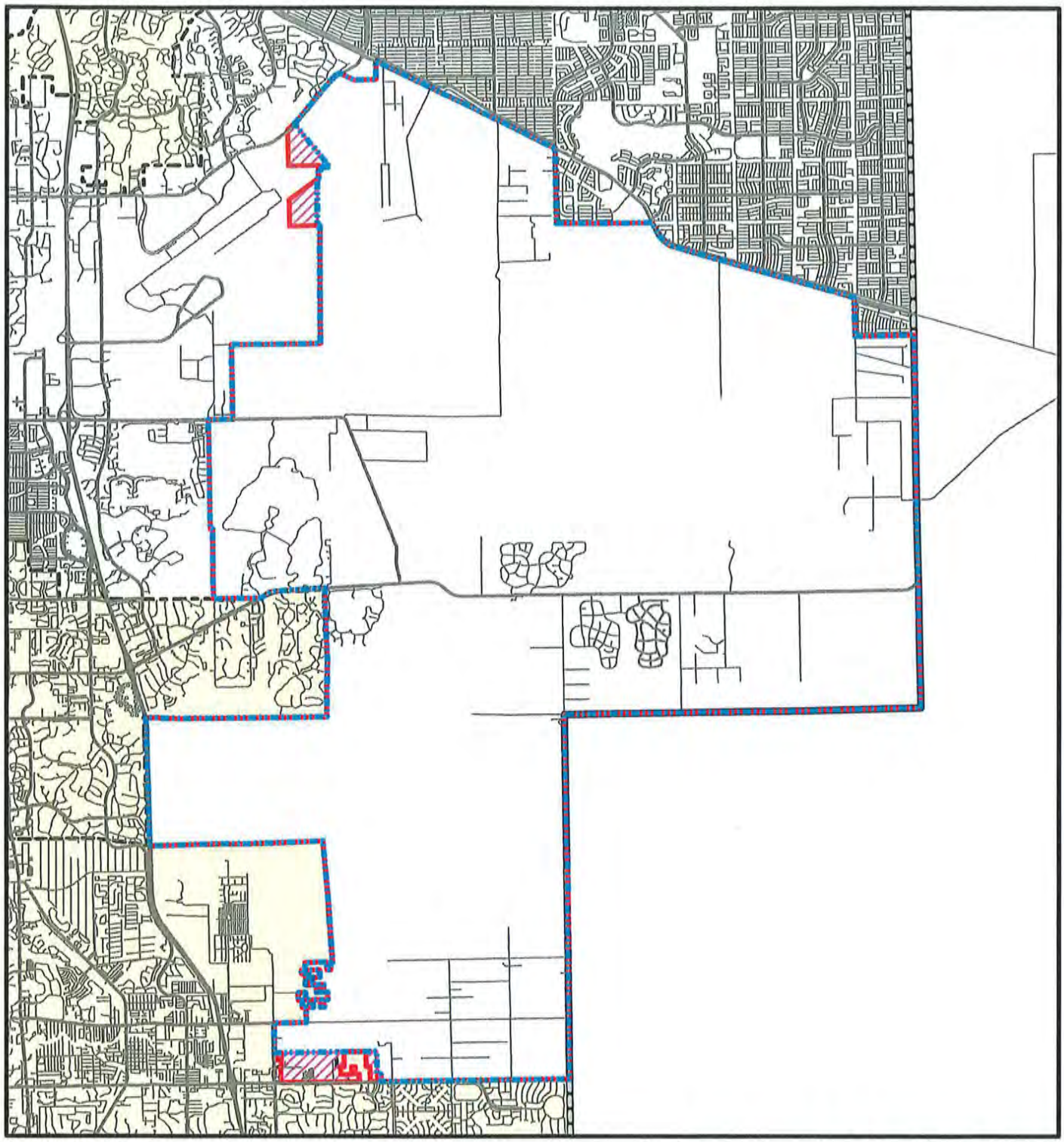
Map Generated: July 2026
City limits current to date of map generation

Lee Plan Map 1-D



CPA2026-00004

Community Planning Areas

Lee County
Southwest Florida

City Limits

Area to be removed

Southeast Lee County

Southeast Lee County

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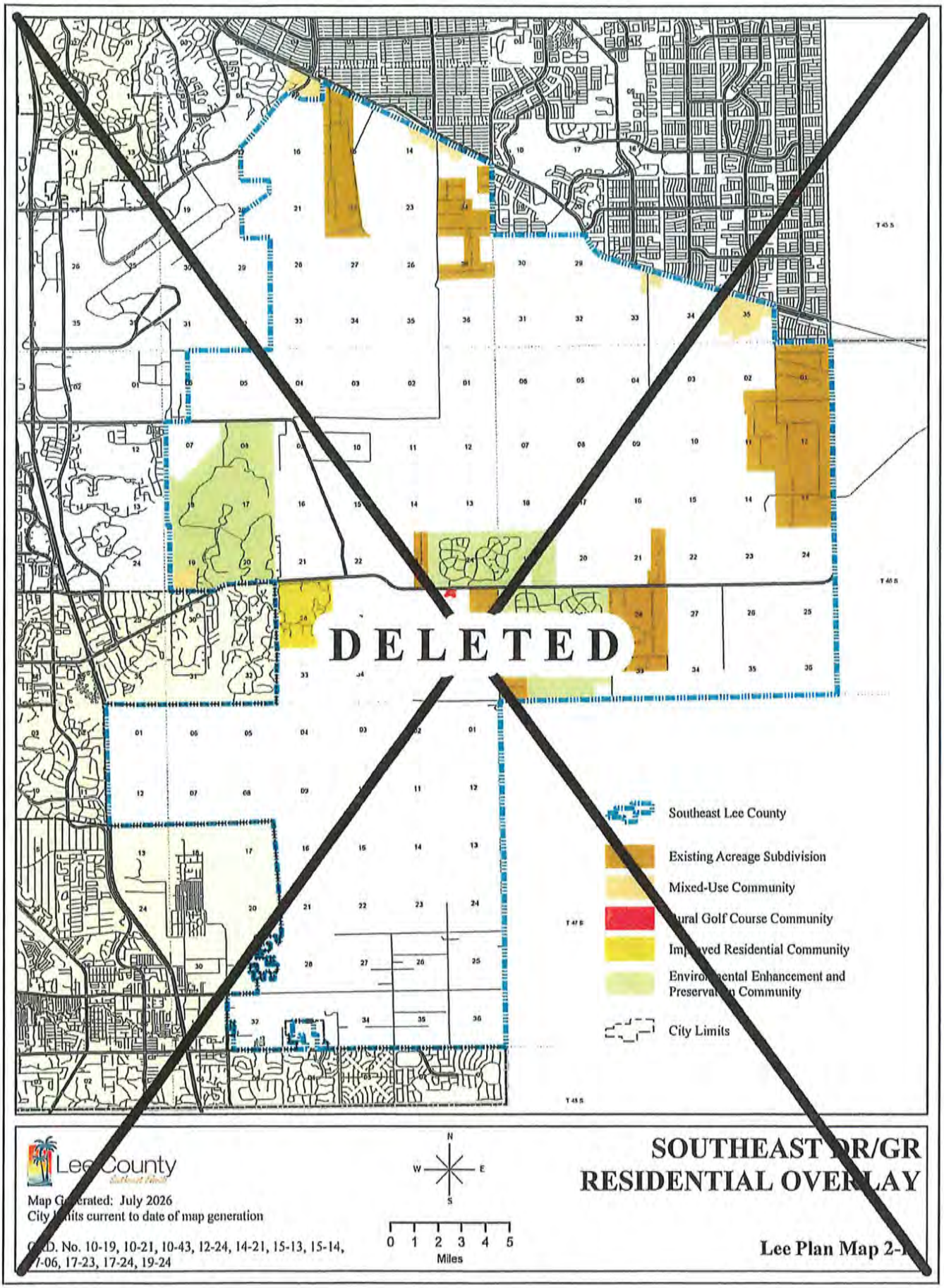
Map Generated: August 2026



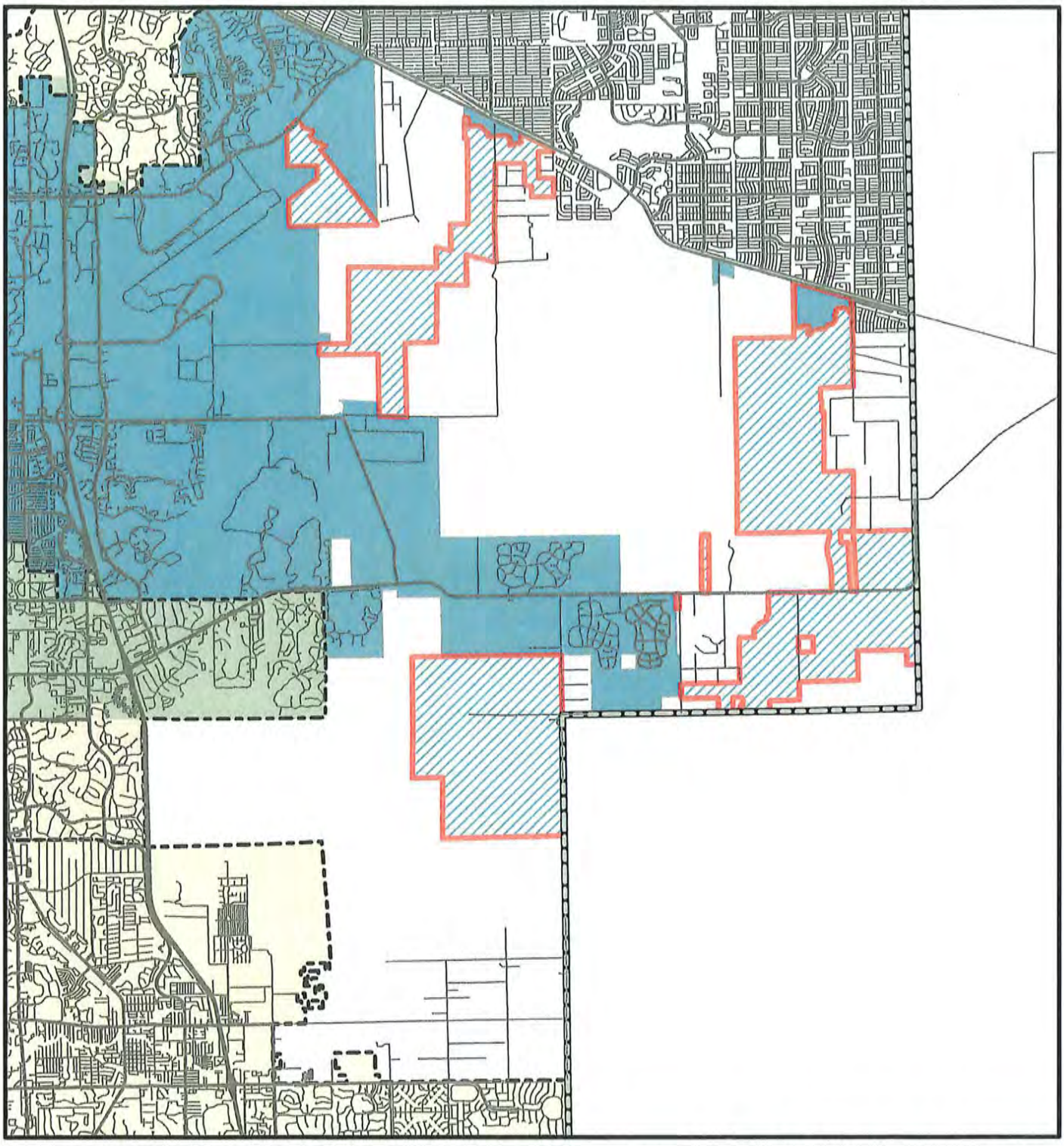
Lee County

Map Generated: July 2026
City limits current to date of map generation

CPD. No. 10-19, 10-21, 10-43, 12-24, 14-21, 15-13, 15-14, 17-06, 17-23, 17-24, 19-24

SOUTHEAST DR/GR RESIDENTIAL OVERLAY

Lee Plan Map 2-



CPA2026-00004

Future Water Service Areas

Lee County
Southwest Florida

City Limits

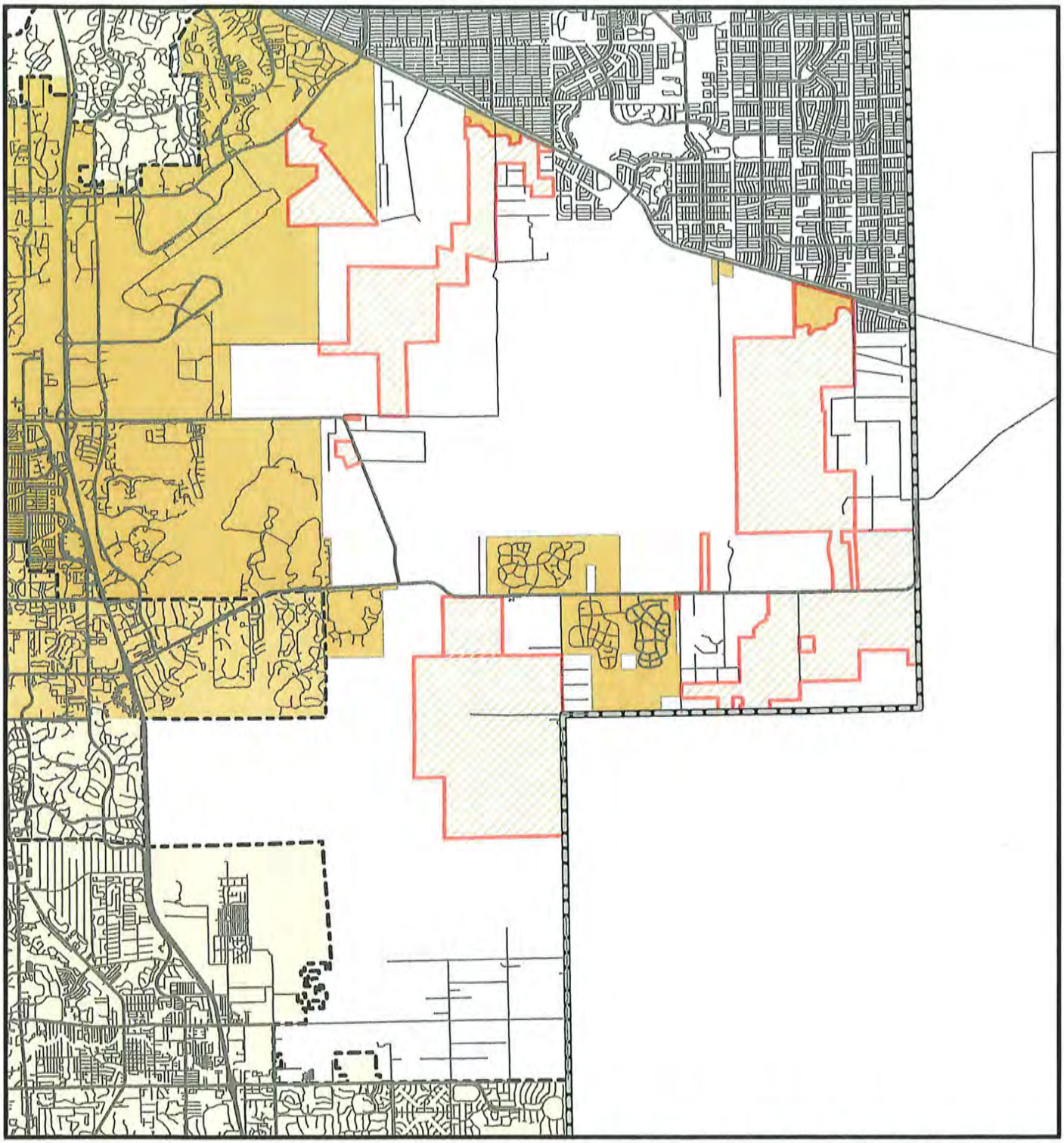
Proposed Future Water Service Areas

Existing Future Water Service Areas

N
W E
S

0 1 2 3
Miles

Map Generated: August 2026



CPA2026-00004

Future Sanitary Sewer Service Areas

Lee County
Southwest Florida

City Limits

Proposed Future Sewer Service Areas

Existing Future Sewer Service Areas

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Exhibit A "Table Amendments"

TABLE 1(a)
SUMMARY OF RESIDENTIAL DENSITIES[1]

FUTURE LAND USE CATEGORY	STANDARD OR BASE DENSITY RANGE		BONUS DENSITY
	MINIMUM[2] (Dwelling Units per Gross Acre)	MAXIMUM (Dwelling Units per Gross Acre)	MAXIMUM TOTAL DENSITY[3] (Dwelling Units per Gross Acre)
Intensive Development[14]	8	14	22
General Interchange[2]	8	14	22
Central Urban[15]	4	10	15
Urban Community[4,5,16]	1	6	10
Suburban[17]	1	6	No Bonus
Outlying Suburban	1	3	No Bonus
Sub-Outlying Suburban	1	2	No Bonus
Conservation Community[13]	No Minimum	1.15	No Bonus
Rural[10]	No Minimum	1	No Bonus
Outer Islands	No Minimum	1	No Bonus
Rural Community Preserve[6]	No Minimum	1	No Bonus
Open Lands[7]	No Minimum	1 du/10 acres	No Bonus
Density Reduction/Groundwater Resource[13]	No Minimum	1 du/10 acres	No Bonus
Wetlands[8]	No Minimum	1 du/20 acres	No Bonus
New Community[19]	No Minimum	6	No Bonus
University Community[9]	1	2.5	No Bonus
Destination Resort Mixed Use Water Dependent[11]	6	9.36	No Bonus
Burnt Store Marina Village[12]	No Minimum	160 Dwelling Units; 145 Hotel Units	No Bonus
Coastal Rural[18]	No Minimum	1 du/2.7 acres	No Bonus

CLARIFICATIONS AND EXCEPTIONS

[1]See the glossary in Chapter XII for the full definition of "density".

[2]Except in the General Interchange future land use category adherence to minimum densities is not mandatory but is recommended to promote compact development.

[3]These maximum densities may be permitted by transferring density from non-contiguous land through the provisions of the Bonus Density Program identified in the LDC, Chapter 2.

[4]Within the Future Urban Areas of Pine Island Center, rezonings that will allow in excess of 3 du/acre must "acquire" the density above 3 du/acre utilizing Greater Pine Island TDUs (see Objective 24.6), or transfer dwelling units in accordance with Policy 24.3.4.

[5]In all cases on Gasparilla Island, the maximum density must not exceed 3 du/acre.

[6]Within the Buckingham area, new residential lots must have a minimum of 43,560 square feet.

[7]A maximum density of 1 du/5 acres can only be approved through the planned development process (see Policy 1.4.4), except in the approximately 135 acres of land lying east of US41 and north of Alico Road in the northwest corner of Section 5, Township 46, Range 25.

[8]Higher densities may be allowed under the following circumstances where wetlands are preserved on the subject site:

(a) If the dwelling units are relocated off-site through the TDR program provided in LDC, Chapter 2; or
(b) Dwelling units may be relocated to developable contiguous uplands designated Intensive Development, General Interchange, Central Urban, Urban Community, Suburban, Outlying Suburban, Sub-Outlying Suburban, and New Community from preserved freshwater wetlands at the same underlying density as permitted for those uplands (see Policy 124.1.1). Impacted wetlands will be calculated at the standard Wetlands density of 1 du/20 acres. Planned developments or development orders approved prior to October 20, 2010 are permitted the density approved prior to the adoption of CPA2008-18.

[9]The overall average density for the University Village sub-district must not exceed 2.5 du/acre.

[10]In the Rural category located in Section 24, Township 43 South, Range 23 East and south of Gator Slough, the maximum density is 1 du/2.25 acres.

[11]The overall number of residential dwelling units is limited to 271 units in the DRMUWD future land use category.

[12]The residential dwelling units and hotel development portions of this redevelopment project must be located outside of the designated Coastal High Hazard Area in accordance with Map 5-A.

[13]~~See Objectives 33.2 and 33.3 for potential density adjustments.~~ The maximum density in the Conservation Community future land use category is 1.15, inclusive of wetlands located within project boundaries (see Policies 1.4.8 and 33.2.2).

[14]The maximum total density may be increased to 30 du/acre utilizing Greater Pine Island TDUs.

[15]The maximum total density may be increased to 20 du/acre utilizing Greater Pine Island TDUs.

[16]The maximum total density may be increased to 15 du/acre utilizing Greater Pine Island TDUs.

[17]The maximum total density may be increased to 8 du/acre utilizing Greater Pine Island TDUs.

[18]The standard maximum density is 1 du/2.7 acres unless the "Adjusted Maximum Density" of 1 du/acre is achieved (see Policy 1.4.7 and LDC, Chapter 33).

[19]The maximum density in the New Community future land use category is limited to 1 du/1.9 acres in the North Olga Community Plan area (see Policy 1.1.15).

STAFF REPORT FOR CPA2026-00004:
Southeast Lee County Update

County-Initiated Lee Plan Map and Text Amendments

Recommendation:
Adopt

Applicant:
Lee County BOCC
Direction on April 21, 2026

Representatives:
Lee County Planning Section, Department of Community Development

Amended Elements:
Future Land Use
Community Facilities and Services
Property Rights
Glossary

Amended Maps:
1-A, 1-D, 2-A, 2-D, 4-A, 4-B

Amended Tables:
1(a)

Planning District:
District 18, Southeast Lee

Commissioner Districts:
District 2 – Cecil Pendergrass
District 3—David Mulika

Hearing Dates:
LPA: July 27, 2026
BOCC #1: August 19, 2026
BOCC #2: October 21, 2026

Attachment(s):
1: Proposed Amendments
2: Draft LDC Amendments
3: Response to SFWMD

REQUEST

- Amend the Lee Plan's Future Land Use Element, Public Facilities and Services Element, Property Rights Element, Glossary, and Appendix to update the Southeast Lee County Community Plan Area, update policies related to development in Southeast Lee, and the related maps and table to better reflect current conditions, remove overlays and allow nonresidential uses to simplify regulations and reduce redundancies, and establish guardrails for development that will adequately protect the county's water resources and wildlife habitat in the future.
- Move the Planned Development requirements for Southeast Lee County to the Land Development Code (LDC).

SUMMARY

This amendment to the Lee Plan was initiated by the county in response to eleven privately-initiated amendments within the Southeast Lee County Community Plan Area. The proposed modifications will update the Lee Plan and introduce a new Southeast Lee County section to the Land Development Code (LDC). These LDC updates will follow the standard LDC amendment procedures. Planning staff collaborated extensively with County departments, private applicants, conservation organizations, and public stakeholders throughout the development of these proposed changes.

RECOMMENDATION

Staff recommends that the Board of County Commissioners (BoCC) ***adopt*** the proposed amendment as shown in Attachment 1.

PART 1
STAFF DISCUSSION AND ANALYSIS

BACKGROUND

The Southeast Lee County Community Plan Area encompasses most lands south of SR 82, east of Gateway, the Southwest Florida International Airport (RSW), the Village of Estero, and the City of Bonita Springs, and north of Bonita Beach Road. Lee Plan Goal 33 provides the goals and policies for development in this area. Goal 33 is provided below.

> ***GOAL 33: SOUTHEAST LEE COUNTY.*** *Protect Southeast Lee County's natural resources through public and private acquisition and restoration efforts. Development incentives will be utilized as a mechanism to preserve, enhance, and protect natural resources, such as regional flow-ways and natural habitat corridors in the development of privately owned land. Allowable land uses will include conservation, agriculture, public facilities, low density or clustered residential, natural resource extraction operations, and private recreation facilities; allowable land uses must be compatible with protecting Southeast Lee County's environment.*

This goal is currently supported by three (3) objectives: Objective 33.1, Water, Habitat, and Other Natural Resources; Objective 33.2, Residential and Mixed-Use Development; and Objective 33.3, Southeast Lee County Transfer of Development Rights Program. Generally, these objectives protect natural resources, limit development to the areas indicated on Map 2-D, and incentivize relocating development to uplands or other parts of the County.

The Southeast Lee Community Plan Area emphasizes conserving water resources and improving water quality. Southeast Lee County supports many of the county's wellfields for public water supply. Ensuring long-term water conservation and preservation is very important in this part of the county. See Figure 2.

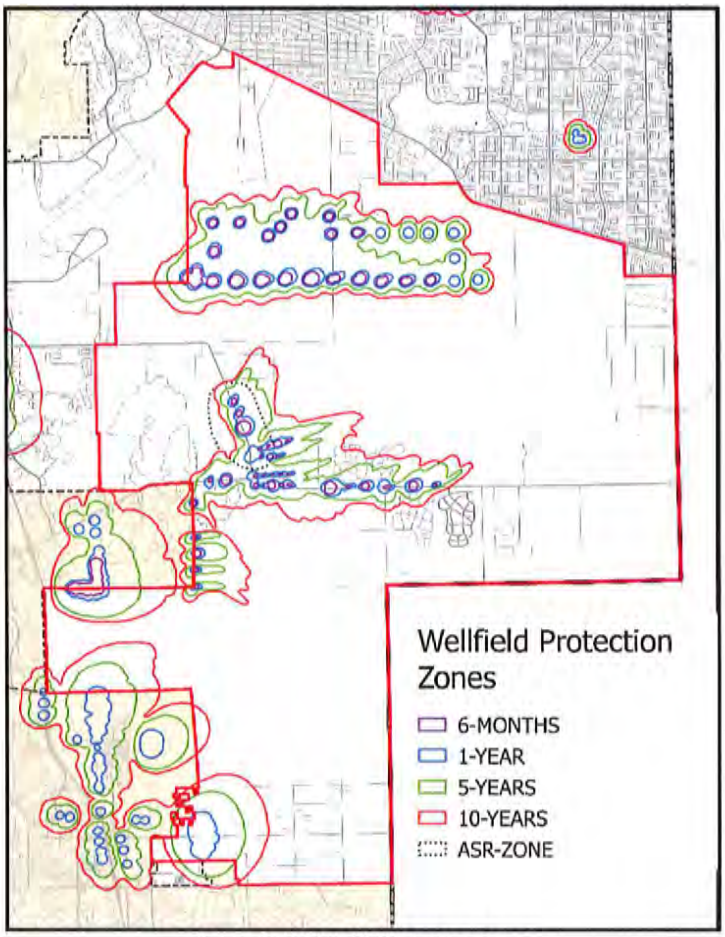


Figure 1: Wellfield Protection Zones

This area of the county is generally characterized by very low-density development (less than 1 unit per acre) and active mines. The predominant land use categories in Southeast Lee County are Density Reduction/Groundwater Resource (DR/GR), Conservation, and Wetlands. There are a number of properties with existing Tradeport, General Interchange, and Public Facilities designations.

The Density Reduction/Groundwater Resource (DR/GR) designation was given to most of Southeast Lee County in 1990 to settle a legal dispute with the Florida Department of Community Affairs, the State planning agency, for two main reasons. First, to protect the shallow aquifers, which are underground water sources. Second, the state required Lee County to reduce its projected population by allocating a lower population limit using the Future Land Use Map and Table 1(b). At that time, Florida's Growth Management Act required local governments to plan for a maximum population; however, this requirement was removed in 2011.

In 2008, Dover, Kohl & Partners completed a four-part study for the county. This study helped create the Southeast Lee Community Plan Area and its associated overlay districts. The study included "Prospects for Southeast Lee County: Planning for the Density Reduction/Groundwater Resource Area (DR/GR)," "Natural Resource Strategies for Southeast Lee County," "Transferable Development Rights In Southeast Lee County," and "Proposed Lee Plan Amendments for Southeast Lee County." The four-part study was in response to direction by the Board of County Commissioners (BOCC) to take a proactive role in addressing competing needs in Southeast Lee County and to identify appropriate locations for various uses of land. The study helped develop Maps 1-D and 2-D and resulted in the establishment of Goal 33, Southeast Lee County.

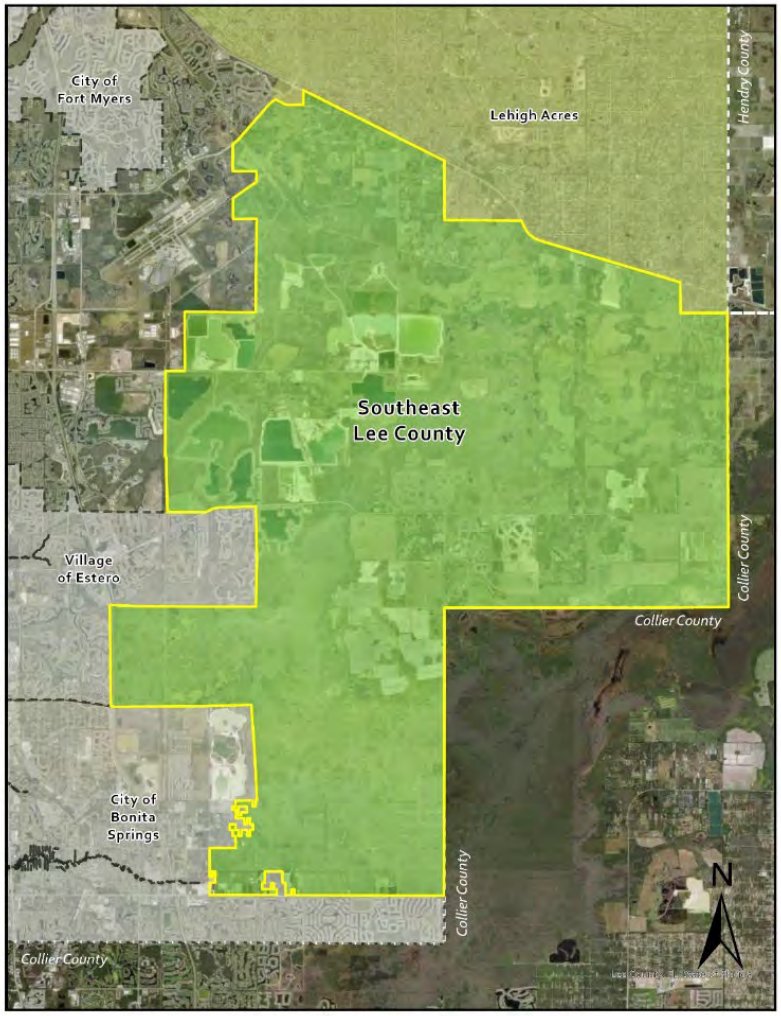


Figure 2: Southeast Lee Existing Boundary and Surrounding Communities

The majority of Southeast Lee is located just South of Lehigh Acres and borders Collier County. Currently, Southeast Lee is a mixture of semi-platted large-lot subdivisions, planned residential and mixed-use developments, mines, golf communities, and agricultural estates. The residential and mixed-use communities are mostly located along Corkscrew Road. Kingston is a new mixed-use community connecting Lehigh Acres on the North side of State Road 82 to Corkscrew Road. The County has acquired property between Alico Road and State Road 82 to extend Alico Road to connect with Sunshine Boulevard, thereby establishing a new major North-South connector between Lehigh Acres and the employment centers located in proximity to Alico Road, RSW, and Florida Gulf Coast University.

The southwestern corner of Southeast Lee borders the City of Bonita Springs. This area has a

distinctly different development pattern from Southeast Lee as a whole. Currently, there is a townhouse development, farm worker housing, and a couple of existing large lot residential developments. See Figure 3 for a General Location Map of Southeast Lee on page 3.

A large percentage of the Southeast Lee County Community Plan Area is preservation areas owned by the State of Florida, Lee County, or other conservation groups. See Figure 5. Additionally, most of Southeast Lee County is also designated as primary or secondary panther habitat. See Figure 4, Panther Habitat.

The Southeast Lee County Community Plan Area was adopted in 2010. In the last few years, Southeast Lee County has seen significant new development driven by court decisions and existing Lee Plan programs. This growth has led to expanded road networks and utility infrastructure, increasing demand for new types of development, as evidenced by the volume of privately initiated amendments. The Southeast Lee County Community Plan Area and related Lee Plan policies should be updated to guarantee that future growth in this area preserves the County's natural resources and aligns with its long-term development vision.

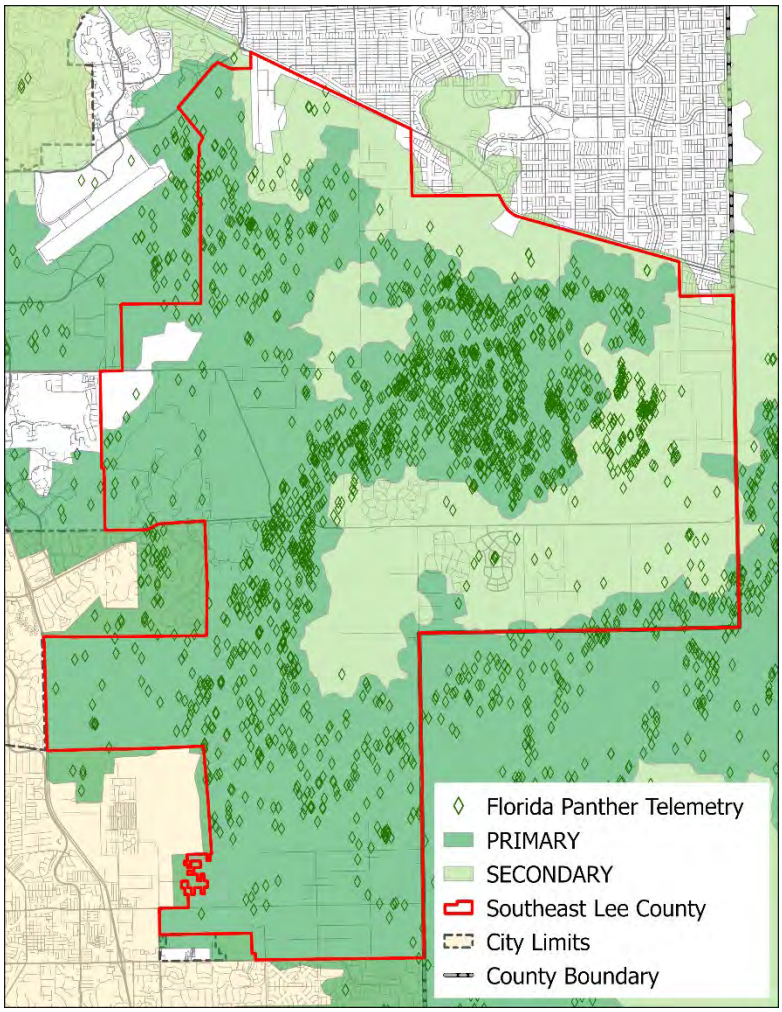


Figure 3: Panther Habitat

On April 1, 2025, the BOCC directed staff, "to bring back proposed amendments to increase efficiency, reduce unnecessary regulations, while maintaining the protections of public health safety and welfare, and meeting State and Federal mandates." The proposed amendments are directly related to this motion. Because the motion applied broadly to the Lee Plan and Land Development Code, staff anticipates that additional amendments made under this direction may affect the final location of the Southeast Lee amendment package within the text of the Lee Plan.

From 2023 to 2026, the County's Planning Section received eleven privately initiated text and map amendments to support projects within the Southeast Lee County Community Plan Area. Rather than reviewing each case separately, staff asked the Board of County Commissioners for specific direction to consider the text amendment requests collectively to ensure clear, consistent language, reduce redundancies, and increase efficiency, consistent with the Board's April 1, 2025, direction. **The Board**

directed staff to proceed with County-Initiated Amendments to Southeast Lee County on April 21, 2026, with two unanimously approved motions:

1. *Direct staff to prepare amendments to the Lee Plan, relating to the Southeast Lee County Community Plan Area, to manage growth, streamline the Southeast Lee County Overlays, reduce unnecessary regulations, and encourage development that preserves or restores the County's natural resources.*
2. *Direct staff to pause processing the following privately-initiated text amendments to the Southeast Lee County Community Plan Area: CPA2024-00002, CPA2024-00012, CPA2025-00006, and CPA2026-00001.*

Table 1 lists the privately initiated amendments and their general requests to illustrate the importance of a county-initiated amendment and to provide a reference based on the application numbers and requests in this report. The data and analysis provided in the privately initiated requests may also be used to justify the County-Initiated text and map amendments. All of the application materials for the privately-initiated amendments are incorporated by reference into the county-initiated amendment. When data from a privately initiated request is used, staff will provide a citation in the footnotes indicating which application it originated from.

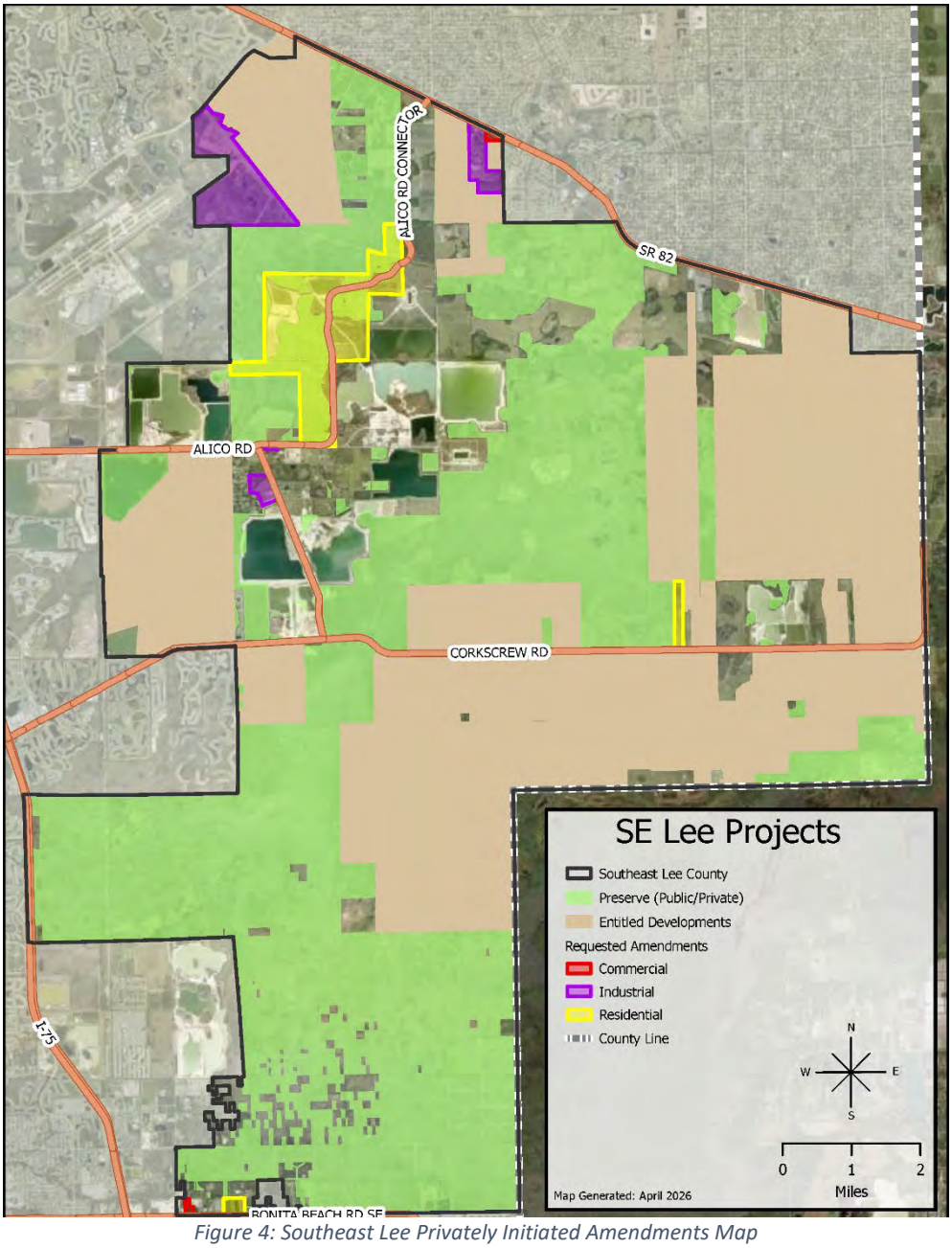


Figure 4: Southeast Lee Privately Initiated Amendments Map

Table 1: Privately-Initiated CPA Requests

CASE NUMBER	PROJECT NAME	REQUEST	CONSULTING TEAM
CPA2023-00009	Dante Commercial	• Map 1-A (DR/GR & Wetlands to Commercial & Wetlands) • Map 1-F (Remove Private Rec Fac. Overlay)	RVi Planning + Landscape Architecture
CPA2024-00001	Bonita Beach Commercial	• Map 1-A (DR/GR & Wetlands to Sub-Outlying Suburban & Wetlands)	RVi Planning + Landscape Architecture
CPA2024-00002	Bonita Beach Commercial	Text Amendment to remove the commercial cap in Policy 33.2.5 and allow commercial uses in Goal 33	RVi Planning + Landscape Architecture
CPA2024-00011	Corkscrew 80 Residential	• Map 1-D (Designate as Tier 1) • Map 2-D (Designate as EEPCO • Maps 4-A and 4-B (LCU Water and Sewer Services Areas)	RVi Planning + Landscape Architecture
CPA2024-00012	Corkscrew 80 Residential	Text Amendment to changes for Goal 33 to change the EEPCO locational and size requirements	RVi Planning + Landscape Architecture
CPA2025-00006	Alico Tradeport Industrial	Text Amendment to Goal 33 to allow industrial uses in Southeast Lee	Ensite
CPA2025-00009	Daniels Tradeport Industrial	• Map 1-A (DR/GR & Wetlands to Tradeport & Wetlands) • Map 2-A (Remove property from Southeast Lee) • Maps 4-A and 4-B (LCU Water and Sewer Areas)	Morris DePew & Associates
CPA2025-00010	Alico Tradeport Industrial	• Map 1-A (DR/GR to Tradeport) • Maps 4-A and 4-B (LCU Water and Sewer Areas)	Ensite
CPA2025-00011	SR 82 Freeman Industrial	• Map 1-A (DR/GR to Tradeport) • Maps 4-A and 4-B (LCU Water and Sewer Areas)	RVi Planning + Landscape Architecture
CPA2025-00013	White Willow Residential	• Map 1-A (DR/GR to Outlying Suburban)	Daniel Delisi
CPA2026-00001	Bluewater Ridge Residential	Text Amendments to Goal 33 to create a new mine reclamation overlay to facilitate new residential development on an existing mine site	RVi Planning + Landscape Architecture

Staff's proposed amendments balance the privately initiated amendment requests with the county's interest in long-term water quality, appropriate development standards, and environmental protection by examining community needs, environmental conditions, and private property rights. Staff's proposed language minimizes redundancy and inconsistency and addresses the County's overarching goals for the Southeast Lee County Community Plan Area.

PROCEDURAL REQUIREMENTS

The Lee Plan is Lee County's comprehensive plan, providing the long-term vision for the county's development. Florida Statutes require comprehensive plans to include certain topics as elements. The Lee Plan divides these elements into chapters, which are further supported by goals, objectives, standards, and policies. Lee Plan Chapter XIII, entitled Administration, section "d" addresses Amendments to the Plan. The applicable paragraph is reproduced below.

> *This plan, including the Future Land Use Map, may be amended in accordance with Florida Statutes and administrative procedures adopted by the Board of County Commissioners in Lee County Administrative Code 13-6. In accordance with § 163.3177(1)(f), Fla. Stat., all amendments must be based upon relevant and appropriate data and analysis.*

Lee County Administrative Code 13-6 establishes procedures for amending the Lee Plan, including notice requirements and public participation provisions. According to Florida Statutes and AC 13-6, the proposed amendments are County-Initiated Amendments, meaning they are proposed amendments directed by an affirmative vote of three or more Commissioners. The BOCC provided specific direction to pursue these amendments on April 21, 2026, in addition to the previous direction to simplify the LDC and Lee Plan provided on April 1, 2025.

County-initiated amendments have slightly different requirements from privately initiated amendments. According to AC 13-6, County-Initiated Amendments must follow sections C and D.1. Sections B and D.2, which set forth requirements for applications, fees, and Courtesy Notices, do not apply. No sign postings or mailed Courtesy Notices are required under AC 13-6 or Florida Statute, even though the proposed amendments would change the Future Land Use designations for privately owned properties. **The proposed amendments have followed the applicable procedures under AC 13-6.**

County-initiated amendments follow the **Expedited State Review** process under F.S. 163.3184(2)(a), which requires one public hearing before the Local Planning Agency for a recommendation to the BOCC and two public hearings before the BOCC. Applications that follow the Expedited State Review process also require review by the State Reviewing Agencies. **The proposed amendments will continue to follow the applicable process under F.S. 163.3184.**

PUBLIC OUTREACH & DEPARTMENT COLLABORATION

Lee Plan Objective 17.3 states that the county will "provide opportunities for public input as part of the comprehensive plan and land development code process." The Southeast Lee County Amendments have included extensive input from the public and subject-matter experts in Lee County, as well as professionals from local nonprofit organizations and consulting firms.

Most of the privately-initiated amendments shown in Table 1 on page 6 held public information meetings regarding their proposed amendments, consistent with Objective 17.3, even though none of the applications have been found sufficient as of the date of this report. Table 2 provides the dates and locations of the public input meetings held by the applicants for the privately-initiated requests**. These**

meetings covered only the application requests in the context of the Lee Plan at the time of the meeting, but they did provide an opportunity for the public to ask questions and provide feedback on the application requests.

Table 2: Privately-Initiated Public Meeting Dates

APPLICATION(S)	NAME	DATE	LOCATION
CPA2023-00009	Dante Commercial	NA	NA
CPA2024-00001 CPA2024-00002	Bonita Beach Commercial	7/28/2025	13660 Bonita Beach Road SE, Bonita Springs, FL 34135
CPA2024-00011 CPA2024-00012	Corkscrew 80 Residential	4/2/2025	20351 Corkscrew Rd, Fort Myers, FL 33928
CPA2025-00006 CPA2025-00010	Alico Tradeport Industrial	3/25/2026	14800 Alico Road, Fort Myers, FL 33912
CPA2025-00009	Daniel's Tradeport Industrial	3/31/2026	17320 Corkscrew Rd, Estero, FL 33928
CPA2025-00011	SR 82 Freeman	NA	NA
CPA2025-00013	White Willow Residential	4/21/2026	16999 Dormie Drive, Estero, FL 33928
CPA2026-00001	Bluewater Ridge Residential	NA	NA

In addition to the information sessions held by the applicants on their application requests, Table 3 outlines the major meetings on the proposed County-Initiated amendments with stakeholders, applicants, surrounding municipalities, and county staff.

Table 3: County-Initiated Meeting Summary

MEETING TYPE	LOCATION	DATE	ATTENDEE(S)
Department	Public Works Building	1/14/2026	County Attorney's Office
Applicant	Teams	2/3/2026	Morris DePew & Associates
Applicant	Teams	2/4/2026	Ensite
Applicant	Teams	2/6/2026	RVi Planning +Landscape Architecture
Applicant	Teams	2/13/2026	Delisi Planning
Board Meeting – AIR	Commission Chambers	4/21/2026	Public/Board
Department	Public Works Building	5/6/2026	Natural Resources
Department	Teams	5/7/2026	Solid Waste
Department	Teams	5/11/2026	Port Authority

Department	Public Works Building	5/11/2026	Lee DOT
Department	Teams	5/15/2026	Utilities
Stakeholder Round Table	Admin East	5/18/2026	Applicants, Members of the Public, County Staff, and Conservation Groups
Department	Teams	5/22/2026	Public Safety
Department	Public Works Building	5/26/2026	Planning GIS
Municipality	Teams	6/3/2026	City of Bonita Springs
Municipality	Teams	6/4/2026	City of Estero
Department	Public Works Building	6/10/2026	Development Services
Department	Public Works Building	6/19/2026	Natural Resources
Department	Public Works Building	6/19/2026	County Attorney's Office
Department	Public Works Building	6/26/2026	Planning GIS
Department	Public Works Building	6/26/2026	Zoning

Per **Policy 17.3.1**, County staff held meetings with the public to provide information on planning best practices and the comprehensive planning process, and to receive feedback on the proposed amendments. Attendees at the public meetings were provided with copies of the most recent draft changes and encouraged to send comments, questions, or concerns to planning staff. Comments from stakeholders, county departments, and applicants were considered and incorporated into the final version of the amendments when appropriate.

In addition to meetings with stakeholders, applicants, and county staff, the Department of Community Development, Planning Section website was updated to include a designated section detailing meetings, drafts, and anticipated timelines for the County-Initiated amendments.

The proposed amendments have met and exceeded the public outreach requirements in Administrative Code 13-6, Florida Statutes, and the Lee Plan.

AMENDMENTS & RATIONALE

The Amendments & Rationale section of the staff report will provide strikethrough and underline for the proposed changes, along with the reasoning for each amendment. The amendments will be organized by topic rather than by the order they appear in Attachment 1, beginning with the amendments to the Southeast Lee County Community Plan Area (Goal 33), followed by amendments relating to nonresidential uses, residential uses, and other supporting amendments. This section will not address how the proposed amendments are consistent with the Lee Plan; for that, see the Lee Plan Analysis on page 29.

NONRESIDENTIAL DEVELOPMENT & FAR

Lee Plan Goal 33 establishes the Southeast Lee County Community Plan Area. Currently, this goal limits the allowed uses in Southeast Lee County to agriculture, conservation, recreation, residential, and

resource extraction. One of the primary reasons for the proposed amendments was to allow nonresidential uses in Southeast Lee County to support job creation and general livability for residents in Southeast Lee County and the surrounding areas. **One of the first changes was to amend Goal 33 to generally allow all use types, but limit them to those compatible with the County's water resources and wildlife habitat in Southeast Lee.**

> **GOAL 33: SOUTHEAST LEE COUNTY.** Protect Southeast Lee County's natural resources through public and private acquisition and restoration efforts. Development incentives will be utilized as a mechanism to preserve, enhance, and protect natural resources, such as regional flow-ways and natural habitat corridors, in the development of privately owned land. ~~Allowable land uses will include conservation, agriculture, public facilities, low density or clustered residential, natural resource extraction operations, and private recreation facilities; allowable land uses must be compatible with protecting Southeast Lee County's environment.~~ A variety of uses may be permitted when developed in accordance with the goals, objectives, and policies in the Lee Plan, the Wellfield Protection Ordinance, Land Development Code, and other applicable environmental protection requirements.

To allow nonresidential uses, Policy 33.2.5 needed to be struck:

> ~~**POLICY 33.2.5:** Commercial uses may only be permitted if incorporated into a Mixed-Use Community, Environmental Enhancement and Preservation Community, or Rural Golf Course Community depicted on Map 2-D. The maximum commercial floor area that may be approved within the Southeast Lee County community plan area may not exceed 300,000 square feet.~~

The 300,000-square-foot limit was originally set in the 2010 amendments to the Lee Plan, which established the Southeast Lee County Community Plan Area following objections from the Florida Department of Community Affairs. Initially, the amendments did not include a cap on non-residential development. However, the state reviewing agency was concerned that the amendments lacked clear and predictable guidelines for the maximum intensity of nonresidential uses, especially regarding development rights transferred to the Mixed-Use Communities and TDR receiving areas outside the DR/GR area. Lee County then revised the amendments to introduce a 300,000-square-foot limit on nonresidential space in any Mixed-Use Community using TDR credits. No nonresidential development resulted from the Mixed-Use Communities amendments.

Nonresidential uses were later permitted in developments outside the Mixed-Use Communities in Southeast Lee. This change led to commercial development aligned with Policy 33.2.5. Specifically, WildBlue, Verdana Village, and Old Corkscrew Golf Club created 240,000 square feet of commercial development. However, two additional developments were approved through court decisions, via settlement agreements, outside the usual County public hearing process, allowing an additional 800,000 square feet of non-residential space within the Community Plan Area.

The Settlement Agreements created two problems for the Community Plan Area: a property rights issue, as no one else would be allowed to have nonresidential uses if the cap remained in place, and a traffic issue. Without an adequate amount of nonresidential uses in this area, residents will be forced to drive farther to access everyday goods, services, and jobs, resulting in even more traffic. This policy was established before most of the development in Southeast Lee, and no longer aligns with realistic future development conditions. 300,000 square feet of commercial space for the entirety of Southeast Lee

County is not feasible and results in a shortfall of approximately 1 million square feet of nonresidential space, even with the additional square footage associated with the Settlement Agreements[1]. The current restriction acts as a market constraint that limits economic opportunities, increases vehicle trip lengths, and generally reduces the livability of this area of the county by preventing everyday essentials from being located near existing residential uses.

Instead of the commercial cap in Policy 33.2.5, the proposed amendments add Objective 33.4 to Goal 33 to provide the guiding policies for nonresidential uses in this area of the county.

> **OBJECTIVE 33.4: NONRESIDENTIAL USES.** Livability in Southeast Lee County requires the allowance of nonresidential uses to provide employment opportunities and reduce the number and duration of vehicle trips. Due to the potential environmental impacts of certain nonresidential uses, limitations are required to protect the County's water resources and safeguard natural resources. Similar to residential development in Southeast Lee County, nonresidential development must create, improve, preserve, and/or restore strategic surface and groundwater resources and indigenous wildlife habitats while balancing the need for commercial, industrial, and office uses to support the existing and anticipated surrounding residential development.
>
> > **POLICY 33.4.1:** Commercial, light industrial, and office uses within the Southeast Lee County Community Plan Area must have a future land use designation of Preservation and Innovation or Conservation Community and provide hydrological connections to regional watersheds, wildlife habitat connections to publicly- or privately-owned conservation lands, or strategic infrastructure connections to benefit the county's water resources.
> >
> > **POLICY 33.4.2:** The County will create LDC requirements for nonresidential uses in the Southeast Lee County Community Plan Area.
> >
> > **POLICY 33.4.3:** Nonresidential development in Southeast Lee County must demonstrate compliance with the established LDC requirements through a planned development and development agreement accepted by the County Attorney's Office.
> >
> > **POLICY 33.4.4:** To preserve open space and ensure lower-intensity development, nonresidential development in Southeast Lee County may not exceed a Floor Area Ratio of 0.25.

The new Objective establishes the guiding principles for nonresidential development in Southeast Lee, with requirements very similar to those of the existing Environmental Enhancement and Preservation Community Overlay. Instead of trying to make an existing Future Land Use Category work in Southeast Lee County or creating a new overlay in Southeast Lee, **Policy 33.4.1 establishes that new Future Land Use Categories, Preservation and Innovation, and Conservation Community, are the only categories in which nonresidential uses, not currently allowed in the DR/GR, are appropriate**.

The new categories have also been added to Lee Plan Goal 1 as new policies. The Preservation and Innovation category is a new nonresidential category. Conservation Community is a new residential category that also permits limited nonresidential uses.

[1] Commercial study included in CPA2024-00002. The consultants estimated that 45 SQFT of nonresidential uses is needed to support every residential unit. The study estimated that there were 28,000 approved housing units in Southeast Lee as of May 2025, which would yield a need of 1.2 million SQFT of nonresidential space, without considering any additional units or any residential units in Lehigh Acres, which is adjacent to Southeast Lee.

POLICY 1.1.16: The **Preservation and Innovation** future land use category is connected to central utilities and located along arterial or major collector roadways in the Southeast Lee County Community Plan Area, with the intent of balancing ecological, hydrological, and wildlife preservation with employment and commercial needs within the County. Office, light industrial, and commercial uses are encouraged when designed to preserve or restore surrounding natural resources. This category requires a large percentage of open space and the restoration of environmentally sensitive lands to protect the County's water resources and Southeast Lee County's natural resources. Uses that have a significant impact on ground and surface water levels or quality, are known producers or users of noxious gases or chemicals, or have other detrimental impacts on the natural environment, as demonstrated by appropriate data and analysis and verified by the County, may not be permitted. This land use category does not permit general residential uses. Caretaker's residences and dormitory-type accommodations for employees or individuals associated with the business may be permitted as part of the Floor Area Ratio (FAR) calculation when accessory to a nonresidential use. Development in this category is limited to an FAR of 0.25 and is encouraged to promote a park-like aesthetic, with pedestrian connections, extensive green spaces, and minimal linear commercial centers. Applications for rezoning must follow the planned development rezoning process in accordance with the Land Development Code.

POLICY 1.4.8: The **Conservation Community** future land use category denotes areas of low-density, clustered residential and mixed-use development within the Southeast Lee County Community Plan Area. Development in this category must connect to a potable water and sanitary sewer system. This category requires a large percentage of open space and the restoration of environmentally sensitive lands to protect the County's water resources and Southeast Lee County's natural resources. The standard density is 1 unit per 10 acres, with a maximum density of 1.15 units per acre when the community is designed as a planned development in accordance with the Land Development Code. Development in this category is encouraged to promote a park-like aesthetic, with pedestrian connections and extensive green spaces. Nonresidential and multifamily uses may be allowed when developed alongside low-density residential uses. These uses are limited to a maximum total FAR of 0.15, based on the acreage allocated to non-residential and multi-family uses. A traditional Main Street design with vertically mixed buildings, adjacent to park space, is encouraged for developments that utilize the FAR allowance; standalone linear commercial development is discouraged.

Two major changes in the proposed amendments are the removal of specifics related to the planned development (PD) from the Lee Plan to the Land Development Code (LDC) and the inclusion of Floor Area Ratio (FAR) as a limiting factor on the intensity (i.e., size) of allowed nonresidential development. The Staff Report will address the move of PD requirements to the LDC as part of the discussion of the proposed changes to the residential development in Southeast Lee, where the changes are more apparent. Existing development will not be affected, as the requirements are very similar to those currently in place for the EEPCO. Existing development would be able to amend their existing PDs to comply with the new regulations or utilize their vested rights under new Goal 166. See discussion of this Goal on Page 18.

Four of the other Community Plan Areas reference an average or limitation on FAR in specific areas, but these are the first FARs to apply broadly to development in a Future Land Use Category within Lee County. FAR provides development predictability by establishing a parcel-specific development size, which is an important condition for comprehensive planning under the Florida Statutes. **FARs are a percentage of the total land area that dictates the total potential square footage of a development. This means they provide the maximum possible total building size without considering other development requirements.** For example, a 1-acre parcel with an allowed FAR of 1.0 would be permitted to develop up to 43,560 square feet. The Land Development Code requirements will further limit building size in order to accommodate parking, setbacks, buffers, open space, stormwater management, maximum building height, and conservation requirements. It is very unlikely that a project would be able to use the entire FAR allowance. Typically, in Lee County, suburban development has an FAR between 0.20 and 0.30, resulting in approximately 10,000 square feet of development per acre. Rural development typically has an FAR of 0.15 or below, resulting in between 5,000 and 10,000 square feet of development per acre. **The proposed 0.25 FAR puts the potential development in this area of the county right between typical rural and suburban development, which, along with the LDC site requirements for parking, buffers, open space, and stormwater management, will help support the conservation and preservation efforts in Southeast Lee.** Note that Preservation and Innovation and Conservation Community have been added to the definitions for Future Non-Urban Areas (Conservation Community) and Future Suburban Areas (Preservation and Innovation).

The new Preservation and Innovation category allows a maximum FAR of 0.25, meaning the total development size cannot exceed 25% of the site's total acreage. This category is intended to support nonresidential development, meaning office, light industrial, and commercial uses, which typically have a larger footprint than residential development. Southeast Lee County is still intended to protect and restore the county's water resources and wildlife habitat. **The FAR and the requirements in the Land Development Code work together to achieve this goal by directly controlling the size of individual developments and limiting the building footprint through the other development standards, yielding more open space for wildlife habitat and water recharge.** This approach avoids the issue with Policy 33.2.5, which sets a fixed limit on total nonresidential development square footage in the Community Plan Area.

The new Conservation Community category also allows a very low FAR for nonresidential and multifamily development, but only when developed alongside low-density residential development. The inclusion of these uses within predominantly single-family conservation communities is intended to provide amenities, jobs, and housing options beyond detached single-family homes, better supporting multi-generational neighborhoods and mixed-income housing in one area, thereby reducing vehicular trip lengths and conserving more open space, particularly when developed in vertically mixed structures. Allowing multifamily development, which could include townhouses, condos, quadplexes, or other residential development types that do not qualify for a non-commercial building permit, within the FAR limitations is intended to discourage conversion of these lands to Live Local projects, which may not need to meet all of the environmental requirements for Southeast Lee. By allowing the use outright, there is less incentive for developers to use Live Local instead of the county's standard allowances. **In this category, the allowable FAR for nonresidential and multifamily development is separate from the maximum of 1.15 units per acre in the residential portion of the development, but the combined maximum is 0.15 FAR, calculated based on the nonresidential and multifamily acreage.**

RESIDENTIAL DEVELOPMENT

Currently, in Southeast Lee, the maximum standard density is 1 unit per 10 acres in the DR/GR future land use category, and may be increased to 1.15 units per acre when the property is designated on Map 1-D as a special development area or an Environmental Enhancement and Preservation Community Overlay (EEPCO) Tier 1 property. The other EEPCO Tiers also allow density increases, but at a lesser rate. The Lee Plan does not currently provide clear guidance on how to change tiers or what separates one tier from another. Additionally, the existing overlays are overly complicated and confusing for property owners.

Objective 33.2 currently describes the Southeast Lee County overlays, even though it is entitled "Residential and Mixed-Use Development." This Objective is significantly changed in the proposed amendments to house the Residential Use policies and to strike all existing overlay details in Policies 33.2.2, 33.2.3, and 33.2.4. The new Objective and supporting Policies are reproduced below.

> **OBJECTIVE 33.2: RESIDENTIAL ~~AND MIXED USE~~ DEVELOPMENT.** Residential development in Southeast Lee County must create, improve, preserve, and/or restore strategic surface and groundwater resources and indigenous wildlife habitats. ~~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 DR/GR future land use category (Improved Residential Communities).~~
>
> > **POLICY 33.2.1:** Residential development exceeding 1 unit per 10 acres within the Southeast Lee County Community Plan Area must have a future land use designation of Conservation Community and provide hydrological connections to regional watersheds, wildlife habitat connections to publicly or privately owned conservation lands, or strategic infrastructure connections to benefit the county's water and natural resources. Communities approved prior to DATE through a settlement agreement are exempt from this requirement under Lee Plan Chapter 13. ~~Existing acreage subdivisions are shown on Map 2 D. These subdivisions should be protected from adverse external impacts.~~
> >
> > **POLICY 33.2.2:** The County will create a program to allow a maximum density of 1.15 units per acre for the Conservation Community future land use category in the land development code to offset the costs of improving, preserving, and restoring regional surface and groundwater resources and wildlife habitat for state- and federally listed species.
> >
> > **POLICY 33.2.3:** Density in the Southeast Lee County Community Plan Area may not exceed 1.15 units per acre, regardless of land use category, even when the strategies in the land development code are met.
> >
> > **POLICY 33.2.4:** Existing acreage subdivisions, as indicated in the Lee Plan Map 1-D, should be protected from adverse external impacts through appropriate mitigation measures such as, but not limited to, site configuration, setbacks, density distribution, buffers, and/or general design.

The proposed changes convert the existing Environmental Enhancement and Preservation Community Overlays into the new Conservation Community Future Land Use Category. **The new category has been developed to align with the existing EEPCO**, the most widely used of these overlays. The creation of the new Future Land Use Categories and the removal of existing overlays streamline implementation and reduce the number of unnecessary or confusing overlays. The removal of the overlays and addition of the new Future Land Use Categories required map amendments in addition to the text amendments.

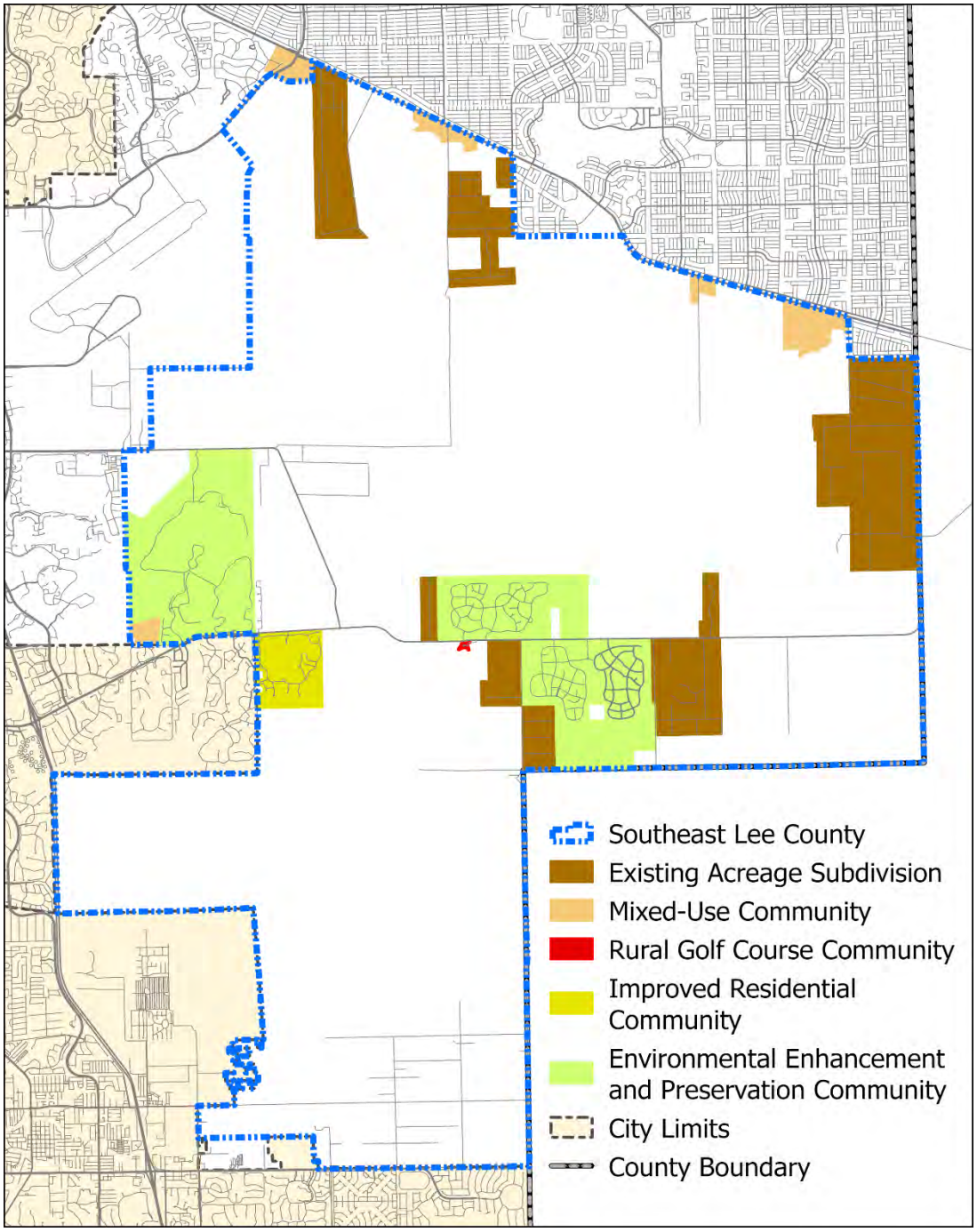


Figure 5: Existing Map 2-D, Southeast Lee Overlays

The Appendix maps and tables need to be updated to remove maps with existing overlays that have been condensed into the new categories, and to map areas with the new, most appropriate category. Figure 5 on page 15 shows the existing Map 2-D. The existing Acreage Subdivision and Rural Golf Course Community layers have been moved to Map 1-D, as shown in Figure 6 below. The Improved Residential Community and the Mixed-Use Community will be deleted and addressed in the property rights element, and the EEPCO overlay has been replaced with the Conservation Community land use category, as shown in Figure 7 below.

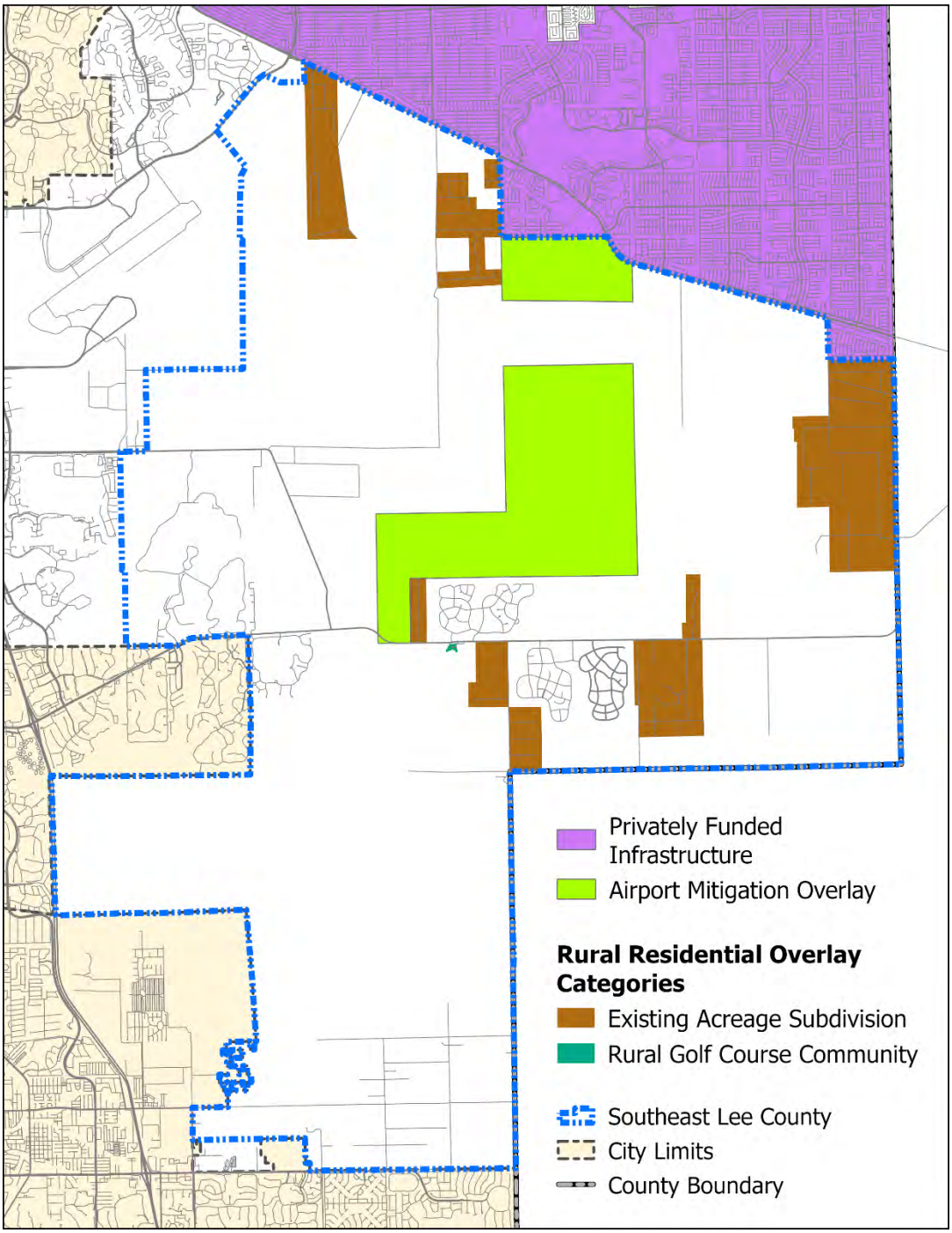


Figure 6: Proposed Map 1-D in Southeast Lee

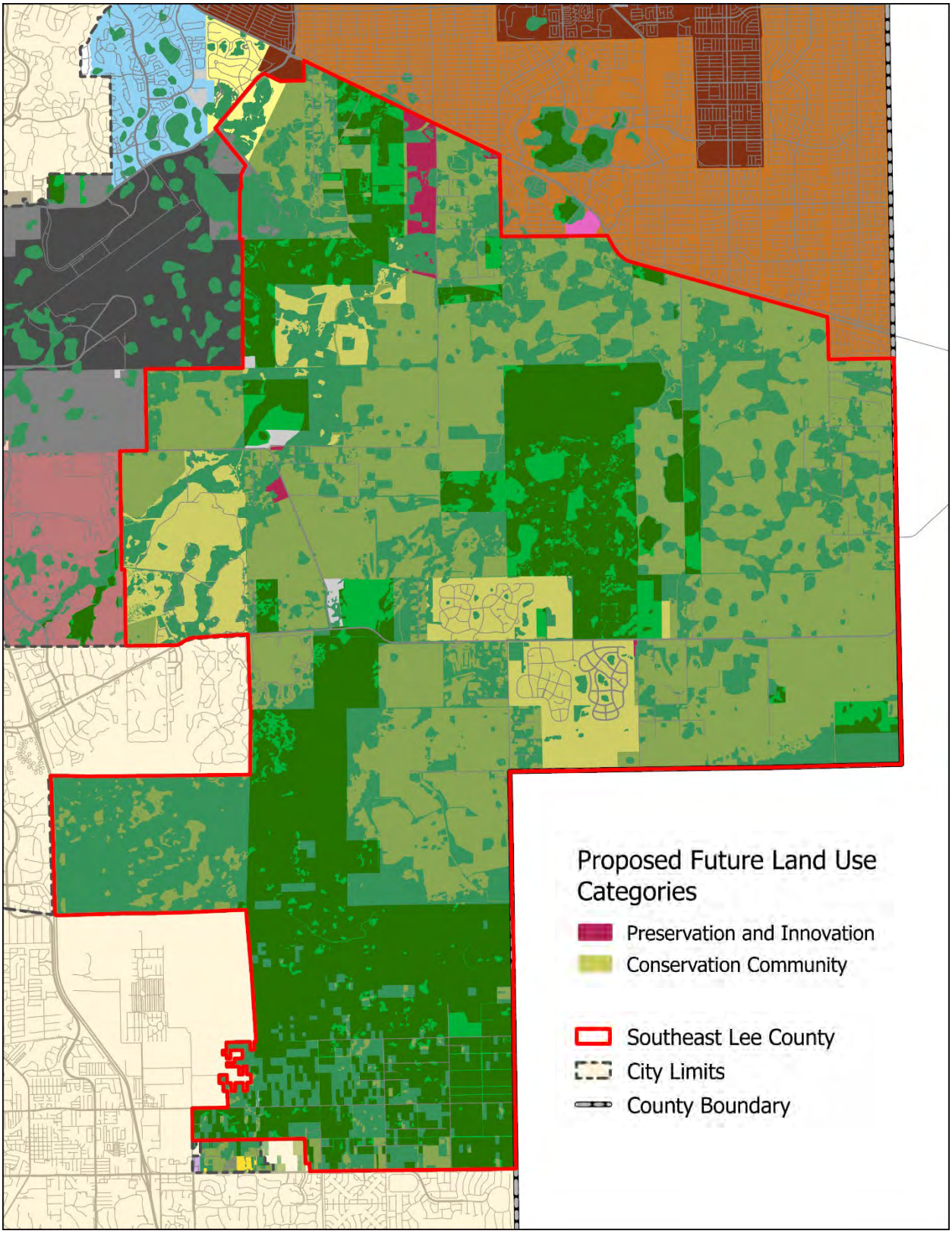


Figure 7: Future Land Use Map in Southeast Lee

The existing land use rights in areas where the county is changing the use category must be vested to ensure that the amendments do not violate F.S. 252.422 (SB 180) or impact the property owner's private property rights.

XII. Property Rights Element

GOAL 165: In accordance with §163.3177(6)(i), Fla. Stat., the following rights will be considered in local decision-making:

1. The right of a property owner to physically possess and control his or her interests in the property, including easements, leases, or mineral rights.
2. The right of a property owner to use, maintain, develop, and improve his or her property for personal use or for the use of any other person, subject to state law and local ordinances.
3. The right of the property owner to privacy and to exclude others from the property to protect the owner's possessions and property.
4. The right of a property owner to dispose of his or her property through sale or gift.

GOAL 166: County-initiated amendments may be made from time to time to update the Lee Plan, Future Land Use Map, or other regulatory documents to further the County's long-term vision for development.

OBJECTIVE 166.1: In certain instances where a county-initiated map or text amendment to the Lee Plan, Land Development Code, or zoning map changes the allowances on a property, the previous density and use allowances may be utilized in lieu of the changes.

POLICY 166.1.1: Properties previously identified as Mixed Use Community, Improved Residential Community, or Rural Golf Course Community in the Southeast Lee County Community Plan area may choose to develop under the regulations in effect prior to DATE by ORDINANCE, including requirements to concentrate development rights through the Southeast Lee County TDU program.

POLICY 166.1.2: Properties in the Southeast Lee County Community Plan Area whose land use was changed from DR/GR to Preservation and Innovation future land use category may retain the use and density allowances effective prior to DATE of Ordinance, in lieu of the Preservation and Innovation allowances. However, in no instance shall the density exceed 1 unit per 10 acres.

The existing rights of these properties were added to the Private Property Rights Element of the Lee Plan. This element previously contained only the required language from the Florida Statutes, but has been amended to include two goals: the required language and new language regarding county-initiated amendments. This location seemed more appropriate than keeping these amendments in Goal 33, as the new Goal 166 broadly covers County-initiated amendments, making it a central place to house future changes directly related to private property rights.

The last major change related to Objective 33.2 was the removal of all planned development requirements for Southeast Lee County from the Lee Plan. Originally, the proposed amendments to Southeast Lee County were fully contained within the Lee Plan. However, this Lee Plan Amendment has a companion LDC amendment that moves all implementing requirements for development in the Southeast Lee County Community Plan Area from the Lee Plan to the LDC. The PD requirements will, appropriately, move to the Land Development Code. **The Lee Plan still establishes the long-term vision for Southeast Lee, including development caps and general policies related to environmental preservation, but the implementing**

language has been moved to a new article that specifically addresses development within the Southeast Lee County Community Plan Area in the Land Development Code. The Land Development Code amendments are in a separate companion amendment that will follow the required LDC amendment process.

SUPPORTING AMENDMENTS

The nonresidential and residential amendments in Southeast Lee County necessitated changes elsewhere in the Lee Plan. Most of the amendments in this section are cleanup related to the amendments described above, with three exceptions: Policies 1.1.10, 1.1.13, and 7.1.2, whose changes resulted from the process of creating the main amendments.

As stated in the nonresidential section above, a new nonresidential category was created instead of trying to make the existing future land use categories work in Southeast Lee. Originally, the amendments were going to use the Commercial and Tradeport categories with additional protections for Southeast Lee. Staff reviewed the description of those categories as part of the original effort to make them work in Southeast Lee, and realized that general amendments were needed to help clarify and update the descriptions.

> **POLICY 1.1.10:** The **Commercial** future land use category is located in areas where infrastructure is planned or in place and residential uses are not expected or incompatible due to surrounding land uses, environmental constraints, or proximity to the Coastal High Hazard Area. ~~the nature of surrounding land uses, location along major travel corridors, or where residential development would increase densities in Coastal High Hazard Areas or in Lehigh Acres, where residential uses are abundant and existing commercial areas serving the residential needs are limited. In these locations, the requisite infrastructure needed for commercial development is generally planned or in place.~~ The Commercial category is intended to support all types of commercial uses and limited light industrial uses, excluding outdoor storage.~~retail developments, hotels and motels, banks, all types of office development, research and development, public, and other similar development will be predominant in the Commercial future land use category. Limited light industrial uses are also permitted, excluding outdoor storage type uses.~~ Residential uses, other than bona fide caretaker residences, are not permitted in this future land use category. ~~Any redesignation of land to the Commercial future land use category should occur along major travel corridors and at road intersections. The planned development rezoning process must be used to prevent adverse impacts to the surrounding areas and to ensure that appropriate site development regulations are incorporated into the development plans of each site. New developments~~Development in this category must connect to a potable water and sanitary sewer system.

The amendments to the Commercial future land use category simplify the description and remove the requirement of a planned development. Planned developments work well in areas with environmental constraints or unique circumstances, but they can complicate redevelopment. The Commercial category is intended to accommodate a variety of commercial uses and should align with conventional commercial zoning districts without requiring a PD for all development. The additional requirement of a planned development for all properties with a Commercial land use adds unnecessary steps to the development process.

The amendments to the Tradeport description specify that properties adjacent to Southwest Florida International Airport (RSW) or the Florida Strategic Intermodal System (freight highways) are best suited for this category, remove an outdated reference to Development of Regional Impact (DRIs), and clarify when commercial uses are permitted.

> **POLICY 1.1.13:** The **Tradeport** future land use category includes areas of commercial and industrial lands adjacent to the Southwest Florida International Airport (RSW),~~the airport~~ or other major transportation infrastructure such as Florida's Strategic Intermodal System (SIS). These areas will include developments consisting of light manufacturing or assembly, data centers, warehousing, and distribution facilities; research and development activities; laboratories; ground transportation and airport-related terminals or transfer facilities; hotels/motels, meeting facilities; education and training facilities; and office uses.
>
> Stand-alone retail commercial uses intended to support and complement the surrounding business and industrial land uses are permitted if they are approved as part of a ~~Development of Regional Impact (DRI) or~~ Planned Development rezoning. Stand-alone retail commercial uses are limited to 1 acre ~~out of~~for every 10 Tradeport and preserved wetland acres within the project. To provide an incentive to preserve upland habitat, ~~DRIs or~~ Planned Developments may also receive additional stand-alone retail acres at the rate of 1 additional acre ~~out of~~for every 10 acres of preserved and enhanced uplands within the project that protect wetlands, flow-ways, or occupied listed species habitat. Ancillary ~~retail~~ commercial uses related directly to the sale of products manufactured or services provided by the associated light industrial use are not considered stand-alone commercial ~~in Tradeport are allowed if they are part of a planned development~~. Residential uses, other than bona fide caretaker residences, are not permitted in this future land use category.

The changes to the Tradeport description clarify or update existing language; no substantive changes were made.

Similar to the change in the Commercial land use description, Policy 7.1.2 requires PDs for almost all industrial developments, including some within future land use categories that explicitly support industrial uses.

> **POLICY 7.1.2:** Industrial development is encouraged through conventional zoning districts when the property is within the Industrial Development, Tradeport, and Industrial Interchange future land use categories or within a Future Urban Area, unless a Planned Development is specifically required by the Lee Plan or necessary to demonstrate compliance with Policy 5.1.5. ~~Industrial in these future land use categories requiring rezoning and meeting DCI thresholds must be rezoned to a Planned Development. All rezonings to allow industrial uses outside of the Industrial Development, Tradeport, or Industrial Interchange future land use categories must be rezoned to a Planned Development, except if located within the Mixed Use Overlay. The Planned Development must be designed to arrange uses as an integrated and cohesive unit in order to: promote compatibility and screening; reduce dependence on the automobile; promote pedestrian movement within the development; utilize joint parking, access and loading facilities; avoid negative impacts on surrounding land uses and traffic circulation; protect natural~~

~~resources; and, provide necessary facilities and services where they are inadequate to serve the proposed use.~~

The proposed amendment to Policy 7.1.2 simplifies the policy and specifies that PDs are only necessary if specifically required by the Lee Plan or there are compatibility concerns with adjacent residential uses. The Land Development Code may need to be updated to ensure consistency with Planned Development requirements.

The remainder of the amendments directly relate to the Community Plan Area amendments for residential and nonresidential uses.

Policy 1.4.5 provides a description of the DR/GR future land use category. The proposed amendments clean up the language in #1 and remove the reference to the density increases in the Southeast Lee County Community Plan Area in #2.

> **POLICY 1.4.5:** The **Density Reduction/Groundwater Resource (DR/GR)** future land use category includes upland areas that provide substantial recharge to aquifers most suitable for future wellfield development. These areas ~~also are~~are also the most favorable locations for physical withdrawal of water from those aquifers.
>
> 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 utilizing hydrologic modeling.~~ The impacts of proposed development on the historic surface and groundwater resources must be analyzed using hydrologic modeling to assess potential adverse impacts to upstream and downstream lands, current and future water resources, and natural systems. This analysis will occur during the rezoning application process or development order application review, if rezoning is not required. The analysis must demonstrate that the proposed change will have no significant impacts on present or future water resources. Lee County's Department of Natural Resources will review and verify all proposed analyses, which may include an integrated surface and groundwater hydrologic model. The intent of the analysis is to demonstrate the impact of a proposed development on the county's natural resources. ~~the incorporation of increased storage capacity and~~ the ~~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 must be submitted as part of the rezoning application and updated, if necessary, as part of the ~~mining~~ development order application.
>
> 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 standard density of one dwelling unit per ten acres (1 du/10 acres). ~~See Objectives 33.2 and 33.3 for potential density adjustments resulting from concentration or transfer of development rights.~~
>
> 3. Private Recreational Facilities may be permitted in accordance with the site locational requirements and design standards, as further defined in Goal 13. No Private Recreational Facilities may occur within the DR/GR land use category

without a rezoning to an appropriate Planned Development zoning category, and compliance with the Private Recreation Facilities performance standards, contained in Goal 13.

The amendments to #1 clarify the requirements and keep the language consistent throughout the Lee Plan, but do not change the modeling requirements. Removing the reference to Objectives in Goal 33 in #2 was necessary. Residential development exceeding 1 unit per 10 acres in Southeast Lee County will need to have a Conservation Community future land use. This section only applies to properties with DR/GR land use. DR/GR will no longer have density incentives, so this policy no longer applies.

Policy 33.1.7 mirrors the language in #1 above:

> **POLICY 33.1.7:** Impacts of proposed ~~land disturbances~~development on surface and groundwater resources ~~will~~must be analyzed using hydrologic modeling to assess potential adverse impacts to upstream and downstream lands, current and future water resources, and natural systems within Southeast Lee County. This analysis will occur during the rezoning application process or development order application review, if rezoning is not required. The analysis will be proportionate to the proposed impacts and use integrated surface and groundwater models ~~that utilize~~with site-specific data. Lee County's Department of Natural Resources will review and verify all proposed analysis, which may include an integrated surface and groundwater hydrologic model. The intent of the analysis is to demonstrate the impact of a proposed development on the county's natural resources. ~~to assess potential adverse impacts on water resources, and natural systems within Southeast Lee County. Lee County Division of Natural Resources will determine if the appropriate model or models are being utilized, and assess the design and outputs of the modeling to ensure protection of Lee County's natural resources.~~

Policy 1.6.10 establishes the residential overlays in Southeast Lee. The proposed amendments remove all overlays except the Existing Acreage Subdivisions and the Rural Golf Course Community. This change keeps this policy consistent with the amendments to Goal 33.

> **POLICY 1.6.10:** Lee Plan Map 1-D, Special Treatment Areas, depicts areas of the county with specific requirements, including the following overlays: ~~The Southeast Lee County Residential Overlay (Map 2-D) is described in Objective 33.2. This Overlay affects only Southeast Lee County and identifies five types of land:~~
>
> 1. "Existing Acreage Subdivisions:" Existing rural residential subdivisions that should be protected from adverse external impacts ~~such as natural resource extraction~~.
> 2. "Rural Golf Course Communities:" Potential locations for the concentration of development rights on property zoned Private Recreational Facilities Planned Development ~~and located in the Southeast DR/GR area~~.
> 3. ~~"Mixed-Use Communities:" Locations where this concentration of development rights from large contiguous tracts within the DR/GR area that can be supplemented by transfer of development rights from non-contiguous tracts in the Southeast DR/GR area. See Objective 33.3 and following policies.~~
> 4. ~~"Improved Residential Communities:" Property with existing residential approvals that are inconsistent with the Southeast DR/GR area that could be improved environmentally.~~

~~5. "Environmental Enhancement and Preservation Communities:" Properties adjacent to Corkscrew and Alico Roads that have the potential to improve and restore important regional hydrological and wildlife connections.~~

Similar to Policy 1.6.10, the amendments to Policies 33.1.2 and 33.1.3, and Objective 33.3 remove references to the deleted overlays.

POLICY 33.1.2: The County will create development incentives to offset the cost of creating, preserving, or re-establishing natural systems in the Southeast Lee County Community Plan Area. The incentive programs may be updated from time to time based on the changing needs of this area of the county. ~~The DR/GR Priority Restoration Strategy consists of seven tiers of 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 Map 1-D). Within these tiers, density incentives will be utilized as a mechanism to improve, preserve, and restore regional surface and groundwater resources and wildlife habitat of state and federally listed species; with Tier 1 and Tier 2 being the most incentivized tiers. Lee County may consider amendments to this Overlay based on changes in public ownership, land use, new scientific data, and/or demands on natural resources. This Overlay does not restrict the use of the land.~~

POLICY 33.1.3: Pursue acquisition ~~(partial or full interest)~~ of land via public investment, land swaps, conservation easements, or donation of critical lands within Southeast Lee County to augment preservation lands to improve, restore, or create water resources, natural ecosystems, and wildlife connections through a planned development, Development Agreement approved by the Board of County Commissioners, or other legally binding agreement accepted by the County Attorney's Office. ~~within the Tier 1 areas in the Priority Restoration Strategy Overlay through direct purchase; partnerships with other government agencies; long-term purchase agreements; right of first refusal contracts; land swaps; or other appropriate means to provide critical connections to conservation lands that serve as the backbone for water resource management and wildlife movement within Southeast Lee County. Tier 2 lands are of equal ecological and water resource importance as Tier 1 but have better potential to remain in productive agricultural use. Tier 3 lands and the southern two miles of Tiers 5, 6, and 7 can provide an important wildlife connection to conservation lands in Collier County and an anticipated regional habitat link to the Okaloacoochee Slough State Forest. Tiers 1, 2, 3, and the southern two miles of Tiers 5, 6, and 7 may qualify for unique development incentives outlined in Objectives 33.2 and 33.3 due to the property's potential for natural resource benefits and/or wildlife connections. Additionally, the County may consider incentives, within all tiers, for private landowners to improve water resources and natural ecosystems.~~

Objective 33.3 currently houses the TDR program details in Southeast Lee. Many of these were directly related to the overlay in which a property was located. This objective has been updated to remove the overlay references that no longer apply and to create a new Flooding Mitigation Lands Program similar to the TDR program.

OBJECTIVE 33.3: ~~SOUTHEAST LEE COUNTY TRANSFER OF DEVELOPMENT RIGHTS (Southeast Lee County TDR)~~LAND CONSERVATION PROGRAM~~S~~. To protect water resources and natural habitat of Southeast Lee County, Lee County establishes the Southeast Lee County Transferable Development Rights (TDR) and Flooding Mitigation programs. ~~may incorporate Southeast Lee County's purchase and transfer of development rights programs into the LDC.~~

POLICY 33.3.1 The ~~new~~ programs ~~may~~ create incentives for property owners or developers within Southeast Lee County to transfer development rights associated with ~~their~~ sending parcels to receiving lands outside the planning community.~~; or, residential areas identified on Map 2-D; Southeast DR/GR Residential Overlay as specified in Policy 33.3.2.~~

POLICY 33.3.2: The Southeast Lee County TDR program will have the following characteristics:

1. Creation of Transferable Development Units (Southeast Lee County TDUs).
   a. Up to one Southeast Lee County TDU may be created per five acres of preserved or indigenous wetlands.
   b. Up to two Southeast Lee County TDUs may be created from a single-family lot or parcel designated as wetlands that holds an affirmative Minimum Use Determination pursuant to Chapter XIII.
   c. Southeast Lee County TDU credits may be established from DR/GR designated lands as follows:
      1) Up to one Southeast Lee County TDU may be created for each ten upland acres encumbered by an agricultural easement.
      2) Up to one Southeast Lee County TDU may be created for each 5 upland acres with indigenous native or restored native vegetation encumbered by a conservation easement.
      ~~3) For each Southeast Lee County TDU credit allowed by c.1) or c.2) above, up to two extra TDU credits may be created if the sending area land is designated as Tier 1, Tier 2, Tier 3, or the southerly two miles of Tiers 5, 6, and 7 in the Priority Restoration Strategy (Map 1-D).~~
2. Receiving area density and intensity equivalents of Southeast Lee County TDUs.
   a. ~~In Mixed-Use Communities in Southeast Lee County identified on Map 2-D, each Southeast Lee County TDU credit may be redeemed for a maximum of one dwelling unit plus a maximum of 800 square feet of non-residential floor area.~~
   ~~b. In Improved Residential Communities in Southeast Lee County identified on Map 2-D, each Southeast Lee County TDU credit may be redeemed for a maximum of one dwelling unit.~~
   ~~c. In Rural Golf Course Communities in Southeast Lee County identified on Map 2-D, each Southeast Lee County TDU credit may be redeemed for a maximum of one dwelling unit or two bed and breakfast bedrooms.~~
   ~~d. In Environmental Enhancement and Preservation~~ Properties within the Conservation Community ~~Communities~~ future land use category may redeem ~~identified on Map 2-D, each~~ Southeast Lee County TDU credits ~~may be redeemed~~ for a maximum of one dwelling unit per 10 acres ~~using~~when the credits are from DR/GR sending areas and a maximum of one dwelling unit per 20 acres ~~using~~ when credits are from wetland sending areas.
   ~~e~~b. No more than 2,000 dwelling units may be placed on receiving parcels within the Southeast Lee County Community Plan Area~~identified in subsections a. through d. above using the Southeast Lee County TDR program~~.
   ~~f~~c. Properties outside of the Southeast Lee County Community Plan area with ~~In the~~ Intensive Development, Central Urban, Urban Community, or General Interchange future land use ~~categories outside of Southeast Lee County, each Southeast Lee County TDU~~ may ~~be~~ redeem~~ed~~ Southeast Lee County TDUs

for up to two dwelling units an acre. Southeast Lee County TDUs may not be redeemed for non-residential floor area in these future urban areas.

3. The LDC may include regulations that permit the County to evaluate the effectiveness of the Southeast Lee County TDR program and make changes that may further condition or restrict the use of Southeast Lee County TDUs.

POLICY 33.3.3: The County will administer the TDR program and develop a forum to disseminate program information and records. The forum may include a TDR program website that provides general program information, rules and guidelines; TDU administrative determination application; County-approved form of conservation easement; certified TDU database with ownership information; and, TDU clearinghouse for individuals that request to be included within the TDU clearinghouse program.

POLICY 33.3.4: Southeast Lee County Flooding Mitigation Lands Program allows developers to purchase property in the Southeast Lee County Community Plan Area identified for county mitigation projects in exchange for development approvals. Purchased property must be approved and dedicated to the county. The Flooding Mitigation Lands Program will be allocated per the following:

A. For projects within the Southeast Lee County Community Plan Area, incentives will be provided per the thresholds described in the LDC.
B. For projects outside of the Southeast Lee County Community Plan Area:
    a. Additional density may be applied to the receiving site at a rate of 2 units per acre of purchased and transferred land. The maximum density may not exceed the Bonus Density allowances of the land use category.
    b. Open space at a 1-acre for every 5 acres of purchased and transferred land. No more than 25% of the required open space may be offset by this allowance.

The new Policy 33.3.4 facilitates a Public-Private Partnership for Flooding Mitigation Projects in Southeast Lee County by permitting private developers to purchase specific lands needed for county flooding projects and transfer them to the applicable entity in exchange for development credits. These parcels will be identified as "Public Acquisition" in a future update of Map 1-D, but they are already identified in the Department of Natural Resources' CREW Project Area map. Additionally, the policy's second part might allow properties outside Southeast Lee County to gain development credits for the acquisition of these lands within Southeast Lee. The intent is to help the County acquire property essential to flooding mitigation projects in exchange for development incentives.

Objective 2.3 provides the required findings for Future Land Use Map Amendments. The proposed language clarifies the existing requirements, adds the new categories to Policy 2.3.2, removes the finding requirements, and removes Policy 2.3.3, which no longer applies.

OBJECTIVE 2.3: FUTURE LAND USE MAP AMENDMENTS. To require formal findings for certain Future Land Use Map amendments.

POLICY 2.3.1: All proposed changes to the Future Land Use Map in critical areas for future potable water supply, such as ~~(~~Lehigh Acres, as described in Policy

54.1.9, and all land in the Southeast Lee County Community Plan Area or the DR/GR land use category.) Map amendments for these areas will be subject to a special review by the staff of Lee County. This review will to analyze the potential impact of the land change on the proposed land uses to and determine the short-term and long-term availability of irrigation and domestic water sources and will assess whether the proposed land useschange would cause any significant impact on present or future water resources. If the Board of County Commissioners wishes to approve any such changes to the Future Land Use Map, it must make a formal finding that no significant impacts on present or future water resources will result from the change.

POLICY 2.3.2: Future Land Use Map amendments to the existing DR/GR areas within the Southeast Lee County Community Plan Area to a district other than Preservation and Innovation, Conservation Community, Wetlands, Conservation Lands, or Public Facilities will be discouraged by the County. 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 Ch. 163, Part II, Fla. Stat., 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 urban sprawl.

During the transmittal and adoption process, the Board of County Commissioners must review the application for all these analytical requirements and make a finding that the amendment complies with all of them.

POLICY 2.3.3: Lee Plan amendment applications to expand the Lee Plan's employment centers, which include light industrial, commercial retail and office land uses, will be evaluated by the Board of County Commissioners in light of the locations and cumulative totals already designated for such uses, including the 1994 addition of 1,400 acres to the Tradeport category just south of the Southwest Florida International Airport.

The proposed change to remove numbers 1 through 4 as required findings for map amendments in Southeast Lee reduces redundant policies. #1 and #2 state that properties would need to verify the availability of irrigation and domestic water resources. The LDC standards for all residential and nonresidential development in Southeast Lee require new development to connect to the central water and sewer system and to minimize irrigation needs. #3 states that all land use changes require data and analysis to ensure the proposed change will not adversely affect water quality or water resources. This is already a requirement in the proposed Policies 1.1.16, 1.4.5, 33.1.7, 33.2.1, and 33.4.1. #4 addresses urban sprawl. Lee Plan Goal 1 and Objective 2.1 already include language about containing and addressing urban sprawl. **The inclusion of these requirements in Policy 2.3.2 is unnecessary, as they are already required in other areas of the Lee Plan.**

Policy 6.1.2 is a supporting policy for Goal 6, which addresses all commercial development within the county. This is the second amendment to this policy this year. Previously, the policy included multiple bullet points that specified the areas to which it applied. The proposed amendment removes the bullet related to Southeast Lee County and changes the language to exempt only areas where the community plans specifically allow more intense commercial uses.

> **POLICY 6.1.2:** Commercial development in non-urban future land use categories is limited to Minor Commercial, ~~except that~~ unless the Lee Plan specifically provides otherwise.~~:~~
>
> - ~~Neighborhood Commercial uses are permitted in the Southeast Lee County Planning District as provided for in Objectives 13.3 and 33.2.5.~~
>
> Minor Commercial development may include limited commercial uses serving rural areas and agricultural needs, and commercial marinas. Minor Commercial development must be located so that the retail use, including buildings and outdoor sales area, is located at the intersection (within 330 feet of the adjoining rights-of-way of the intersecting roads) of arterial and collector roads or two collector roads with direct access to both intersecting roads. Direct access may be achieved with an internal access road to either intersecting road. On islands, without an intersecting network of collector and arterial roads, commercial development may be located at the intersection of local and collector, or local and arterial, or collector and collector roads.

As part of the proposed amendments, staff evaluated the boundaries of the Southeast Lee County Community Plan Area in response to one of the privately initiated amendment requests (CPA2025-00009) and input from one of the County Departments regarding property along Bonita Beach Road within Lee County's jurisdiction.

The proposed map amendments include a slight contraction of the Southeast Lee County Community Plan Area along Bonita Beach Road, south of the Kehl Canal, and a portion of a property along Daniels Parkway. These areas do not share the same water characteristics as the rest of Southeast Lee County and, therefore, should not be subject to the same requirements. The proposed contraction areas have been coordinated and confirmed with Lee County's Department of Natural Resources. The proposed contraction area has no impact on Table 1(b), as the Planning District, which is used for data tracking, will not change with the proposed contraction.

The last text amendments add definitions to the Glossary to support the other amendments and to fill existing gaps.

COMMERCIAL DEVELOPMENT -- A use involving, in whole or in part, the sale of merchandise, materials, or services. Commercial development may include retail, wholesaling, personal services, temporary accommodations, office, or other uses that involve the transfer or sale of goods or services.

MINOR – Commercial development that ~~provides for the sale of convenience goods and services and~~ contains less than 30,000 square feet of gross floor area.

NEIGHBORHOOD – Commercial development that ~~provides for the sale of convenience goods and personal services, such as food, drug, sundries, and hardware items and~~ has a gross floor area range of 30,000 to 100,000 square feet.

COMMUNITY – Commercial development that ~~provides for the sale of retail goods such as clothing, variety items, appliances, and furniture as well as goods that may be found in a neighborhood commercial development and~~ has a gross floor area range of 100,000 to 400,000 square feet.

REGIONAL – Commercial development ~~that provides some functions of community commercial, in addition to providing a full range and variety of shopping goods for comparative shopping (such as general merchandise, apparel, furniture, and home furnishings) and~~ has a gross floor area range of 400,000 to 1 million square feet.

DISCOURAGED – To dissuade or attempt to dissuade from doing something, but not to prohibit outright; an unwanted action, not a prohibited one.

ENCOURAGED – A wanted action, but not the only action that may be acceptable.

FUTURE NON-URBAN AREAS – Those categories on the Future Land Use Map that are designated primarily for single use developments with a density equal to or less than 1 unit per acre unless otherwise allowed within a special treatment area identified in Objective 1.7: Rural, Rural Community Preserve, Coastal Rural, Outer Island, Open Lands, Wetlands, Conservation Lands (upland and wetland), New Community within the North Olga Planning Community, Conservation Community, and Density Reduction/Groundwater Resource.

FUTURE SUBURBAN AREAS – Those future urban categories on the Future Land Use Map that are designated primarily for single use developments: Suburban, Outlying Suburban, Sub-Outlying Suburban, Industrial Development, Airport, Tradeport, Preservation and Innovation, Commercial, Industrial Interchange, General Commercial Interchange, Industrial Commercial Interchange, University Village Interchange, University Community, Public Facilities, and the New Community within the Gateway/Airport Planning Community.

INDUSTRIAL DEVELOPMENT – A business use or activity involving manufacturing, fabrication, assembly, warehousing, and/or storage.

INDUSTRIAL, HEAVY – Manufacturing, resource refinement or extraction, other enterprises with significant external effects, or enterprises that pose significant risks due to the involvement of explosives, radioactive materials, poisons, pesticides, herbicides, or other hazardous materials in manufacturing or other processes. The location of a use does not indicate whether it is considered heavy industrial. Heavy Industrial uses can be inside or outside a building.

INDUSTRIAL, LIGHT – A use that involves the manufacturing, production, processing, fabrication, testing, assembly, treatment, repair, packaging, or warehousing of finished products within a building, without a noticeable amount of noise, dust, odor, smoke, glare, or vibrations.

The proposed changes to commercial development remove specific uses from the list of commercial development types, but retain the size limitations currently in place. The previous definitions of commercial development across different types have essentially identified only retail uses; however, commercial development encompasses a wide range of uses, as the new definition covers.

Throughout the Lee Plan, there are policies that use the terminology "encourage" and "discourage," but until now, those terms have not been explicitly defined. The definitions encompass the current accepted use of the terms. This is not a change from the current interpretation; it is codifying the accepted practice.

The Lee Plan also lists "Light Industrial" as a permitted use in numerous Future Land Use Categories, but does not currently specify which industrial uses qualify as light industrial. The proposed amendment defines industrial uses and then divides them into Light and Heavy Industrial to provide clear guidance on which uses are appropriate in specific locations.

The proposed Glossary amendments may necessitate additional amendments to the Land Development Code to ensure consistency. Staff will include those with future LDC amendments.

All amendments, including those to the maps and tables in the appendix, are located in Attachment 1. All of these amendments support the text amendments described herein. Analysis of their consistency with the Lee Plan is provided in the Lee Plan Analysis section of this Staff Report.

LEE PLAN ANALYSIS

The comprehensive plan applies to all land use decisions within unincorporated Lee County. Where goals, objectives, standards, or policies of particular elements conflict, those conflicts will be resolved based on an analysis of the Lee Plan as a whole. The Lee Plan analysis included in this staff report outlines the proposed amendments in relation to the most applicable Lee Plan goals, objectives, and policies to determine their appropriateness.

Lee Plan Chapter 2, Part b, contains the county's Community Planning Goals within the Future Land Use Element. **Goal 17**, Community Planning, establishes the Community Plan Areas and their requirements. **Objective 17.1** states that community plans address specific conditions and long-term visions unique to that area of the county. This objective is supported by three policies. **Policy 17.1.1** states that the county will "Coordinate community plans with County-wide and regional plans with respect to population accommodation, transportation, employment, economic development, and infrastructure needs in an effort to avoid inconsistencies." The proposed amendments support a coordinated effort between the county, private developers, the public, and conservation groups to balance development pressure and changing conditions with conservation and preservation goals in Southeast Lee.

As mentioned in the Background section of this report, the last major update to Southeast Lee County was the addition of the EEPCO in 2015. Since that update, development in Southeast Lee County has changed significantly, with the development of Kingston (settlement agreement), which added 10,000 new residential units, and the Alico Extension, which connects Corkscrew Road to State Road 82 and

Sunshine Blvd, a major connector in Lehigh that is anticipated to connect to State Road 80 in the future. Properties along the Alico Extension that previously did not connect to the county's major road network now have a front-row seat to a controlled-access major connector road. **The proposed amendments provide updated development parameters to accommodate the approved infrastructure, residential development, and environmental concerns in Southeast Lee, consistent with Policies 17.1.1 and 17.1.2.**

One of the major changes in the proposed amendments is moving the PD requirements out of the Lee Plan and into the Land Development Code. **Policy 17.1.3** states, "Community plans should consist of long term objectives and policies that are not regulatory in nature. If needed, land development regulations may be adopted to implement the community plan." **The transfer of the development requirements for Southeast Lee County from the Lee Plan to the LDC is consistent with Policy 17.1.3.**

The existing Policy 17.2.1 states, "Each community plan area boundary must be rationally related to the condition(s) identified in the individual community plan." The proposed map amendments to the Southeast Lee County Community Plan Area Boundary are consistent with **Policy 17.2.1**, as the areas being removed from Southeast Lee County do not share the same hydrological characteristics as the remainder of the plan area. The Kehl Canal blocks the surface water connection between properties along Bonita Beach Road and the Imperial River Watershed and CREW Wildlife Management Area. The portion of the property on Daniels Parkway that the amendments propose removing from Southeast Lee County is located in the Six Mile/Estero River watershed, a different watershed than the remainder of Southeast Lee; additionally, its proximity to Southwest Florida International Airport (RSW) further distinguishes that land from the rest of the Community Plan Area. **These properties are not rationally related to the conditions identified in the Southeast Lee County Community Plan Area; therefore, the proposed contraction of the Southeast Lee County Community Plan Area is consistent with Policy 17.2.1.**

Objective 17.3 provides guidance on Public Input for comprehensive plan amendments within a community plan area. As described in the Public Outreach and Department Collaboration and the Procedural Requirements sections of this staff report, **the amendments have met all public outreach requirements of the Florida Statutes, Lee Plan, and the County's Administrative Code.**

Lee Plan Goal 33 contains the Southeast Lee County Community Plan Area's Objectives and Policies that guide development in this area of the county. Goal 33 states:

> **GOAL 33: SOUTHEAST LEE COUNTY.** Protect Southeast Lee County's natural resources through public and private acquisition and restoration efforts. Development incentives will be utilized as a mechanism to preserve, enhance, and protect natural resources, such as regional flow-ways and natural habitat corridors in the development of privately owned land. Allowable land uses will include conservation, agriculture, public facilities, low density or clustered residential, natural resource extraction operations, and private recreation facilities; allowable land uses must be compatible with protecting Southeast Lee County's environment.

The proposed amendments will continue to protect Southeast Lee County's water resources and wildlife habitat through strict development guidelines. The Conservation Community land use category, intended for residential and subordinate nonresidential uses, retained the EEPCO requirements, including, but not limited to, open space, habitat restoration, and hydrological connections. The Preservation and Innovation category requirements were also derived directly from the EEPCO requirements, with input from the County's Department of Natural Resources, Utilities Department, and Department of

Transportation, to ensure that new nonresidential uses couldn't negatively impact the County's water quality, infrastructure, or wildlife areas. **The new Future Land Use Categories are not inconsistent with the intent of Goal 33.**

The Dover-Kohl Study heavily influenced the creation of Goal 33, Restoration Tiers, and existing overlays in Southeast Lee. The study was intended to study Southeast Lee County to determine a way to limit population, which was a requirement of State Statutes at the time, discourage mining, and protect the County's water resources and wildlife habitat (i.e., Panther Habitat). The study stated that compact, mixed-use communities should be the standard in DR/GR. This idea influenced the creation of the existing residential overlays. The proposed Conservation Communities Future Land Use Category will replace the EEPCO and continue the idea of compact, mixed-use communities by requiring a large percentage of open space with clustered, low-density development, while also allowing a very small amount of nonresidential and multifamily via the permitted FAR. The deletion of the existing overlays does not detract from Goal 33's consistency with the Dover-Kohl recommendations, as both new land use categories draw direct inspiration from the existing overlays. **The changes to the Southeast Lee County Overlays are consistent with the Dover-Kohl recommendations and the intent of Goal 33.**

Objective 33.1 states that the County will "Protect and restore natural resources within Southeast Lee County including, but not limited to, surface and ground water, wetlands, and wildlife habitat." This objective is supported by eight policies related to water, habitat, and other natural resources. The proposed amendments do not substantively change any of these requirements. Residential and nonresidential projects within the Southeast Lee County Community Plan Area will need to preserve, restore, or create areas for water resources, wildlife habitat, wetlands, and flowway connections. Additionally, development the new Conservation Community and Preservation and Innovation categories will need to connect to public utilities, including reuse if it becomes available, which will also help protect the county's water resources in the area. **The proposed amendments are not inconsistent with Objective 33.1 or the intent of any of its policies.**

Lee Plan Goal 2 provides direction on Growth Management. The overarching Goal states that the County will provide 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." In addition to the proposed Alico Extension project, the Kingston development will be constructing water and sewer infrastructure along Corkscrew Road to extend Lee County Utilities. The proposed county-initiated map amendments to incorporate the new land use categories into the Future Land Use Map will change the future land use categories of properties that have submitted map amendment applications to the appropriate new category and incorporate them into the Lee County Utilities Service Area Maps. All of the privately initiated map amendments have provided service availability letters from the applicable service providers. The proposed map amendments include a couple of properties that have not submitted an application. These amendments either fix an existing inconsistency between the zoning and future land use category or incorporate property along the new Alico Extension. All of the properties have, or will have upon development, access to public water and sewer infrastructure with adequate capacity to serve, public roads, EMS, and fire protection. **Per the letters of no objection attached to the staff report, no county departments have raised any concerns regarding the capacity to serve the properties associated with the proposed map amendments, consistent with Lee Plan Goal 2.**

Policy 2.3.2 includes four required findings for Future Land Use Map Amendments in DR/GR:

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 urban sprawl.*

As previously stated, county water and sewer connections will be required for all development in Southeast Lee. The proposed text amendments will ensure that irrigation sources will not negatively impact the county's water resources. **The proposed map amendments are consistent with #1 and #2.** All properties included in the map changes that are not currently developed will require a planned development rezone, in which the applicant must demonstrate that the proposed uses and development will not cause significant harm to present or future water resources. The new land use categories have been designed to minimize the impact of development on water resources and the environment. **The proposed map amendments are consistent with #3.** All the proposed map amendments are on existing or proposed major roads, will be required to connect to public utilities, and are located between existing developments, meaning they will fill in gaps between existing sprawl. **The proposed map amendments are not creating urban sprawl, consistent with #4.**

Two of the proposed map amendments are located along State Road 82, adjacent to Lehigh Acres. Both of those amendments are proposed as Preservation and Innovation, which supports nonresidential uses. The Lehigh Acres Commercial Land Use Study, written by Spikowski Planning Associates, dated May 1996, states,

> *About 2% of the land in Lehigh Acres currently has commercial zoning, far less than the typical 5% commercial allocation for an entire community. Even if all of this zoned land were actually available and usable for commercial development, it would provide only enough space for about 38% of the build-out population of Lehigh Acres. An even greater problem, though, is that much of the remaining commercially zoned land suffers from serious flaws. Two of these flaws are:*
>
> - *Premature platting of excellent commercial sites into single-family lots, which were sold off to individual buyers, many with deed restrictions against commercial uses.*
> - *Provision of commercial land as shallow commercial strips, sold off into individual parcels in the same manner as single-family lots.*

The County has been trying to alleviate the shortage of commercial space in Lehigh for decades. As the Spikowski study states, two major flaws are the lack of appropriate locations for commercial development due to scattered residential development along major thoroughfares and the lack of adequately sized parcels to support it. Southeast Lee County has both of these in very close proximity to Lehigh. Another Lehigh Acres study, entitled "Lehigh Acres Comprehensive Planning Study," dated 2009, estimated the total number of parcels in Lehigh at 125,855, covering approximately 96 square miles, with a deficit of commercial land at 558 acres and industrial land at 444 acres. **While the proposed amendments would**

not be located within the Lehigh Acres Community Plan Area, the proposed map amendments to support nonresidential uses along State Road 82 and Daniels Parkway directly support the Lehigh Acres Community Plan Area Objectives 25.1 and 25.3, and Policies 25.3.2 and 25.4.1.

A portion of Southeast Lee County is subject to the Everglades West Coast Basin Management Action Plan (BMAP). Under state statute FS 163.3177, as amended by HB 1379 in 2023, local governments must consider how to extend utilities to residential development exceeding one (1) unit per acre in a BMAP. The proposed text amendments allow for a maximum of 1.15 units per acre, but require all new residential and nonresidential development to connect to public utilities. **The proposed incorporation of the properties associated with the privately-initiated amendments into the LCU Future Water Service Area (Map 4-A) and LCU Future Sewer Service Area (Map 4-B) is consistent with state statutes regarding utility expansion within a BMAP and Lee Plan Objective 4.1.**

Goals 53, Potable Water Infrastructure, and 56, Sanitary Sewer Infrastructure, state:

> ***GOAL 53: POTABLE WATER INFRASTRUCTURE****. Provide high-quality central potable water service throughout Lee County. Ensure that the costs of providing facilities is borne by those who benefit from them.*
>
> ***GOAL 56: SANITARY SEWER INFRASTRUCTURE****. In partnership with franchised/certificated utilities providers, provide sanitary sewer service and wastewater treatment and disposal throughout Lee County.*

Each developer would be financially responsible for extending the line outside of where the line is already proposed for expansion or connecting to the line when it becomes available. **Policy 53.1.1** states that the LCU service area is illustrated in Map 4-A, and **Policy 56.1.1** states that sewer service areas are indicated on Map 4-B. **Lee County Utilities provided a letter of no objection to the proposed amendments on DATE. All of the individual developments will need to show capacity availability at the time of rezone and Development Order.**

Lee Plan Goal 123 contains the County's goals for Resource Protection. This goal states,

> ***GOAL 123: RESOURCE PROTECTION.*** *Manage coastal, wetland and upland ecosystems and natural resources in order to maintain and enhance native habitats, floral and faunal species diversity, water quality, and natural surface water characteristics.*

Development in both new land use categories requires preservation, creation, or restoration of upland, wetland, and wildlife habitats, **consistent with Policies 123.1.1, 123.1.5, 123.1.7, 123.2.4, 123.2.7, 123.2.8, 123.2.15, 123.3.1, and 123.4.3**. Both new districts also incorporate the creation of Wildfire Mitigation plans with their planned developments, **consistent with Policy 123.1.8**. The amendments to Policy 1.4.5 and 33.1.7 maintain the existing requirements for water modeling for all changes in land use categories. Policy 33.1.3, as amended, expands conservation measures to public and private entities, **consistent with Policy 123.1.2**. The Conservation Community designation maintains the required open space and environmental requirements that the existing EEPCO uses. Preservation and Innovation allows nonresidential uses only when an applicant can demonstrate the proposed use category will not harm the environment, provide adequate open space, and preserve and restore habitat, **consistent with Policy 123.2.2**. **The proposed text amendments are consistent with the broad goal of Goal 123.**

Lee Plan **Goal 124** contains the County's goals for Wetlands. This goal states,

> **GOAL 124: WETLANDS.** To maintain and enforce a regulatory program for development in wetlands that is cost-effective, complements federal and state permitting processes, and protects the fragile ecological characteristics of wetland systems.
>
> > **OBJECTIVE 124.1:** Protect and conserve the natural functions of wetlands and wetland systems by maintaining wetland protection regulations.

The proposed changes do not impact the regulations for wetlands as they apply to State Permits or general development standards in the County; however, the proposed amendments do strengthen them in Southeast Lee, particularly as they relate to nonresidential uses, which are not currently allowed based on the existing 300,000 square foot limitation for commercial uses. Currently, nonresidential uses throughout the county have no incentives to maintain wetlands on a property. The proposed Land Development Code amendments, which implement the Preservation and Innovation land use category, require that all connected wetlands be protected and conserved as part of the required open space. **The proposed amendments are consistent with Goal 124 and Objective 124.1.**

Lee Plan **Goals 125** and **126** contain the County's goals related to Water Quality and Water Resources. The proposed amendments have been extensively reviewed by Lee County's Departments of Natural Resources and Utilities to ensure adequate protection of the County's water resources for utility purposes and natural resources for general water quality and flow. The new density incentives in the Land Development Code for Conservation Community and the standard requirements for Preservation and Innovation increase the stormwater requirement to a 100-year, 24-hour event. This exceeds the standard stormwater requirement and should provide additional stormwater capacity in these developments. The proposed amendments still require water quality and quantity analysis during the development stages and long-term monitoring after development, **consistent with Goal 125, Objective 125.1, and Policies 125.1.1, 125.1.2, and 125.1.3**. As stated previously, all potential development resulting from these amendments will also be required to connect to central utilities, **consistent with 125.1.5.** The proposed Preservation and Innovation category limits uses to those that can demonstrate they will not adversely affect the County's water resources or water quality, with confirmation from the Department of Natural Resources prior to development, **consistent with Objective 126.1 and its supporting policies.**

Lee Plan **Objective 126.2** states that the County will promote Florida-Friendly Landscaping. The proposed amendments for residential development carry over the requirement for native landscaping from the EEPCO and provide an incentive for drip irrigation to minimize water use and ensure the longevity of the landscaping. Because the nonresidential requirements are new and apply to a use that is not currently allowed, the LDC standards require native landscaping and drip irrigation for all nonresidential developments. Both amendments are **consistent with Policies 126.2.1 and 126.2.3**.

Lee Plan **Chapter 11** is the Economic Element. One of the major reasons for the proposed text amendments was to support the development of nonresidential uses in Southeast Lee County to support employment opportunities and amenities for residents in Southeast Lee County and the surrounding communities. **Goal 158** states that the County will, "Achieve and maintain a diversified and stable economy by providing a positive business climate that assures maximum employments." There are very few places left in the county with parcels large enough to support business and industrial parks, particularly in close proximity to RSW, SR 82, and the adjacent counties. The proposed amendments help

foster a diversified economy by allowing nonresidential uses in Southeast Lee, **consistent with Goal 158, Objective 158.2, and policy 158.2.1 and 158.2.2.**

Objective 158.3 states that the County will "Ensure businesses have access to infrastructure and services needed to be competitive in a global economy." This Objective is supported by four policies relating to transportation infrastructure, economic development related to the Port Authority, the State's Strategic Intermodal System (SIS), and expansion of communication technology. The proposed amendments allow for nonresidential uses along arterial and collector roads, including SR 82 and Interstate 75, which are part of the SIS. Additionally, Southeast Lee County is adjacent to RSW, making it a natural expansion for airport-related businesses. **The proposed amendments allow nonresidential uses in an area of the County that currently cannot have any additional nonresidential uses and are therefore consistent with Objective 158.3 and Policies 158.3.1, 158.3.2, and 158.3.3.** New development along these corridors will help to expand access to broadband communications and infrastructure, **consistent with Policy 158.3.4.**

Lee Plan Chapter 12 contained the Property Rights Element. The proposed amendments add language to this element, but the existing language is important to consider. The existing element is reproduced below.

> *In accordance with §163.3177(6)(i), Fla. Stat., the following rights will be considered in local decision making:*
>
> 1. *The right of a property owner to physically possess and control his or her interests in the property, including easements, leases, or mineral rights.*
>
> 2. *The right of a property owner to use, maintain, develop, and improve his or her property for personal use or for the use of any other person, subject to state law and local ordinances.*
>
> 3. *The right of the property owner to privacy and to exclude others from the property to protect the owner's possessions and property.*
>
> 4. *The right of a property owner to dispose of his or her property through sale or gift*

The proposed amendments do not impede a property owner's ability to physically possess and control their property interests. The proposed amendments expand the potential uses of property, subject to approval of a Future Land Use Map Amendment, which may provide some additional uses and allowances for property owners in Southeast Lee. The amendments also include existing provisions to protect single-family, large-lot subdivisions. Additionally, new language has been added to this section to grant vested rights to existing developments in Southeast Lee County that have changed Future Land Use Category or Overlay with the proposed amendments. The amendments will not affect a property owner's right to privacy or to exclude others from their property, nor will they affect a property owner's right to dispose of their property. **The proposed amendments do not conflict with the requirements of Chapter 12.**

CONCLUSIONS

Staff has reviewed the proposed amendments and provides the following conclusions:

- The proposed amendments provide updated development parameters to accommodate the approved infrastructure, residential development, and environmental concerns in Southeast Lee County.
- No county departments have raised any concerns regarding the capacity to serve the properties associated with the proposed map amendments, consistent with Lee Plan Goal 2.
- Staff held numerous meetings with applicants, the public, and County departments to solicit feedback on the proposed amendments.
- The proposed amendments provide adequate protection for the County's water resources and wildlife habitat.
- The proposed amendments are consistent with the BoCC direction from April 1, 2025, and April 21, 2026.
- None of the amendments are in conflict with Senate Bill 180, as they expand use allowances and existing property rights are formally vested.

For the reasons discussed in this staff report, staff recommends that the Board of County Commissioners ***adopt*** the proposed amendment as shown in Attachment 1.

PART 2
LOCAL PLANNING AGENCY
REVIEW AND RECOMMENDATION

DATE OF PUBLIC HEARING: July 27, 2026

A. LOCAL PLANNING AGENCY REVIEW

Staff provided a detailed presentation of the proposed text and map amendments, addressing planning rationale, impacts, and consistency with the Lee Plan.

Members of the LPA first thanked staff for the effort that went into the proposed amendments and then inquired about the intent of some terminology, clarification on the need for a Development Agreement in addition to Planned Developments, clarification on the applicability of Conservation Communities in other places in the County, and some recommended additions to Goal 165.

Thirteen members of the public spoke on the proposed amendments. One additional member of the public submitted a comment card but chose not to speak. Comments included concern regarding the speed at which the amendments were made, the implications of the proposed amendments on water quality, additional requests from the privately-initiated amendments' applicants, acknowledgement of staff's efforts, changing conditions in Southeast Lee requiring these amendments, additional FAR allowances for industrial development, the positive impact of the proposed amendments on the Lehigh Acres Community, the positive impact of adding nonresidential uses to reduce trip and add jobs, concern over wildlife habitat, concern about density incentives, the changing statutory requirements for comprehensive planning, the general compatibility of the amendments with the natural resources in Southeast Lee, concern that the new allowances will create more development demand, and concern that these amendments will start to apply to other places in the County.

LPA then asked staff additional questions in response to the public comments and their own understanding of the amendments.

B. LOCAL PLANNING AGENCY RECOMMENDATION

A motion was made to recommend that the Board of County Commissioners (BoCC) ***transmit CPA2026-00004,*** remove additional areas of the Daniels Tradeport property from Southeast Lee, include the Freeman property, clarify the terms "adequate protection" and "alongside", and add language to Goal 165. The motion passed 4 to 0.

DUSTIN GARDNER	AYE
DAWN RUSSELL	ABSENT
JENNIFER SAPEN	AYE
DON SCHROTENBOER	AYE
STAN STOUDER	AYE
HENRY ZUBA	ABSENT
VACANT SEAT	-

C. RESPONSE TO LPA MOTION

This section addresses the additional items the LPA added to their motion.

1. ***Daniels Tradeport to be fully removed from Southeast Lee.*** The LPA recommended that the Daniels Tradeport Property (CPA2025-00009) be removed from the Southeast Lee County planning area.

   The Daniels Tradeport property has an existing mix of Tradeport and Wetlands future land uses and was originally located entirely within the Southeast Lee Community Plan Area. The first version of the Southeast Lee contraction removed approximately 163.23 acres of the subject property from Southeast Lee, leaving 5.6 acres within Southeast Lee, essentially maintaining the Southeast Lee boundary along the Estero River Watershed. The LPA requested that the remainder of the Tradeport portion of the property be removed from Southeast Lee.

   According to Policy 17.2.1, the community plan area boundary must be rationally related to the conditions of the community plan area. The Southeast Lee Community Plan Area is comprised of the Estero River and Imperial River Watersheds, which have defined the planning area boundaries in the past.[2] Community Plan Area boundaries may be defined by more than environmental characteristics. Future Land Use Map designations, property ownership, site access, and legal considerations such as existing property rights are also important factors in determining the rational connection of a property to a Community Plan Area.

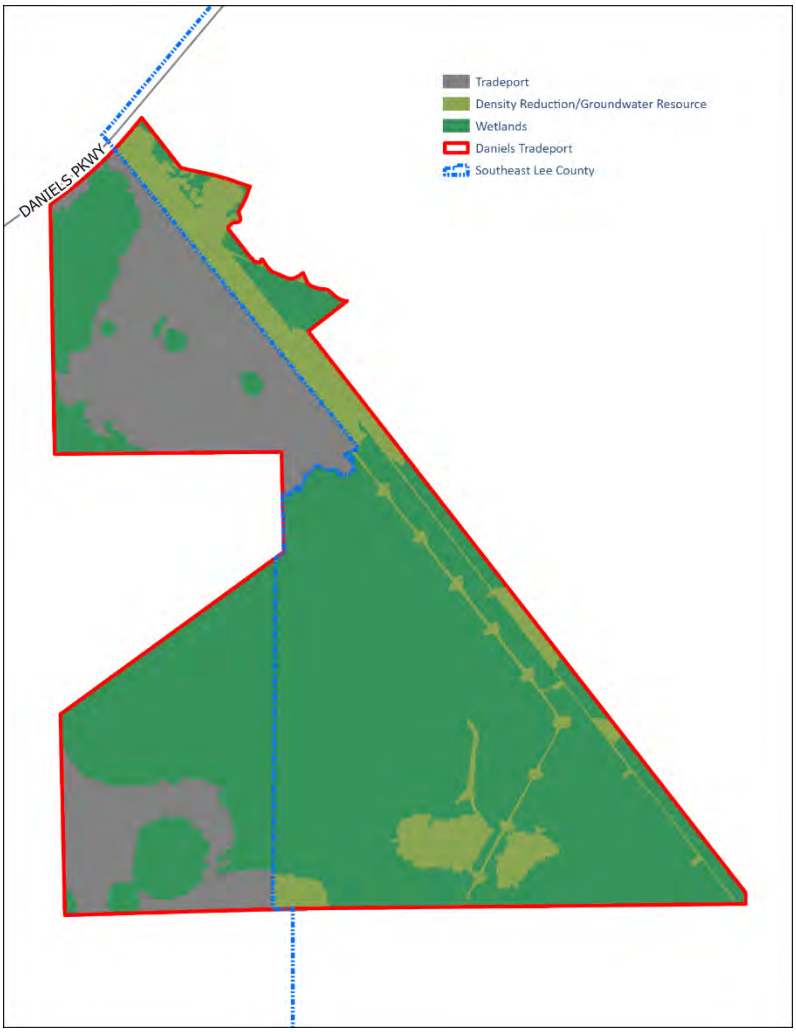
   

   Figure 8: Proposed Daniels Tradeport & Southeast Lee Boundary

   The lands targeted for removal in the LPA motion are currently designated as Tradeport land within the Southeast Lee County Community Plan Area. These lands are situated within the 10,000-foot hazardous wildlife buffer outlined in Policy 47.2.5 and are directly at the runway's

[2] CPA2016-00007, Timber Creek; CPA2021-00017/CPA2021-00018, Daniels Parkway South

end. They are also owned by the same entity as other lands staff has recommended removing from Southeast Lee County, based on only the watershed boundary considerations.

Given the practical implications of splitting developable portions of the property across Community Plan Areas and the legal concerns of having conflicting land use regulations rendering a portion of the proper unusable, staff agrees with the LPA motion and recommends revising the Community Plan Area boundary along the jurisdictional wetland line to ensure the lands most likely to be developed are subject to uniform development requirements, consistent with the LPA recommendation, as shown in Figure 8. The relatively small area of developable land within the Estero River Watershed can be addressed through the design of the proposed development and the required water management permit (ERP).

Staff supports the LPA recommendation to remove the Tradeport portion of the subject property from the Southeast Lee Community Plan Area.

2. ***Inclusion of the Freeman Property (CPA2025-00011) as Preservation and Innovation***

At the hearing, the applicant requested that the LPA include the Freeman 82 property in the proposed amendments in the motion to recommend transmittal. The property was included in one of the original drafts of the proposed amendments for nonresidential uses, based on its comprehensive plan amendment application. Staff removed the property from the proposed amendments after the applicants expressed interest in a different type of development than what was originally proposed in their application.

Following the hearing, staff reviewed the data previously provided for CPA2025-00011 and requested a narrative from the applicant to confirm that anticipated development would be consistent with the proposed future land use category. The applicant is proposing a mixture of nonresidential uses, connections to Lee County Utilities for both potable water and sanitary sewer services, and preservation of a large contiguous wetland area in the southern portion of the Property. Including the Future Land Use Map amendment for the Freeman 82 property would not approve the proposed development. Approval of the proposed development would require continued review through the Planned Development rezoning process in order to demonstrate consistency with the Preservation and Innovation future land use category and the remainder of the Lee Plan.

Staff supports the inclusion of this property in the proposed amendments as Preservation and Innovation, as shown in the updated Future Land Use Map changes that are included in Attachment 1.

3. **Clarification of Terms: "alongside" and "adequate protection"**

The proposed language for Policy 1.4.8 specifies that nonresidential and multifamily uses may be permitted when they are developed alongside low-density residential uses. The intent with this statement was to allow these uses when they are purposefully developed in the same Planned Development (PD) as the low-density residential areas. The updated language is shown in the policy below:

> **POLICY 1.4.8:** The **Conservation Community** future land use category denotes areas of low-density, clustered residential and mixed-use development within the Southeast Lee

County Community Plan Area. Development in this category must connect to a potable water and sanitary sewer system. This category requires a large percentage of open space and the restoration of environmentally sensitive lands to protect the County's water resources and Southeast Lee County's natural resources. The standard density is 1 unit per 10 acres, with a maximum density of 1.15 units per acre when the community is designed as a planned development in accordance with the Land Development Code. Development in this category is encouraged to promote a park-like aesthetic, with pedestrian connections and extensive green spaces. Nonresidential and multifamily uses may be allowed when developed ~~alongside~~ within the same planned development as low-density residential uses. These uses are limited to a maximum total FAR of 0.15, based on the acreage allocated to non-residential and multi-family uses. A traditional Main Street design with vertically mixed buildings, adjacent to park space, is encouraged for developments that utilize the FAR allowance; standalone linear commercial development is discouraged.

Staff recommends changing the proposed language to clarify the intent as represented above.

The second term the LPA suggested clarifying was "adequate protection"; this phrase does not appear in the proposed amendments and was included only in the staff presentation. Many policies in the new Southeast Lee amendments, the proposed and existing requirements for conversion from DR/GR future land use, and other elements of the Lee Plan require the protection of the County's natural resources. No policy can fully protect all natural systems and habitats; however, the proposed amendments provide checks and balances to protect the County's natural resources and wildlife habitats to the greatest extent possible through policies related to required hydrological modeling, analysis of the impacts of specific uses, required preservation areas, and very low-density, low-intensity development.

No changes required relating to "adequate protections."

4. Goal 165

The LPA suggested expanding the language in #4 of Goal 165 to include other legal conveyances of property that are not sales or gifts. The existing language was derived from the required language in the state statute. The statute required every jurisdiction to include the private property rights element and the required language; however, jurisdictions may elaborate on or add to the required language in the statute.

GOAL 165: In accordance with §163.3177(6)(i), Fla. Stat., the following rights will be considered in local decision-making:

a. The right of a property owner to physically possess and control his or her interests in the property, including easements, leases, or mineral rights.
b. The right of a property owner to use, maintain, develop, and improve his or her property for personal use or for the use of any other person, subject to state law and local ordinances.
c. The right of the property owner to privacy and to exclude others from the property to protect the owner's possessions and property.
d. The right of a property owner to dispose of his or her property through sale, ~~or~~ gift, or other legal conveyance.

Staff supports adding the proposed language to broaden the statement to apply to all legal transfer of land and finds no conflict with the inclusion in state law.

D. ADDITIONAL CHANGES

This section of the staff report addresses additional changes needed to the proposed amendments that have been identified since the staff report for the LPA was published. All changes in this section were discussed during the LPA hearing. ***Staff supports the changes included in this section.***

1. Clarification that DR/GR uses are not required to meet the requirements of the new future land use categories

The Conservation Community and Preservation and Innovation categories were intended for residential and nonresidential uses that are not currently allowed in the DR/GR within Southeast Lee County. Development that is consistent with the DR/GR future land use category, such as resource extraction or other uses identified in Policy 2.1.3, may continue to be developed within the DR/GR, consistent with the Lee Plan. To clarify that, new language has been added to the respective policies based on feedback gained from the public. Both of these changes were discussed by staff at the LPA hearing.

> **OBJECTIVE 33.2: RESIDENTIAL ~~AND MIXED USE~~ DEVELOPMENT.** Residential development in Southeast Lee County in a land use category other than DR/GR and exceeding 1 unit per 10 acres must create, improve, preserve, and/or restore strategic surface and groundwater resources and indigenous wildlife habitats. ~~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 DR/GR future land use category (Improved Residential Communities).~~

> **OBJECTIVE 33.4: NONRESIDENTIAL USES.** Livability in Southeast Lee County requires the allowance of nonresidential uses in addition to the uses allowed in the DR/GR to provide employment opportunities and reduce the number and duration of vehicle trips. Due to the potential environmental impacts of certain nonresidential uses, limitations are required to protect the County's water resources and safeguard natural resources. Similar to residential development in Southeast Lee County, nonresidential development must create, improve, preserve, and/or restore strategic surface and groundwater resources and indigenous wildlife habitats while balancing the need for commercial, industrial, and office uses to support the existing and anticipated surrounding residential development.

In addition, staff also proposes editing Objective 33.2 to strike the word strategic, as it does not add definable value to the statement.

2. Table 1(a) Note 13

Table 1(a), Note 13, references Southeast Lee policies that will no longer exist if the proposed amendments are adopted. In the table, Note 13 appears as a DR/GR footnote. The proposed amendments previously included a new Note 20 that clarifies how density is calculated in the new Conservation Community land use category. The revised amendments will reuse footnote 13 for

Conservation Community instead of Note 20 and remove the existing language containing outdated Goal 33 references. An excerpt of the table with the proposed revisions is shown below.

FUTURE LAND USE CATEGORY	STANDARD OR BASE DENSITY RANGE		BONUS DENSITY
Conservation Community[13]	No Minimum	1.15	No Bonus
Density Reduction/Groundwater Resource[13]	No Minimum	1 du/10 acres	No Bonus

[13] ~~See Objectives 33.2 and 33.3 for potential density adjustments.~~ The maximum density in the Conservation Community future land use category is 1.15, inclusive of wetlands located within project boundaries (see Policies 1.4.8 and 33.2.2).

E. STAFF RECOMMENDATION

Staff recommends that the BoCC ***transmit*** the proposed amendment as provided in the revised Attachment 1, according to the edits above.

PART 3
BOARD OF COUNTY COMMISSIONERS
TRANSMITTAL HEARING

DATE OF PUBLIC HEARING: August 19, 2026

A. BOARD REVIEW:

Staff provided an extensive presentation on the proposed amendments, including the LPA's recommendations and additional changes to the draft following the LPA hearing.

Nineteen (19) members of the public spoke during the hearing, expressing concerns about overdevelopment, lack of state review, and the timing of the amendments. Four speakers spoke in favor of the amendments, as well.

After public comment, staff answered the commissioners' questions to clarify certain items in the proposed amendments.

B. BOARD ACTION:

A motion was made to ***transmit*** CPA2026-00004 as recommended by staff and the LPA. The motion passed 4 to 0.

MOTION DETAILS

BRIAN HAMMAN	**AYE**
CECIL PENDERGRASS	**AYE**
DAVID MULICKA	**AYE**
KEVIN RUANE	**ABSENT**
TRISH PETROSKY	**AYE**

C. ADDITIONAL CHANGES

This section of the staff report addresses additional changes needed to the proposed amendments that have been identified since the BOCC hearing.

1. Clarification that Development Agreements for Nonresidential development are as needed.

Policy 33.4.3 previously stated that new nonresidential uses would require a planned development and a development agreement; however, a development agreement is only required when necessary.

POLICY 33.4.3: Nonresidential development in Southeast Lee County must demonstrate compliance with the established LDC requirements through a planned development and, when necessary, a development agreement accepted by the County Attorney's Office.

PART 4
STATE REVIEWING AGENCIES
OBJECTIONS, RECOMMENDATIONS, AND COMMENTS

Staff transmitted the proposed amendments to the Florida Department of Commerce on **August 24, 2026**, within the statutorily required time of the BOCC Transmittal Hearing held on **August 19, 2026**. The Department designated the transmittal package as **26-04ESR**, and State Reviewing Agencies were required to submit comments to Lee County by **September 23, 2026**.

Upon Transmittal, the State Reviewing Agencies may provide technical assistance through the form of comments and/or provide objections to the proposed amendments as they relate to the respective agency's goals.

A. OBJECTIONS, RECOMMENDATIONS, AND COMMENTS:

Lee County received responses from the following review agencies addressing the transmitted amendment. Summaries of the agency letters with comments and proposed changes are provided below the table.

Department	Comments	Objections
Florida Department of Commerce	None	No
Florida Department of Environmental Protection	Yes	No
Florida Fish and Wildlife Conservation Commission	Yes	No
Florida Department of Transportation	None	No
South Florida Water Management District	Yes	No

Florida Department of Environmental Protection (DEP) provided technical assistance related to the proposed amendments centered around the Everglades West Coast Basin Management Action Plan (BMAP). Southeast Lee is within this BMAP. DEP's letter focused on wastewater treatment facilities and prioritizing advanced septic systems. All of the development associated with the new future land use categories will be required to connect to central utilities; this has always been part of the proposed amendments. In response to DEP's letter, staff has added Policy 56.1.10 to demonstrate more direct support for conversion to central wastewater systems within all BMAPs in the county.

Staff has proposed the following changes to the draft based on DEP's comments.

> **POLICY 56.1.10:** The County will support expansion of utility service areas for all lands within a Basin Management Action Plan (BMAP) to minimize pollutants related to the use of private septic systems. The County will continue to coordinate the expansion of wastewater utilities with other private and municipal utility providers within its jurisdiction per the wastewater feasibility plans as outlined in the Clean Waterways Act (403.067(7)(a)9, F.S.).

Policy 56.1.10 was not previously included in the proposed amendments. Because Lee County also contains areas within a BMAP outside of Southeast Lee County, staff finds this policy belonged in the Wastewater Infrastructure section of the Lee Plan rather than Goal 33, specific to Southeast Lee. **DEP has no stated objections to the proposed amendments.**

Florida Fish and Wildlife Conservation Commission (FWC) provided technical assistance related to protected species, important habitat, and existing conservation areas found within the boundaries of Southeast Lee. The letter also included resources on ecological corridors and wildlife crossings. Some strategies in the letter were already included in the LDC requirements associated with the proposed Lee Plan Amendments. Staff updated Policy 31.1.1 to add language specifying that the county will facilitate wildlife habitat connectivity, conservation lands, and other natural resource protection throughout Southeast Lee and also updated the LDC requirements to better address wildlife corridors and crossings based on FWC's feedback. **FWC has no stated objections to the proposed amendments.**

Staff has proposed the following changes to the draft based on FWC's comments.

> **POLICY 33.1.1:** Large-scale ecosystem integrity in Southeast Lee County should be maintained and restored through a coordinated effort between public, nonprofit, and private landowners to ensure wildlife corridor connectivity and habitat restoration, maintenance and establishment of conservation lands, and other general water and natural resource protections. Protection and/or restoration of land is of even higher value when it connects existing corridors and conservation areas. Restoration is also highly desirable when it can be achieved in conjunction with other uses on privately owned land, including agriculture.

Policy 31.1.1 was not previously included in the proposed amendments. These revisions support the technical assistance that Florida Fish and Wildlife Conservation Commission provided related to protected species and indigenous wildlife habitat. In addition, the revisions to Policy 31.1.1 address Audubon's public comment on guiding policies for coordinated efforts on conservation, preservation, and wildlife connectivity.

South Florida Water Management District (SFWMD) provided comments on water resources in Southeast Lee, the Corkscrew Watershed Initiative, and coordination on the hydrologic modeling required by Policy 1.4.5. Staff updated two policies to clarify the hydrologic modeling requirements at each step of the development process and one policy to clarify locational requirements, in response to SFWMD's letter. **SFWMD has no stated objections to the proposed amendments.**

Staff has proposed the following changes to the proposed amendments based on SFWMD's comments.

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

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 utilizing hydrologic modeling,~~ The impacts of proposed development ~~on the historic surface and groundwater resources must be analyzed using hydrologic modeling to assess potential adverse impacts to upstream and downstream lands, current and future water resources, and natural systems This analysis will occur during the rezoning application process or development order application review, if rezoning is not required. The analysis must demonstrate that the proposed change will have no significant impacts on present or future water resources. Lee County's Department of Natural Resources will review and verify all proposed analyses, which may include an integrated surface and groundwater hydrologic model. The intent of the analysis is to demonstrate the impact of a proposed development on the county's natural resources. the incorporation of increased storage capacity and~~ the ~~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 must be submitted as part of the rezoning application and updated, if necessary, as part of the mining development order application.~~ When land is removed from the DR/GR land use category, hydrologic modeling must be used to analyze the impacts of proposed development on historic surface and groundwater resources. The analysis must assess potential adverse effects on upstream and downstream lands, current and future water resources, and other natural systems. The Future Land Use Map Amendment requires an analysis based on the location's natural attributes, and the rezone application requires a detailed analysis of the proposed use, design, irrigation, and other specifics, which must then be confirmed or, when necessary, as determined by the Director or designee, reanalyzed in the development order application. All analyses must demonstrate that the proposed change will not significantly affect present or future water resources. Lee County's Department of Natural Resources will review and verify all proposed analyses, which should include an integrated surface and groundwater hydrologic model, in collaboration with the applicable state agencies. Applicants must submit evidence of historic hydrological levels with development applications.

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 standard density of one dwelling unit per ten acres (1 du/10 acres). ~~See Objectives 33.2 and 33.3 for potential density adjustments resulting from concentration or transfer of development rights.~~

3. Private Recreational Facilities may be permitted in accordance with the site locational requirements and design standards, as further defined in Goal 13. No Private Recreational Facilities may occur within the DR/GR land use category without a rezoning to an appropriate Planned Development zoning category, and compliance with the Private Recreation Facilities performance standards, contained in Goal 13.

SFWMD's comment letter raised concerns about the modeling requirements in Policy 1.4.5. Staff updated the policy in its entirety to clarify the requirements at all stages of the development process and specify collaboration with SFWMD.

All the privately initiated map amendments included in the proposed amendments included hydrologic modeling based on the current Lee Plan Requirements. Additionally, projects associated with the proposed amendments must go through the planned development process, which also requires detailed hydrologic modeling based on the proposed uses and development design. **No properties associated with the proposed amendments are exempt from the modeling requirements of Policy 1.4.5.**

> **POLICY 33.1.7:** Impacts of proposed ~~land disturbances~~development on surface and groundwater resources ~~will~~must be analyzed using hydrologic modeling to assess potential adverse impacts to upstream and downstream lands, current and future water resources, and natural systems within Southeast Lee County. This analysis will occur at all levels of the development review process prior to permitting in Southeast Lee. Future Land Use changes must analyze the impact of the proposed change based on the site's attributes, with more specific use, design, irrigation, and other development details applied during the rezoning application process or development order application review~~, if rezoning is not required~~. The analysis will be proportionate to the proposed impacts and use integrated surface and groundwater models ~~that utilize~~with site-specific data. Lee County's Department of Natural Resources will review and verify all models to evaluate their design and outputs, ensuring the protection of the county's natural resources, in coordination with the applicable state agencies. ~~to assess potential adverse impacts on water resources, and natural systems within Southeast Lee County. Lee County Division of Natural Resources will determine if the appropriate model or models are being utilized, and assess the design and outputs of the modeling to ensure protection of Lee County's natural resources.~~

Policy 33.1.7 was updated to be consistent with Policy 1.4.5; however, Policy 33.1.7 applies to all property within Southeast Lee, whereas Policy 1.4.5 applies to properties within the DR/GR land use category. The revisions specify the requirements for Future Land Use Map amendments, Rezonings, and Development Orders in Southeast Lee in response to SFWMD comments.

> **POLICY 1.4.8:** The **Conservation Community** future land use category denotes areas of low-density, clustered residential and mixed-use development within the Southeast Lee County Community Plan Area. Development in this category must connect to potable water and sanitary sewer system and be located along arterial or major collector roadways in the Southeast Lee County Community Plan Area. This category requires a large percentage of open space and the restoration of environmentally sensitive lands to protect the County's water resources and Southeast Lee County's natural resources. The standard density is 1 unit per 10 acres, with a maximum density of 1.15 units per acre when the community is designed as a planned development in accordance with the Land Development Code. Development in this

category is encouraged to promote a park-like aesthetic, with pedestrian connections and extensive green spaces. Nonresidential and multifamily uses may be allowed when developed within the same planned development as low-density residential uses. These uses are limited to a maximum total FAR of 0.15, based on the acreage allocated to non-residential and multi-family uses. A traditional Main Street design with vertically mixed buildings adjacent to park space is encouraged for developments that use the FAR allowance; standalone linear commercial development is discouraged.

Policy 1.4.8 was updated to better reflect the existing EEPCO requirements and to limit potential development in response to SFWMD's concerns about potential impacts to regional water resources. The existing EEPCO requirement is that properties must be located on Alico Rd or Corkscrew Rd. The proposed change would allow more properties to be eligible for Conservation Community, but would limit eligibility to properties along major roadways.

Staff made additional changes to Attachment 1 since the Transmittal Hearing as discussed above. These changes reflect the State Reviewing Agencies' letters and feedback from the Transmittal Hearing. These changes are included in Attachment 1 and are shown in red. Double-underlined text is new, and each section includes annotations labeled "Update for Adoption Hearing" explaining the change.

B. STAFF RECOMMENDATION

Staff recommends that the Board of County Commissioners ***adopt*** the amendments to the Lee Plan as provided in Attachment 1.

ATTACHMENT 1

- **Text Amendments**

- **Map Amendments**
  - **Map 1-A: Existing Future Land Use Map**
  - **Map 1-A: Proposed Future Land Use Map**
  - **Map 1-D: Existing Special Treatment Areas**
  - **Map 1-D: Proposed Special Treatment Areas**
  - **Map 2-A: Community Planning Areas**
  - **Map 2-D: Southeast DR/GR Residential Overlay**
  - **Map 4-A: LCU Future Water Service Area**
  - **Map 4-B: LCU Future Sewer Service Area**

- **Table Amendments**
  - **Table 1(a) Summary of Residential Densities**

POLICY 1.1.10: The **Commercial** future land use category is located in areas where infrastructure is planned or in place and residential uses are not expected or incompatible due to surrounding land uses, environmental constraints, or proximity to the Coastal High Hazard Area. ~~the nature of surrounding land uses, location along major travel corridors, or where residential development would increase densities in Coastal High Hazard Areas or in Lehigh Acres, where residential uses are abundant and existing commercial areas serving the residential needs are limited. In these locations, the requisite infrastructure needed for commercial development is generally planned or in place.~~ The Commercial category is intended to support all types of commercial uses and limited light industrial uses, excluding outdoor storage.~~retail developments, hotels and motels, banks, all types of office development, research and development, public, and other similar development will be predominant in the Commercial future land use category. Limited light industrial uses are also permitted, excluding outdoor storage type uses.~~ Residential uses, other than bona fide caretaker residences, are not permitted in this future land use category. ~~Any redesignation of land to the Commercial future land use category should occur along major travel corridors and at road intersections. The planned development rezoning process must be used to prevent adverse impacts to the surrounding areas and to ensure that appropriate site development regulations are incorporated into the development plans of each site. New developments~~Development in this category must connect to a potable water and sanitary sewer system.

- Simplifies description: Streamlines the Commercial future land use category.
- Removes PD requirement: Eliminates mandatory planned developments for commercial projects in the Commercial future land use category.
- Accelerates approvals: Removes unnecessary steps to speed up redevelopment.

POLICY 1.1.13: The **Tradeport** future land use category includes areas of commercial and industrial lands adjacent to the Southwest Florida International Airport (RSW),~~the airport~~ or other major transportation infrastructure such as Florida's Strategic Intermodal System (SIS). These areas will include developments consisting of light manufacturing or assembly, data centers, warehousing, and distribution facilities; research and development activities; laboratories; ground transportation and airport-related terminals or transfer facilities; hotels/motels, meeting facilities; education and training facilities; and office uses.

Stand-alone retail commercial uses intended to support and complement the surrounding business and industrial land uses are permitted if they are approved as part of a ~~Development of Regional Impact (DRI) or~~ Planned Development rezoning. Stand-alone retail commercial uses are limited to 1 acre ~~out of~~for every 10 Tradeport and preserved wetland acres within the project. To provide an incentive to preserve upland habitat, ~~DRIs or~~ Planned Developments may also receive additional stand-alone retail acres at the rate of 1 additional acre ~~out of~~for every 10 acres of preserved and enhanced uplands within the project that protect wetlands, flow-ways, or occupied listed species habitat. Ancillary ~~retail~~ commercial uses related directly to the sale of products manufactured or services provided by the associated light industrial use are not considered stand-alone commercial

~~in Tradeport are allowed if they are part of a planned development~~. Residential uses, other than bona fide caretaker residences, are not permitted in this future land use category.

- Specifies relation to RSW airport, not airports generally, and freight highways.
- Removes outdated requirements: Deletes obsolete references to Developments of Regional Impact (DRIs).
- Clarifies land use: Explicitly defines when commercial activities are allowed.

POLICY 1.1.16: The **Preservation and Innovation** future land use category is connected to central utilities and located along arterial or major collector roadways in the Southeast Lee County Community Plan Area, with the intent of balancing ecological, hydrological, and wildlife preservation with employment and commercial needs within the County. Office, light industrial, and commercial uses are encouraged when designed to preserve or restore surrounding natural resources. This category requires a large percentage of open space and the restoration of environmentally sensitive lands to protect the County's water resources and Southeast Lee County's natural resources. Uses that have a significant impact on ground and surface water levels or quality, are known producers or users of noxious gases or chemicals, or have other detrimental impacts on the natural environment, as demonstrated by appropriate data and analysis and verified by the County, may not be permitted. This land use category does not permit general residential uses. Caretaker's residences and dormitory-type accommodations for employees or individuals associated with the business may be permitted as part of the Floor Area Ratio (FAR) calculation when accessory to a nonresidential use. Development in this category is limited to an FAR of 0.25 and is encouraged to promote a park-like aesthetic, with pedestrian connections, extensive green spaces, and minimal linear commercial centers. Applications for rezoning must follow the planned development rezoning process in accordance with the Land Development Code.

- New land use category that allows nonresidential uses.

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

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 utilizing hydrologic modeling, The impacts of proposed development on the historic surface and groundwater resources must be analyzed using hydrologic modeling to assess potential adverse impacts to upstream and downstream lands, current and future water resources, and natural systems This analysis will occur during the rezoning application process or development order application review, if rezoning is not required. The analysis must demonstrate that the proposed change will have no significant impacts on present or future water resources. Lee County's Department of Natural Resources will review and verify all proposed analyses, which may include an integrated surface and groundwater hydrologic model. The intent of the analysis is to demonstrate the impact of a proposed development on the county's natural resources. the incorporation of increased storage~~

~~capacity and the 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 must be submitted as part of the rezoning application and updated, if necessary, as part of the mining development order application.~~ When land is removed from the DR/GR land use category, hydrologic modeling must be used to analyze the impacts of proposed development on historic surface and groundwater resources. The analysis must assess potential adverse effects on upstream and downstream lands, current and future water resources, and other natural systems. The Future Land Use Map Amendment requires an analysis based on the location's natural attributes, and the rezone application requires a detailed analysis of the proposed use, design, irrigation, and other specifics, which must then be confirmed or, when necessary, as determined by the Director or designee, reanalyzed in the development order application. All analyses must demonstrate that the proposed change will not significantly affect present or future water resources. Lee County's Department of Natural Resources will review and verify all proposed analyses, which should include an integrated surface and groundwater hydrologic model, in collaboration with the applicable state agencies. Applicants must submit evidence of historic hydrological levels with development applications.

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 standard density of one dwelling unit per ten acres (1 du/10 acres). ~~See Objectives 33.2 and 33.3 for potential density adjustments resulting from concentration or transfer of development rights.~~

3. Private Recreational Facilities may be permitted in accordance with the site locational requirements and design standards, as further defined in Goal 13. No Private Recreational Facilities may occur within the DR/GR land use category without a rezoning to an appropriate Planned Development zoning category, and compliance with the Private Recreation Facilities performance standards, contained in Goal 13.

- Clarifies requirements and standardizes language across the Lee Plan without altering existing requirements.
- Removes reference to Objectives within Goal 33 which no longer apply.
- **UPDATE FOR ADOPTION HEARING**: The double-underlined portion (in red) rewords the prior version and clarifies what each step in the development process requires with regard to hydrological modeling. This revision was in response to South Florida Water Management District's comments relating to hydrologic modeling for removal of property from DR/GR.

POLICY 1.4.8: The **Conservation Community** future land use category denotes areas of low-density, clustered residential and mixed-use development within the Southeast Lee County Community Plan Area. Development in this category must connect to a potable water and sanitary sewer system. This category requires a large percentage of open space and the restoration of environmentally sensitive lands to protect the County's water

resources and Southeast Lee County's natural resources. The standard density is 1 unit per 10 acres, with a maximum density of 1.15 units per acre when the community is designed as a planned development in accordance with the Land Development Code. Development in this category is encouraged to promote a park-like aesthetic, with pedestrian connections and extensive green spaces. Nonresidential and multifamily uses may be allowed when developed within the same planned development as low-density residential uses. These uses are limited to a maximum total FAR of 0.15, based on the acreage allocated to non-residential and multi-family uses. A traditional Main Street design with vertically mixed buildings adjacent to park space is encouraged for developments that use the FAR allowance; standalone linear commercial development is discouraged.

- New residential land use category for Southeast Lee, modeled after the EEPCO.

POLICY 1.6.10: Lee Plan Map 1-D, Special Treatment Areas, depicts areas of the county with specific requirements, including the following overlays: ~~The Southeast Lee County Residential Overlay (Map 2-D) is described in Objective 33.2. This Overlay affects only Southeast Lee County and identifies five types of land:~~

1. "Existing Acreage Subdivisions:" Existing rural residential subdivisions that should be protected from adverse external impacts ~~such as natural resource extraction~~.
2. "Rural Golf Course Communities:" Potential locations for the concentration of development rights on property zoned Private Recreational Facilities Planned Development ~~and located in the Southeast DR/GR area~~.
3. ~~"Mixed-Use Communities:" Locations where this concentration of development rights from large contiguous tracts within the DR/GR area that can be supplemented by transfer of development rights from non-contiguous tracts in the Southeast DR/GR area. See Objective 33.3 and following policies.~~
4. ~~"Improved Residential Communities:" Property with existing residential approvals that are inconsistent with the Southeast DR/GR area that could be improved environmentally.~~
5. ~~"Environmental Enhancement and Preservation Communities:" Properties adjacent to Corkscrew and Alico Roads that have the potential to improve and restore important regional hydrological and wildlife connections.~~

- Edits related to the inclusion of the new future land use categories and deletion or relocation of existing overlays.

OBJECTIVE 2.3: FUTURE LAND USE MAP AMENDMENTS. To require formal findings for certain Future Land Use Map amendments.

POLICY 2.3.1: All proposed changes to the Future Land Use Map in critical areas for future potable water supply, such as ~~(~~Lehigh Acres, as described in Policy 54.1.9, and all land in the Southeast Lee County Community Plan Area or the DR/GR land use category.~~)~~ Map amendments for these areas will be subject to a special review by the staff of Lee County~~. This review will~~ to

analyze the potential impact of the land change on the ~~proposed land uses to and determine the short-term and long-term~~ availability of irrigation and domestic water sources and ~~will~~ assess whether the proposed ~~land uses~~change would cause any significant impact on present or future water resources. If the Board of County Commissioners wishes to approve any such changes to the Future Land Use Map, it must make a formal finding that no significant impacts on present or future water resources will result from the change.

POLICY 2.3.2: Future Land Use Map amendments to the existing DR/GR areas within the Southeast Lee County Community Plan Area to a district other than Preservation and Innovation, Conservation Community, Wetlands, Conservation Lands, or Public Facilities will be discouraged by the County. ~~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 Ch. 163, Part II, Fla. Stat., 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 urban sprawl.~~

~~During the transmittal and adoption process, the Board of County Commissioners must review the application for all these analytical requirements and make a finding that the amendment complies with all of them.~~

~~**POLICY 2.3.3**: Lee Plan amendment applications to expand the Lee Plan's employment centers, which include light industrial, commercial retail and office land uses, will be evaluated by the Board of County Commissioners in light of the locations and cumulative totals already designated for such uses, including the 1994 addition of 1,400 acres to the Tradeport category just south of the Southwest Florida International Airport.~~

- Standardizes Lee Plan language: Clarifies requirements and updates text for consistency across the Lee Plan without altering requirements.

- Removes outdated incentives: Eliminates DR/GR density incentives and requires a Conservation Community designation for residential development in Southeast Lee County.

POLICY 6.1.2: Commercial development in non-urban future land use categories is limited to Minor Commercial, ~~except that~~ unless the Lee Plan specifically provides otherwise.~~:~~

- ~~Neighborhood Commercial uses are permitted in the Southeast Lee County Planning District as provided for in Objectives 13.3 and 33.2.5.~~

Minor Commercial development may include limited commercial uses serving rural areas and agricultural needs, and commercial marinas. Minor Commercial development must be located so that the retail use, including buildings and outdoor sales area, is located at the intersection (within 330 feet of the adjoining rights-of-way of the intersecting roads) of arterial and collector roads or two collector roads with direct access to both intersecting roads. Direct access may be achieved with an internal access road to either intersecting road. On islands, without an intersecting network of collector and arterial roads, commercial development may be located at the intersection of local and collector, or local and arterial, or collector and collector roads.

- Removes outdated references.

POLICY 7.1.2: Industrial development is encouraged through conventional zoning districts when the property is within the Industrial Development, Tradeport, and Industrial Interchange future land use categories or within a Future Urban Area, unless a Planned Development is specifically required by the Lee Plan or necessary to demonstrate compliance with Policy 5.1.5. ~~Industrial in these future land use categories requiring rezoning and meeting DCI thresholds must be rezoned to a Planned Development. All rezonings to allow industrial uses outside of the Industrial Development, Tradeport, or Industrial Interchange future land use categories must be rezoned to a Planned Development, except if located within the Mixed Use Overlay. The Planned Development must be designed to arrange uses as an integrated and cohesive unit in order to: promote compatibility and screening; reduce dependence on the automobile; promote pedestrian movement within the development; utilize joint parking, access and loading facilities; avoid negative impacts on surrounding land uses and traffic circulation; protect natural resources; and, provide necessary facilities and services where they are inadequate to serve the proposed use.~~

- The proposed amendment to Policy 7.1.2 simplifies the policy and specifies that PDs are only necessary if specifically required by the Lee Plan or there are compatibility concerns with adjacent residential uses.

GOAL 33: SOUTHEAST LEE COUNTY. Protect Southeast Lee County's natural resources through public and private acquisition and restoration efforts. Development incentives will be utilized as a mechanism to preserve, enhance, and protect natural resources, such as regional flow-ways and natural habitat corridors, in the development of privately owned land. ~~Allowable land uses will include conservation, agriculture, public facilities, low density or clustered residential, natural resource extraction operations, and private recreation facilities; allowable land uses must be compatible with protecting Southeast Lee County's environment.~~ A variety of uses may be permitted when developed in accordance with the goals, objectives, and policies in the Lee Plan, the Wellfield Protection Ordinance, Land Development Code, and other applicable environmental protection requirements.

- Expands the allowed uses in Southeast Lee.

POLICY 33.1.1: Large-scale ecosystem integrity in Southeast Lee County should be maintained and restored through a coordinated effort between public, nonprofit, and private landowners to ensure wildlife corridor connectivity and habitat restoration, maintenance and establishment of conservation lands, and other general water and natural resource protections. Protection and/or restoration of land is of even higher value when it connects existing corridors and conservation areas. Restoration is also highly desirable when it can be achieved in conjunction with other uses on privately owned land, including agriculture.

POLICY 33.1.2: The County will create development incentives to offset the cost of creating, preserving, or re-establishing natural systems in the Southeast Lee County Community Plan Area. The incentive programs may be updated from time to time based on the changing needs of this area of the county. ~~The DR/GR Priority Restoration Strategy consists of seven tiers of 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 Map 1-D). Within these tiers, density incentives will be utilized as a mechanism to improve, preserve, and restore regional surface and groundwater resources and wildlife habitat of state and federally listed species; with Tier 1 and Tier 2 being the most incentivized tiers. Lee County may consider amendments to this Overlay based on changes in public ownership, land use, new scientific data, and/or demands on natural resources. This Overlay does not restrict the use of the land.~~

POLICY 33.1.3: Pursue acquisition ~~(partial or full interest)~~ of land via public investment, land swaps, conservation easements, or donation of critical lands within Southeast Lee County to augment preservation lands to improve, restore, or create water resources, natural ecosystems, and wildlife connections through a planned development, Development Agreement approved by the Board of County Commissioners, or other legally binding agreement accepted by the County Attorney's Office. ~~within the Tier 1 areas in the Priority Restoration Strategy Overlay through direct purchase; partnerships with other government agencies; long-term purchase agreements; right of first refusal contracts; land swaps; or other appropriate means to provide critical connections to conservation lands that serve as the backbone for water resource management and wildlife movement within Southeast Lee County. Tier 2 lands are of equal ecological and water resource importance as Tier 1 but have better potential to remain in productive agricultural use. Tier 3 lands and the southern two miles of Tiers 5, 6, and 7 can provide an important wildlife connection to conservation lands in Collier County and an anticipated regional habitat link to the Okaloacoochee Slough State Forest. Tiers 1, 2, 3, and the southern two miles of Tiers 5, 6, and 7 may qualify for unique development incentives outlined in Objectives 33.2 and 33.3 due to the property's potential for natural resource benefits and/or wildlife connections. Additionally, the~~

~~County may consider incentives, within all tiers, for private landowners to improve water resources and natural ecosystems.~~

- Remove references to deleted overlays.
- **UPDATE FOR ADOPTION HEARING**: Revisions to Policy 31.1.1 were added in response to public comment relating to guiding policies on coordinated efforts for conservation, preservation, and wildlife connectivity. These revisions also support the technical assistance that Florida Fish and Wildlife Conservation Commission provided related to protected species and indigenous wildlife habitat.

POLICY 33.1.6: On existing farmland, the County will offer incentives to encourage the continuation of agricultural operations. Incentives will include the ability to concentrate all existing development rights while farming continues on the remainder of the tract; and, the ability to sever and sell all development rights while farming continues on the entire tract. Other incentives may be provided to agricultural operations that implement and maintain best management practices. ~~Continued agricultural use may be a desirable long-term use even within land designated on the Priority Restoration Strategy Overlay as potentially eligible for protection (see Policy 9.1.7).~~

POLICY 33.1.7: Impacts of proposed ~~land disturbances~~development on surface and groundwater resources ~~will~~must be analyzed using hydrologic modeling to assess potential adverse impacts to upstream and downstream lands, current and future water resources, and natural systems within Southeast Lee County. This analysis will occur at all levels of the development review process prior to permitting in Southeast Lee. Future Land Use changes must analyze the impact of the proposed change based on the site's attributes, with more specific use, design, irrigation, and other development details applied during the rezoning application process or development order application review~~, if rezoning is not required~~. The analysis will be proportionate to the proposed impacts and use integrated surface and groundwater models ~~that utilize~~with site-specific data. Lee County's Department of Natural Resources will review and verify all models to evaluate their design and outputs, ensuring the protection of the county's natural resources, in coordination with the applicable state agencies. ~~to assess potential adverse impacts on water resources, and natural systems within Southeast Lee County. Lee County Division of Natural Resources will determine if the appropriate model or models are being utilized, and assess the design and outputs of the modeling to ensure protection of Lee County's natural resources.~~

POLICY 33.1.8: The County supports a comprehensive and coordinated effort to manage water resources in a manner that ~~includes the protection and restoration of~~ protects and restores natural systems within Southeast Lee County.

- Clarifies requirements and standardizes language across the Lee Plan without altering existing modeling requirements.
- Remove references to deleted overlays.
- **UPDATE FOR ADOPTION HEARING**: Specifies the requirements for Future Land Use Map amendments, Rezones, and Development Orders in Southeast Lee in response to SFWMD comments.

OBJECTIVE 33.2: RESIDENTIAL ~~AND MIXED USE~~ DEVELOPMENT. Residential development in Southeast Lee County in a land use category other than DR/GR and exceeding 1 unit per 10 acres must create, improve, preserve, and/or restore strategic surface and groundwater resources and indigenous wildlife habitats. ~~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 DR/GR future land use category (Improved Residential Communities).~~

- Added language to clarify that residential densities of 1 unit per 10 acres can still be achieved within the DR/GR future land use category.

POLICY 33.2.1: Residential development exceeding 1 unit per 10 acres within the Southeast Lee Community Plan Area must have a future land use designation of Conservation Community and provide hydrological connections to regional watersheds, wildlife habitat connections to publicly or privately owned conservation lands, or strategic infrastructure connections to benefit the county's water and natural resources. Communities approved prior to DATE through a settlement agreement are exempt from this requirement under Lee Plan Chapter 13. ~~Existing acreage subdivisions are shown on Map 2-D. These subdivisions should be protected from adverse external impacts.~~

POLICY 33.2.2: The County will create a program to allow a maximum density of 1.15 units per acre for the Conservation Community future land use category in the land development code to offset the costs of improving, preserving, and restoring regional surface and groundwater resources and wildlife habitat for state- and federally listed species.

POLICY 33.2.3: Density in the Southeast Lee County Community Plan Area may not exceed 1.15 units per acre, regardless of land use category, even when the strategies in the land development code are met.

POLICY 33.2.4: Existing acreage subdivisions, as indicated in the Lee Plan Map 1-D, should be protected from adverse external impacts through appropriate mitigation measures such as, but not limited to, site configuration, setbacks, density distribution, buffers, and/or general design.

- This section is repurposed to reference residential development.

~~**POLICY 33.2.2:** Map 2-D identifies future locations for Mixed-Use Communities where development rights can be concentrated from large Southeast Lee County tracts. The preferred pattern for residential development is to cluster density within Mixed-Use Communities along existing roads and away from Future Limerock Mining areas.~~

~~1. Southeast Lee County Mixed-Use Communities must be concentrated from contiguous property owned under single ownership or control. Residential density is calculated from the~~

upland and wetland acreage of the entire contiguous Southeast Lee County property. Increases in residential densities may be approved through incentives as specified in the LDC for permanent protection of indigenous native uplands on the contiguous tract (up to one extra dwelling unit allowed for each five acres of preserved or restored indigenous native uplands) and through the acquisition of TDUs from TDR sending areas within Southeast Lee County as provided in Objective 33.3.

a. The maximum gross density is 5 dwelling units per acre of total land designated as a Mixed-Use Community when TDUs are used.

b. Properties that concentrate development rights and/or use TDUs created from Southeast Lee County within the Mixed-Use Communities identified on Map 2-D will be allowed to develop using permitted uses and the property development regulations for the C-2A zoning district.

c. Contiguous property under the same ownership may be developed as part of a Mixed-Use Community provided it does not extend more than 400 feet beyond the perimeter of the Mixed-Use Community as designated on Map 2-D.

d. Commercial uses developed as part of a Mixed-Use Community will be consistent with Policy 33.2.5 and will not exceed the allowable total square footage for commercial uses in Southeast Lee County.

2. Contiguous property adjacent to the Mixed-Use Community located within the Lehigh Acres Community Plan Area may sum allowable dwelling units for entire property. The resulting allowable dwelling units may be allocated across the project regardless of the underlying future land use category, provided:

a. The project is developed as a Planned Development, and

b. The project maintains 60% open space.

3. Central water and wastewater services are required to develop a Mixed-Use Community.

POLICY 33.2.3: Properties within Southeast Lee County that have existing approvals for residential development inconsistent with the current DR/GR or Wetlands density requirements, may have a negative impact on surface and sub-surface water resources, impact habitat, and may 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.

1. These properties may be designated on Map 2-D as "Improved Residential Communities," provided they meet all of the following requirements:
   a. Abut lands designated as future urban areas;
   b. Adjacent to and eligible for public water and sewer services;

c. Can provide two direct accesses to an arterial roadway, and;
d. Is not already designated on Lee Plan Map 2-D as an Existing Acreage Subdivision or a Mixed-Use Community.

2. In order to request an increase in density, the property must be rezoned to a Residential Planned Development (RPD) that demonstrates and is conditioned to provide the following:
   a. Reduced stress to the onsite potable aquifers and is more consistent with water resource goals of Lee County in Southeast Lee County than the existing development approvals.
   b. Increased conservation areas, relative to the existing approvals, with a restoration plan and long term maintenance commitment.
   c. Active and passive recreational amenities.
   d. Demonstrates a net benefit for water resources, relative to the existing approvals that demonstrates the following.
      (1) Lower irrigation demand.
      (2) Eliminates private irrigation wells
      (3) Protects Public wells by meeting or exceeding the requirements of the Well Field Protection Ordinance.
      (4) Uses Florida Friendly Landscaping with low irrigation requirements in common elements.
      (5) Connects to public water and sewer service, and must connect to reuse water when available.
      (6) Reduces impervious area relative to existing approvals improving opportunities for groundwater recharge.
      (7) Designed to accommodate existing or historic flow-ways.
   e. Includes an enhanced lake management plan, that addresses at a minimum the following issues:
      (1) Best management practices for fertilizers and pesticides
      (2) Erosion control and bank stabilization
      (3) Lake maintenance requirements
      (4) Public well field protection
   f. Indigenous Management Plans must address human-wildlife coexistence.

3. Properties meeting the above criteria and requirements may be permitted additional residential dwelling units in addition to the already existing approvals, but in no case in excess of three dwelling units per DR/GR upland acre. The application for Residential Planned Development must identify the source of the additional residential dwelling units from the criteria below. Approval of the rezoning will be conditioned to reflect the source of additional dwelling units:
   a. 2 dwelling units for every acre of offsite DR/GR property acquired for conservation purposes with the possibility of passive recreation activities.
   b. 2 dwelling units for every additional acre of offsite DR/GR property put under a conservation easement dedicated to Lee County.
   c. 1.5 dwelling units for every additional acre of onsite property put under a conservation easement.
   d. 1 dwelling unit for every acre of onsite restoration, subject to restoration plan approval as part of the planned development rezoning process.
   e. 2 dwelling units for every acre of non-isolated DR/GR preserved primary and secondary panther habitat.

f. 2 dwelling units for every acre of protected onsite wetlands connected to a regionally significant flow-way identified in the Lee Plan.
g. 1 dwelling unit for every $8,500 (the current estimated cost to purchase an acre of Southeast DR/GR land) the applicant provides to the County to extinguish density on other Southeast DR/GR parcels.
h. 1 dwelling unit for every $8,500 the applicant provides to the County to construct a planned large mammal roadway crossing in the Southeast DR/GR area.

The improvements or acquisition of properties serve to mitigate impacts of the increased density. Future "Improved Residential Communities" proposed to be added to Map 2-D must provide a reanalysis of the cost to purchase one acre of DR/GR property if criteria g. or h. are used to account for the increased density.

POLICY 33.2.4: Lands 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 lands, 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 commercial uses may be granted if the project is found consistent with and demonstrates through a planned development rezoning the following:

1. These lands are within the "Environmental Enhancement and Preservation Communities" Overlay as designated on Map 2-D of the Plan. Lands eligible for designation on the Environmental Enhancement and Preservation Communities Overlay must be consistent with the criteria below:
   - Provide significant regional hydrological and wildlife connections and have the potential to improve, preserve, and restore regional surface and groundwater resources and indigenous wildlife habitats; and
   - Be located west of Lee County 20/20 Imperial Marsh Preserve (Corkscrew Tract) and within one mile north or south of Corkscrew Road. Properties with frontage on Corkscrew Road designated as Tier 1 Priority Restoration Area may extend the Overlay an additional mile south to include contiguous Tier 1 properties where the extension will result in regional environmental benefits by connecting protected habitat north of Corkscrew Road to land in Collier County used for conservation purposes; or,
   - Be located west of the intersection of Alico Road and Corkscrew Road, north of Corkscrew Road and south of Alico Road.

2. The property is rezoned to a planned development that meets the following:
   a. Planned development must include a minimum of 60% open space, not including previously mined lakes, which will be used to accommodate the following:
      1. Restore and accommodate existing and historic regional flow-ways where they currently or previously existed;
      2. Restore and accommodate existing and historic groundwater levels;
      3. Restore and preserve wetlands;

4. Restore and preserve indigenous upland habitats;
5. Provide critical wildlife connections to adjacent conservation areas; and
6. Provide 100' foot buffer along Corkscrew Road East of Alico Road.

b. Includes an enhanced lake management plan, that:
1. Applies best management practices for fertilizers and pesticides;
2. Provides erosion control and bank stabilization; and
3. Establishes lake maintenance requirements.

c. Develop a site specific ecological and hydrological restoration plan which includes at a minimum the following: preliminary excavation and grading plans, analysis of hydrological improvements and water budget narrative, replanting plan, habitat restoration plan, success criteria, long term monitoring and maintenance.

d. Preservation areas must be platted in separate tracts and dedicated to an appropriate maintenance entity. For projects larger than 1,000 acres a CDD or a master home owners association must be created that will accept responsibility for perpetually maintaining the preservation requirements identified in the planned development, prior to issuance of certificate of compliance (CC) for first local development order.

e. Record a Conservation Easement for a minimum of 55% of the planned development, not including previously mined lakes, to be dedicated to the appropriate maintenance entity that provides Lee County or some other public agency, acceptable to Lee County, with third party enforcement rights. All Conservation Easements required as part of the planned development must be recorded within 5 years from first development order approval.

f. Indigenous management plans must address human-wildlife coexistence.

g. Uses Florida Friendly Landscaping with low irrigation requirements in common elements.

h. The stormwater management system must demonstrate through design or other means that water leaving the development meets state and federal water quality standards. The developer must obtain authorization from the Division of Natural Resources prior to discharge of stormwater from the development into the County's MS4 system directly or indirectly.

i. Irrigation and fertilizers (or other chemicals) for agricultural purposes must be entirely eliminated at time of first development order approval for row crops and no later than 5 years from first development order approval for citrus groves. If cessation of citrus groves is to be phased, a phasing plan provided at the time of zoning must demonstrate regional environmental benefits, including but not limited to regional or historic surface water and wildlife connections, occurring with the first phase of development.

j. Protects public wells through compliance with the requirements of the Well Field Protection Ordinance.

k. Each planned development within the Overlay will be required to mitigate the traffic impacts of the planned development and provide its proportionate share of the needed roadway improvements in accordance with Administrative Code (AC) 13-16. The proportionate share amount can be offset, in accordance with AC 13-16, by the dedication of needed right-of-way or the construction of improvements that would measurably lessen the need for roadway improvements, or by payment of impact fees, or use of impact fee credits, or as otherwise set forth in a written agreement between Lee County and the Developer. Prior to a final determination of a Project's proportionate share amount, compliance may be met through an enforceable instrument that obligates the property owners within a planned development to pay the Project's proportionate share, with said instrument being recorded prior to the issuance of any development order. For the developments known as WildBlue (CPA2014-00004) and Corkscrew Farms (CPA2015-

00001) if the instrument is recorded prior to the final determination of the proportionate share amount, the proportionate share payment may not exceed $1,600 per unit above the road impact fee amount.

l. Connect to public water and sewer service. Connect to reuse water if available at time of development order approval.

m. Obtain written verification as to adequate public services for the planned development, from the sheriff, EMS, fire district, and Lee County School District.

n. Demonstrate that the planned development will not result in significant detrimental impacts on present or future water resources.

3. In recognition of the preservation, enhancement, and protection of regional flow ways and natural habitat corridors, the interconnection with existing off-site conservation areas, and the significant enhancement, preservation and protection of these lands, additional density may be approved through planned developments meeting the criteria and requirements outlined above as follows:

a. Tier 1 lands within the Priority Restoration Strategy will be permitted a maximum density of 1 unit per acre.

b. Tier 2 lands within the Priority Restoration Strategy will be permitted a maximum density of 1 unit per 2 acres.

c. Other lands within the Environmental Enhancement and Preservation Overlay, outside of Tier 1 and Tier 2, meeting the requirements above will be permitted a maximum density of 1 unit per 3 acres.

d. Density in the Environmental Enhancement and Preservation Overlay will be based upon the acreage of the entire planned development (i.e. all areas within the boundary of the planned development whether uplands, wetlands, or lakes).

e. Additional dwelling units may be approved in the planned development by using any combination of the following:

1) Utilize the Southeast Lee County TDR program to transfer dwelling units from Southeast Lee County lands located outside of the planned development pursuant to Policy 33.3.2.

2) Provide all of the following as part of the planned development for a density increase of up to 15%:

i. A minimum of 65% open space, not including previously mined lakes; and

ii. Significant regional hydrological connections that further Lee County's flood mitigation and flow way restoration efforts by providing:

a. Physical surface water connections to allow surface water to flow to and from adjacent properties and off-site flow-ways (to be considered site-related improvements); and

b. Enhanced on-site surface water storage and flood attenuation.

4. Commercial uses may be approved as part of a mixed use planned development if the project is found consistent with all of the following:

a. The project is a minimum of 2,000 acres;

b. The project consists of both residential and commercial development and meets the minimum requirements of this policy;

c. Wetlands may not be impacted by the commercial development area;

~~d. The project will be consistent with Policy 33.2.5 and will not exceed the allowable total square footage for commercial uses in Southeast Lee County;~~

~~e. Commercial uses and maximum floor area is limited to Neighborhood Commercial, as defined, and must not include any of the following uses: auto parts stores, lawn and garden supply stores, fuel pump stations, drycleaners (on-site), or any other use that is not compatible with protecting Southeast Lee County's environment;~~

~~f. Commercial development within the 6-month, 1-year, 5-year, or 10-year travel zones of the Wellfield Protection Ordinance must provide a total of 1½ inches of treatment, ½ inch of which must be completed via dry pretreatment, at a minimum. The entire commercial portion of the project will be considered to be within the most restrictive wellfield protection zone as provided in the Wellfield Protection Ordinance. Ground water quality monitoring well(s) for the Surficial Aquifer System must be provided and located between Lee County's nearest production well(s) and the commercial development; and~~

~~g. The human-wildlife coexistence plan required by subsection 2.f. of this policy must include a commercial component that at a minimum provides for bear-proof refuse containers, below ground grease traps, and prevents light spillage onto adjacent preserve areas.~~

- Requirements of the overlays will remain requirements of the new Conservation Communities, but will be located in the Land Development Code. See attachment 2.

~~**POLICY 33.2.5:** Commercial uses may only be permitted if incorporated into a Mixed-Use Community, Environmental Enhancement and Preservation Community, or Rural Golf Course Community depicted on Map 2-D. The maximum commercial floor area that may be approved within the Southeast Lee County community plan area may not exceed 300,000 square feet.~~

- Removes the commercial cap.

OBJECTIVE 33.3: ~~SOUTHEAST LEE COUNTY TRANSFER OF DEVELOPMENT RIGHTS (Southeast Lee County TDR)~~LAND CONSERVATION PROGRAMS. To protect water resources and natural habitat of Southeast Lee County, Lee County establishes the Southeast Lee County Transferable Development Rights (TDR) and Flooding Mitigation programs. ~~may incorporate Southeast Lee County's purchase and transfer of development rights programs into the LDC.~~

POLICY 33.3.1 The ~~new~~ programs ~~may~~ create incentives for property owners or developers within Southeast Lee County to transfer development rights associated with ~~their~~ sending parcels to receiving lands outside the planning community.~~; or, residential areas identified on Map 2-D; Southeast DR/GR Residential Overlay as specified in Policy 33.3.2.~~

POLICY 33.3.2: The Southeast Lee County TDR program will have the following characteristics:

1. Creation of Transferable Development Units (Southeast Lee County TDUs).
   a. Up to one Southeast Lee County TDU may be created per five acres of preserved or indigenous wetlands.

b. Up to two Southeast Lee County TDUs may be created from a single-family lot or parcel designated as wetlands that holds an affirmative Minimum Use Determination pursuant to Chapter XIII.

c. Southeast Lee County TDU credits may be established from DR/GR designated lands as follows:

1) Up to one Southeast Lee County TDU may be created for each ten upland acres encumbered by an agricultural easement.

2) Up to one Southeast Lee County TDU may be created for each 5 upland acres with indigenous native or restored native vegetation encumbered by a conservation easement.

~~3) For each Southeast Lee County TDU credit allowed by c.1) or c.2) above, up to two extra TDU credits may be created if the sending area land is designated as Tier 1, Tier 2, Tier 3, or the southerly two miles of Tiers 5, 6, and 7 in the Priority Restoration Strategy (Map 1-D).~~

2. Receiving area density and intensity equivalents of Southeast Lee County TDUs.

~~a. In Mixed-Use Communities in Southeast Lee County identified on Map 2-D, each Southeast Lee County TDU credit may be redeemed for a maximum of one dwelling unit plus a maximum of 800 square feet of non-residential floor area.~~

~~b. In Improved Residential Communities in Southeast Lee County identified on Map 2-D, each Southeast Lee County TDU credit may be redeemed for a maximum of one dwelling unit.~~

~~c. In Rural Golf Course Communities in Southeast Lee County identified on Map 2-D, each Southeast Lee County TDU credit may be redeemed for a maximum of one dwelling unit or two bed and breakfast bedrooms.~~

~~d. In Environmental Enhancement and Preservation~~ Properties within the Conservation Community ~~Communities~~ future land use category may redeem ~~identified on Map 2-D, each~~ Southeast Lee County TDU credits ~~may be redeemed~~ for a maximum of one dwelling unit per 10 acres ~~using~~when the credits are from DR/GR sending areas and a maximum of one dwelling unit per 20 acres ~~using~~ when credits are from wetland sending areas.

~~e~~b. No more than 2,000 dwelling units may be placed on receiving parcels within the Southeast Lee County Community Plan Area~~identified in subsections a. through d. above using the Southeast Lee County TDR program~~.

~~f~~c. Properties outside of the Southeast Lee County Community Plan area with ~~In the~~ Intensive Development, Central Urban, Urban Community, or General Interchange future land use ~~categories outside of Southeast Lee County, each Southeast Lee County TDU~~ may ~~be~~ redeem~~ed~~ Southeast Lee County TDUs for up to two dwelling units an acre. Southeast Lee County TDUs may not be redeemed for non-residential floor area in these future urban areas.

3. The LDC may include regulations that permit the County to evaluate the effectiveness of the Southeast Lee County TDR program and make changes that may further condition or restrict the use of Southeast Lee County TDUs.

- Updates the TDU program based on the changes to the overlays.

POLICY 33.3.4: Southeast Lee County Flooding Mitigation Lands Program allows developers to purchase property in the Southeast Lee County Community Plan Area identified for strategic county hazard mitigation projects in exchange for development approvals. Purchased property must be approved and dedicated to the county. The Flooding Mitigation Lands Program will be allocated per the following:

1. For projects within the Southeast Lee County Community Plan Area, incentives will be provided per the thresholds described in the LDC.

2. For projects outside of the Southeast Lee County Community Plan Area:

    a. Additional density may be applied to the receiving site at a rate of 2 units per acre of purchased and transferred land. The maximum density may not exceed the Bonus Density allowances of the land use category.

    b. Open space at a 1-acre for every 5 acres of purchased and transferred land. No more than 25% of the required open space may be offset by this allowance.

- Adds new land-swap options to assist in County projects for flooding mitigation.

OBJECTIVE 33.4: NONRESIDENTIAL USES. Livability in Southeast Lee County requires the allowance of nonresidential uses in addition to the uses allowed in the DR/GR to provide employment opportunities and reduce the number and duration of vehicle trips. Due to the potential environmental impacts of certain nonresidential uses in land use categories other than the DR/GR, limitations are required to protect the County's water resources and safeguard natural resources. Similar to residential development in Southeast Lee County, nonresidential development must create, improve, preserve, and/or restore strategic surface and groundwater resources and indigenous wildlife habitats while balancing the need for commercial, industrial, and office uses to support the existing and anticipated surrounding residential development.

POLICY 33.4.1: Commercial, light industrial, and office uses within the Southeast Lee County Community Plan Area must have a future land use designation of Preservation and Innovation or Conservation Community and provide hydrological connections to regional watersheds, wildlife habitat connections to publicly- or privately-owned conservation lands, or strategic infrastructure connections to benefit the county's water resources.

POLICY 33.4.2: The County will create LDC requirements for nonresidential uses in the Southeast Lee County Community Plan Area.

POLICY 33.4.3: Nonresidential development in Southeast Lee County must demonstrate compliance with the established LDC requirements through a planned development and, when necessary, a development agreement accepted by the County Attorney's Office.

POLICY 33.4.4: To preserve open space and ensure lower-intensity development, nonresidential development in Southeast Lee County may not exceed a Floor Area Ratio of 0.25.

- Adds new nonresidential development section.
- The specific development requirements will be in the Land Development Code. See attachment 2

- Added clarification following the LPA hearing to clarify what was meant by "alongside".
- Added language to clarify that nonresidential development that is consistent with the DR/GR future land use category, such as aggregate mining or other uses identified in Policy 2.1.3, may be developed within the DR/GR future land use category.
- **UPDATE FOR ADOPTION HEARING**: Staff added language to Policy 33.4.3 to clarify that development agreements are only required when necessary and may not be applicable to every application.

POLICY 56.1.10: The County will support expansion of utility service areas for all lands within a Basin Management Action Plan (BMAP) to minimize pollutants related to the use of private septic systems. The County will continue to coordinate the expansion of wastewater utilities with other private and municipal utility providers within its jurisdiction per the wastewater feasibility plans as outlined in the Clean Waterways Act (403.067(7)(a)9, F.S.).

- **UPDATE FOR ADOPTION HEARING**: Adds language to Lee Plan Goal 56, Sanitary Sewer Infrastructure, in response to Florida Department of Environmental Protection's comments related to wastewater treatment and disposal within a BMAP.

XII. Property Rights Element

GOAL 165: In accordance with §163.3177(6)(i), Fla. Stat., the following rights will be considered in local decision-making:

1. The right of a property owner to physically possess and control his or her interests in the property, including easements, leases, or mineral rights.
2. The right of a property owner to use, maintain, develop, and improve his or her property for personal use or for the use of any other person, subject to state law and local ordinances.
3. The right of the property owner to privacy and to exclude others from the property to protect the owner's possessions and property.
4. The right of a property owner to dispose of his or her property through sale, ~~or~~ gift, or other legal conveyance.

GOAL 166: County-initiated amendments may be made from time to time to update the Lee Plan, Future Land Use Map, or other regulatory documents to further the County's long-term vision for development.

OBJECTIVE 166.1: In certain instances where a county-initiated map or text amendment to the Lee Plan, Land Development Code, or zoning map changes the allowances on a property, the previous density and use allowances may be utilized in lieu of the changes.

POLICY 166.1.1: Properties previously identified as Mixed Use Community and Rural Golf Community in the Southeast Lee County Community Plan area may choose to develop under the regulations in effect prior to DATE by ORDINANCE, including requirements to concentrate development rights through the Southeast Lee County TDU program.

POLICY 166.1.2: Properties in the Southeast Lee County Community Plan Area whose land use was changed from DR/GR to Preservation and Innovation future land use category may retain the use and density allowances effective prior to DATE of Ordinance, in lieu of the Preservation and Innovation allowances. However, in no instance shall the density exceed 1 unit per 10 acres.

- Adds language to the Property Rights Element to vest properties whose future land use has changed in these amendments.
- Added language to Goal 165 following the LPA hearing based on the LPA recommendation.

XIV. Glossary

COMMERCIAL DEVELOPMENT -- A use involving, in whole or in part, the sale of merchandise, materials, or services. Commercial development may include retail, wholesaling, personal services, temporary accommodations, recreation, office, or other uses that involve the transfer or sale of goods or services.

MINOR – Commercial development that ~~provides for the sale of convenience goods and services and~~ contains less than 30,000 square feet of gross floor area.

NEIGHBORHOOD – Commercial development that ~~provides for the sale of convenience goods and personal services, such as food, drug, sundries, and hardware items and~~ has a gross floor area range of 30,000 to 100,000 square feet.

COMMUNITY – Commercial development that ~~provides for the sale of retail goods such as clothing, variety items, appliances, and furniture as well as goods that may be found in a neighborhood commercial development and~~ has a gross floor area range of 100,000 to 400,000 square feet.

REGIONAL – Commercial development ~~that provides some functions of community commercial, in addition to providing a full range and variety of shopping goods for comparative shopping (such as general merchandise, apparel, furniture, and home furnishings) and~~ has a gross floor area range of 400,000 to 1 million square feet.

DISCOURAGED – To dissuade or attempt to dissuade from doing something, but not to prohibit outright; an unwanted action, not a prohibited one.

ENCOURAGED – A wanted action, but not the only action that may be acceptable.

FUTURE NON-URBAN AREAS – Those categories on the Future Land Use Map that are designated primarily for single use developments with a density equal to or less than 1 unit per acre unless otherwise allowed within a special treatment area identified in Objective 1.7: Rural, Rural Community Preserve, Coastal Rural, Outer Island, Open Lands, Wetlands, Conservation Lands (upland and wetland), New Community within the North Olga Planning Community, Conservation Community, and Density Reduction/Groundwater Resource.

FUTURE SUBURBAN AREAS – Those future urban categories on the Future Land Use Map that are designated primarily for single use developments: Suburban, Outlying Suburban, Sub-Outlying Suburban, Industrial Development, Airport, Tradeport, Innovation and Preservation, Commercial, Industrial Interchange, General Commercial Interchange, Industrial Commercial Interchange, University Village

Interchange, University Community, Public Facilities, and the New Community within the Gateway/Airport Planning Community.

INDUSTRIAL DEVELOPMENT – A business use or activity involving manufacturing, fabrication, assembly, warehousing, and/or storage.

INDUSTRIAL, HEAVY – Manufacturing, resource refinement or extraction, other enterprises with significant external effects, or enterprises that pose significant risks due to the involvement of explosives, radioactive materials, poisons, pesticides, herbicides, or other hazardous materials in manufacturing or other processes. The location of a use does not indicate whether it is considered heavy industrial. Heavy Industrial uses can be inside or outside a building.

INDUSTRIAL, LIGHT – A use that involves the manufacturing, production, processing, fabrication, testing, assembly, treatment, repair, packaging, or warehousing of finished products within a building, without a noticeable amount of noise, dust, odor, smoke, glare, or vibrations.

- Broadens commercial definitions: Expands the definition of commercial development beyond retail while keeping existing size restrictions intact.
- Formally defines the terms "encourage" and "discourage" to match current practices.
- Defines industrial use and separates industrial activities into clear "Light" and "Heavy" categories to clarify existing Lee Plan policies.
- Land Development Code definitions may need future amendments to ensure consistency.

ATTACHMENT 1: Proposed Lee Plan Amendments

APPENDIX A: Maps

Map 1-A: Future Land Use Map

- Amend 5 properties from DR/GR and Wetlands to Conservation Community and Wetlands
- Amend 5 properties from DR/GR and Wetlands to Preservation & Innovation and Wetlands
- Amend 1 property from DR/GR and Wetlands to Outlying Suburban and Wetlands
- Amend 1 property from DR/GR and Wetlands to Suburban and Wetlands
- Modified Wetland/Tradeport future land use category boundaries for 1 property based on a formal jurisdictional wetlands determination

Map 1-D: Special Treatment Areas

- Remove 'Priority Restoration Strategy Overlay'
- Add Existing Acreage Subdivision (Previously identified on Map 2-A)
- Add Rural Golf Course Community (Previously identified on Map 2-A)

Map 2-A: Community Planning Areas

- Modify the boundary of Southeast Lee County near the northwest and southwest corners of the planning area.

Map 2-D: Southeast DR/GR Residential Overlay

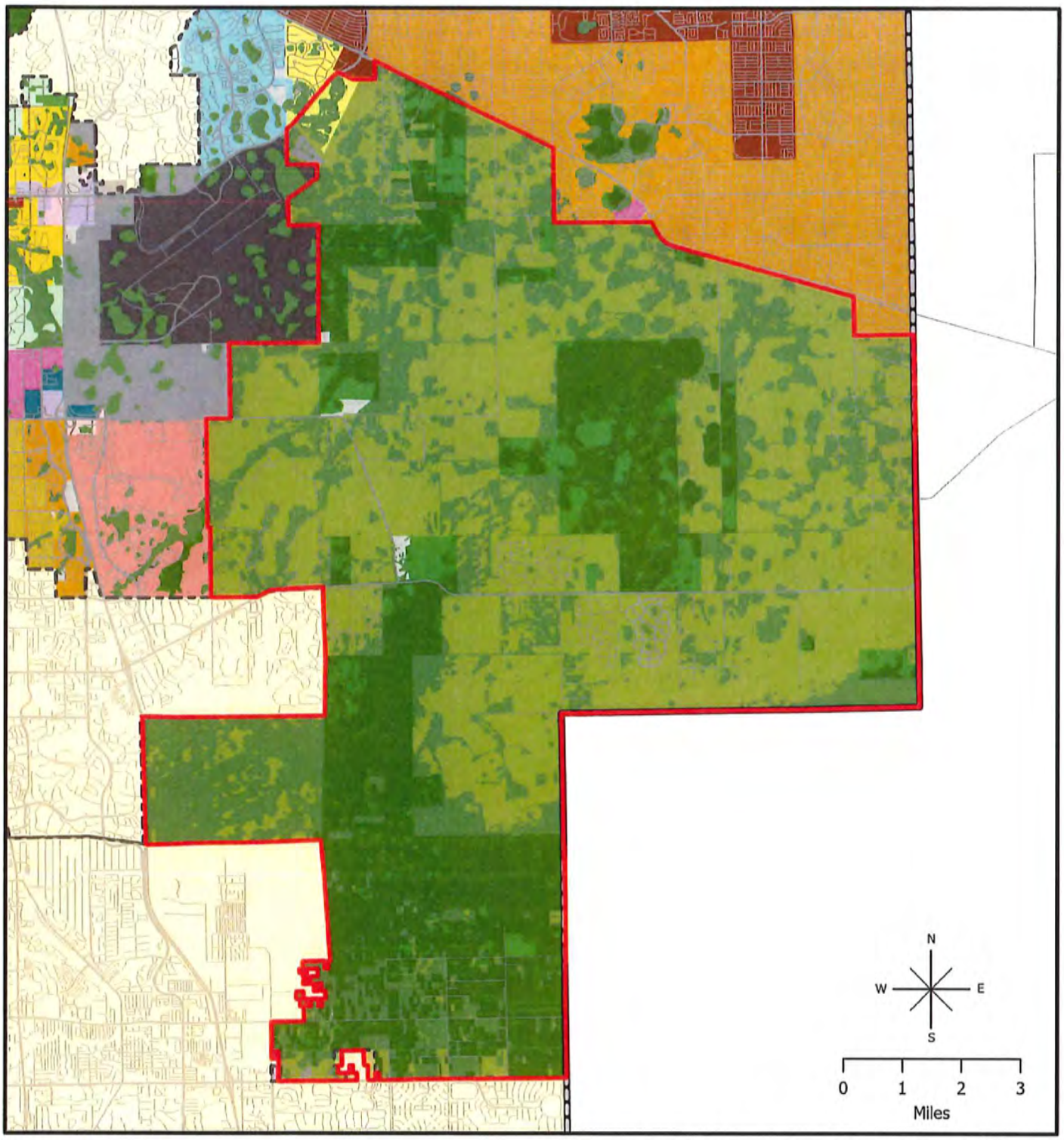
- Relocate Existing Acreage Subdivision to Map 1-D
- Delete Mixed Use Communities
- Relocate Rural Golf Course Community to Map 1-D
- Delete Improved Residential Community
- Delete Environmental Enhancement and Preservation Community Overlay (Properties to be designated as Conservation Community on the Future Land Use Map)
- Delete Map 2-D

Map 4-A:

- Update LCU Future Water Service Areas to include 9 additional properties

Map 4-B:

- Update LCU Future Sewer Service Areas to include 11 additional properties



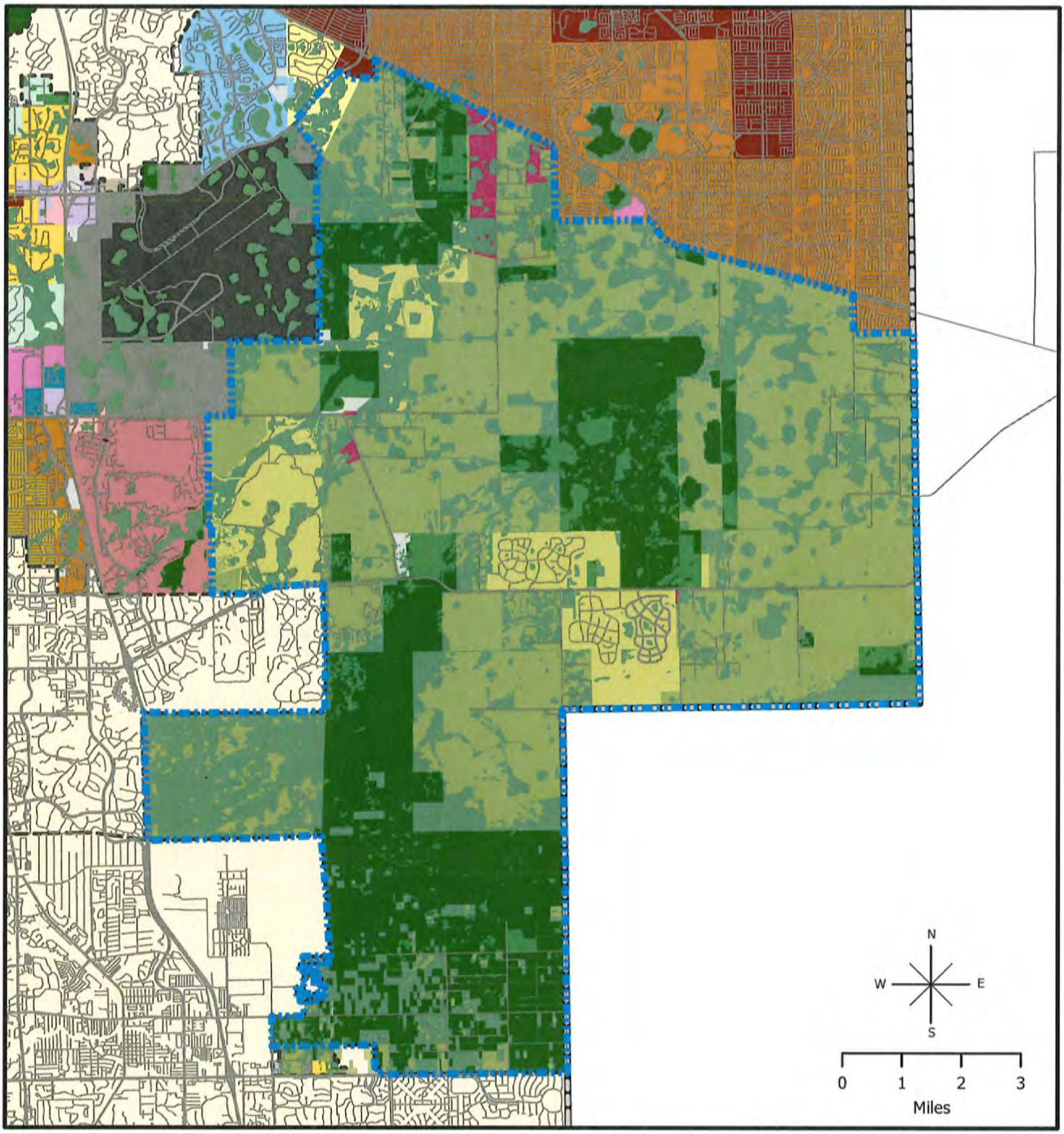
CPA2026-00004

Existing Future Land Use

- Airport
- Central Urban
- Conservation Lands Upland
- Conservation Lands Wetland
- Density Reduction/ Groundwater Resource
- General Interchange
- Industrial Commercial Interchange
- Industrial Development
- Intensive Development
- New Community
- Outlying Suburban
- Public Facilities
- Rural
- Sub-Outlying Suburban
- Suburban
- Tradeport
- University Community
- University Village Interchange
- Urban Community
- Wetlands
- Southeast Lee County
- City Limits

Lee County
Southwest Florida

Map Generated: July 2026



CPA2026-00004

Proposed Future Land Use

Existing Future Land Use Categories

- Airport
- Central Urban
- Conservation Lands Upland
- Conservation Lands Wetland
- Density Reduction/ Groundwater Resource
- General Interchange
- Industrial Commercial Interchange
- Industrial Development
- Intensive Development
- New Community
- Outlying Suburban
- Public Facilities
- Rural
- Sub-Outlying Suburban
- Suburban
- Tradeport
- University Community
- University Village Interchange
- Urban Community
- Wetlands

Proposed Future Land Use Categories

- Preservation and Innovation
- Conservation Community

Southeast Lee County

City Limits

Lee County
Southwest Florida

Map Generated: July 2026

SPECIAL TREATMENT AREAS

Current

- Uban Reserve
  Ord. No. 89-02, 93-25, 18-18
- Privately Funded Infrastructure
  Ord. No. 89-02, 93-25, 18-18
- Public Acquistion
  Ord. No. 89-02, 93-25, 18-18
- Airport Mitigation Overlay
  Ord. No. 04-16, 19-05

See Objective 33.1

- Tier 1 (highest priority)
- Tier 2
- Tier 3
- Tier 4
- Tier 5
- Tier 6
- Tier 7
  Ord. No. 10-19
- City Limits
- Southeast Lee County

CPA2026-00004

Lee County
Southwest Florida

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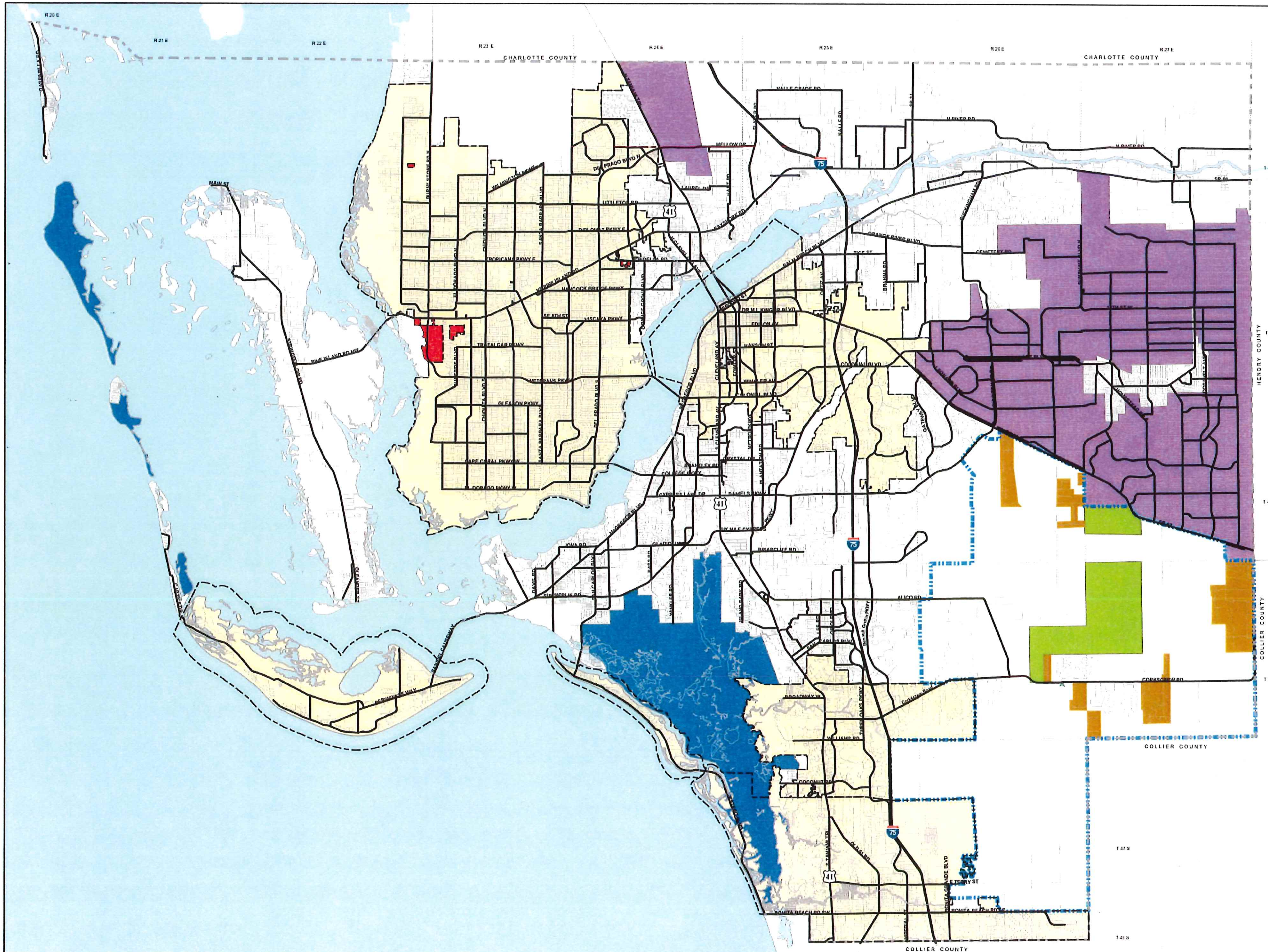
Miles

Map Generated: November 2021
City limits current to date of map generation

Lee Plan Map 1-D



SPECIAL TREATMENT AREAS

PROPOSED

Urban Reserve

Ord. No. 89-02, 93-25, 18-18

Privately Funded Infrastructure

Ord. No. 89-02, 93-25, 18-18

Public Acquistion

Ord. No. 89-02, 93-25, 18-18

Airport Mitigation Overlay

Ord. No. 04-16, 19-05

Rural Residential Overlay

Existing Acreage Subd.

Rural Golf Course Community

Ord. No. 10-19, 10-21, 10-43, 12-24, 14-21, 15-13, 15-14, 17-06, 17-23, 17-24, 19-24

City Limits

Southeast Lee County

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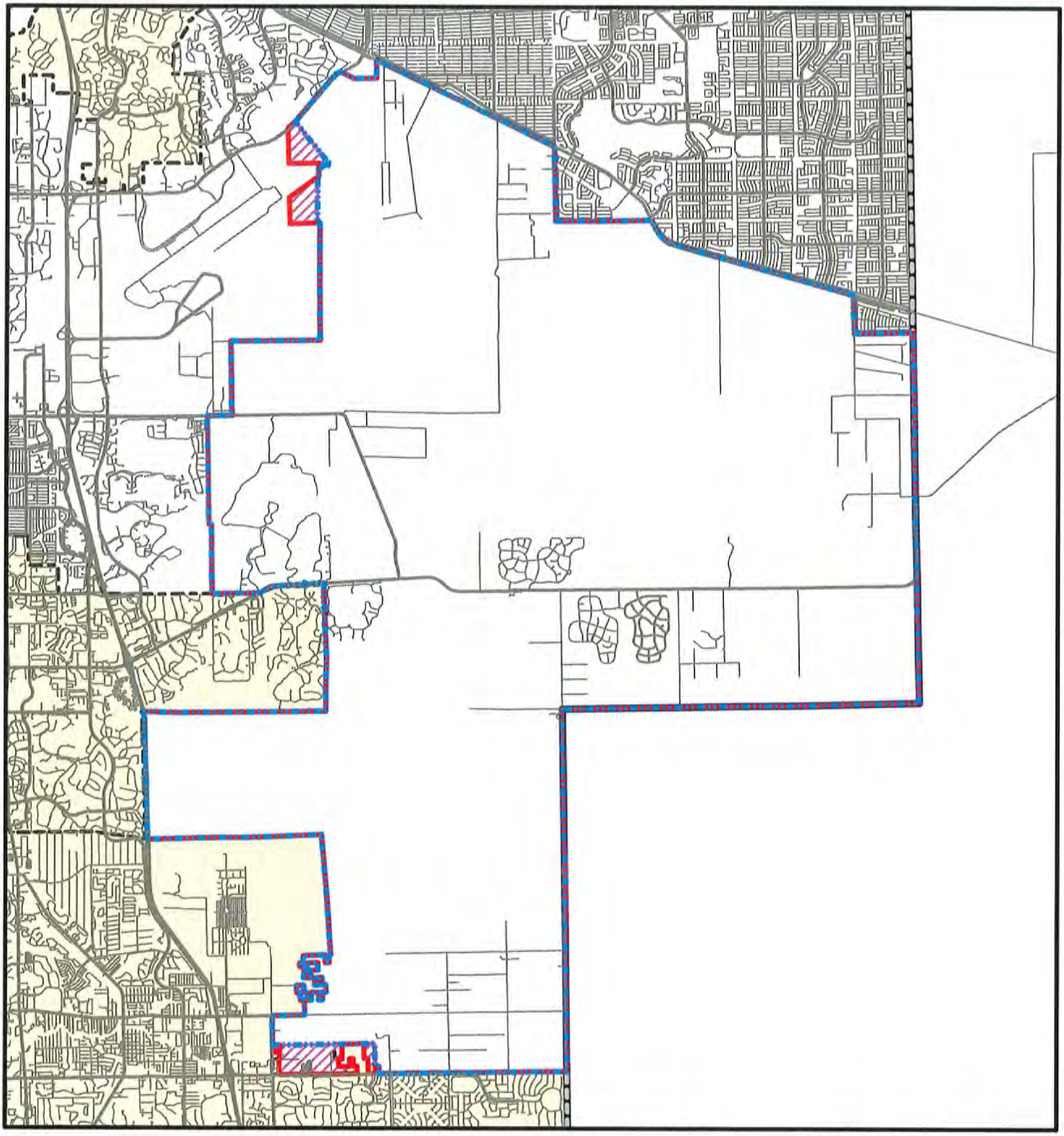
Map Generated: July 2026
City limits current to date of map generation

Lee Plan Map 1-D



CPA2026-00004

Community Planning Areas

Lee County
Southwest Florida

City Limits

Area to be removed

Southeast Lee County

Southeast Lee County

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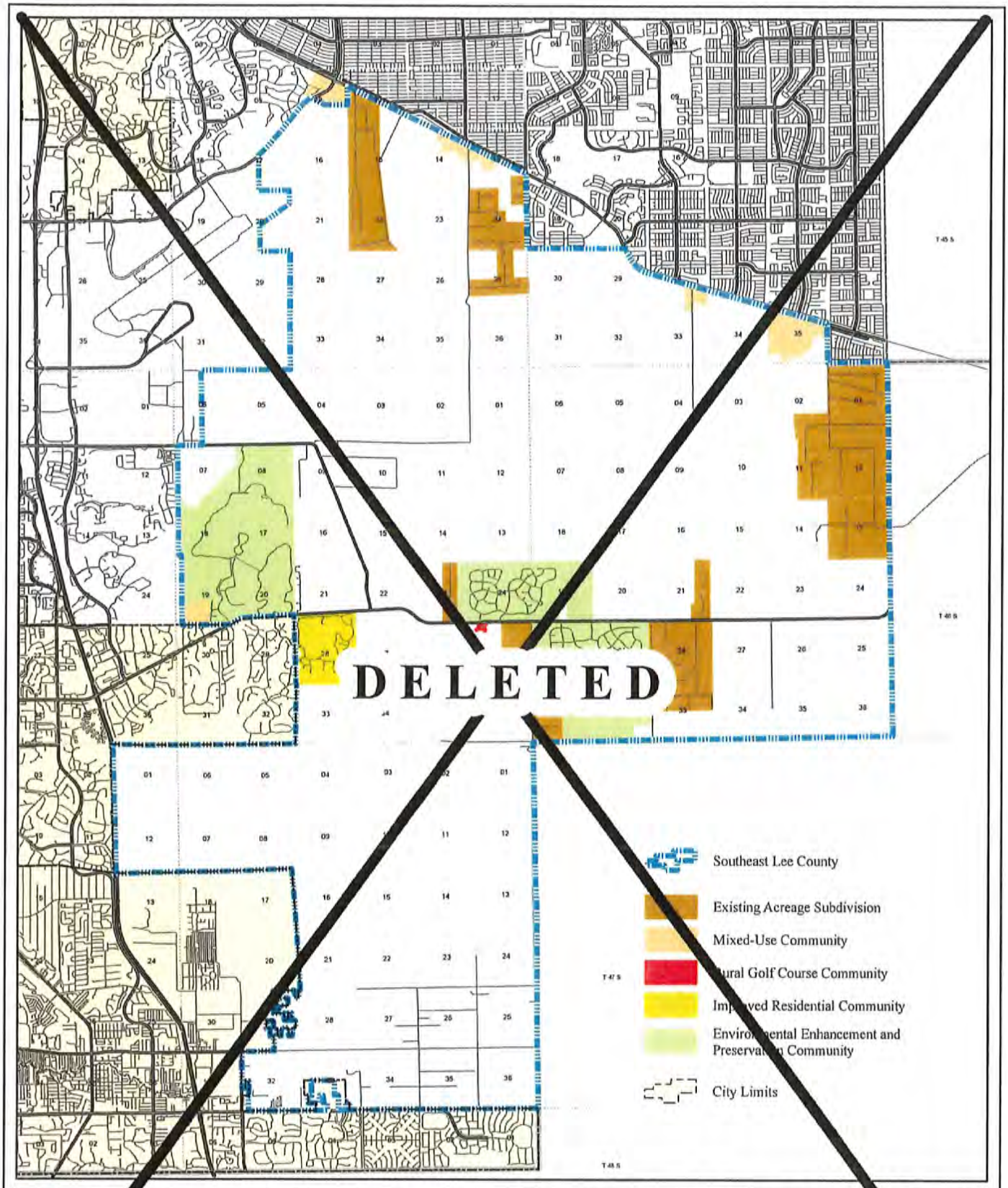
Map Generated: August 2026



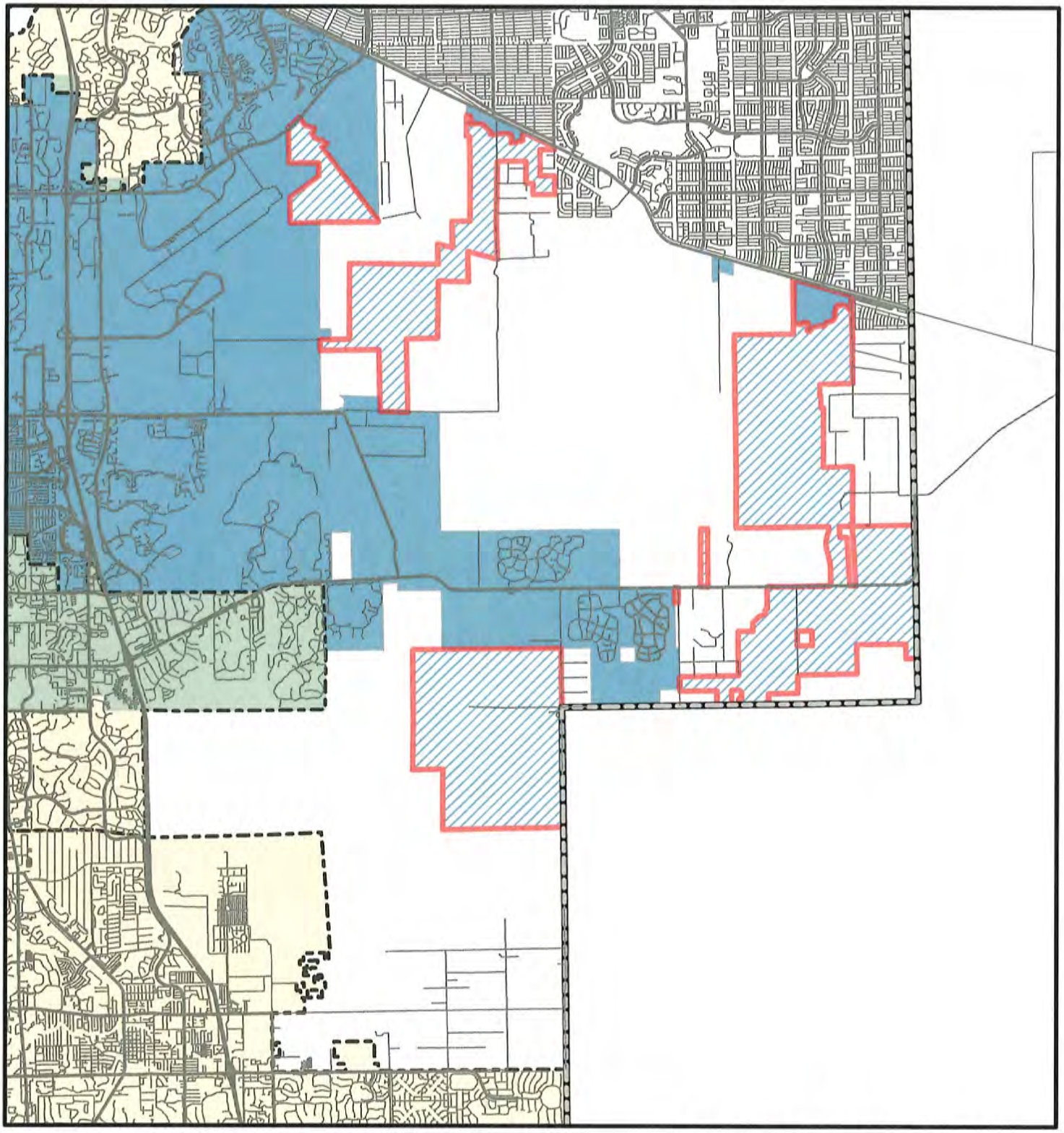
Lee County
Southeast Planning

Map G erated: July 2026
City nits current to date of map generation

D. No. 10-19, 10-21, 10-43, 12-24, 14-21, 15-13, 15-14,
-06, 17-23, 17-24, 19-24

SOUTHEAST R/GR RESIDENTIAL OVER AY

Lee Plan Map 2-



CPA2026-00004

Future Water Service Areas

Lee County
Southwest Florida

City Limits

Proposed Future Water Service Areas

Existing Future Water Service Areas

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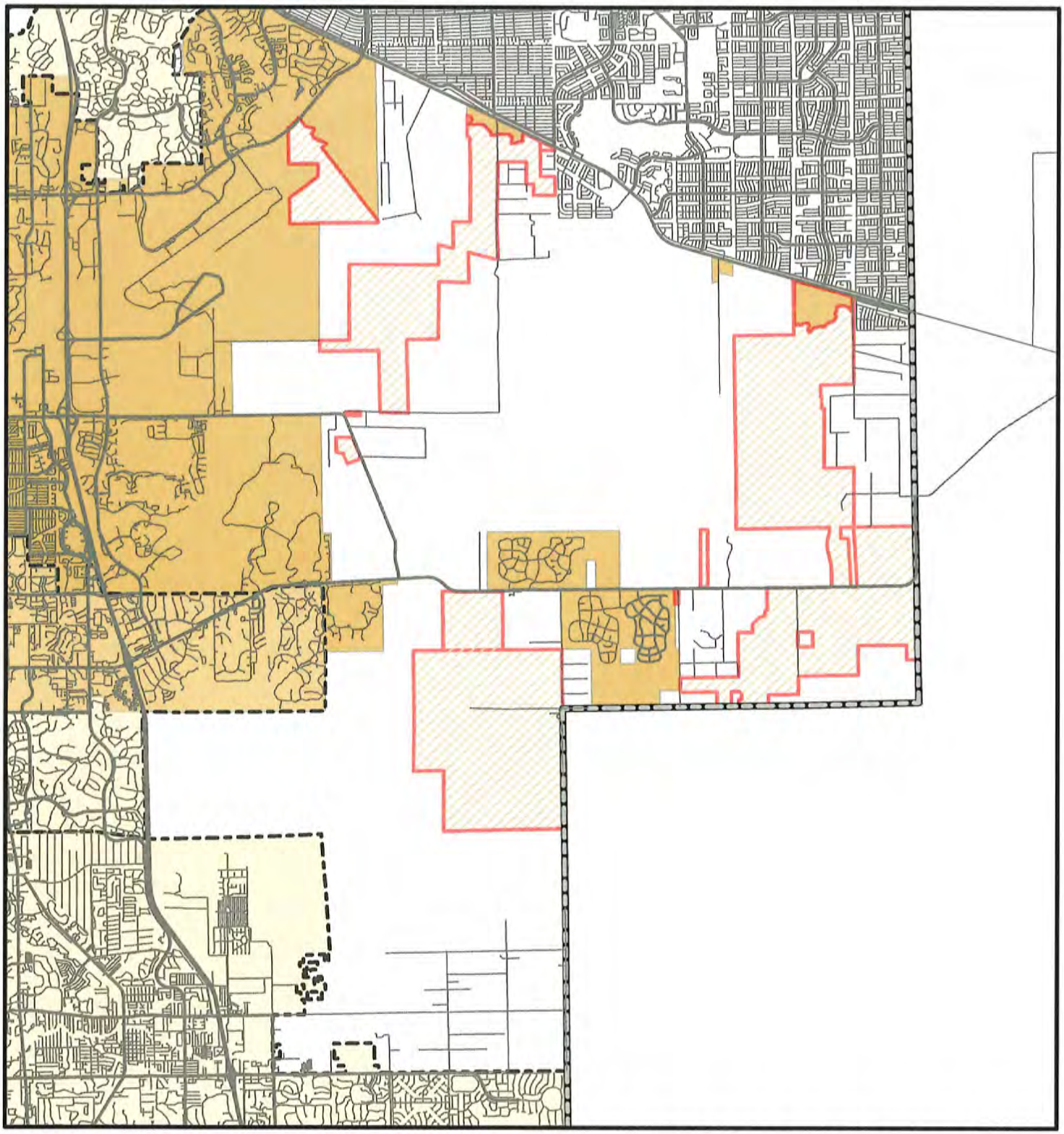
Map Generated: August 2026



CPA2026-00004

Future Sanitary Sewer Service Areas

Lee County
Southwest Florida

City Limits

Proposed Future Sewer Service Areas

Existing Future Sewer Service Areas

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Miles

Map Generated: August 2026

ATTACHMENT 1: Proposed Lee Plan Amendments

APPENDIX B: Tables

Table 1(a): Summary of Residential Densities

- Add Conservation Community future land use category and corresponding allowable densities.
- Add Preservation and Innovation future land use category and corresponding allowable densities.

TABLE 1(a)
SUMMARY OF RESIDENTIAL DENSITIES[1]

FUTURE LAND USE CATEGORY	STANDARD OR BASE DENSITY RANGE		BONUS DENSITY
	MINIMUM[2] (Dwelling Units per Gross Acre)	MAXIMUM (Dwelling Units per Gross Acre)	MAXIMUM TOTAL DENSITY[3] (Dwelling Units per Gross Acre)
Intensive Development[14]	8	14	22
General Interchange[2]	8	14	22
Central Urban[15]	4	10	15
Urban Community[4,5,16]	1	6	10
Suburban[17]	1	6	No Bonus
Outlying Suburban	1	3	No Bonus
Sub-Outlying Suburban	1	2	No Bonus
Conservation Community[13]	No Minimum	1.15	No Bonus
Rural[10]	No Minimum	1	No Bonus
Outer Islands	No Minimum	1	No Bonus
Rural Community Preserve[6]	No Minimum	1	No Bonus
Open Lands[7]	No Minimum	1 du/10 acres	No Bonus
Density Reduction/Groundwater Resource[13]	No Minimum	1 du/10 acres	No Bonus
Wetlands[8]	No Minimum	1 du/20 acres	No Bonus
New Community[19]	No Minimum	6	No Bonus
University Community[9]	1	2.5	No Bonus
Destination Resort Mixed Use Water Dependent[11]	6	9.36	No Bonus
Burnt Store Marina Village[12]	No Minimum	160 Dwelling Units; 145 Hotel Units	No Bonus
Coastal Rural[18]	No Minimum	1 du/2.7 acres	No Bonus

CLARIFICATIONS AND EXCEPTIONS

[1]See the glossary in Chapter XII for the full definition of "density".

[2]Except in the General Interchange future land use category adherence to minimum densities is not mandatory but is recommended to promote compact development.

[3]These maximum densities may be permitted by transferring density from non-contiguous land through the provisions of the Bonus Density Program identified in the LDC, Chapter 2.

[4]Within the Future Urban Areas of Pine Island Center, rezonings that will allow in excess of 3 du/acre must "acquire" the density above 3 du/acre utilizing Greater Pine Island TDUs (see Objective 24.6), or transfer dwelling units in accordance with Policy 24.3.4.

[5]In all cases on Gasparilla Island, the maximum density must not exceed 3 du/acre.

[6]Within the Buckingham area, new residential lots must have a minimum of 43,560 square feet.

[7]A maximum density of 1 du/5 acres can only be approved through the planned development process (see Policy 1.4.4), except in the approximately 135 acres of land lying east of US41 and north of Alico Road in the northwest corner of Section 5, Township 46, Range 25.

[8]Higher densities may be allowed under the following circumstances where wetlands are preserved on the subject site:

(a) If the dwelling units are relocated off-site through the TDR program provided in LDC, Chapter 2; or

(b) Dwelling units may be relocated to developable contiguous uplands designated Intensive Development, General Interchange, Central Urban, Urban Community, Suburban, Outlying Suburban, Sub-Outlying Suburban, and New Community from preserved freshwater wetlands at the same underlying density as permitted for those uplands (see Policy 124.1.1). Impacted wetlands will be calculated at the standard Wetlands density of 1 du/20 acres. Planned developments or development orders approved prior to October 20, 2010 are permitted the density approved prior to the adoption of CPA2008-18.

[9]The overall average density for the University Village sub-district must not exceed 2.5 du/acre.

[10]In the Rural category located in Section 24, Township 43 South, Range 23 East and south of Gator Slough, the maximum density is 1 du/2.25 acres.

[11]The overall number of residential dwelling units is limited to 271 units in the DRMUWD future land use category.

[12]The residential dwelling units and hotel development portions of this redevelopment project must be located outside of the designated Coastal High Hazard Area in accordance with Map 5-A.

[13]~~See Objectives 33.2 and 33.3 for potential density adjustments.~~ The maximum density in the Conservation Community future land use category is 1.15, inclusive of wetlands located within project boundaries (see Policies 1.4.8 and 33.2.2).

[14]The maximum total density may be increased to 30 du/acre utilizing Greater Pine Island TDUs.

[15]The maximum total density may be increased to 20 du/acre utilizing Greater Pine Island TDUs.

[16]The maximum total density may be increased to 15 du/acre utilizing Greater Pine Island TDUs.

[17]The maximum total density may be increased to 8 du/acre utilizing Greater Pine Island TDUs.

[18]The standard maximum density is 1 du/2.7 acres unless the "Adjusted Maximum Density" of 1 du/acre is achieved (see Policy 1.4.7 and LDC, Chapter 33).

[19]The maximum density in the New Community future land use category is limited to 1 du/1.9 acres in the North Olga Community Plan area (see Policy 1.1.15).

The proposed LDC amendments implement the proposed amendments to Southeast Lee, including specific standards for developing residential and nonresidential projects. Changes made after the committee meetings are shown in red in the document. Double-underlined red text is new language; struck-through red text is language in the proposed amendments that has been deleted. The LDC amendments did not have originally section numbers while they were going through the Committees; all section numbers have changed, and some formatting has also changed to fit the location in the Land Development Code that will house these sections.

CHAPTER 34- COMMUNITY PLAN AREA REGULATIONS

ARTICLE VI. – DISTRICT REGULATIONS

DIVISION 10. – SPECIAL PURPOSE DISTRICTS

Subdivision V. - Southeast Lee

Sec 34-1115. -- **Applicability**

The provisions of this article apply to all development within Southeast Lee County to ensure that development creates, preserves, or restores surface and groundwater resources and other natural systems, consistent with Lee Plan Goal 33. Details on the proposed improvements must be provided at the time of the Planned Development Application and then confirmed at the time of the Development Order.

- Staff added language to clarify the timing of the required reports and development details is during the review of the Planned Development rezoning, as that is when the incentives for the proposed improvements would be approved.

Sec 34-1116. -- **Community Meetings**

1. ***Applications requiring review.*** The owner(s), applicant(s), or other registered agent(s) applying for the following application types must hold one (1) public information session in Southeast Lee County. The information sessions may be offered virtually or in person. In-person meetings may be held within a five-mile radius of the subject property or at any location within the Community Plan Area, but must be within Lee County. Virtual meetings must be available to the public, allow public participation, and include a video feed so the public can see the proposed plans. Audio-only virtual meetings are not permitted. This session

must be publicly advertised and held before the application is deemed sufficient. Public meetings are required for zoning actions requiring a public hearing.

2. ***Meeting requirements***. The applicant is responsible for providing meeting space, meeting notice, and security measures as needed. The applicant will determine the meeting location. Meetings must be advertised no later than five days before the meeting date. Meetings may, but are not required to, be conducted before non-County-formed boards, committees, associations, or planning panels. During the meeting, the agent will provide a general overview of the project, including, but not limited to, a proposed site plan, for any interested citizens. After this meeting, the applicant must provide County staff with a meeting summary document that contains the following information: the date, time, and location of the meeting; a list of attendees; a summary of the concerns or issues that were raised at the meeting; and a proposal for how the applicant will respond to any issues that were raised. The applicant is not required to receive an affirmative vote or approval of citizens present at the meeting.

- Staff added language to clarify the timing of the required meeting advertisement.

Sec 34-1117. -- **Deviations and Variances**

a. Deviations and Variances for any of the requirements in this article must meet the County approval criteria for variances set forth in Section 34-145(b).

b. No deviations or variances may be granted to Sec 34-1118 or 34-1119.

Sec 34-1118. -- **Residential Development**

Residential development exceeding 1 unit per 10 acres in the Conservation Communities future land use category may only be approved when the proposed development meets the requirements of this section and the Lee Plan. The County may require a Development Agreement or other legally binding agreement, approved by the County Attorney's Office, to ensure the long-term maintenance, timing, or other factors related to the construction or function of these developments.

1. ***Density Allowances***. Density is determined based on the incentives provided in the planned development. No deviations or variances may be granted to any development requirement that results in a density increase.

a. One (1) dwelling unit per one (1) acre shall be approved through the planned development when the proposed development includes seven (7) of the strategies in LDC Sec 34-1118(3), with at least one (1) strategy from each category.
b. One (1) unit per two (2) acres shall be approved when the proposed development includes five (5) of the strategies in LDC Sec 34-1118(3), with no more than two (2) strategies from any one (1) category.
c. One (1) unit per three (3) acres shall be approved when the proposed development includes three (3) of the strategies in LDC Sec 34-1118(3), with strategies from at least two (2) categories.

2. ***Additional Density.*** Additional dwelling units may be approved for a potential maximum density of up to 1.15 units per acre in the planned development by using any combination of the following:
    a. Utilize the Southeast Lee County TDR program to transfer dwelling units from Southeast Lee County lands located outside of the planned development pursuant to Policy 16.3.2.
    b. Provide the following as part of the planned development for a density increase of 5% per strategy, except when noted otherwise, for a maximum increase of up to 15%:
        i. A minimum of 65% open space, not including previously mined lakes or existing conservation easements; and
        ii. Additional strategies from LDC Sec 34-1118(3), below.
        iii. Two (2) dwelling units for every acre of offsite property identified in Lee Plan Map 1-D, acquired for Lee County Natural Resources water quality or flood mitigation projects.

3. Improvement Categories and Mitigation Strategies: The following section includes improvement categories and mitigation strategies based on each category. The County may approve alternative mitigation strategies, supported by appropriate data and analysis, that demonstrate an equal or greater benefit to the protection, restoration, or enhancement of Southeast Lee's water resources, wildlife habitat, or natural systems, consistent with the intent of this section as part of the Planned Development Application.

a. Flooding Mitigation and Aquifer Recharge:
    i. Create, preserve, or restore flowways to reduce flooding and increase water recharge in the area. Such flowway projects that offer regional benefits may be completed off-site with approval from Lee County's Department of Natural Resources. A flowway is a broad, shallow, and slow-moving sheet flow of water. The flowway must distribute water across a broad front, allowing water to move naturally across the landscape while filtering nutrients and supporting native ecosystems.

ii. A stormwater management system designed to accommodate a 100-year, 72-hour storm event.

b. Minimize the Need for Irrigation:

i. Landscaping utilizes drip irrigation and 100% drought-tolerant native plantings throughout the development and limits the use of turfgrass within all common areas to no more than 30%. Drip irrigation must have a minimum application efficiency of 95%, a distribution uniformity of 90%, and utilize sustainable management practices.

ii. Centralized irrigation system that meets the Water Conservation Ordinance and prohibits the construction of individual irrigation wells on residential lots. The development's irrigation must utilize stormwater ponds and, if necessary, be resupplied from an alternative aquifer or a blend of multiple aquifers to reduce demand on aquifers used by adjacent County or private wells.

iii. Extend, connect to, and utilize reuse water for 100% of the development's irrigation needs.

c. Wildlife:

i. Create, preserve, or restore contiguous wildlife corridors on public and privately owned properties throughout Southeast Lee County. Wildlife corridor(s) must be a minimum of 300 feet wide and designed to allow mammals to traverse the project property and connect to abutting ~~adjacent~~ conservation areas.

ii. Create designated ~~mammal crossings for roadways to promote the movement of wildlife within and through the development. Crossing designs should include exclusion and wing/funnel fencing designed for the target species, including below ground apron fencing for burrowing species, and long enough to prevent wildlife from bypassing thecrossing.~~ wildlife crossings to support habitat connectivity within natural landscape linkages on the property, avoid habitat degradation, reduce wildlife roadway strikes, and promote public safety. The planned development application must identify the target species (one species or multiple) and include the location(s), design, signage examples, and other mitigation measures for the wildlife crossings.

iii. Create, preserve, or restore habitat with plant species that support foraging within primary and secondary panther habitat.

d. Wetlands and Native Habitat:

i. All wetlands are preserved and restored.

ii. Create, preserve, or restore upland habitat. Upland habitat must comprise a minimum of 40% of the required open space and have an average minimum width of 40 feet.

e. Wildfire Prevention:

i. Create a Wildfire Prevention Plan per the Public Safety requirements, ~~including~~ which must include, but is not limited to, access points for wildfire response, prescribed burn schedule, ~~or~~ and separation measures for spread mitigation.

ii. Bury all utilities to prevent potential arcing or sparking~~.~~

4. **Planned Development Requirements**. Properties within the Conservation Communities Future Land Use Category must be rezoned to a planned development that includes the following, in addition to any requirements set forth in LDC Chapter 34, Article IV:
   a. Connections to public water and sewer services. Development must also connect to public reuse infrastructure if available at the time of the development order.
   b. A minimum of 60% open space, not including previously mined lakes, which will be used to accommodate the following, when applicable:
      i. Restore and accommodate existing and historic regional flowways where they currently or previously existed;
      ii. Restore and accommodate existing and historic groundwater levels;
      iii. Restore and preserve wetlands;
      iv. Restore and preserve indigenous upland habitats;
      v. Provide critical wildlife connections to ~~adjacent~~abutting conservation areas; and
      vi. Provide a 100-foot buffer along Corkscrew Road.
   c. Preservation areas must be platted in separate tracts and dedicated to an appropriate maintenance entity.
   d. Record a Conservation Easement for a minimum of 55% of the planned development, not including previously mined lakes or existing conservation easements, to be dedicated to the appropriate maintenance entity that provides Lee County or some other public agency, acceptable to Lee County, with third-party enforcement rights. All Conservation Easements required as part of the planned development must be recorded within 5 years from the first development order approval. ~~For sites with previously approved mines, the existing recorded conservation easements may not contribute more than 25% of the required minimum.~~
   e. Uses Florida-Friendly Landscaping with low irrigation requirements in common elements. The ~~Development Order~~ proposed development must demonstrate that all landscaping uses drip irrigation, features drought-tolerant native plants, and limits turfgrass in all common areas to no more than 30%. Drip irrigation must

have a minimum application efficiency of 95%, a distribution uniformity of 90%, and utilize sustainable management practices.

f. Internal circulation and a proportionate fair share of the required transportation network improvements in accordance with Administrative Code (AC) 13-16.

g. Obtain written confirmation from the Lee County Sheriff's Office, Public Safety (EMS), the applicable fire district, and Lee County Schools regarding the availability of sufficient public services for the proposed development.

h. An **enhanced lake management plan** that:

   1. Applies best management practices for fertilizers and pesticides;
   2. Provides erosion control and bank stabilization; and
   3. Establishes lake maintenance requirements.

i. A site-specific **ecological and hydrological restoration plan** which includes, at a minimum, the following: preliminary excavation and grading plans, analysis of hydrological improvements and water budget narrative, replanting plan, habitat restoration plan, success criteria, long-term monitoring and maintenance.

j. **Indigenous management plans** must address human-wildlife coexistence.

k. Provide a **hydrological analysis** demonstrating through data and analysis that the planned development will not result in significant detrimental impacts on present or future water resources.

- Staff clarified when an alternative mitigation strategy may be proposed.
- Combined subsections i. and ii. from the Wildlife section from the previous version, as they were incorrectly separated in the last draft.
- Updated the wildlife corridor and crossings incentives based on FWC comments to better reflect the needs of all protected species.
- Provided more specific language to the requirements of the Wildfire Mitigation Plan to ensure the developments were creating plans and not just stating the development would adhere to prescribed burns to obtain additional density.
- Changed "adjacent" to "abutting" for consistent use of defined terminology.
- Subsection 4, d, regarding conservation easements' last sentence conflicted with the first sentence. The language has been updated accordingly to specify that existing easements may not contribute toward the 55% conservation easement requirement for the residential PD.

Sec 34-1119.-- **Nonresidential Development**.

Nonresidential development in the **Preservation and Innovation** and **Conservation Community** Future Land Use Categories may only be approved when the proposed development meets the requirements of this section and Lee Plan Goal 33. The County may require a Development Agreement or other legally binding agreement, approved by the County Attorney's Office, to ensure the long-term maintenance, timing, or other factors related to the construction or function of these developments.

1. ***Planned Development Requirements.*** Non-residential uses may be permitted in Southeast Lee County through a planned development that includes the following, in addition to any requirements set forth in LDC Chapter 34, Article IV.
    a. Connections to public water and sewer services. The development must also connect to public reuse infrastructure, if available at the time of the Development Order.
    b. Nonresidential development within the 6-month, 1-year, 5-year, or 10-year travel zones as defined in the Wellfield Protection Ordinance must:
        i. Meet or exceed SFWMD's nutrient removal standards for Outstanding Florida Waters (OFW).
        ii. Conform to the requirements applicable to the most restrictive wellfield protection zone found on-site.
        iii. Provide monitoring well(s) located between Lee County's nearest production well(s) and the nonresidential development.
    c. Provide a minimum of 40% open space, which may consist of buffers, wetlands, indigenous uplands, and wildlife crossings. Stormwater systems may contribute up to 25% of the open space requirement. A project may provide off-site mitigation by acquiring and transferring property acceptable to Lee County Natural Resources, specifically the Flooding Mitigation Lands properties depicted on Map 1-D, for an open space credit of up to 25%.
    d. Properties along Corkscrew Road must ~~provide a 100 foot wide buffer~~ include a minimum setback of 100 feet along the Corkscrew Road right-of-way and a 50-foot-wide, Type F buffer, with Florida-Friendly Landscaping.
    e. All connected wetlands and regional historic flowways must be restored or preserved. The flowway must distribute water across a broad front, allowing water to move naturally across the landscape while filtering nutrients and supporting native ecosystems.
    f. Internal landscaping and buffers must create or restore indigenous upland habitat as part of the required open space.

g. Landscaping must utilize drip irrigation, use drought-tolerant native plants, and limit the use of turfgrass within all common areas to no more than 30%. Drip irrigation must have a minimum application efficiency of 95%, a distribution uniformity of 90%, and utilize sustainable management practices.
h. Stormwater management system must be designed for a 100-year, 72-hour storm event and include an enhanced lake management plan that establishes surface and groundwater monitoring and maintenance plans, applies best management practices for fertilizers and pesticides, and provides erosion control and bank stabilization.
i. All electrical utilities within the site must be buried within dedicated public utility easements.
j. Development along SR 82 and the Alico Extension must demonstrate safe pedestrian connectivity across the right-of-way within the extended pedestrian shed from the site.
k. Internal circulation and a proportionate fair share of the required transportation network improvements in accordance with Administrative Code (AC) 13-16.
l. Obtain written confirmation from the Lee County Sheriff's Office, Public Safety (EMS), and the applicable fire district regarding the availability of sufficient public services for the proposed development.
m. Provide a **hydrological analysis** demonstrating through data and analysis that the planned development will not result in significant detrimental impacts on present or future water resources. Proposed uses may not pollute, degrade, or overconsume surface and groundwater resources, or engage in any other activity that Lee County's Department of Natural Resources determines to be incompatible with protecting Southeast Lee County's environment. Overconsumption is defined as water use exceeding 1.2 million gallons per acre per year, based on the developable area.
n. Develop a site-specific **ecological and hydrological restoration plan** which includes, at a minimum, the following: preliminary excavation and grading plans, analysis of hydrological improvements and water narrative, replanting plan, habitat restoration plan, success criteria, and a mechanism for long-term monitoring and maintenance.
o. Develop an **indigenous management plan** addressing human-wildlife coexistence, including, but not limited to, wildlife-resistant refuse containers, wildlife corridor management, and native habitat restoration.
p. Create a **Wildfire Prevention Plan** per the Public Safety requirements, which must include, but is not limited to, access points for wildfire response, a prescribed burn schedule, and separation measures for spread mitigation.

- In subsection 1.b.ii, staff fixed a grammatical error.
- Staff updated 1.c to reference the Flooding Mitigation Lands map in response to LPA questions regarding where those properties were defined.
- Staff updated 1.d to clarify that the "buffer" that was originally referenced was intended as a setback in response to direction from LPA and LDCAC. The landscape buffer type in this requirement refers to the vegetation material requirements, not the buffer width.

ARTICLE VII. – Supplementary District Regulations

DIVISION 30. PROPERTY DEVELOPMENT REGULATIONS

Sec. 34-2175. Height limitations for special areas and Lee Plan land use categories.

The following areas have special maximum height limitations applicable to all conventional and planned development districts:

(a) *no proposed changes*

(b) *Lee Plan land use categories.* Except as otherwise provided herein, maximum building height is established by future land use category as follows:

TABLE 34-2175(b)
MAXIMUM BUILDING HEIGHT BY FUTURE LAND USE CATEGORY

Future Land Use Category	Notes	Maximum Building Height
Destination Resort Mixed Use Water Dependent		Per Lee Plan
Intensive Development		135 feet
Central Urban		
Urban Community		95 feet
Airport Lands	Note (1)	45 feet
Tradeport	Note (1)	
University Community	Note (1)	
University Village Interchange	Note (1)	
Commercial		75 feet
General Commercial Interchange		
General Interchange		
Industrial Commercial Interchange		

Industrial Development		
Industrial Interchange		
Conservation Community	Note (1)	45 feet
Density Reduction/Groundwater Resource		
Open Lands		
Outer Islands		
Outlying Suburban	Note (2)	
Preservation and Innovation	Note (2)	
Public Facilities		
Rural	Note (2)	
Rural Community Preserve		
Sub-outlying Suburban	Note (2)	
Suburban	Note (2)	

Notes:
(1) With the consent of the Lee County Port Authority, the Board of County Commissioners may approve building heights up to 95 feet.
(2) Buildings may be as tall as 75 feet when the applicant demonstrates through a zoning action that the additional height is required to preserve environmentally sensitive land, secure areas of native vegetation and wildlife habitat, or preserve historical, archaeological or scenic resources.

ATTACHMENT 3: Response SFWMD Comments

SUMMARY

In a letter dated **September 24, 2026**, the **South Florida Water Management District (SFWMD)** provided comments on Lee County's proposed Southeast Lee County comprehensive plan amendments. SFWMD noted that the extent of the proposed land use changes warrants a planning-level analysis of potential regional impacts to environmental resources and water supply, including flooding, water quality, historical flow patterns, groundwater and surface water resources, and other environmental resources.

The District encouraged the County to review available information and modeling associated with the Corkscrew Watershed Initiative. SFWMD also noted that Policy 1.4.5 for the Density Reduction/Groundwater Resource (DR/GR) Future Land Use Category requires hydrologic modeling to evaluate potential development impacts.

SFWMD recommended addressing these comments before final adoption, including applicable hydrologic modeling methodologies and analysis demonstrating that the proposed amendments would not adversely affect water resources or environmental conditions.

ASSUMPTIONS & METHODOLOGY

In response to SFWMD's letter, staff is providing a parcel-based planning analysis to clarify the purpose of the proposed amendments and, as shown in Part 4 of the Staff Report, additional changes to the proposed Lee Plan text amendments.

Staff addresses consistency with Policy 2.3.2 in Part I of the Staff Report, which sets out the required findings for land use changes from DR/GR in Southeast Lee County. Staff did not address Policy 1.4.5 in the report because it requires a hydrological analysis at the time of rezoning or a development order, so it does not apply to the proposed map amendments. All proposed Future Land Use Map amendments will require a hydrological analysis as part of their rezoning applications.

To satisfy the District's concern regarding the regional impact of the proposed amendments, Staff used GIS to identify parcels in Southeast Lee County that meet the new categories' locational requirements. This attachment includes a map of these parcels in the "Map of Southeast Lee County Affected Parcels" section. In addition to the map, Staff compiled data on each parcel identified as "Parcels Meeting Conversion Requirements" in a table. This data is included in the "Parcel Table" section of this attachment.

The map identifies parcels within Southeast Lee County that could potentially be considered for the proposed Conservation Community or Preservation and Innovation Future Land Use Categories. Inclusion in this map does not indicate that the County would support Future Land

Use Map Amendments in these locations. Staff selected the parcels based on set criteria to evaluate the potential impact of the proposed amendments.

Staff determined the criteria to be parcels located along arterial or major collector roadways, currently designated DR/GR, undeveloped or in agricultural use, and not part of an entitled planned development, approved mining operation, Existing Acreage Subdivision, or conservation area. Properties owned by Lee County, the State, or conservation organizations were also excluded because many are already subject to conservation easements or support public conservation projects, making future use of the proposed categories unlikely. If such publicly owned properties are sold in the future, any subsequent owner would be responsible for completing the necessary conversion analysis as part of a future land use map amendment.

The analysis included in this attachment divides parcels in Southeast Lee County into four categories: (1) Existing developments, conservation areas, and publicly owned land, (2) Parcels/areas included in the proposed amendments, (3) Existing mines, and (4) Properties that could convert to one of the new future land use categories.

Existing developments, conservation areas, and publicly owned land are all parts of Southeast Lee County not indicated by color (**blank map space**). These include existing developments like Kingston, Wild Blue, Verdana Village, and other areas with existing development entitlements. Most of the residential developments in this area were developed under the County's Environmental Enhancement and Preservation Communities Overlay (EEPCO), which requires clustered development with 60% open space and 55% dedicated as a conservation easement. Because of the clustered development style and the large amount of open space dedicated as conservation easements, these properties are logically connected to the publicly owned and conservation lands they are included with on the map.

The parcels included in the **proposed map amendments** associated with CPA2026-00004 are shown in **purple on the map**. Hydrology analyses for the parcels associated with privately initiated amendments are included in the Exhibits of this attachment. The Department of Natural Resources provided a letter in support of the proposed amendments stating, "The proposed changes are designed to help balance development with protecting valuable resources… Natural Resources' concerns were addressed in the process and supports the draft amendment as provided on July 7th, 2026." See Exhibit 1 for their memo.

Southeast Lee County contains most of the County's active and approved mines, which typically behave differently than other land uses. Mines have a specific lifespan, separate approval processes and requirements, reclamation requirements, and unique impacts compared to other uses. **The map indicates mines in blue.** In Lee County, mines are approved through an Industrial Planned Development or Mine Excavation Planned Development and governed by Chapter 12 of the Land Development Code. LDC Sec 12-122 provides specific guidance on post-mining uses of

land. While the policies in this section do not prohibit conversion to other use categories, they do limit that conversion based on site characteristics and do not guarantee vested rights to density or intensity that would have been permitted prior to mining. Some of these sites may convert to one of the new categories in the future, but each site would require evaluation based on the approval Resolution and the County's LDC requirements.

The map indicates all **other parcels** that would qualify for the **new future land use categories in pink**. Staff identified a total of 41 parcels that meet the locational requirements for the new land use categories. These parcels are not existing or approved mines and are not included in the amendments. Staff provided a parcel-by-parcel inventory in the Parcel Table below.

PARCEL TABLE

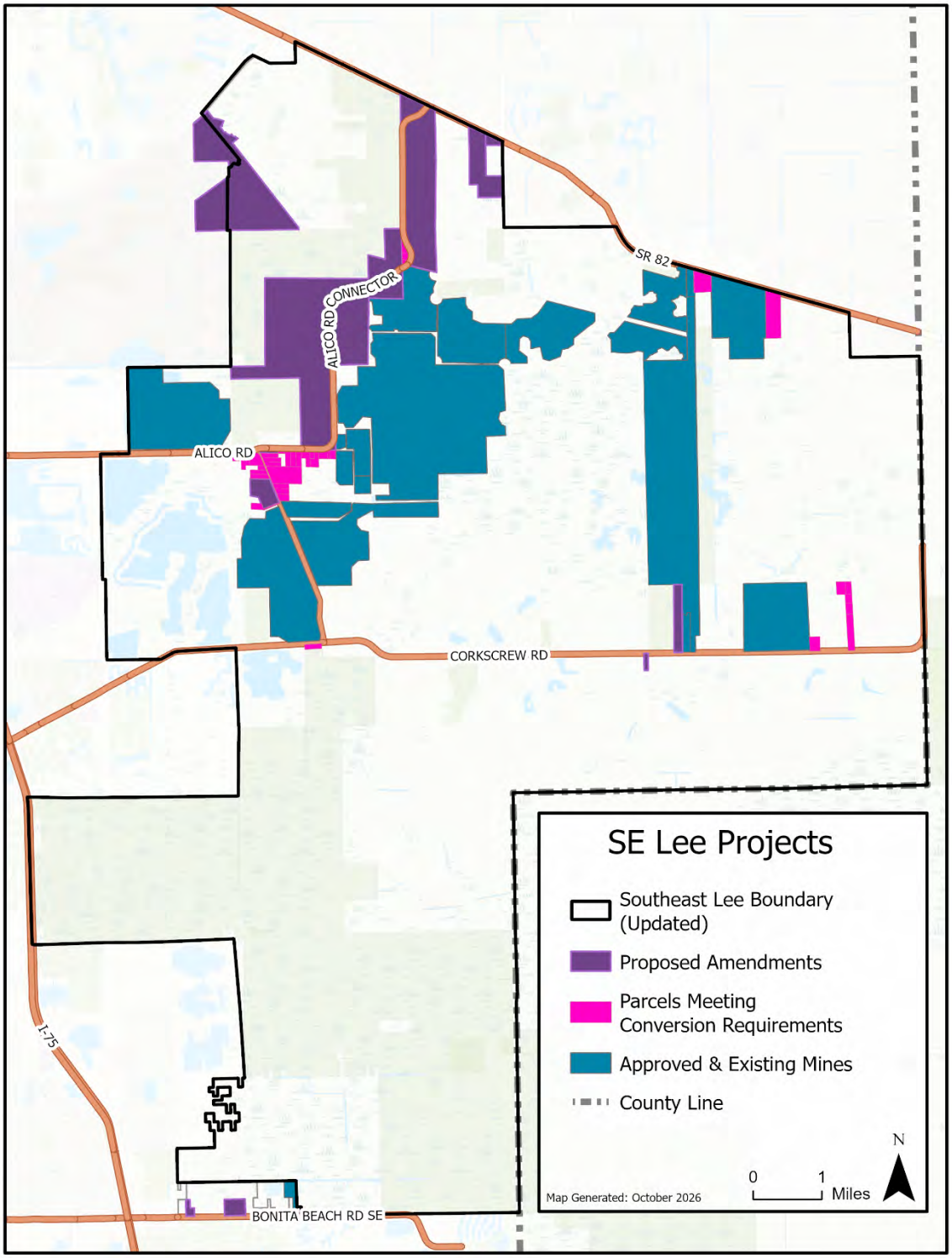
The table below lists properties that meet the locational requirements of the new Future Land Use Categories, shown in pink on the Map on Page 5. These properties are currently DR/GR and located on arterial or major collector roads. This table does not include properties included in the proposed map amendments or any existing or approved mines.

STRAP	Acreage	Zoning	Current Use	Wetlands %[1]	Uplands %[2]	Water Use Permit #	Panther Focus Area
094626L3U28642924	1.24	AG-2	ROW	9	91	N/A	Primary
2845270000001002A	2.17	AG-2	ROW	0	100	N/A	Secondary
10462600000041000	2.51	AG-2	Single-Family	0	100	N/A	Primary
10462600000040000	2.51	AG-2	Vacant	0	100	N/A	Primary
094626L1000010010	3.69	AG-2	Single-Family	64	36	N/A	Primary
0946260000001024B	4.17	AG-2	Single Family	44	56	N/A	Primary
09462600000010040	4.34	AG-2	Vacant	76	24	N/A	Primary
09462600000010180	4.5	AG-2	Vacant	87	13	N/A	Primary
10462600000013010	5.01	AG-2	Single-Family/Pasture	0	100	N/A	Primary
10462600000045000	5.01	AG-2	Single-Family	94	6	N/A	Primary
26452600000010010	5.79	AG-2	Communication Tower	79	21	N/A	Primary
09462600000010400	7.66	AG-2	Single-Family/Nursery	2	98	N/A	Primary
23462700000010050	8	AG-2	Orchard, Citrus	0	100	N/A	Secondary

[1] The wetlands acreage/percentage expressed in the Parcel Table is based on Lee County's Wetlands Future Land Use Category, which is subject to state review and may not reflect the actual wetlands boundaries on site.
[2] The assumption was that anything that was not some type of designated Wetlands on the FLUM was uplands.

09462600000010050	9.8	AG-2	Single-Family	85	15	N/A	Primary
09462600000010020	9.87	AG-2	Vacant	83	17	N/A	Primary
09462600000010090	9.89	AG-2	Single-Family	34	66	N/A	Primary
23462700000010060	10	AG-2	Orchard, Citrus	0	100	N/A	Secondary
09462600000010490	10.01	AG-2	Nursery, Ornamentals	0	100	36-03478-W	Primary
10462600000014000	10.02	AG-2	Single-Family	0	100	N/A	Primary
09462600000010500	10.03	AG-2	Nursery, Ornamentals	0	100	36-03478-W	Primary
094626L1000010410	10.07	AG-2	Vacant	61	39	N/A	Primary
09462600000010480	10.08	AG-2	Nursery, Ornamentals	0	100	36-03478-W	Primary
2346270000001002A	10.23	AG-2	Single-Family	0	100	N/A	Primary
09462600000010080	10.66	AG-2	Single-Family	70	30	N/A	Primary
09462600000010060	10.94	AG-2	Vacant	96	4	N/A	Primary
224626L4000010010	11.4	CC	Vacant	97	3	36-113383-W	Primary
09462600000010310	11.81	AG-2	Single-Family	41	59	N/A	Primary
09462600000010250	12.49	AG-2	Vacant	93	7	36-04902-W	Primary
09462600000010390	12.49	AG-2	Vacant	94	6	36-04902-W	Primary
09462600000010270	12.49	AG-2	Vacant	66	34	36-04902-W	Primary
26452600000010030	12.94	AG-2	Pastureland	89	11	N/A	Primary
104626L1000018000	15.01	AG-2	Single-Family	2	98	N/A	Primary
10462600000013000	15.04	AG-2	Single-Family/Pasture	3	97	N/A	Primary
23462700000010020	16.14	AG-2	Pastureland	1	99	N/A	Primary
23462700000010010	20.73	AG-2	Single-Family	65	35	N/A	Secondary
09462600000010000	20.75	AG-2	Boarding Stables	6	94	N/A	Primary
23462700000010040	34	AG-2	Orchard, Citrus	0	100	N/A	Secondary
28452700000010010	43.24	AG-2	Agricultural Research	3	97	36-02094-W, 36-02023-W	Secondary
09462600000010420	76.04	AG-2	Nursery, Ornamentals	40	60	36-00286-W	Primary
34452700000010000	91.76	AG-2	Single-Family	53	47	36-08446-W	Primary
SUMMARY:	**584.53**	**AG-2**	**-**	**43%**	**57%**	**-**	**-**

MAP OF SOUTHEAST LEE COUNTY AFFECTED PARCELS



PRIVATELY INITIATED AMENDMENTS HYDROLOGY SUMMARIES

The table below summarizes the hydrology reports the applicants submitted with their Future Land Use Map Amendment applications. These summaries reflect the applicants' reports and supporting analyses; they do not verify the reports' conclusions or accuracy. Additionally, the summaries are based on previous versions of the Lee Plan and insufficient application submissions. Each applicant may need to rerun their models based on the new land use category requirements or more recent data. Additional modeling will be required at the time of the zoning and development order to confirm or reconfirm that the development will not adversely impact water resources. **None of the reports demonstrate adverse impacts to present or future water resources.** The full reports summarized below are provided in Exhibit 2.

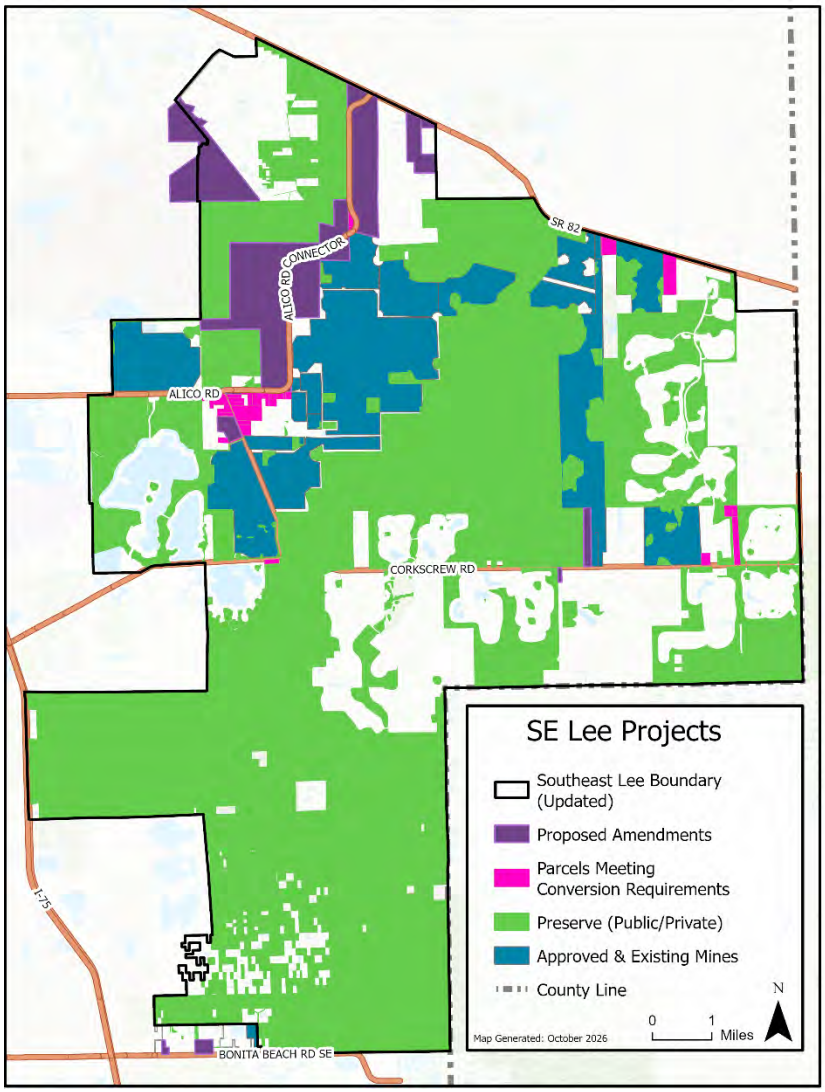
Project	Project Acreage	Hydrology Report Summary
CPA2025-00010 Alico Tradeport	88.62	The hydrogeologic assessment concludes that the proposed stormwater/irrigation system and development are **not expected to materially affect west-southwest groundwater flow, Surficial Aquifer water levels, or regional water quality.** The broader CPA states that the development is intended to restore hydrologic functions.
CPA2026-00001 Bluewater Ridge	1,901.30	The report concludes that the development **should maintain pre-development hydrology** through its surface-water management system by routing runoff to existing mine lakes and new stormwater ponds for recharge. It also finds that the proposed water sources would not adversely affect the shallow aquifers or their future use for public water supply.
CPA2024-00001 Bonita Beach Road	14.28	The integrated model concludes that the proposed commercial development produces **no significant groundwater impact** and does not change maximum stages in the two surrounding modeled waterbodies.
CPA2025-00009 Daniels Tradeport	840.50	The report concludes that the proposed stormwater lakes, preservation measures, and conjunctive surface- and groundwater irrigation system **should maintain or improve existing hydrologic functions**. Modeling of supplemental withdrawals from the Sandstone Aquifer found that potential

		impacts on existing legal users would be de minimis and not adverse.
CPA2024-00011 Corkscrew 80	78.69	The reports conclude that residential development and restoration **would improve the site's altered hydrology** by increasing groundwater recharge, restoring a surface-water flow path, and reducing localized water accumulation. The integrated analysis also projects substantially greater groundwater recharge under the residential scenario than under continued agricultural use.
CPA2023-00009 Dante Commercial	15.03	The reports characterize the site as historically hydrologically isolated and conclude that the proposed dry-retention system would **improve recharge and hydrologic conditions**, even though restoration of the original regional flow path is not considered feasible.
CPA2025-00011 SR 82 Freeman Property	186.50	The report concludes that the proposed stormwater system and wetland restoration would **improve hydrologic connectivity, groundwater recharge, and overall hydrologic function** on a historically altered site. Supplemental irrigation from the confined Mid-Hawthorn Aquifer is modeled as having de minimis impacts on existing users.
CPA2025-00013 White Willow	47.00	The integrated model concludes that the proposed residential project would have a **net beneficial effect on groundwater recharge** rather than an adverse water-resource impact.

DISCUSSION

Southeast Lee County comprises approximately 82,000 acres of Lee County. The current amendments total approximately 3,171.92 acres, while the 41 other parcels that meet the requirements of the new land use categories total approximately 584 acres. **Approximately 45,314 acres of Southeast Lee County are already designated as conservation or owned by the County, State, or other conservation group**. These are shown in green on the affected parcels map below.

Staff carefully developed the proposed text and map amendments to preserve the predominantly conservation legacy of Southeast Lee County and support its water resources and wildlife habitat. The companion Land Development Code (LDC) amendments include extensive requirements for new development in Southeast Lee County, including connecting to central water and wastewater infrastructure, maintaining and restoring wetlands and flowways, minimum indigenous upland habitats, and wildlife connectivity.



In response to the District's letter, Staff is **proposing changes to three (3) Lee Plan policies** included in the amendments. The first is a rewording of #1 in **Policy 1.4.5.** The proposed amendments, as provided through Transmittal Hearing, amended the requirements in 1.4.5 and 2.3.2 and inadvertently removed the hydrological modeling requirements and findings for Future Land Use Map Amendments in the DR/GR. The change to #1 specifies the type of hydrological analysis required at each stage of the development process. This language was also carried over to **Policy 33.1.7**, the second change. The third change was to **Policy 1.4.8** to limit the Conservation Community Future Land Use Category to parcels along major roadways. The proposed change better reflects the current EEPCO requirements, which require properties to be located on Alico or Corkscrew Roads, and further limits parcels eligible for the Conservation Community category, meaning these amendments will reduce impacts on water resources and yield less residential development. This change also keeps the Conservation Community category consistent with the Preservation and Innovation category. **The proposed**

changes limit the number of parcels that would qualify for the new categories and specify the appropriate hydrological modeling for each development stage.

Based on the acreage in the privately initiated amendments table above, the proposed amendments would retain, at **a minimum, approximately 1,535 acres of the potential total of 2,854 acres of land proposed for the new land use categories as open space.** If every property owner adopted the new residential category, it would add a maximum of 3,282 new dwelling units in Southeast Lee County. If every property owner adopted the new nonresidential category, it would add a maximum of approximately 31,080,060 square feet, or approximately 730 acres (less than 1% of Southeast Lee County), of nonresidential development. The developments in progress associated with the proposed amendments include a mix of Conservation Community (residential) and Preservation and Innovation (nonresidential) uses. As a result, the maximum potential number of dwelling units or amount of nonresidential area will be lower than in the highest potential development scenario described above.

A significant change in the proposed amendments involves removing the Planned Development standards from the Lee Plan and relocating them to the Land Development Code. Staff Report Attachment 2 provides the complete text of the LDC amendments. Removing these requirements from the Lee Plan could make the impact of these amendments appear larger than it is; however, quasi-judicial decision-making criteria belong in the LDC, not the Lee Plan.

The Southeast Lee County LDC requirements state that all development in this area of the County must create, preserve, or restore surface and groundwater resources and other natural systems. The table below compares the requirements for both development types. This table is not a complete list of development requirements; it only summarizes the basic requirements for quick reference.

In the table, a check mark (✓) indicates a required standard, “C” indicates a conditional or applicable-when-relevant standard, “I” indicates a residential density incentive strategy, and a dash (—) indicates that the standard is not required.

Requirement	Residential	Nonresidential
Planned Development	✓	✓
Development Agreement, If Required	C	C
Public Sewer Connection	✓	✓
Public Water Connection	✓	✓
Conservation Easement(s)	55% minimum	—
Minimum Open Space	60%	40%
100-Year, 72-Hour Stormwater Design	I	✓
30% Maximum Turfgrass Coverage	✓	✓
Buried Utilities	I	✓
Drip Irrigation	✓	✓

Drought-Tolerant Native Plants	✓	✓
Ecological/Hydrological Restoration Plan	✓	✓
Enhanced Lake Management Plan	✓	✓
Fertilizer/Pesticide BMPs	✓	✓
Human-Wildlife Coexistence Plan	✓	✓
Hydrological Impact Analysis	✓	✓
Indigenous Upland Habitat	✓	✓
Internal Circulation	✓	✓
Off-Site Mitigation Credits Available	I	✓
OFW Nutrient-Removal Standards	—	✓
Pedestrian Connectivity Across ROW	—	C
Preserve/Restore Flowways & Wetlands	C / I	✓
Reuse Connection, If Available	✓	✓
Separate Preservation Tracts	✓	—
Water-Use/Overconsumption Limit	—	✓
Wellfield Protection & Monitoring	✓	✓
Wildfire Prevention Plan	I	✓
Wildlife Connections, Crossings, and Habitat	✓	✓
Corkscrew Road Standards	100-ft buffer	100-ft setback & 50-ft Type F buffer
Standard Building Height	45 ft	45 ft

In addition to the standard PD requirements for development, the proposed amendments include incentives and programs that support additional environmental measures, including water conservation and recharge.

CONCLUSION

The proposed Lee Plan amendments, in concert with the LDC amendments, protect water resources by **requiring development to preserve and restore the natural systems that support groundwater recharge, surface-water flow, and flood attenuation**. Residential and nonresidential projects must provide substantial open space; protect or restore wetlands, flowways, and native habitat; use water-conserving landscaping and irrigation; and prepare site-specific ecological and hydrological restoration plans. The code also requires hydrologic analysis to show that development will not significantly harm current or future water resources. Stormwater and lake-management standards address water quality, erosion, nutrient loading, and long-term maintenance. For nonresidential development, additional safeguards include wellfield protections, groundwater monitoring, limits on excessive water use, and enhanced stormwater design. **Together, these measures reduce the risk that development will degrade water quality, lower groundwater levels, disrupt regional hydrology, or adversely affect nearby properties and water users.**

Attachments:
Exhibit 1 – Natural Resources Memo
Exhibit 2 – Hydrological Analyses of Privately-Initiated Amendments

EXHIBIT 1

Lee County
Southwest Florida

DEPARTMENT OF NATURAL RESOURCES
MEMORANDUM

To: Kate Burgess, Principal Planner, DCD

From: Phil Gillogly, P.E., Operations Manager

Date: July 15, 2026

Re: Review of Southeast Lee Comprehensive Plan Amendment

Natural Resources staff have had the opportunity to coordinate with the development of the proposed Lee Plan, Land Development Code, and map changes. Southeast Lee County is the next area for development pressures. The proposed changes are designed to help balance development with protecting valuable resources. Further, the original intention of the density reduction – groundwater resource DR/GR is being preserved in the revisions.

Natural Resources' concerns were addressed in the process and supports the draft amendment as provided on July 7th, 2026

EXHIBIT 2

I. INTRODUCTION

The Applicant would like to request a Comprehensive Plan Amendment of the subject property along Alico Road in the Southeast Lee County planning community. The subject property is comprised of six (6) parcels with STRAP numbers (09-46-26-L2-00001.0100), (09-46-26-00-00001.0070), (09-46-26-00-00001.0210), (09-46-26-00-00001.0540), (09-46-26-00-00001.0030), and (09-46-26-00-00001.0190). Together, the parcels are approximately 88.62 acres, with 58.1 included in the request.

Figure 1. Aerial of Companion Map Amendment Subject Property

II. REQUEST

Currently under the Density Reduction/Groundwater Resource (DR/GR) and Wetlands future land use designations, the request is to amend the future land use designation of 58.1 acres to Tradeport to allow for industrial development. The remaining 30.52 acres will remain in the Wetlands future land use designation. The companion text amendment has language 1) protecting wetland areas, 2) requiring the restoration of historic flow-ways, and 3) other elements which enhance the planning community's overall functionality and sustainability.

	EXISTING USE	FUTURE LAND USE	ZONING
NORTH	ROW (Unnamed Access Florida Rock); Southeast Water Reclamation Facility; Vacant; Residential; ROW (Alico Road)	Public Facilities; DR/GR; Wetlands; Conservation Lands Wetland	CFPD; AG-2
EAST	Vacant; ROW (Alico Road); Nursery	DR/GR; Wetlands	AG-2
SOUTH	Residential; Vacant; Nursery; Limerock Mine	DR/GR; Wetlands	AG-2; IPD
WEST	ROW (Unnamed Access Florida Rock and Alico Road convergence); Vacant; Residential; University	DR/GR; Wetlands; University Community; Tradeport	AG-2; MPD

Table 1. Surrounding Land Uses

Since the subject property is comprised of six (6) parcels across the Alico Road corridor, the subject property has a diverse surrounding existing use, future land use designations, and zoning. The northernmost parcel abuts the right of way (ROW) Unnamed Access Florida Rock. Across from this is property zoned Community Facilities Planned Development (CFPD) with the Public Facilities future land use (FLU). South of this parcel is AG-2 zoned land with DR/GR and Wetlands FLU, as well as to the east of the parcel after abutting Alico Road on its eastern perimeter. Further east, there are estate residential developments, a mechanic shop, and a manufacturer.

The five (5) parcels that abut Alico Road to the west are also surrounded by AG-2 zoned land with DR/GR and Wetlands FLU. The southernmost parcel abuts IPD properties with a limerock mine. To the west of these properties are more AG-2 zoned land with the DR/GR and Wetlands FLU. These properties are either vacant or have an estate residential development. The other side of these AG-2 zoned properties is an MPD zoned development. Further west is Florida Gulf Coast University in a University Community FLU, as well as Tradeport FLU to the north of the university. The subject property is approximately 10,300 feet away from the closest Tradeport FLU and approximately 15,000 feet from the Regional Southwest International Airport.

In support of this request, the Applicant would like to include an amendment to Lee Plan Map 4-B, which depicts Lee County Utilities' service area for sewer to be inclusive of the subject parcels. This update has been reflected in the "Proposed Map 4-B" Exhibit, which has been provided to Staff.

III. LEE PLAN ANALYSIS

The Comprehensive Plan Map Amendment request has been analyzed for consistency with the Lee Plan goals, objectives, and policies.

POLICY 1.1.13: The Tradeport future land use category includes areas of commercial and industrial lands adjacent to the airport. These areas will include developments consisting of light manufacturing or assembly, data centers, warehousing, and distribution facilities; research and development activities; laboratories; ground transportation and airport-related terminals or transfer facilities; hotels/motels, meeting facilities; education and training facilities; and office uses.

Stand-alone retail commercial uses intended to support and complement the surrounding business and industrial land uses are permitted if they are approved as part of a Development of Regional Impact (DRI) or Planned Development rezoning. Stand-alone retail commercial uses are limited to 1 acre out of every 10 Tradeport and preserved wetland acres within the project. To provide an incentive to preserve upland habitat, DRIs or Planned Developments may also receive additional stand-alone retail acres at the rate of 1 additional acre out of every 10 acres of preserved and enhanced uplands within the project that protect wetlands, flow-ways or occupied listed species habitat. Ancillary retail commercial uses, related directly to the sale of products manufactured or services provided in Tradeport, are allowed if they are part of a planned development. Residential uses, other than bona fide caretaker's residences, are not permitted in this future land use category.

The proposed map amendment is consistent with Policy 1.1.13 as it pertains to light manufacturing and industrial lands in proximity to the Regional Southwest Airport. The proposed map amendment allows for industrial uses to take place on the subject property located in the Southeast Lee Planning Community, which is adjacent to the Gateway/Airport Planning Community per Lee Plan Map 1-B. Additionally, plans to extend Alico Road through the SE Lee County Planning Community connect this region with the Lehigh Acres Planning Community. The Alico Road Connector is identified in Table 3(a) of the Lee Plan (Capital Improvement Program Detail Report). The Alico Road Connector would expand daily commutes to the SE Lee County Planning Community. The proposed map amendment along with the companion text amendment would allow for industrial uses to take place within SE Lee County. The development would function as an industrial hub for employees, reducing through traffic/travel and improving economic diversity within the community. No hotels/motels or office uses are proposed given commercial limitations in the planning community which are further governed by Goal 33 of the Lee Plan. Additionally, the request would allow for the Tradeport FLU to take place within the SE Lee County Community's Alico Road Corridor, which would promote employment opportunities while prohibiting residential uses from taking place within the corridor once a companion map amendment to Tradeport is achieved.

POLICY 1.4.5: The Density Reduction/Groundwater Resource (DR/GR) future 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 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 must be submitted as part of the rezoning application and updated, if necessary, as part of the mining development order application.

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 standard density of one dwelling unit per ten acres (1 du/10 acres). See Objectives 33.2 and 33.3 for potential density adjustments resulting from concentration or transfer of development rights.*
3. *Private Recreational Facilities may be permitted in accordance with the site locational requirements and design standards, as further defined in Goal 13. No Private Recreational Facilities may occur within the DR/GR land use category without a rezoning to an appropriate Planned Development zoning category, and compliance with the Private Recreation Facilities performance standards, contained in Goal 13.*

The current future land use designation of the subject properties is DR/GR. The request for this map amendment is to allow for Tradeport which is a more appropriate FLU category at this location. The subject properties are located along a heavily impacted corridor as further evidenced by environmental assessments, protected species surveys, and the proximity of large limerock mines surrounding on either side of Alico Road. Further supporting the request is the construction of the Alico Road Extension/Connector which would effectively reroute many residents in the neighboring Lehigh Acres Planning Community through the Southeast Lee County Planning Community for employment opportunities located along the I-75 corridor in south Lee County, Estero, Bonita Springs, and Collier County. From a holistic viewpoint of regional planning, the promotion of strategic employment opportunities in key locations throughout Southeast Lee County would enhance the community's economy while simultaneously reducing through-traffic/travel outside of the planning community and into neighboring communities, many of which are already traffic-burdened and in need of capital street network improvements.

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, and prevent development patterns where large tracts of land are by-passed in favor of development more distant from services and existing communities.

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. Development orders and permits (as defined in §163.3164, Fla. Stat.) will be granted only when consistent with the provisions of §163.3202(2)(g) and § 163.3180, Fla. Stat. and the concurrency requirements in the LDC.

The proposed map amendment is consistent with Objectives 2.1 and 2.2, pertaining to the location and timing of incorporating industrial uses into the Alico Road corridor within SE Lee County. The corridor is already impacted in various areas which abut Alico Road, particularly given the existing resource extraction operations (limerock mines) throughout the community and along the Alico Road corridor, which features an overhead conveyer system to transport extracted materials. The existing mines have various accessory industrial uses to support

mining operations. The request would enhance and expand the industrial opportunities within the corridor to allow for industrial uses (aside from resource extraction) to be a primary use within the corridor. The industrial uses are supported by existing and planned improvements to the corridor.

- **Access; as proposed, the area which may be impacted by the text amendment is bisected by Alico Road which is classified as a county-maintained major collector with a speed limit of 55 MPH at this location. The north-south segment of Alico Road consists of two lanes and can support industrial levels of traffic, as further detailed in the supporting traffic analysis.**
- **Utilities; the north-south segment of Alico Road, as well as much of the western portion of SE Lee County, is located within the Lee County Utilities water service area. The close proximity between the Alico Road corridor and Lee County Utilities wastewater service area will require future developments exceeding thresholds set forth by the Standard 4.1.2 of the Lee Plan under Goal 4 to connect to centralized sewer.**
- **PD Zoning; additionally, the proposed text amendment further safeguards the public realm by requiring the planned development process be utilized in conjunction with a map amendment to Tradeport to allow for industrial uses; this affords the community and staff additional opportunities for public input and subsequent conditioning of future projects, should additional safeguards/conditioning be necessary.**

POLICY 2.3.1: All proposed changes to the Future Land Use Map in critical areas for future potable water supply (Lehigh Acres as described in Policy 54.1.9 and all land in the DR/GR land use category) will be subject to a special review by the staff of Lee County. This review will analyze the proposed land uses to determine the short-term and long-term availability of irrigation and domestic water sources, and will assess whether the proposed land uses would cause any significant impact on present or future water resources. If the Board of County Commissioners wishes to approve any such changes to the Future Land Use Map, it must make a formal finding that no significant impacts on present or future water resources will result from the change.

The subject properties are currently in the DR/GR land use category however, the total area being proposed to be amended via this request is approximately 58.1 acres. All properties within the request abut Alico Road (north/south segment) which has been heavily impacted by decades of proximate limerock mining. The subject properties feature limited benefits for present or future water resources given the scale and location of the request. Additionally, the planned development process would be sought prior to any development across the subject properties, allowing for additional review and mitigation for potential impacts to present/future water resources once a Schedule of Uses is proposed per PD rezoning of the future developments.

POLICY 2.3.2: 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 Ch. 163, Part II, Fla. Stat., 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 urban sprawl.*

During transmittal and adoption process, the Board of County Commissioners must review the application for all these analytical requirements and make a finding that the amendment complies with all of them.

The Applicant has prepared preliminary calculations estimating water and sewer usage across the subject property. These calculations were provided to Lee County Utilities and the agency confirmed that they have sufficient capacity available to the property based on the estimated 104,825 gallons per day of utilization. LCU further indicated that the sewer service would require developer funded improvements and that the service would be provided via the Three Oaks Water Reclamation Facility. The above information was provided via e-mail on October 10, 2025 and a copy of the LCU Letter of Availability was provided to staff during the initial submittal. Preliminary analysis of the proposed land uses demonstrate consistency with a number of local public water resource requirements and standards. The subject property is located outside of the Wellfield Protection Zones as depicted in the exhibit provided in this resubmittal.

Additionally, F.S 163.3164(54) defines "urban sprawl" as *'a development pattern characterized by low density, automobile-dependent development with either a single use or multiple uses that are not functionally related, requiring the extension of public facilities and services in an inefficient manner, and failing to provide a clear separation between urban and rural uses.'* Lee County defines the Tradeport FLU as a Future Suburban Area per the Lee Plan Glossary. The amendment to allow for a change in the upland FLU classification from DR/GR to Tradeport would more accurately reflect the existing area as well as acknowledge the impacts that limerock mining have had throughout the corridor. The subject property, along with either side of Alico Road, has been heavily disturbed since the 1990 decision and will see additional changes given the Alico Road extension proposed to alleviate regional traffic patterns. By locating industrial land uses in an area that lies south of the airport and is centrally located within a notable resource extraction corridor, we are better able to limit impacts to pristine corridors and can accommodate future development within a disturbed area.

STANDARD 4.1.1: 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 Fla. Admin. Code R. 62-550).*
2. *If the proposed development lies within the boundaries of a water utility's certificated or franchised service area, or Lee County Utilities' future potable water service area (see Map 4-*

A), then the development must be connected to that utility.

3. *The developer must provide proof that the prior commitments of the water utility, plus the projected need of the developer, do not exceed the supply and facility capacity of the utility.*
4. *All waterline extensions to new development will be designed to provide minimum fire flows, as well as adequate domestic services as required by Fla. Admin. Code R. 62-555.*
5. *If a new development is located in a certificated or franchised service area, or Lee County Utilities' future potable water service area (see Map 4-A), and the utility cannot provide the service or cannot provide the service except at a clearly unreasonable cost to the developer, the developer is encouraged to petition the appropriate regulatory agency to contract the service area so that the development may establish its own community water system or invite another adjacent utility to expand its service area in order to provide the required service.*
6. *If a development lies outside any service area as described above, the developer may:*
    - *request that the service area of Lee County Utilities or an adjacent water utility be extended to incorporate the property;*
    - *establish a community water system for the development; or*
    - *develop at an intensity that does not require a community water system.*
7. *Lee County Utilities may provide potable water service to properties not located within the future water service area when such potable water service is found to benefit public health, safety, and welfare, including protection of Lee County's natural resources.*

The subject properties are within the Lee County Utilities future service area for potable water. The Applicant has received a Letter of Availability from Lee County Utilities for potable water. Additional coordination with LCU will be required at the time of development order to ensure usage estimates are consistent with the received Letter of Availability.

POLICY 4.1.2: 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.*
2. *If the proposed development exceeds the thresholds listed above and lies within the boundaries of a sewer utility's certificated or franchised service area, or Lee County Utilities' future sanitary sewer service area (see Map 4-B), and that utility has sufficient capacity to provide minimum service to the development, then the development must connect to that sewer utility if there is existing infrastructure adequate to accept the effluents of the development within l/4 mile from any part of the development.*
3. *If there is not sufficient capacity nor adequate infrastructure within l/4 mile of the development, the developer must provide proof in the form of a clearly stated rejection of service.*
4. *If a new development is located in a certificated or franchised service area, or Lee County Utilities' future sanitary sewer service area (see Map 4-B), and the utility cannot provide the service, or cannot provide the service except at a clearly unreasonable cost to the developer, the developer may establish on a temporary basis a self-provided sanitary sewer facility for the development, to be abated when the utility extends service to the site. The developer may also petition the appropriate regulatory agency to contract the service area of the utility in order that another utility may be invited to provide the service.*
5. *If a development lies outside any service area as described above, the developer may:*
    - *request that the service area of Lee County Utilities or an adjacent sewer utility be expanded to incorporate the property;*
    - *establish a self-provided sanitary sewer system for the development;*

- *develop at an intensity that does not require sanitary sewer service; or*
- *if no more than 5000 gallons of effluent per day per parcel is produced, an individual sewage disposal system per Fla. Admin. Code R. 64E-6 may be utilized, contingent on approval by all relevant authorities.*

6. *Lee County Utilities may provide sanitary sewer service to properties not located within the future sewer service area when such sanitary sewer service is found to benefit public health, safety, and welfare, including protection of Lee County's natural resources.*

While the subject properties are located within the Potable Water Future Service Area for Lee County Utilities, the properties are not located within the Sewer Future Service Area. Therefore, the Applicant is requesting a map amendment to Lee Plan Map 4-B to include the subject properties in the Lee County Utilities Sewer Future Service Area. Per the LCU Letter of Availability, developer-funded improvements may be necessary to allow for connection to central sewer systems.

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. Requests for conventional rezonings will be denied in the event that the buffers provided in the LDC, Chapter 10, are not adequate to address potentially incompatible uses in a satisfactory manner. If such uses are proposed in the form of a Planned Development or special exception and generally applicable development regulations are deemed to be inadequate, conditions will be attached to minimize or eliminate the potential impacts or, where no adequate conditions can be devised, the application will be denied altogether. The LDC will continue to require appropriate buffers for new developments.

Chapter 10 of the LDC requires a 25-foot-wide Type E buffer with five (5) trees and 30 shrubs for every 100 linear feet in addition to a wall for industrial properties proposed adjacent to single-family residential. It is important to note that the map amendment request is companion to a text amendment which requires that Planned Development rezonings be sought prior to obtaining a development order, this allows for additional review of conceptual site plans as well as deviations from the code should they be needed, particularly to promote public health, safety, and welfare. Note 1 of LDC Sec. 10-416(d)(3) regarding industrial buffering when adjacent to single-family states "All uses or activities must provide a Type E buffer unless the Director determines that the proposed use or activity will not have an adverse impact on adjacent property. If the Director determines that a Type E buffer is not required, a Type F buffer must be constructed." Type F buffers are a minimum of 30-feet in width with 10 trees and a double staggered hedgerow, these buffers do not require a wall. At time of PD zoning, the Applicant will work with Staff to ensure that appropriate buffering is achieved.

GOAL 6: Commercial Land Uses. To permit orderly and well-planned commercial development at appropriate locations within the County.

While the Tradeport FLU allows for commercial land uses, Policy 33.2.4(4) expressly outlines the criteria for commercial development within the Southeast Lee County Planning community. The companion text amendment does not propose any changes to Policy 33.2.4 therefore commercial development in SE Lee County will continue to be held to the standards outlined in section (4) of this policy. The standards require a minimum of 2,000 acres of project area therefore the subject properties for the map amendment are ineligible to develop commercial land uses. Commercial development is further addressed in Lee Plan Policy 33.2.5 which is also

not proposed to be altered via the text amendment.

OBJECTIVE 7.1: All development approvals for industrial land uses must be consistent with the following policies, the general standards under Goal 4, and other provisions of this plan.

POLICY 7.1.2: Industrial development is encouraged in the Industrial Development, Tradeport, and Industrial Interchange future land use categories. Industrial development in these future land use categories requiring rezoning and meeting DCI thresholds must be rezoned to a Planned Development. All rezonings to allow industrial uses outside of the Industrial Development, Tradeport, or Industrial Interchange future land use categories must be rezoned to a Planned Development, except if located within the Mixed Use Overlay. The Planned Development must be designed to arrange uses as an integrated and cohesive unit in order to: promote compatibility and screening; reduce dependence on the automobile; promote pedestrian movement within the development; utilize joint parking, access and loading facilities; avoid negative impacts on surrounding land uses and traffic circulation; protect natural resources; and, provide necessary facilities and services where they are inadequate to serve the proposed use.

The request will support industrial development in the Tradeport future land use category. Furthermore, the language in the companion text amendment will require the planned development rezoning process be sought for future development of the subject properties, consistent with Policy 7.1.2. The planned development rezoning process requires a companion conceptual site plan which would ensure compatibility and screening; promote pedestrian movement within the development; utilize joint parking, access and loading facilities; avoid negative impacts on surrounding land uses and traffic circulation; protect natural resources; and, provide necessary facilities and services where they are inadequate to serve the proposed industrial uses.

POLICY 7.1.3: Industrial land uses must be located in areas appropriate to their special needs and constraints, including, but not limited to, considerations of: topography; choice and flexibility in site selection; access by truck, air, deep water, and rail; commuter access from home-to-work trips; and utilities; greenbelt and other amenities; air and water quality considerations; proximity to supportive and related land uses; and compatibility with neighboring uses. (Ord. No. 93-25, 94-30, 00-22)

POLICY 7.1.4: The timing and location of industrial development will be permitted only with the availability and adequacy of existing or planned services and facilities.

The subject properties of the proposed map amendment are appropriate at the proposed location consistent with the special needs and constraints listed in Policy 7.1.3. The area's flat topography makes the subject properties ideal for development due to the limited grading and surface alterations that would otherwise be necessary. The subject properties all abut Alico Road which provides truck access. Alico Road is a county-maintained major collector at the segment adjacent to the subject properties. The traffic-carrying capacity of the roadway is sufficient to support the request. Utilities for industrial land uses have been addressed in Standards 4.1.1 and 4.1.2. Air quality is not proposed to be impacted by the industrial land uses – as previously mentioned the projects will require a planned development rezoning prior to issuance of a development order. The PD rezone requires a Schedule of Uses which will be tailored to the location and will ensure that air quality is not impacted by the development.

Similar can be said for water standards, additionally at the time of PD zoning a water quality monitoring condition may be implemented in which monitoring and reporting schedules are identified as appropriate in conjunction with the uses listed in the Schedule of Uses.

POLICY 7.1.7: Industrial development will not be permitted if it allows industrial traffic to travel through predominantly residential areas.

The north-south segment of Alico Road is not a residential area, nor does access to it require vehicular traffic to travel through any predominantly residential areas.

OBJECTIVE 33.1: WATER, HABITAT, AND OTHER NATURAL RESOURCES. Protect and restore natural resources within Southeast Lee County including, but not limited to, surface and ground water, wetlands, and wildlife habitat.

POLICY 33.1.1: Large-scale ecosystem integrity in Southeast Lee County should be maintained and restored. Protection and/or restoration of land is of even higher value when it connects existing corridors and conservation areas. Restoration is also highly desirable when it can be achieved in conjunction with other uses on privately owned land including agriculture.

The companion text amendment requires a minimum of 30% open space (per proposed Policy 33.2.6(4)(a), which allows for larger water storage and planting areas. Additionally, per the proposed text amendment's Policy 33.2.6(4)(c) historic groundwater levels must be restored and accommodated. Per (4)(d), procedures addressing the cessation of agricultural operations are outlined to further protect and enhance the natural environment. The companion draft text amendment as well as the existing Lee Plan policies specific to Goal 33, provide ample environmental considerations to further safeguard the public from any potential impacts from future map amendment to the Tradeport FLU category.

POLICY 33.1.2: The DR/GR Priority Restoration Strategy consists of seven tiers of 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 Map 1-D). Within these tiers, density incentives will be utilized as a mechanism to improve, preserve, and restore regional surface and groundwater resources and wildlife habitat of state and federally listed species; with Tier 1 and Tier 2 being the most incentivized tiers. Lee County may consider amendments to this Overlay based on changes in public ownership, land use, new scientific data, and/or demands on natural resources. This Overlay does not restrict the use of the land.

The subject property is not located within any of the tiers per Lee Plan Map 1-D.

POLICY 33.1.4: Restoration of critical lands in Southeast Lee County is a long-term program that will progress in phases based on available funding, land ownership, and natural resource priority. On individual sites, restoration can be carried out in stages:

1. *Initial restoration efforts would include techniques such as filling agricultural ditches and/or establishing control structures to restore the historic water levels as much as possible without adversely impacting nearby properties.*
2. *Future restoration efforts would include the eradication of invasive exotic vegetation and the reestablishment of appropriate native ecosystems based upon the restored hydrology.*

The companion text amendment supports the above policy. This request is for a map amendment to the Tradeport FLU. As further detailed in the companion text amendment, a planned development rezoning will be required and during that time a number of items highlighted in the text amendment would be addressed, including the preparation of an enhanced lake management plan and a site specific ecological and hydrological restoration plan.

POLICY 33.1.7: Impacts of proposed land disturbances on surface and groundwater resources will be analyzed using integrated surface and groundwater models that utilize site-specific data to assess potential adverse impacts on water resources and natural systems within Southeast Lee County. Lee County Division of Natural Resources will determine if the appropriate model or models are being utilized, and assess the design and outputs of the modeling to ensure protection of Lee County's natural resources.

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

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

POLICY 60.4.3: The County encourages the preservation of existing natural flow-ways and the restoration of historic natural flow-ways.

The proposed companion text amendment will require a planned development rezoning prior to issuance of a development order. The proposed impacts on surface and groundwater resources will be identified when a companion conceptual site plan is prepared along with a site-specific Schedule of Uses. This would allow for appropriate measures by which to address historic and principal flow-ways.

POLICY 123.1.5: Encourage private restoration of natural habitats to support connectivity between public and private conservation and preservation efforts.

OBJECTIVE 123.3: Wildlife. Maintain and enhance the fish and wildlife diversity and distribution within

Lee County for the benefit of a balanced ecological system.

POLICY 123.3.1: Encourage upland preservation in and around preserved wetlands to provide habitat diversity, enhance edge effect, and promote wildlife conservation.

Private restoration of natural habitats is proposed to occur when a conceptual site plan is proposed. This would be completed during the planned development rezoning phase that takes into consideration the FLUCCS mapping and in the context of site development. Additionally, upland preservation is likely to occur in and around preserved wetland areas during the conceptual site planning phase.

POLICY 123.3.2: Participate in the development of a regional plan to identify and protect areas utilized by wildlife, including panthers and bears, so as to promote the continued viability and diversity of regional species.

POLICY 123.3.3: Protect wildlife from impacts of new non-agricultural development in non-urban areas through the creation and implementation of a human-wildlife coexistence plan for each new development requiring a development order.

OBJECTIVE 123.4: Endangered and Threatened Species in General. 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.

POLICY 123.4.1: Identify, inventory, and protect flora and fauna indicated as endangered, threatened, or species of special concern in the "Official Lists of Endangered and Potentially Endangered Fauna and Flora of Florida," Florida Fish and Wildlife Conservation Commission (FWC), as periodically updated.

POLICY 123.4.2: Conserve habitat of rare and endangered plant and animal species through enforcement, regulations, incentives, and acquisition.

POLICY 123.4.3: Require detailed inventories and assessments of the impacts of development where it threatens habitat of endangered and threatened species and species of special concern.

POLICY 123.4.4: Restrict the use of protected plant and wildlife species habitat to that which is compatible with the requirements of endangered and threatened species and species of special concern. New developments must protect remnants of viable habitats when listed vegetative and wildlife species inhabit a tract slated for development, except where equivalent mitigation is provided.

POLICY 123.4.5: Maintain regulations that protect species as designated by FWC and as designated

under the Endangered Species Act from the impacts of development.

A human-wildlife coexistence plan will be provided at time of planned development rezoning as these are generally very site-specific to take into consideration the viability and diversity of regional species while addressing the PSS of each property to ensure that the plan is consistent with the species observed on each site. Please note, protected species surveys have been conducted for all subject properties and were provided to staff during the initial submittal.

POLICY 126.1.1: Natural water system features which are essential for retention, detention, purification, runoff, recharge, and maintenance of stream flows and groundwater levels shall be identified, protected, and managed.

The proposed impacts on natural water systems will be identified when a companion conceptual site plan is prepared along with a site-specific Schedule of Uses. This would allow for appropriate measures by which to address maintenance of stream flows and groundwater levels.

IV. CONCLUSION

The proposed Comprehensive Plan Map Amendment is consistent with several policies set forth by the Lee Plan, as well as what is proposed by the companion text amendment. The map amendment would greatly enhance local economic diversity while protecting wetlands and restoring key hydrological functions in the Southeast Lee County community. Please contact me directly at (239) 226-0024 or to if you should have any questions or require additional information.

Sincerely,
EnSite, Inc.

Cindy C. Leal Brizuela, AICP, MURP
Principal Planner

cc: Terry B. Cramer III, Esq. – Wilbur Smith

HYDROGEOLOGIC ASSESSMENT FOR THE PROPOSED ALICO TESTING AND EDUCATION FACILITY, 14800 ALICO ROAD, FORT MYERS, LEE COUNTY, FLORIDA

December 2024

Prepared by:

RMA
GeoLogic Consultants, Inc.

3401 SE 15th Place
Cape Coral, Florida 33904

DRAFT

HYDROGEOLOGIC ASSESSMENT FOR THE PROPOSED ALICO TESTING AND EDUCATION FACILITY, 14800 ALICO ROAD, FORT MYERS, LEE COUNTY, FLORIDA

Prepared for:

EnSite, Inc.
2401 First Street, Suite 201
Fort Myers, FL 33901

December 2024

Project # 24-701

Prepared by:

RMA GeoLogic Consultants, Inc.
3401 SE 15th Place
Cape Coral, FL 33904

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Attachment B Analytical Graphs for Slug Tests

SECTION 1. INTRODUCTION

1.1 BACKGROUND

The Alico Testing and Training Facility site is proposed to be developed on an approximate 19.65-acre property at 14800 Alico Road in Southeast Lee County, Florida. The location of the site is shown on Figures 1-1 and 1-2. The site is comprised of two real estate parcels (STRAP numbers 09-46-26-00-00001.0030 and .0540). The site is currently undeveloped and vacant. The site is bordered by a vacant pasture to the north, Sunny Grove Nursery to the east, and rural private residences south and west. A USGS topographic map for the project site is provided as Figure 1-3.

The site was undeveloped land prior to being cleared for farming in about 1970. A mobile home and small nursery occupied the central portion of the site from the mid 1970's until the mid 2000's. An approximate 0.5-acre lake, previously constructed and used for irrigation, was recently filled in with sand in 2024.

1.2 PURPOSE

RMA Geologic Consultants, Inc. (RMA) has been retained to conduct a water resource evaluation for future project planning. The proposed Alico Testing and Training Facility development will include the construction of a jet engine testing facility, an administrative and classroom building, three industrial buildings, a parking lot, two lakes, and associated landscaping.

1.3 PAST AND CURRENT PERMITTED WATER USES

A review of the South Florida Water Management District (SFWMD) database indicates water use permit 36-02544-W for nursery irrigation at the site was issued on September 8, 1993, and renewed on May 17, 2013, with an expiration date of May 17, 2033. The permitted source of water was surface water from the on-site lake. The existing permit provides for the irrigation of three (3) acres of nursery. The permitted allocations are an annual and maximum month of 3.50 and 0.47 million gallons (MG), respectively. A copy of the water use permit is provided in Attachment A.

No surface water management permit and/or Environmental Resource Permit (ERP) was required for the previous nursery operations at the site.

SECTION 2. SITE HYDROGEOLOGY

2.1 Geology

The shallow hydrogeology information provided herein for the site is from the Lower West Coast Potentiometric Mapping Project (Water Resource Solutions, 2003) prepared for and in cooperation with the SFWMD.

A description of the subsurface geological units to an approximate depth of 200 feet below land surface (BLS) is provided below.

Pleistocene-Holocene age Ft. Thompson Formation

The undifferentiated Holocene/Pleistocene age (3.8 million years ago to present) is the shallowest geologic unit at the site and consists of unconsolidated very fine to medium grained quartz sand, shell, and silty to clayey sand deposits of the Ft. Thompson. This unit unconformably overlies the eroded basal Pliocene-age (5.3 to 2.6 million years ago) rocks composed of the Ochopee Limestone. The thickness of the Ft. Thompson formation is anticipated to be approximately 15 feet at the Alico Testing Site and is part of the Surficial aquifer at the site.

Tamiami Formation (Pliocene)

An unconformity separates the Pliocene-age (5.3 to 2.6 million years ago) Tamiami formation from the overlying Holocene-Pleistocene section. In Lee County, the Tamiami formation is comprised of three members which are, in order of increasing depth, the Pinecrest Limestone, the Bonita Springs Marl, and the Ochopee Limestone. The Pinecrest Limestone and the Bonita Springs Marl are not present at the site. The Ochopee Limestone consists of a highly productive biomicritic limestone in the area that produces large volumes of high-quality water. The thickness of the Tamiami formation is anticipated to be approximately 45 feet at the site and is also part of the Surficial aquifer.

Peace River Formation (Miocene)

An unconformity separates the Miocene-age (23 to 5.3 million years ago) Peace River formation from the overlying Tamiami formation. The Peace River formation is comprised of clays and interbedded sandstones and sandy limestones. The porous rock units have been historically referred to as the Lehigh Acres Sandstone member of the Peace River formation. Clay units in some areas are informally referred to as members. These include the Cape Coral Clay, the Ft. Myers Clay, and the Green Meadows Clay. However, the lateral extent of all of these units is relatively restricted as the Peace River formation represents complex interrelated lower delta plain and delta front depositional environments. The Cape Coral Clay member is approximately 40 feet thick in the project site area. The top of the Lehigh Acres Sandstone Member (i.e. Sandstone aquifer) is reported at approximately 100 feet BLS in the area.

2.2 Hydrogeology

A generalized hydrostratigraphic column for the general area of the site is provided as Figure 2-1. Some of the stratigraphic relationships that have significant importance for the shallow groundwater resources in the area are:

- The extent and thickness of the Surficial aquifer.
- The extent, continuity, and composite aquifer thickness of the sandstones and sandy limestones commonly referred to as the Lehigh Acres Sandstone member of the Peace River formation of the Hawthorn group.

Surficial Aquifer

The Surficial aquifer is unconfined and is comprised of all permeable stratigraphic units between land surface and the depth of the first low permeability confining unit at a particular location. The surficial aquifer is comprised of the deposits of the Ft. Thompson and the Ochopee Limestone of the Tamiami formation deposits, with an approximate thickness of 60 feet in the area of the proposed Alico Testing and Training Facility. The Ochopee Limestone has been extensively mined in the area and the lakes resulting from the mining operations are utilized as the source of water for irrigation for nearby developments.

Confining Unit (Cape Coral Clay)

Low permeability confining units composed of clays and marls separate the water-table aquifer from the Sandstone aquifer in the area of the proposed Alico Testing and Training Facility. The thickness of these confining unit is approximately 40 feet in the area.

Sandstone Aquifer

The Sandstone aquifer is comprised of the Middle Miocene-age (12 to 15 mya) Lehigh Acres Sandstone member of the Peace River formation. The Peace River formation, which unconformably underlies the Tamiami formation deposits, is the uppermost formation of the Hawthorn Group. The Peace River formation consists of clays, unconsolidated sands, and interbedded sandstones and sandy limestones in a complex stratigraphic pattern characterized by lateral changes within short distances. The Lehigh Acres Sandstone extends from approximately 100 to 200 feet BLS in the area of the proposed Alico Testing and Training Facility. This aquifer is used as a source for the Corkscrew and Green Meadows water treatment plants. The use of the Sandstone aquifer as an irrigation water source is not recommended due to permittability concerns since the the aquifer is approaching the maximum developable limit (MDL) in the area, as established by the SFWMD.

2.3 Soils

The United States Department of Agriculture (USDA) Soils Conservation Service (SCS) General Soils Maps for Lee County (1984) indicates that the property is located in an area underlain primarily by two soil types (Pineda fine sand and Oldsmar sand). The central and northeast portions of the site are Oldsmar Sand. This is a nearly level, poorly drained soil on low, broad flat woods areas. Slopes are smooth too slightly convex and range from zero 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 50 inches or more. In most years, under natural conditions, the water table ranges from 6 to l8 inches below the surface for 1 to 4 months. It recedes below 18 inches during extended dry periods. This map unit is not hydric.

The majority of the site is Pineda fine sand. This is a nearly level, poorly drained soil found 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 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 at a depth of less than 10 inches 2 to 4 months and a depth of 10 to 40 inches for about 6 months. It 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 seven to 30 days or more. This map unit is hydric.

SECTION 3. SURFICIAL AQUIFER POTENTOMETRIC STUDY AND SLUG TESTING

The purpose of this potentiometric study and slug testing was to verify the groundwater flow direction at the proposed Alico Testing and Training facility and to determine the hydraulic conductivity of the upper sand unit for future design purposes and to determine the suitability of the proposed lakes to sustainably provide the irrigation volumes for the site. The study consisted of the installation of four piezometers, leveling the measuring point elevation for each piezometer, obtaining water elevations, and mapping the groundwater flow directions at the site. Slug tests were conducted in two of the piezometers and the appropriate analyses is provided herein.

3.1 Piezometer Installation

Four piezometers were installed by RMA hydrogeologists on November 12, 2024. Using the hand auger method, a nominal 3.5-inch diameter hole was advanced to a depth of approximately 6.5 feet BLS. The piezometers were constructed of 2-inch diameter Schedule 40 PVC casing and 0.010-inch slotted PVC well screen.

An aerial photo showing the locations of the piezometers is provided as Figure 3-1. A summary of the piezometer construction details is provided in Table 3-1. A schematic illustration of the piezometer construction details is provided as Figure 3-2.

Table 3-1. Summary of Piezometer Construction Details

Piezometer ID	Total Depth (ft. BLS)	Screen Interval (ft. BLS)	Casing Material	Casing Stickup Above Land Surface
PZ-1	6.00	1.00 - 6.00	SCH 40 PVC	4.00
PZ-2	6.60	1.60 - 6.60	SCH 40 PVC	3.40
PZ-3	6.45	1.45 - 6.45	SCH 40 PVC	3.55
PZ-4	6.50	1.50 - 6.50	SCH 40 PVC	3.50

The lithologic data from the piezometers indicate that the shallow sediments at the site are primarily composed of fine sand. A lithologic description for the piezometers is provided in Table 3-2.

Table 3-2. Lithologic Logs for Piezometers

ID	Depth (feet)	Lithologic Description
PZ-1	0 - 1	Sand, light greenish gray (5GY 8/1), very fine grained, quartz, poor intergranular porosity, poor apparent permeability.
	1 - 3	Sand, grayish yellow (5Y 8/4), very fine grained, quartz, poor intergranular porosity, poor apparent permeability.
	3 - 6	Sand, light gray (N7), very fine grained, quartz, poor intergranular porosity, poor apparent permeability.
PZ-2	0 - 1	Sand, medium light gray (N6), very fine grained, organic, quartz, poor intergranular porosity, poor apparent permeability.
	1 - 3	Sand, yellowish gray (5Y 8/1), very fine grained, quartz, poor intergranular porosity, poor apparent permeability.
	3 - 7	Sand, light greenish gray, (5GY 8/1), very fine grained, quartz, poor intergranular porosity, poor apparent permeability.
PZ-3	0 - 2	Sand, yellowish gray (5Y 8/1), very fine grained, quartz, poor intergranular porosity, poor apparent permeability.
	2 - 3	Sand, pale yellowish brown (10YR 6/2), clayey, very poor intergranular porosity, very poor apparent permeability.
	3 - 6	Sand, yellowish gray (5Y 7/2), sticky, quartz, very poor intergranular porosity, very poor apparent permeability.
PZ-4	0 - 1	Sand, light gray (N7), poor intergranular porosity, poor apparent permeability.
	1 - 4	Sand, yellowish gray (5Y 8/1), poor intergranular porosity, poor apparent permeability.
	4 - 7	Sand, light greenish gray (5GY 8/1), very fine grained, sticky, very poor intergranular porosity, very poor apparent permeability.

3.2 Determination of Groundwater Flow Direction

The measuring point elevation of the PVC casing and the land surface elevation for each piezometer were leveled by RMA using a laser level. Since no NAVD survey benchmark was readily available, the westernmost piezometer (PZ-4) was given the LIDAR spot elevation included in the Lee County GIS shapefile. A spot elevation of 23.71 feet NAVD

was assigned to the land surface at the location of PZ-4. Therefore, all elevations are based off the spot elevation for the land surface at PZ-4. This is consistent with the elevation of 24 feet NGVD indicated by the USGS topographic map (Figure 1-3).

Groundwater levels were measured in the piezometers by RMA using an electric water level tape after they were allowed to settle for at least 30 minutes. The calculated water level elevations were determined by subtracting the measured depth to water from the elevation of the measuring point. A summary of the collected water levels and the resultant groundwater level elevations is provided in Table 3-3.

Using the water level elevation from each piezometer, a groundwater contour map for the surficial aquifer for November 12, 2024 showing flow directions at the site was constructed (Figure 4-3). The water level contour map indicates, as previously anticipated, groundwater flow directions towards the West-Southwest. This is consistent with the regional groundwater flow directions for the Surficial aquifer.

Table 3-3. Summary of Measuring Point Elevations

Piezometer ID	Water Level below TOC (ft. BLS)	Water Level (ft. BLS)	TOC Elevation (feet NAVD)	Groundwater Elevation (feet NAVD)	Land Elevation (feet NAVD)
PZ-1	4.79	1.39	28.12	23.33	24.62
PZ-2	4.86	0.86	27.85	22.99	24.35
PZ-3	4.51	0.96	27.40	22.89	23.90
PZ-4	4.40	1.00	27.21	22.81	23.71

3.3 Slug Testing

Slug tests were conducted to determine the hydraulic conductivity (K) of the upper sand unit of the Surficial aquifer. The test involves creating a sudden change in the water level within the piezometer (the "slug") and measuring the water level changes over time.

Slug tests were conducted in two piezometers (PZ-1 and PZ-3) on November 12, 2024. Water level data for the slug testing was collected using a pressure transducer capable of accurately measuring and recording water level changes to less than 1 second. A weighted three-foot-long metal slug of known volume was inserted in each of the piezometers and the resultant changes in water level versus time were recorded. After water levels had equilibrated, the slug was removed and the resultant water level changes versus time were again recorded. The static water level at the site in the

hydrostratigraphic interval in which the piezometers were constructed was approximately 1.1 feet below land surface on the date of the testing.

The water level data from the slug testing was analyzed using three standard slug test analytical methods (Bouwer and Rice, 1976, U.S. Navy, 1974, and Hvorslev, 1951). A summary of the analytical results is provided on Table 3-4. The calculated hydraulic conductivity values for the two piezometers are relatively low, with values ranging from about 12 to 16 feet per day. This relatively low hydraulic conductivity is typical of the fine sands found in this area of Lee County. The analytical graphs for the slug tests are included in Attachment B.

Due to the relatively low hydraulic conductivity of the upper sand unit, the proposed lakes will need to be excavated into the underlying highly transmissive Ochopee Limestone to provide the needed irrigation volumes for the site without constructing a recharge Surficial Aquifer well to augment the lakes. The results should also be taken into consideration for the design of the surface water management system for the site.

Table 3-4. Summary of Slug Test Analyses Conducted in Piezometers

METHOD	HYDRAULIC CONDUCTIVITY				NUMBER	
	(ft/day)	(gpd/ft^2)	(ft/day)	(gpd/ft^2)		
	SLUG-IN		SLUG-OUT			
Bouwer & Rice, 1976 Partially penetrating well	11.24	84.08	8.89	66.50	PZ-1	
Bouwer & Rice, 1976 Fully penetrating well	14.25	106.59	11.27	84.30		
U.S Navy, 1974	18.97	141.90	15.00	112.20		
Hvorslev, 1951	25.44	190.29	20.12	150.50	**(ft/day)**	**(gpd/ft^2)**
Average	17.48	130.71	13.82	103.37	15.65	117.04
Bouwer & Rice, 1976 Partially penetrating well	7.68	57.45	7.44	55.65	PZ-3	
Bouwer & Rice, 1976 Fully penetrating well	9.67	72.33	9.37	70.09		
U.S Navy, 1974	12.81	95.82	12.41	92.83		
Hvorslev, 1951	17.07	127.68	16.54	123.72	**(ft/day)**	**(gpd/ft^2)**
Average	11.81	88.32	11.44	85.57	11.62	86.95

SECTION 4. EVALUATION OF WATER NEEDS

Water needs for the proposed development will include potable water, landscape irrigation, and wastewater disposal. Lee County Utilities (LCU) will provide potable water to the proposed Alico Testing and Training Facility. Landscape irrigation demands will be met with on-site sources using the on-site lake system with potential for augmentation with groundwater withdrawals if the lakes are not excavated into the Ochopee Limestone. The on-site lake system is the most efficient method of utilizing the on-site water resources and sustainably managing stormwater. Similar to nearby developments, the volume of surface water in the lake system will minimize any potential impacts to surface water resources and groundwater levels in the Surficial aquifer. Evaluation of impacts associated with the proposed withdrawals for landscape irrigation indicates that the potential for impacts to the on-site water resources, wetlands, or other existing permitted users is minimal.

4.1 POTABLE WATER AND WASTEWATER

LCU will supply potable water for the proposed development likely from the nearby Corkscrew and Green Meadows water treatment plants. This will eliminate the need for an individual domestic self-supply well and treatment system.

The site is currently outside of the LCU wastewater service area and therefore an on-site septic disposal system is currently needed and planned to handle the generated wastewater flows. It should be noted that LCU is planning to construct nearby the Southeast Water Reclamation Facility (WRF) to serve the area. Wastewater flows generated from the site may be directed to that WRF when constructed and in service likely within a few years.

4.2 IRRIGATION WATER

The Alico Testing and Training Facility will include the construction of two lakes that will be used for stormwater management. The lakes may be able to provide the entire irrigation needs if they are excavated into the Ochopee Limestone anticipated to be present at the site at approximately 15 feet BLS. If the lakes are excavated to the typical depth of 12 BLS into the upper sand unit, they may need to be recharged using a Surficial aquifer well completed from approximately 20 to 40 feet BLS. Lake recharge should not occur when the stormwater management system is at full capacity or discharging offsite. The water quality in the lake system and in the Surficial aquifer is fresh with chloride concentrations of approximately 50 mg/l which is significantly less than the 200 mg/L required by the SFWMD for blended water.

The irrigated area for the proposed facility is estimated to be approximately 4 acres of turf grass and landscaping. The modified Blaney-Criddle method for Excel, developed by the SFWMD, was used to determine required irrigation needs for 4 acres of turf grass and

landscaping. A soil factor of 0.8, an irrigation efficiency of 75%, and the rainfall data from the Fort Myers Station were used in the calculations. A maximum monthly requirement of 0.69 million gallons (MG) and an annual requirement of 5.14 MG were calculated. Based on these projections, the site will need to obtain a minor Individual water use permit from the SFWMD.

SECTION 5. IRRIGATION IMPACT ASSESSMENT

The proposed Alico Testing and Training Facility will include several lakes to provide flood control, stormwater management, and water quality treatment of runoff. A system of control features will be planned for the facility to protect the quality of water in the lake system and adjacent watersheds. This system will include the collection, settle treatment, and transfer of stormwater within the site's water management system including landscaped areas that will provide a natural filter of stormwater runoff and the use of site-specific water treatment best management practices.

The proposed stormwater management system will include the collection and detention of all water generated on the site and will provide stormwater treatment through various dry and wet detention elements within the development that meet or exceed water quality requirements of the SFWMD, the Florida Department of Environmental Protection (FDEP), and Lee County.

The site-specific potentiometric study detailed in this report demonstrates that the groundwater is flowing across the site from east to west/southwest. The western portion of the site is planned as an indigenous preservation and buffer. The introduction of fill and buildings in the eastern and central portions of the site will likely not have an impact on the westerly groundwater flow at the site.

Some of the proposed irrigation withdrawals from the lake system will likely be recharged with groundwater from the highly productive Ochopee Limestone of the Surficial aquifer if the lake system is not excavated into the Ochopee Limestone. Due to the thickness and high transmissivity of the Surficial aquifer in this area of Lee County, no impact to the water levels in the Surficial Aquifer are anticipated. Additionally, the site's surface water management system will provide water quality treatment and storage that will not impact regional water quality.

LCU will provide potable water to the site. These municipal services will reduce the consumption of on-site groundwater resources and will assist in reducing any hydrogeological impacts on the existing water resources.

The proposed project incorporates multiple groundwater protections, land preservation, and management of water resources in accordance with Lee County's goals and objectives for sustainability and reliability of Lee County natural resources.

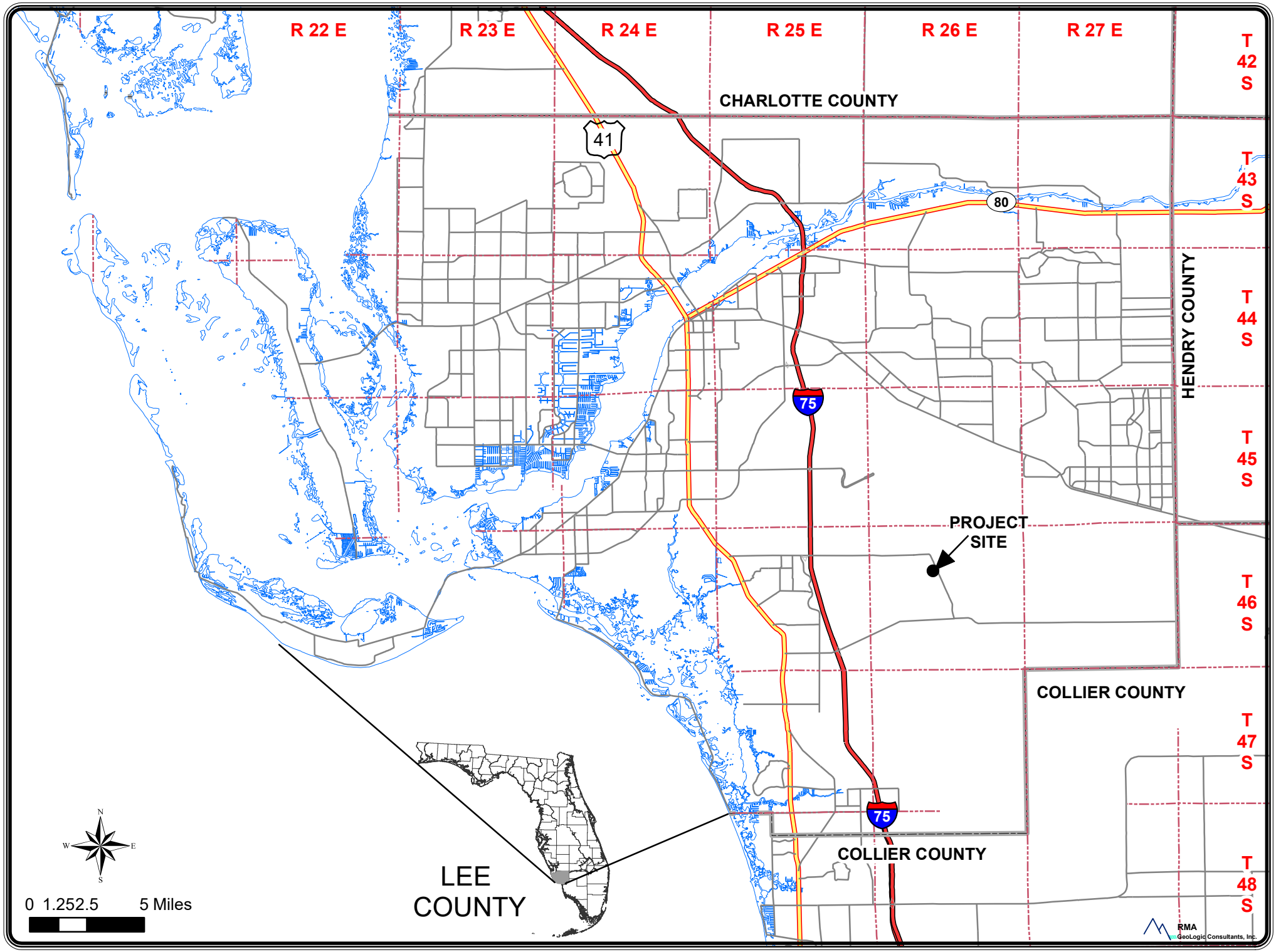


FIGURE 1-1. GENERAL SITE LOCATION MAP.

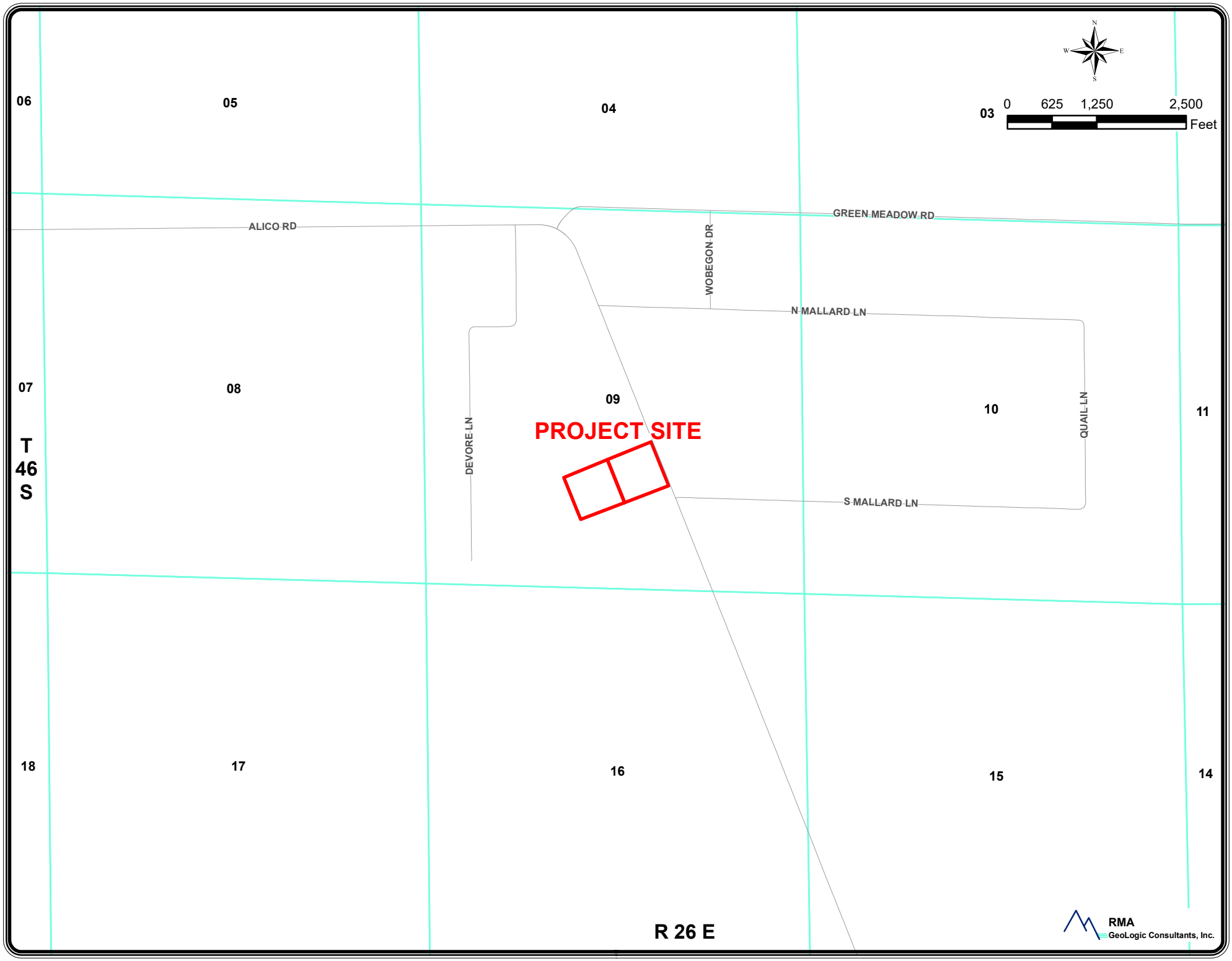


FIGURE 1-2. MAP SHOWING LOCATION OF PROJECT SITE.

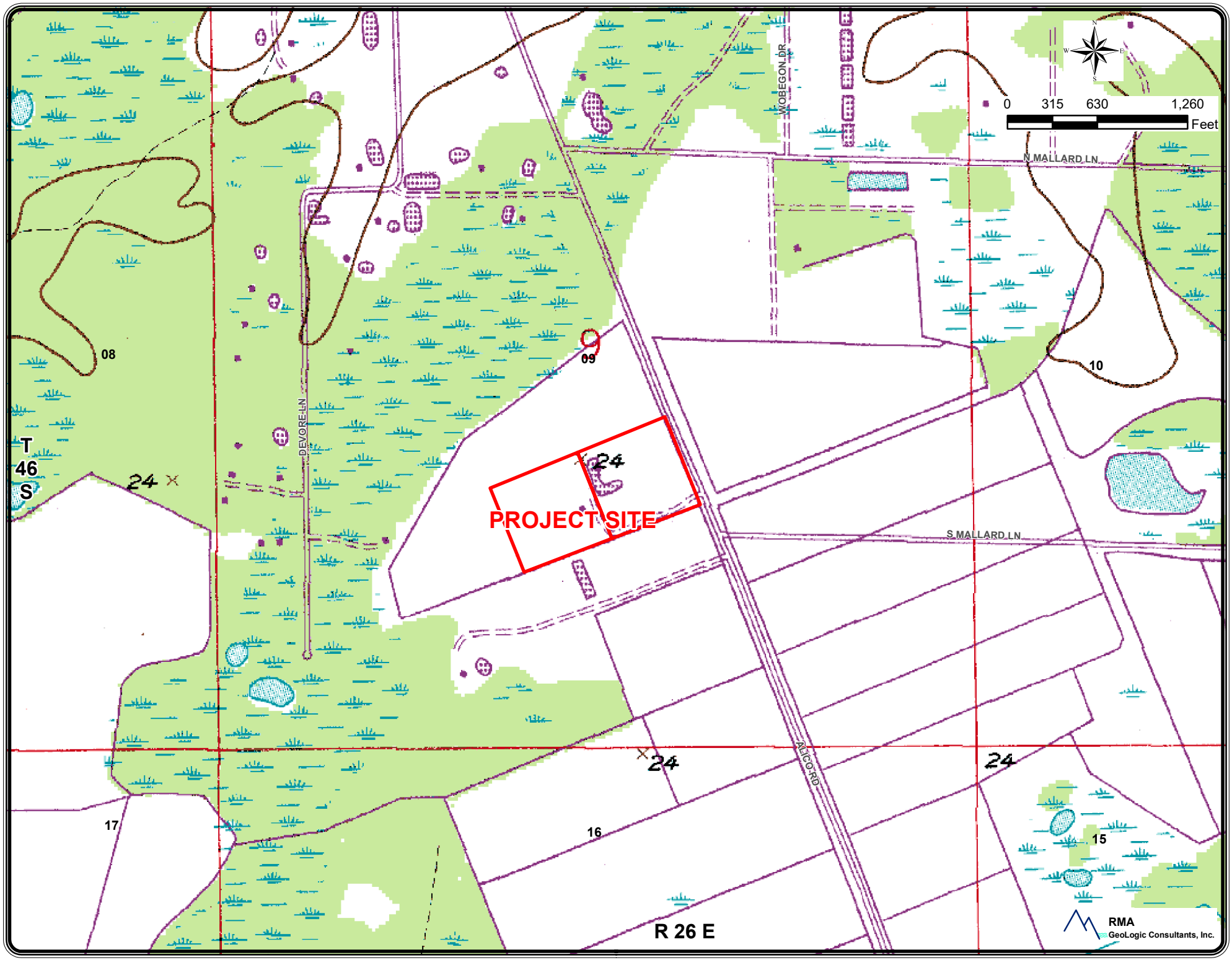
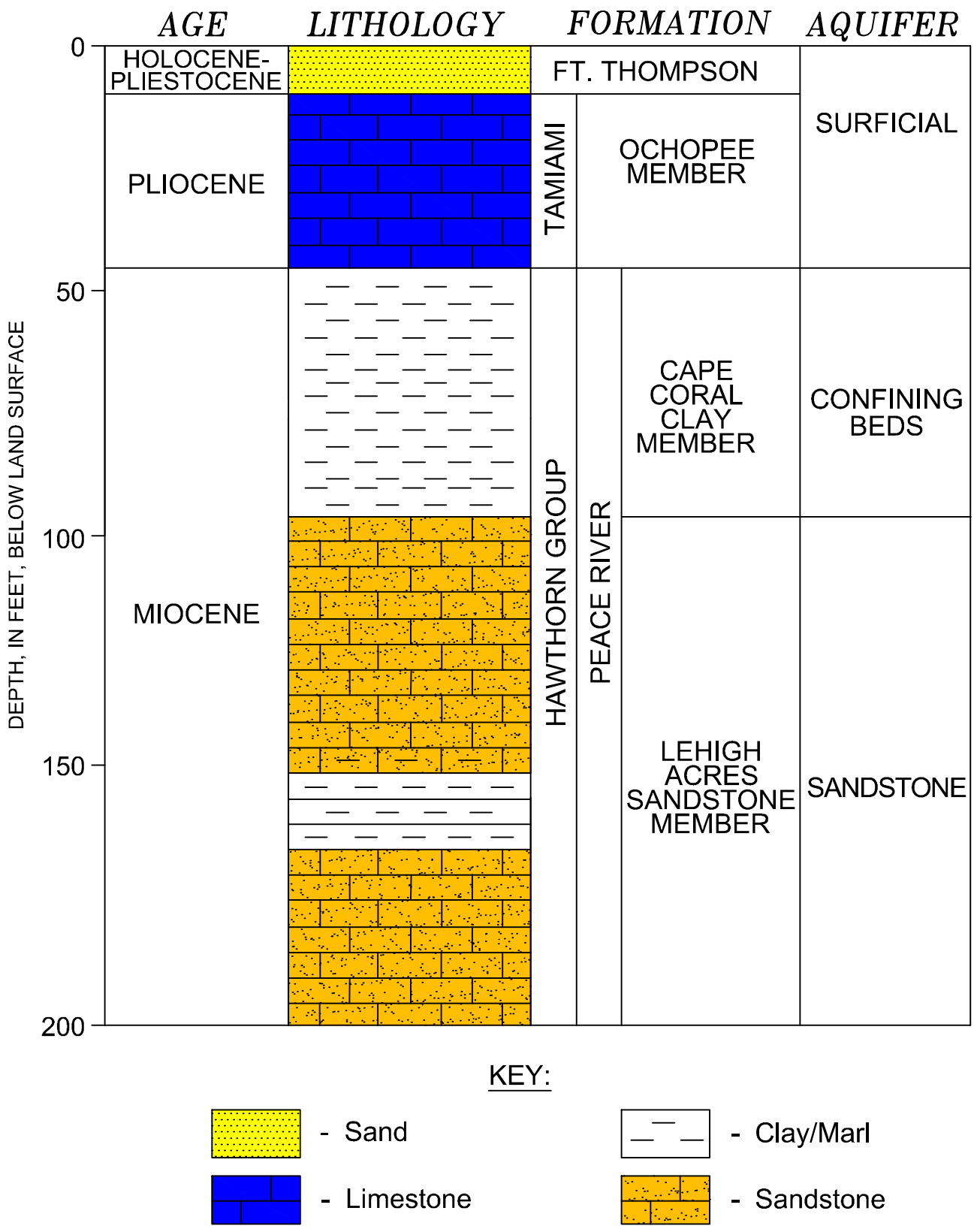


FIGURE 1-3. USGS TOPOGRAPHIC MAP FOR THE GENERAL AREA OF THE PROJECT SITE.



RMA GeoLogic Consultants, Inc.

PROJECT NAME: ALICO TESTING & TRAINING FACILITY
PROJECT NUMBER: 24-701 DATE: 12/27/24

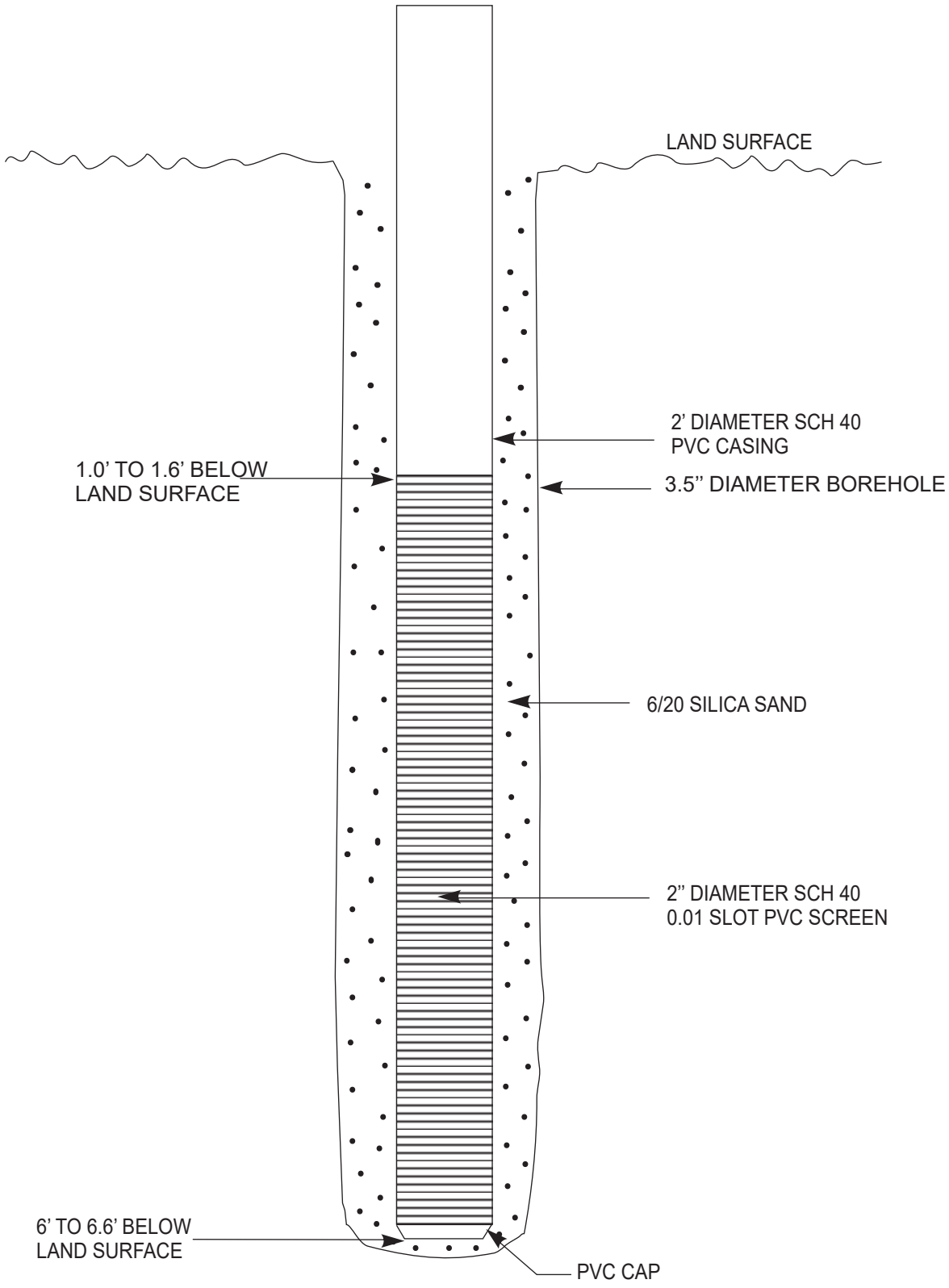
FIGURE 2-1. GENERALIZED HYDROSTRATIGRAPHIC COLUMN FOR THE PROJECT SITE

RMA GeoLogic Consultants, Inc.

PROJECT NAME: Alico Testing & Training Facility, 14800 Alico Rd, Fort Myers, Lee County, FL

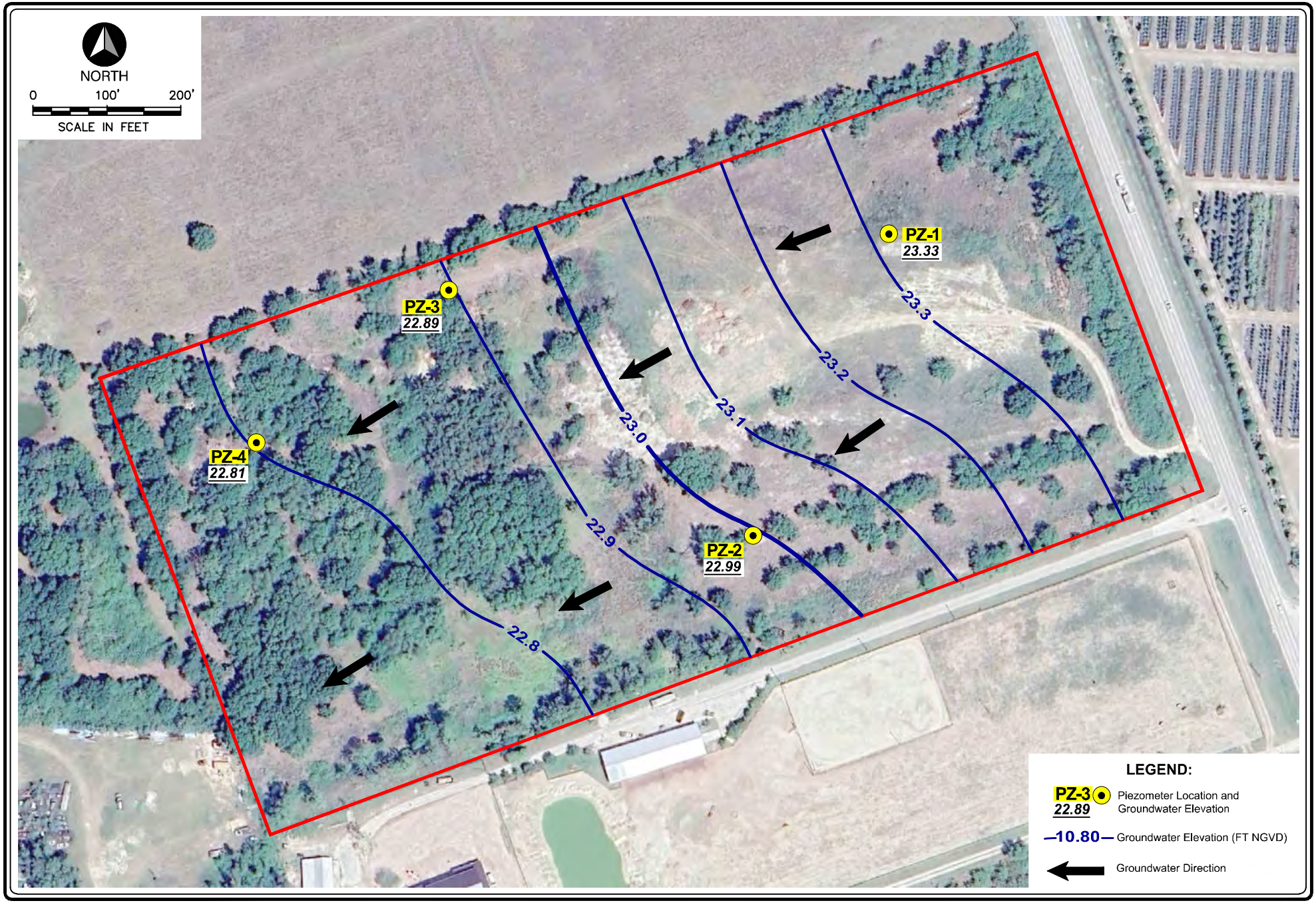
PROJECT NUMBER:24-701 DATE: 1/5/2025

FIGURE 3-1 - Aerial Photograph Showing Piezometer Locations



RMA GeoLogic Consultants, Inc.	PROJECT NAME: Alico Testing, 14800 Alico Rd, Lee County, FL	
	PROJECT NUMBER: 24-701	DATE: 12/27/24

FIGURE 3-2. Schematic Illustration of Construction Details for Piezometers PZ-1 through PZ-4.



RMA GeoLogic Consultants, Inc.

PROJECT NAME: ALICO TESTING & TRAINING FACILITY

PROJECT NUMBER: 24-701 DATE: 12/27/24

FIGURE 3-3. AERIAL PHOTOGRAPH SHOWING GROUNDWATER FLOW DIRECTION FOR THE SURFICIAL AQUIFER ON NOVEMBER 12, 2024.

Attachment A

Copy of Existing Water Use Permit

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
District Headquarters: 3301 Gun Club Road, West Palm Beach, Florida 33406 (561) 686-8800 www.sfwmd.gov

CON 24-06

Application No.: 130426-7
General Permit No.: 36-02544-W

May 17, 2013

NATURAL HEALTH & NUTRITION, INC.
19311 LA SERENA DRIVE
FORT MYERS, FL 33967

Dear Permittee:

SUBJECT: **General Water Use Permit No.:** 36-02544-W
Project: S & S GOLF MANAGEMENT
Location: LEE COUNTY, S9/T46S/R26E
Permittee: NATURAL HEALTH & NUTRITION, INC.

This letter is to notify you of the District's agency action concerning your Notice of Intent to Use Water. This action is taken pursuant to Chapter 40E-20, Florida Administrative Code (F.A.C.). Based on the information provided, District rules have been adhered to and a General Water Use Permit is in effect for this project subject to:

1. Not receiving a filed request for Chapter 120, Florida Statutes, administrative hearing and

2. The attached Limiting Conditions.

The purpose of this application is to renew a Water Use Permit for irrigation of 3 acres of nursery using a micro-sprinkler irrigation system. Withdrawals are from an on-site lake via two existing withdrawal facilities.

Date Of Issuance: May 17, 2013

Expiration Date: May 17, 2033

Water Use Classification: Nursery

Total Serviced Acreage: 3 (3 acres of nursery)

Water Use Permit Status: Renewal

Environmental Resource Permit Status: Not Applicable

Right Of Way Permit Status: Not Applicable.

Surface Water From: On-site Lake(s)

Permitted Allocation(s):

Annual Allocation: 3,500,000 Gallons
Maximum Monthly Allocation: 470,000 Gallons

Existing Withdrawal Facilities - Surface Water

Source: On-site Lake(s)
1 - 4" X 15 HP X 250 GPM Centrifugal Pump
1 - 3" X 2 HP X 44 GPM Centrifugal Pump

Rated Capacity

Source(s)	Status Code	GPM	MGD	MGM	MGY
On-site Lake(s)	E	294	0.42	12.9	155
Totals:		**294**	**0.42**	**12.9**	**155**

Should you object to the Limiting Conditions, please refer to the attached Notice of Rights which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have questions concerning this matter. If we do not hear from you prior to the time frame specified in the Notice of Rights, we will assume that you concur with the District's recommendations.

Certificate Of Service

I HEREBY CERTIFY that a Notice of Rights has been mailed to the addressee not later than 5:00 p.m. this 17th day of May, 2013, in accordance with Section 120.60(3), Florida Statutes.

Sincerely,

Thomas Colios
Section Leader
Water Use Bureau

TDC /cb

Enclosure

c: Lee County HRS
S & S Golf Management, Inc.
Sandra M. Smith

Limiting Conditions

1. This permit shall expire on May 17, 2033.

2. Application for a permit modification may be made at any time.

3. Water use classification:

   Nursery Irrigation

4. Source classification is:

   Surface Water from:
   On-site Lake(s)

5. Total annual allocation is 3.5 MG.

   Total maximum monthly allocation is .47 MG.

   These allocations represent the amount of water required to meet the water demands as a result of rainfall deficit during a drought with the probability of recurring one year in ten. The Permittee shall not exceed these allocations in hydrologic conditions less than a 1 in 10 year drought event. If the rainfall deficit is more severe than that expected to recur once every ten years, the withdrawals shall not exceed that amount necessary to continue to meet the reasonable-beneficial demands under such conditions, provided no harm to the water resources occur and:
   (a) All other conditions of the permit are met; and
   (b) The withdrawal is otherwise consistent with applicable declared Water Shortage Orders in effect pursuant to Chapter 40E-21, F.A.C.

Limiting Conditions

6. Pursuant to Rule 40E-1.6105, F.A.C., Notification of Transfer of Interest in Real Property, within 30 days of any transfer of interest or control of the real property at which any permitted facility, system, consumptive use, or activity is located, the permittee must notify the District, in writing, of the transfer giving the name and address of the new owner or person in control and providing a copy of the instrument effectuating the transfer, as set forth in Rule 40E-1.6107, F.A.C.

   Pursuant to Rule 40E-1.6107 (4), until transfer is approved by the District, the permittee shall be liable for compliance with the permit. The permittee transferring the permit shall remain liable for all actions that are required as well as all violations of the permit which occurred prior to the transfer of the permit.

   Failure to comply with this or any other condition of this permit constitutes a violation and pursuant to Rule 40E-1.609, Suspension, Revocation and Modification of Permits, the District may suspend or revoke the permit.

   This Permit is issued to:

   NATURAL HEALTH & NUTRITION, INC.
   19311 LA SERENA DRIVE
   FORT MYERS, FL 33967

7. Withdrawal Facilities:

   Surface Water - Existing:

   1 - 3" x 2 HP X 44 GPM Centrifugal Pump
   1 - 4" x 15 HP X 250 GPM Centrifugal Pump

8. Permittee shall mitigate interference with existing legal uses that was caused in whole or in part by the permittee's withdrawals, consistent with the approved mitigation plan. As necessary to offset the interference, mitigation will include pumpage reduction, replacement of the impacted individual's equipment, relocation of wells, change in withdrawal source, or other means.

   Interference to an existing legal use is defined as an impact that occurs under hydrologic conditions equal to or less severe than a 1 in 10 year drought event that results in the:

   (1) Inability to withdraw water consistent with provisions of the permit, such as when remedial structural or operational actions not materially authorized by existing permits must be taken to address the interference; or

   (2) Change in the quality of water pursuant to primary State Drinking Water Standards to the extent that the water can no longer be used for its authorized purpose, or such change is imminent.

Limiting Conditions

9. Permittee shall mitigate harm to existing off-site land uses caused by the permittee's withdrawals, as determined through reference to the conditions for permit issuance. When harm occurs, or is imminent, the District will require the permittee to modify withdrawal rates or mitigate the harm. Harm caused by withdrawals, as determined through reference to the conditions for permit issuance, includes:

   (1) Significant reduction in water levels on the property to the extent that the designed function of the water body and related surface water management improvements are damaged, not including aesthetic values. The designed function of a water body is identified in the original permit or other governmental authorization issued for the construction of the water body. In cases where a permit was not required, the designed function shall be determined based on the purpose for the original construction of the water body (e.g. fill for construction, mining, drainage canal, etc.)

   (2) Damage to agriculture, including damage resulting from reduction in soil moisture resulting from consumptive use; or

   (3) Land collapse or subsidence caused by reduction in water levels associated with consumptive use.

10. Permittee shall mitigate harm to the natural resources caused by the permittee's withdrawals, as determined through reference to the conditions for permit issuance. When harm occurs, or is imminent, the District will require the permittee to modify withdrawal rates or mitigate the harm. Harm, as determined through reference to the conditions for permit issuance includes:

    (1) Reduction in ground or surface water levels that results in harmful lateral movement of the fresh water/salt water interface,

    (2) Reduction in water levels that harm the hydroperiod of wetlands,

    (3) Significant reduction in water levels or hydroperiod in a naturally occurring water body such as a lake or pond,

    (4) Harmful movement of contaminants in violation of state water quality standards, or

    (5) Harm to the natural system including damage to habitat for rare or endangered species.

11. If any condition of the permit is violated, the permit shall be subject to review and possible modification, enforcement action, or revocation.

12. Authorized representatives of the District, with advance notice to the permittee, shall be permitted to enter, inspect, and observe the permitted system to determine compliance with permit conditions.

Limiting Conditions

13. The Permittee is advised that this permit does not relieve any person from the requirement to obtain all necessary federal, state, local and special district authorizations.

14. The permit does not convey any property right to the Permittee, nor any rights and privileges other than those specified in the Permit and Chapter 40E-2, Florida Administrative Code.

15. Permittee shall submit all data as required by the implementation schedule for each of the limiting conditions to: SFWMD, Regulatory Support Division, MSC 9611, P.O. Box 24680, West Palm Beach, FL 33416-4680.

16. In the event of a declared water shortage, water withdrawal reductions will be ordered by the District in accordance with the Water Shortage Plan, Chapter 40E-21, F.A.C. The Permittee is advised that during a water shortage, pumpage reports shall be submitted as required by Chapter 40E-21, F.A.C.

17. If reclaimed water becomes available prior to the expiration date of this permit, the Permittee shall apply for a modification of the water use permit to reflect that portion of the allocation which is to be provided for by reclaimed water. Reclaimed water is considered available when an agreement has been executed between both parties, the transmission lines are constructed to the project site, and the necessary on-site modifications and authorizations are obtained.

ADDRESSES

Lee County HRS
Attn: Charles Walther
Director, Env.Engineering Div.
60 Danley Drive #1
Ft. Myers, FL 33907
charles_walther@doh.state.fl.us

S & S Golf Management, Inc.
Attn: David C. Smith
21131 Country Creek Drive
Estero, FL 33928

Sandra M. Smith
Attn: Sandra M. Smith
18225 Riccardo Road
Fort Myers, FL 33967

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a District decision which does or may determine their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, or electronic mail, or posting that the District has or intends to take final agency action, or publication of notice that the District has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

Filing Instructions

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery or facsimile. **Filings by e-mail will not be accepted.** Any person wishing to receive a clerked copy with the date and time stamped must provide an additional copy. A petition for administrative hearing is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the SFWMD Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the SFWMD Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the SFWMD Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office**. An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by facsimile must be transmitted to the SFWMD Clerk's Office at (561) 682-6010. Pursuant to Subsections 28-106.104(7), (8) and (9), Fla. Admin. Code, a party who files a document by facsimile represents that the original physically signed document will be retained by that party for the duration of that proceeding and of any subsequent appeal or subsequent proceeding in that cause. Any party who elects to file any document by facsimile shall be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed with the clerk as a result. The filing date for a document filed by facsimile shall be the date the SFWMD Clerk receives the complete document.

Initiation of an Administrative Hearing
Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

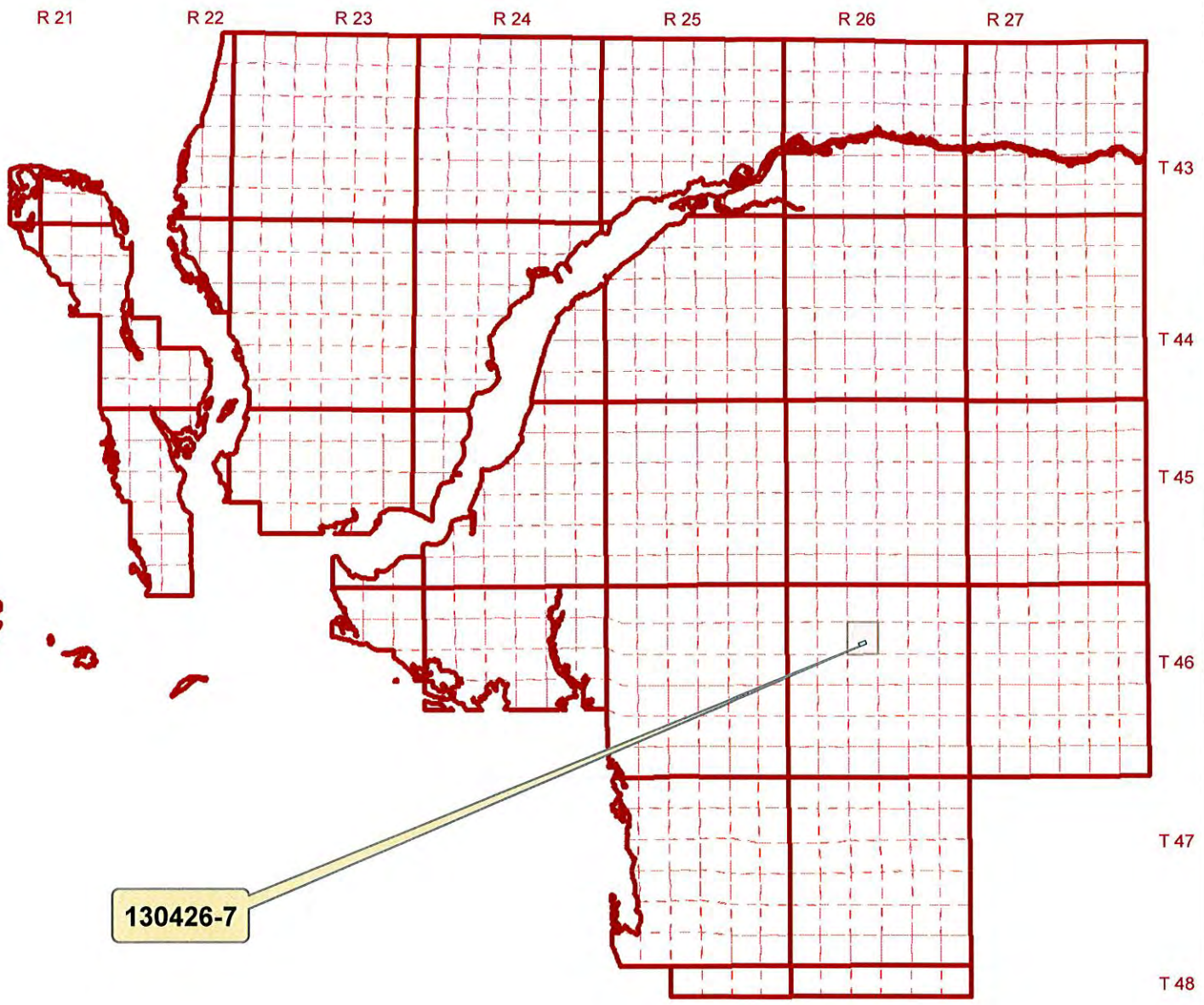
1. Identification of the action being contested, including the permit number, application number, District file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

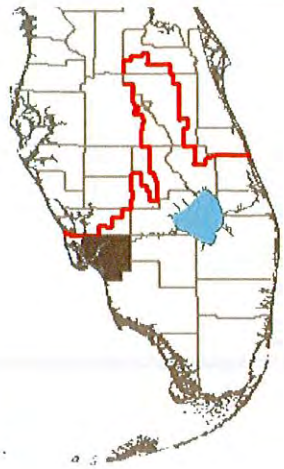
A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the District takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

Mediation
The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW
Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 days of rendering of the final SFWMD action.





LEE COUNTY, FLORIDA

N

Application Number: 130426-7

Map Date: 2013-05-13

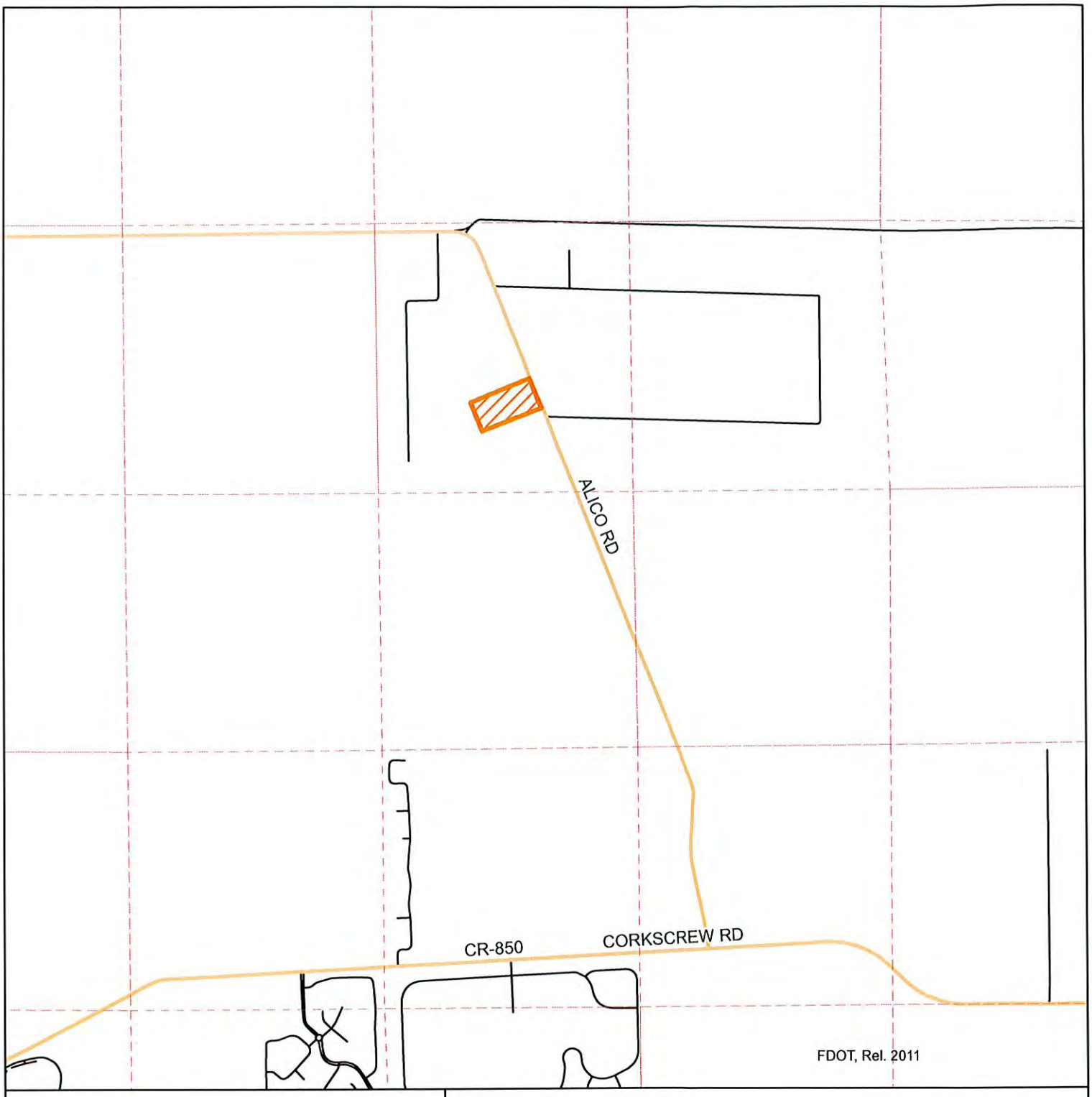
Permit Number: 36-02544-W

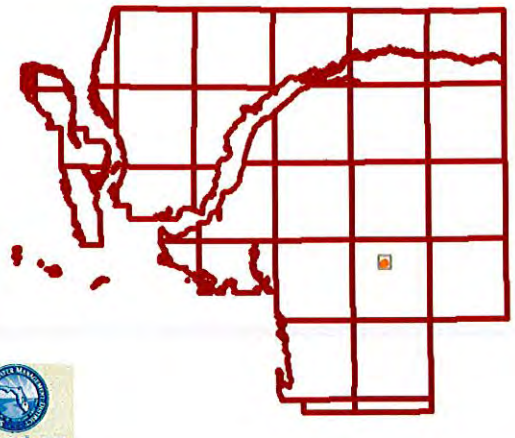
Sec 9 / Twp 46 / Rge 26

Project Name: S & S GOLF MANAGEMENT

0 5 10 Miles

Exhibit No: 1





LEE COUNTY, FLORIDA

N

Legend

Application

Map Date: 2013-05-13

Application Number: 130426-7

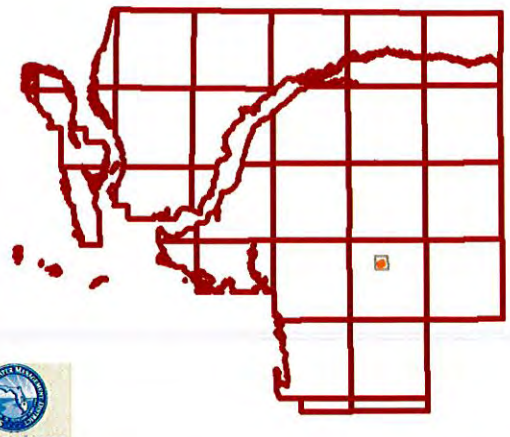
Permit Number: 36-02544-W

Sec 9 / Twp 46 / Rge 26

Project Name: S & S GOLF MANAGEMENT

0 0.5 1 Miles

Exhibit No: 2



LEE COUNTY, FLORIDA

Application

PUMP

N

Map Date: 2013-05-14

Application Number: 130426-7

Permit Number: 36-02544-W

Sec 9 / Twp 46 / Rge 26

Project Name: S & S GOLF MANAGEMENT

0 240 480

Feet

Exhibit No: 3

TABLE - B

Description Of Surface Water Pumps

Application Number: **130426-7**

Pump ID	34358	34359
Name	1	2
Map Designator	1	2
Facility Group		
Existing/Proposed	E	E
Pump Type	Centrifugal	Centrifugal
Diameter(Inches)	4	3
Pump Capacity(GPM)	250	44
Pump Horse Power	15	2
Two Way Pump ?	N	N
Elevation (ft. NGVD)	-4	-4
Planar Location		
Source	REVIEWER	REVIEWER
Feet East	421768	421763
Feet North	782190	782190
Accounting Method	None	None
Use Status	Primary	Primary
Water Use Type	Irrigation	Irrigation
Surface Water Body	On-site Lake(s)	On-site Lake(s)

Exhibit No: 4

Calculations Of Irrigation Requirements

APPLICATION NUMBER: 130426-7

RAINFALL STATION: Ft. Myers
IRRIGATION SYSTEM: Micro-Sprinkler
PARCEL ACREAGE: 3
LAND USE: Nursery

CROP: Nursery
SOIL TYPE: 0.8
PARCEL NAME: NURSERY
IRR. MULTIPLIER: 1.18

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
MEAN RAINFALL	1.90	2.00	1.50	1.90	4.10	9.40	8.70	8.60	8.40	3.50	1.50	1.50	53.00
EVAPOTRANSPIRATION	1.86	2.14	3.70	5.11	6.83	7.60	8.05	7.72	6.48	4.92	3.07	2.15	59.63
AVG. EFFECTIVE RAIN	0.88	0.94	0.79	1.06	2.31	4.91	4.71	4.58	4.19	1.81	0.76	0.72	27.66
DROUGHT RAINFALI	0.74	0.79	0.66	0.89	1.94	4.12	3.96	3.85	3.52	1.52	0.64	0.60	23.23
AVERAGE IRRIGATION	0.98	1.20	2.91	4.05	4.52	2.69	3.34	3.14	2.29	3.11	2.31	1.43	31.97
DROUGHT IRRIGATION	1.12	1.35	3.04	4.22	4.89	3.48	4.09	3.87	2.96	3.40	2.43	1.55	36.40

ANNUAL SUPPLEMENTAL CROP REQUIREMENT: 36.40 **INCHES**

ANNUAL SUPPLEMENTAL CROP WATER USE:

36.40 IN X 3 AC X 1.18 X 0.02715 MG/AC-IN = 3.50 **MG**

MAXIMUM MONTHLY SUPPLEMENTAL CROP REQUIREMENT: 4.89 **INCHES**

MAXIMUM MONTHLY SUPPLEMENTAL CROP WATER USE:

4.89 IN X 3 AC X 1.18 X 0.02715 MG/AC-IN = 0.47 **MG**

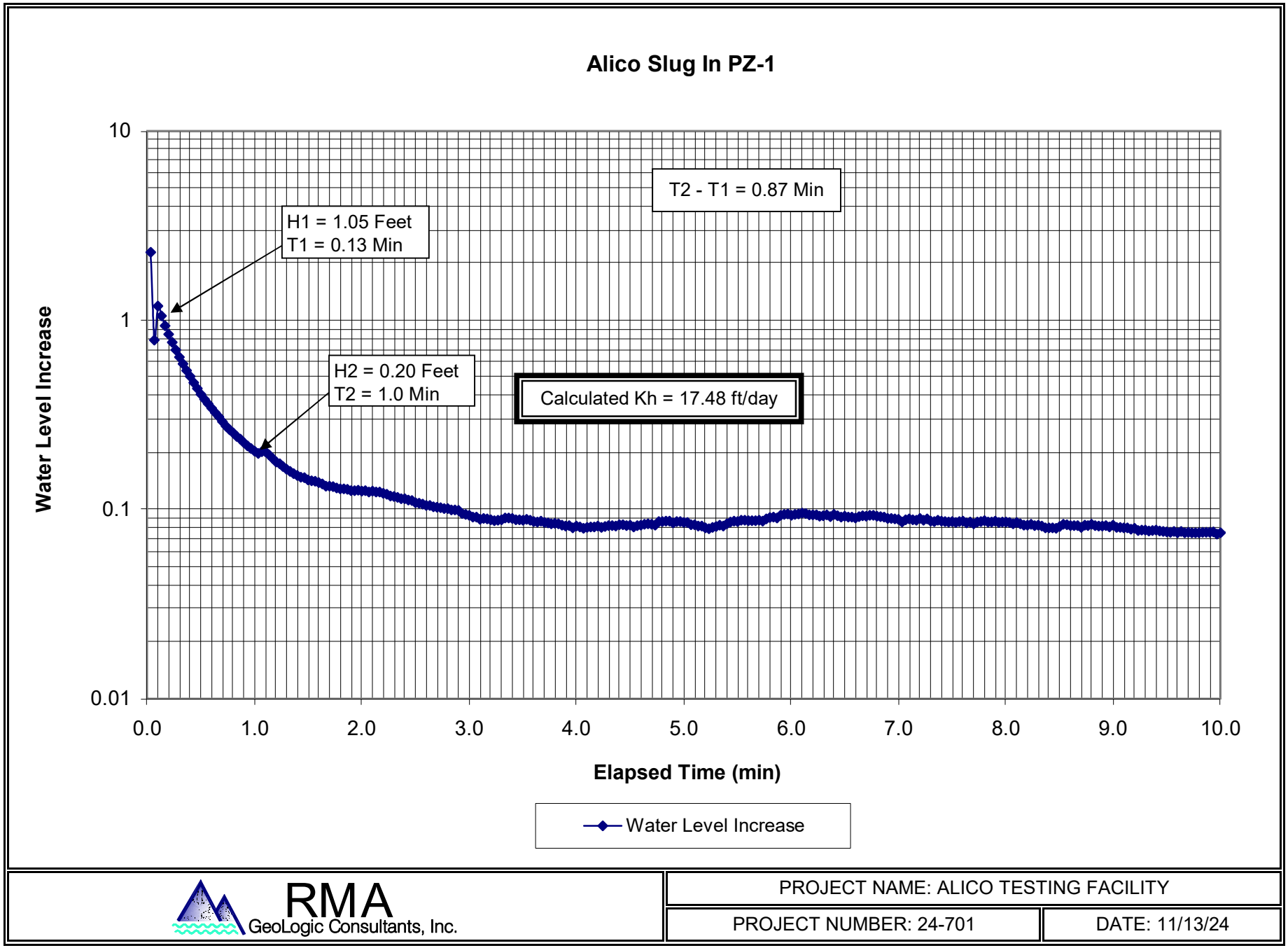
TOTAL ANNUAL DEMAND: 3.50 **MG**

TOTAL MAXIMUM MONTHLY DEMAND: 0.47 **MG**

Exhibit No: 5

Attachment B

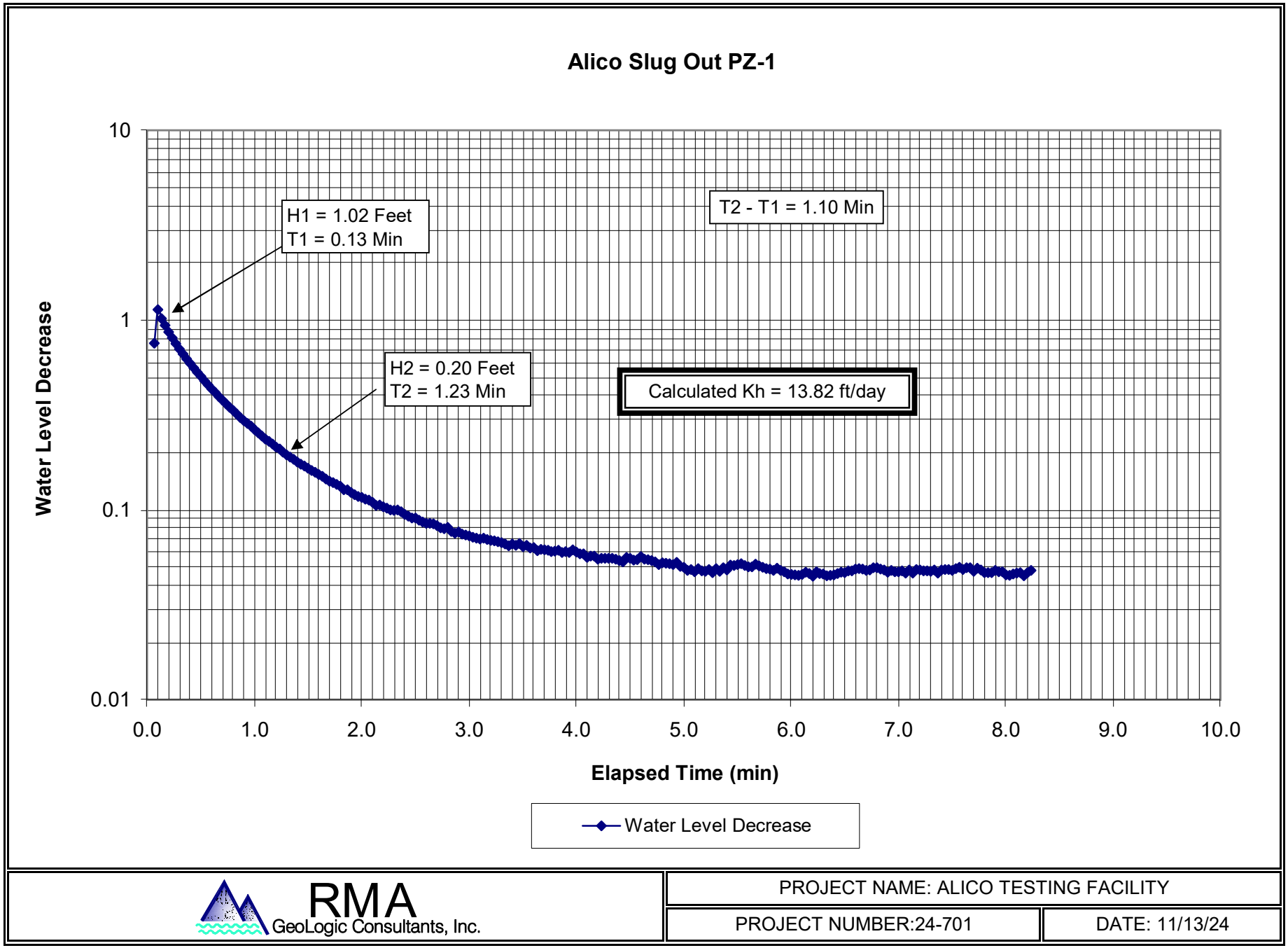
Analytical Graphs for Slug Tests



RMA GeoLogic Consultants, Inc.

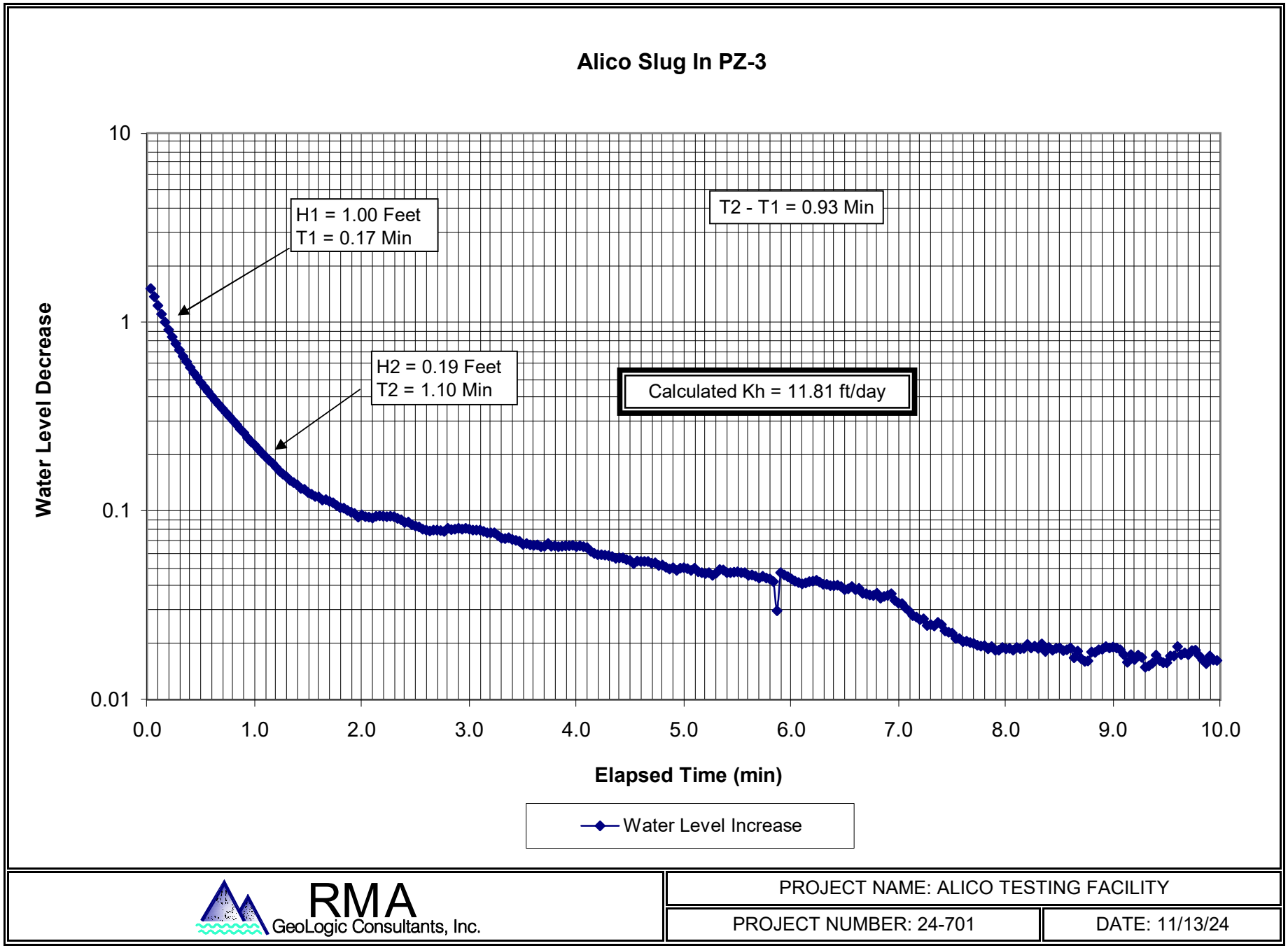
PROJECT NAME: ALICO TESTING FACILITY		
PROJECT NUMBER: 24-701	DATE: 11/13/24	

FIGURE B-1. SEMILOG PLOT OF WATER LEVEL CHANGES VERSUS TIME IN P-1 AFTER SLUG IN.



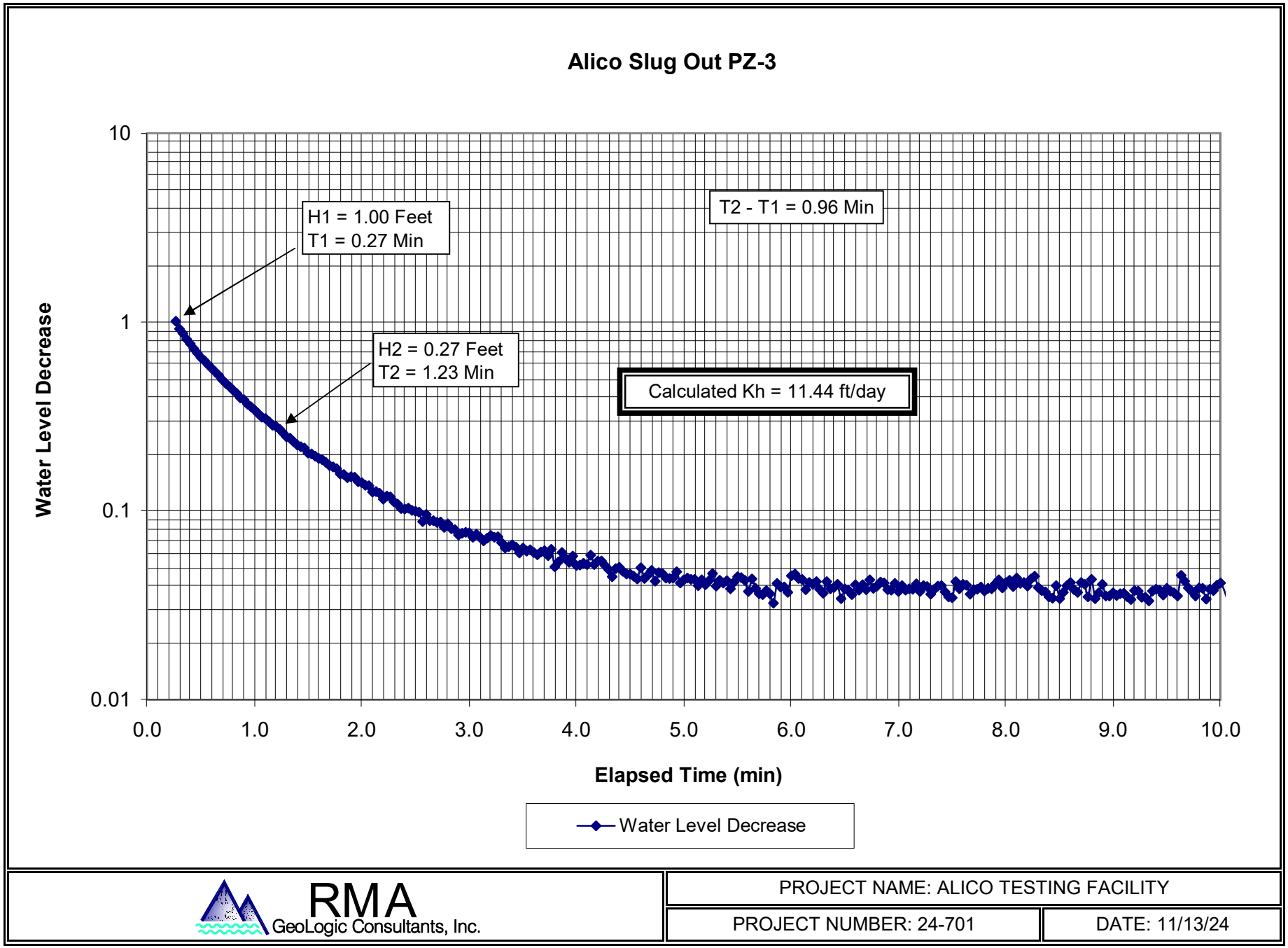
RMA GeoLogic Consultants, Inc.	PROJECT NAME: ALICO TESTING FACILITY	
	PROJECT NUMBER:24-701	DATE: 11/13/24

FIGURE B-2. SEMILOG PLOT OF WATER LEVEL CHANGES VERSUS TIME IN PIEZOMETER P-1 AFTER SLUG OUT.



RMA GeoLogic Consultants, Inc.	PROJECT NAME: ALICO TESTING FACILITY	
	PROJECT NUMBER: 24-701	DATE: 11/13/24

FIGURE B-3. SEMILOG PLOT OF WATER LEVEL CHANGES VERSUS TIME IN PIEZOMETER P-3 AFTER SLUG IN.



RMA GeoLogic Consultants, Inc.

PROJECT NAME: ALICO TESTING FACILITY		
PROJECT NUMBER: 24-701	DATE: 11/13/24	

FIGURE B-4. SEMILOG PLOT OF WATER LEVEL CHANGES VERSUS TIME IN PIEZOMETER P-3 AFTER SLUG OUT.

MAY 2026

GROUNDWATER IMPACTS/BENEFITS ANALYSIS

LEE COUNTY COMPREHENSIVE PLAN AMENDMENT

BLUEWATER RIDGE

Prepared for:

Florida Rock Properties, Inc.
34 Loveton Circle, Suite 200
Sparks, MD 21152

Prepared By:

Kimley»Horn

© Kimley-Horn and Associates, Inc. 2025
Kimley-Horn Project No. 248212001

MAY 2026

GROUNDWATER IMPACT/BENEFITS ANALYSIS

LEE COUNTY COMPREHENSIVE PLAN AMENDMENT

BLUEWATER RIDGE

Prepared for:

Florida Rock Properties, Inc.
34 Loveton Circle, Suite 200
Sparks, MD 21152

Kimberly K. Arnold, P.G
Florida P.G. License No. 2565

Date

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Table 2 Potable Water Demands

Table 3 Surficial Aquifer Hydraulic Values Estimated from Pumping Test Analyses

Table 4 DR/GR Hydrogeologic Characteristics Ranking Values for DR/GR Areas

Table 5 Re-Ranking of the Bluewater Ridge Project Site

ATTACHMENTS

Attachment 1 Bluewater Ridge Master Development Plan

Attachment 2 Topographic Map

Attachment 3 Schematic of Aquifer Systems at Site

Attachment 4 Bluewater Ridge in DR/GR

Attachment 5 Monitoring Well Locations

Attachment 6 Dry Season Surficial Aquifer Water Levels

Attachment 7 Wet Season Surficial Aquifer Water Levels

Attachment 8 Aquifer Testing Locations

Attachment 9 Dry season Flow Tube Analysis

Attachment 10 Wet Season Flow Tube Analysis

Attachment 11 Hydrographs for USGS Monitor Wells L-1998 and L-1999

Attachment 12 Hydrographs for USGS Monitor Wells L-1994 and L-1995

Attachment 13 Hydrographs for USGS Monitor Wells L-1983, L-1998, and L-1999

Attachment 14 Hydrographs for USGS Monitor Wells L-1993, L-1994, and L-1995

Attachment 15 Lee County Wellfield Protection Zones

1.0 PROJECT DESCRIPTION

The Bluewater Ridge (BR) project site is comprised of ±1,455.66 acres of fallow farm fields, mine lakes and associated facilities, and natural areas located in unincorporated Lee County (north of Alico Road, south of State Road 82, east of Southwest Florida International Airport). Florida Rock Properties, Inc. is proposing development of an environmentally sensitive single-family residential community with up to 500 residential units, while creating/maintaining approximately 1,030.70 acres of conservation areas. The residential community will be constructed on the perimeter of Florida Department of Environmental Protection (FDEP)-permitted mining pits F5 and F8 once mining activities are completed. Based on the agreement with Florida Rock Properties, Inc. and Harper Brothers Inc., mining pits F5 and F8 are to be completed by May 2029. An overview of existing property attributes is provided below, while the maps in **Attachments 1-2** illustrate the project location, proposed land overlay, and topography at the site. This analysis provides a hydrogeological overview at the project site and the discussion of potential water supply impacts.

2.0 EXISTING CONDITIONS

2.1 HYDROGEOLOGY

2.1.1 Regional Hydrogeology

Four main aquifers compose the groundwater resources beneath the BR project site: the Surficial (water table) aquifer, the Sandstone aquifer, the Mid-Hawthorn aquifer, and the Floridan aquifer system. See **Attachment 3** for a schematic representation of the hydrogeology underlying the project site. Where present, the Lower Tamiami aquifer is considered part of the Surficial Aquifer System (SAS); however, the aquifer is not present as a distinct aquifer at the project site. The Sandstone and Mid-Hawthorn aquifers are considered part of the Intermediate Aquifer System (IAS), and the Floridan Aquifer System (FAS) encompasses several distinct water-bearing units, among them the Lower Hawthorn, Suwannee, Ocala, and Avon Park formations. The Lower Hawthorn, the Suwannee and the upper portion of the Ocala constitute the Upper Floridan aquifer (UFA), while the lower portion of the Ocala and the Avon Park typically act as confining units in this area, separating the UFA from the Lower Floridan aquifer (LFA) including the Oldsmar formations. The “boulder zone” of the Oldsmar Formation can be used for deep well injection in Lee County. Wells penetrating the Floridan aquifer typically flow at land surface in Lee County, unless large withdrawals in the area have depressed the potentiometric head.

The Surficial, Sandstone and Mid-Hawthorn aquifers generally contain fresh groundwater, with chloride concentrations typically less than 250 milligrams per liter (mg/L), which is the secondary maximum contaminant level for drinking water. The Floridan aquifer typically contains brackish groundwater with chloride concentrations exceeding 250 mg/L. Chloride concentrations generally increase with depth, both among the four aquifers and within the Floridan aquifer. The Underground Source of Drinking Water (USDW) defined as the 10,000 mg/L isochlor for total dissolved solids (TDS) occurs at a depth of approximately 1,600 feet below land surface (bls) in the vicinity of the project site within the Avon Park Formation.

The SAS is the uppermost system, comprised of sediments extending from land surface to the upper confining layer of the IAS. The SAS is usually unconfined or sometimes semi-confined. At the project site, the upper part of the SAS is comprised of fine sand from the Pamlico and Tamiami Formations, and the

lower portion is composed of limestone, shell, and sand of the Tamiami Formation. No confinement occurs between the surficial sands and the Tamiami limestone to form a separate, semi-confined Lower Tamiami aquifer. The upper and lower portions of the SAS function as a single hydrogeological unit approximately 35 to 40 feet thick.

The IAS includes all water-bearing units and confining units between the overlying SAS and the FAS. The Cape Coral clay of the Peace River Formation separates the IAS from the SAS. Approximately 50 feet of green clay and dolosilt with varying amounts of sand and phosphate compose the Cape Coral clay. The water-bearing formations of the IAS generally consist of quartz sand, shells, and limestone. The Sandstone aquifer consists of sandy limestones, sandstones, shell, and sand of the Lehigh Acres Sandstone member of the Peace River Formation. The Sandstone aquifer extends from approximately 100 to 180 feet bls at the project site. A thick confining layer of calcareous clay and dolosilt occurs at the base of the Peace River Formation, extending to approximately 320 feet bls, and separates the Sandstone and Mid-Hawthorn aquifers. The Mid-Hawthorn aquifer occurs within the Arcadia Formation of the Hawthorn Group and consists of limestone with interbedded clay, sand, shell, and phosphate. The Mid-Hawthorn aquifer may extend to approximately 420 feet bls.

The FAS underlies all of Florida and contains several distinct producing zones. Since the water quality generally deteriorates with depth, only the UFA will be discussed at the projects site. The Lower Hawthorn aquifer occurs at the base of the Arcadia Formation and forms the top of the UFA. Near the project site, the Lower Hawthorn aquifer consists of limestone with interbedded phosphatic clay. A white calcareous clay layer may separate the Lower Hawthorn and Suwannee aquifers at a depth of approximately 880 feet bls. The Suwannee limestone, consisting of porous, vuggy limestone with some interbedded sand and sandstone near the base, may extend to 1,200 feet bls. The Ocala Limestone typically consists of chalky limestone with interbedded layers of clay and dolomite. Permeability and porosity decrease with depth, and the formation acts as a semi-confining layer known as the Middle Confining Unit, which also includes the Avon Park Formation. The top of the Oldsmar Formation of the LFA occurs at approximately 2,000 feet bls and includes the highly fractured and transmissive “boulder zone” that the Lee County Utilities Green Meadows water treatment plant (WTP) uses as its injection zone for treatment concentrate.

2.1.2 Testing in the Vicinity of the Project Site

Lee County Utilities’ (LCU) Green Meadows wellfield bisects the project site. The Green Meadows water treatment plant (WTP) is located immediately north of the northwest project boundary. The Green Meadows Wellfield has withdrawn water from the Surficial and Sandstone aquifers historically and added Upper Floridan aquifer wells within the past decade. LCU has performed extensive testing on these aquifers at the Green Meadows wellfield.

Much of the testing has focused on the Water Table and Sandstone aquifers as the primary source aquifers for the Green Meadows wellfield historically. Aquifer performance testing conducted on the Water Table aquifer at the Green Meadows WTP has produced transmissivity values of 22,500 ft^2/day. Testing conducted on the Water Table aquifer near Daniels Parkway in Gateway produced transmissivity values of 12,700 ft^2/day. Water Table aquifer wells tested near west of I-75 and south of Daniels Parkway reported transmissivity values of approximately 25,000 to 35,000 ft^2/day. A group of Water Table aquifer wells located approximately 5 miles east of the project site reported transmissivity values of approximately 25,000 to 30,000 ft^2/day, as well. In general, the Water Table aquifer becomes less productive to the north toward Lehigh Acres, reflected in the general lack of use of the source.

Testing on the Sandstone aquifer at the Green Meadows WTP produced transmissivity values of approximately 3,100 ft^2/day and leakance values of $1.1x10^{-4}$/day to $1.5x10^{-5}$/day, which indicate a well

confined aquifer. Aquifer performance tests conducted almost due west and east of the Green Meadows WTP produced similar transmissivity values. Other tests conducted to the northeast and southeast of the project site produced calculated transmissivity values of approximately 10,000 ft^2/day. Another test near SR 82 to the northeast of the project site produced a transmissivity value of approximately 15,800 ft^2/day, while a test to the northwest near Gateway reported a transmissivity value of 50,000 ft^2/day.

Aquifer performance testing has also been conducted on the deeper Mid-Hawthorn and Upper Floridan aquifers. Lee County Utilities' Corkscrew wellfield Mid-Hawthorn aquifer ASR wells have reported transmissivity values less than 5,000 ft^2/day and leakance values of $1.6x10^{-5}$/day. Upper Floridan aquifer wells along Alico Road south of the project site have reported transmissivity values of 500 to 13,000 ft^2/day, depending on the interval tested.

3.0 PROPOSED CONDITIONS

3.1. WATER SUPPLY

The BR project will receive potable water from Lee County Utilities via a water main running along the Alico Road extension. The project will develop its own onsite irrigation supply to serve approximately 69 irrigated acres. The project will use reclaimed water for irrigation supply should it become available and be technically feasible.

At buildout, the project will require approximately 0.125 MGD of potable water based on Lee County Level of Service (LOS) standards, and 0.243 MGD of irrigation water. In practice, potable water demands will likely be much lower than the volumes based on the LOS due to water conservation measures the project will employ, as well as the dedicated, non-potable irrigation system.

The project has adequate water resources to meet short- and long-term water supply demands without adversely impacting present or future water resources. The applicant intends to demonstrate that the proposed land use change and associated water use will prove compatible and compliant with both Lee County and South Florida Water Management District (SFWMD) regulations and long-range water supply planning.

3.1.1 Irrigation Water Supply

At buildout, the BR project will include approximately 69 irrigated acres associated with residential lots, common areas, parks, and rights-of-ways. The SFWMD uses the Modified Blaney-Criddle model to calculate allocations for irrigation water use under 1-in-10 rainfall conditions. Based on the Modified Blaney-Criddle model, irrigation of 69 acres of turf and landscaping would require 88.62 million gallons annually and 11.91 million gallons for the peak month (May).

If reclaimed water is not available, the project will obtain a water use permit from the SFWMD for landscape irrigation. Withdrawals from groundwater and/or surface water will supply irrigation in the event reclaimed water is not available. Onsite irrigation facilities will be sited such that they do not impact proposed Lee County Utilities PWS well locations within or adjacent to the project site.

Table 1. Irrigation Water Demands

	Bluewater Ridge
Irrigated Acres	69
Annual Irrigation Demand	88.62 MG
Max. Month Demand (1-in-10)	11.91 MG

Historically, the site has been permitted for withdrawals from the Surficial Aquifer System under SFWMD permit 36-09122-W for irrigation of landscaped buffers and for withdrawals from onsite mine lakes to irrigate small vegetable crops under SFWMD permit 36-06942-W. Permit 36-09122-W authorized respective maximum monthly and annual allocations of 2.16 and 16.05 million gallons. Permit 36-06942-W authorized respective maximum monthly and annual allocations of 73.37 and 335 million gallons. Permit 36-00091-W has also covered the project site historically. Permit 36-00091-W authorized withdrawals up to 18.86 million gallons per day and 5,170 million gallons per year from the Water Table aquifer and onsite lakes.

Significant withdrawals from the Surficial and Sandstone aquifers have occurred in the vicinity of the project site since the late 1970s, largely due to public water supply withdrawals from the Green Meadows wellfield, agricultural irrigation withdrawals, and withdrawals related to mining operations in the area, the last of which often resulted in little net overall consumption.

The United States Geological Survey (USGS) has monitored water levels in the Surficial and Sandstone aquifers at monitoring wells L-1999 and L-1998, located near the Green Meadows water treatment plant, since the 1970s. Water levels in both aquifers have shown an increasing trend since approximately 2000. Several Lee County water table aquifer monitoring wells have exhibited similar trends. The observed increase in water levels may be due to the transition from agriculture to mining to ultimately residential land uses in the area, similar to that proposed for the BR project. See **Attachment 11.**

The SFWMD has established a maximum developable limit for confined aquifers as 20 feet above the top of the aquifer. The USGS monitoring well L-1998 shows water levels in the Sandstone aquifer ranging from 21 feet NAVD88 in 1975 to -33 feet NAVD88 in 2000. Over the past 10 to 15 years, dry season water levels have averaged approximately -15 feet NAVD88, while wet season water levels have averaged approximately 10 feet NAVD88. Land surface elevation at the monitoring well is approximately 25.5 feet NAVD88, and the top of aquifer occurs approximately 100 feet bls, or -74.5 feet NAVD88. Based on historical water levels recorded at L-1998, water levels have remained 41.5 feet above the top of the aquifer during the period of record and nearly 60 feet above the top of the aquifer during recent years.

Water levels in the Surficial Aquifer System measured at L-1999 have ranged from 17.3 feet NAVD88 in 1989 to approximately 24.5 feet NAVD88 multiple times during the period of record. Based on a land surface elevation of 25.5 feet NAVD88, water levels in the Surficial aquifer have ranged from 1 to 8 feet below land surface. Over the past decade, water levels have dropped to approximately 6.5 feet bls during the dry season and risen to 1 to 2 feet bls during the wet season. Water levels recorded at L-1998 and L-1999 reflect the influence of historical withdrawals, including those of utilities operating the Green Meadows wellfield and agricultural operations.

If the BR project opts to use groundwater for irrigation supply, it would require irrigation wells, either for direct irrigation or to supplement surface water withdrawals. The wells would be located to minimize

drawdown and interference with other wells in the area and to maximize the efficiency of the irrigation system. The project site currently has one Surficial aquifer well for landscape irrigation and one Surficial aquifer well for agricultural irrigation, in addition to the Lee County Utilities PWS wells located onsite.

3.1.2 Potable Water Supply

At buildout, the BR project site will require approximately 0.125 MGD of finished potable water. The level of service (LOS) specified in the Lee Plan is 250 gpd per equivalent residential connection (ERC) for single family units and 200 gpd per ERC for multifamily units. Approved SFWMD water use permit 36-00003-W for Lee County Utilities uses an average to maximum day peaking factor of 1.30, which would result in a maximum daily demand for the BR project of 0.163 MGD. Actual water use will likely be lower than the LOS due to water conservation measures employed and the use of a dedicated (non-potable) central irrigation system. The project has requested service from Lee County Utilities via a proposed water main along the Alico Road extension running through the project site. Lee County operates multiple water treatment plants (WTPs) and wellfields countywide, including the Green Meadows WTP located adjacent to the project site and the Green Meadows wellfield that is partially located within the project site. Lee County sources raw water for potable supply from the Surficial, Sandstone, Mid-Hawthorn and Upper Floridan aquifers.

Table 2. Potable Water Demands

	Bluewater Ridge
Finished Water Demand (avg.)	0.125 MGD
Finished Peak Day Demand	0.163 MGD

Lee County has expressed the ability to provide potable water for the project. The BR project is coordinating with Lee County on design of a watermain extension to serve the project site.

3.2 DR/GR

Lands designated Density Reduction/Groundwater Resource (DR/GR) are defined in the Lee Plan as areas that include upland areas that provide substantial recharge to aquifers suitable for wellfield development. These areas are also the most favorable locations for physical withdrawal of water from those aquifers. The BR project site is located on lands currently classified as DR/GR. While the project site does possess some characteristics of DR/GR lands, the proposed land use is consistent with the County's stated goal of protection of its public supply wellfields. See **Attachment 4** for the location of the BR project site within the DR/GR.

The preceding Future Water Supply section demonstrated the availability of irrigation and potable water supplies to meet the project's needs at buildout. Use of the proposed sources will not adversely impact shallow aquifers that the DR/GR designation seeks to protect, nor will use of these sources interfere with use of shallow aquifers for public water supply wellfield development. This application intends to demonstrate that the proposed land use change and associated water use will prove compatible and compliant with both Lee County and SFWMD regulations and long-range water supply planning.

This section will use established DR/GR criteria to discuss the recharge potential in the Surficial and Sandstone aquifers at the BR project site. This includes formulation of a water budget for the site that includes a flow tube analysis based on site specific aquifer data and recorded water levels across the site.

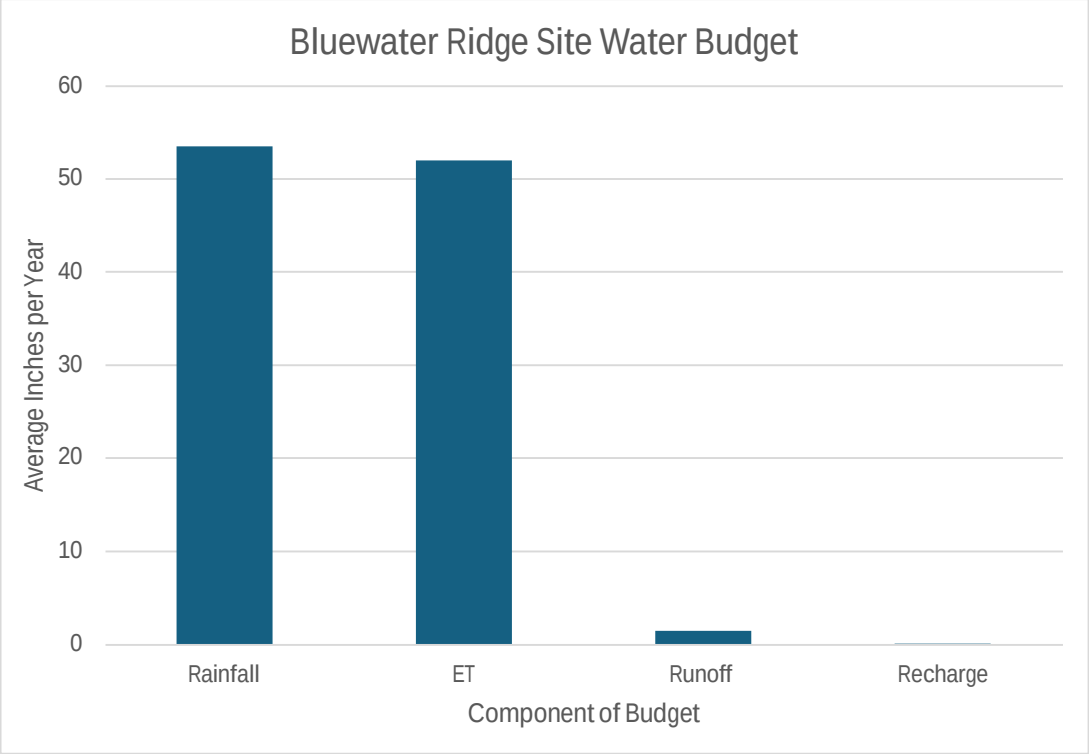
The section discusses the potential for development of future shallow aquifer PWS wellfields on or near the project site and the potential for impacts to the County's existing wellfields. As part of this analysis, the DR/GR designation of the BR project site is re-evaluated using the previously established Henigar and Ray ranking system. The section concludes with a summary of irrigation and potable water availability and a water resource impact analysis, as described in the Future Water Supply section. This incorporates an evaluation of the consistency of the proposed land use with both the Lee County Water Supply Master Plan and the 2022 SFWMD Lower West Coast Water Supply Plan Update.

3.2.1 Recharge Potential

- Water Budget

  Review of climate data reported by the SFWMD from the Flint Pen Strand (FPX) weather station and by the National Oceanic and Atmospheric Administration (NOAA) for Southwest Florida International Airport (KRSW) indicates the BR project site may receive 51.5 to 53.5 inches of rainfall on an annual average basis. Based on data collected at the FPX weather station, approximately 52 inches per year returns to the atmosphere as evapotranspiration (ET). Assuming the higher end of the range for annual average rainfall, approximately 1.5 inches per year remains available for both runoff and recharge on average. See **Figure 1** for a typical steady state water budget. If this volume of water does enter the Surficial aquifer, it would be considered low by previously established Lee County criteria and assessments.

Figure 1: Bluewater Ridge Water Budget



A flow tube analysis performed over the northwestern portion of the BR project site (area proposed for development) provides evidence that this area acts as a groundwater flow through

area for the Surficial aquifer (no net recharge or discharge on average). Water level data was collected from private owners, USGS and Lee County Surficial aquifer piezometers surrounding the BR project site. See **Attachment 5** for monitoring site locations. Water level data collected near the BR project boundary to the north for the dry and wet season were approximately 21.6 feet-NAVD88 and 25.3 feet-NAVD88, respectively. The dry and west season water level data was collected on May 20, 2021, and September 23, 2021, respectively. The water level collected for the dry and wet season on these dates should approximate average water levels and hydraulic gradients at the BR site. A potentiometric surface map (**Attachments 6 and 7**) produced from the water level data shows a hydraulic gradient of approximately 1 foot per mile for dry season and 1.2 feet per mile for wet season near the BR property boundary to the north.

Constant rate pump tests on the USGS and Lee County Surficial aquifer wells (L-1999, 1995, and LM-3656) were performed near the site. The southernmost transmissivity value calculated at L-1999 was 22,500 square feet per day. The northernmost transmissivity value was calculated through triangulation of transmissivity data from Surficial Aquifer wells L-1999, L-1995, and LM-3656. The northernmost transmissivity value was estimated to be 20,800 square feet per day. See **Table 3** for the data derived from the pumping test analyses and **Attachment 8** for the aquifer testing locations. This data was used in the flow tube analysis spanning the northwest portion of the BR site for both the dry and wet seasons. See **Attachment 9 and 10** for the flow tube analysis. The flow tubes were constructed by tracing flow lines perpendicular to the dry and wet season Surficial aquifer water level contours generated using May 20, 2021, and September 23, 2021, data, respectively. Using the equation Q=TiL (Q= flow rate; T= transmissivity; i= hydraulic gradient; L= width of the flow tube) and a transmissivity of 20,800 square feet per day, approximately 38,400 cubic feet per day of water enter during the dry season, and 25,200 cubic feet per day of water enter during the wet season. Using a transmissivity of 22,500 square feet per day, 29,400 cubic feet per day of water exit during dry season and 26,700 cubic feet per day exit during wet season.

Table 3: Surficial Aquifer Hydraulic Values Estimated from Pumping Test Analyses

Pumping Well Name	Observation Well Name	Transmissivity (square feet/day)
L-1999	LM-3871	22,500
L-1995	LM-2263	12,700
LM-3656	LM-3656	27,500

During the dry season, the 9,021 cubic foot per day surplus must leave the study area via discharge. This amounts to an annual loss of approximately 0.5 inches over the northwest portion of the BR project site. During the wet season, 1,503 cubic feet per day enter the study area via recharge. This amounts to an annual gain of about 0.08 inches over the northwest portion of the BR project site. The small fluctuations suggest little to no net recharge or discharge across the site. The relatively uniform transmissivity values across the flow tube and absence of converging flow lines indicate that the groundwater movement is lateral. The low leakance value of the Sandstone aquifer indicates that it is well confined, with poor hydraulic

connectivity to the Surficial aquifer. This confinement limits the recharge to deeper aquifers and groundwater movement is mostly controlled by horizontal flow rather than vertical flow.

- Surficial Aquifer

  The Surficial aquifer is the uppermost water bearing unit comprised of sediments from land surface to the upper confining zone of the Intermediate Aquifer System. This aquifer system is usually unconfined or sometimes semi-confined. There are two zones (upper and lower) in the Surficial Aquifer System at the BR project site. The upper zone is comprised of fine sand, and the lower zone is made up of limestone, shell, and sand.

  The lands designated DR/GR within the BR project site are not significant with respect to recharge of the Surficial aquifer. The site has a slight slope to the southwest, with land surface elevation declining from 26.5 feet NAVD88 at the northern extent to 24 feet NAVD88 at the southern extent, a drop of 2.5 feet over 3.5 miles or 0.7 foot per mile. The low slope accounts for the low runoff value noted in the water budget, evidenced by the presence of standing water in many areas on and in the vicinity of the project site. Several Water Table aquifer monitoring wells maintained by Lee County exhibit a rising trend in water level, particularly over the past ten years near the southern extent of the project site. USGS monitoring well L-1999, located at the Green Meadows WTP, has also exhibited a rising trend from 2008 to 2025.

  As discussed under the Water Budget, the land on and in the vicinity of the project site receives less than 0.1 inch of recharge on an annual average basis. During periods of average rainfall, rainfall and ET nearly balance each other, leaving little excess water available for either runoff or recharge. During wetter than average periods, more water will be available for recharge; however, the low reported leakance value of the Sandstone aquifer will limit the volume of water recharging the aquifer. Areas in the immediate vicinity of Lee County Surficial and Sandstone aquifer PWS production wells will experience locally enhanced recharge due to the lowering of water levels due to pumping. During drier than average periods, the site may experience a deficit in the water budget, resulting in evacuation of water from storage and a temporary decline in water levels. Areas in the immediate vicinity of Lee County Surficial and Sandstone aquifer PWS production wells will experience locally enhanced recharge due to the lowering of water levels by wellfield withdrawals.

  Post-development wet season and dry season water levels of the water table will be maintained through surface water management facilities. Through the use of best management practices, such as water control structures and detention systems, pre-development hydrology will be maintained for new development within the BR project site, as required by SFWMD rules and regulations. The BR project will add approximately 94 acres of impervious area in total, out of the ±1,455.66-acre overall project area, which amounts to approximately 6.5% of the project site area. Runoff from the proposed impervious area will be routed to the surface water management system, which includes existing mine pits totaling approximately 208.03 acres, as well as about an additional 13.15 acres of proposed stormwater ponds. Runoff routing to the existing and proposed water bodies will be available to recharge the Surficial and Sandstone aquifers.

- Sandstone Aquifer

The Intermediate Aquifer System (IAS) includes all water bearing units and confining units between the overlying Surficial Aquifer System (SAS) and the underlying Floridan Aquifer System (FAS). The water bearing formations of the IAS generally consist of quartz sand, shell, limestone and dolostone. The IAS is approximately 350 feet thick at the BR project site. The Sandstone aquifer is the first water bearing unit encountered in the IAS. The Sandstone aquifer underlies the Upper Hawthorn confining unit separating the SAS from the IAS. The Sandstone aquifer is characterized by phosphatic limestones with interbedded sand and shell, generally occurring at depth between 80 to 350 feet bls.

Water levels from USGS Sandstone aquifer monitoring well L-1998, located at the Green Meadows WTP, show Sandstone aquifer water levels approximately 25 to 30 feet lower than the Surficial aquifer over the past 20 years. Water level in the Sandstone aquifer reached a minimum around 1997 to 2002 when water levels could be 45 to 50 feet lower than the Surficial aquifer. Water levels in the Sandstone aquifer have increased since that time. Water levels in the Surficial aquifer appear minimally influenced by fluctuations in Sandstone aquifer water levels. Lee County Utilities withdraws water from both aquifers in close proximity to the monitoring wells. See **Attachment 11.**

Water levels from USGS Sandstone aquifer monitoring well L-1994, located near Southwest Florida International Airport (RSW) on Daniels Parkway, also show Sandstone aquifer water levels approximately 25 to 30 feet lower than the Surficial aquifer over the past 15 years. Compared to the earlier part of the period of record from 1983 to 1993, water levels in the aquifer have declined over the past 15 years, as use of the source has increased, but water levels in the Surficial aquifer appear uninfluenced by fluctuations in Sandstone aquifer water levels. In fact, water levels in the Surficial aquifer show a rising trend over the same period of record that the Sandstone aquifer exhibits a declining trend, indicating good confinement and minimal hydraulic communication between the aquifers. See **Attachment 12.**

The water budget discussed previously shows that approximately 1.5 inches of water remains for runoff and recharge to both the Surficial and Sandstone aquifers on an annual average basis. Constant rate aquifer performance tests performed on Sandstone aquifers wells in and near the Green Meadows wellfield report leakance values of $1.1x10^{-4}$/day to $1.5x10^{-5}$/day ($8.2x10^{-4}$ to $1.12x10^{-4}$ gpd/ft), which indicate a well confined aquifer. Henigar and Ray (1993) considered Sandstone aquifer recharge significant if leakance values exceeded 10^{-3} gpd/ft. Leakance values calculated from onsite testing are an order of magnitude lower than the Henigar and Ray threshold leakance value. Given the limitations of the water budget, low leakance value and minimal observed hydraulic connectivity between the Surficial and Sandstone aquifers, this area does not represent an area of significant recharge for either the Surficial or Sandstone aquifer.

Based on the reported leakance values and water levels, the Sandstone aquifer may receive 1.6 to 12 inches of recharge annually where a flow gradient into the Sandstone aquifer exists. The confinement between the Surficial and Sandstone aquifers is comparable to that between the Sandstone and underlying Mid-Hawthorn aquifers, as shown by hydrostratigraphic profiles

from the SFWMD for USGS wells monitoring wells. Recharge to the Sandstone aquifer can originate from either the overlying Surficial aquifer or the underlying Mid-Hawthorn aquifer. Leakance values developed from aquifer performance testing do not indicate directionality of recharge to the tested aquifer.

The USGS has Mid-Hawthorn aquifer wells co-located with Sandstone and Surficial aquifer monitoring wells at both the Green Meadows WTP and Southwest Florida International Airport. Mid-Hawthorn aquifer monitoring well L-1983, co-located with L-1998 and L-1999 at the Green Meadows WTP, has reported water levels exceeding those of the Sandstone aquifer throughout the period of record from 1975 to 2024. For most of the period of record, water levels in the Mid-Hawthorn aquifer equaled or exceeded those of the Surficial aquifer. Water quality data for the Sandstone aquifer reported from well L-1998 and water quality data for the Mid-Hawthorn aquifer reported from well L-1983 resemble each other, suggesting a significant recharge component from the Mid-Hawthorn aquifer to the Sandstone aquifer historically. See **Attachment 13.**

To the west of the BR project site, the USGS maintains Mid-Hawthorn aquifer monitoring well L-1993, co-located with wells L-1994 and L-1995 near Southwest Florida International Airport. For the period of record from 1983 to 2025, Mid-Hawthorn and Sandstone aquifer water levels resembled each other early in the period of record, but since 2010, water levels in the Sandstone aquifer have been higher, indicating an absence of recharge from the Mid-Hawthorn aquifer. Water levels from Surficial aquifer well L-1995 have exceeded those of Sandstone aquifer well L-1994 throughout the period of record, so the Surficial aquifer has provided a greater component of recharge to the Sandstone aquifer to the west of the project site. See **Attachment 14.**

Recharge areas in the vicinity of the project site occur in the immediate proximity of the Green Meadows Surficial and Sandstone aquifer production wells, where recharge is induced due to pumping rather than naturally occurring. Wellfield Protection Zones have been established for the County's PWS wellfields through the Lee County Wellfield Protection Ordinance. The BR project site has co-existed with Lee County PWS wells for decades during its uses for both agriculture and mining. The project site includes easements for PWS production wells, and the proposed residential use is more compatible with wellfield protection than the historical land uses at the site. The project will add a de minimis amount of impervious area (less than 5% of the overall project site) that should not impact recharge potential for the Surficial or Sandstone aquifers.

3.2.2 Future County PWS Wellfield Development Potential

Henigar and Ray (1993) considered the Water Table, Lower Tamiami and Sandstone aquifers as the primary aquifers suitable for future water supply development. Since that time, the SFWMD has limited large volume withdrawals from these "conventional" sources due to concerns over declining water levels, the potential for saline water intrusion, and excessive drawdown in wetland areas. Most major public utilities, including Lee County Utilities, the City of Cape Coral, and Bonita Springs Utility, have begun utilizing deeper, brackish aquifers to meet increasing potable water demands. Lee County Utilities' most recent Green Meadows wellfield expansion co-located Upper Floridan aquifer wells at several paired Surficial and Sandstone aquifer well sites.

The 2022 SFWMD Lower West Coast Water Supply Plan Update (LWCWSP) notes, “As development of the SAS and IAS became maximized without causing harm to the water resources, most utilities have used the FAS (Floridan Aquifer System) to meet a portion of their current demands, and these utilities are anticipating expansion of FAS wellfields to meet future demands.”

The LWCWSP also states, “Increased withdrawals from the SAS and IAS are generally limited due to potential impacts on wetlands and existing legal water uses, including Domestic Self Supply (DSS); the potential for saltwater intrusion; and the possibility of reaching aquifer maximum developable limits (MDLs).” These statements suggest limitation of additional fresh groundwater wellfield development potential beyond that already permitted in the DR/GR.

3.2.3 DR/GR Hydrogeologic Characteristics Ranking Values

The Henigar and Ray (1993) report used a numeric scale to rank DR/GR lands in terms of recharge, water supply, and water table contamination potential (**Table 4**). The report considered the Water Table, Lower Tamiami and Sandstone aquifers in its ranking. As the Lower Tamiami is not present as a distinct aquifer at the BR project location, it could not be included in the ranking system. In areas where only two of the three aquifers exist, the maximum achievable ranking score is 12, and a minimum DR/GR ranking value would be considered 8 under the Henigar and Ray system used to establish the original DR/GR land use designation. The authors also used an alternative qualitative ranking system for many areas in the southeastern DR/GR area considered prime locations for Water Table aquifer wellfields that ranked less than 8.

Table 4: DR/GR Hydrogeologic Characteristics Ranking Values for DR/GR Areas

Aquifer	Factor	Rank
Water Table	*Transmissivity*	
	T > 100,000 gpd/ft	3
	T 50,000-100,000 gpd/ft	2
	T < 50,000 gpd/ft and aquifer thickness > 25 ft	1
	Recharge	Null
	Contamination Potential	
	DRASTIC index >200	3
	DRASTIC index 180-200	2
Lower Tamiami	*Transmissivity*	
	T > 100,000 gpd/ft	3
	T 50,000-100,000 gpd/ft	2
	T < 50,000 gpd/ft	1
	Recharge	3
Sandstone	*Transmissivity*	
	T > 50,000 gpd/ft	3
	T 20,000-50,000 gpd/ft	2
	T < 20,000 gpd/ft	1
	Recharge	
	Leakance > 10^2 gpd/ft^3	3
	Area of increased recharge due to pumping	2
	Remaining area	1

The Henigar and Ray (1993) report assumed a Sandstone aquifer leakance value greater than $1x10^{-3}$ gpd/ft^3. Sandstone aquifer leakance values obtained from testing related to the Green Meadows wellfield are significantly lower, as discussed previously. The values of other properties used by Henigar and Ray (1993) to establish rankings for DR/GR suitability appear consistent with those reviewed for the BR project site.

Re-ranking the BR project site using more recent, site-specific data not available at the time of the Henigar and Ray (1993) report, results in a maximum value of 9. Without the contribution of increased recharge due to Lee County PWS well pumpage, the site would have scored 7, below the minimum value of 8 used as the numerical criteria for classifying lands as DR/GR. See **Table 5** for the re-ranking.

Table 5: Re-Ranking of Bluewater Ridge

Aquifer	Factor	Rank
Water Table	*Transmissivity*	
	T > 100,000 gpd/ft	3
	T 50,000-100,000 gpd/ft	
	T < 50,000 gpd/ft and aquifer thickness > 25 ft	
	Recharge	Null
	Contamination Potential	
	DRASTIC index >200	
	DRASTIC index 180-200	2
Lower Tamiami	*Transmissivity*	
	T > 100,000 gpd/ft	NP
	T 50,000-100,000 gpd/ft	NP
	T < 50,000 gpd/ft	NP
	Recharge	NP
Sandstone	*Transmissivity*	
	T > 50,000 gpd/ft	
	T 20,000-50,000 gpd/ft	2
	T < 20,000 gpd/ft	
	Recharge	
	Leakance > 10^2 gpd/ft^3	
	Area of increased recharge due to pumping	2
	Remaining area	

Henigar and Ray (1993) assigned a qualitative ranking of “Area B: Area Considered for Increased Development with Stringent Best Environmental Management Practices” to most of the BR project site.

Henigar and Ray (1993) states, “Protection of ground water resources has three principal aspects of concern: those associated with the availability of recharge to the aquifer; those associated with drawdown due to excessive pumping; and those that could degrade the quality of groundwater.”

In addressing the first of the three principal aspects of concern, the BR project will add a de minimis amount of impervious area relative to the total project area that will help maintain current recharge volumes. The project will also construct and operate a surface water management system designed to current standards that will capture stormwater runoff and route it to onsite lakes where it can recharge the aquifer.

Secondly, the BR project will rely on Lee County Utilities for potable water supply and will have a modest amount of irrigated area that should not contribute significantly to drawdown in the aquifers due to excessive pumpage.

Finally, Lee County has established wellfield protection zones for the Green Meadows wellfield, and the proposed project will comply with all land use limitations required in the wellfield protection zones. The transition of the project site from mining to residential will result in a more protective type of land use for groundwater quality. Residential developments exist in close proximity to several municipal public supply wellfields across Southwest Florida, including Lee County Utilities' Corkscrew wellfield. See **Attachment** 15 for the Lee County Wellfield Protection Zones.

3.2.4 Availability of Irrigation and Potable Water Sources

The Lee County Utilities potable water service area covers the BR project site. Lee County has expressed the ability to provide potable water for the project. The BR project is coordinating with Lee County on design of a watermain extension to serve the project site.

If reclaimed water is not available from Lee County Utilities, the project will obtain a water use permit from the SFWMD for landscape irrigation. Withdrawals from groundwater and/or surface water will supply irrigation in the event reclaimed water is not available. Onsite irrigation facilities will be sited such that they do not impact proposed Lee County Utilities PWS well locations within or adjacent to the project site. Historically, the site has been permitted for withdrawals from the Surficial Aquifer System for irrigation of landscaped buffers and for withdrawals from onsite mine lakes to irrigate small vegetable crops in quantities much greater than required for the proposed landscape irrigation associated with the BR project.

- Consistency with the LCIWRMP and SFWMD LWCWSP

  The lands designated DR/GR were defined to include areas most suitable for water supply development. Lee County's Green Meadows wellfield bisects the BR project site. The Green Meadows wellfield has withdrawn water from the Surficial and Sandstone aquifers since 1979. More recently, Lee County has added Upper Floridan aquifer production wells. The BR project site has co-existed with the shallow aquifer PWS wellfield for decades, including during times of more intensive land uses for agriculture and mining. The BR site plan accommodates existing and proposed Lee County well sites. The proposed project will comply with all land use limitations required in the wellfield protection zones.

  The 2022 SFWMD Lower West Coast Water Supply Plan states, "As development of the SAS and IAS became maximized without causing harm to the water resources, most utilities have used the FAS (Floridan Aquifer System) to meet a portion of their current demands, and these utilities are anticipating expansion of FAS wellfields to meet future demands…Increased withdrawals from the SAS and IAS are generally limited due to potential impacts on wetlands and existing legal water uses, including Domestic Self Supply (DSS); the potential for saltwater intrusion; and the possibility of reaching aquifer maximum developable limits (MDLs)." Lee County's focus on the Upper Floridan aquifer to meet future demands is consistent with the LWCWSP.

The LWCWSP acknowledges, "While the development of fresh groundwater in many areas has been maximized, limited amounts of fresh groundwater may be locally available. As urban growth occurs, some agricultural land is expected to transition to urban community uses. Many existing agricultural areas have water use permits to use fresh groundwater for crop irrigation. While water use permits cannot be directly transferred from one land use type to another, conversion of agricultural lands to another use may result in available fresh groundwater." The BR project site is proposing to follow the transition from agricultural to residential, with mining as an intermediate land use. The transition of the BR site and other surrounding lands from agriculture to less water-intensive land uses has resulted in a recovery of water levels in the Sandstone and Surficial aquifers in several areas.

The water supply approach proposed by the BR project is consistent with the LWCWSP in that the historical and proposed land use transitions have contributed to a decrease in consumptive use from fresh groundwater sources at the site. Lee County Utilities will supply potable water for the BR project. If reclaimed water is not available, the project will obtain a water use permit from the SFWMD for landscape irrigation. Withdrawals from groundwater and/or surface water will supply irrigation in the event reclaimed water is not available. The proposed irrigated area of 69 acres constitutes less than 5% of the total project area.

- Water Resources Impact Analysis

The BR project plans to use a combination of surface water or groundwater to meet its irrigation demands, in the event reclaimed water is not available, and will receive potable water and sanitary sewer services from Lee County Utilities. Wastewater flows will be treated to public access reclaimed water standards by Lee County Utilities and will be available for beneficial reuse as part of the County's reclaimed water distribution system. The modest irrigation demands associated with the development will replace historical agricultural and mining uses. As described under the Future Water Supply section, withdrawals from the Surficial aquifer and onsite lakes have been permitted since the 1990s. Water level data recorded by USGS and Lee County monitoring wells show stable to rising trends in water table levels at several locations. Water levels in the Sandstone aquifer near the project site have exhibited around 20 feet of recovery since 2000, and potentiometric head remains more than 40 feet above the top of the aquifer, or greater than 20 feet above MDL. The observed water levels reflect historical withdrawals on and in the vicinity of the project site.

Lee County Utilities has available permitted allocation to serve the project site. Assuming raw water demands for the project of approximately 0.167 MGD (75% system efficiency), this represents 0.49% of the annual permitted allocation under Lee County Utilities permit 36-00003-W. The interconnected Lee County Utilities system also has permitted allocation under SFWMD water use permits 36-00122-W for Pinewoods and 36-00152-W for North Lee. Considering the allocations authorized under these permits, the BR project potable raw water demands equate to approximately 0.29% of the total Lee County permitted allocation.

The BR project will require a new water use permit for landscape irrigation or modification and transfer of permit 36-09122-W. At the time of application, the applicant will be required to demonstrate that the requested use meets the criteria of permit issuance, including no adverse impacts to the resource, legal existing users, or the environment. Because of the site layout, the project will likely have two separate irrigation systems to serve each of the two residential neighborhoods. Any wells used would be located to minimize drawdown and interference with other wells in the area, including Lee County Utilities PWS wells, and to maximize the efficiency of the irrigation system.

The BR project design will include a storm water management system meeting the current SFWMD permitting criteria and best management practices. As stated in several studies and summarized in the Henigar and Ray report (1993), “Runoff from impervious surfaces can be captured in a storm water management system and introduced into the ground water aquifer at much the same rate or at a rate greater than would occur on the site in its natural vegetative state.” As discussed above, the BR project site does not currently provide high rates of recharge to the Surficial aquifer, as shown in the water budget and flow tube analysis. The modification of the site’s existing storm water management system for the mine will enable the site to detain and treat surface water to current standards, enhancing the opportunity for infiltration into the Surficial aquifer. The addition of fill to raise site elevations would also increase the storage capacity of the Surficial aquifer by increasing the distance from land surface to the water table.

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ATTACHMENTS

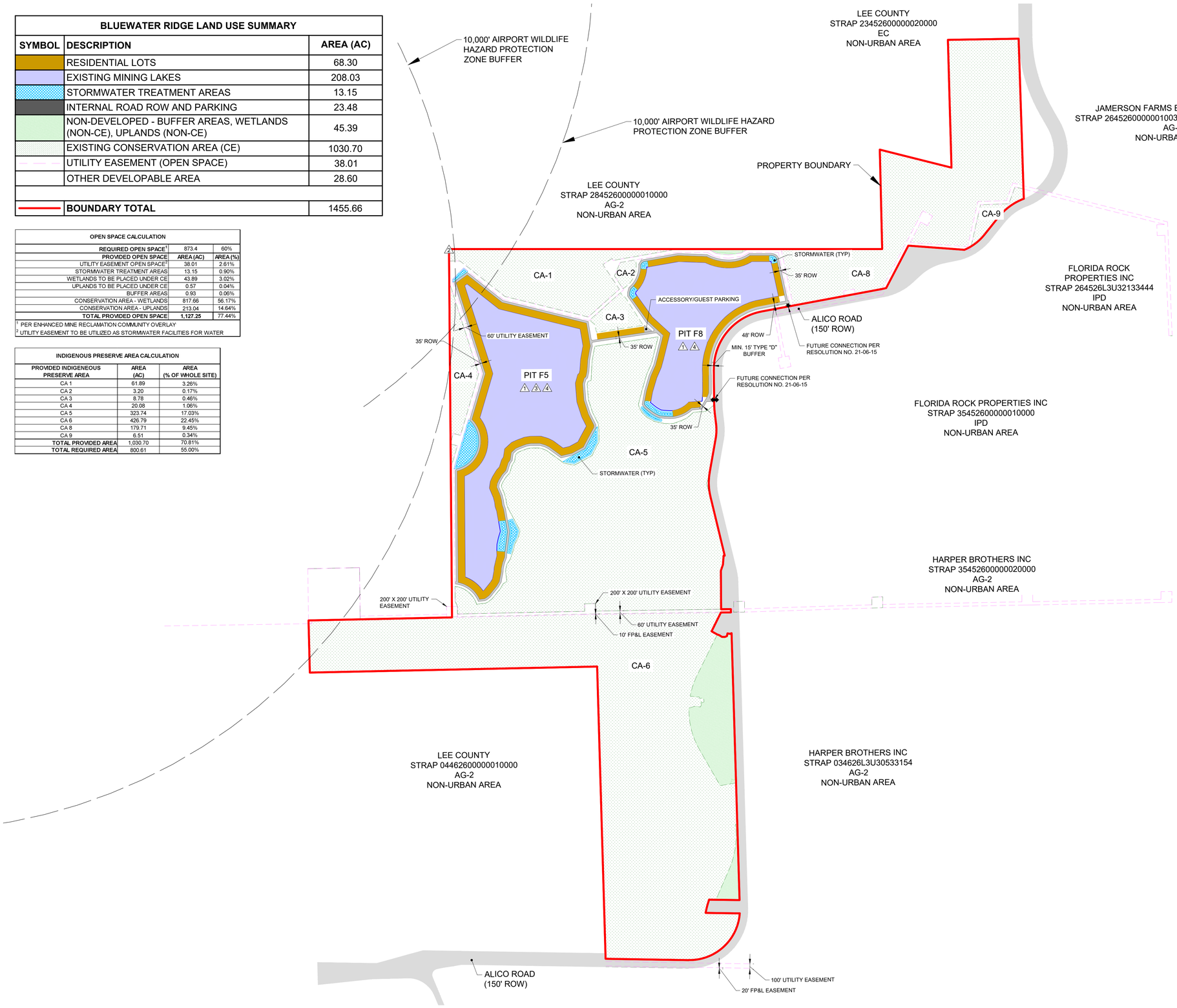
ATTACHMENT 1: Bluewater Ridge Master Development Plan

BLUEWATER RIDGE LAND USE SUMMARY		
SYMBOL	**DESCRIPTION**	**AREA (AC)**
	RESIDENTIAL LOTS	68.30
	EXISTING MINING LAKES	208.03
	STORMWATER TREATMENT AREAS	13.15
	INTERNAL ROAD ROW AND PARKING	23.48
	NON-DEVELOPED - BUFFER AREAS, WETLANDS (NON-CE), UPLANDS (NON-CE)	45.39
	EXISTING CONSERVATION AREA (CE)	1030.70
	UTILITY EASEMENT (OPEN SPACE)	38.01
	OTHER DEVELOPABLE AREA	28.60
	BOUNDARY TOTAL	1455.66

OPEN SPACE CALCULATION		
REQUIRED OPEN SPACE[1]	873.4	60%
PROVIDED OPEN SPACE	**AREA (AC)**	**AREA (%)**
UTILITY EASEMENT OPEN SPACE[2]	38.01	2.61%
STORMWATER TREATMENT AREAS	13.15	0.90%
WETLANDS TO BE PLACED UNDER CE	43.89	3.02%
UPLANDS TO BE PLACED UNDER CE	0.57	0.04%
BUFFER AREAS	0.93	0.06%
CONSERVATION AREA - WETLANDS	817.66	56.17%
CONSERVATION AREA - UPLANDS	213.04	14.64%
TOTAL PROVIDED OPEN SPACE	**1,127.25**	77.44%

[1] PER ENHANCED MINE RECLAMATION COMMUNITY OVERLAY
[2] UTILITY EASEMENT TO BE UTILIZED AS STORMWATER FACILITIES FOR WATER

INDIGENOUS PRESERVE AREA CALCULATION		
PROVIDED INDIGENEOUS PRESERVE AREA	**AREA (AC)**	**AREA (% OF WHOLE SITE)**
CA 1	61.89	3.26%
CA 2	3.20	0.17%
CA 3	8.78	0.46%
CA 4	20.08	1.06%
CA 5	323.74	17.03%
CA 6	426.79	22.45%
CA 8	179.71	9.45%
CA 9	6.51	0.34%
TOTAL PROVIDED AREA	1,030.70	70.81%
TOTAL REQUIRED AREA	800.61	55.00%



NORTH

GRAPHIC SCALE IN FEET
0 450 900 1800

22 x 34 SCALE: 1" = 900'
11 x 17 SCALE: 1" = 1800'

DEVIATIONS

1. 4:1 LAKE BANK SLOPES (RELIEF FROM LDC SECTION 10-329(D)(4))
2. EXISTING PRESERVATION/ VEGETATION TO MEET TYPE F PLANTING REQUIREMENTS (RELIEF FROM LDC SECTION 10-416(D))
3. NON-SINUOUS LAKE SHORELINE FOR MINING LAKES (RELIEF FROM LDC SECTION 10-418(1))
4. MAXIMUM DEPTH OF 60' BELOW CONTROL ELEVATION FOR EXISTING MINING LAKES (RELIEF FROM LDC SECTION 3-331(D)(3)(A))

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LICENSED PROFESSIONAL
SINA EBRAHIMI, P.E.
FLORIDA LICENSE NUMBER
82332
DATE:

KHA PROJECT
248212000
DATE
5/5/2026

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BLUEWATER RIDGE MCP

MASTER CONCEPT PLAN

PREPARED FOR
FLORIDA ROCK PROPERTIES, INC
LEE COUNTY FLORIDA

SHEET NUMBER
MCP-1

Plotted By:Ekklcioglu, Cassie Sheet Set:Bluewater Ridge Layout:MCP May 05, 2026 05:51:09pm K:\fm_civil\248212000 - frp preliminary site planning\CAD\Exhibits\master concept plan\MCP.dwg
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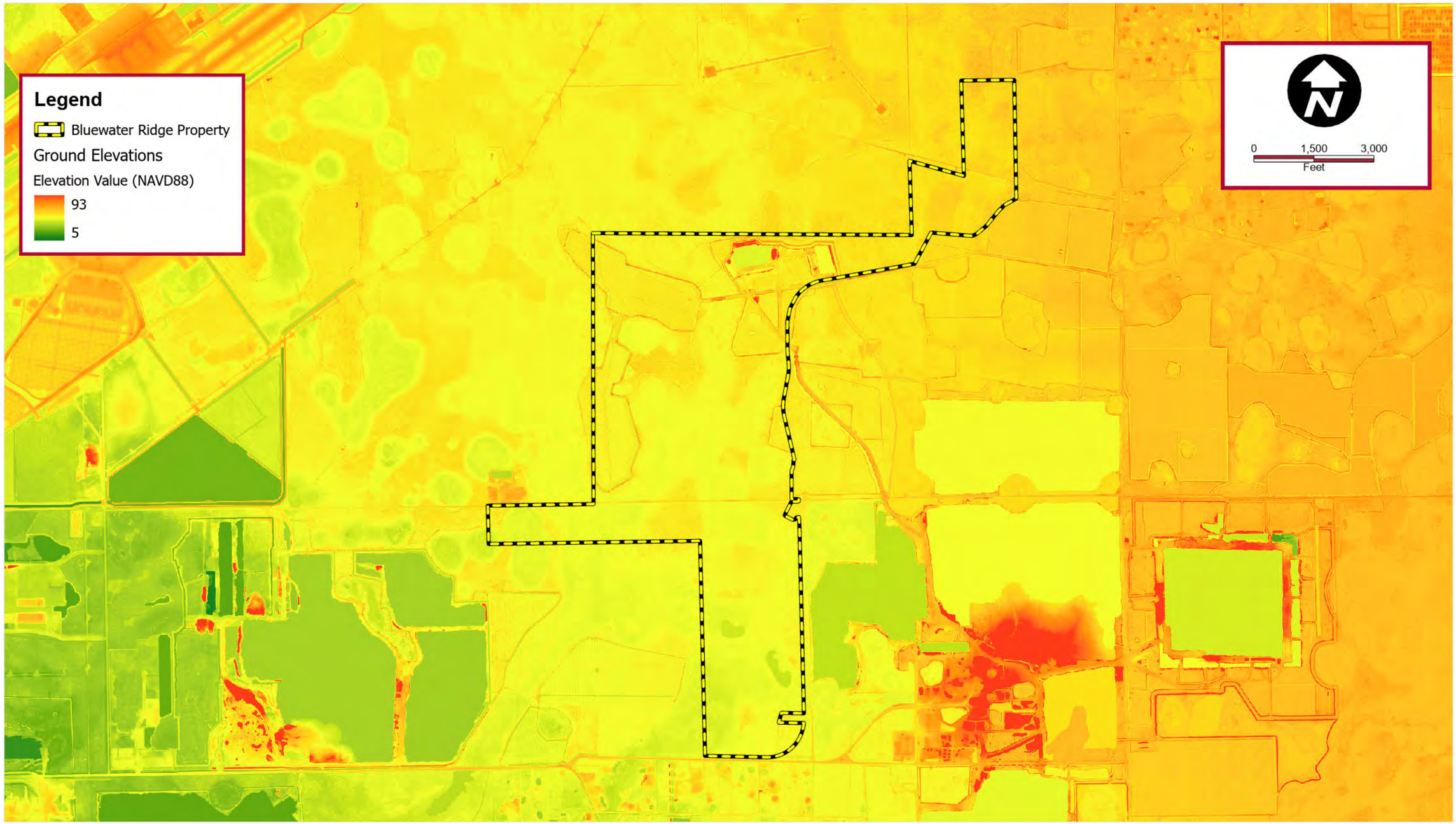
ATTACHMENT 2:
Topographic Map



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TOPOGRAPHIC MAP

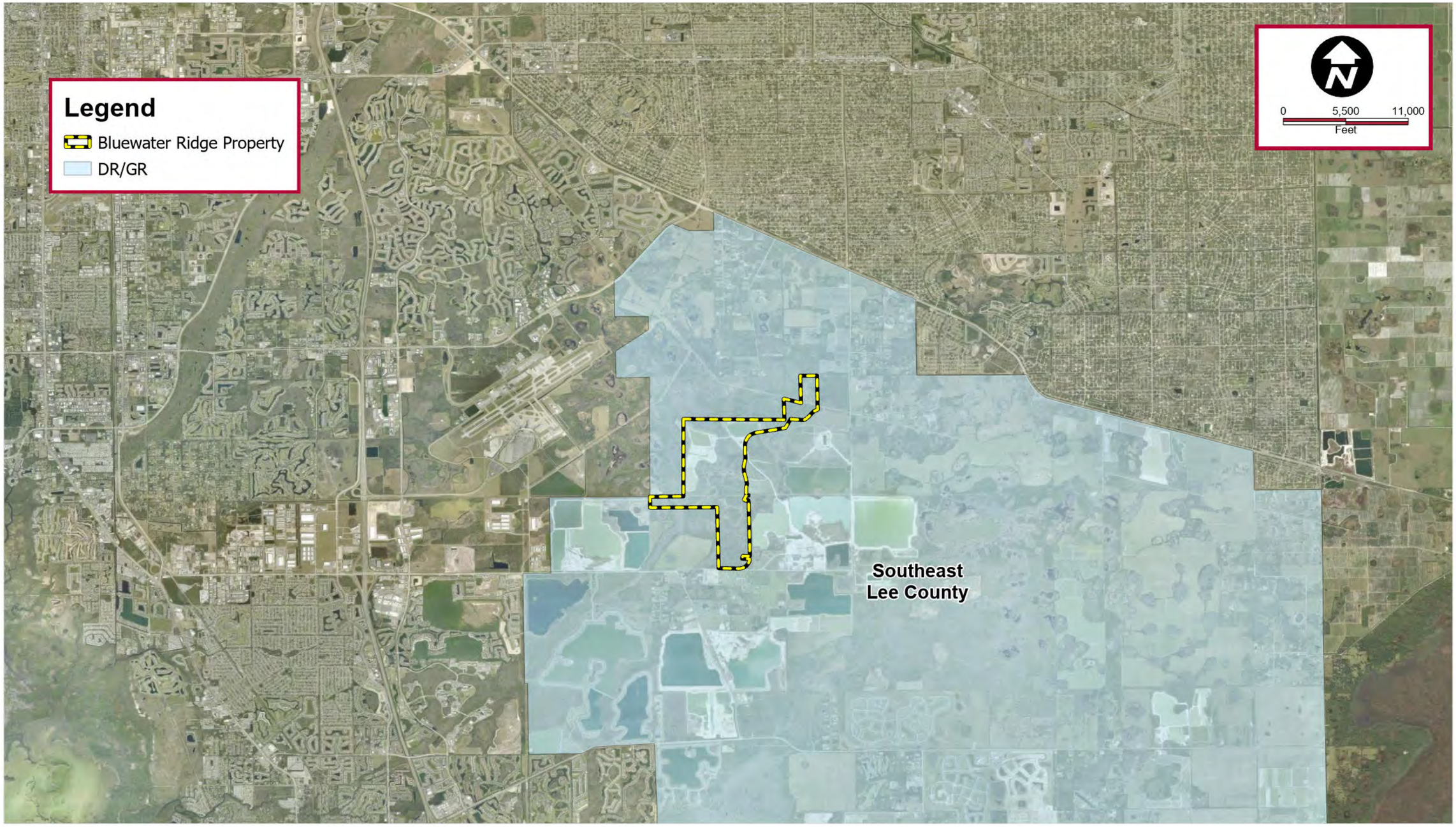
ATTACHMENT 2

ATTACHMENT 3:
Schematic of Aquifer Systems at Site

Land Surface Depth	Litholigic Description	Formation	Aquifer	Aquifer System	Geologic Age
	Fine Sand	Palmico/ Tamiami	Surficial Aquifer	Surficial	Holocene/ Pliestocene
40 ft	Limestone, Shell, Sand	Tamiami			Pliocene
100 FT	Green Clay with Dolosilt	Peace River	Confining Unit		Miocene
180 ft	Sandy Limestones, Sandstones, Shell, and Sand		Sandstone Aquifer	Intermediate	
200 FT	Calcareous Clay and Dolosilt		Confining Unit		
300 FT *320 ft*	Limestone with Interbedded Clay, Sand, Shell, and Phosphate	Arcadia	Mid-Hawthorn		
400 FT *420 ft*	Calcareous Clay and Dolosilt		Confining Unit		
500 FT	Limestone with Interbedded Phopshatic Clay		Lower Hawthorn	Upper Floridan	
600 FT					
700 FT					
800 FT					

Source: Hydrostratigraphy Details Report for Wells L-1983 and 3OAK-DZMW1 (DBHYDRO Wells and Boreholes, 2025)

ATTACHMENT 4:
Bluewater Ridge in DR/GR



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BLUEWATER RIDGE IN DR/GR

ATTACHMENT
4

Legend

- Bluewater Ridge Property
- DR/GR

Land Use:

- Conservation Lands Upland
- Conservation Lands Wetland
- Density Reduction/ Groundwater Resource
- Public Facilities
- Wetlands

N

0 1,500 3,000

Feet

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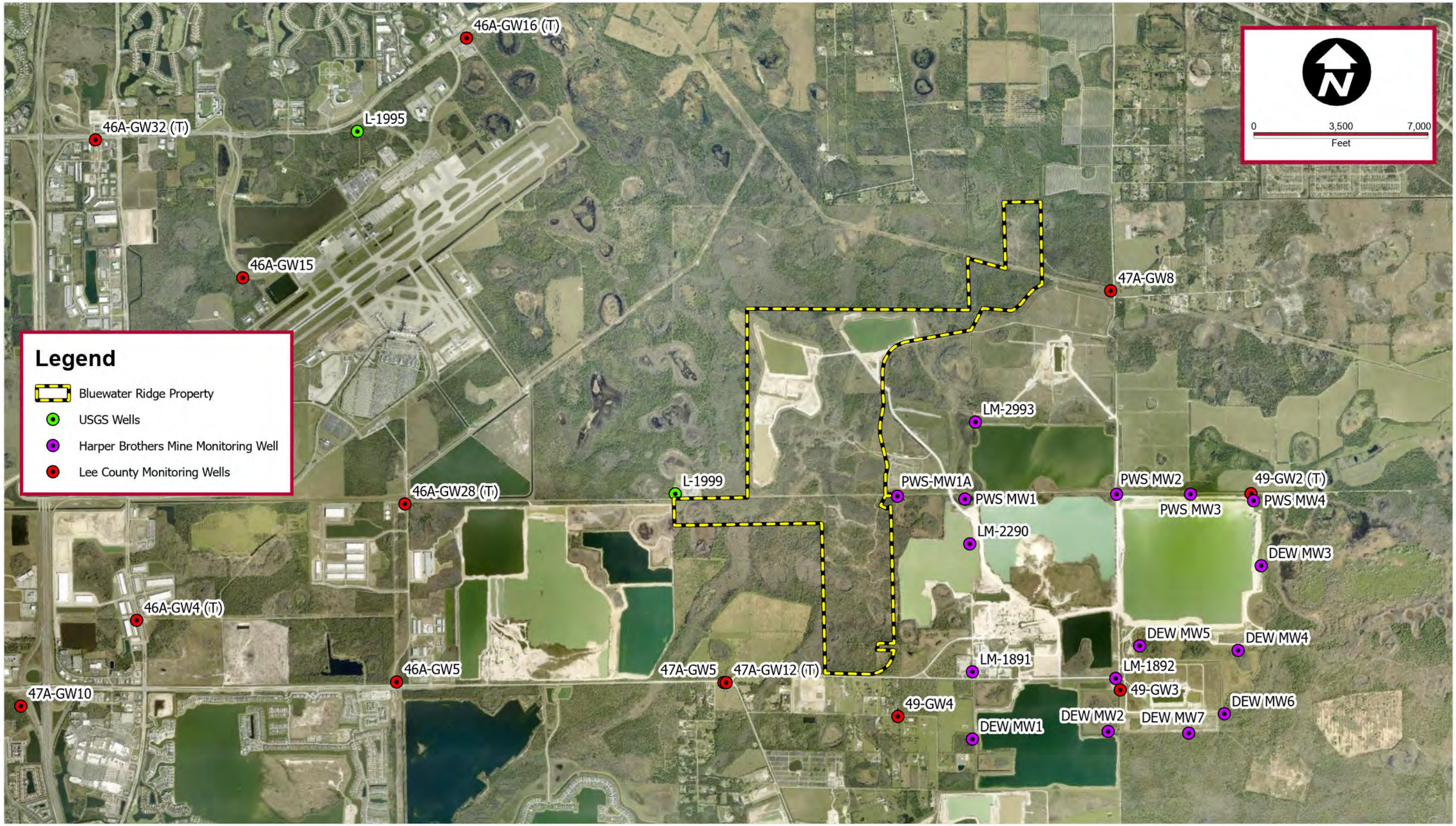
BLUEWATER RIDGE IN DR/GR

FIGURE

4

ATTACHMENT 5:
Monitoring Well Locations



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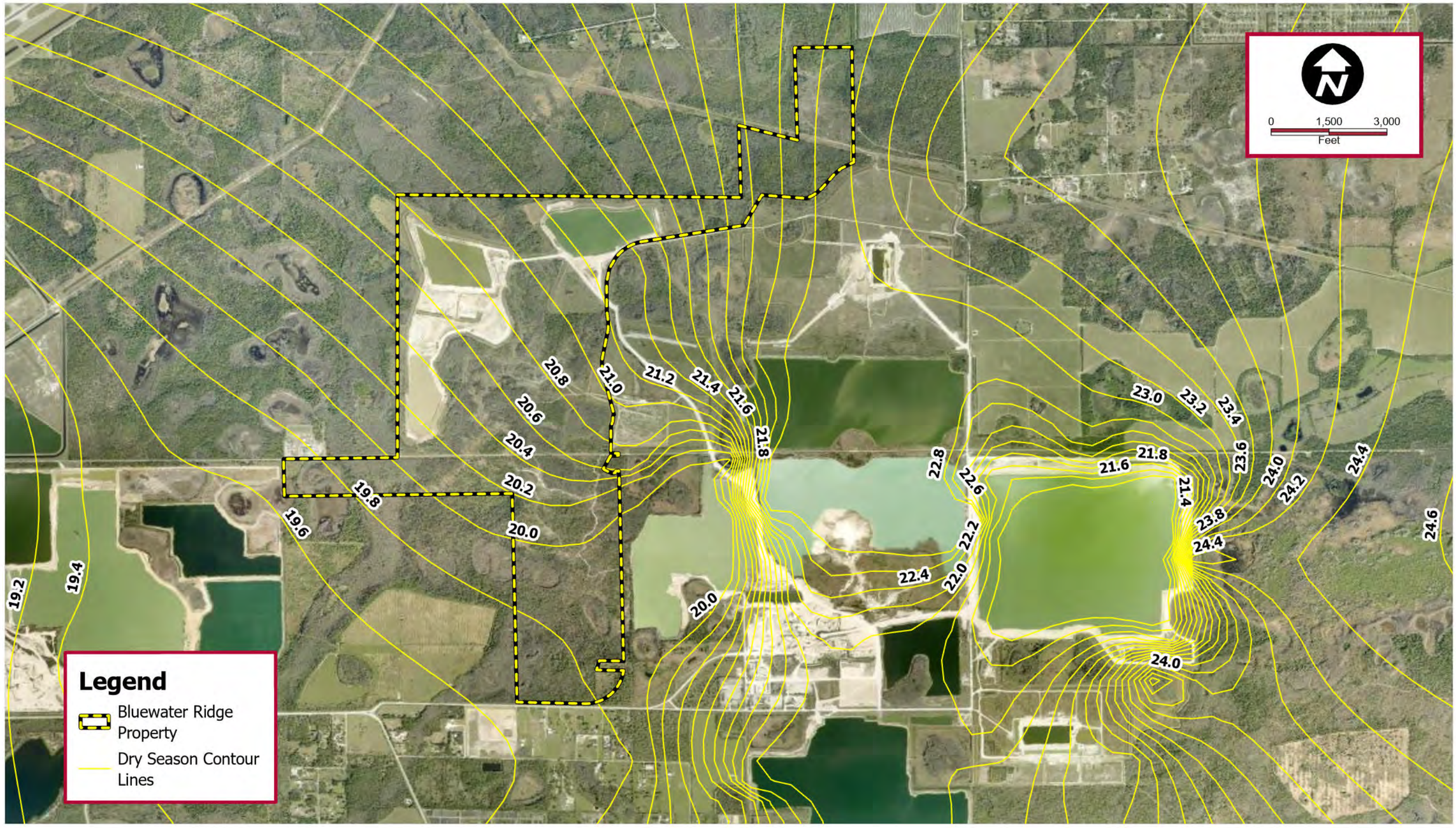
MONITORING SITES

ATTACHMENT 5

ATTACHMENT 6:
Dry Season Surficial Aquifer Water Levels



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DRY SEASON SURFICIAL AQUIFER WATER LEVELS (FEET-NGVD)

FIGURE 6

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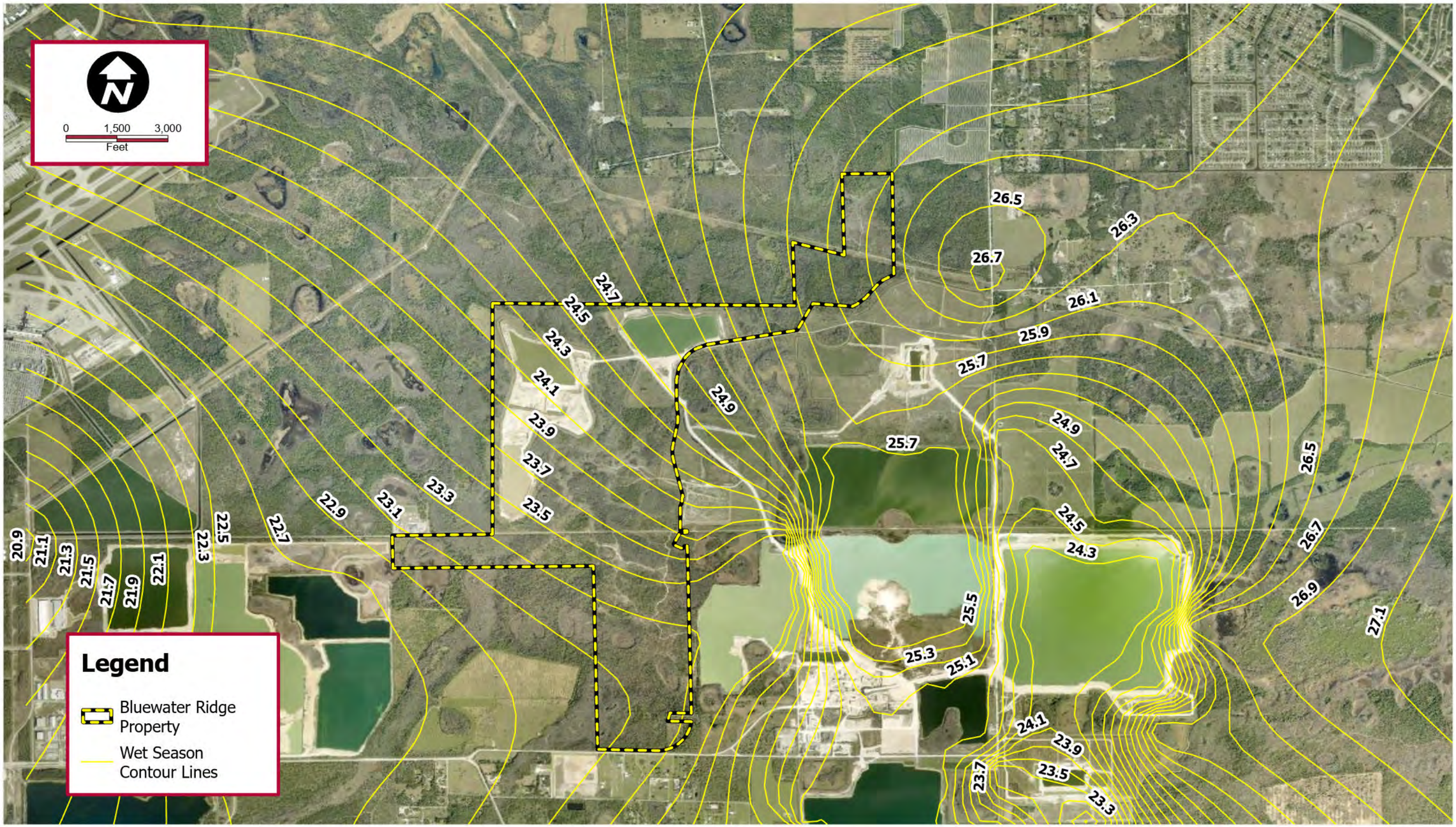
ATTACHMENT 7:
Wet Season Surficial Aquifer Water Levels



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WET SEASON SURFICIAL AQUIFER WATER LEVELS (FEET-NGVD)

FIGURE 7

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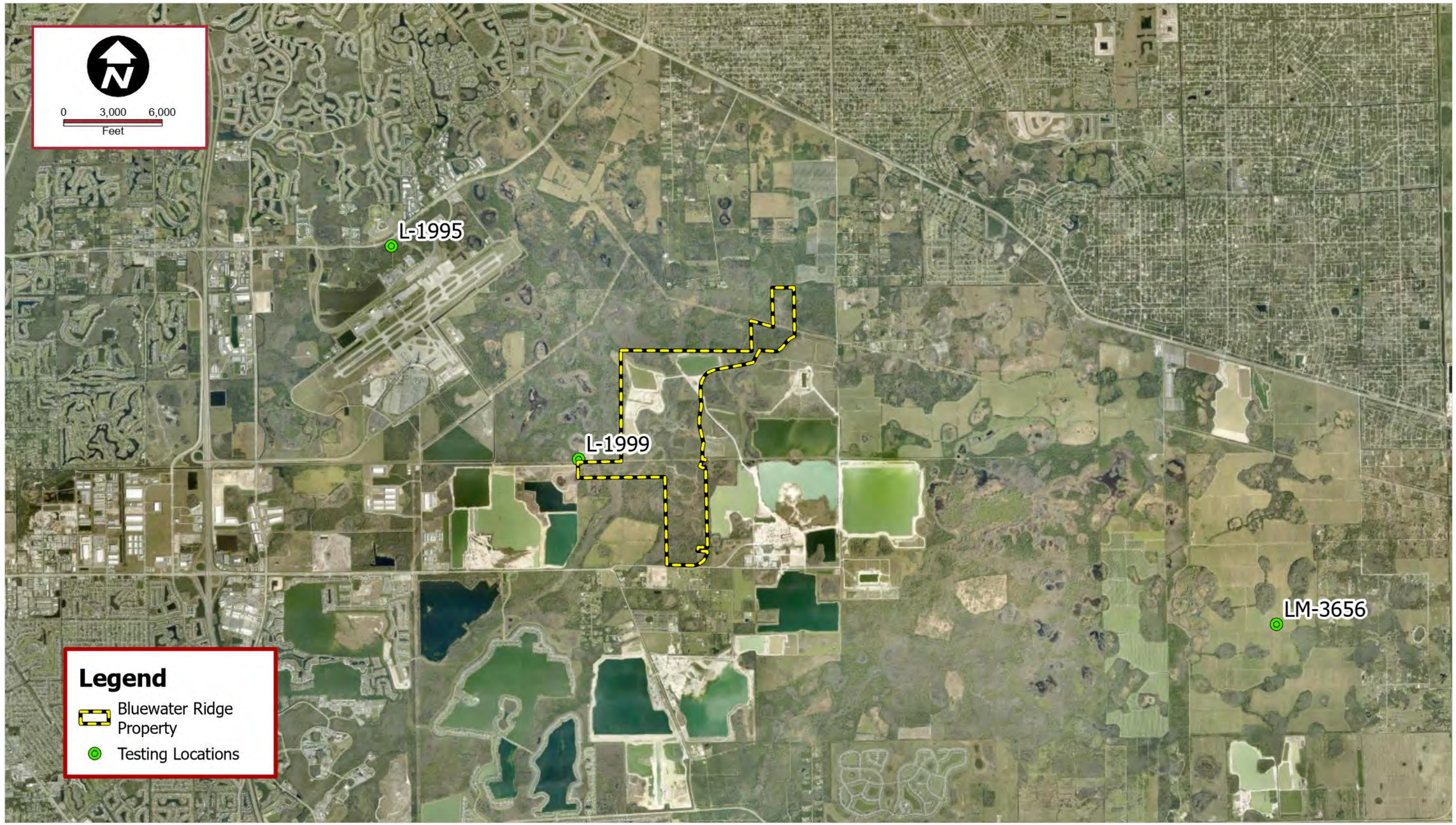
ATTACHMENT 8:
Aquifer Testing Locations



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AQUIFER TESTING LOCATIONS

FIGURE 8

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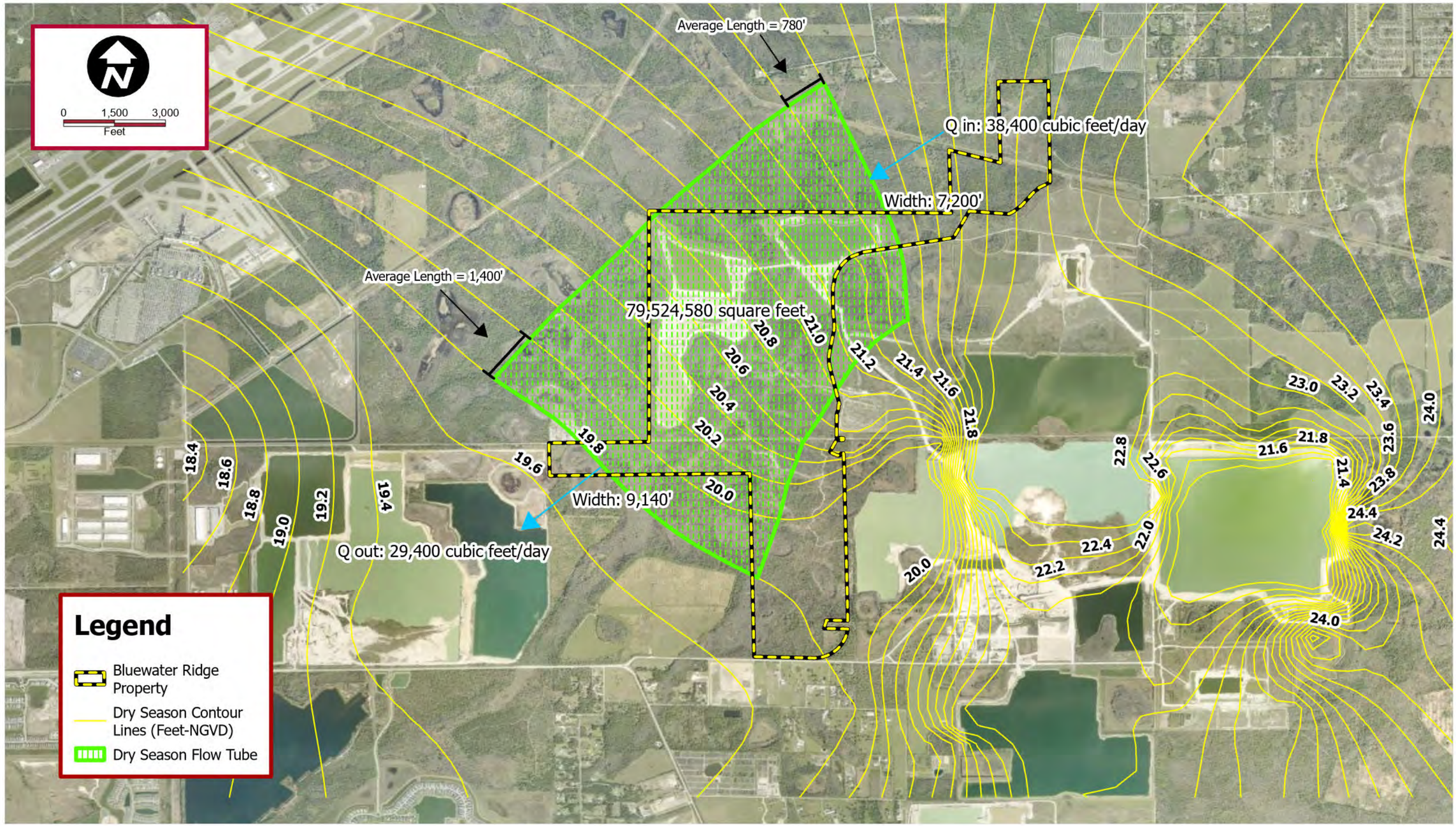
ATTACHMENT 9:
Dry Season Flow Tube Analysis



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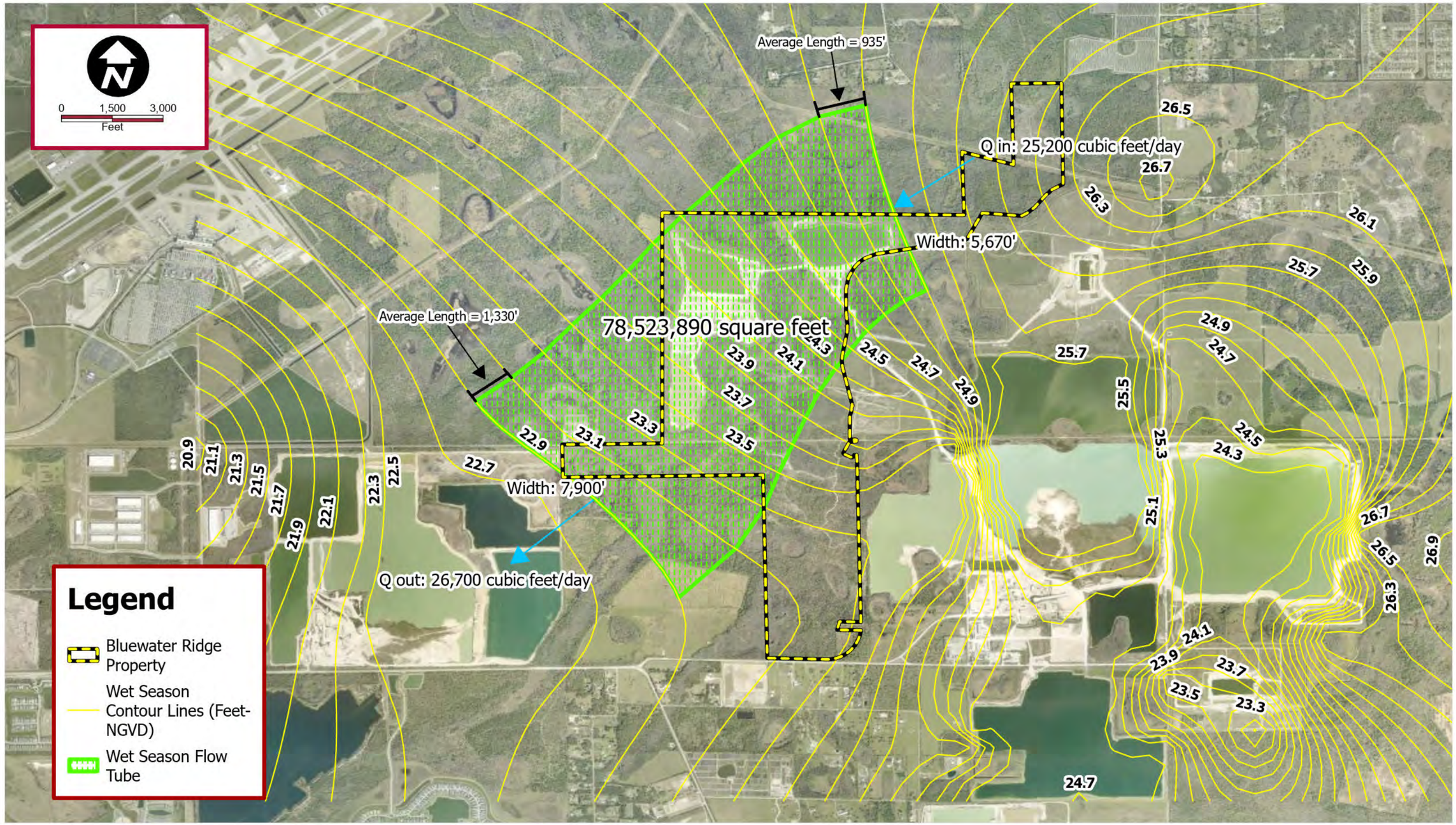
DRAWN BY	KRB
CHECKED BY	KKA

FLORIDA ROCK PROPERTIES, INC.

DRY SEASON FLOW TUBE ANALYSIS

FIGURE 9

ATTACHMENT 10:
Wet Season Flow Tube Analysis



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No.	REVISIONS	DATE	BY

Kimley»Horn
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1514 BROADWAY, SUITE 301, FORT MYERS, FL 33901
Phone: 239-271-2650 FAX: 941-379-4352
WWW.KIMLEY-HORN.COM REGISTRY No. 35106

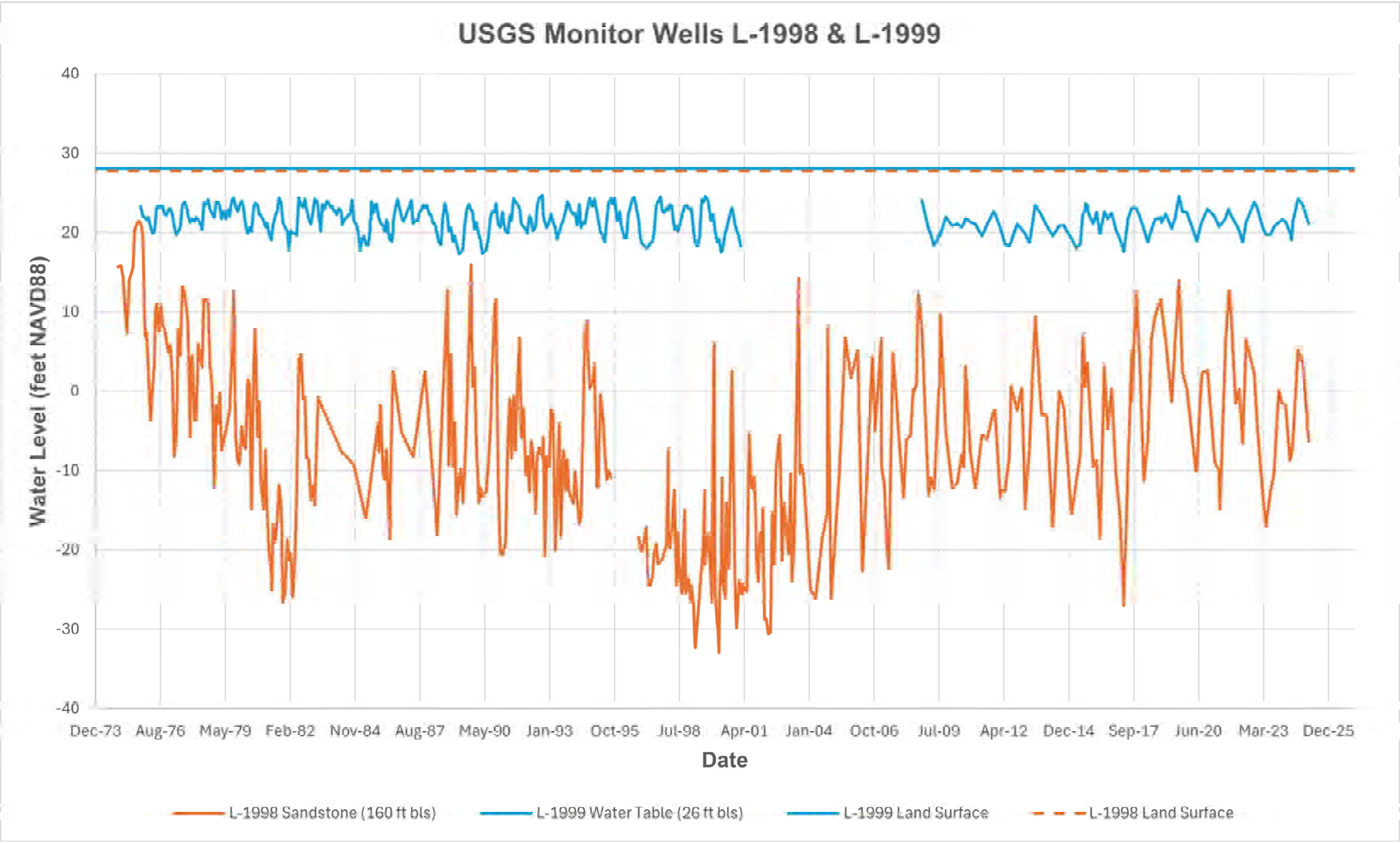
KHA PROJECT	248212001
DATE	May 2026
SCALE	AS SHOWN
DESIGNED BY	KHA
DRAWN BY	KHA
CHECKED BY	KHA

FLORIDA ROCK PROPERTIES, INC.

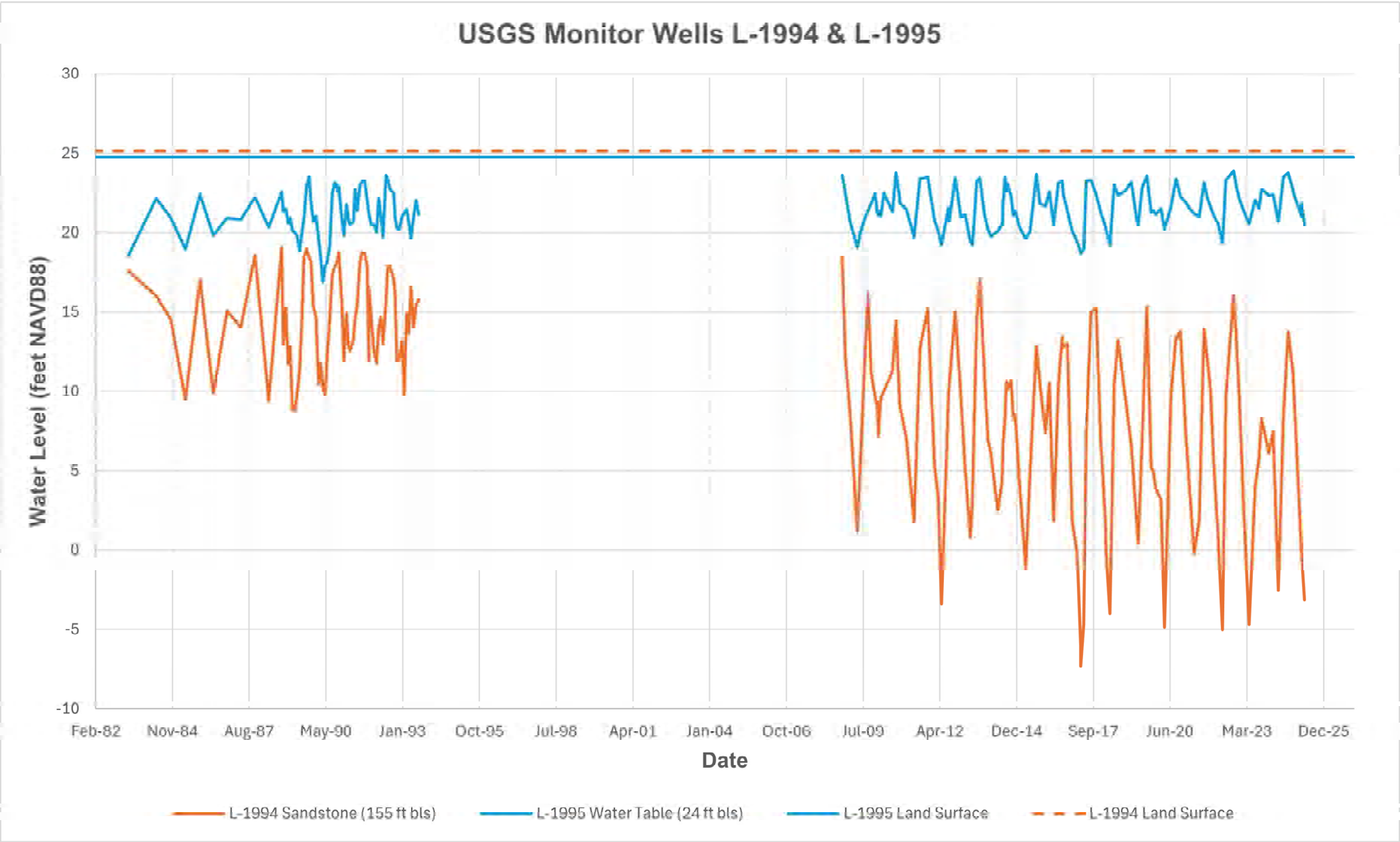
WET SEASON FLOW TUBE ANALYSIS

FIGURE 10

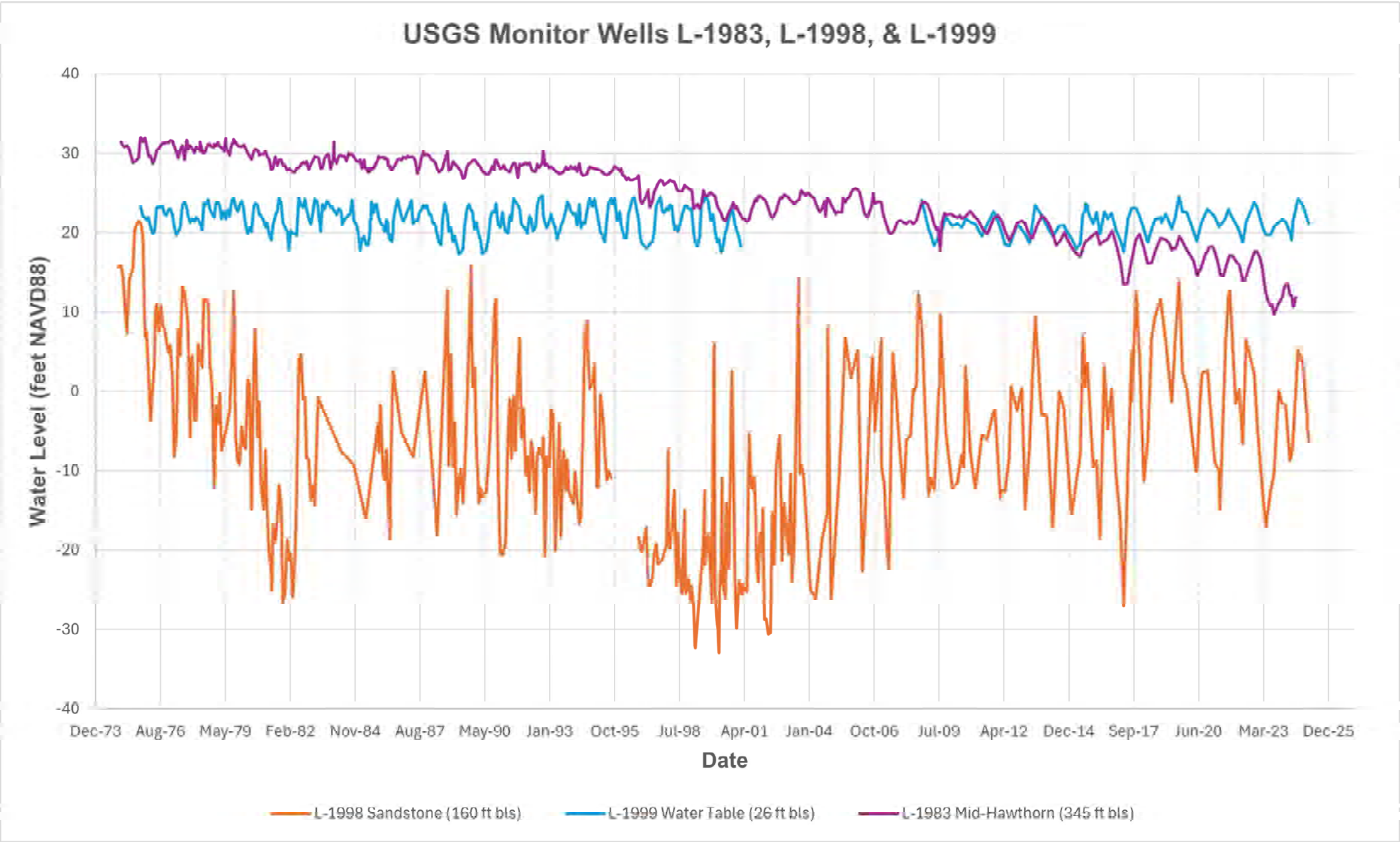
ATTACHMENT 11: Hydrographs for USGS Monitor Wells L-1998 and L-1999


USGS Monitor Wells L-1998 & L-1999
Water Level (feet NAVD88)
40
30
20
10
0
-10
-20
-30
-40
Dec-73
Aug-76
May-79
Feb-82
Nov-84
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
Dec-25
Date
L-1998 Sandstone (160 ft bls)
L-1999 Water Table (26 ft bls)
L-1999 Land Surface
L-1998 Land Surface

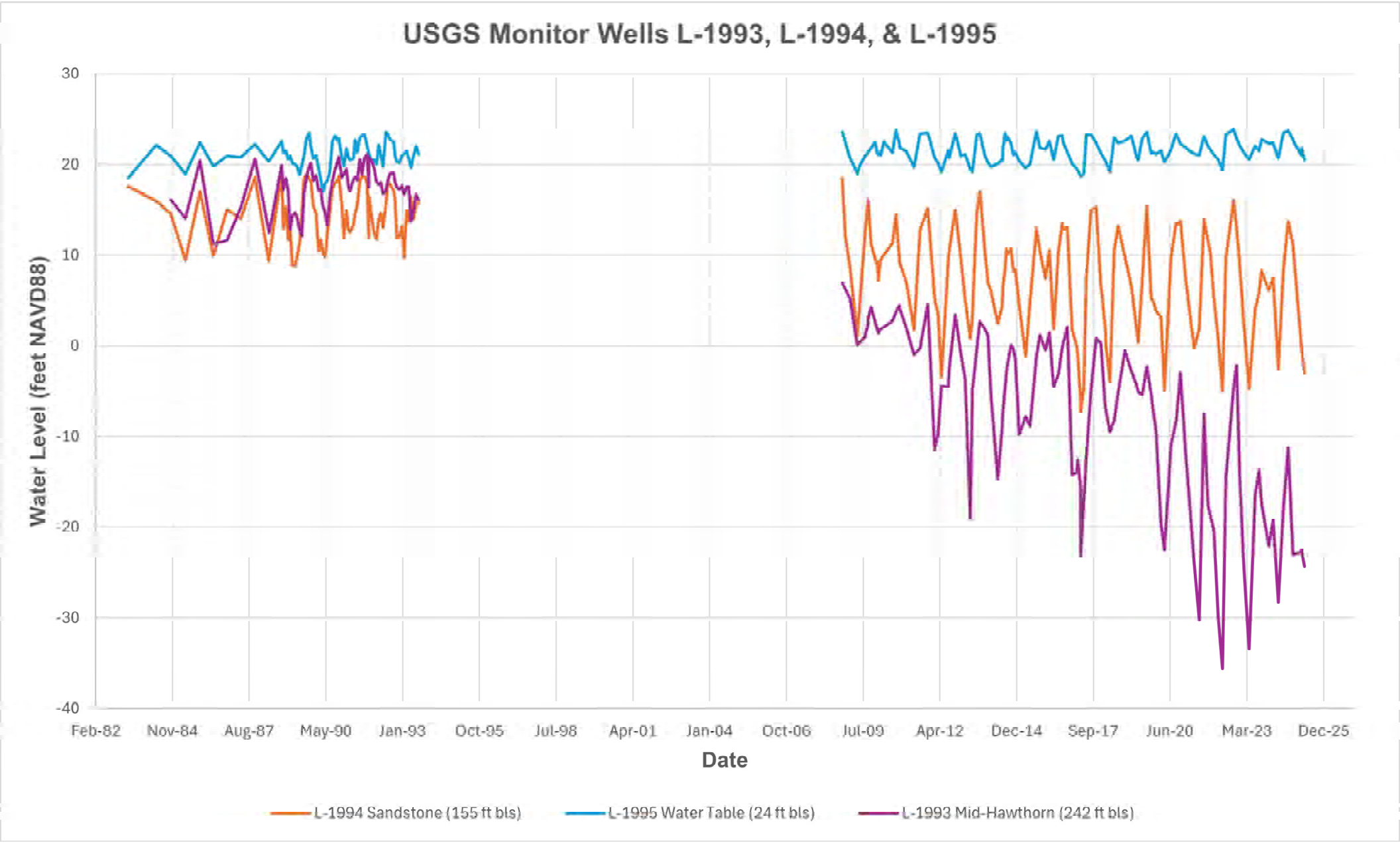
ATTACHMENT 12: Hydrographs for USGS Monitor Wells L-1994 and L-1995


USGS Monitor Wells L-1994 & L-1995
Water Level (feet NAVD88)
30
25
20
15
10
5
0
-5
-10
Feb-82
Nov-84
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
Dec-25
Date
L-1994 Sandstone (155 ft bls)
L-1995 Water Table (24 ft bls)
L-1995 Land Surface
L-1994 Land Surface

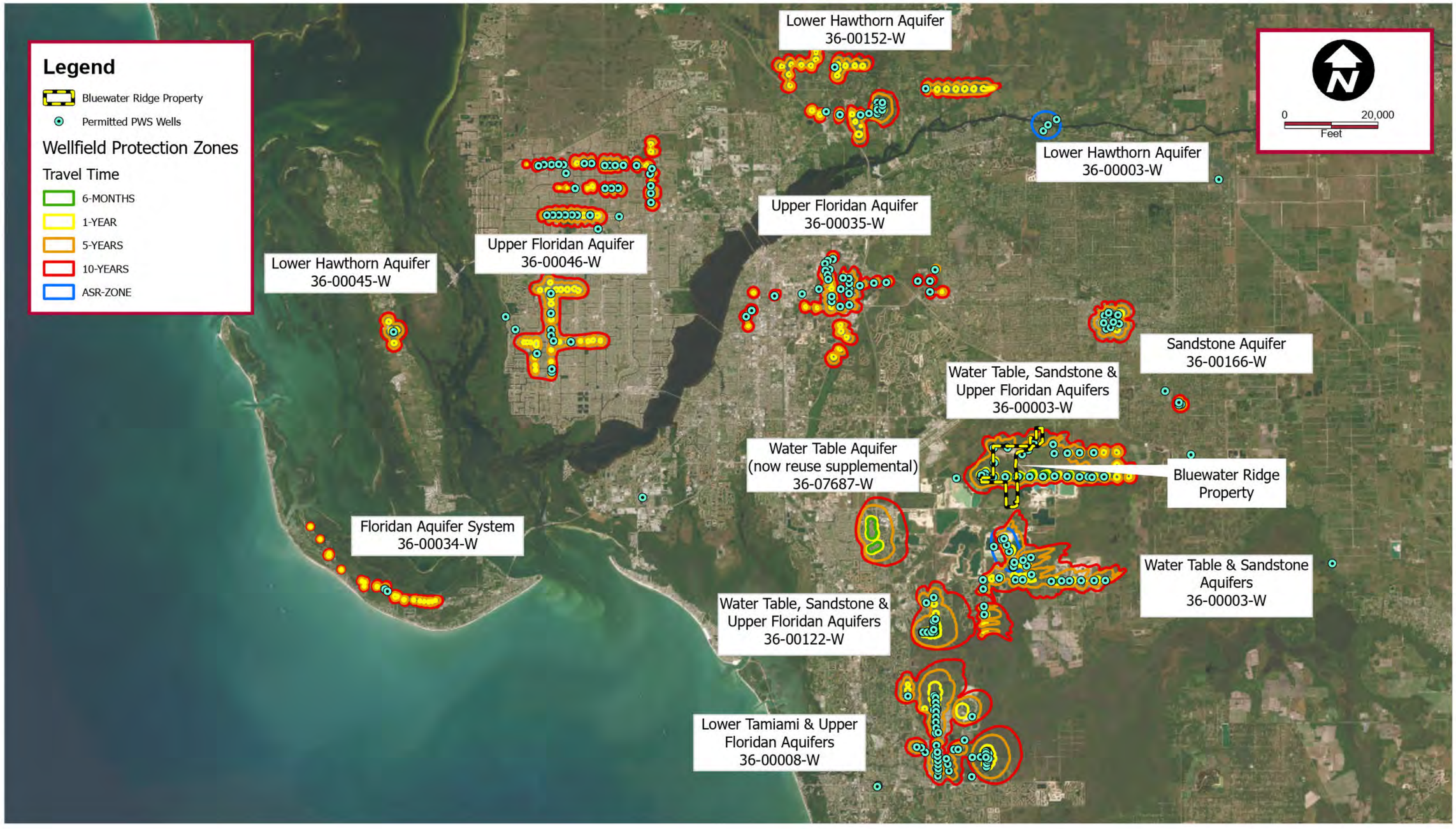
ATTACHMENT 13: Hydrographs for USGS Monitor Wells L-1983, L-1998, and L-1999


USGS Monitor Wells L-1983, L-1998, & L-1999
Water Level (feet NAVD88)
40
30
20
10
0
-10
-20
-30
-40
Dec-73
Aug-76
May-79
Feb-82
Nov-84
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
Dec-25
Date
L-1998 Sandstone (160 ft bls)
L-1999 Water Table (26 ft bls)
L-1983 Mid-Hawthorn (345 ft bls)

ATTACHMENT 14: Hydrographs for USGS Monitor Wells L-1993, L-1994, and L-1995


USGS Monitor Wells L-1993, L-1994, & L-1995
Water Level (feet NAVD88)
30
20
10
0
-10
-20
-30
-40
Feb-82
Nov-84
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
Dec-25
Date
L-1994 Sandstone (155 ft bls)
L-1995 Water Table (24 ft bls)
L-1993 Mid-Hawthorn (242 ft bls)

ATTACHMENT 15:
Lee County Wellfield Protection Zones



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No.	REVISIONS	DATE	BY

Kimley»Horn

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WWW.KIMLEY-HORN.COM REGISTRY No. 35106

KHA PROJECT	248212001
DATE	May 2026
SCALE	AS SHOWN
DESIGNED BY	KHA
DRAWN BY	CAJ
CHECKED BY	KKA

FLORIDA ROCK PROPERTIES, INC.

LEE COUNTY WELLFIELD PROTECTON ZONES

ATTACHMENT 15

STORMWATER MANAGEMENT SYSTEM REPORT

For

Bonita Beach Road CPD

Prepared For:
Mana Christian Missions, Inc.
28100 Bonita Grande Drive, Suite 305
Bonita Springs, Florida 34135

Section 32, Township 47 S, and Range 26 E

LEE COUNTY, FLORIDA

WEC JOB NO. MAN036-0527073-24008719

Prepared by

WEILER ENGINEERING CORPORATION
WEC
An Apex Company

January 2026

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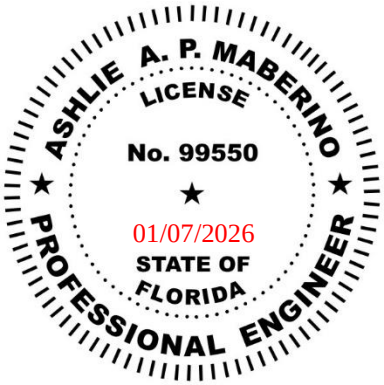
ENGINEER'S CERTIFICATION

THIS IS TO CERTIFY THAT THE ENCLOSED ENGINEERING CALCULATIONS WERE PERFORMED BY ME OR UNDER MY RESPONSIBLE CHARGE.

This item has been digitally signed and sealed by Ashlie A.P. Maberino on the date adjacent to the seal.

Signature must be verified on any electronic copies.



Ashlie A. P. Maberino
State of Florida
Professional Engineer
License No. 99550

1. LOCATION MAP

2. NARRATIVE

INTRODUCTION

The subject property is located in Section 32, Township 47 S, and Range 26 E in Bonita Springs, Lee County, Florida. The approximate 14.28-acre project site is mainly undeveloped land with a single-family residence on the south-east side of the property. The proposed improvements include a commercial development with a wet retention pond.

WEC was contracted in coordination with Apex Companies, LLC to analyze the pre-development and post-development 2D integrated surface water and groundwater model in accordance with Lee Plan Policy 33.1.7. The policy requires this analysis in order for Lee County Division of Natural Resources to determine if the county's natural resources are impacted due to the proposed development. This report describes the modifications to the site and the results of the 2D integrated surface water and groundwater modeling.

EXISTING CONDITIONS

This site is an undisturbed vacant lot with single-family residential building on the south-east corner of the project site on Bonta Beach Road Bonita Springs, Lee County, Florida. The soil properties including the Green-Ampt parameters for the project site and the surrounding land were obtained by USGS Soil Survey and the Lee County Soil Survey. Existing land cover was obtained using SFWMD Land Cover Use 2014-2016. Table 1 below shows the hydraulic conductivity for this proposed project site. A Digital Elevation Model (DEM) was created using Lidar obtained from USGS. **Figure 1** shows the Existing Land Cover.

Soil Type	**#44 Malabar**
Horizontal – K (inches/hr)	**Depth of strata (inches)**
6.0	13
0.6	5
6.0	62
Ave. Horizontal K	11.3 ft/day
Vertical Saturated – K	7.6 ft/day
Vertical Unsaturated – K	5.0 ft/day

Table 1: Hydraulic Conductivity

The 2D integrated surface and groundwater model analyzed the following scenarios:

- Continuous Simulation (Dry Season)
  - 25 YR – 72 HR Scenario
  - 100 YR – 72 HR Scenario
- Design Storm
  - 25 YR – 72 HR Scenario
  - 100 YR – 72 HR Scenario

The continuous dry scenario used elevations from 49GW-11 from September 2024 to May 2025. This scenario is included to measure the groundwater recharge for the dry conditions. The two design storms were calculated, the 25 YR-72 HR storm is used to determine if offsite flooding will occur and the 100 YR-72 HR storm even is used to determine if flooding of buildings will occur. Land use data was obtained from Lee County's land use map as shown in **Figure 1** below.

Figure 1: Existing Land Cover

The project site is bounded by two roadways, one to the west and one to the south, a canal to the north, and open land to the east. The model looked at the two nearest surface waters to determine if any impacts are to occur and to track the water levels. The two boundary conditions shown are reflective of the flow of the surface water.

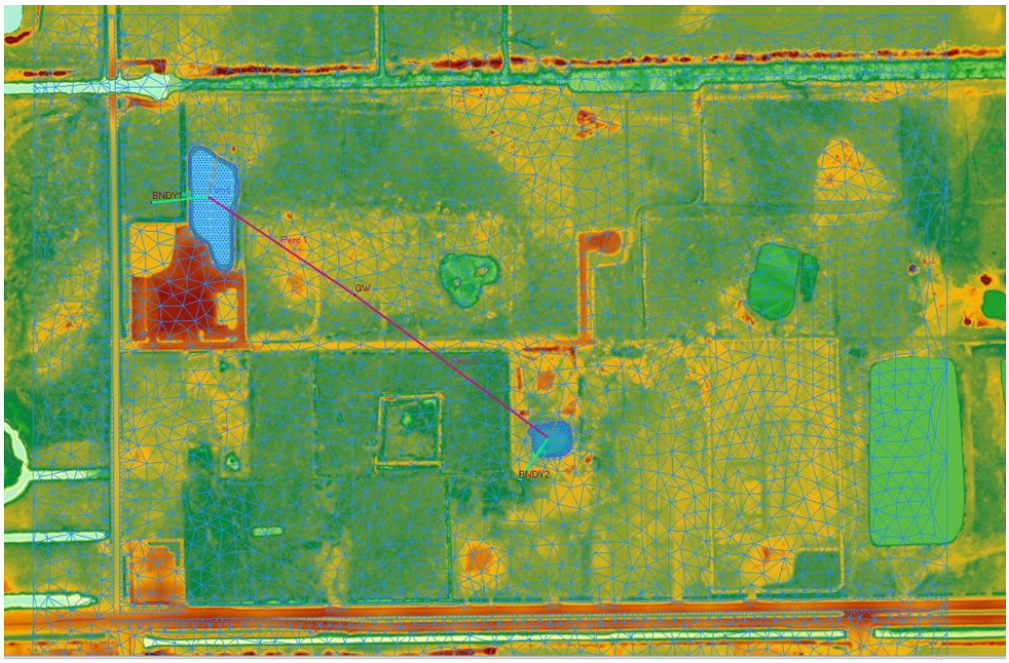


Figure 2: Existing Conditions Model Schematic

See Sections **4-6** for Existing Conditions Model ICPR Input and Results.

PROPOSED CONDITIONS

This project is still in the planning phase and all calculations are based on available data from USGS and SFWMD. The proposed improvements for the 14.28 AC (acre) site will include an commercial buildings and a wet-retention pond. With the design of the proposed development, the existing conditions 2D integrated model was updated to the parameters from the proposed development. The land use for the site was updated to reflect the maximum square footage of the building and the proposed wet detention pond. **Figure 3** shows the proposed pervious and impervious modeled land use.

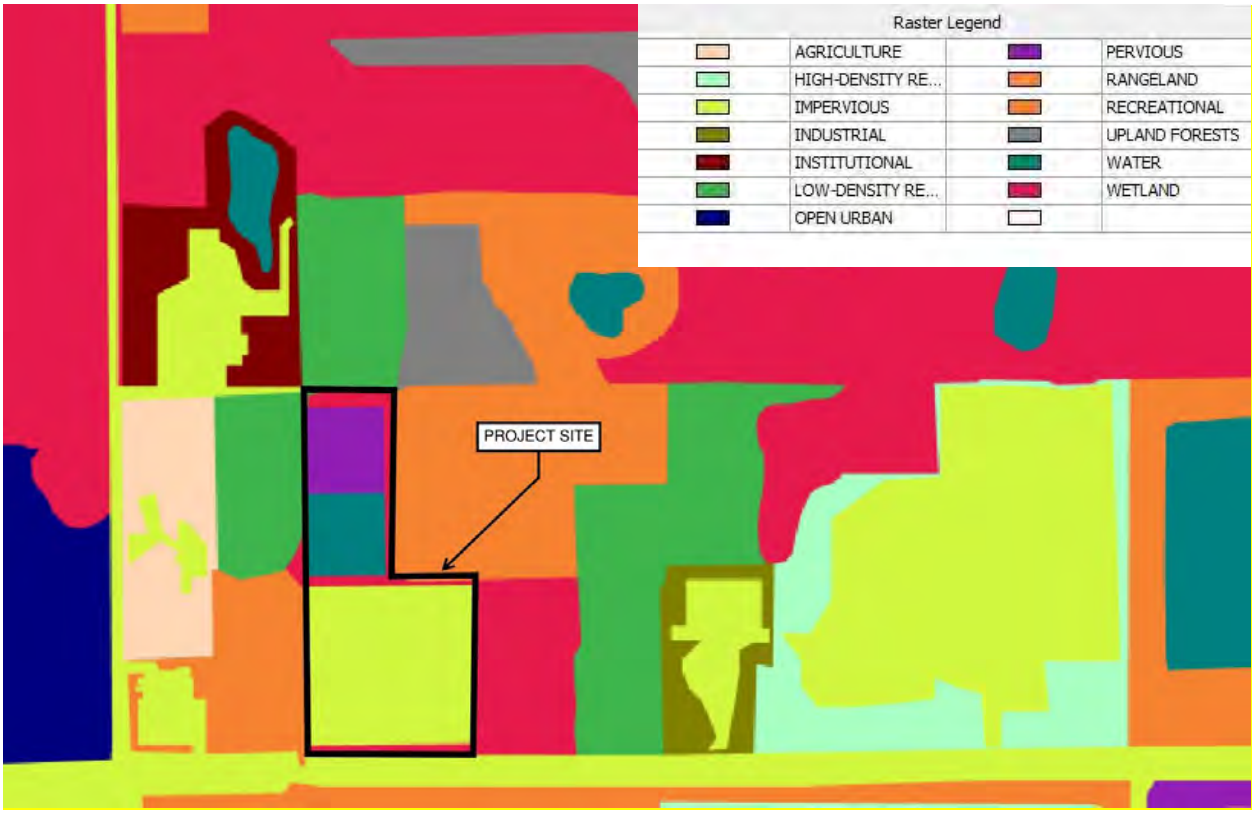


Figure 3: Proposed Land Cover

Figure 4 shows the model schematic for proposed conditions. The elevations of the proposed pond are integrated into the existing conditions DEM, allowing for the elevations surrounding the pond to be consistent with existing conditions. In addition to the two existing surface water bodies control volumes, the proposed wet detention pond's control volume was added to the model. The existing grading did not change to make the improvements. See Sections **7-9** for Proposed Conditions Model ICPR Input and Results.

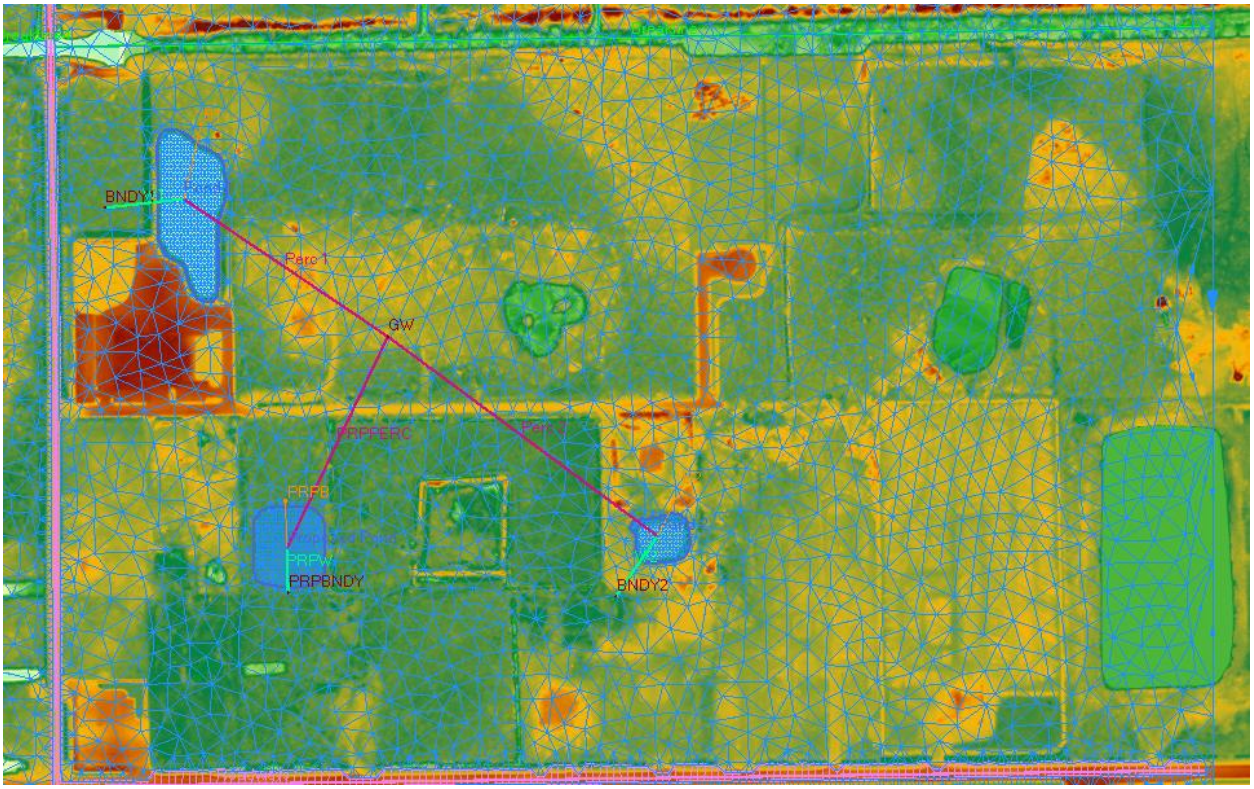


Figure 4: Proposed Conditions Model Schematic

SUMMARY OF RESULTS

In analysis of the groundwater mounding for each scenario, there are no significant impacts to the groundwater due to this proposed project. The maximum stages of the surrounding waterbodies are not impacted by these improvements

Scenario	Sim	Exist. Conditions Pond 1 Max Stage (FT)	Prop. Conditions Pond 1 Max Stage (FT)	Exist. Conditions Pond 2 Max Stage (FT)	Prop. Conditions Pond 2 Max Stage (FT)	Exist. Groundwater Inflow (cfs)	Prop. Groundwater Inflow (cfs)
Design Storm	25yr-72hr	14.75	14.75	14.49	14.49	0.71	1.47
Design Storm	100yr-72hr	14.93	14.93	14.65	14.65	0.85	1.76
Continuous Dry	25yr-72hr	14.75	14.75	14.49	14.49	0.71	1.47

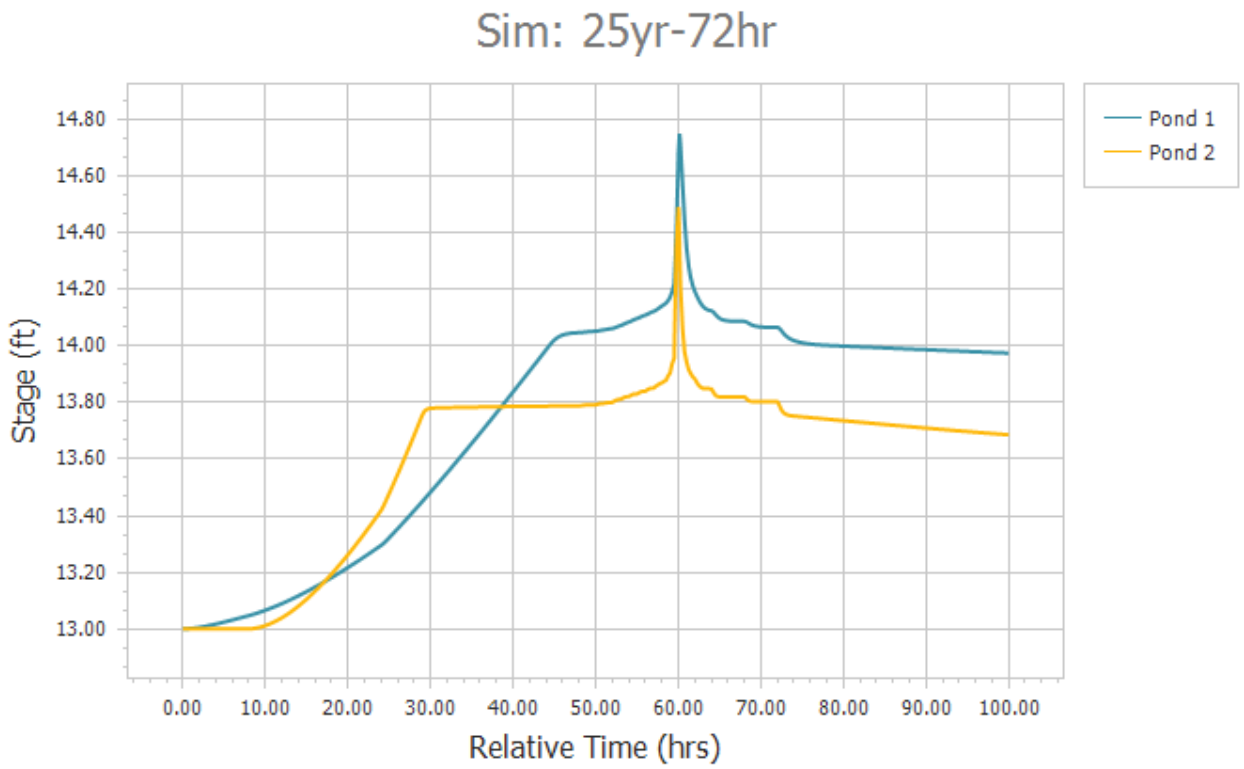


Figure 5: ECM 25 YR – 72 HR (Design) Node Stage Time Series

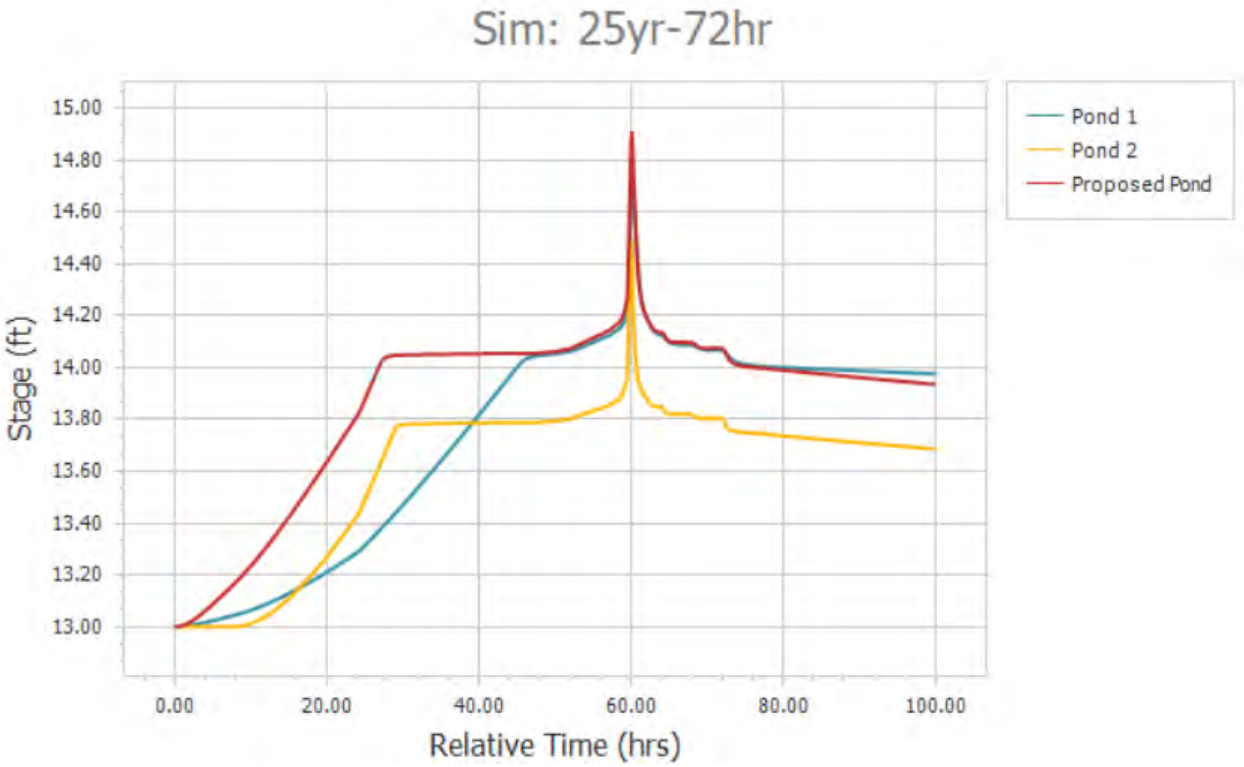


Figure 6: PCM 25 YR – 72 HR (Design) Node Stage Time Series

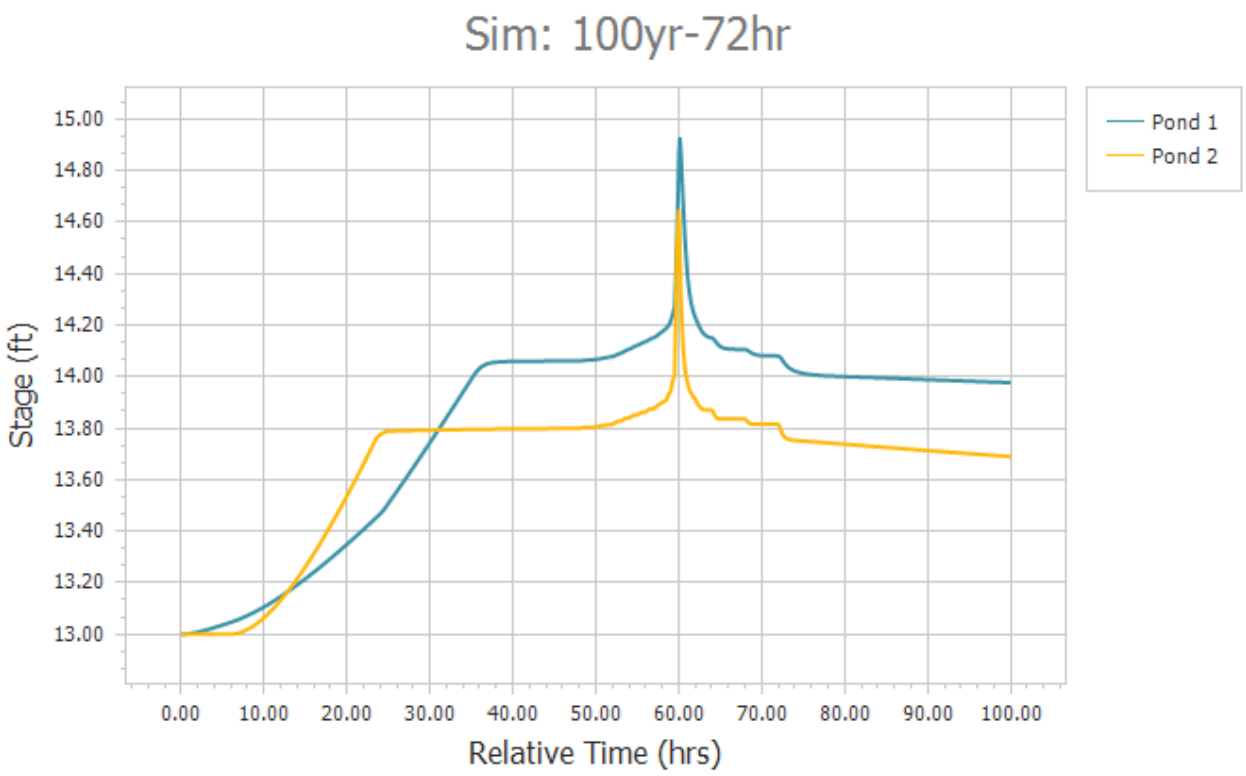


Figure 7: ECM 100 YR – 72 HR (Design) Node Stage Time Series

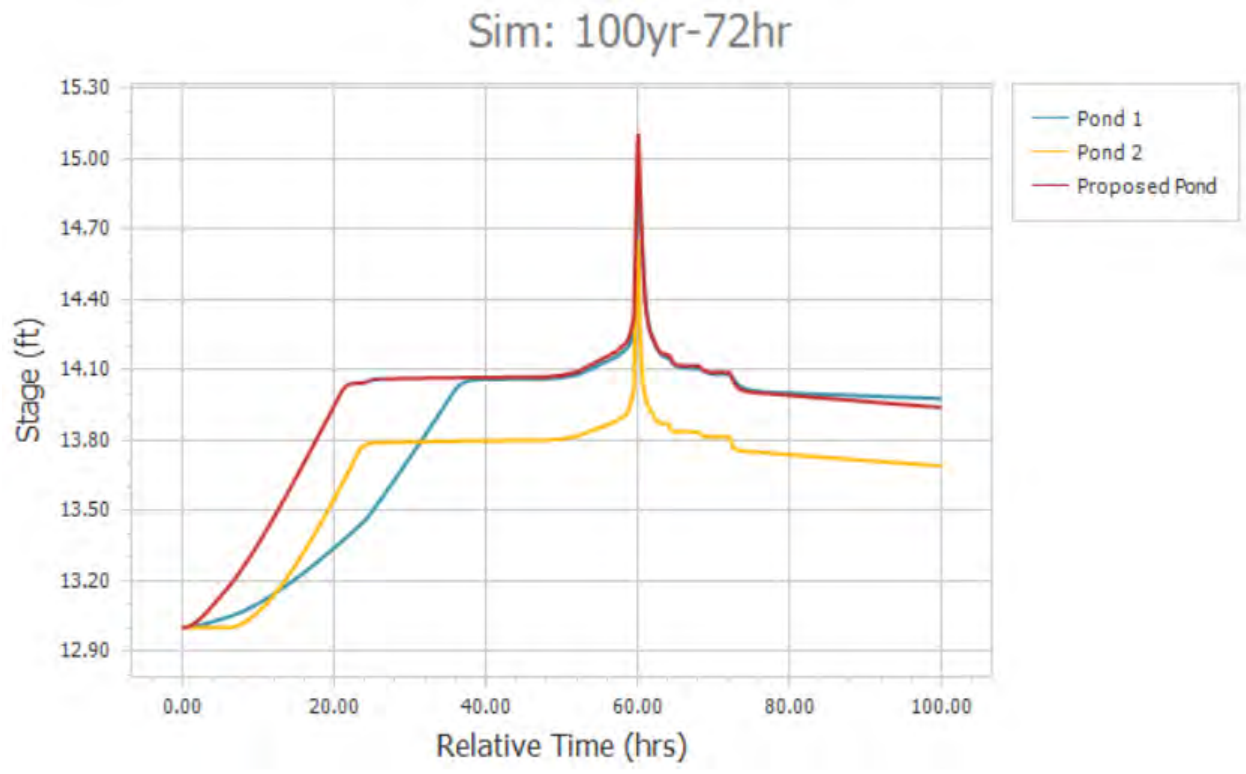


Figure 8: PCM 100 YR – 72 HR (Design) Node Stage Time Series

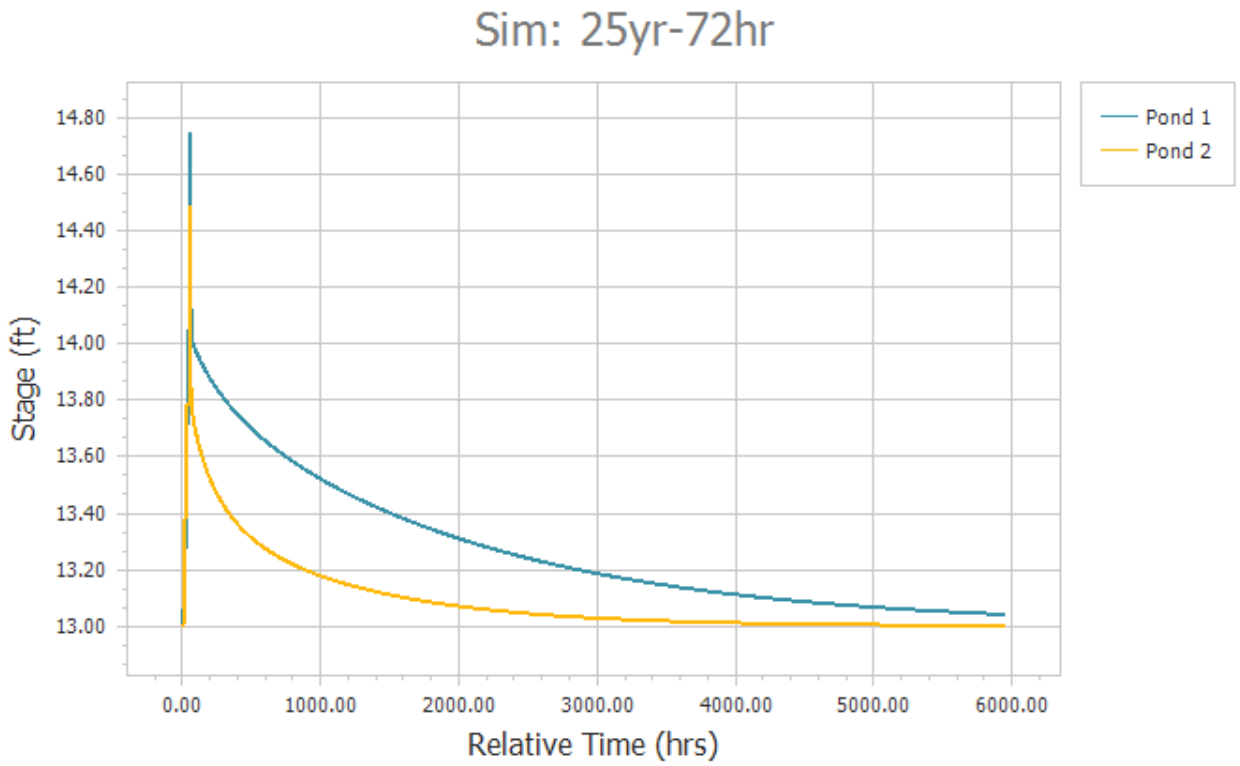


Figure 9: ECM 25 YR – 72 HR (Dry Continuous) Node Stage Time Series

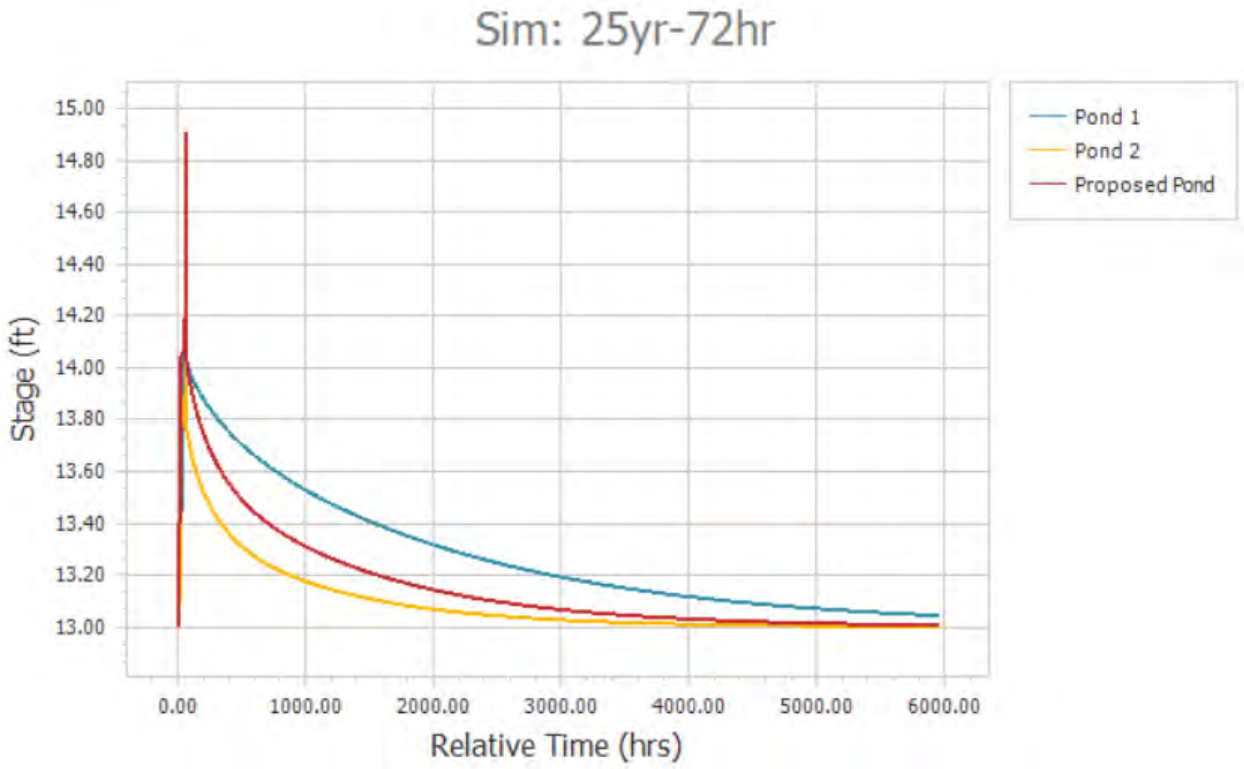


Figure 10: PCM 25 YR – 72 HR (Dry Continuous) Node Stage Time Series

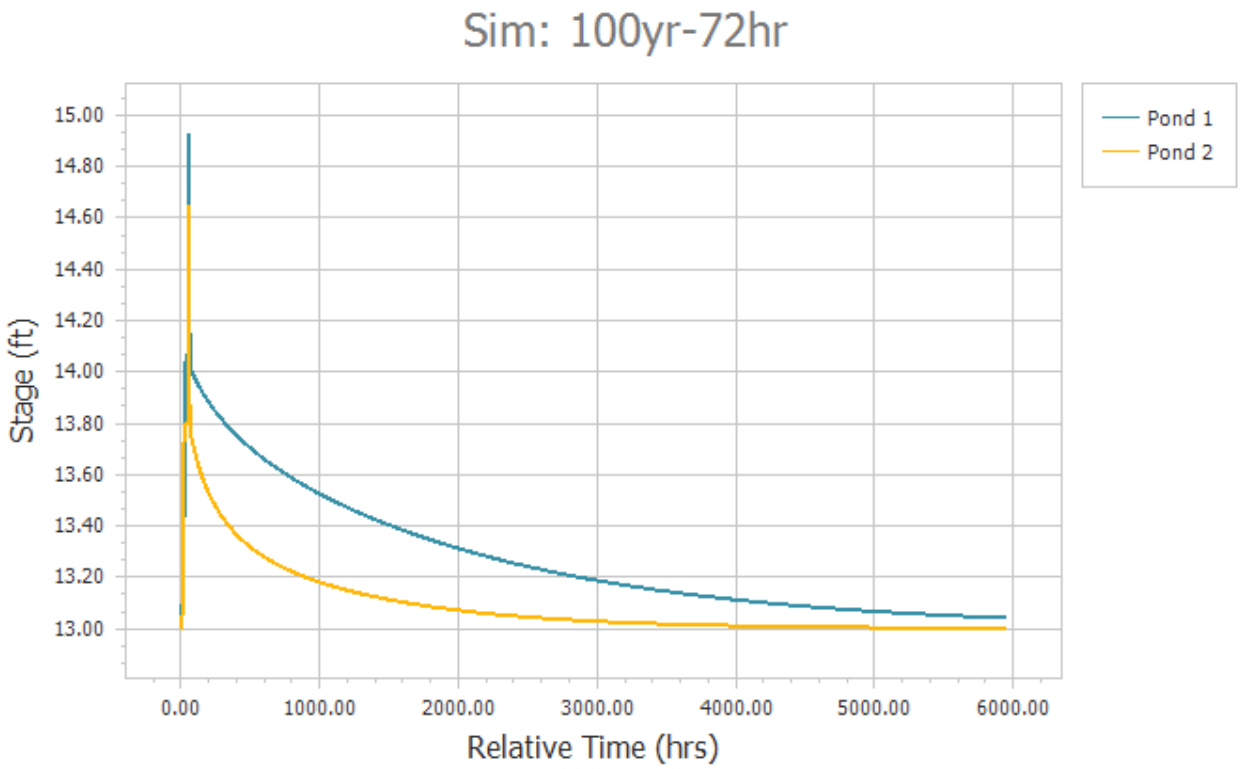


Figure 11: ECM 100 YR – 72 HR (Dry Continuous) Node Stage Time Series

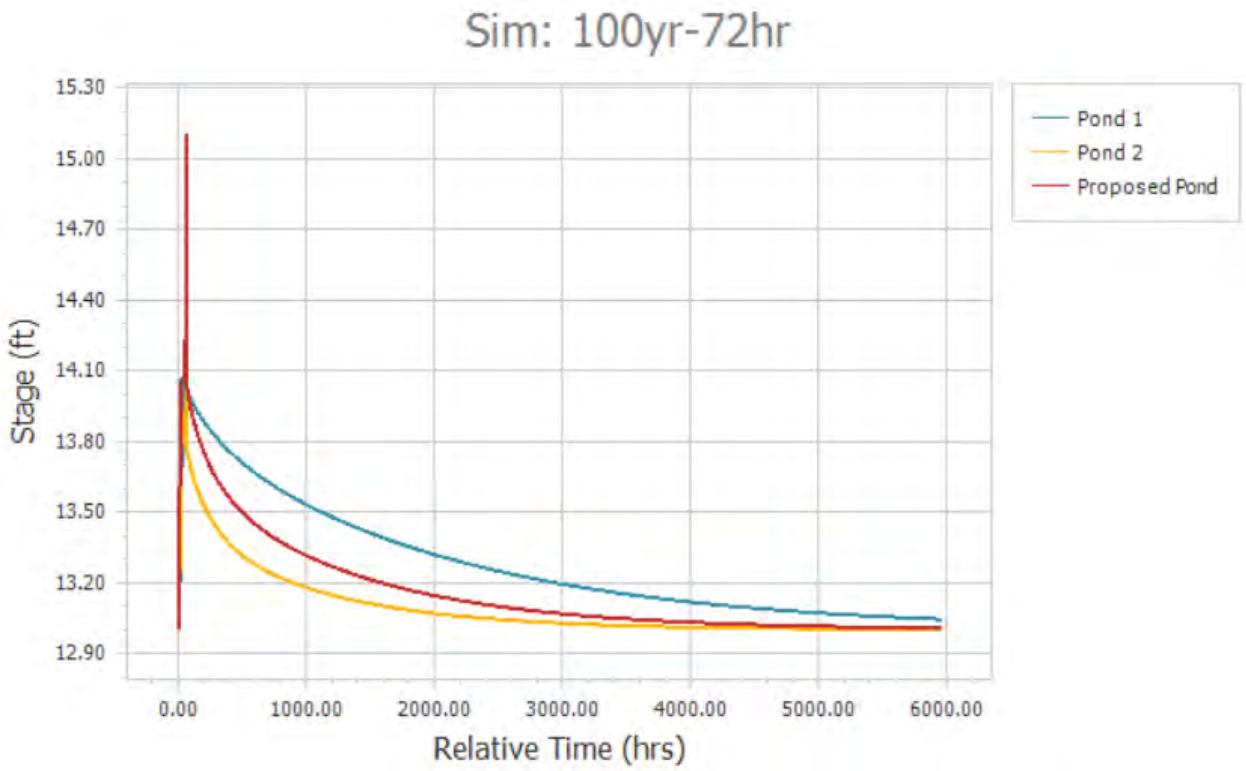
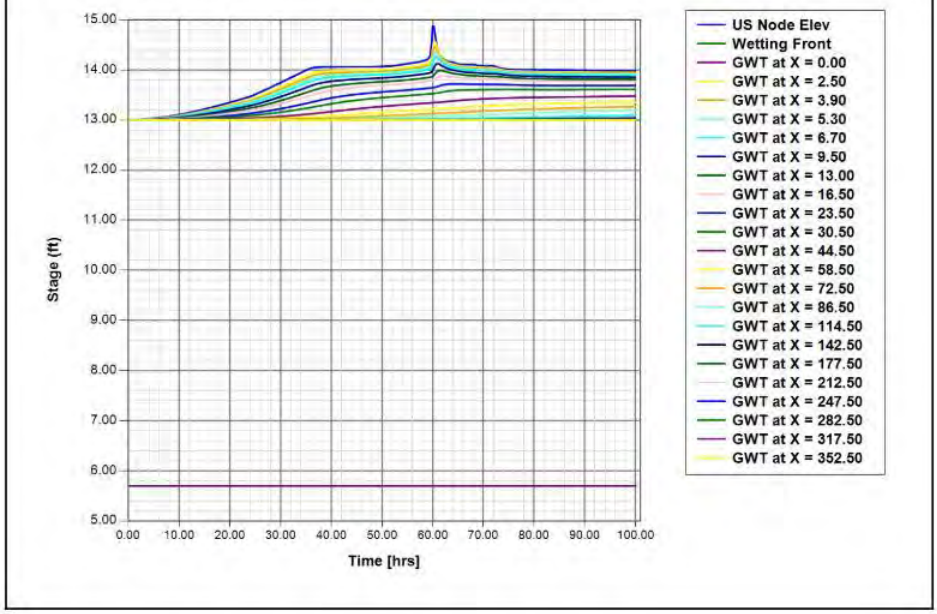


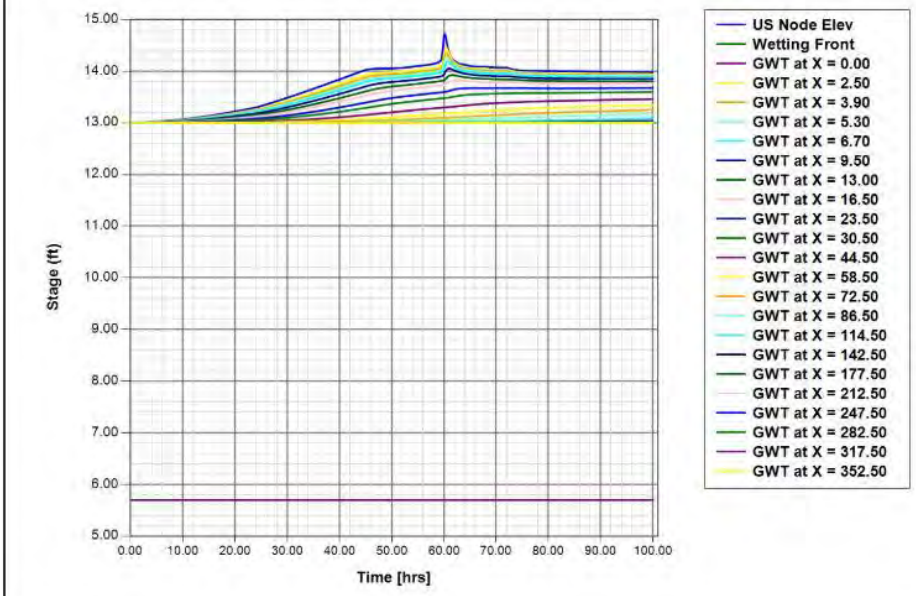
Figure 12: PCM 100 YR – 72 HR (Dry Continuous) Node Stage Time Series

EXISTING DESIGN/DRY CONTINUOUS GROUNDWATER MOUNDING REPORT

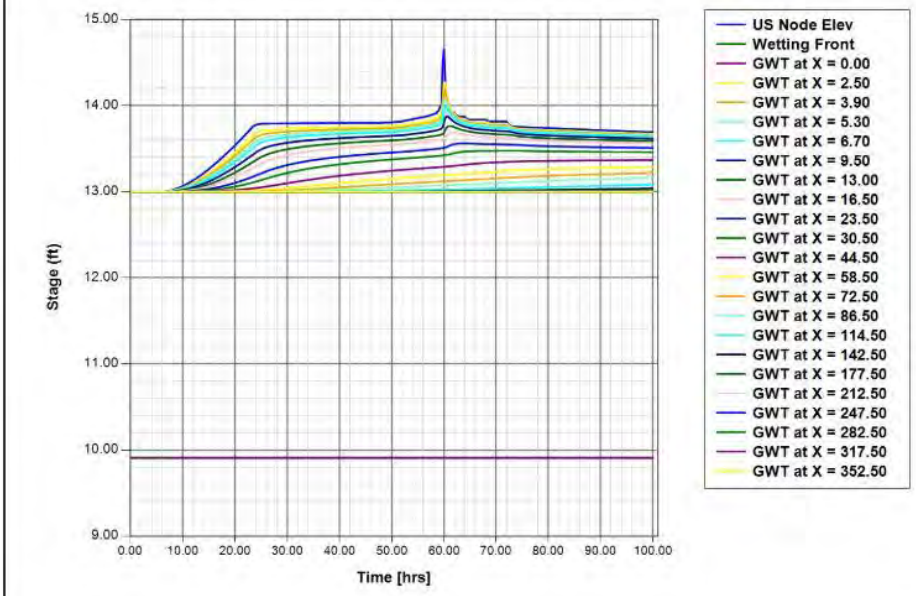
Perc Link: Perc 1 (Sim: 100yr-72hr) [Design Storm]



Perc Link: Perc 1 (Sim: 25yr-72hr) [Design Storm]



Perc Link: Perc 2 (Sim: 100yr-72hr) [Design Storm]



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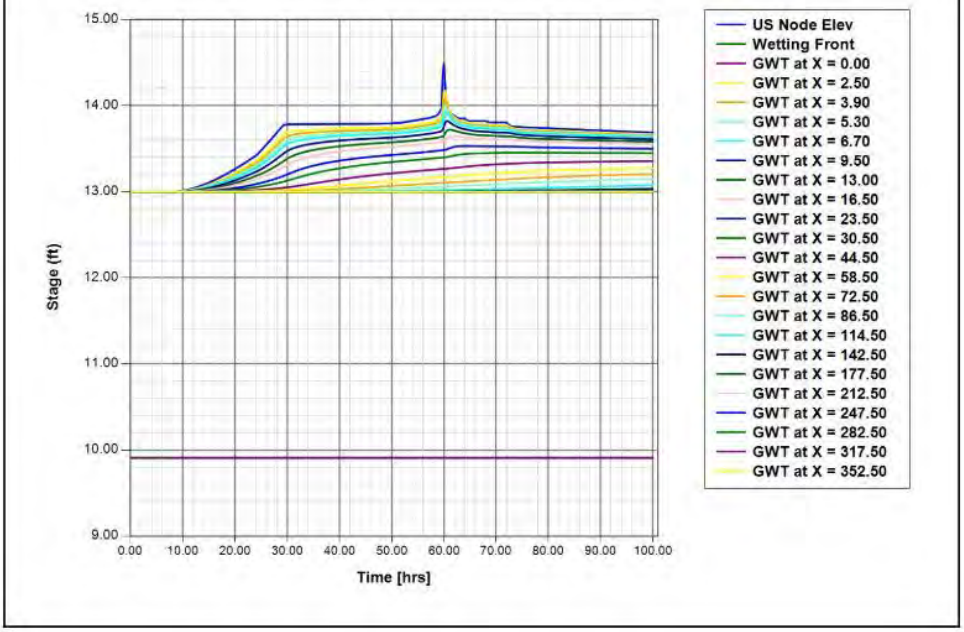

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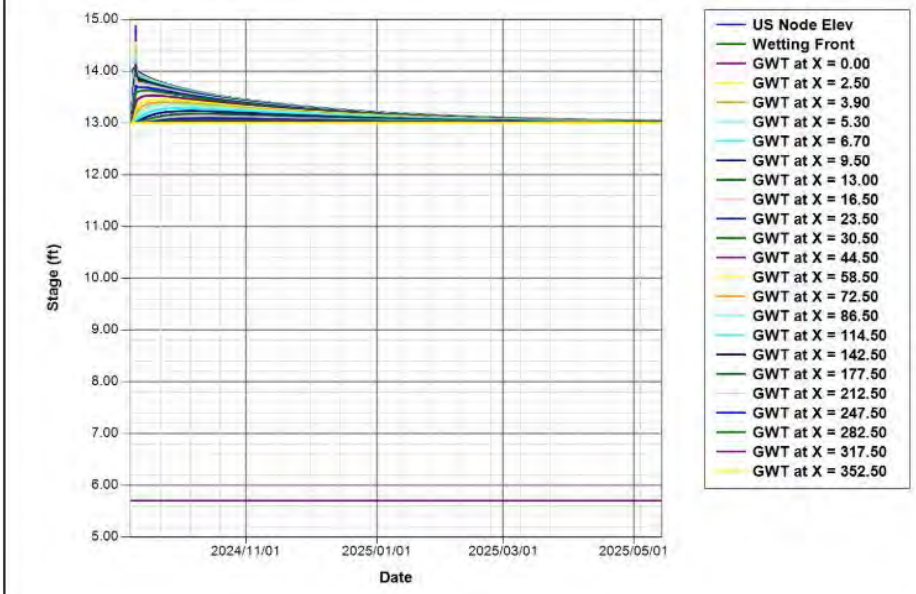

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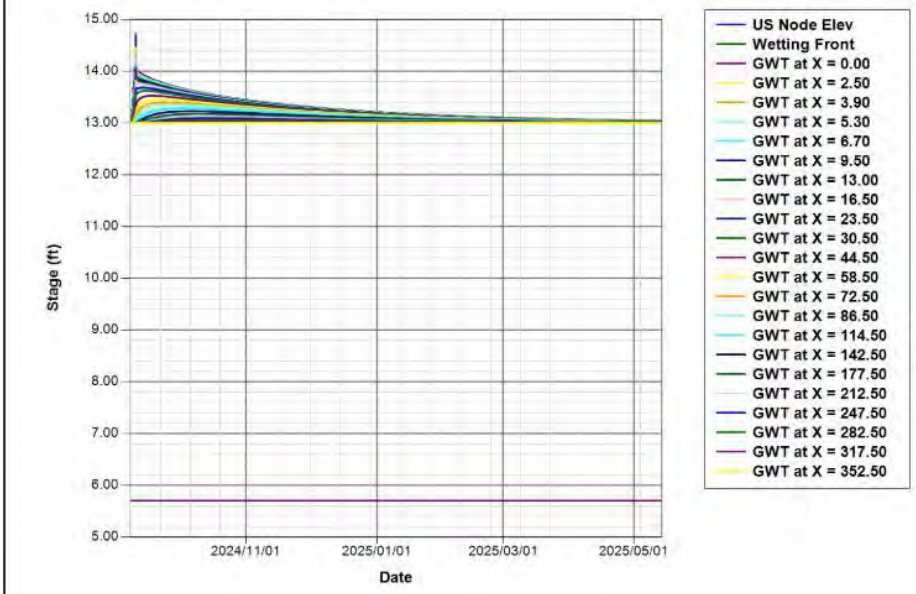

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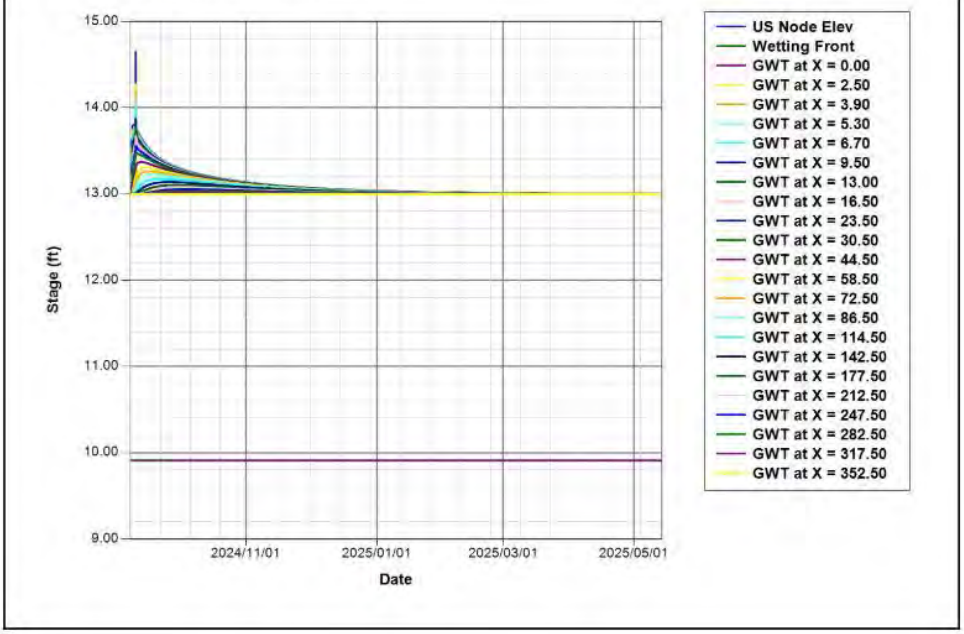

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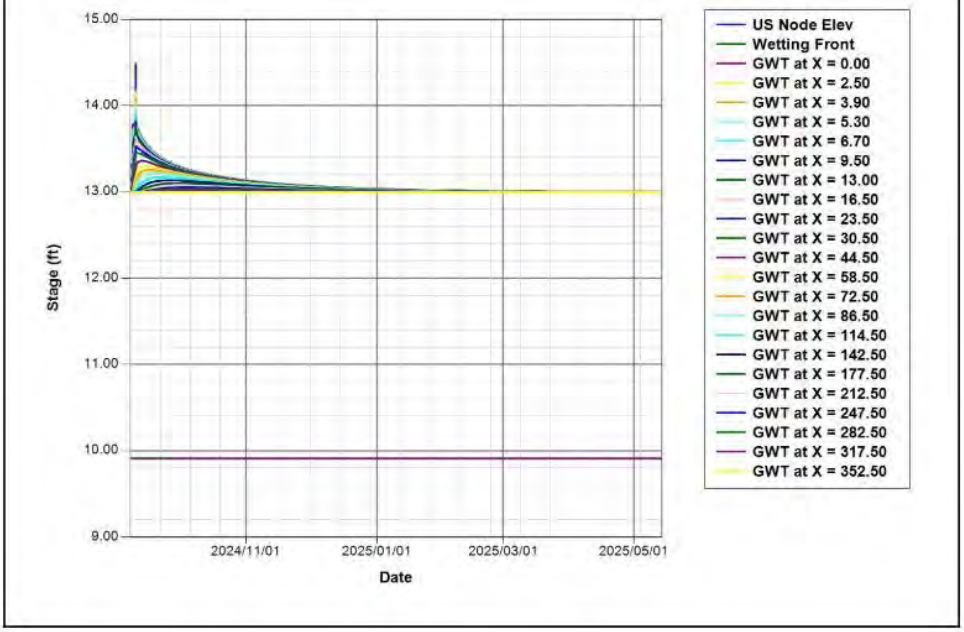
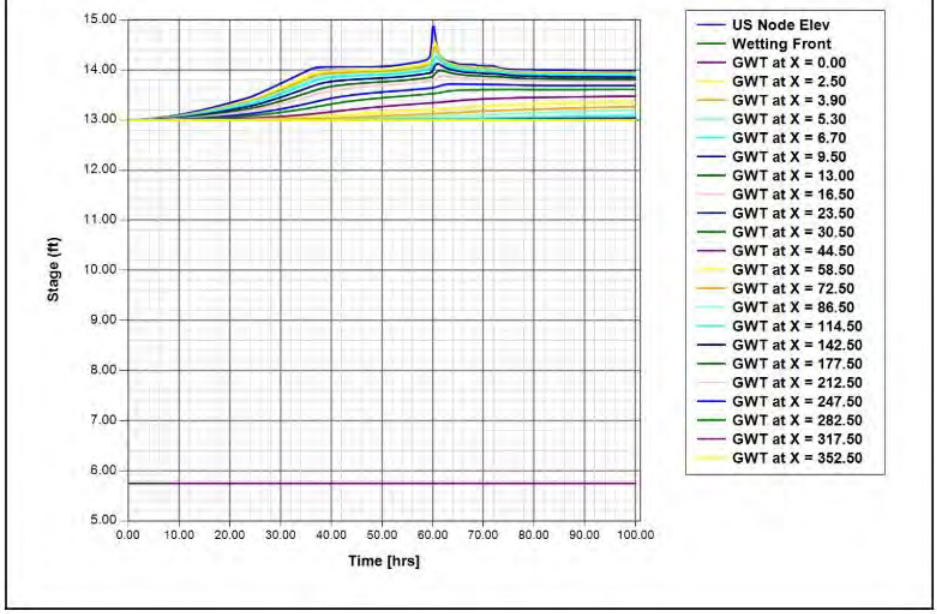


PROPOSED DESIGN/DRY CONTINUOUS GROUNDWATER MOUNDING REPORT

Perc Link: Perc 1 (Sim: 100yr-72hr) [Design]



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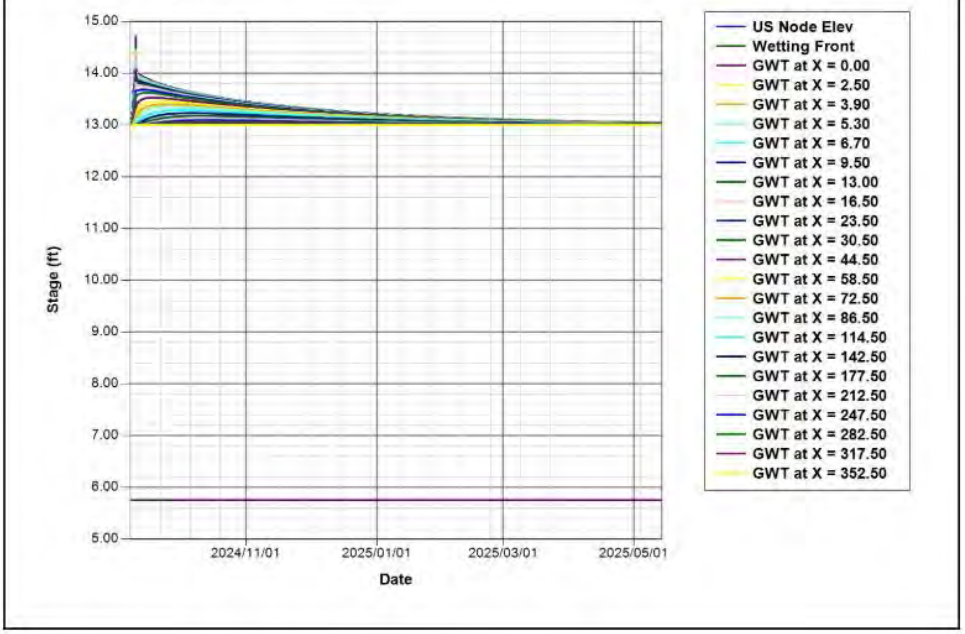

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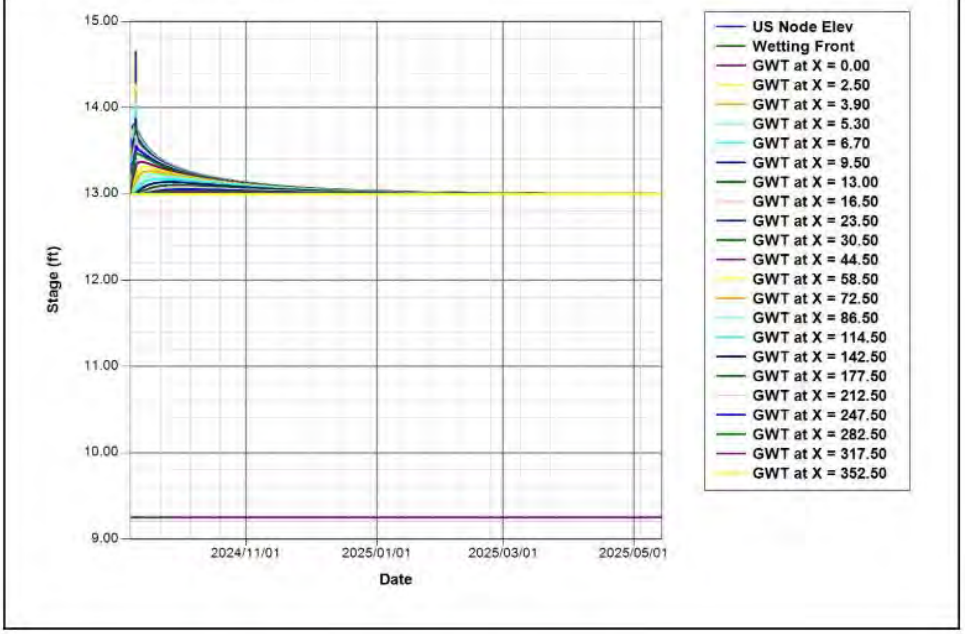
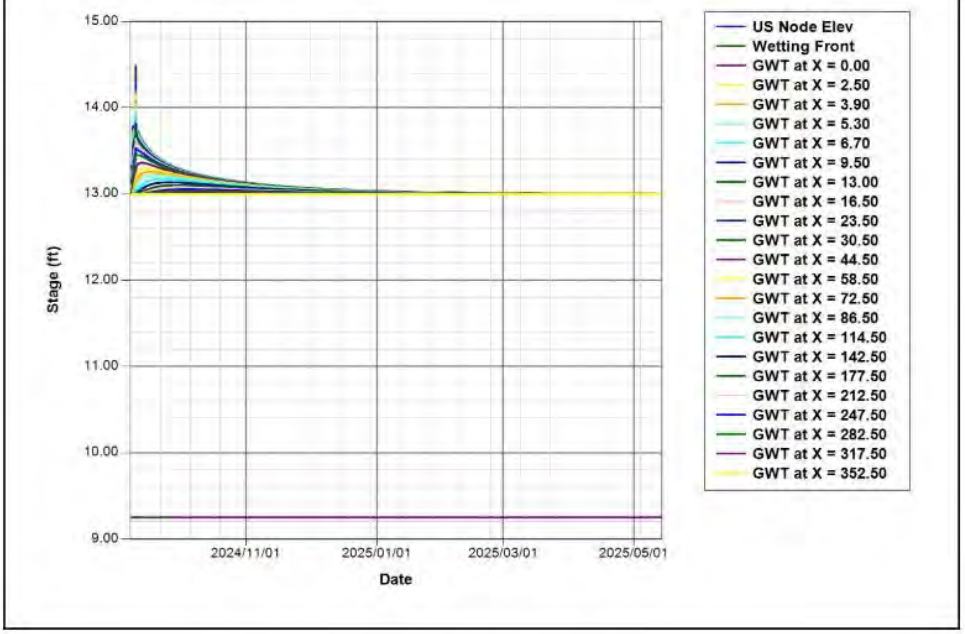
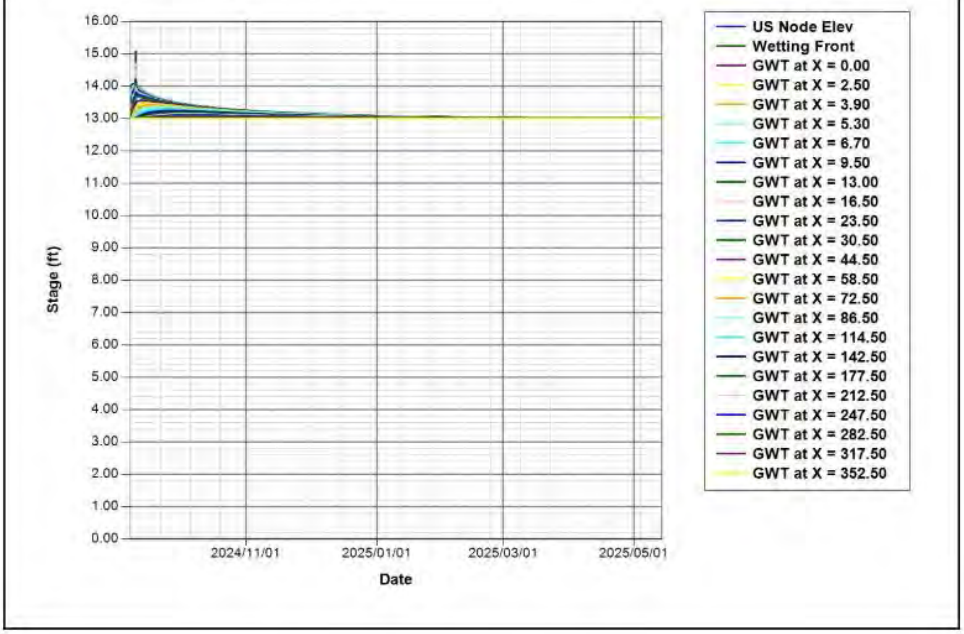


Perc Link: Perc 2 (Sim: 25yr-72hr) [Dry]



Perc Link: PRPPERC (Sim: 100yr-72hr) [Dry]



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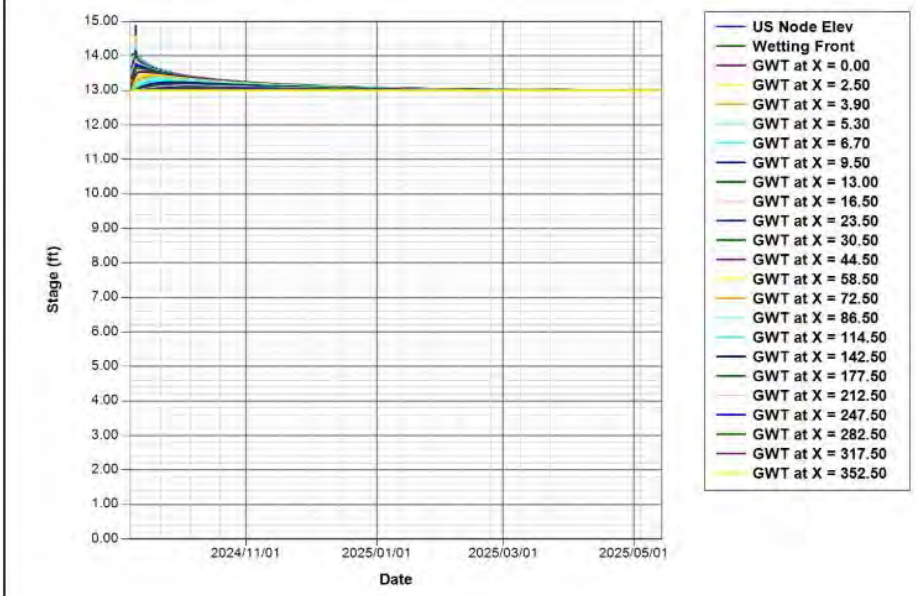

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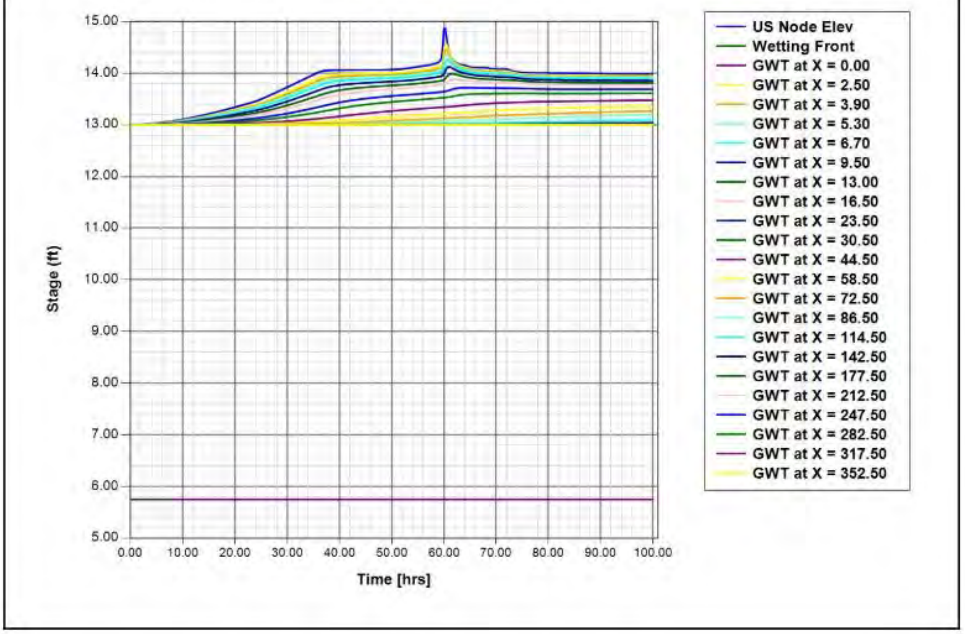
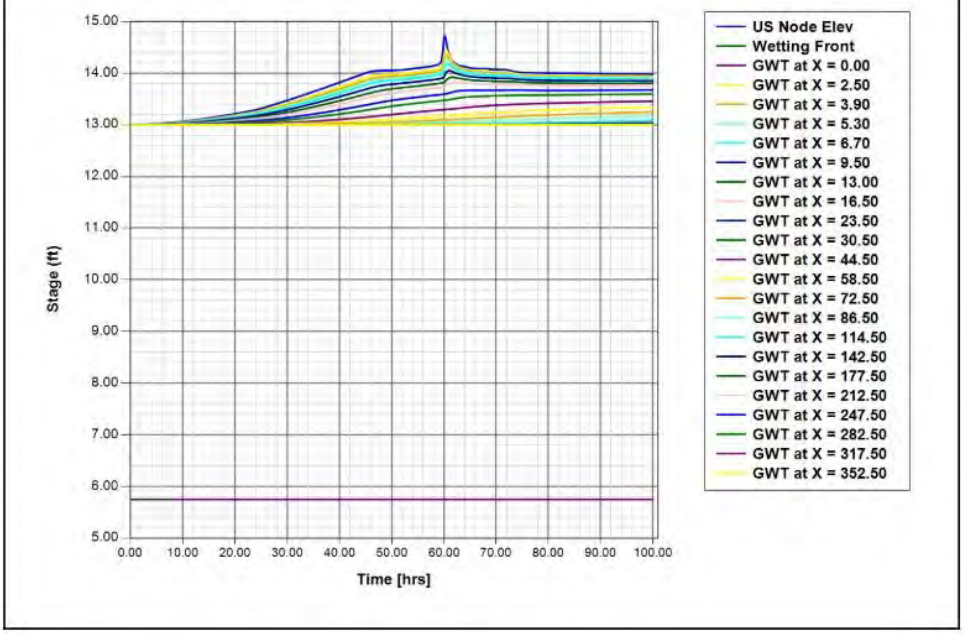
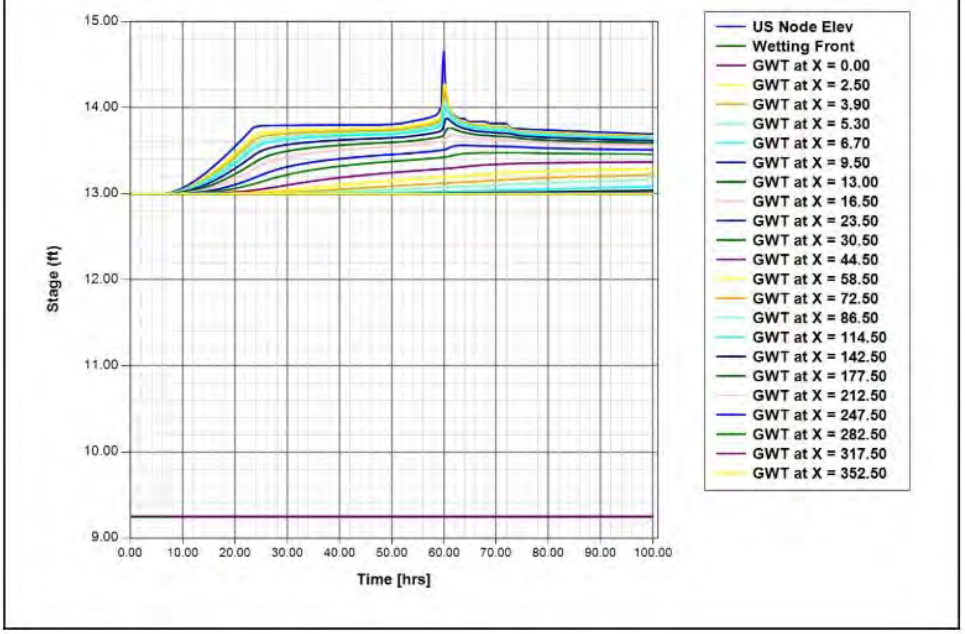


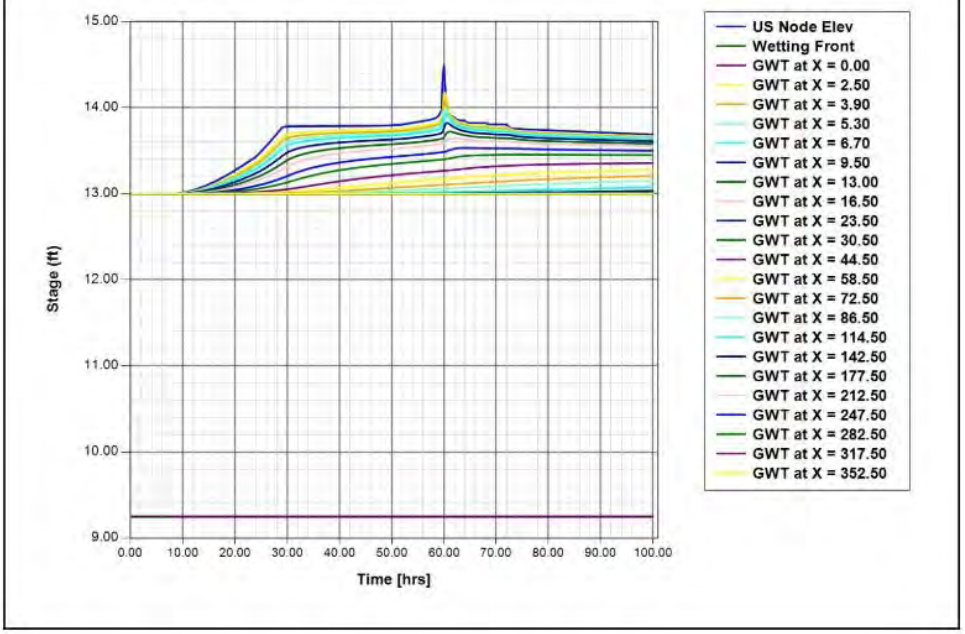
Perc Link: Perc 1 (Sim: 25yr-72hr) [Design]



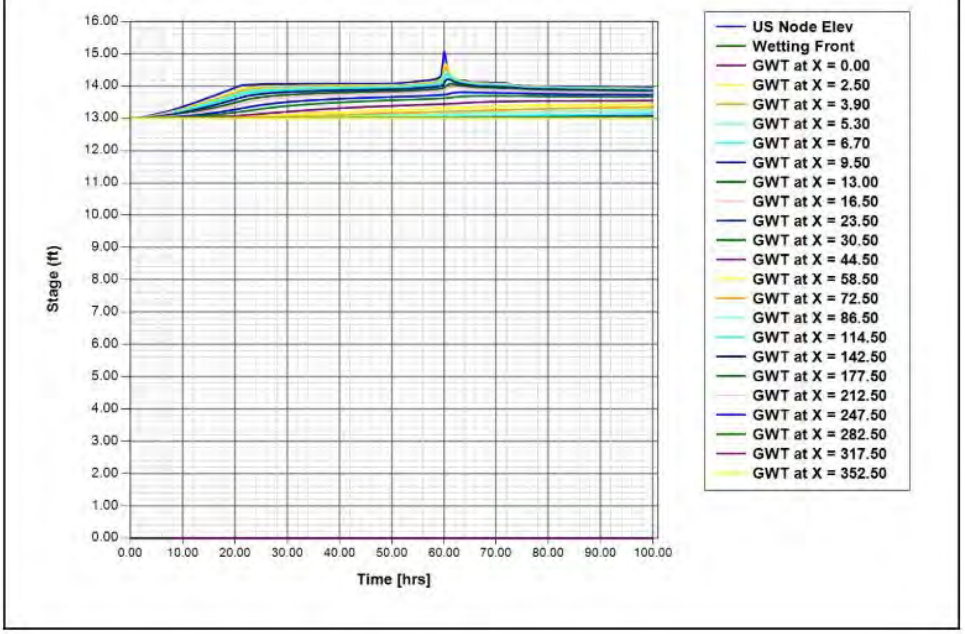
Perc Link: Perc 2 (Sim: 100yr-72hr) [Design]



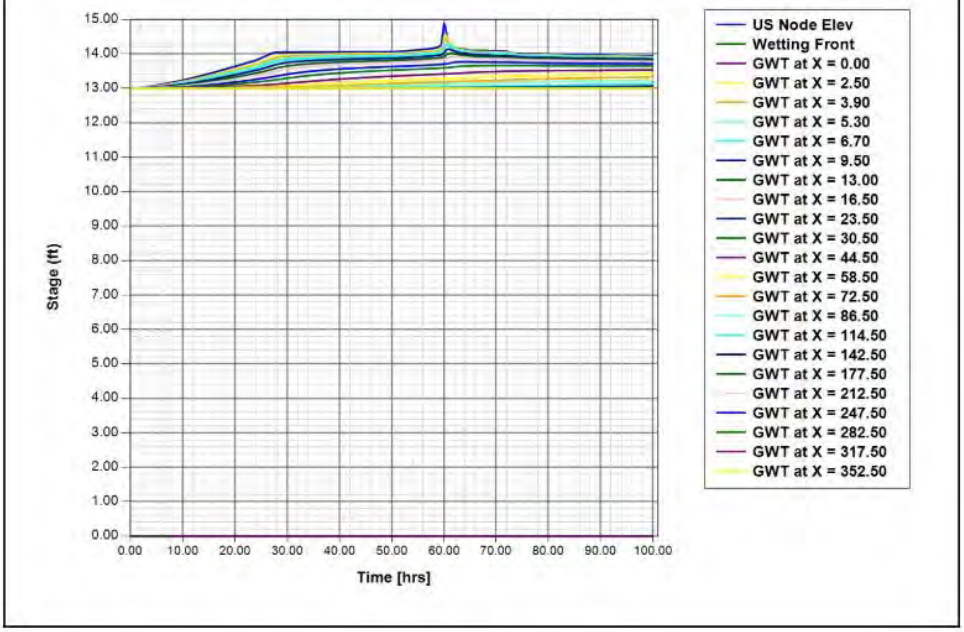
Perc Link: Perc 2 (Sim: 25yr-72hr) [Design]



Perc Link: PRPPERC (Sim: 100yr-72hr) [Design]



Perc Link: PRPPERC (Sim: 25yr-72hr) [Design]



3. EXHIBITS

A. Lee County Property Information
B. Soil Report
    SCS-Soil Survey
    Lee County Soil Survey
C. Flood Map
D. Rainfall Maps

EXHIBIT A – LEE COUNTY PROPERTY INFORMATION

Property Data

STRAP: 32-47-26-00-00001.0250 Folio ID: 10353746

Tax Roll Value Letter 2025

Generated on 10/13/2025 11:49 AM

Owner Of Record - Sole Owner
[Change Mailing Address]

MANNA CHRISTIAN MISSIONS INC
10421 PENNSYLVANIA AVE
BONITA SPRINGS FL 34135

Site Address
Site Address maintained by E911 Program Addressing

13150 SNELL LN
BONITA SPRINGS FL 34135

Property Description
Do not use for legal documents!

W 1/2 OF NE 1/4 OF SW 1/4 OF SW 1/4 LESS N25FT RD R/W

Attributes and Location Details

Total Bedrooms / Bathrooms	0
1st Year Building on Tax Roll	N/A
Historic Designation	No

Township	Range	Section	Block	Lot
47	26E	32		
Municipality	**Latitude**	**Longitude**		
Lee County Unincorporated - 0	26.33439	-81.73602		

View Parcel on Google Maps

[Tax Map Viewer] [View Comparables]

[Pictometry Aerial Viewer]

Image of Structure

Property Values / Exemptions / TRIM Notices

Generated on 10/13/2025 11:49 AM

No existing exemptions found for this property.

TRIM Notices	Tax Year	Just	Land	Market Assessed	Capped Assessed	Exemptions	Classified Use	Taxable
2025 / Additional Info	2025 (Final Value)	665,000	665,000	665,000	665,000	0	0	665,000
2024 / Additional Info	2024 (Final Value)	665,000	665,000	665,000	665,000	0	0	665,000
2023 / Additional Info	2023 (Final Value)	5,049	5,049	5,049	5,049	0	0	5,049
2022 / Additional Info	2022 (Final Value)	5,000	5,000	5,000	5,000	0	0	5,000
2021 / Additional Info	2021 (Final Value)	5,000	5,000	5,000	5,000	0	0	5,000

2020 / Additional Info	2020 (Final Value)	5,000	5,000	5,000	5,000	0	0	5,000
2019 / Additional Info	2019 (Final Value)	5,000	5,000	5,000	5,000	0	0	5,000
2018 / Additional Info	2018 (Final Value)	5,000	5,000	5,000	5,000	0	0	5,000
2017 / Additional Info	2017 (Final Value)	44,251	44,251	44,251	5,500	0	0	5,500
2016	2016 (Final Value)	5,000	5,000	5,000	5,000	0	0	5,000
2015	2015 (Final Value)	5,000	5,000	5,000	5,000	0	0	5,000
2014	2014 (Final Value)	5,000	5,000	5,000	5,000	5,000	0	0
2013	2013 (Final Value)	5,000	5,000	5,000	5,000	5,000	0	0
2012	2012 (Final Value)	5,000	5,000	5,000	5,000	5,000	0	0
2011	2011 (Final Value)	5,000	5,000	5,000	5,000	5,000	0	0
2010	2010 (Final Value)	25,000	25,000	25,000	25,000	25,000	0	0
	2009 (Final Value)	25,000	25,000	25,000	25,000	25,000	0	0
	2008 (Final Value)	25,000	25,000	25,000	25,000	25,000	0	0
	2007 (Final Value)	25,000	25,000	0	25,000	25,000	0	0
	2006 (Final Value)	5,000	5,000	0	5,000	5,000	0	0
	2005 (Final Value)	70,000	70,000	0	70,000	70,000	0	0
	2004 (Final Value)	60,000	60,000	0	60,000	60,000	0	0
	2003 (Final Value)	45,000	45,000	0	45,000	45,000	0	0
	2002 (Final Value)	25,500	25,500	0	25,500	25,500	0	0
	2001 (Final Value)	21,000	21,000	0	21,000	21,000	0	0
	2000 (Final Value)	21,000	21,000	0	21,000	0	0	21,000
	1999 (Final Value)	21,000	21,000	0	21,000	0	0	21,000
	1998 (Final Value)	21,000	21,000	0	21,000	0	0	21,000
	1997 (Final Value)	21,000	21,000	0	21,000	0	0	21,000
	1996 (Final Value)	21,000	21,000	0	21,000	0	0	21,000
	1995 (Final Value)	25,000	25,000	0	25,000	0	0	25,000
	1994 (Final Value)	25,000	25,000	0	25,000	0	0	25,000
	1993 (Final Value)	25,000	25,000	0	25,000	0	0	25,000
	1992 (Final Value)	25,000	25,000	0	25,000	0	0	25,000

The **Just** value is the total parcel assessment (less any considerations for the cost of sale). This is the closest value to *Fair Market Value* we produce and is dated as of January 1st of the tax year in question (F.A.C. 12D-1.002).

The **Land** value is the portion of the total parcel assessment attributed to the land.

The **Market Assessed** value is the total parcel assessment (less any considerations for the cost of sale) based upon the assessment standard. Most parcels are assessed based either upon the *Highest and Best Use* standard or the *Present Use* standard (*F.S. 193.011*) . For *Agriculturally Classified* parcels (or parts thereof), only agricultural uses are considered in the assessment (*F.S. 193.461 (6) (a)*). The difference between the *Highest and Best Use/Present Use* and the *Agricultural Use* is often referred to as the *Agricultural Exemption*.
(i.e. Market Assessed = Just - Agricultural Exemption)

The **Capped Assessed** value is the *Market Assessment* after any *Save Our Homes* or *10% Assessment Limitation* cap is applied. This assessment cap is applied to all properties and limits year-to-year assessment increases to either the *Consumer Price Index* or 3%, whichever is lower for Homestead properties OR 10% for non-Homestead properties.

The **Exemptions** value is the total amount of all exemptions on the parcel.

The **Taxable** value is the *Capped Assessment* after exemptions (*Homestead, etc.*) are applied to it. This is the value that most taxing authorities use to calculate a parcel's taxes.
(i.e. Taxable = Capped Assessed - Exemptions)

Property Details (Current as of 10/12/2025)

Generated on 10/13/2025 11:49 AM

Land

Land Tracts

Use Code	Use Code Description	Number of Units	Unit of Measure
0	Vacant Residential	4.75	Acres

Property Details (2025 Tax Roll)

Generated on 10/13/2025 11:49 AM

Land

Land Tracts

Use Code	Use Code Description	Number of Units	Unit of Measure
0	Vacant Residential	4.75	Acres

Taxing Authorities

Generated on 10/13/2025 11:49 AM

BONITA SPRINGS FIRE / 086

Name / Code	Category	Mailing Address
LEE CO GENERAL REVENUE / 044	County	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
LEE CO ALL HAZARDS PROTECTION DIST / 101	Dependent District	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
LEE CO UNINCORPORATED MSTU / 020	Dependent District	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
LEE COUNTY LIBRARY DIST / 052	Dependent District	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
BONITA SPRINGS FIRE DISTRICT / 009	Independent District	BONITA SPRINGS FIRE 27701 BONITA GRANDE DR BONITA SPRINGS FL 34135
LEE CO HYACINTH CONTROL DIST / 051	Independent District	LEE CO HYACINTH CONTROL DIST 15191 HOMESTEAD RD LEHIGH ACRES FL 33971
LEE CO MOSQUITO CONTROL DIST / 053	Independent District	LEE CO MOSQUITO CONTROL DIST 15191 HOMESTEAD RD LEHIGH ACRES FL 33971
WEST COAST INLAND NAVIGATION DIST / 098	Independent District	WEST COAST INLAND NAVIGATION DIST 200 MIAMI AVE E VENICE FL 34285-2408
PUBLIC SCHOOL - BY LOCAL BOARD / 012	Public Schools	LEE COUNTY SCHOOL BOARD BUDGET DEPARTMENT 2855 COLONIAL BLVD FORT MYERS FL 33966
PUBLIC SCHOOL - BY STATE LAW / 013	Public Schools	LEE COUNTY SCHOOL BOARD BUDGET DEPARTMENT 2855 COLONIAL BLVD FORT MYERS FL 33966
GREEN CORRIDOR PACE / 363	Special District	
SFWMD-DISTRICT-WIDE / 110	Water District	SFWMD 3301 GUN CLUB RD WEST PALM BEACH FL 33406
SFWMD-EVERGLADES CONSTRUCTION PROJECT / 084	Water District	SFWMD 3301 GUN CLUB RD WEST PALM BEACH FL 33406
SFWMD-OKEECHOBEE BASIN / 308	Water District	SFWMD 3301 GUN CLUB RD WEST PALM BEACH FL 33406

Sales / Transactions

Generated on 10/13/2025 11:49 AM

Sale Price	Date	Clerk File Number	Type	Notes	Vacant/ Improved
500,000.00	03/23/2023	2023000109696	17		V
65,000.00	07/10/2014	2014000182216	11		V
0.00	06/17/2014	2014000182219	11		V
0.00	01/14/2014	2014000011631	11		V

100.00	01/12/2001	3353/4189	03	V
0.00	05/01/1983	1679/3178	01	V
0.00	05/01/1983	1679/3177	01	V

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Building / Construction Permit Data

Generated on 10/13/2025 11:49 AM

Permit Number	Permit Type	Date

IMPORTANT: THIS MAY NOT BE A COMPREHENSIVE OR TIMELY LISTING OF PERMITS ISSUED FOR THIS PROPERTY.

Note: The Lee County Property Appraiser's Office does not issue or maintain any permit information. The Building / Construction permit data displayed here represents only those records this Office may find necessary to conduct Property Appraiser business. Use of this information is with the understanding that in no way is this to be considered a comprehensive listing of permits for this or any other parcel.

The Date field represents the date the property appraiser received information regarding permit activity; it may or not represent the actual date of permit issuance or completion.

Full, accurate, active and valid permit information for parcels can only be obtained from the appropriate permit issuing agency.

Solid Waste (Garbage) Roll Data

Generated on 10/13/2025 11:49 AM

Solid Waste District	Roll Type	Category	Unit / Area	Tax Amount
001 - Service Area 1	-		0	0.00

Collection Days

Garbage	Recycling	Horticulture
Monday	Monday	Monday

Flood and Storm Information

Generated on 10/13/2025 11:49 AM

Flood Insurance Find my flood zone

Community	Panel	Version	Date	Evacuation Zone
071C	0678	F	8/28/2008	C

Generated on 10/13/2025 11:49 AM

Property Data

STRAP: 32-47-26-00-00001.021C Folio ID: 10353744

Tax Roll Value Letter 2025

Generated on 10/13/2025 11:48 AM

Owner Of Record - Sole Owner
[Change Mailing Address]

MANNA CHRISTIAN
10421 PENNSYLVANIA AVE
BONITA SPRINGS FL 34135

Site Address
Site Address maintained by E911 Program Addressing

13140 BONITA BEACH RD SE
BONITA SPRINGS FL 34135

Property Description
Do not use for legal documents!

W 1/2 OF SE 1/4 OF SW 1/4 OF SW 1/4 FR 32-47-26-00-00001.021B

Attributes and Location Details

Total Bedrooms / Bathrooms	0
1st Year Building on Tax Roll	N/A
Historic Designation	No

Township	Range	Section	Block	Lot
47	26E	32		
Municipality	**Latitude**	**Longitude**		
Lee County Unincorporated - 0	26.33262	-81.736		

View Parcel on Google Maps

[Tax Map Viewer] [View Comparables]

[Pictometry Aerial Viewer]

Image of Structure

Property Values / Exemptions / TRIM Notices

Generated on 10/13/2025 11:48 AM

No existing exemptions found for this property.

TRIM Notices	Tax Year	Just	Land	Market Assessed	Capped Assessed	Exemptions	Classified Use	Taxable
2025 / Additional Info	2025 (Final Value)	31,119	31,119	31,119	31,119	0	0	31,119
2024 / Additional Info	2024 (Final Value)	31,129	31,129	31,129	31,129	0	0	31,129
2023 / Additional Info	2023 (Final Value)	32,825	32,825	32,825	30,250	0	0	30,250
2022 / Additional Info	2022 (Final Value)	32,500	32,500	32,500	27,500	0	0	27,500
2021 / Additional Info	2021 (Final Value)	25,000	25,000	25,000	25,000	0	0	25,000

2020 / Additional Info	2020 (Final Value)	25,000	25,000	25,000	25,000	0	0	25,000
2019 / Additional Info	2019 (Final Value)	25,000	25,000	25,000	25,000	0	0	25,000
2018 / Additional Info	2018 (Final Value)	25,000	25,000	25,000	25,000	0	0	25,000
2017 / Additional Info	2017 (Final Value)	43,282	43,282	43,282	27,500	0	0	27,500
2016	2016 (Final Value)	25,000	25,000	25,000	25,000	0	0	25,000
2015	2015 (Final Value)	25,000	25,000	25,000	25,000	0	0	25,000
2014	2014 (Final Value)	25,000	25,000	25,000	25,000	0	0	25,000
2013	2013 (Final Value)	25,000	25,000	25,000	25,000	0	0	25,000
2012	2012 (Final Value)	25,000	25,000	25,000	25,000	0	0	25,000
2011	2011 (Final Value)	25,000	25,000	25,000	25,000	0	0	25,000
2010	2010 (Final Value)	100,000	100,000	100,000	100,000	0	0	100,000
	2009 (Final Value)	125,000	125,000	125,000	125,000	0	0	125,000
	2008 (Final Value)	175,000	175,000	175,000	175,000	0	0	175,000
	2007 (Final Value)	525,000	525,000	0	525,000	0	0	525,000
	2006 (Final Value)	525,000	525,000	0	525,000	0	0	525,000
	2005 (Final Value)	70,000	70,000	0	70,000	0	0	70,000
	2004 (Final Value)	95,000	95,000	0	95,000	0	0	95,000
	2003 (Final Value)	45,000	45,000	0	45,000	0	0	45,000
	2002 (Final Value)	27,000	27,000	0	27,000	0	0	27,000
	2001 (Final Value)	25,000	25,000	0	25,000	0	0	25,000
	2000 (Final Value)	25,000	25,000	0	25,000	0	0	25,000
	1999 (Final Value)	25,000	25,000	0	25,000	0	0	25,000
	1998 (Final Value)	25,000	25,000	0	25,000	0	0	25,000
	1997 (Final Value)	33,600	33,600	0	33,600	0	0	33,600
	1996 (Final Value)	33,600	33,600	0	33,600	0	0	33,600
	1995 (Final Value)	40,000	40,000	0	40,000	0	0	40,000
	1994 (Final Value)	40,000	40,000	0	40,000	0	0	40,000
	1993 (Final Value)	40,000	40,000	0	40,000	0	0	40,000
	1992 (Final Value)	40,000	40,000	0	40,000	0	0	40,000

The **Just** value is the total parcel assessment (less any considerations for the cost of sale). This is the closest value to *Fair Market Value* we produce and is dated as of January 1st of the tax year in question (F.A.C. 12D-1.002).

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(i.e. Market Assessed = Just - Agricultural Exemption)

The **Capped Assessed** value is the *Market Assessment* after any *Save Our Homes* or *10% Assessment Limitation* cap is applied. This assessment cap is applied to all properties and limits year-to-year assessment increases to either the *Consumer Price Index* or 3%, whichever is lower for Homestead properties OR 10% for non-Homestead properties.

The **Exemptions** value is the total amount of all exemptions on the parcel.

The **Taxable** value is the *Capped Assessment* after exemptions (*Homestead, etc.*) are applied to it. This is the value that most taxing authorities use to calculate a parcel's taxes.
(i.e. Taxable = Capped Assessed - Exemptions)

Property Details (Current as of 10/12/2025)

Generated on 10/13/2025 11:48 AM

Land

Land Tracts

Use Code	Use Code Description	Number of Units	Unit of Measure
0	Vacant Residential	4.56	Acres
9671	informal determination of wetlands	0.20	Acres

Property Details (2025 Tax Roll)

Generated on 10/13/2025 11:48 AM

Land

Land Tracts

Use Code	Use Code Description	Number of Units	Unit of Measure
0	Vacant Residential	4.56	Acres
9671	informal determination of wetlands	0.20	Acres

Taxing Authorities

Generated on 10/13/2025 11:48 AM

BONITA SPRINGS FIRE / 086

Name / Code	Category	Mailing Address
LEE CO GENERAL REVENUE / 044	County	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
LEE CO ALL HAZARDS PROTECTION DIST / 101	Dependent District	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
LEE CO UNINCORPORATED MSTU / 020	Dependent District	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
LEE COUNTY LIBRARY DIST / 052	Dependent District	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
BONITA SPRINGS FIRE DISTRICT / 009	Independent District	BONITA SPRINGS FIRE 27701 BONITA GRANDE DR BONITA SPRINGS FL 34135
LEE CO HYACINTH CONTROL DIST / 051	Independent District	LEE CO HYACINTH CONTROL DIST 15191 HOMESTEAD RD LEHIGH ACRES FL 33971
LEE CO MOSQUITO CONTROL DIST / 053	Independent District	LEE CO MOSQUITO CONTROL DIST 15191 HOMESTEAD RD LEHIGH ACRES FL 33971
WEST COAST INLAND NAVIGATION DIST / 098	Independent District	WEST COAST INLAND NAVIGATION DIST 200 MIAMI AVE E VENICE FL 34285-2408
PUBLIC SCHOOL - BY LOCAL BOARD / 012	Public Schools	LEE COUNTY SCHOOL BOARD BUDGET DEPARTMENT 2855 COLONIAL BLVD FORT MYERS FL 33966
PUBLIC SCHOOL - BY STATE LAW / 013	Public Schools	LEE COUNTY SCHOOL BOARD BUDGET DEPARTMENT 2855 COLONIAL BLVD FORT MYERS FL 33966
GREEN CORRIDOR PACE / 363	Special District	
SFWMD-DISTRICT-WIDE / 110	Water District	SFWMD 3301 GUN CLUB RD WEST PALM BEACH FL 33406
SFWMD-EVERGLADES CONSTRUCTION PROJECT / 084	Water District	SFWMD 3301 GUN CLUB RD WEST PALM BEACH FL 33406
SFWMD-OKEECHOBEE BASIN / 308	Water District	SFWMD 3301 GUN CLUB RD WEST PALM BEACH FL 33406

Sales / Transactions

Generated on 10/13/2025 11:48 AM

Sale Price	Date	Clerk File Number	Type	Notes	Vacant/ Improved
3,500.00	05/01/1977	1203/882	06		V

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Building / Construction Permit Data

Generated on 10/13/2025 11:48 AM

Permit Number	Permit Type	Date
404414	Commercial	06/08/1984

IMPORTANT: THIS MAY NOT BE A COMPREHENSIVE OR TIMELY LISTING OF PERMITS ISSUED FOR THIS PROPERTY.

Note: The Lee County Property Appraiser's Office does not issue or maintain any permit information. The Building / Construction permit data displayed here represents only those records this Office may find necessary to conduct Property Appraiser business. Use of this information is with the understanding that in no way is this to be considered a comprehensive listing of permits for this or any other parcel.

The Date field represents the date the property appraiser received information regarding permit activity; it may or not represent the actual date of permit issuance or completion.

Full, accurate, active and valid permit information for parcels can only be obtained from the appropriate permit issuing agency.

Solid Waste (Garbage) Roll Data

Generated on 10/13/2025 11:48 AM

Solid Waste District	Roll Type	Category	Unit / Area	Tax Amount
001 - Service Area 1	-		0	0.00

Collection Days

Garbage	Recycling	Horticulture
Monday	Monday	Monday

Flood and Storm Information

Generated on 10/13/2025 11:48 AM

Flood Insurance Find my flood zone

Community	Panel	Version	Date	Evacuation Zone
071C	0678	F	8/28/2008	C

Generated on 10/13/2025 11:48 AM

Property Data

STRAP: 32-47-26-00-00001.021B Folio ID: 10353743

Tax Roll Value Letter 2025

Generated on 10/13/2025 11:50 AM

Owner Of Record - Sole Owner
[Change Mailing Address]

OLDE TOWN DEVELOPMENT INC
10421 PENNSYLVANIA AVE
BONITA SPRINGS FL 34135

[Tax Map Viewer] [View Comparables]

[Pictometry Aerial Viewer]

Site Address

Site Address maintained by E911 Program Addressing

13150 BONITA BEACH RD SE
BONITA SPRINGS FL 34135

Property Description

Do not use for legal documents!

THE W 1/2 OF E 1/2 OF SE 1/4 OF SW 1/4 OF SW 1/4

Attributes and Location Details

Total Bedrooms / Bathrooms	1 / 1.0
Gross Living Area	1,088
1st Year Building on Tax Roll	1974
Historic Designation	No

Township	Range	Section	Block	Lot
47	26E	32		
Municipality	**Latitude**	**Longitude**		
Lee County Unincorporated - 0	26.33263	-81.73525		

View Parcel on Google Maps

Image of Structure

Photo Date August of 2003 ☐ View other photos

Last Inspection Date: 06/16/2023

Property Values / Exemptions / TRIM Notices

Generated on 10/13/2025 11:50 AM

No existing exemptions found for this property.

TRIM Notices	Tax Year	Just	Land	Market Assessed	Capped Assessed	Exemptions	Classified Use	Taxable
2025 / Additional Info	2025 (Final Value)	210,191	18,386	210,191	110,641	0	0	110,641
2024 / Additional Info	2024 (Final Value)	100,583	18,386	100,583	100,583	0	0	100,583
2023 / Additional Info	2023 (Final Value)	211,325	18,750	211,325	156,060	0	0	156,060

2022 / Additional Info	2022 (Final Value)	207,179	18,750	207,179	141,873	0	0	141,873
2021 / Additional Info	2021 (Final Value)	152,273	12,500	152,273	128,975	0	0	128,975
2020 / Additional Info	2020 (Final Value)	143,737	12,500	143,737	117,250	0	0	117,250
2019 / Additional Info	2019 (Final Value)	106,591	12,500	106,591	106,591	0	0	106,591
2018 / Additional Info	2018 (Final Value)	107,400	12,500	107,400	97,692	0	0	97,692
2017 / Additional Info	2017 (Final Value)	96,093	12,500	96,093	88,811	0	0	88,811
2016	2016 (Final Value)	80,737	12,500	80,737	80,737	0	0	80,737
2015	2015 (Final Value)	98,601	12,500	98,601	77,563	0	0	77,563
2014	2014 (Final Value)	77,700	12,500	77,700	70,512	0	0	70,512
2013	2013 (Final Value)	64,102	12,500	64,102	64,102	0	0	64,102
2012	2012 (Final Value)	77,107	23,232	77,107	58,377	0	0	58,377
2011	2011 (Final Value)	53,070	12,500	53,070	53,070	0	0	53,070
2010	2010 (Final Value)	99,993	50,000	99,993	99,993	0	0	99,993
	2009 (Final Value)	94,560	62,500	94,560	94,560	0	0	94,560
	2008 (Final Value)	120,050	87,500	120,050	120,050	0	0	120,050
	2007 (Final Value)	295,790	262,500	0	295,790	0	0	295,790
	2006 (Final Value)	286,160	262,500	0	286,160	0	0	286,160
	2005 (Final Value)	59,000	35,000	0	59,000	0	0	59,000
	2004 (Final Value)	69,630	47,500	0	69,630	0	0	69,630
	2003 (Final Value)	37,450	15,000	0	37,450	0	0	37,450
	2002 (Final Value)	36,260	13,500	0	36,260	0	0	36,260
	2001 (Final Value)	35,570	12,500	0	32,940	25,500	0	7,440
	2000 (Final Value)	31,980	12,500	0	31,980	25,500	0	6,480
	1999 (Final Value)	32,240	12,500	0	32,240	25,500	0	6,740
	1998 (Final Value)	33,430	12,500	0	33,430	25,500	0	7,930
	1997 (Final Value)	38,000	16,800	0	38,000	25,500	0	12,500
	1996 (Final Value)	38,270	16,800	0	38,270	25,500	0	12,770
	1995 (Final Value)	41,740	20,000	0	41,740	25,500	0	16,240
	1994 (Final Value)	42,020	20,000	0	42,020	25,500	0	16,520
	1993 (Final Value)	42,290	20,000	0	42,290	25,500	0	16,790
	1992 (Final Value)	42,560	20,000	0	42,560	25,500	0	17,060

The **Just** value is the total parcel assessment (less any considerations for the cost of sale). This is the closest value to *Fair Market Value* we produce and is dated as of January 1st of the tax year in question (F.A.C. 12D-1.002).

The **Land** value is the portion of the total parcel assessment attributed to the land.

The **Market Assessed** value is the total parcel assessment (less any considerations for the cost of sale) based upon the assessment standard. Most parcels are assessed based either upon the *Highest and Best Use* standard or the *Present Use* standard (*F.S. 193.011*) . For *Agriculturally Classified* parcels (or parts thereof), only agricultural uses are considered in the assessment (*F.S. 193.461 (6) (a)*). The difference between the *Highest and Best Use/Present Use* and the *Agricultural Use* is often referred to as the *Agricultural Exemption*.
(i.e. Market Assessed = Just - Agricultural Exemption)

The **Capped Assessed** value is the *Market Assessment* after any *Save Our Homes* or *10% Assessment Limitation* cap is applied. This assessment cap is applied to all properties and limits year-to-year assessment increases to either the *Consumer Price Index* or 3%, whichever is lower for Homestead properties OR 10% for non-Homestead properties.

The **Exemptions** value is the total amount of all exemptions on the parcel.

The **Taxable** value is the *Capped Assessment* after exemptions (*Homestead, etc.*) are applied to it. This is the value that most taxing authorities use to calculate a parcel's taxes.
(i.e. Taxable = Capped Assessed - Exemptions)

Property Details (Current as of 10/12/2025)

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Land

Land Tracts

Use Code	Use Code Description	Number of Units	Unit of Measure
100	Single Family Residential	2.38	Acres

Land Features

Description	Year Added	Units
SLAB - CONCRETE	2009	216

Buildings

Building 1 of 1

Building Characteristics

Improvement Type	Model Type	Stories	Living Units
97 - Cottage/Bungalow	1 - SINGLE FAMILY RESIDENTIAL	1.0	1
Bedrooms	**Bathrooms**	**Year Built**	**Effective Year Built**
1	1.0	1974	1988

Building Subareas

Description	Heated / Under Air	Area (Sq Ft)
BAS - BASE	Y	1,088
PTO - PATIO	N	96

Building Features

Description	Year Added	Units
SHED - FRAME W/FLOOR	2009	648
CARPORT - UNFINISHED	2009	120
UTILITY - FINISHED	2009	96

Building Front Photo

Photo Date: August of 2003

Building Footprint

Property Details (2025 Tax Roll)

Generated on 10/13/2025 11:50 AM

Land

Land Tracts

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Building 1 of 1

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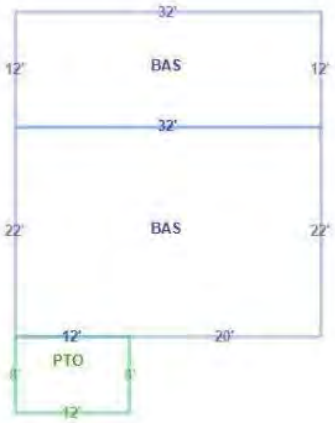
Building Front Photo

Photo Date: August of 2003

Building Footprint



Taxing Authorities

Generated on 10/13/2025 11:50 AM

BONITA SPRINGS FIRE / 086

Name / Code	Category	Mailing Address
LEE CO GENERAL REVENUE / 044	County	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
LEE CO ALL HAZARDS PROTECTION DIST / 101	Dependent District	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
LEE CO UNINCORPORATED MSTU / 020	Dependent District	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398 FORT MYERS FL 33902-0398
LEE COUNTY LIBRARY DIST / 052	Dependent District	LEE COUNTY OFFICE OF MGMT & BUDGET PO BOX 398

		FORT MYERS FL 33902-0398
BONITA SPRINGS FIRE DISTRICT / 009	Independent District	BONITA SPRINGS FIRE 27701 BONITA GRANDE DR BONITA SPRINGS FL 34135
LEE CO HYACINTH CONTROL DIST / 051	Independent District	LEE CO HYACINTH CONTROL DIST 15191 HOMESTEAD RD LEHIGH ACRES FL 33971
LEE CO MOSQUITO CONTROL DIST / 053	Independent District	LEE CO MOSQUITO CONTROL DIST 15191 HOMESTEAD RD LEHIGH ACRES FL 33971
WEST COAST INLAND NAVIGATION DIST / 098	Independent District	WEST COAST INLAND NAVIGATION DIST 200 MIAMI AVE E VENICE FL 34285-2408
PUBLIC SCHOOL - BY LOCAL BOARD / 012	Public Schools	LEE COUNTY SCHOOL BOARD BUDGET DEPARTMENT 2855 COLONIAL BLVD FORT MYERS FL 33966
PUBLIC SCHOOL - BY STATE LAW / 013	Public Schools	LEE COUNTY SCHOOL BOARD BUDGET DEPARTMENT 2855 COLONIAL BLVD FORT MYERS FL 33966
GREEN CORRIDOR PACE / 363	Special District	
SFWMD-DISTRICT-WIDE / 110	Water District	SFWMD 3301 GUN CLUB RD WEST PALM BEACH FL 33406
SFWMD-EVERGLADES CONSTRUCTION PROJECT / 084	Water District	SFWMD 3301 GUN CLUB RD WEST PALM BEACH FL 33406
SFWMD-OKEECHOBEE BASIN / 308	Water District	SFWMD 3301 GUN CLUB RD WEST PALM BEACH FL 33406

Sales / Transactions

Generated on 10/13/2025 11:50 AM

Sale Price	Date	Clerk File Number	Type	Notes	Vacant/ Improved
43,000.00	10/29/2004	4496/4006	08		I
26,000.00	06/01/1977	1210/518	06		I
2,500.00	05/01/1974	1037/1730	01		V

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Building / Construction Permit Data

Generated on 10/13/2025 11:50 AM

Permit Number	Permit Type	Date
RES2005-07469	Building Remodel / Repair	09/16/2005

IMPORTANT: THIS MAY NOT BE A COMPREHENSIVE OR TIMELY LISTING OF PERMITS ISSUED FOR THIS PROPERTY.

Note: The Lee County Property Appraiser's Office does not issue or maintain any permit information. The Building / Construction permit data displayed here represents only those records this Office may find necessary to conduct Property Appraiser business. Use of this information is with the understanding that

in no way is this to be considered a comprehensive listing of permits for this or any other parcel.

The Date field represents the date the property appraiser received information regarding permit activity; it may or not represent the actual date of permit issuance or completion.

Full, accurate, active and valid permit information for parcels can only be obtained from the appropriate permit issuing agency.

Solid Waste (Garbage) Roll Data

Generated on 10/13/2025 11:50 AM

Solid Waste District	Roll Type	Category	Unit / Area	Tax Amount
001 - Service Area 1	R - Residential Category		1	358.45

Collection Days

Garbage	Recycling	Horticulture
Monday	Monday	Monday

Flood and Storm Information

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Flood Insurance Find my flood zone

Community	Panel	Version	Date	Evacuation Zone
071C	0678	F	8/28/2008	C

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Property Data

STRAP: 32-47-26-00-00001.021A Folio ID: 10353742

Tax Roll Value Letter 2025

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Owner Of Record - Sole Owner
[Change Mailing Address]

MICHAEL P QUINN TRUST
141 ALFALFA LN
WHITTIER NC 28789

[Tax Map Viewer] [View Comparables]

[Pictometry Aerial Viewer]

Site Address
Site Address maintained by E911 Program Addressing

13180 BONITA BEACH RD SE
BONITA SPRINGS FL 34135

Property Description
Do not use for legal documents!

E 1/2 OF E 1/2 OF SE 1/4 OF SW 1/4 OF SW 1/4

Attributes and Location Details

Total Bedrooms / Bathrooms	0
1st Year Building on Tax Roll	N/A
Historic Designation	No

Township	Range	Section	Block	Lot
47	26E	32		
Municipality	**Latitude**	**Longitude**		
Lee County Unincorporated - 0	26.33263	-81.73475		

View Parcel on Google Maps

Image of Structure

Property Values / Exemptions / TRIM Notices

Generated on 10/13/2025 11:51 AM

No existing exemptions found for this property.

TRIM Notices	Tax Year	Just	Land	Market Assessed	Capped Assessed	Exemptions	Classified Use	Taxable
2025 / Additional Info	2025 (Final Value)	18,386	18,386	18,386	18,386	0	0	18,386
2024 / Additional Info	2024 (Final Value)	18,386	18,386	18,386	16,638	0	0	16,638
2023 / Additional Info	2023 (Final Value)	18,937	18,937	18,937	15,125	0	0	15,125
2022 / Additional Info	2022 (Final Value)	18,750	18,750	18,750	13,750	0	0	13,750
2021 / Additional Info	2021 (Final Value)	12,500	12,500	12,500	12,500	0	0	12,500

2020 / Additional Info	2020 (Final Value)	12,500	12,500	12,500	12,500	0	0	12,500
2019 / Additional Info	2019 (Final Value)	12,500	12,500	12,500	12,500	0	0	12,500
2018 / Additional Info	2018 (Final Value)	12,500	12,500	12,500	12,500	0	0	12,500
2017 / Additional Info	2017 (Final Value)	29,312	29,312	29,312	13,750	0	0	13,750
2016	2016 (Final Value)	12,500	12,500	12,500	12,500	0	0	12,500
2015	2015 (Final Value)	12,500	12,500	12,500	12,500	0	0	12,500
2014	2014 (Final Value)	12,500	12,500	12,500	12,500	0	0	12,500
2013	2013 (Final Value)	12,500	12,500	12,500	12,500	0	0	12,500
2012	2012 (Final Value)	12,500	12,500	12,500	12,500	0	0	12,500
2011	2011 (Final Value)	12,500	12,500	12,500	12,500	0	0	12,500
2010	2010 (Final Value)	50,000	50,000	50,000	50,000	0	0	50,000
	2009 (Final Value)	62,500	62,500	62,500	62,500	0	0	62,500
	2008 (Final Value)	87,500	87,500	87,500	87,500	0	0	87,500
	2007 (Final Value)	262,500	262,500	0	262,500	0	0	262,500
	2006 (Final Value)	262,500	262,500	0	262,500	0	0	262,500
	2005 (Final Value)	35,000	35,000	0	35,000	0	0	35,000
	2004 (Final Value)	47,500	47,500	0	47,500	0	0	47,500
	2003 (Final Value)	15,000	15,000	0	15,000	0	0	15,000
	2002 (Final Value)	13,500	13,500	0	13,500	0	0	13,500
	2001 (Final Value)	12,500	12,500	0	12,500	0	0	12,500
	2000 (Final Value)	12,500	12,500	0	12,500	0	0	12,500
	1999 (Final Value)	12,500	12,500	0	12,500	0	0	12,500
	1998 (Final Value)	12,500	12,500	0	12,500	0	0	12,500
	1997 (Final Value)	16,800	16,800	0	16,800	0	0	16,800
	1996 (Final Value)	16,800	16,800	0	16,800	0	0	16,800
	1995 (Final Value)	20,000	20,000	0	20,000	0	0	20,000
	1994 (Final Value)	20,000	20,000	0	20,000	0	0	20,000
	1993 (Final Value)	20,000	20,000	0	20,000	0	0	20,000
	1992 (Final Value)	20,000	20,000	0	20,000	0	0	20,000

The **Just** value is the total parcel assessment (less any considerations for the cost of sale). This is the closest value to *Fair Market Value* we produce and is dated as of January 1st of the tax year in question (F.A.C. 12D-1.002).

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Land

Land Tracts

Use Code	Use Code Description	Number of Units	Unit of Measure
0	Vacant Residential	2.38	Acres

Property Details (2025 Tax Roll)

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0	Vacant Residential	2.38	Acres

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Sales / Transactions

Generated on 10/13/2025 11:51 AM

Sale Price	Date	Clerk File Number	Type	Notes	Vacant/ Improved
400,000.00	04/30/2024	2024000135021	01		V
100.00	07/12/2007	2007000221912	01		V
26,000.00	03/01/1986	1835/2598	01		V
4,100.00	11/01/1984	1756/4113	03		V

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Building / Construction Permit Data

Generated on 10/13/2025 11:51 AM

Permit Number	Permit Type	Date

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Solid Waste District	Roll Type	Category	Unit / Area	Tax Amount
001 - Service Area 1	-		0	0.00

Collection Days

Garbage	Recycling	Horticulture
Monday	Monday	Monday

Flood and Storm Information

Generated on 10/13/2025 11:51 AM

Flood Insurance Find my flood zone

Community	Panel	Version	Date	Evacuation Zone
071C	0678	F	8/28/2008	C

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EXHIBIT B – SOIL REPORT

SCS – Soil Survey

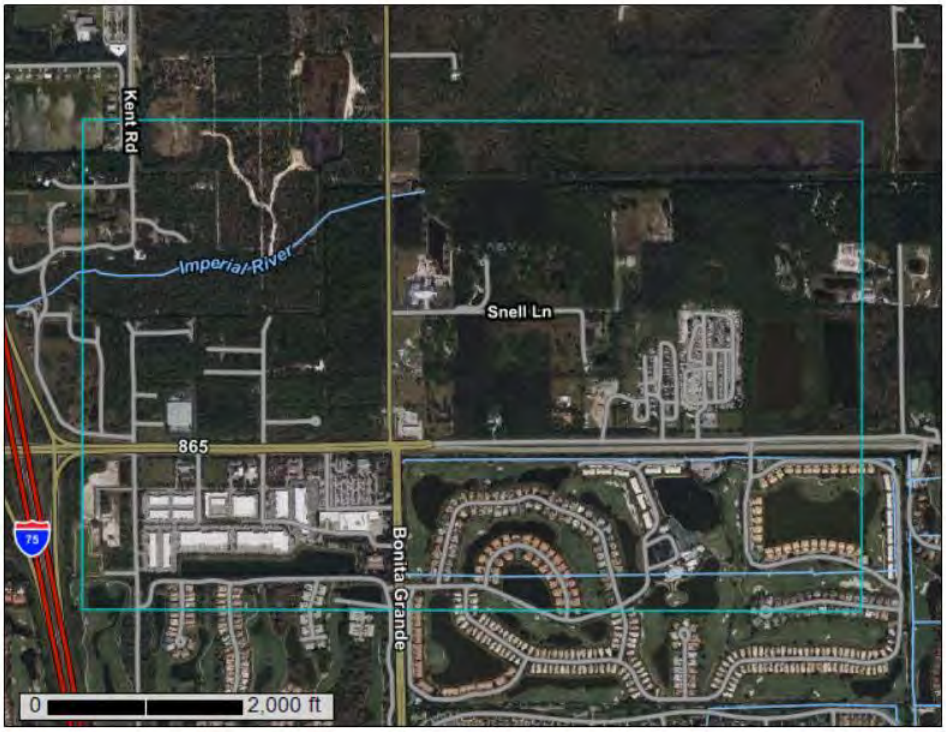
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Lee County, Florida



September 15, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map
Bonita Beach Rd
865
75
Soil Map may not be valid at this scale.
Map Scale: 1:13,400 if printed on A landscape (11" x 8.5") sheet.
Meters
Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lee County, Florida
Survey Area Data: Version 22, Aug 21, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 14, 2021—Nov 23, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Brynwood fine sand, wet, 0 to 2 percent slopes	17.1	1.9%
13	Cypress Lake fine sand, 0 to 2 percent slopes	6.7	0.7%
26	Pineda-Pineda, wet, fine sand, 0 to 2 percent slopes	27.1	2.9%
27	Pompano fine sand, frequently ponded, 0 to 1 percent slopes	169.9	18.5%
28	Immokalee sand, 0 to 2 percent slopes	33.5	3.6%
33	Oldsmar sand, 0 to 2 percent slopes	17.5	1.9%
34	Malabar fine sand, 0 to 2 percent slopes	34.8	3.8%
36	Immokalee sand-Urban land complex, 0 to 2 percent slopes	24.3	2.6%
37	Satellite fine sand, 0 to 2 percent slopes	12.9	1.4%
39	Isles fine sand, frequently ponded, 0 to 1 percent slopes	24.6	2.7%
44	Malabar fine sand, frequently ponded, 0 to 1 percent slopes	50.7	5.5%
49	Felda fine sand, frequently ponded, 0 to 1 percent slopes	66.6	7.3%
64	Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes	73.9	8.0%
69	Matlacha gravelly fine sand, 0 to 2 percent slopes	4.3	0.5%
99	Water	50.7	5.5%
102	Cypress Lake fine sand-Urban land complex, 0 to 2 percent slopes	5.5	0.6%
111	Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes	0.0	0.0%
116	Isles fine sand, ponded-Urban land complex, 0 to 1 percent slopes	65.4	7.1%
119	Malabar fine sand-Urban land complex, 0 to 2 percent slopes	13.7	1.5%
120	Malabar fine sand, ponded-Urban land complex, 0 to 1 percent slopes	11.6	1.3%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
127	Orsino fine sand-Urban land complex, 0 to 5 percent slopes	5.4	0.6%
132	Pompano fine sand, ponded-Urban land complex, 0 to 1 percent slopes	194.6	21.2%
134	Satellite fine sand-Urban land complex, 0 to 2 percent slopes	7.5	0.8%
Totals for Area of Interest		**918.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Lee County, Florida

6—Brynwood fine sand, wet, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2zlfc
Elevation: 0 to 70 feet
Mean annual precipitation: 46 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Brynwood and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brynwood

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy marine deposits over limestone

Typical profile

A - 0 to 2 inches: fine sand
Eg - 2 to 7 inches: fine sand
Bw - 7 to 12 inches: fine sand
2R - 12 to 22 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 2 to 20 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 5.95 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)

Hydric soil rating: Yes

Minor Components

Cypress lake

Percent of map unit: 6 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, convex
Across-slope shape: Linear, concave
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Rock outcrop, misc

Percent of map unit: 5 percent
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Hydric soil rating: No

Wabasso

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Parkwood variant, mod. deep

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F155XY140FL - Loamy and Clayey Flats and Hammocks
Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G155XB341FL), Wetland Hardwood Hammock (R155XY012FL)
Hydric soil rating: No

13—Cypress Lake fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2zlds
Elevation: 0 to 60 feet
Mean annual precipitation: 42 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

.

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Wabasso

Percent of map unit: 6 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Pineda

Percent of map unit: 4 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Ft. drum

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

26—Pineda-Pineda, wet, fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svyp
Elevation: 0 to 100 feet
Mean annual precipitation: 42 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Pineda and similar soils: 45 percent
Pineda, wet, and similar soils: 40 percent

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pineda

Setting

Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 1 inches: fine sand
E - 1 to 5 inches: fine sand
Bw - 5 to 36 inches: fine sand
Btg/E - 36 to 54 inches: fine sandy loam
Cg - 54 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: No

Description of Pineda, Wet

Setting

Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 1 inches: fine sand
E - 1 to 5 inches: fine sand

Bw - 5 to 36 inches: fine sand
Btg/E - 36 to 54 inches: fine sandy loam
Cg - 54 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Minor Components

Felda

Percent of map unit: 6 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Wabasso

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Valkaria

Percent of map unit: 2 percent
Landform: Drainageways on flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Cypress lake

Percent of map unit: 2 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Brynwood

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

27—Pompano fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2sm5f
Elevation: 0 to 160 feet
Mean annual precipitation: 38 to 64 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 340 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pompano and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pompano

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 12 inches: fine sand
C - 12 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Minor Components

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Myakka

Percent of map unit: 2 percent
Landform: Depressions on marine terraces

Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Malabar

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Anclote

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Placid

Percent of map unit: 1 percent
Landform: Depressions on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Adamsville

Percent of map unit: 1 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Upland Hardwood Hammock (R155XY008FL)
Hydric soil rating: No

28—Immokalee sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2s3ll
Elevation: 0 to 150 feet
Mean annual precipitation: 42 to 57 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Immokalee and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Immokalee

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 9 inches: sand
E - 9 to 36 inches: sand
Bh - 36 to 55 inches: sand
C - 55 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks

Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Minor Components

Valkaria
Percent of map unit: 5 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Oldsmar
Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Pomello
Percent of map unit: 3 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Satellite
Percent of map unit: 2 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

Felda
Percent of map unit: 1 percent

Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

33—Oldsmar sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2sm4p
Elevation: 0 to 80 feet
Mean annual precipitation: 42 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 355 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Oldsmar and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oldsmar

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: sand
E - 6 to 38 inches: sand
Bh - 38 to 50 inches: sand
Btg - 50 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Minor Components

Immokalee

Percent of map unit: 6 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Holopaw

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Cypress lake

Percent of map unit: 2 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks

Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Tequesta

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Organic soils in depressions and on flood plains (G156AC645FL), Freshwater Marshes and Ponds (R156BY010FL)
Hydric soil rating: Yes

34—Malabar fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svz3
Elevation: 10 to 140 feet
Mean annual precipitation: 42 to 63 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Malabar and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malabar

Setting

Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 17 inches: fine sand
Bw - 17 to 42 inches: fine sand
Btg - 42 to 59 inches: fine sandy loam
Cg - 59 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained

Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Minor Components

Valkaria

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Oldsmar

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Pineda

Percent of map unit: 4 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps

Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Basinger
Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

36—Immokalee sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2x9c1
Elevation: 0 to 150 feet
Mean annual precipitation: 42 to 68 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 355 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition
Immokalee and similar soils: 43 percent
Urban land: 35 percent
Minor components: 22 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Immokalee

Setting
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile
A - 0 to 9 inches: sand
E - 9 to 36 inches: sand
Bh - 36 to 55 inches: sand
C - 55 to 80 inches: sand

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Basinger

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Oldsmar

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Pomello

Percent of map unit: 4 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, interfluve, riser
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Satellite

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Felda

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Brynwood

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear

Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Jenada

Percent of map unit: 1 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL), Slough (R155XY011FL)
Hydric soil rating: Yes

37—Satellite fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svzd
Elevation: 0 to 80 feet
Mean annual precipitation: 46 to 60 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Satellite and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Satellite

Setting

Landform: Rises on marine terraces, flatwoods on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Tread, rise, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 3 inches: fine sand
C1 - 3 to 65 inches: fine sand
C2 - 65 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 to 50.02 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Forage suitability group: Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Minor Components

Myakka

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Pompano

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Archbold

Percent of map unit: 3 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands

Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Oldsmar

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Daytona

Percent of map unit: 2 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, tread, rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Basinger

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

39—Isles fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2x9cv
Elevation: 0 to 150 feet
Mean annual precipitation: 42 to 65 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Isles and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Isles

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Loamy marine deposits over limestone

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 21 inches: fine sand
Btg - 21 to 47 inches: fine sandy loam
2R - 47 to 57 inches: bedrock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 22 to 60 inches to lithic bedrock
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: B/D
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL), Salt Marsh (R155XY009FL)
Hydric soil rating: Yes

Minor Components

Pineda

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps

Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 5 percent
Landform: Flats on marine terraces, depressions on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Malabar

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

44—Malabar fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2svz5
Elevation: 10 to 90 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Malabar and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malabar

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 17 inches: fine sand
Bw - 17 to 42 inches: fine sand
Btg - 42 to 59 inches: fine sandy loam
Cg - 59 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Minor Components

Valkaria

Percent of map unit: 3 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave

Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Pineda

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 3 percent
Landform: Flats on marine terraces, depressions on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Delray

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

49—Felda fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzxb
Elevation: 0 to 150 feet
Mean annual precipitation: 46 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 335 to 365 days

Farmland classification: Not prime farmland

Map Unit Composition

Felda and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Felda

Setting

Landform: Depressions on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: fine sand
Eg - 7 to 24 inches: fine sand
Btg - 24 to 36 inches: fine sandy loam
Cg - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Minor Components

Floridana

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave

Across-slope shape: Concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Winder

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY090FL - Loamy and Clayey Freshwater Isolated Marshes and Swamps
Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G155XB345FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Eaton

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F154XA012FL - Wet Rich Forests And Woodlands
Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G154XB345FL), Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Kaliga

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Myakka

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Sanibel

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

64—Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2zlfd
Elevation: 0 to 80 feet
Mean annual precipitation: 42 to 70 inches
Mean annual air temperature: 70 to 79 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Brynwood and similar soils: 45 percent
Urban land: 33 percent
Minor components: 22 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brynwood

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy marine deposits over limestone

Typical profile

A - 0 to 2 inches: fine sand

Eg - 2 to 7 inches: fine sand
Bw - 7 to 12 inches: fine sand
2R - 12 to 22 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 2 to 20 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 5.95 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Cypress lake

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)

Hydric soil rating: Yes

Dania

Percent of map unit: 3 percent
Landform: Marshes on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Organic soils in depressions and on flood plains (G156AC645FL), Freshwater Marshes and Ponds (R156AY010FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Jenada

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Wabasso

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Brynwood

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Clewiston

Percent of map unit: 2 percent
Landform: Flats on marine terraces, depressions on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

69—Matlacha gravelly fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9db
Elevation: 0 to 30 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Matlacha and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Matlacha

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Sandy mine spoil or earthy fill over sandy marine deposits

Typical profile

^C - 0 to 35 inches: gravelly fine sand

2Ab - 35 to 40 inches: fine sand
2Eb - 40 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

Minor Components

Caloosa

Percent of map unit: 5 percent
Landform: Marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

St. augustine

Percent of map unit: 5 percent
Landform: Marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Convex
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

99—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

102—Cypress Lake fine sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2zldz
Elevation: 0 to 70 feet
Mean annual precipitation: 42 to 56 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Cypress lake and similar soils: 42 percent
Urban land: 36 percent
Minor components: 22 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cypress Lake

Setting

Landform: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits over limestone

Typical profile

A - 0 to 3 inches: fine sand
E - 3 to 14 inches: fine sand
E/B - 14 to 25 inches: fine sand
Btg - 25 to 30 inches: fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 8 to 40 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Brynwood

Percent of map unit: 8 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Wabasso

Percent of map unit: 6 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Pineda

Percent of map unit: 4 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Ft. drum

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Cypress lake

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

111—Felda fine sand, ponded-Urban land complex, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2x9dv
Elevation: 0 to 150 feet

Mean annual precipitation: 46 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Felda and similar soils: 45 percent
Urban land: 38 percent
Minor components: 17 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Felda

Setting

Landform: Depressions on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: fine sand
Eg - 7 to 24 inches: fine sand
Btg - 24 to 36 inches: fine sandy loam
Cg - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Floridana

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Winder

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY090FL - Loamy and Clayey Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Loamy and clayey soils on stream terraces, flood plains, or in depressions (G155XB345FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 2 percent
Landform: Flats on marine terraces, depressions on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: No

Eaton

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F154XA012FL - Wet Rich Forests And Woodlands
Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G154XB345FL), Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Kaliga

Percent of map unit: 1 percent
Landform: Depressions on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Myakka

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Sanibel

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps

Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

116—Isles fine sand, ponded-Urban land complex, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2x9cw
Elevation: 0 to 10 feet
Mean annual precipitation: 45 to 55 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Isles and similar soils: 43 percent
Urban land: 35 percent
Minor components: 22 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Isles

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Loamy marine deposits over limestone

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 21 inches: fine sand
Btg - 21 to 47 inches: fine sandy loam
2R - 47 to 57 inches: bedrock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 22 to 60 inches to lithic bedrock
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: B/D
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL), Salt Marsh (R155XY009FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Pineda

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 5 percent
Landform: Flats on marine terraces, depressions on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Malabar

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Isles

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Forage suitability group not assigned (G155XB999FL), Salt Marsh (R155XY009FL)
Hydric soil rating: No

119—Malabar fine sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9cd
Elevation: 10 to 130 feet
Mean annual precipitation: 42 to 63 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 355 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Malabar and similar soils: 45 percent
Urban land: 38 percent
Minor components: 17 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malabar

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 17 inches: fine sand
Bw - 17 to 42 inches: fine sand
Btg - 42 to 59 inches: fine sandy loam
Cg - 59 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Forage suitability group not assigned (G155XB999FL)

Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Valkaria
Percent of map unit: 5 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Oldsmar
Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Pineda
Percent of map unit: 4 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Malabar
Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: No

Basinger
Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

120—Malabar fine sand, ponded-Urban land complex, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2x9cg
Elevation: 10 to 90 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 355 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Malabar and similar soils: 48 percent
Urban land: 40 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malabar

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 17 inches: fine sand
Bw - 17 to 42 inches: fine sand
Btg - 42 to 59 inches: fine sandy loam
Cg - 59 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Valkaria

Percent of map unit: 3 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Pineda

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL), Freshwater Marshes and Ponds (R155XY010FL)

Hydric soil rating: Yes

Felda

Percent of map unit: 3 percent
Landform: Flats on marine terraces, depressions on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Malabar

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: No

Delray

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

127—Orsino fine sand-Urban land complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2x9dp
Elevation: 0 to 130 feet
Mean annual precipitation: 44 to 63 inches
Mean annual air temperature: 66 to 77 degrees F
Frost-free period: 335 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Orsino and similar soils: 45 percent

Urban land: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Orsino

Setting

Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, tread
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits and/or eolian deposits

Typical profile

A - 0 to 2 inches: fine sand
E - 2 to 23 inches: fine sand
Bw and Bh/E - 23 to 43 inches: fine sand
Bw - 43 to 62 inches: fine sand
C - 62 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)
Depth to water table: About 42 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Forage suitability group: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL)
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Cassia

Percent of map unit: 5 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Tavares

Percent of map unit: 5 percent
Landform: Ridges on marine terraces, knolls on marine terraces, hills on marine terraces, flatwoods on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope, interfluve, tread, rise
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL), Longleaf Pine-Turkey Oak Hills (R155XY002FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Daytona

Percent of map unit: 3 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, tread, rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear

Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

132—Pompano fine sand, ponded-Urban land complex, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2x9f6
Elevation: 10 to 90 feet
Mean annual precipitation: 44 to 64 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 355 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pompano and similar soils: 48 percent
Urban land: 40 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pompano

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 12 inches: fine sand
C - 12 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Hydric soil rating: Unranked

Minor Components

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Myakka

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Malabar

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: No

Anclote

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Placid

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces, depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Adamsville

Percent of map unit: 1 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Upland Hardwood Hammock (R155XY008FL)
Hydric soil rating: No

134—Satellite fine sand-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9cl
Elevation: 0 to 80 feet
Mean annual precipitation: 45 to 61 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days

Map Unit Composition

Satellite and similar soils: 47 percent
Urban land: 40 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Satellite

Setting

Landform: Flatwoods on marine terraces, rises on marine terraces
Landform position (three-dimensional): Tread, talf, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 3 inches: fine sand
C1 - 3 to 65 inches: fine sand
C2 - 65 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 to 50.02 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands

Forage suitability group: Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Minor Components

Daytona

Percent of map unit: 3 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, tread, rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Archbold

Percent of map unit: 3 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, interfluve, tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave

Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Oldsmar

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Myakka

Percent of map unit: 2 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

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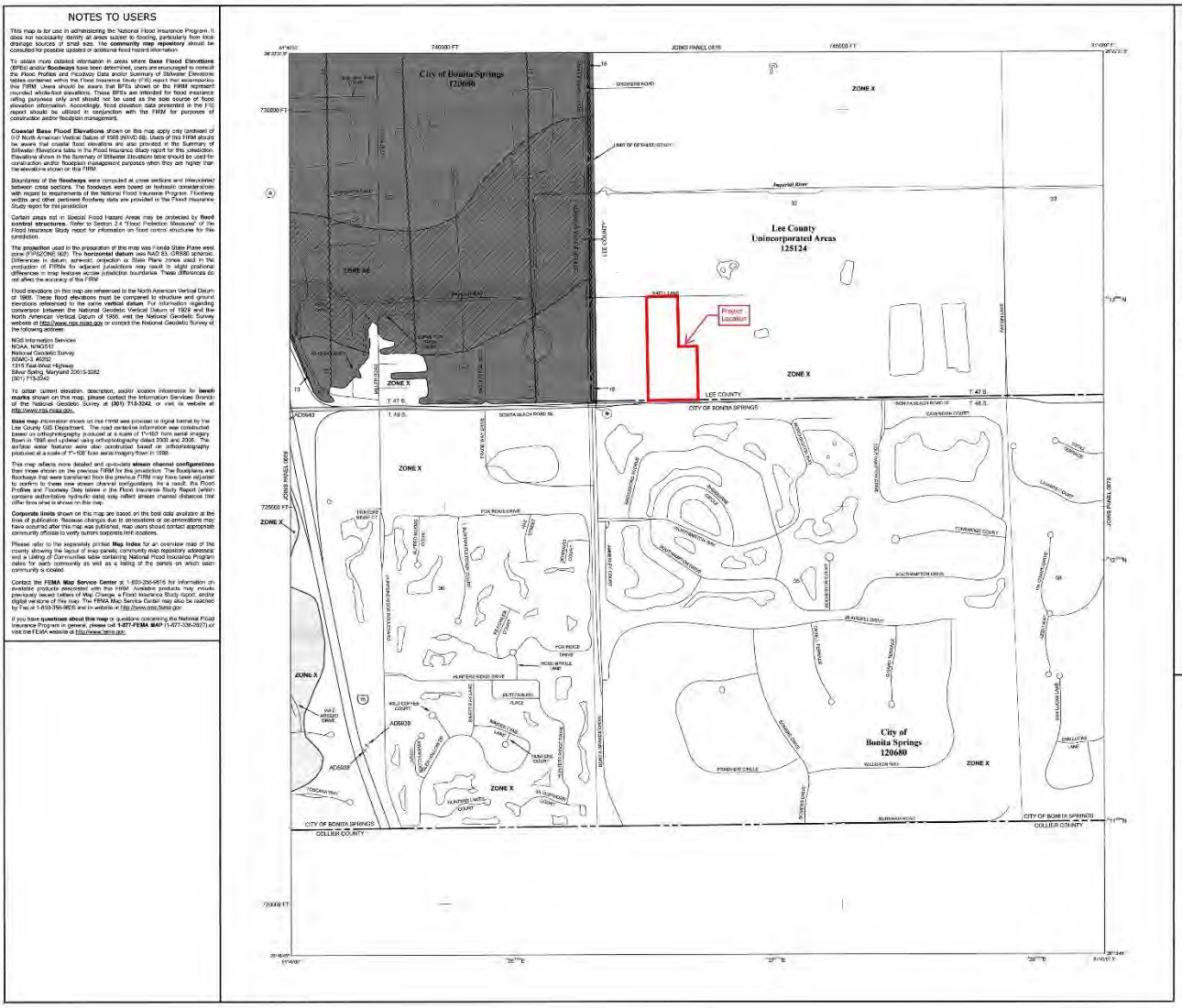
EXHIBIT C – FLOOD MAP

(F.I.R.M Panel No. 12071C0678F)



4. EXISTING DESIGN/DRY CONTINUOUS INPUT REPORT

A. Input Report

4A. INPUT REPORT

Manual Basin: B1

Scenario: Design Storm
Node: Pond 1
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 19.9081 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
0.4046	RANGELAND	44			
2.1878	LOW-DENSITY RESIDENTIAL	44			
0.8817	UPLAND FORESTS	44			
1.0670	INSTITUTIONAL	44			
4.0843	INSTITUTIONAL	119			
3.5724	IMPERVIOUS	119			
0.1156	WETLAND	119			
3.8147	LOW-DENSITY RESIDENTIAL	36			
0.9699	UPLAND FORESTS	36			
0.0484	IMPERVIOUS	44			
0.2564	INSTITUTIONAL	36			
0.1405	IMPERVIOUS	36			
1.1836	WATER	119			
0.3096	WATER	44			
0.0169	RANGELAND	36			
0.6163	INSTITUTIONAL	34			
0.0628	WETLAND	34			
0.0001	IMPERVIOUS	34			
0.1757	WETLAND	44			

Comment:

Manual Basin: B2

Scenario: Design Storm
Node: Pond 2
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 6.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0

Area: 15.6893 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
2.1584	LOW-DENSITY RESIDENTIAL	27			
4.3697	RANGELAND	27			
4.4137	LOW-DENSITY RESIDENTIAL	132			
2.8857	RANGELAND	28			
0.1881	WETLAND	27			
0.1071	RANGELAND	132			
1.5622	RANGELAND	44			
0.0044	WETLAND	132			

Comment:

Manual Basin: B1

Scenario: Dry
Node: Pond 1
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 19.9081 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
0.4046	RANGELAND	44			
2.1878	LOW-DENSITY RESIDENTIAL	44			
0.8817	UPLAND FORESTS	44			
1.0670	INSTITUTIONAL	44			
4.0843	INSTITUTIONAL	119			
3.5724	IMPERVIOUS	119			
0.1156	WETLAND	119			
3.8147	LOW-DENSITY RESIDENTIAL	36			
0.9699	UPLAND FORESTS	36			
0.0484	IMPERVIOUS	44			
0.2564	INSTITUTIONAL	36			
0.1405	IMPERVIOUS	36			
1.1836	WATER	119			
0.3096	WATER	44			
0.0169	RANGELAND	36			
0.6163	INSTITUTIONAL	34			

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
0.0628	WETLAND	34			
0.0001	IMPERVIOUS	34			
0.1757	WETLAND	44			

Comment:

Manual Basin: B2

Scenario: Dry
Node: Pond 2
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 6.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 15.6893 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
2.1584	LOW-DENSITY RESIDENTIAL	27			
4.3697	RANGELAND	27			
4.4137	LOW-DENSITY RESIDENTIAL	132			
2.8857	RANGELAND	28			
0.1881	WETLAND	27			
0.1071	RANGELAND	132			
1.5622	RANGELAND	44			
0.0044	WETLAND	132			

Comment:

Manual Basin: B1

Scenario: Wet
Node: Pond 1
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 19.9081 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
0.4046	RANGELAND	44			
2.1878	LOW-DENSITY RESIDENTIAL	44			
0.8817	UPLAND FORESTS	44			
1.0670	INSTITUTIONAL	44			
4.0843	INSTITUTIONAL	119			
3.5724	IMPERVIOUS	119			
0.1156	WETLAND	119			
3.8147	LOW-DENSITY RESIDENTIAL	36			
0.9699	UPLAND FORESTS	36			
0.0484	IMPERVIOUS	44			
0.2564	INSTITUTIONAL	36			
0.1405	IMPERVIOUS	36			
1.1836	WATER	119			
0.3096	WATER	44			
0.0169	RANGELAND	36			
0.6163	INSTITUTIONAL	34			
0.0628	WETLAND	34			
0.0001	IMPERVIOUS	34			
0.1757	WETLAND	44			

Comment:

Manual Basin: B2

Scenario: Wet
Node: Pond 2
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 6.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 15.6893 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
2.1584	LOW-DENSITY RESIDENTIAL	27			
4.3697	RANGELAND	27			
4.4137	LOW-DENSITY RESIDENTIAL	132			
2.8857	RANGELAND	28			
0.1881	WETLAND	27			
0.1071	RANGELAND	132			

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
1.5622	RANGELAND	44			
0.0044	WETLAND	132			

Comment:

Node: BNDY1

Scenario: Design Storm
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 14.00 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: BNDY2

Scenario: Design Storm
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 13.75 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: GW

Scenario: Design Storm
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 9999.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: Pond 1

Scenario: Design Storm
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 16.50 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
5.70	1.7625	76775
5.75	1.7726	77214
6.00	1.7899	77968
6.25	1.7992	78373
6.50	1.8075	78735
6.75	1.8143	79031
7.00	1.8217	79353
7.25	1.8287	79658
7.50	1.8351	79937
7.75	1.8408	80185
8.00	1.8487	80529
8.25	1.8566	80873
8.50	1.8677	81357
8.75	1.8830	82023
9.00	1.9033	82908
9.25	1.9264	83914
9.50	1.9552	85169
9.75	1.9867	86541
10.00	2.0177	87891
10.25	2.0516	89368
10.50	2.0799	90600
10.75	2.1111	91960
11.00	2.1423	93319
11.25	2.1705	94547
11.50	2.2046	96032
11.75	2.2353	97370
12.00	2.2682	98803
12.25	2.3031	100323
12.50	2.3354	101730
12.75	2.3666	103089
13.00	2.4003	104557
13.25	2.4349	106064
13.50	2.4686	107532
13.75	2.5002	108909
14.00	2.5274	110094
14.25	2.5540	111252
14.50	2.5664	111792
14.75	2.5706	111975
15.00	2.5728	112071
15.25	2.5745	112145
15.50	2.5758	112202

Stage [ft]	Area [ac]	Area [ft2]
15.75	2.5769	112250
16.00	2.5777	112285
16.25	2.5797	112372
16.50	2.5797	112372

Comment:

Node: Pond 2

Scenario: Design Storm
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 13.75 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
9.91	0.0001	4
10.00	0.0191	832
10.25	0.2796	12179
10.50	0.3687	16061
10.75	0.4199	18291
11.00	0.4533	19746
11.25	0.4789	20861
11.50	0.5033	21924
11.75	0.5270	22956
12.00	0.5529	24084
12.25	0.5807	25295
12.50	0.6103	26585
12.75	0.6428	28000
13.00	0.6638	28915
13.25	0.6833	29765
13.50	0.6918	30135
13.75	0.6918	30135

Comment:

Node: BNDY1

Scenario: Dry
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 14.00 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: BNDY2

Scenario: Dry
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 13.75 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: GW

Scenario: Dry
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 9999.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: Pond 1

Scenario: Dry
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 16.50 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
5.70	1.7625	76775
5.75	1.7726	77214
6.00	1.7899	77968
6.25	1.7992	78373
6.50	1.8075	78735

Stage [ft]	Area [ac]	Area [ft2]
6.75	1.8143	79031
7.00	1.8217	79353
7.25	1.8287	79658
7.50	1.8351	79937
7.75	1.8408	80185
8.00	1.8487	80529
8.25	1.8566	80873
8.50	1.8677	81357
8.75	1.8830	82023
9.00	1.9033	82908
9.25	1.9264	83914
9.50	1.9552	85169
9.75	1.9867	86541
10.00	2.0177	87891
10.25	2.0516	89368
10.50	2.0799	90600
10.75	2.1111	91960
11.00	2.1423	93319
11.25	2.1705	94547
11.50	2.2046	96032
11.75	2.2353	97370
12.00	2.2682	98803
12.25	2.3031	100323
12.50	2.3354	101730
12.75	2.3666	103089
13.00	2.4003	104557
13.25	2.4349	106064
13.50	2.4686	107532
13.75	2.5002	108909
14.00	2.5274	110094
14.25	2.5540	111252
14.50	2.5664	111792
14.75	2.5706	111975
15.00	2.5728	112071
15.25	2.5745	112145
15.50	2.5758	112202
15.75	2.5769	112250
16.00	2.5777	112285
16.25	2.5797	112372
16.50	2.5797	112372

Comment:

Node: Pond 2

Scenario: Dry
Type: Stage/Area

Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 13.75 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
9.91	0.0001	4
10.00	0.0191	832
10.25	0.2796	12179
10.50	0.3687	16061
10.75	0.4199	18291
11.00	0.4533	19746
11.25	0.4789	20861
11.50	0.5033	21924
11.75	0.5270	22956
12.00	0.5529	24084
12.25	0.5807	25295
12.50	0.6103	26585
12.75	0.6428	28000
13.00	0.6638	28915
13.25	0.6833	29765
13.50	0.6918	30135
13.75	0.6918	30135

Comment:

Node: BNDY1

Scenario: Wet
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 14.00 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: BNDY2

Scenario: Wet
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 13.75 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft

Boundary Stage:

Comment:

Node: GW

Scenario: Wet
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 9999.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: Pond 1

Scenario: Wet
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 5.70 ft
Warning Stage: 16.50 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
5.70	1.7625	76775
5.75	1.7726	77214
6.00	1.7899	77968
6.25	1.7992	78373
6.50	1.8075	78735
6.75	1.8143	79031
7.00	1.8217	79353
7.25	1.8287	79658
7.50	1.8351	79937
7.75	1.8408	80185
8.00	1.8487	80529
8.25	1.8566	80873
8.50	1.8677	81357
8.75	1.8830	82023
9.00	1.9033	82908
9.25	1.9264	83914
9.50	1.9552	85169
9.75	1.9867	86541
10.00	2.0177	87891

Stage [ft]	Area [ac]	Area [ft2]
10.25	2.0516	89368
10.50	2.0799	90600
10.75	2.1111	91960
11.00	2.1423	93319
11.25	2.1705	94547
11.50	2.2046	96032
11.75	2.2353	97370
12.00	2.2682	98803
12.25	2.3031	100323
12.50	2.3354	101730
12.75	2.3666	103089
13.00	2.4003	104557
13.25	2.4349	106064
13.50	2.4686	107532
13.75	2.5002	108909
14.00	2.5274	110094
14.25	2.5540	111252
14.50	2.5664	111792
14.75	2.5706	111975
15.00	2.5728	112071
15.25	2.5745	112145
15.50	2.5758	112202
15.75	2.5769	112250
16.00	2.5777	112285
16.25	2.5797	112372
16.50	2.5797	112372

Comment:

Node: Pond 2

Scenario: Wet
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 10.00 ft
Warning Stage: 13.75 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
9.91	0.0001	4
10.00	0.0191	832
10.25	0.2796	12179
10.50	0.3687	16061
10.75	0.4199	18291
11.00	0.4533	19746
11.25	0.4789	20861
11.50	0.5033	21924

Stage [ft]	Area [ac]	Area [ft2]
11.75	0.5270	22956
12.00	0.5529	24084
12.25	0.5807	25295
12.50	0.6103	26585
12.75	0.6428	28000
13.00	0.6638	28915
13.25	0.6833	29765
13.50	0.6918	30135
13.75	0.6918	30135

Comment:

Percolation Link: Perc 1

Scenario:	Design Storm	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 1		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	584.00 ft
Flow Direction:	Both	Perimeter 2:	922.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	3791.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: Perc 2

Scenario:	Design Storm	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 2		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	524.00 ft
Flow Direction:	Both	Perimeter 2:	838.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	2840.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Weir Link: W1

Scenario:	Design Storm	**Bottom Clip**	
From Node:	Pond 1	Default:	0.00 ft
To Node:	BNDY1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	14.00 ft	**Discharge Coefficients**	
Control Elevation:	14.00 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	40.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: W2

Scenario:	Design Storm	**Bottom Clip**	
From Node:	Pond 2	Default:	0.00 ft
To Node:	BNDY2	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	13.75 ft	**Discharge Coefficients**	
Control Elevation:	13.75 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	43.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	5.000 (h:v)		

Comment:

Percolation Link: Perc 1

Scenario:	Dry	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 1		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	584.00 ft
Flow Direction:	Both	Perimeter 2:	922.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	3791.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft

Horizontal Conductivity:	11.300 fpd		
Vertical Conductivity:	7.600 fpd	# of Cells P1 to P2:	10
Fillable Porosity:	0.400	# of Cells P2 to P3:	60
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: Perc 2

Scenario:	Dry	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 2		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	524.00 ft
Flow Direction:	Both	Perimeter 2:	838.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	2840.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Weir Link: W1

Scenario:	Dry	**Bottom Clip**	
From Node:	Pond 1	Default:	0.00 ft
To Node:	BNDY1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	14.00 ft	**Discharge Coefficients**	
Control Elevation:	14.00 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	40.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: W2

Scenario:	Dry	**Bottom Clip**	
From Node:	Pond 2	Default:	0.00 ft

To Node:	BNDY2		
Link Count:	1	Op Table:	
Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Broad Crested Vertical	Default:	0.00 ft
Geometry Type:	Trapezoidal	Op Table:	
Invert:	13.75 ft	Ref Node:	
Control Elevation:	13.75 ft	Discharge Coefficients	
Max Depth:	99.00 ft	Weir Default:	2.800
Extrapolation Method:	Normal Projection	Weir Table:	
Bottom Width:	43.00 ft	Orifice Default:	0.600
Left Slope:	4.000 (h:v)	Orifice Table:	
Right Slope:	5.000 (h:v)		

Comment:

Percolation Link: Perc 1

Scenario:	Wet	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 1		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	584.00 ft
Flow Direction:	Both	Perimeter 2:	922.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	3791.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: Perc 2

Scenario:	Wet	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 2		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	524.00 ft
Flow Direction:	Both	Perimeter 2:	838.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	2840.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Weir Link: W1

Scenario:	Wet	**Bottom Clip**	
From Node:	Pond 1	Default:	0.00 ft
To Node:	BNDY1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	14.00 ft	**Discharge Coefficients**	
Control Elevation:	14.00 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	40.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: W2

Scenario:	Wet	**Bottom Clip**	
From Node:	Pond 2	Default:	0.00 ft
To Node:	BNDY2	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	13.75 ft	**Discharge Coefficients**	
Control Elevation:	13.75 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	43.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	5.000 (h:v)		

Comment:

Simulation: 100yr-72hr

Scenario:	Design Storm
Run Date/Time:	10/16/2025 10:25:48 AM
Program Version:	StormWise 4.08.03

General

Run Mode:	Normal

Year	Month	Day	Hour [hr]

Start Time:	0	0	0	0.0000
End Time:	0	0	0	100.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: CN- Numbers
Green-Ampt Set: Green Ampt
Vertical Layers Set:
Impervious Set: Impervious
Roughness Set: Roughness
Crop Coef Set:
Fillable Porosity Set: Filliable Porosity Set
Conductivity Set: Conductivity
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
IA Recovery Time: 24.0000 hr
ET for Manual Basins: False
Ia/S: 0.20 dec

dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	OF Region Rain Opt:	Global
		Rainfall Name:	~SFWMD-72
Edge Length Option:	Automatic	Rainfall Amount:	14.90 in
		Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25yr-72hr

Scenario: Design Storm
Run Date/Time: 10/16/2025 10:25:50 AM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	100.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	30.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: CN- Numbers
Green-Ampt Set: Green Ampt
Vertical Layers Set:
Impervious Set: Impervious
Roughness Set: Roughness
Crop Coef Set:
Fillable Porosity Set: Filliable Porosity Set
Conductivity Set: Conductivity
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic
Dflt Damping (2D): 0.0050 ft
Min Node Srf Area (2D): 100 ft2
Energy Switch (2D): Energy

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
OF Region Rain Opt: Global
Rainfall Name: ~SFWMD-72
Rainfall Amount: 11.20 in
Storm Duration: 72.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment:

5. EXISTING DESIGN MODEL CALCULATIONS

A. Basins Maximum Conditions Report
B. Nodes Maximum Conditions Report
C. Links Maximum Conditions Report

5A. BASINS MAXIMUM CONDITIONS REPORT

Exisitng Conditions - Max Basin Conditions (Design)

Manual Basin : Multi Item | (sim, name) : Runoff Summary [Design Storm]

Sim Name	Basin Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
100yr-72hr	B1	128.33	60.0167	14.90	13.32	19.9081
100yr-72hr	B2	112.28	60.0000	14.90	12.83	15.6893
25yr-72hr	B1	95.11	60.0250	11.20	9.68	19.9081
25yr-72hr	B2	82.82	60.0000	11.20	9.19	15.6893

5B. NODES MAXIMUM CONDITIONS REPORT

Exisitng Conditions - Max Node Conditions (Design)

Node Max Conditions : Multi Item | (sim, name) [Design Storm]

Sim Name	Node Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
100yr-72hr	BNDY1	14.00	0.00	14.00	0.0000	107.96	0.00	0
100yr-72hr	BNDY2	14.00	0.00	13.75	0.0000	110.74	0.00	0
100yr-72hr	GW	9999.00	0.00	13.00	0.0000	0.85	0.04	0
100yr-72hr	Pond 1	16.50	0.00	14.93	-0.0010	128.32	108.41	112044
100yr-72hr	Pond 2	13.75	0.00	14.65	-0.0010	112.27	111.10	30135
25yr-72hr	BNDY1	14.00	0.00	14.00	0.0000	77.28	0.00	0
25yr-72hr	BNDY2	14.00	0.00	13.75	0.0000	81.43	0.00	0
25yr-72hr	GW	9999.00	0.00	13.00	0.0000	0.71	0.02	0
25yr-72hr	Pond 1	16.50	0.00	14.75	0.0010	95.11	77.66	111976
25yr-72hr	Pond 2	13.75	0.00	14.49	-0.0010	82.82	81.73	30135

5C. LINKS MAXIMUM CONDITIONS REPORT

Exisitng Conditions - Max Link Conditions (Design)

Link Min/Max Conditions : Multi Item | (sim, name) [Design Storm]

Sim Name	Link Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
100yr-72hr	Perc 1	0.48	0.00	0.00	0.00	0.00	0.00
100yr-72hr	Perc 2	0.43	-0.04	0.00	0.00	0.00	0.00
100yr-72hr	W1	107.96	0.00	0.18	2.65	2.65	2.65
100yr-72hr	W2	110.74	0.00	-0.19	2.61	2.61	2.61
25yr-72hr	Perc 1	0.40	0.00	0.00	0.00	0.00	0.00
25yr-72hr	Perc 2	0.36	-0.02	0.00	0.00	0.00	0.00
25yr-72hr	W1	77.28	0.00	0.15	2.39	2.39	2.39
25yr-72hr	W2	81.43	0.00	-0.16	2.37	2.37	2.37

6. EXISTING DRY CONTINUOUS MODEL CALCULATIONS

A. Basins Maximum Conditions Report
B. Nodes Maximum Conditions Report
C. Links Maximum Conditions Report

6A. BASINS MAXIMUM CONDITIONS REPORT

Existing Conditions - Max Basin Conditions (Dry)

Manual Basin : Multi Item | (sim, name) : Runoff Summary [Dry]

Sim Name	Basin Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
100yr-72hr	B1	128.31	60.0250	14.90	13.33	19.9081
100yr-72hr	B2	112.18	60.0000	14.90	12.82	15.6893
25yr-72hr	B1	95.11	60.0250	11.20	9.68	19.9081
25yr-72hr	B2	82.82	60.0000	11.20	9.19	15.6893

6B NODES MAXIMUM CONDITIONS REPORT

Existing Conditions - Max Node Conditions (Dry)

Node Max Conditions : Multi Item | (sim, name) [Dry]

Sim Name	Node Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
100yr-72hr	BNDY1	14.00	0.00	14.00	0.0000	108.03	0.00	0
100yr-72hr	BNDY2	14.00	0.00	13.75	0.0000	110.68	0.00	0
100yr-72hr	GW	9999.00	0.00	13.00	0.0000	0.85	0.04	0
100yr-72hr	Pond 1	16.50	0.00	14.93	-0.0010	128.31	108.49	112045
100yr-72hr	Pond 2	13.75	0.00	14.65	0.0010	112.17	111.05	30135
25yr-72hr	BNDY1	14.00	0.00	14.00	0.0000	77.28	0.00	0
25yr-72hr	BNDY2	14.00	0.00	13.75	0.0000	81.43	0.00	0
25yr-72hr	GW	9999.00	0.00	13.00	0.0000	0.71	0.02	0
25yr-72hr	Pond 1	16.50	0.00	14.75	0.0010	95.11	77.66	111976
25yr-72hr	Pond 2	13.75	0.00	14.49	-0.0010	82.82	81.73	30135

6C. LINKS MAXIMUM CONDITIONS REPORT

Existing Conditions - Max Link Conditions (Dry)

Link Min/Max Conditions : Multi Item | (sim, name) [Dry]

Sim Name	Link Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
100yr-72hr	Perc 1	0.48	0.00	0.00	0.00	0.00	0.00
100yr-72hr	Perc 2	0.43	-0.04	0.00	0.00	0.00	0.00
100yr-72hr	W1	108.03	0.00	0.17	2.66	2.66	2.66
100yr-72hr	W2	110.68	0.00	-0.19	2.61	2.61	2.61
25yr-72hr	Perc 1	0.40	0.00	0.00	0.00	0.00	0.00
25yr-72hr	Perc 2	0.36	-0.02	0.00	0.00	0.00	0.00
25yr-72hr	W1	77.28	0.00	0.15	2.39	2.39	2.39
25yr-72hr	W2	81.43	0.00	-0.16	2.37	2.37	2.37

7. PROPOSED DESIGN/DRY CONTINUOUS INPUT REPORT

A. Input Report

7A. INPUT REPORT

Manual Basin: B1

Scenario: Design
Node: Pond 1
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 19.9023 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
0.4033	RANGELAND	44			
2.1830	LOW-DENSITY RESIDENTIAL	44			
0.8821	UPLAND FORESTS	44			
1.0669	INSTITUTIONAL	44			
4.0843	INSTITUTIONAL	119			
3.5724	IMPERVIOUS	119			
0.1156	WETLAND	119			
3.8147	LOW-DENSITY RESIDENTIAL	36			
0.9699	UPLAND FORESTS	36			
0.0484	IMPERVIOUS	44			
0.2564	INSTITUTIONAL	36			
0.1405	IMPERVIOUS	36			
1.1836	WATER	119			
0.3096	WATER	44			
0.0169	RANGELAND	36			
0.6163	INSTITUTIONAL	34			
0.0628	WETLAND	34			
0.0001	IMPERVIOUS	34			
0.1757	WETLAND	44			

Comment:

Manual Basin: B2

Scenario: Design
Node: Pond 2
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 6.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0

Area: 15.6765 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
2.1584	LOW-DENSITY RESIDENTIAL	27			
4.3647	RANGELAND	27			
4.4137	LOW-DENSITY RESIDENTIAL	132			
2.8819	RANGELAND	28			
0.1881	WETLAND	27			
0.1071	RANGELAND	132			
1.5582	RANGELAND	44			
0.0044	WETLAND	132			

Comment:

Manual Basin: PRPB

Scenario: Design
Node: Proposed Pond
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 23.9525 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
6.0423	WETLAND	27			
1.9167	RANGELAND	27			
7.8351	IMPERVIOUS	27			
0.0004	LOW-DENSITY RESIDENTIAL	27			
2.4275	RANGELAND	44			
0.9814	WETLAND	44			
0.0065	IMPERVIOUS	44			
1.8876	WATER	44			
0.0352	WATER	27			
0.4720	LOW-DENSITY RESIDENTIAL	44			
0.3236	RANGELAND	28			
2.0182	PERVIOUS	44			
0.0055	UPLAND FORESTS	44			
0.0006	INSTITUTIONAL	44			

Comment:

Manual Basin: B1

Scenario: Dry
Node: Pond 1
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 19.9023 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
0.4033	RANGELAND	44			
2.1830	LOW-DENSITY RESIDENTIAL	44			
0.8821	UPLAND FORESTS	44			
1.0669	INSTITUTIONAL	44			
4.0843	INSTITUTIONAL	119			
3.5724	IMPERVIOUS	119			
0.1156	WETLAND	119			
3.8147	LOW-DENSITY RESIDENTIAL	36			
0.9699	UPLAND FORESTS	36			
0.0484	IMPERVIOUS	44			
0.2564	INSTITUTIONAL	36			
0.1405	IMPERVIOUS	36			
1.1836	WATER	119			
0.3096	WATER	44			
0.0169	RANGELAND	36			
0.6163	INSTITUTIONAL	34			
0.0628	WETLAND	34			
0.0001	IMPERVIOUS	34			
0.1757	WETLAND	44			

Comment:

Manual Basin: B2

Scenario: Dry
Node: Pond 2
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 6.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0

Area: 15.6765 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
2.1584	LOW-DENSITY RESIDENTIAL	27			
4.3647	RANGELAND	27			
4.4137	LOW-DENSITY RESIDENTIAL	132			
2.8819	RANGELAND	28			
0.1881	WETLAND	27			
0.1071	RANGELAND	132			
1.5582	RANGELAND	44			
0.0044	WETLAND	132			

Comment:

Manual Basin: PRPB

Scenario: Dry
Node: Proposed Pond
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 23.9525 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
6.0423	WETLAND	27			
1.9167	RANGELAND	27			
7.8351	IMPERVIOUS	27			
0.0004	LOW-DENSITY RESIDENTIAL	27			
2.4275	RANGELAND	44			
0.9814	WETLAND	44			
0.0065	IMPERVIOUS	44			
1.8876	WATER	44			
0.0352	WATER	27			
0.4720	LOW-DENSITY RESIDENTIAL	44			
0.3236	RANGELAND	28			
2.0182	PERVIOUS	44			
0.0055	UPLAND FORESTS	44			
0.0006	INSTITUTIONAL	44			

Comment:

Manual Basin: B1

Scenario: Wet
Node: Pond 1
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 19.9023 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
0.4033	RANGELAND	44			
2.1830	LOW-DENSITY RESIDENTIAL	44			
0.8821	UPLAND FORESTS	44			
1.0669	INSTITUTIONAL	44			
4.0843	INSTITUTIONAL	119			
3.5724	IMPERVIOUS	119			
0.1156	WETLAND	119			
3.8147	LOW-DENSITY RESIDENTIAL	36			
0.9699	UPLAND FORESTS	36			
0.0484	IMPERVIOUS	44			
0.2564	INSTITUTIONAL	36			
0.1405	IMPERVIOUS	36			
1.1836	WATER	119			
0.3096	WATER	44			
0.0169	RANGELAND	36			
0.6163	INSTITUTIONAL	34			
0.0628	WETLAND	34			
0.0001	IMPERVIOUS	34			
0.1757	WETLAND	44			

Comment:

Manual Basin: B2

Scenario: Wet
Node: Pond 2
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 6.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0

Area: 15.6765 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
2.1584	LOW-DENSITY RESIDENTIAL	27			
4.3647	RANGELAND	27			
4.4137	LOW-DENSITY RESIDENTIAL	132			
2.8819	RANGELAND	28			
0.1881	WETLAND	27			
0.1071	RANGELAND	132			
1.5582	RANGELAND	44			
0.0044	WETLAND	132			

Comment:

Manual Basin: PRPB

Scenario: Wet
Node: Proposed Pond
Hydrograph Method: NRCS Unit Hydrograph
Infiltration Method: Curve Number
Time of Concentration: 10.0000 min
Max Allowable Q: 9999.00 cfs
Time Shift: 0.0000 hr
Unit Hydrograph: UH256
Peaking Factor: 256.0
Area: 23.9525 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name	Crop Coefficient Zone	Reference ET Station
6.0423	WETLAND	27			
1.9167	RANGELAND	27			
7.8351	IMPERVIOUS	27			
0.0004	LOW-DENSITY RESIDENTIAL	27			
2.4275	RANGELAND	44			
0.9814	WETLAND	44			
0.0065	IMPERVIOUS	44			
1.8876	WATER	44			
0.0352	WATER	27			
0.4720	LOW-DENSITY RESIDENTIAL	44			
0.3236	RANGELAND	28			
2.0182	PERVIOUS	44			
0.0055	UPLAND FORESTS	44			
0.0006	INSTITUTIONAL	44			

Comment:

Node: BNDY1

Scenario:	Design
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	14.00 ft
Warning Stage:	14.00 ft
Alert Stage:	0.00 ft
Boundary Stage:	

Comment:

Node: BNDY2

Scenario:	Design
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	13.75 ft
Warning Stage:	14.00 ft
Alert Stage:	0.00 ft
Boundary Stage:	

Comment:

Node: GW

Scenario:	Design
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	13.00 ft
Warning Stage:	9999.00 ft
Alert Stage:	0.00 ft
Boundary Stage:	

Comment:

Node: Pond 1

Scenario:	Design
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	13.00 ft
Warning Stage:	16.50 ft

Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
5.75	1.8216	79349
6.00	1.8431	80285
6.25	1.8628	81144
6.50	1.8847	82098
6.75	1.9068	83060
7.00	1.9267	83927
7.25	1.9494	84916
7.50	1.9705	85835
7.75	1.9921	86776
8.00	2.0146	87756
8.25	2.0368	88723
8.50	2.0587	89677
8.75	2.0803	90618
9.00	2.1040	91650
9.25	2.1262	92617
9.50	2.1489	93606
9.75	2.1711	94573
10.00	2.1942	95579
10.25	2.2175	96594
10.50	2.2410	97618
10.75	2.2643	98633
11.00	2.2871	99626
11.25	2.3115	100689
11.50	2.3357	101743
11.75	2.3582	102723
12.00	2.3833	103817
12.25	2.4072	104858
12.50	2.4308	105886
12.75	2.4568	107018
13.00	2.4803	108042
13.25	2.5056	109144
13.50	2.5303	110220
13.75	2.5560	111339
14.00	2.5767	112241
14.25	2.5797	112372
14.50	2.5797	112372

Comment:

Node: Pond 2

Scenario: Design
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft

Warning Stage: 13.75 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
9.25	0.3927	17106
9.50	0.4075	17751
9.75	0.4223	18395
10.00	0.4386	19105
10.25	0.4537	19763
10.50	0.4697	20460
10.75	0.4852	21135
11.00	0.5017	21854
11.25	0.5178	22555
11.50	0.5345	23283
11.75	0.5515	24023
12.00	0.5690	24786
12.25	0.5866	25552
12.50	0.6043	26323
12.75	0.6228	27129
13.00	0.6407	27909
13.25	0.6589	28702
13.50	0.6916	30126
13.75	0.6918	30135
14.00	0.6918	30135

Comment:

Node: Proposed Pond

Scenario: Design
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 15.00 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
0.00	0.4672	20351
0.25	0.4740	20647
0.50	0.4801	20913
0.75	0.4871	21218
1.00	0.4931	21479
1.25	0.5001	21784
1.50	0.5064	22059
1.75	0.5133	22359
2.00	0.5197	22638
2.25	0.5267	22943
2.50	0.5334	23235

Stage [ft]	Area [ac]	Area [ft2]
2.75	0.5404	23540
3.00	0.5470	23827
3.25	0.5540	24132
3.50	0.5607	24424
3.75	0.5678	24733
4.00	0.5746	25030
4.25	0.5819	25348
4.50	0.5885	25635
4.75	0.5960	25962
5.00	0.6029	26262
5.25	0.6103	26585
5.50	0.6172	26885
5.75	0.6247	27212
6.00	0.6317	27517
6.25	0.6392	27844
6.50	0.6463	28153
6.75	0.6538	28480
7.00	0.6611	28798
7.25	0.6688	29133
7.50	0.6761	29451
7.75	0.6838	29786
8.00	0.6909	30096
8.25	0.6990	30448
8.50	0.7061	30758
8.75	0.7141	31106
9.00	0.7216	31433
9.25	0.7297	31786
9.50	0.7371	32108
9.75	0.7452	32461
10.00	0.7527	32788
10.25	0.7610	33149
10.50	0.7684	33472
10.75	0.7767	33833
11.00	0.7845	34173
11.25	0.7976	34743
11.50	0.8103	35297
11.75	0.8229	35846
12.00	0.8369	36455
12.25	0.8934	38917
12.50	0.9506	41408
12.75	1.0094	43969
13.00	1.0703	46622
13.25	1.1324	49327
13.50	1.1959	52093
13.75	1.2615	54951
14.00	1.3284	57865
14.25	1.3968	60845
14.50	1.4670	63903
14.75	1.5386	67021

Stage [ft]	Area [ac]	Area [ft2]
15.00	1.6085	70066
15.25	1.6091	70092
15.50	1.6091	70092

Comment:

Node: PRPBNDY

Scenario: Design
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 14.00 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: BNDY1

Scenario: Dry
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 14.00 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: BNDY2

Scenario: Dry
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 13.75 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: GW

Scenario: Dry
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 9999.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: Pond 1

Scenario: Dry
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 16.50 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
5.75	1.8216	79349
6.00	1.8431	80285
6.25	1.8628	81144
6.50	1.8847	82098
6.75	1.9068	83060
7.00	1.9267	83927
7.25	1.9494	84916
7.50	1.9705	85835
7.75	1.9921	86776
8.00	2.0146	87756
8.25	2.0368	88723
8.50	2.0587	89677
8.75	2.0803	90618
9.00	2.1040	91650
9.25	2.1262	92617
9.50	2.1489	93606
9.75	2.1711	94573
10.00	2.1942	95579
10.25	2.2175	96594
10.50	2.2410	97618
10.75	2.2643	98633
11.00	2.2871	99626
11.25	2.3115	100689
11.50	2.3357	101743
11.75	2.3582	102723
12.00	2.3833	103817

Stage [ft]	Area [ac]	Area [ft2]
12.25	2.4072	104858
12.50	2.4308	105886
12.75	2.4568	107018
13.00	2.4803	108042
13.25	2.5056	109144
13.50	2.5303	110220
13.75	2.5560	111339
14.00	2.5767	112241
14.25	2.5797	112372
14.50	2.5797	112372

Comment:

Node: Pond 2

Scenario: Dry
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 13.75 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
9.25	0.3927	17106
9.50	0.4075	17751
9.75	0.4223	18395
10.00	0.4386	19105
10.25	0.4537	19763
10.50	0.4697	20460
10.75	0.4852	21135
11.00	0.5017	21854
11.25	0.5178	22555
11.50	0.5345	23283
11.75	0.5515	24023
12.00	0.5690	24786
12.25	0.5866	25552
12.50	0.6043	26323
12.75	0.6228	27129
13.00	0.6407	27909
13.25	0.6589	28702
13.50	0.6916	30126
13.75	0.6918	30135
14.00	0.6918	30135

Comment:

Node: Proposed Pond

Scenario: Dry
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 15.00 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
0.00	0.4672	20351
0.25	0.4740	20647
0.50	0.4801	20913
0.75	0.4871	21218
1.00	0.4931	21479
1.25	0.5001	21784
1.50	0.5064	22059
1.75	0.5133	22359
2.00	0.5197	22638
2.25	0.5267	22943
2.50	0.5334	23235
2.75	0.5404	23540
3.00	0.5470	23827
3.25	0.5540	24132
3.50	0.5607	24424
3.75	0.5678	24733
4.00	0.5746	25030
4.25	0.5819	25348
4.50	0.5885	25635
4.75	0.5960	25962
5.00	0.6029	26262
5.25	0.6103	26585
5.50	0.6172	26885
5.75	0.6247	27212
6.00	0.6317	27517
6.25	0.6392	27844
6.50	0.6463	28153
6.75	0.6538	28480
7.00	0.6611	28798
7.25	0.6688	29133
7.50	0.6761	29451
7.75	0.6838	29786
8.00	0.6909	30096
8.25	0.6990	30448
8.50	0.7061	30758
8.75	0.7141	31106
9.00	0.7216	31433
9.25	0.7297	31786
9.50	0.7371	32108
9.75	0.7452	32461
10.00	0.7527	32788

Stage [ft]	Area [ac]	Area [ft2]
10.25	0.7610	33149
10.50	0.7684	33472
10.75	0.7767	33833
11.00	0.7845	34173
11.25	0.7976	34743
11.50	0.8103	35297
11.75	0.8229	35846
12.00	0.8369	36455
12.25	0.8934	38917
12.50	0.9506	41408
12.75	1.0094	43969
13.00	1.0703	46622
13.25	1.1324	49327
13.50	1.1959	52093
13.75	1.2615	54951
14.00	1.3284	57865
14.25	1.3968	60845
14.50	1.4670	63903
14.75	1.5386	67021
15.00	1.6085	70066
15.25	1.6091	70092
15.50	1.6091	70092

Comment:

Node: PRPBNDY

Scenario: Dry
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 14.00 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: BNDY1

Scenario: Wet
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 14.00 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft

Boundary Stage:

Comment:

Node: BNDY2

Scenario: Wet
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 13.75 ft
Warning Stage: 14.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: GW

Scenario: Wet
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 9999.00 ft
Alert Stage: 0.00 ft
Boundary Stage:

Comment:

Node: Pond 1

Scenario: Wet
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 16.50 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
5.75	1.8216	79349
6.00	1.8431	80285
6.25	1.8628	81144
6.50	1.8847	82098

Stage [ft]	Area [ac]	Area [ft2]
6.75	1.9068	83060
7.00	1.9267	83927
7.25	1.9494	84916
7.50	1.9705	85835
7.75	1.9921	86776
8.00	2.0146	87756
8.25	2.0368	88723
8.50	2.0587	89677
8.75	2.0803	90618
9.00	2.1040	91650
9.25	2.1262	92617
9.50	2.1489	93606
9.75	2.1711	94573
10.00	2.1942	95579
10.25	2.2175	96594
10.50	2.2410	97618
10.75	2.2643	98633
11.00	2.2871	99626
11.25	2.3115	100689
11.50	2.3357	101743
11.75	2.3582	102723
12.00	2.3833	103817
12.25	2.4072	104858
12.50	2.4308	105886
12.75	2.4568	107018
13.00	2.4803	108042
13.25	2.5056	109144
13.50	2.5303	110220
13.75	2.5560	111339
14.00	2.5767	112241
14.25	2.5797	112372
14.50	2.5797	112372

Comment:

Node: Pond 2

Scenario: Wet
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 13.75 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
9.25	0.3927	17106
9.50	0.4075	17751

Stage [ft]	Area [ac]	Area [ft2]
9.75	0.4223	18395
10.00	0.4386	19105
10.25	0.4537	19763
10.50	0.4697	20460
10.75	0.4852	21135
11.00	0.5017	21854
11.25	0.5178	22555
11.50	0.5345	23283
11.75	0.5515	24023
12.00	0.5690	24786
12.25	0.5866	25552
12.50	0.6043	26323
12.75	0.6228	27129
13.00	0.6407	27909
13.25	0.6589	28702
13.50	0.6916	30126
13.75	0.6918	30135
14.00	0.6918	30135

Comment:

Node: Proposed Pond

Scenario: Wet
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 13.00 ft
Warning Stage: 15.00 ft
Alert Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
0.00	0.4672	20351
0.25	0.4740	20647
0.50	0.4801	20913
0.75	0.4871	21218
1.00	0.4931	21479
1.25	0.5001	21784
1.50	0.5064	22059
1.75	0.5133	22359
2.00	0.5197	22638
2.25	0.5267	22943
2.50	0.5334	23235
2.75	0.5404	23540
3.00	0.5470	23827
3.25	0.5540	24132
3.50	0.5607	24424
3.75	0.5678	24733

Stage [ft]	Area [ac]	Area [ft2]
4.00	0.5746	25030
4.25	0.5819	25348
4.50	0.5885	25635
4.75	0.5960	25962
5.00	0.6029	26262
5.25	0.6103	26585
5.50	0.6172	26885
5.75	0.6247	27212
6.00	0.6317	27517
6.25	0.6392	27844
6.50	0.6463	28153
6.75	0.6538	28480
7.00	0.6611	28798
7.25	0.6688	29133
7.50	0.6761	29451
7.75	0.6838	29786
8.00	0.6909	30096
8.25	0.6990	30448
8.50	0.7061	30758
8.75	0.7141	31106
9.00	0.7216	31433
9.25	0.7297	31786
9.50	0.7371	32108
9.75	0.7452	32461
10.00	0.7527	32788
10.25	0.7610	33149
10.50	0.7684	33472
10.75	0.7767	33833
11.00	0.7845	34173
11.25	0.7976	34743
11.50	0.8103	35297
11.75	0.8229	35846
12.00	0.8369	36455
12.25	0.8934	38917
12.50	0.9506	41408
12.75	1.0094	43969
13.00	1.0703	46622
13.25	1.1324	49327
13.50	1.1959	52093
13.75	1.2615	54951
14.00	1.3284	57865
14.25	1.3968	60845
14.50	1.4670	63903
14.75	1.5386	67021
15.00	1.6085	70066
15.25	1.6091	70092
15.50	1.6091	70092

Comment:

Node: PRPBNDY

Scenario:	Wet
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	14.00 ft
Warning Stage:	14.00 ft
Alert Stage:	0.00 ft
Boundary Stage:	

Comment:

Percolation Link: Perc 1

Scenario:	Design	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 1		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	584.00 ft
Flow Direction:	Both	Perimeter 2:	922.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	3791.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: Perc 2

Scenario:	Design	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 2		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	524.00 ft
Flow Direction:	Both	Perimeter 2:	838.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	2840.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PRPPERC

Scenario:	Design	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Proposed Pond		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	969.00 ft
Flow Direction:	Both	Perimeter 2:	1283.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	3170.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Weir Link: PRPW

Scenario:	Design	**Bottom Clip**	
From Node:	Proposed Pond	Default:	0.00 ft
To Node:	PRPBNDY	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	14.00 ft	**Discharge Coefficients**	
Control Elevation:	14.00 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	41.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: W1

Scenario:	Design	**Bottom Clip**	
From Node:	Pond 1	Default:	0.00 ft
To Node:	BNDY1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	14.00 ft	**Discharge Coefficients**	
Control Elevation:	14.00 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	

Extrapolation Method:	Normal Projection		
Bottom Width:	40.00 ft	Orifice Default:	0.600
Left Slope:	4.000 (h:v)	Orifice Table:	
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: W2

Scenario:	Design	Bottom Clip	
From Node:	Pond 2	Default:	0.00 ft
To Node:	BNDY2	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	13.75 ft	Discharge Coefficients	
Control Elevation:	13.75 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	43.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	5.000 (h:v)		

Comment:

Percolation Link: Perc 1

Scenario:	Dry	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 1		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	584.00 ft
Flow Direction:	Both	Perimeter 2:	922.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	3791.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: Perc 2

Scenario:	Dry	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 2		

To Node:	GW		
Link Count:	1	Vertical Flow Termination:	Horizontal Flow Algorithm
Flow Direction:	Both	Perimeter 1:	524.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 2:	838.00 ft
Water Table Elevation:	13.00 ft	Perimeter 3:	2840.00 ft
Annual Recharge Rate:	0 ipy	Distance P1 to P2:	50.00 ft
Horizontal Conductivity:	11.300 fpd	Distance P2 to P3:	300.00 ft
Vertical Conductivity:	7.600 fpd	# of Cells P1 to P2:	10
Fillable Porosity:	0.400	# of Cells P2 to P3:	60
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PRPPERC

Scenario:	Dry	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Proposed Pond		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	969.00 ft
Flow Direction:	Both	Perimeter 2:	1283.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	3170.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Weir Link: PRPW

Scenario:	Dry	Bottom Clip	
From Node:	Proposed Pond	Default:	0.00 ft
To Node:	PRPBNDY	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	14.00 ft	Discharge Coefficients	
Control Elevation:	14.00 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	41.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: W1			
Scenario:	Dry	Bottom Clip	
From Node:	Pond 1	Default:	0.00 ft
To Node:	BNDY1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	14.00 ft	Discharge Coefficients	
Control Elevation:	14.00 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	40.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		
Comment:			

Weir Link: W2			
Scenario:	Dry	Bottom Clip	
From Node:	Pond 2	Default:	0.00 ft
To Node:	BNDY2	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	13.75 ft	Discharge Coefficients	
Control Elevation:	13.75 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	43.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	5.000 (h:v)		
Comment:			

Percolation Link: Perc 1			
Scenario:	Wet	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 1		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	584.00 ft
Flow Direction:	Both	Perimeter 2:	922.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	3791.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft

Horizontal Conductivity:	11.300 fpd		
Vertical Conductivity:	7.600 fpd	# of Cells P1 to P2:	10
Fillable Porosity:	0.400	# of Cells P2 to P3:	60
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: Perc 2

Scenario:	Wet	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Pond 2		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	524.00 ft
Flow Direction:	Both	Perimeter 2:	838.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	2840.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Percolation Link: PRPPERC

Scenario:	Wet	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Proposed Pond		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	969.00 ft
Flow Direction:	Both	Perimeter 2:	1283.00 ft
Aquifer Base Elevation:	-20.00 ft	Perimeter 3:	3170.00 ft
Water Table Elevation:	13.00 ft	Distance P1 to P2:	50.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	300.00 ft
Horizontal Conductivity:	11.300 fpd	# of Cells P1 to P2:	10
Vertical Conductivity:	7.600 fpd	# of Cells P2 to P3:	60
Fillable Porosity:	0.400		
Layer Thickness:	0.00 ft		

Comment:

Weir Link: PRPW

Scenario:	Wet	Bottom Clip	
From Node:	Proposed Pond	Default:	0.00 ft
To Node:	PRPBNDY	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	

Damping:	0.0000 ft		
Weir Type:	Broad Crested Vertical	Default:	0.00 ft
Geometry Type:	Trapezoidal	Op Table:	
Invert:	14.00 ft	Ref Node:	
Control Elevation:	14.00 ft	Discharge Coefficients	
Max Depth:	99.00 ft	Weir Default:	2.800
Extrapolation Method:	Normal Projection	Weir Table:	
Bottom Width:	41.00 ft	Orifice Default:	0.600
Left Slope:	4.000 (h:v)	Orifice Table:	
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: W1

Scenario:	Wet	Bottom Clip	
From Node:	Pond 1	Default:	0.00 ft
To Node:	BNDY1	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	14.00 ft	Discharge Coefficients	
Control Elevation:	14.00 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	40.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		
Right Slope:	4.000 (h:v)		

Comment:

Weir Link: W2

Scenario:	Wet	Bottom Clip	
From Node:	Pond 2	Default:	0.00 ft
To Node:	BNDY2	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Trapezoidal	Ref Node:	
Invert:	13.75 ft	Discharge Coefficients	
Control Elevation:	13.75 ft	Weir Default:	2.800
Max Depth:	99.00 ft	Weir Table:	
Extrapolation Method:	Normal Projection	Orifice Default:	0.600
Bottom Width:	43.00 ft	Orifice Table:	
Left Slope:	4.000 (h:v)		

Right Slope: 5.000 (h:v)

Comment:

Simulation: 100yr-72hr

Scenario: Design
Run Date/Time: 10/16/2025 7:18:55 PM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	100.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	30.0000	0.1000	3600.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	1.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	16.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: CN- Numbers

Green-Ampt Set:	Green Ampt
Vertical Layers Set:	
Impervious Set:	Impervious
Roughness Set:	Roughness
Crop Coef Set:	
Fillable Porosity Set:	Filliable Porosity Set
Conductivity Set:	Conductivity
Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0010 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	OF Region Rain Opt:	Global
		Rainfall Name:	~SFWMD-72
Edge Length Option:	Automatic	Rainfall Amount:	14.90 in
		Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25yr-72hr

Scenario:	Design
Run Date/Time:	10/16/2025 7:20:28 PM
Program Version:	StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	100.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	30.0000	0.1000	3600.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	1.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	16.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set: CN- Numbers
Green-Ampt Set: Green Ampt
Vertical Layers Set:
Impervious Set: Impervious
Roughness Set: Roughness
Crop Coef Set:
Fillable Porosity Set: Filliable Porosity Set
Conductivity Set: Conductivity
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic
Dflt Damping (2D): 0.0050 ft
Min Node Srf Area 100 ft2

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
OF Region Rain Opt: Global
Rainfall Name: ~SFWMD-72
Rainfall Amount: 11.20 in
Storm Duration: 72.0000 hr
Dflt Damping (1D): 0.0050 ft
Min Node Srf Area 100 ft2

(2D): (1D):
Energy Switch (2D): Energy Energy Switch (1D): Energy

Comment:

Simulation: 100yr-72hr

Scenario: Dry
Run Date/Time: 10/16/2025 7:21:43 PM
Program Version: StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	2024	9	8	0.4896
End Time:	2025	5	14	0.4896

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	30.0000	0.1000	3600.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	20.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	16.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:

Lookup Tables

Boundary Stage Set: GW 49-11- DRY
Extern Hydrograph Set:

Unit Hydrograph Folder:		Curve Number Set:	CN- Numbers
		Green-Ampt Set:	Green Ampt
		Vertical Layers Set:	
		Impervious Set:	Impervious
		Roughness Set:	Roughness
		Crop Coef Set:	
		Fillable Porosity Set:	Filliable Porosity Set
		Conductivity Set:	Conductivity
		Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec	Ia/S:	0.20 dec
dZ Tolerance:	0.0001 ft		
Max dZ:	1.0000 ft	Smp/Man Basin Rain Opt:	Global
Link Optimizer Tol:	0.0000 ft	OF Region Rain Opt:	No Rainfall
		Rainfall Name:	~SFWMD-72
Edge Length Option:	Automatic	Rainfall Amount:	14.90 in
		Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0100 ft	Dflt Damping (1D):	0.0100 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25yr-72hr

Scenario:	Dry
Run Date/Time:	10/16/2025 10:41:17 PM
Program Version:	StormWise 4.08.03

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	2024	9	8	0.4896
End Time:	2025	5	14	0.4896

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	30.0000	0.1000	3600.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	20.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	16.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set: GW 49-11- DRY
Extern Hydrograph Set:
Curve Number Set: CN- Numbers
Green-Ampt Set: Green Ampt
Vertical Layers Set:
Impervious Set: Impervious
Roughness Set: Roughness
Crop Coef Set:
Fillable Porosity Set: Filliable Porosity Set
Conductivity Set: Conductivity
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0001 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0000 ft
Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False
Ia/S: 0.20 dec
Smp/Man Basin Rain Opt: Global
OF Region Rain Opt: No Rainfall
Rainfall Name: ~SFWMD-72
Rainfall Amount: 11.20 in
Storm Duration: 72.0000 hr

Dflt Damping (2D):	0.0100 ft	Dflt Damping (1D):	0.0100 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

8. PROPOSED DESIGN MODEL CALCULATIONS

A. Basins Maximum Conditions Report
B. Nodes Maximum Conditions Report
C. Links Maximum Conditions Report

8A. BASINS MAXIMUM CONDITIONS REPORT

Proposed Conditions - Max Basin Conditions (Design)

Manual Basin : Multi Item | (sim, name) : Runoff Summary [Design]

Sim Name	Basin Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
100yr-72hr	B1	128.27	60.0250	14.90	13.33	19.9023
100yr-72hr	B2	112.09	60.0000	14.90	12.82	15.6765
100yr-72hr	PRPB	155.04	60.0167	14.90	13.59	23.9525
25yr-72hr	B1	95.09	60.0250	11.20	9.68	19.9023
25yr-72hr	B2	82.75	60.0000	11.20	9.19	15.6765
25yr-72hr	PRPB	115.24	60.0250	11.20	9.93	23.9525

8B. NODES MAXIMUM CONDITIONS REPORT

Proposed Conditions - Max Node Conditions (Design)

Node Max Conditions : Multi Item | (sim, name) [Design]

Sim Name	Node Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
100yr-72hr	BNDY1	14.00	0.00	14.00	0.0000	107.80	0.00	0
100yr-72hr	BNDY2	14.00	0.00	13.75	0.0000	110.57	0.00	0
100yr-72hr	GW	9999.00	0.00	13.00	0.0000	1.76	0.10	0
100yr-72hr	Pond 1	16.50	0.00	14.93	0.0004	128.27	108.25	112372
100yr-72hr	Pond 2	13.75	0.00	14.65	0.0008	112.09	110.94	30135
100yr-72hr	Proposed Pond	15.00	0.00	15.11	0.0006	155.04	146.35	70078
100yr-72hr	PRPBNDY	14.00	0.00	14.00	0.0000	145.50	0.00	0
25yr-72hr	BNDY1	14.00	0.00	14.00	0.0000	77.07	0.00	0
25yr-72hr	BNDY2	14.00	0.00	13.75	0.0000	81.34	0.00	0
25yr-72hr	GW	9999.00	0.00	13.00	0.0000	1.47	0.06	0
25yr-72hr	Pond 1	16.50	0.00	14.75	-0.0004	95.09	77.45	112372
25yr-72hr	Pond 2	13.75	0.00	14.49	0.0010	82.75	81.65	30135
25yr-72hr	Proposed Pond	15.00	0.00	14.91	0.0006	115.24	107.55	68977
25yr-72hr	PRPBNDY	14.00	0.00	14.00	0.0000	106.84	0.00	0

8C. LINKS MAXIMUM CONDITIONS REPORT

Proposed Conditions - Max Link Conditions (Design)

Link Min/Max Conditions : Multi Item | (sim, name) [Design]

Sim Name	Link Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
100yr-72hr	Perc 1	0.48	0.00	0.00	0.00	0.00	0.00
100yr-72hr	Perc 2	0.43	-0.04	0.00	0.00	0.00	0.00
100yr-72hr	PRPPERC	0.91	-0.08	0.00	0.00	0.00	0.00
100yr-72hr	PRPW	145.50	0.00	0.10	2.89	2.89	2.89
100yr-72hr	W1	107.80	0.00	0.05	2.65	2.65	2.65
100yr-72hr	W2	110.57	0.00	0.13	2.61	2.61	2.61
25yr-72hr	Perc 1	0.40	0.00	0.00	0.00	0.00	0.00
25yr-72hr	Perc 2	0.36	-0.02	0.00	0.00	0.00	0.00
25yr-72hr	PRPPERC	0.76	-0.05	0.00	0.00	0.00	0.00
25yr-72hr	PRPW	106.84	0.00	0.10	2.63	2.63	2.63
25yr-72hr	W1	77.07	0.00	0.06	2.39	2.39	2.39
25yr-72hr	W2	81.34	0.00	0.11	2.37	2.37	2.37

9. PROPOSED DRY CONTINUOUS MODEL CALCULATIONS

A. Basins Maximum Conditions Report
B. Nodes Maximum Conditions Report
C. Links Maximum Conditions Report

9A. BASINS MAXIMUM CONDITIONS REPORT

Proposed Conditions - Max Basin Conditions (Dry)

Manual Basin : Multi Item | (sim, name) : Runoff Summary [Dry]

Sim Name	Basin Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]
100yr-72hr	B1	128.27	60.0250	14.90	13.33	19.9023
100yr-72hr	B2	112.09	60.0000	14.90	12.82	15.6765
100yr-72hr	PRPB	155.04	60.0167	14.90	13.59	23.9525
25yr-72hr	B1	95.09	60.0250	11.20	9.68	19.9023
25yr-72hr	B2	82.75	60.0000	11.20	9.19	15.6765
25yr-72hr	PRPB	115.24	60.0250	11.20	9.93	23.9525

9B. NODES MAXIMUM CONDITIONS REPORT

Proposed Conditions - Max Node Conditions (Dry)

Node Max Conditions : Multi Item | (sim, name) [Dry]

Sim Name	Node Name	Warning Stage [ft]	Alert Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
100yr-72hr	BNDY1	14.00	0.00	14.00	0.0000	107.80	0.00	0
100yr-72hr	BNDY2	14.00	0.00	13.75	0.0000	110.57	0.00	0
100yr-72hr	GW	9999.00	0.00	13.00	0.0000	1.76	0.10	0
100yr-72hr	Pond 1	16.50	0.00	14.93	0.0001	128.27	108.26	112372
100yr-72hr	Pond 2	13.75	0.00	14.65	-0.0001	112.09	110.94	30135
100yr-72hr	Proposed Pond	15.00	0.00	15.11	-0.0001	155.04	146.35	70078
100yr-72hr	PRPBNDY	14.00	0.00	14.00	0.0000	145.50	0.00	0
25yr-72hr	BNDY1	14.00	0.00	14.00	0.0000	77.07	0.00	0
25yr-72hr	BNDY2	14.00	0.00	13.75	0.0000	81.34	0.00	0
25yr-72hr	GW	9999.00	0.00	13.00	0.0000	1.47	0.06	0
25yr-72hr	Pond 1	16.50	0.00	14.75	-0.0001	95.09	77.45	112372
25yr-72hr	Pond 2	13.75	0.00	14.49	0.0001	82.75	81.65	30135
25yr-72hr	Proposed Pond	15.00	0.00	14.91	0.0001	115.24	107.55	68977
25yr-72hr	PRPBNDY	14.00	0.00	14.00	0.0000	106.84	0.00	0

9C. LINKS MAXIMUM CONDITIONS REPORT

Proposed Conditions - Max Link Conditions (Dry)

Link Min/Max Conditions : Multi Item | (sim, name) [Dry]

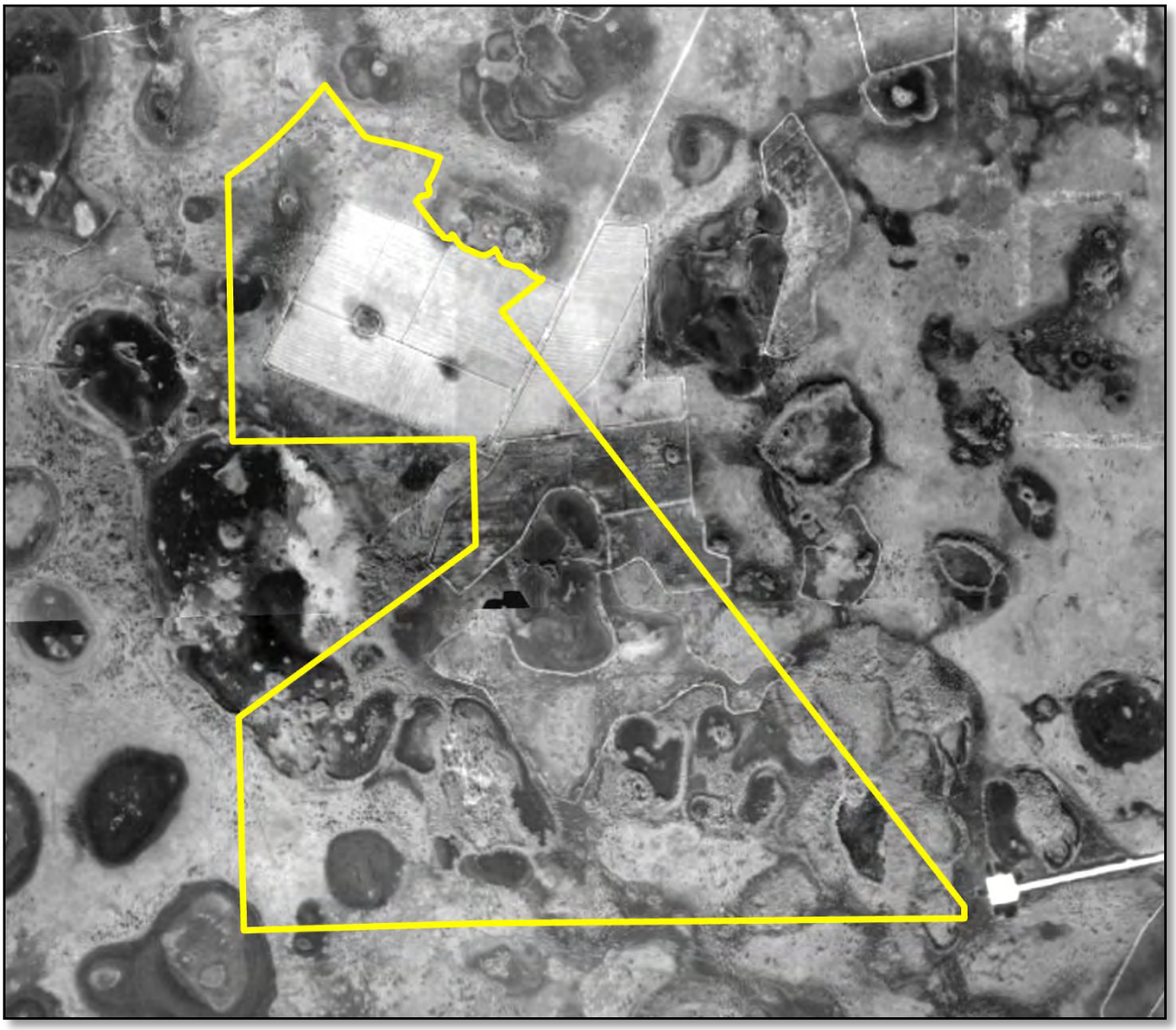
Sim Name	Link Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
100yr-72hr	Perc 1	0.48	0.00	0.00	0.00	0.00	0.00
100yr-72hr	Perc 2	0.43	-0.04	0.00	0.00	0.00	0.00
100yr-72hr	PRPPERC	0.91	-0.08	0.00	0.00	0.00	0.00
100yr-72hr	PRPW	145.50	0.00	-0.02	2.89	2.89	2.89
100yr-72hr	W1	107.80	0.00	0.02	2.65	2.65	2.65
100yr-72hr	W2	110.57	0.00	-0.02	2.61	2.61	2.61
25yr-72hr	Perc 1	0.40	0.00	0.00	0.00	0.00	0.00
25yr-72hr	Perc 2	0.36	-0.02	0.00	0.00	0.00	0.00
25yr-72hr	PRPPERC	0.76	-0.05	0.00	0.00	0.00	0.00
25yr-72hr	PRPW	106.84	0.00	-0.02	2.63	2.63	2.63
25yr-72hr	W1	77.07	0.00	0.02	2.39	2.39	2.39
25yr-72hr	W2	81.34	0.00	-0.02	2.37	2.37	2.37

CHARACTERIZATION OF GROUND AND SURFACE WATER RESOURCES

Daniels Tradeport – DCI2006-00029

Lee County, Florida

June 2026



1958 Aerial Imagery, obtained from the University of Florida Digital Collection

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EXECUTIVE SUMMARY

The Applicant proposes to develop an approximately 840.5-acre property in southeast Lee County, referred to as Daniels Tradeport. The property is located roughly 260 feet east of Southwest Florida International Airport and is bounded to the north by State Highway 876 (Daniels Parkway). According to the Lee County Property Appraiser, the project area consists of parcels owned by Jared F. Holes, Trustee of Land Trust Number 5018. The site is currently zoned for agricultural use (DCI2006-00029 and DRI2006-00001) and is proposed for rezoning to a Planned Development (DCI2022-00002) to accommodate both commercial and industrial uses. The subject property is located within Lee County's Density Reduction/ Groundwater Resource (DR/GR) Area.

The site is bordered on the east by an approximately 400-foot wide Florida Power & Light (FP&L) transmission line easement, which forms a highly disturbed drainage divide trending northwest to southeast. West of the FP&L easement, the northern portion of the property contains roughly 5 feet of topographic relief and drains westerly to the Six-Mile Cypress sub-watershed. The southern portion exhibits about 5 feet of relief and drains south toward the Estero River sub-watershed. East of the FP&L easement, the site is comparably flat and drains east. An elevated agricultural road bisecting the transmission line easement further delineates the basin boundary between these two sub-watersheds. Due to extensive modification from historical agricultural operations, no discernable historic flow-ways remain within the proposed development footprint.

Historic aerial imagery indicates that prior to agricultural conversion in the 1950s, the site was predominantly open rangeland and pine flatwoods interspersed with shallow freshwater forested, shrub, and emergent wetlands. Current South Florida Water Management District (SFWMD) Florida Land Use and Cover Classification System (FLUCCS) mapping identifies improved pasture as the dominant land use within the development area, comprising approximately 98 acres. The remaining acreage consists largely of cypress, pine flatwoods, dry prairie, and forested wetlands. Onsite inspections indicate that two (2) highly impacted isolated wetlands occur within the improved pasture area, with additional larger wetlands bordering the western and southern portions of the property (see report cover historical aerial image). The site is currently used for cattle grazing under SFWMD Water Use Permit (WUP) No. 36-08396-W.

Natural Resources Conservation Service (NRCS) soil data show that Pompano fine sand (frequently flooded) is the predominant soil type onsite, covering roughly 44 percent of the property. Pompano fine sand is a poorly drained, fine-grained flatwoods soil commonly found in low, broad flats and depressional areas. Within the proposed development area, Oldsmar sand is the dominant soil type, also characteristic of Flatwoods and formed from sandy and loamy marine deposits.

A preliminary conceptual layout by Morris Depew Associates, Inc. estimates that up to 25 percent of the commercial/industrial area (approximately 29 acres) will require irrigation. Based on this irrigated area, the SFWMD's irrigation allocation spreadsheet yields an estimated demand of 36.6 million gallons per year (approximately 100,274 gallons per day). While the existing livestock WUP authorizes 1.31 million gallons per year, with withdrawals (wells) located outside the proposed project boundary; therefore, all irrigation demand for the planned development will be considered new quantities.

To meet this demand, the project proposes an integrated ground and surface water irrigation system. Groundwater from the Sandstone Aquifer would supplement surface water stored in a dedicated stormwater-irrigation supply pond, from which irrigation withdrawals would be centrally controlled and distributed. This conjunctive-use approach will significantly reduce reliance on groundwater, minimizing potential impacts to nearby existing legal users, particularly when surface-water availability is highest following the wet season.

The conceptual design includes four stormwater lakes totaling approximately 28 acres. As the property lies within Lee County's DR/GR, the Lee Plan requires restoration and protection of water resources. The proposed stormwater system is designed to enhance water conservation and support the restoration of historic ground and surface water flow patterns through increased recharge. To further protect water resources, surface water quality monitoring is proposed for two of the development's stormwater ponds.

In summary, the Daniels Tradeport development integrates responsible land-use planning with a sustainable, conjunctive water-resource strategy that aligns with DR/GR objectives. Through a combined groundwater/surface-water irrigation system, engineered stormwater infrastructure, and proposed water-quality monitoring, the project is designed to support long-term environmental stewardship while accommodating commercial and industrial growth.

1.0 INTRODUCTION

The subject property is located within the southeastern portion of Lee County, along the northwest boundary of the DR/GR and adjacent to the Southwest Florida International Airport, as depicted in **Figure 1**. The Applicant proposes to develop the site for commercial and industrial uses and to expand the Tradeport Future Land Use area. In accordance with Lee Plan Policy 7.1.2, the Applicant seeks to rezone the property to a Planned Development.

Consistent with the Lee Plan, development within the DR/GR category must demonstrate protection, preservation, and enhancement of groundwater resources and wetland systems. A review of existing site conditions indicates that portions of the DR/GR-designated acreage on the property have been extensively altered and provide limited hydrologic or ecological benefit. These areas include the FP&L transmission easement and disturbed zones along the edges of former agricultural fields, as shown in **Figure 2**.

Currently, approximately 81.65 acres are designated as Tradeport on the Lee County Future Land Use Map. The proposed conceptual plan (**Figure 3**) includes an expansion of the Tradeport category and features a stormwater management system composed of four detention lakes one of which will be used as an irrigation source. The stormwater management system is designed to maintain existing surface- water runoff patterns and groundwater flow characteristics and to enhance recharge to the underlying aquifers, consistent with Land Development Code (LDC) 34-373(b)(1) and Lee Plan Policy 60.1.1. The proposed stormwater management system meets the applicable State of Florida water quality treatment criteria and provides enhanced protection of water resources.

The plan further incorporates perimeter buffering, preservation of existing wetland features, and removal of nuisance and exotic vegetation along the southern and western site boundaries. These measures improve compatibility with the surrounding rural landscape in compliance with Lee Plan Objective 33.1 and support restoration and long-term maintenance of native plant communities consistent with Lee Plan Goal 77. Additionally, the stormwater management design and associated preservation areas will assist in maintaining seasonal water table fluctuations in accordance with Lee Plan Policy 126.1.4.

Overall, the proposed development demonstrates consistency with Lee Plan policies applicable to the DR/GR and Tradeport designations and provides improvements to existing water resource functions while facilitating orderly commercial and industrial development.

2.0 HYDROLOGIC SETTING

1944 Historical aerial imagery, provided as **Figure 4,** indicates that prior to agricultural use, the subject property consisted primarily of open rangeland and pine flatwoods with interspersed

shallow freshwater forested, shrub, and emergent wetlands. Similar to surrounding lands, agricultural operations were established on the property in the early 1950s, as shown in **Figure 5**. These operations included construction of multiple drainage ditches within and adjacent to cultivated areas. The ditching altered historic surface-water flow patterns, which is typical of agricultural practices in south Florida intended to improve field conditions by reducing soil saturation.

The existing agricultural ditch network has lowered onsite water table elevations and reduced groundwater recharge potential. These hydrologic alterations can adversely affect wetland functions and regional water resources within the DR/GR, as reflected in the conditions observed within the two isolated wetlands located in the proposed development area. The modified hydrology has also facilitated the establishment and spread of exotic and nuisance vegetation across the site. Consistent with Lee Plan Policy 33.1.4, the proposed development includes filling the former agricultural ditches to help reestablish more appropriate hydrologic conditions. After crop production ceased, the property shifted to livestock operations in the 1990s (**Figure 6**) and is currently mapped as Improved Pasture in the SFWMD FLUCCS classification portrayed in **Figure 7**.

Two (2) SFWMD sub-watersheds are present onsite: the Estero River sub-watershed to the east and the Six Mile Cypress sub-watershed to the west (**Figures 8** and **9**). With the exception of the southernmost section of the Tradeport development, a majority is within the Six Mile Cypress sub-watershed. A FP&L transmission line corridor forms a secondary northwest–southeast drainage divide along the eastern boundary, with elevations reaching approximately 28 feet NAVD88.

LIDAR imagery provided as **Figure 10** confirms the presence of this drainage divide and indicates lower elevations to the east, west, and south. The western portion of the property (within the Six Mile Cypress sub-watershed and west of the FP&L corridor) drains westerly and has approximately 5 feet of topographic relief. The southern portion of the property drains south towards the Estero River sub-watershed and contains approximately 5 feet of topographic relief.

The FEMA National Flood Hazard Map provided as **Figure 11** identifies the entire site as Flood Zone X, indicating minimal flood risk. However, numerous shallow depressional wetlands occur onsite, including two (2) highly impacted isolated wetlands within the proposed development area, consistent with National Wetland Inventory (NWI) mapped features, included as **Figure 12**. The property is located within two FDEP Waterbody Identification Units (WBIDs): the Fiddlesticks Canal to the west and the Estero River to the east. Both WBIDs are listed as impaired for dissolved oxygen (DO).

NRCS soil mapping identifies Pompano fine sand (frequently ponded) as the dominant soil series on the property, comprising approximately 44 percent of the 840.5-acre property. This series is characteristic of flatwoods and depressional landscapes and is poorly drained. Within

the proposed development area, the primary soil series is Oldsmar sand, another flatwoods soil formed from sandy and loamy marine deposits (NRCS, 2018). NRCS soil data are provided in **Figure 13**.

3.0 PROPOSED IRRIGATION SUPPLIES

Three principal aquifer systems underlie the subject property: (1) the unconfined Surficial Aquifer System (Water Table Aquifer), (2) the confined Intermediate Aquifer System (IAS), and (3) the confined Upper Floridan Aquifer System (UFAS). Groundwater quality in southeast Lee County declines rapidly with depth, and potable water quality is generally limited to depths less than approximately 300 feet below land surface (bls). Below these depths, groundwater becomes increasingly mineralized, saline, and typically artesian. Consistent with the resource protection standards in LDC Sections 10-26 and 10-30, groundwater withdrawals in this region are typically limited to these shallower zones.

The Water Table Aquifer beneath the property extends from land surface to approximately 35 feet bls. The sands and marls of the Tamiami Formation, where present onsite, occur between approximately 15 and 30 feet bls, representing a substantially thinner section compared to the more extensive Tamiami Formation found in DR/GR areas located to the south and southeast (Florida Geological Survey Information Circular No. 103). Although the limestones of the Tamiami Formation can function as an important regional source of groundwater in Lee County due to their shallow depth and high transmissivity, the limited vertical extent of the Formation onsite reduces its capacity to sustain withdrawals without impacting surrounding wetlands or existing legal users.

Withdrawals from the unconfined Water Table Aquifer also pose a greater potential to influence wetland hydrology, particularly in the DR/GR, where shallow aquifer protections are emphasized in Lee Plan Policy 33.1.4. For this reason, groundwater withdrawals for the project have been designed to avoid reliance on the Water Table Aquifer.

Suitable irrigation-quality groundwater is available within the Sandstone Aquifer unit of the IAS, which is deeper and confined, providing additional natural protection for nearby surface resources. The Water Table Aquifer has relatively low yield and is likely suitable only for limited livestock watering; therefore, the Sandstone Aquifer was selected as the preferred supplemental irrigation source. Operational data from the nearby Timber Creek Residential Development indicate that withdrawals from the IAS Sandstone unit do not produce measurable impacts to the Water Table Aquifer or to environmental resources. Based on this established performance and the confined nature of the Sandstone Aquifer, the proposed Tradeport irrigation withdrawal plan provides enhanced protection for shallow groundwater systems within the DR/GR.

3.1 SURFICIAL AQUIFER SYSTEM (WATER TABLE AQUIFER)

The Water Table Aquifer extends from land surface to approximately 35 feet bls at the subject property. The sands and marls of the Tamiami Formation, where present, occur between approximately 15 and 30 feet bls, representing a significantly thinner section than the thicker Tamiami deposits typical of DR/GR areas to the south and southeast (Johnson, 1986). Although the limestones of the Tamiami Formation can function as an important shallow groundwater supply in Lee County due to their transmissivity, the limited thickness of the Formation onsite reduces its suitability for withdrawals.

Pumping from the unconfined Water Table Aquifer under these conditions increases the likelihood of adverse effects on wetlands and existing legal users. For this reason, the project proposes groundwater withdrawals from the deeper, confined Sandstone Aquifer within the IAS, which has been shown to produce no measurable impacts on environmental systems or water levels in the Water Table Aquifer. Use of this deeper source provides enhanced protection for shallow groundwater resources within the DR/GR.

3.2 INTERMEDIATE AQUIFER SYSTEM (SANDSTONE AQUIFER)

The Sandstone Aquifer underlies the Water Table Aquifer and is primarily composed of clastic sediments, including sandy limestone, cemented sands (sandstone), sandy dolomite, and calcareous sands. Well construction reports and geologic logs from locations near the project site indicate that the top of the Sandstone Aquifer occurs at approximately 90 feet bls, with the producing zone locally extending to roughly 120 feet bls.

The Sandstone Aquifer is separated from the overlying Water Table Aquifer by low-permeability sediments, which significantly limit the potential for withdrawals from the Sandstone Aquifer to affect water levels in the Water Table Aquifer. Consequently, pumping from the Sandstone Aquifer poses minimal risk of inducing drawdown in shallow wetlands compared to direct withdrawals from the Water Table Aquifer. To further protect wetland hydrology, the SFWMD encourages new wells to be completed in the Sandstone Aquifer. Notably, records indicate that most domestic self-supply wells in the vicinity are also completed within this aquifer, demonstrating its suitability as a safe and reliable water source.

4.0 IRRIGATION DEMANDS

The proposed concept plan includes approximately 114.01 acres of commercial and industrial parcels, of which approximately 25 percent (28.5 acres) is anticipated to require irrigation.

The Daniels Tradeport property falls within the boundaries of WUP No. 36-08396-W, which was modified by the SFWMD on August 27, 2024, to Jeffery Flint of Flint Cattle. The modification authorizes livestock watering through a single District-approved withdrawal, District

Identification (DID) No. 3, with a permitted quantity of 1.31 million gallons per year (approximately 3,589 gallons per day). WUP No. 36-08396-W encompasses 2,075 acres, extending northeast of the Daniels Tradeport project site. DID No. 3, located approximately 1.4 miles northeast of the Daniels Tradeport boundary, withdraws from the Water Table Aquifer, which has a reported total depth of approximately 35 feet bls. Accordingly, the irrigation quantities proposed for the Tradeport project are considered new withdrawals and will require groundwater flow modeling to evaluate potential impacts on existing legal users in accordance with Lee Plan Policy 33.1.7.

Irrigation demands for the proposed development were quantified using the SFWMD Blaney-Criddle Irrigation Allocation Calculator, estimating both annual and maximum month (dry season) water requirements. Consistent with Lee Plan Objective 126.2, Florida-Friendly landscaping will be implemented to the greatest extent practicable. The Blaney-Criddle-derived annual and maximum month allocations are approximately 36.60 million gallons per year (approximately 100,274 gallons per day) and 4.92 million gallons per month (approximately 164,000 gallons per day), respectively (**Attachment 1**).

To meet these irrigation demands while minimizing impacts to groundwater, the planned development will primarily utilize stormwater lakes as the irrigation source. Groundwater from the Sandstone Aquifer will serve only as a supplemental supply during the dry season. Irrigation water will be withdrawn from the stormwater lakes via a centrally controlled system, which reduces reliance on groundwater following the wet season when sufficient surface water is available. This approach is expected to maintain the existing hydrologic conditions onsite, conserve water resources, and provide proactive measures to safeguard water resources in accordance with Lee Plan Policy 126.1.4. The proposed irrigation withdrawal locations are present in **Figure 14**.

5.0 HYDROLOGIC IMPACT ANALYSIS

To evaluate whether the proposed use of the Sandstone Aquifer for supplemental irrigation could adversely affect surrounding existing legal users, a single-layer groundwater flow model was developed using AquiferWin32. The model was used to assess potential drawdown associated with the proposed maximum monthly withdrawals from the Sandstone Aquifer. The analytical groundwater modeling scenario consisted of one stress period representing transient, future (i.e., proposed) conditions. The model was run for 90 days with no recharge to simulate the maximum monthly allocation during the three driest months of the year, March, April, and May. The Theis (1935) confined-aquifer solution was applied for this scenario.

Results of the 90-day maximum-withdrawal simulation are presented in **Figure 15**. The model predicts a maximum drawdown of approximately 0.4 feet, occurring within the project boundary at the proposed well nodes. In accordance with Section 3.1.2 of the SFWMD Applicant's

Handbook, modeling analyses must include the proposed wells as well as any other permitted groundwater withdrawals located within the "cone of depression," defined by the District as the 1.0-foot drawdown contour for confined aquifer systems. As illustrated in **Figure 15**, no drawdown exceeding 1.0 foot is predicted outside the project boundary under the maximum monthly scenario.

Based on these results, the potential for harm to existing legal users is considered de minimis and not adverse; therefore, a cumulative impact assessment was not required. A statement from a Professional Geologist certifying the groundwater flow modeling results is provided in **Attachment 2**.

6.0 PROPOSED WATER RESOURCES BEST MANAGEMENT PRACTICES

As the project evolves from predominately a "construction phase" to "partial construction" and ultimately to a "post-construction" phase, the Best Management Practices (BMPs) must also evolve to maintain water resource protection. Construction completion of the Tradeport development may take approximately five years, depending on market conditions. However, the initiation of construction is anticipated to commence prior to the end of 2026. At the onset of construction, all cattle are proposed to be removed from the site.

6.1 CONSTRUCTION PHASE BMPS

During construction of the Tradeport, 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 lake maintenance BMP requirements until such time that control of the development is transitioned. The following water resource protections are to be adhered to:

- 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.
- If any regulated substances are temporarily stored onsite 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 LDC Section 14-477, Stormwater Pollution Prevention Plan (SWP3) criteria.

- 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 a regulated substance. Any tools or equipment necessary to accomplish the same shall be available in case of an accidental release.
- 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 Florida Department of Environmental Protection (FDEP) South District Office at (239) 344-5600.
- Upon completion of construction, all unused quantities of regulated substances and their containment systems shall be completely removed from the construction site.
- 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.

6.2 POST-CONSTRUCTION PHASE BMPS

After the Lee County Certificate of Compliance or the SFWMD stormwater management system certification is completed, the primary focus of lake maintenance BMPs will be maintaining the stormwater management system lakes since all internal runoff will be routed to these features for treatment. The Developer will establish and create an entity that will ultimately be responsible for the operation and maintenance of all aspects of the stormwater management system including the lakes, including associated stormwater conveyance and control components, in perpetuity. At a minimum, the operation and maintenance of the stormwater management system will require compliance with the terms and conditions contained herein. Additional details on BMPs, including monitoring of surface water, are provided below.

Additional assurance that the stormwater management system will meet State water quality standards will be accomplished through wet season surface water quality monitoring described below.

6.3 LAKE MAINTENANCE

6.3.1 GENERAL PROVISIONS

Proper maintenance of the stormwater lakes is a critical component of the BMPs, as internal stormwater runoff is directed to these features for treatment and attenuation. To protect

underlying groundwater resources, excavation of the lakes will avoid penetration into any continuous impervious layers of clay or bedrock. Additionally, groundwater withdrawn from the proposed onsite Mid-Hawthorn and Sandstone Aquifer wells will be used to supplement a subset of the stormwater lakes as needed for the master irrigation system.

As illustrated in the conceptual irrigation system layout provided as **Figure 14**, surface water pumps will "re-pump" both retained stormwater and supplemental groundwater to irrigate landscaped areas throughout the development. This recycling of surface water is expected to improve water quality onsite and maintain the overall water quality of the lakes. The stormwater lakes are designed to be maintained in perpetuity, and a series of management actions, including post-construction BMPs, to ensure long-term functionality and protection of both surface and groundwater resources are outlined herein.

6.3.2 STORMWATER LAKE DEPTH

There are several stormwater detention lakes, all of which are proposed to be deeper than 12 feet in depth. In accordance with Lee County LDC Section 10- 329(d)(3), these lakes are therefore designated as "deep lakes" and are subject to specific criteria.

Based on Lee County Code, the proposed deep lakes will satisfy the following criteria:

- The stormwater detention deep lakes will not exceed a maximum water depth of 20 feet and will not penetrate any continuous impervious layer of soil or rock.
- A destratification (i.e., aeration) system will be installed in any lake that exceeds a 12-foot water depth. Documentation that the proposed destratification system is adequately sized and designed for each lake deeper than 12 feet will be submitted to Lee County for approval. An example of a deep lake aeration device is provided as **Attachment 3**.
- The deep lake management techniques, including operation of the destratification system, will be maintained for the life of the lake and will be recorded in the development's covenants in accordance with the County Attorney's office.
- A post-construction bathymetric survey verifying each deep lake's finished water depth, sealed by a professional surveyor and mapper, will be submitted to Lee County for approval.

6.4 NUISANCE AND EXOTIC VEGETATION CONTROL

The Tradeport development will be responsible (in perpetuity) for the removal of all nuisance and exotic vegetation from the stormwater management system as defined by the Lee County LDC.

- Lakes must be inspected annually, and any prohibited vegetation must be removed by the use of hand-clearing or appropriate chemical treatment.
- Only aquatic approved compounds may be utilized in the stormwater management system lakes. 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.

6.5 FERTILIZER APPLICATION

Strict adherence will be maintained with Lee County's Fertilizer Ordinance. Individual facility owners are 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. The Lee County Fertilizer Ordinance No. 08-08 is provided as **Attachment 4**.

- All professional landscape businesses must register with Lee County prior to performing landscape fertilization services within unincorporated Lee County.
- At least one (1) employee of a firm employed to perform landscape fertilization services must be a Certified Professional Landscaper.
- No fertilizer applications will occur within 15 feet of, or in direct contact with, any waterbody, nor within two (2) hours of a rain event (imminent or preceding).
- Proof of completion of a Lee County-approved BMP training program must be provided to the Division of Lee County Natural Resources.
- At least one (1) BMP-trained employee must be onsite while fertilizers are applied. A registration decal provided by the division must be displayed on all company vehicles.

6.6 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.

- Tradeport tenants shall be prohibited from applying pesticides, herbicides and/or fungicides to their lots. These activities will only be performed by certified contractors.
- The use of any chemical product in a manner that will allow airborne or waterborne entry of such products into the stormwater management system is prohibited. This requirement 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's specifications, and meet all applicable local, state and/or federal guidelines and requirements.
- Pesticides, fungicides and herbicides will be used only in response to a specific problem and in the manner and amount recommended by the manufacturer. Broad application of pesticides, fungicides and herbicides as a preventative measure is prohibited.

6.7 SOUTHWEST FLORIDA INTERNATIONAL AIRPORT LAND USE RESTRICTIONS

As mandated by Lee County LDC, no proposed land use changes can interfere with the safe operation of aircraft originating from, or flying into, the Southwest Florida International Airport, located to the southwest of the subject property.

- No land use alterations are allowed within the designated airport exclusion zone that will produce a wildlife attractant hazard that is considered greater than the existing, historic conditions. If such an attractant is identified by the Lee County Port Authority, the landowner will have the full and sole responsibility of eliminating the hazardous situation at their expense.
- All stormwater management ponds, lakes, canals, conveyances, and other features are to be designed and constructed in accordance with Federal Aviation Administration (FAA) recommendations that discourages wildlife.
- The use of hardened, steep-sided stormwater basins is required within the airport exclusion zone to facilitate the control of potentially hazardous wildlife. The hardened shoreline helps to hide the water during periods of low inundation and helps discourage shoreline vegetation and wildlife foraging along shorelines.

7.0 SURFACE WATER QUALITY MONITORING PROGRAM

7.1 GENERAL DATA QUALITY OBJECTIVES

All surface 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 and 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**, and the proposed Phase 1 sampling locations are shown in the attached **Figure 16**.

7.2 SURFACE WATER MONITORING GOALS

The purpose of the surface water monitoring program is to assure that surface water coming onto, originating within, and leaving the project 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. Additionally, water quality monitoring of the designated stormwater management lakes will verify the efficiency of the management actions described herein and assure the lakes' health. Future monitoring of the proposed stormwater lakes will be compared to and contrasted with the initial background testing results.

7.3 SURFACE WATER QUALITY MONITORING

Pre-Development

The background surface water quality sample will be collected prior to any construction activities. The location of the proposed background water quality sample is presented in **Figure 16**. Once collected, the latitude and longitude of the pre-development background sample location will be added to the water quality results submitted to Lee County.

Post-Development

After completion of the stormwater management system, surface water quality samples will be collected once per year, during the wet season, at the locations shown in **Figure 16**. If stormwater is observed to be discharging, samples will be collected at structure outlets and noted on the sample forms. If no observable flow is observed, samples will be collected within the detention lake, upstream of the outfall structure. No flow conditions will also be recorded on the sample forms.

All 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 the attached **Table 2.** In addition, the attached **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 varies between laboratories, however the PQL typically equates to four times the MDL.

Field Parameters – Depth of Water, DO, pH, Temperature, Specific Conductance, and Turbidity

Lab Parameters – Ammonia, Ammonium, Chlorophyll-a, E. coli, Hardness, Iron, Nitrate and Nitrite, Orthophosphate, Total Kjeldahl Nitrogen (TKN), Total Nitrogen, Total Phosphorus, Total Suspended Solids, and Zinc.

Post-Development 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 the surface water quality is being maintained within applicable State standards.

7.4 SURFACE WATER QUALITY DATA REPORTING AND ANALYSIS

All surface water quality data will be submitted to the Lee County Natural Resources Department staff in an approved electronic format within 30 days of receiving results from the contract laboratory if an issue has been detected. Otherwise, data will be submitted annually. The submittal will include all field notes, field and laboratory water quality data results and all previously collected (i.e., period of record) water quality data. 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 which 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 (both Pre- and Post-Development). Laboratory parameter concentrations that fall below the PQL for that parameter will be reported with no value; however, a value qualifier of "I" (i.e., between the MDL and PQL) or "U" (below the MDL) will be included in the summary table. Trends in water quality data will be summarized and graphed, along with any measures deemed necessary to protect the water resources of the DR/GR. All analyses will be compared to FDEP surface water quality standards.

All water quality data for the analytes listed in the attached **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 MCL will be clearly identified, as well as remedial actions

which were used to timely reduce that particular analyte's concentration. Where appropriate, testing results for constituents already proposed, i.e., DO, pH, and Specific Conductance can be compared to Chapter 62-302.530 criteria for Class III waters.

8.0 REMEDIAL ACTIONS

In the unforeseen event that any significant surface and/or groundwater impacts are identified as a result of a hydrocarbon spill or pesticide/herbicide application at the subject property, the Applicant or designee will notify the Director of the Lee County 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" then 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 webpage located at:

http://www.dep.state.fl.us/per/reportable incident.htm.

The Applicant 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 the short-term temporal monitoring of potential subsurface impacts and to evaluate the horizontal and the vertical distribution of the impacted area. Based on the findings of the initial phase, if necessary, a more comprehensive assessment may be required.

9.0 CONCLUSIONS

The Applicant is proposing to transition the subject property into a commercial/industrial Tradeport development which would include commercial/industrial parcels, right of ways, buffer areas and conservation areas, and stormwater management lakes per the concept plan provided by Morris Depew Associates, Inc. The information provided herein demonstrates an increased level of preservation and protection of both hydrological conditions and environmental resources of Lee Couty's DR/GR.

10.0 REFERENCES

Johnson, R.A., 1986, Shallow Stratigraphic Core Tests on File at the Florida Geological Survey: Florida Geological Survey, Information Circular No. 103, 431 p.

NRCS, 2018, Oldsmar Series: National Cooperative Soil Survey, https://soilseries.sc.egov.usda.gov/OSD_Docs/O/OLDSMAR.html.

NRCS, 2018, Pompano Series: National Cooperative Soil Survey, https://soilseries.sc.egov.usda.gov/OSD_Docs/P/POMPANO.html.

Table 1 - Phase 1 Water Quality Sampling Schedule

Date	Sample Type	Sample Location
January-31	N/A	N/A
February-28	N/A	N/A
March-31	N/A	N/A
April-30	N/A	N/A
May-31	N/A	N/A
June-30	N/A	N/A
July-31	N/A	N/A
August-31	N/A	N/A
September-30	Surface Water	2 locations
October-31	N/A	N/A
November-30	N/A	N/A
December-31	N/A	N/A

*See Figure 16 for surface water quality sampling locations

Table 2 - Surface Water Quality Analytes

Field Parameters					
Parameter	**Units**	**Precision (%RPD)**	**Accuracy (%Recovery)**	**MDL**	**Sampling Frequency**
Depth of Water	Feet	0.01	NA	NA	Annually
Dissolved Oxygen	mg/L	FT 1000-1	FT 1000-1	NA	Annually
pH	SU	FT 1000-1	FT 1000-1	NA	Annually
Temperature	Deg C	FT 1000-1	FT 1000-1	NA	Annually
Total Dissolved Solids	mg/L	FT 1000-1	FT 1000-1	NA	Annually
Turbidity	NTU	FT 1000-1	FT 1000-1	NA	Annually
Specific Conductance	µS/cm	FT 1000-1	FT 1000-1	NA	Annually
Laboratory Parameters (Nutrients)					
Total Nitrogen	mg/L	CALC	CALC	CALC	Annually
Nitrite + Nitrate	mg/L	5	90-110	0.004	Annually
Ammonium	mg/L	CALC	CALC	CALC	Annually
Ammonia	mg/L	17	90-110	0.008	Annually
Total Kjeldahl Nitrogen	mg/L	11	90-110	0.05	Annually
Total Phosphorus	mg/L	10	90-110	0.008	Annually
Chlorophyll-a	mg/L	20	93-108	0.25	Annually
Ortho-phosphate	mg/L	10	88-118	0.002	Annually
Iron	mg/L	10	70-130	29	Annually
Zinc	mg/L	10	70-130	1.4	Annually
E.coli	mg/L	15	90-110	10	Annually
Hardness	mg/L	CALC	CALC	0.682	Annually
TSS	mg/L	7	85-110	0.57	Annually

Table 1 - Phase 1 Water Quality Sampling Schedule

Date	Sample Type	Sample Location
January-31	N/A	N/A
February-28	N/A	N/A
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May-31	N/A	N/A
June-30	N/A	N/A
July-31	N/A	N/A
August-31	N/A	N/A
September-30	Surface Water	2 locations
October-31	N/A	N/A
November-30	N/A	N/A
December-31	N/A	N/A

*See Figure 16 for surface water quality sampling locations

Table 2 - Surface Water Quality Analytes

Field Parameters					
Parameter	**Units**	**Precision (%RPD)**	**Accuracy (%Recovery)**	**MDL**	**Sampling Frequency**
Depth of Water	Feet	0.01	NA	NA	Annually
Dissolved Oxygen	mg/L	FT 1000-1	FT 1000-1	NA	Annually
pH	SU	FT 1000-1	FT 1000-1	NA	Annually
Temperature	Deg C	FT 1000-1	FT 1000-1	NA	Annually
Total Dissolved Solids	mg/L	FT 1000-1	FT 1000-1	NA	Annually
Turbidity	NTU	FT 1000-1	FT 1000-1	NA	Annually
Specific Conductance	µS/cm	FT 1000-1	FT 1000-1	NA	Annually
Laboratory Parameters (Nutrients)					
Total Nitrogen	mg/L	CALC	CALC	CALC	Annually
Nitrite + Nitrate	mg/L	5	90-110	0.004	Annually
Ammonium	mg/L	CALC	CALC	CALC	Annually
Ammonia	mg/L	17	90-110	0.008	Annually
Total Kjeldahl Nitrogen	mg/L	11	90-110	0.05	Annually
Total Phosphorus	mg/L	10	90-110	0.008	Annually
Chlorophyll-a	mg/L	20	93-108	0.25	Annually
Ortho-phosphate	mg/L	10	88-118	0.002	Annually
Iron	mg/L	10	70-130	29	Annually
Zinc	mg/L	10	70-130	1.4	Annually
E.coli	mg/L	15	90-110	10	Annually
Hardness	mg/L	CALC	CALC	0.682	Annually
TSS	mg/L	7	85-110	0.57	Annually

Figures

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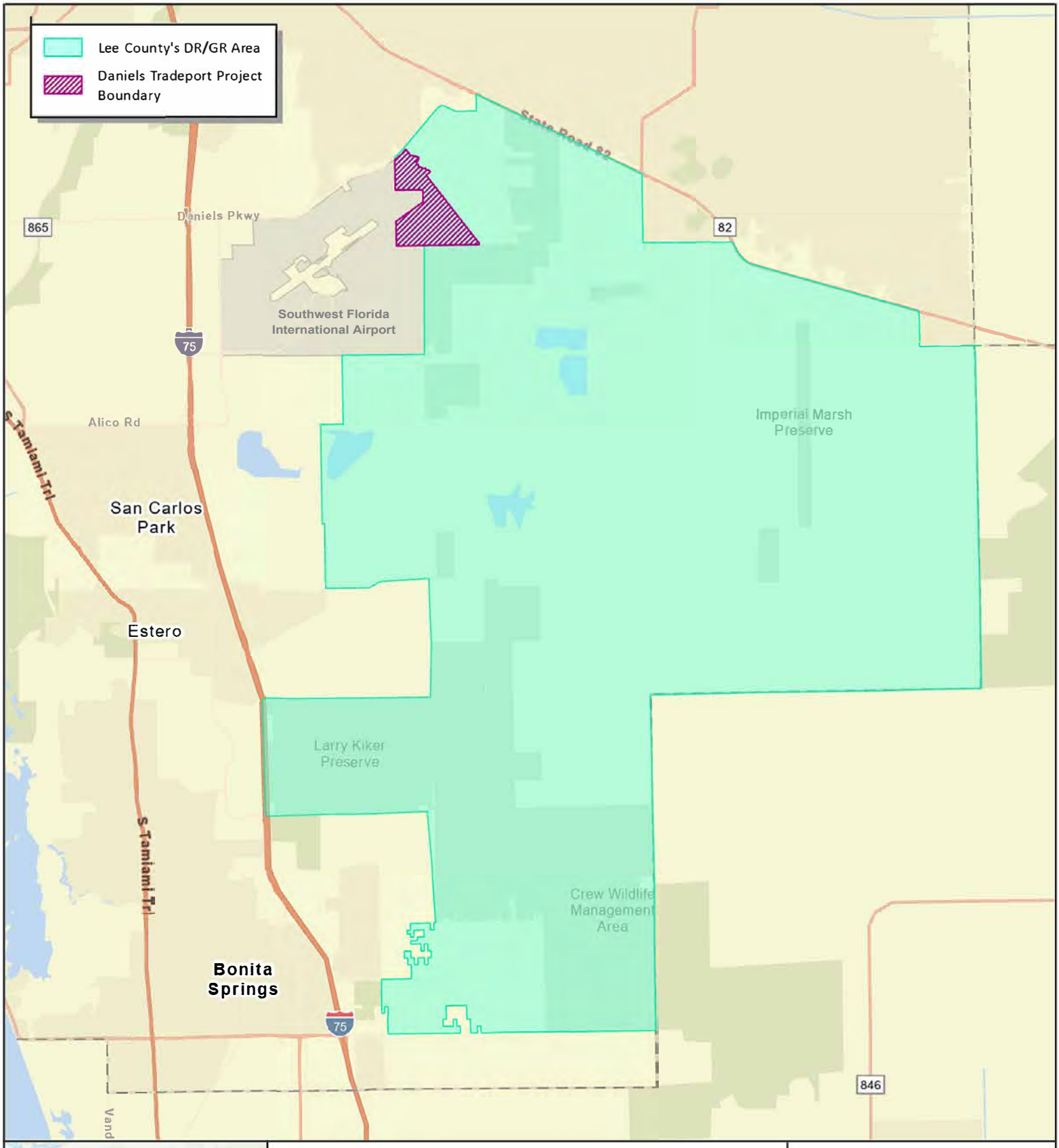

Figure 1
Density Reduction/Groundwater Resource Area
Daniels Tradeport
Lee County, Florida

N

0 1 2 Mi

Scale: 1:150,000

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Image: ESRI World Imagery, Lee County

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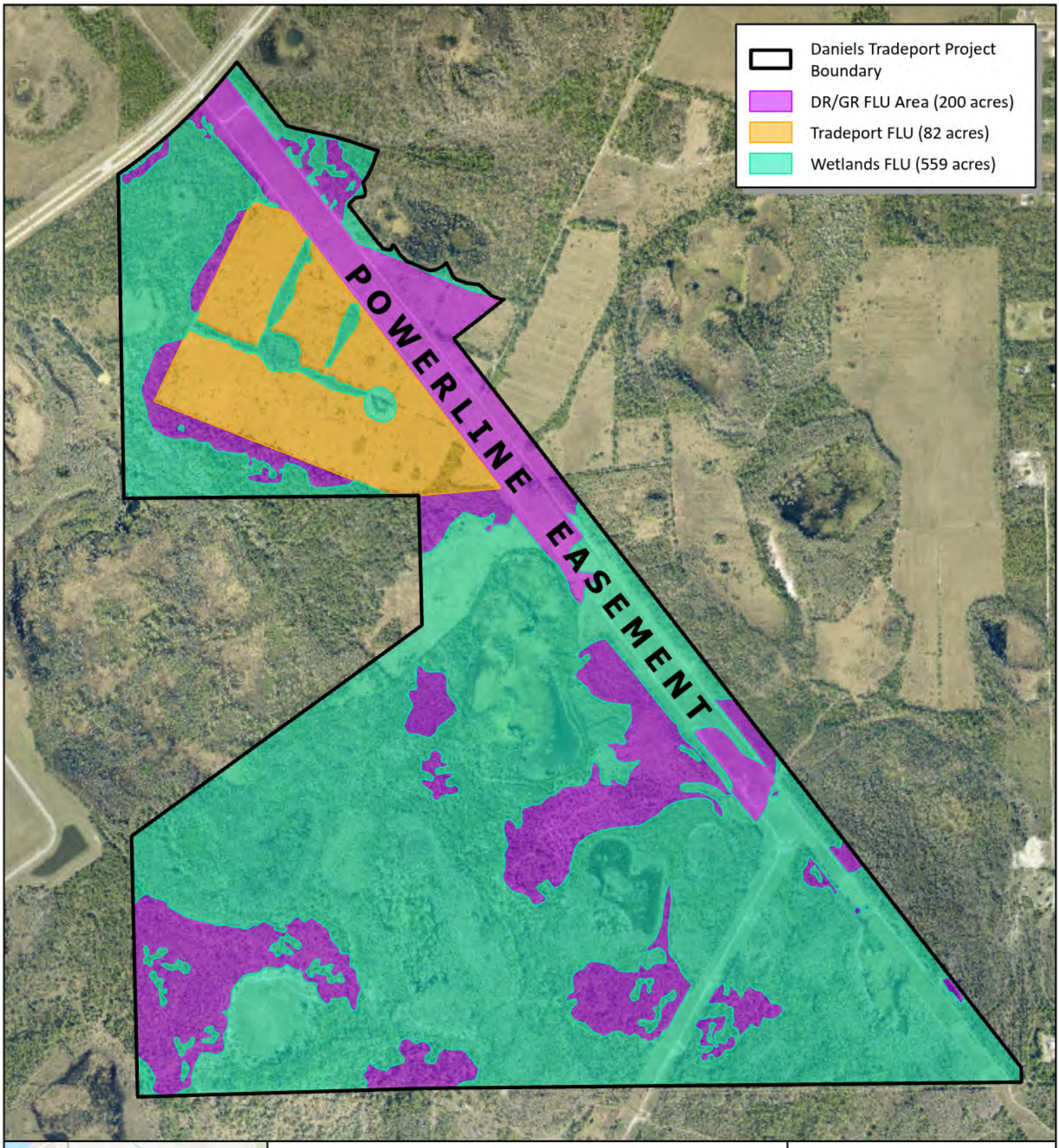

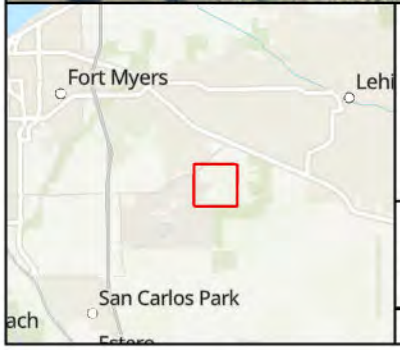

Figure 2
Lee County Future Land Use
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 Feet

Scale: 1:14,000

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Image: ESRI World Imagery, Lee County

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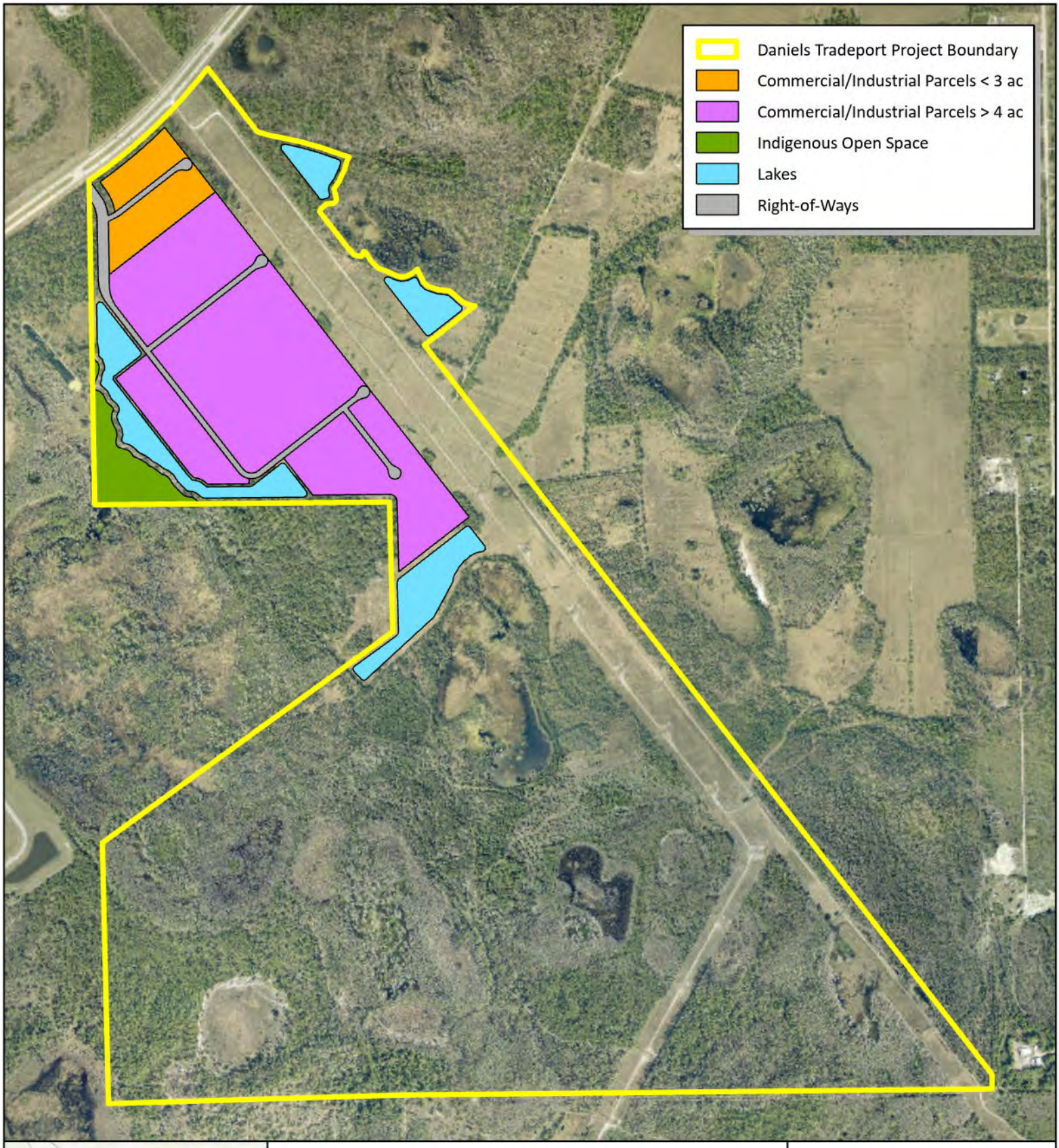

Figure 3
Conceptual Development Layout
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 US Feet

Scale: 1:14,000

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Image: Esri World Imagery, Morris Depew Associates, Inc.

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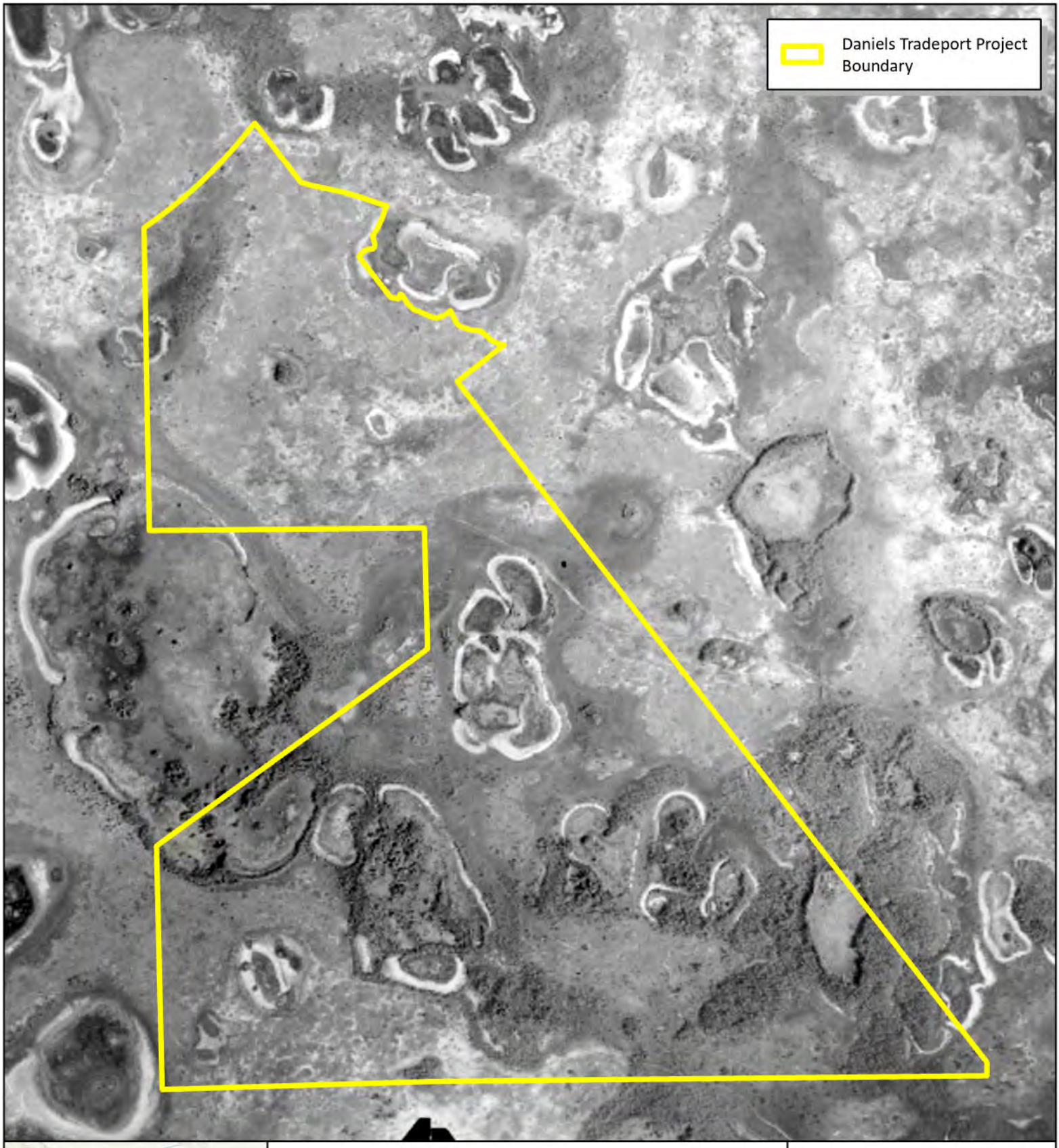

Figure 4
1944 Historic Aerial Imagery
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 US Feet

Scale: 1:15,000

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Image: UFDC 1944 Historic Aerial Imagery

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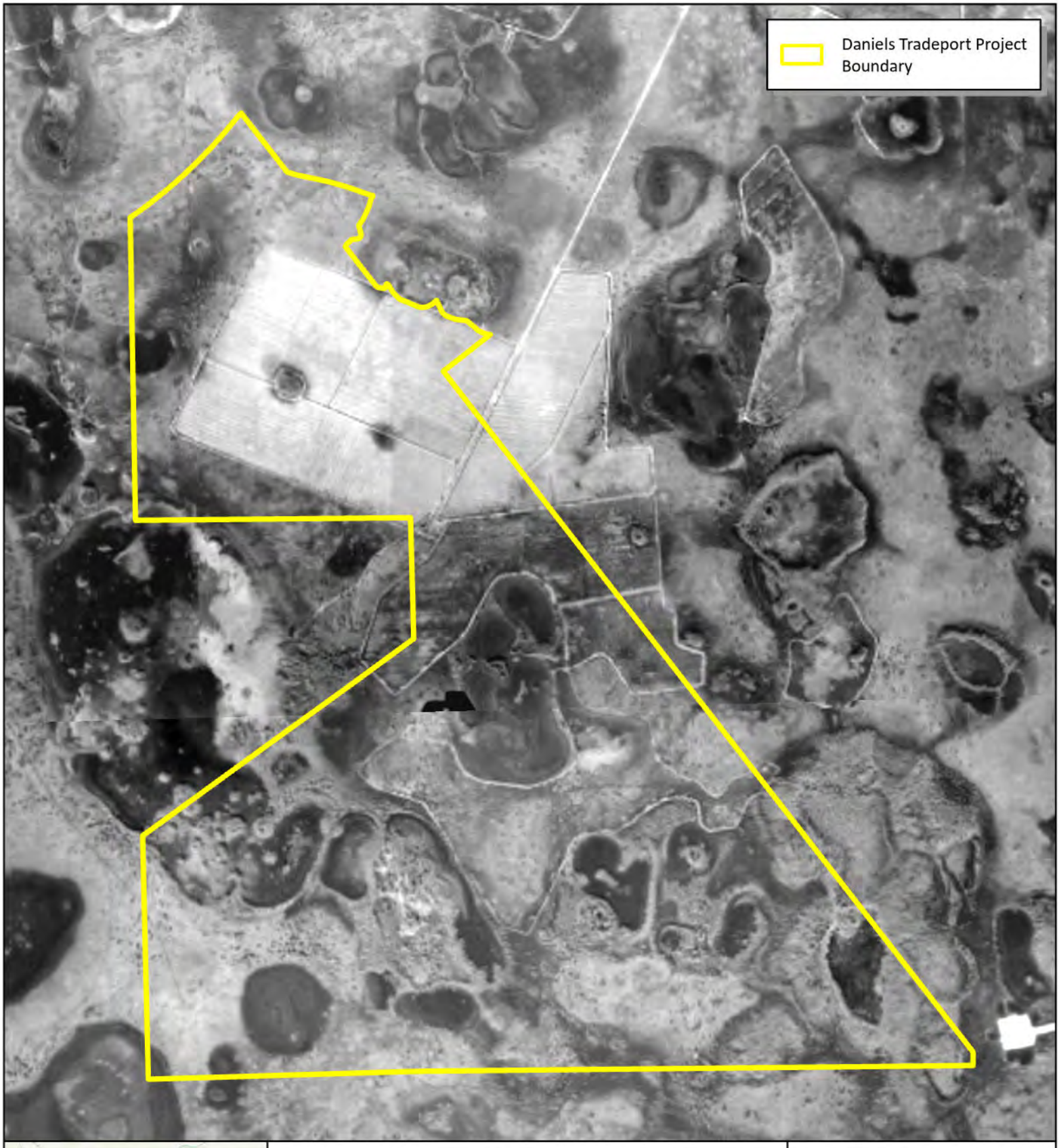

Figure 5
1958 Historic Aerial Imagery
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 Feet

Scale: 1:15,000

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Image: UFDC 1958 Historic Aerial Imagery

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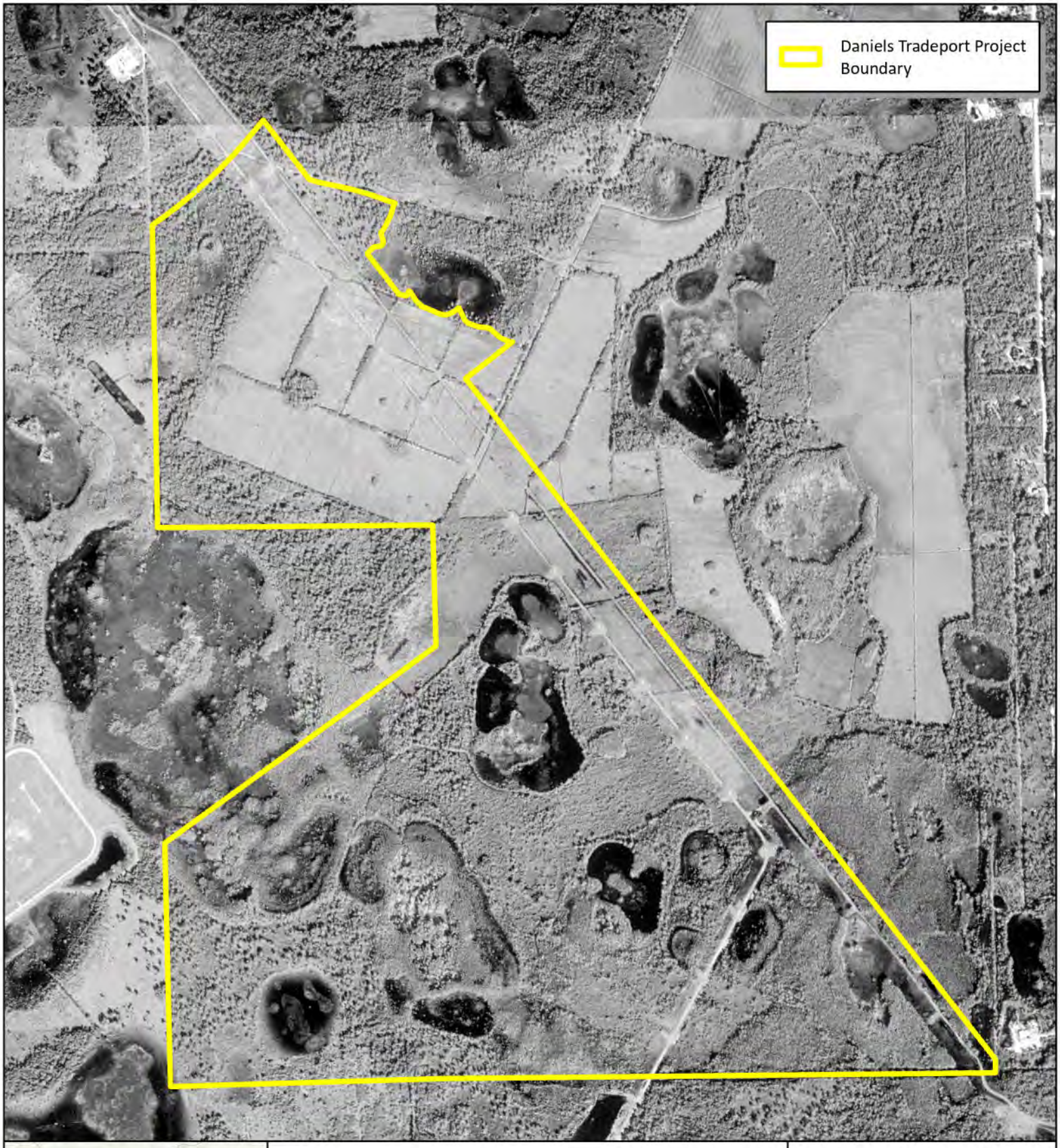

Figure 6
1999 Historic Aerial Imagery
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 Feet

Scale: 1:15,000

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Image: 1999 Google Earth Imagery

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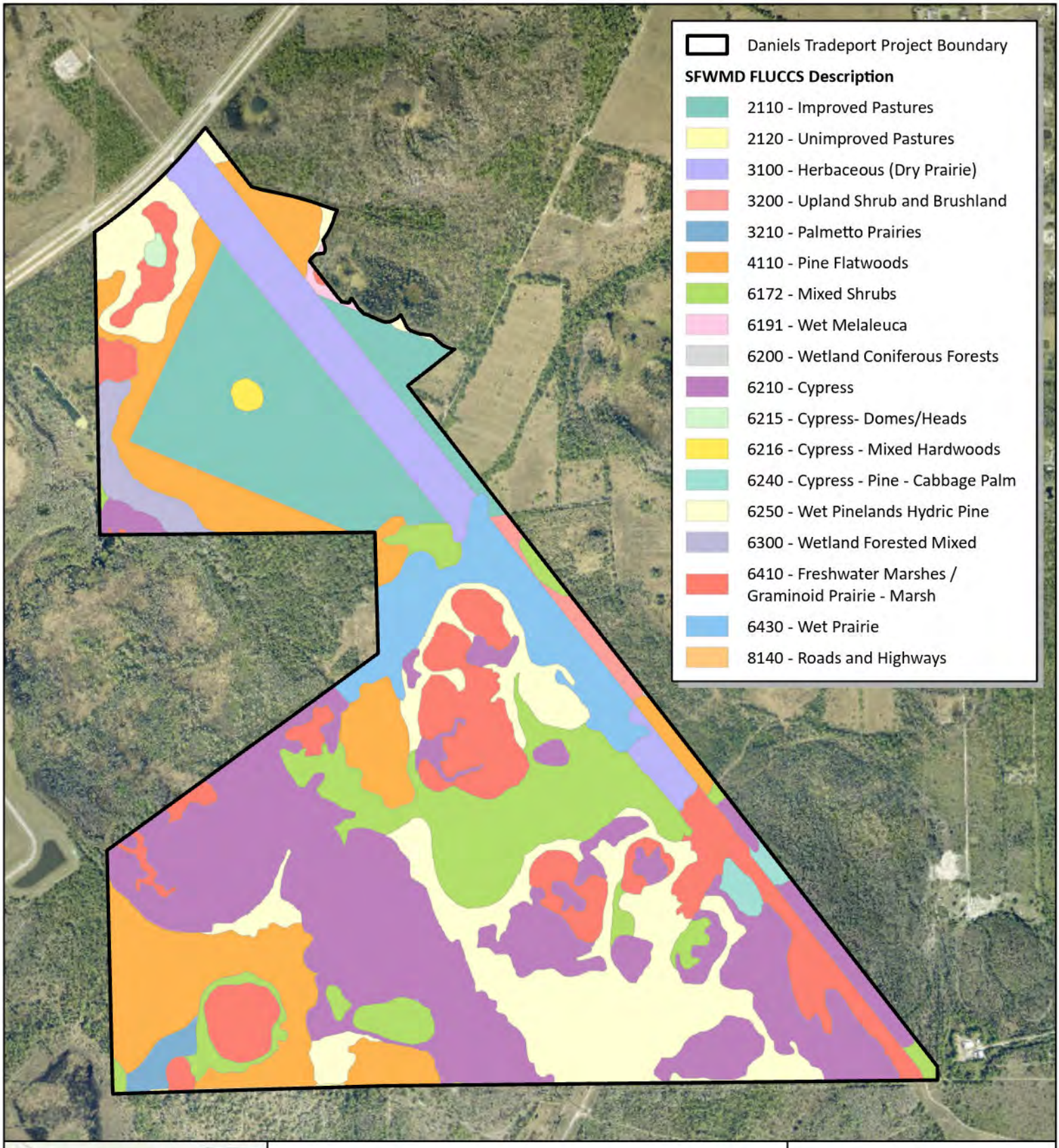

Figure 7
SFWMD FLUCCS
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 US Feet

Scale: 1:15,000

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Image: Esri World Imagery, SFWMD FLUCCS 2017 - 2019

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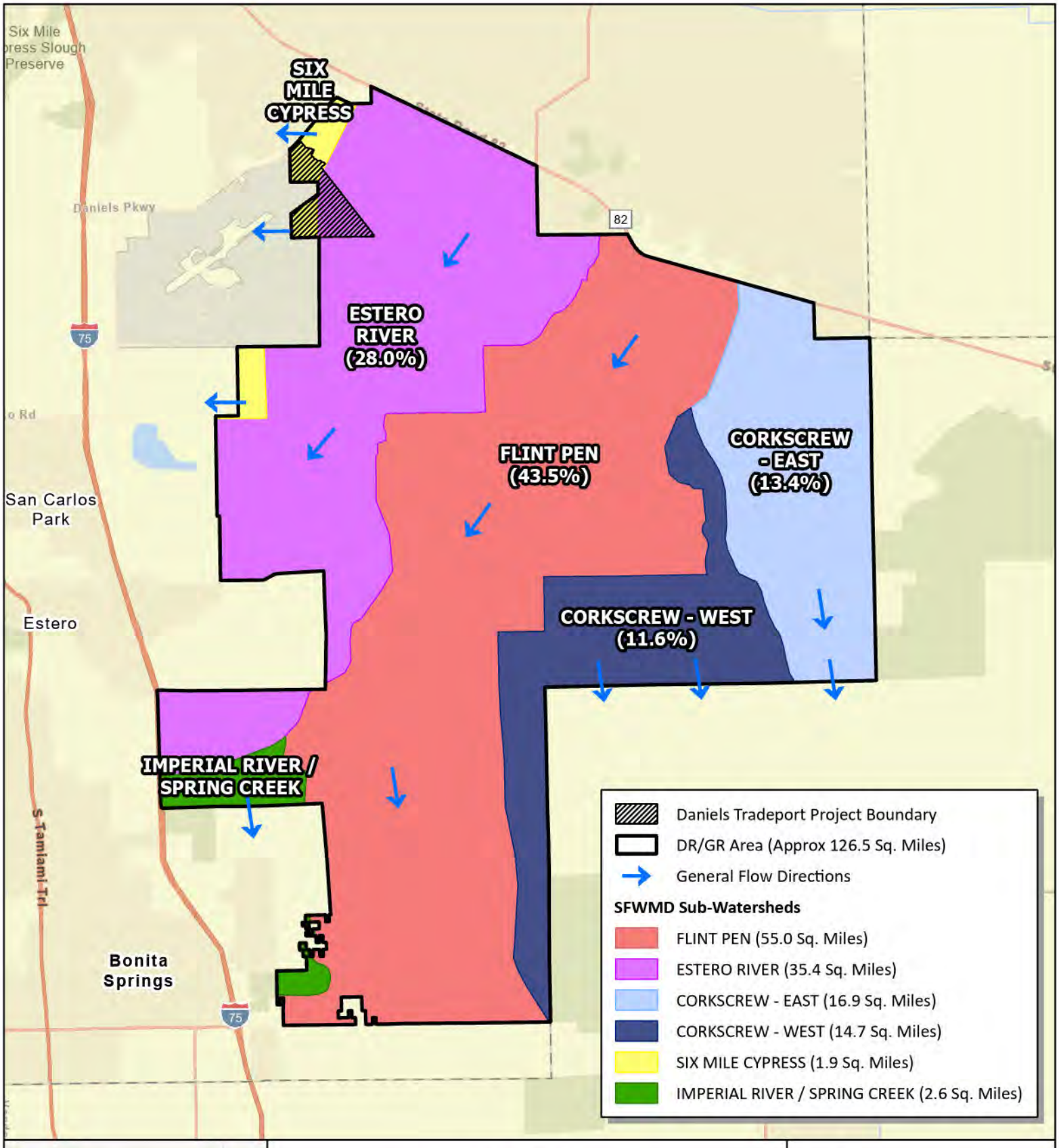

Figure 8
DR/GR Sub-Watersheds
Daniels Tradeport
Lee County, Florida

N

0 1 2 Mi

Scale: 1:150,000

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Image: ESRI World Imagery, Lee County

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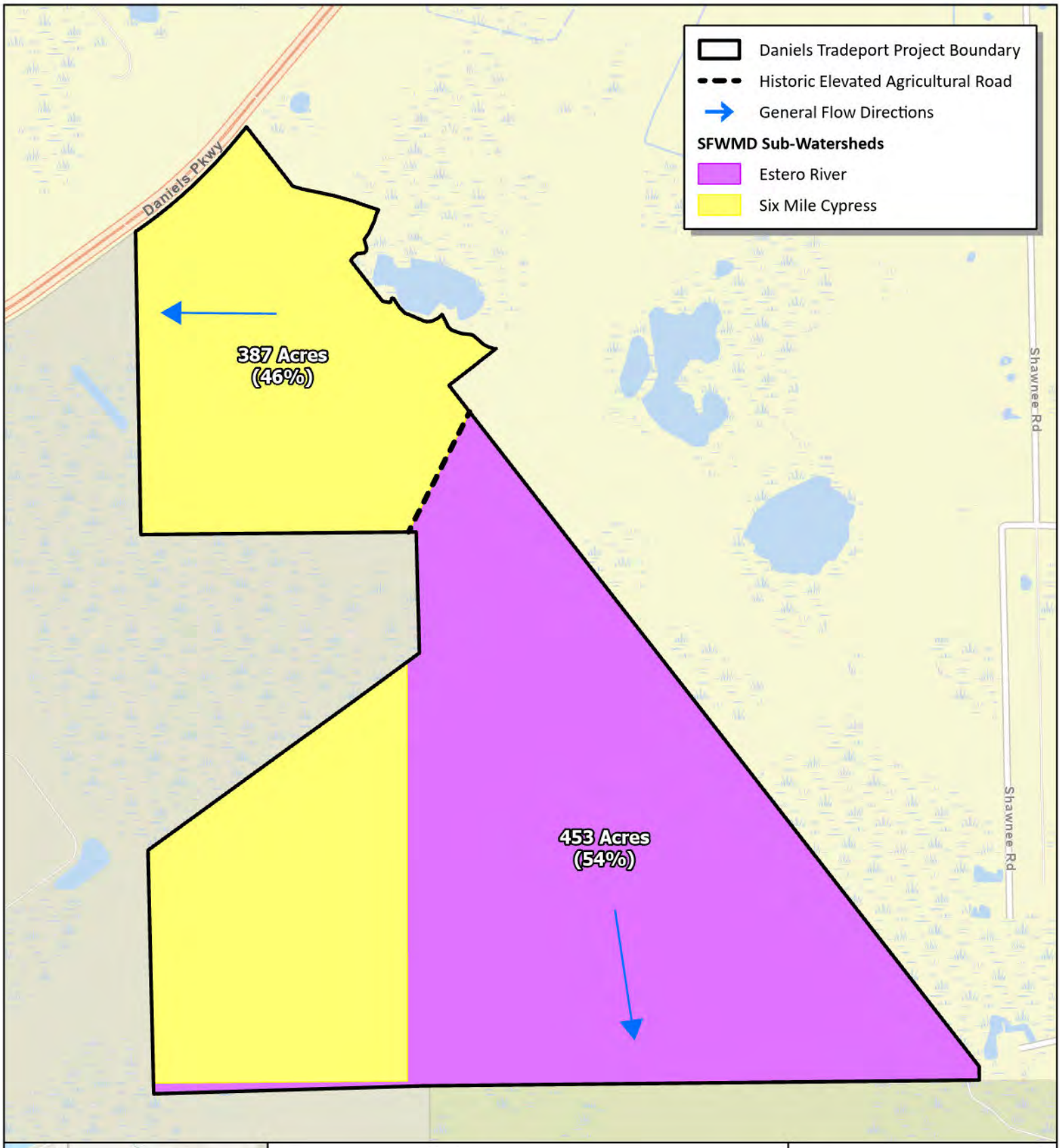

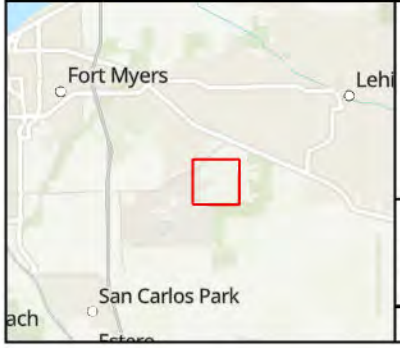

Figure 9
Sub-Watersheds
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 Feet

Scale: 1:15,000

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11/18/2025

Image: ESRI World Imagery, Lee County

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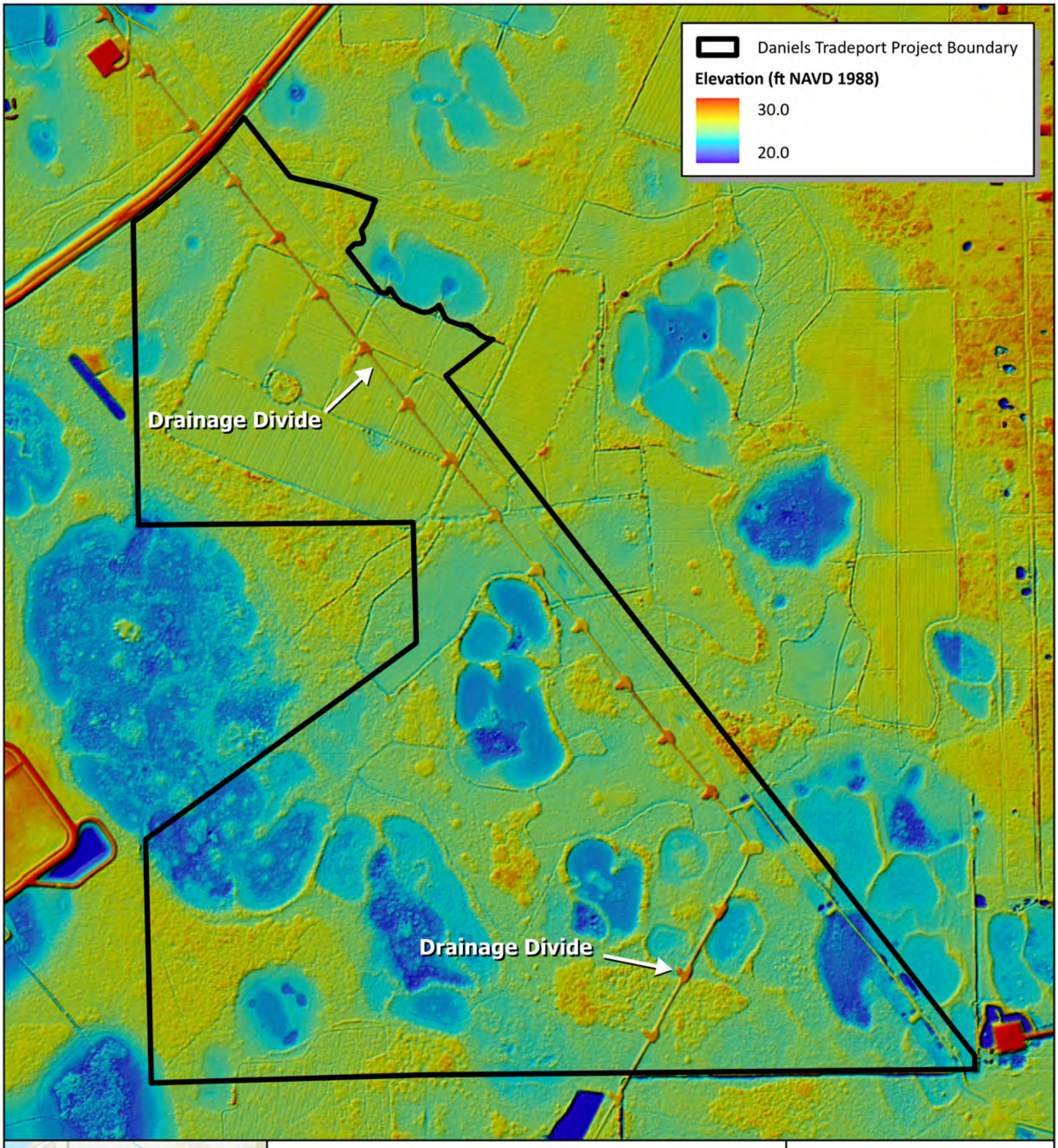

Figure 10
LiDAR Imagery
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 Feet

Scale: 1:15,000

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Image: Lee County 10-ft DEM (ft NAVD88)

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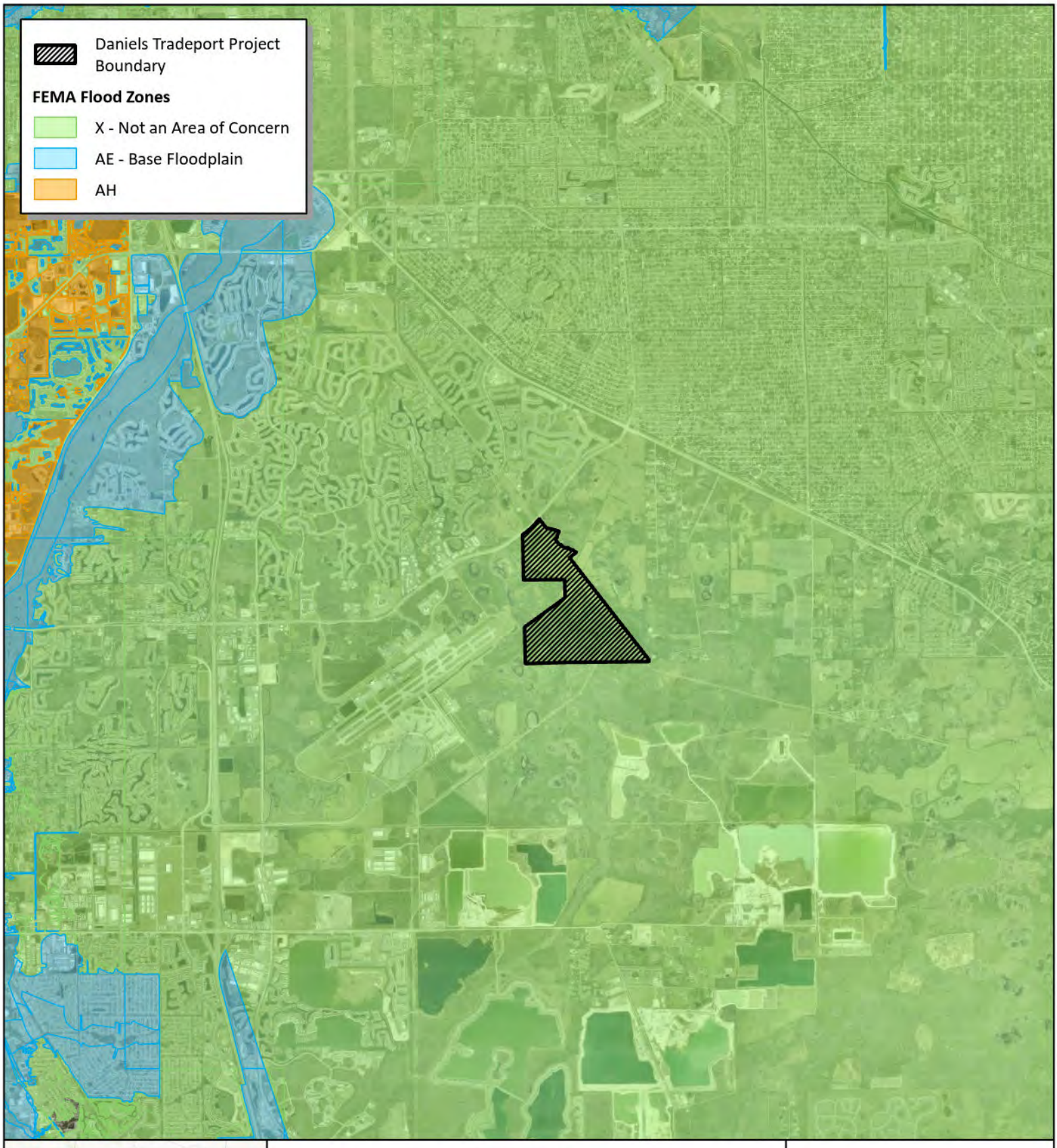

Figure 11
FEMA Flood Zones
Daniels Tradeport
Lee County, Florida

N

0 0.5 1 1.5 Miles

Scale: 1:100,000

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Image: ESRI World Imagery, FEMA

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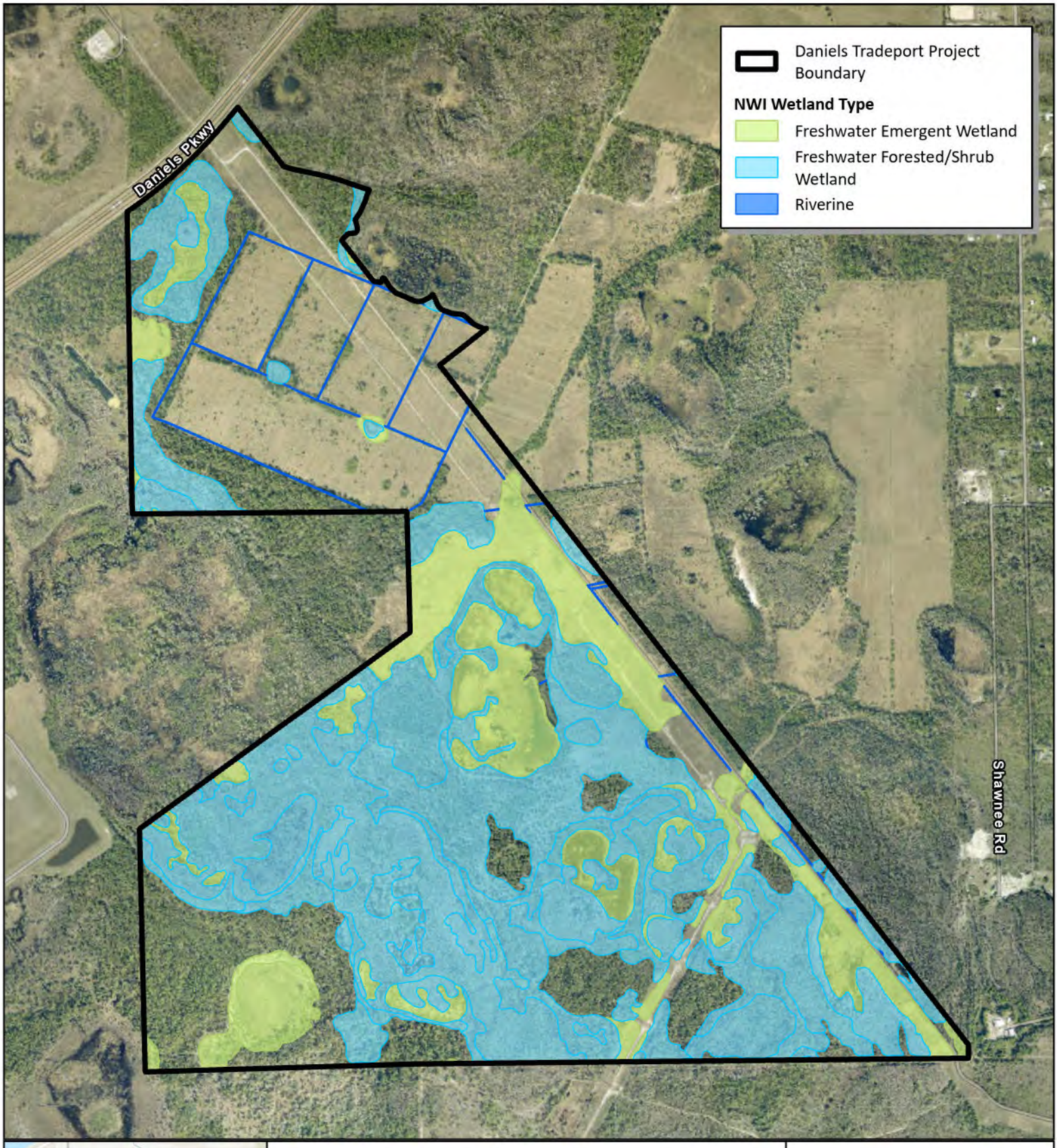

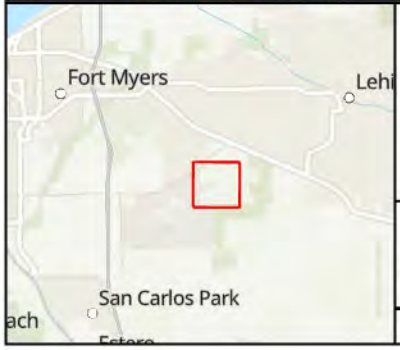

Figure 12
NWI Wetlands
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 Feet

Scale: 1:15,000

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Image: ESRI World Imagery, US Fish and Wildlife Service

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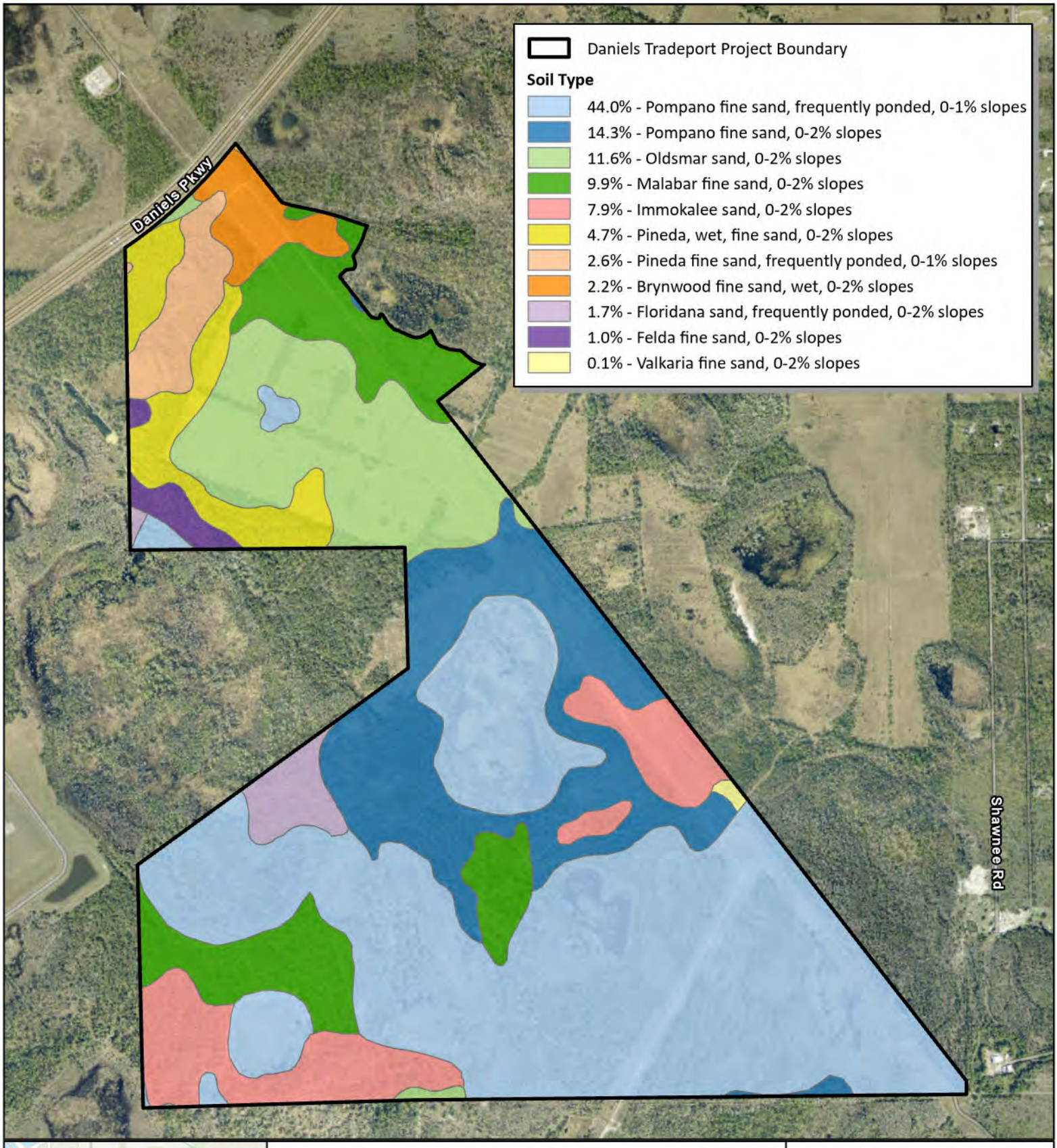

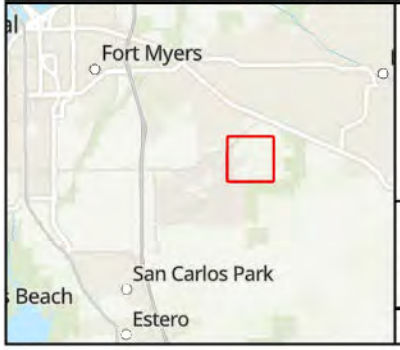

Figure 13
NRCS Soil Types
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 Feet

Scale: 1:15,000

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Image: ESRI World Imagery, NRCS

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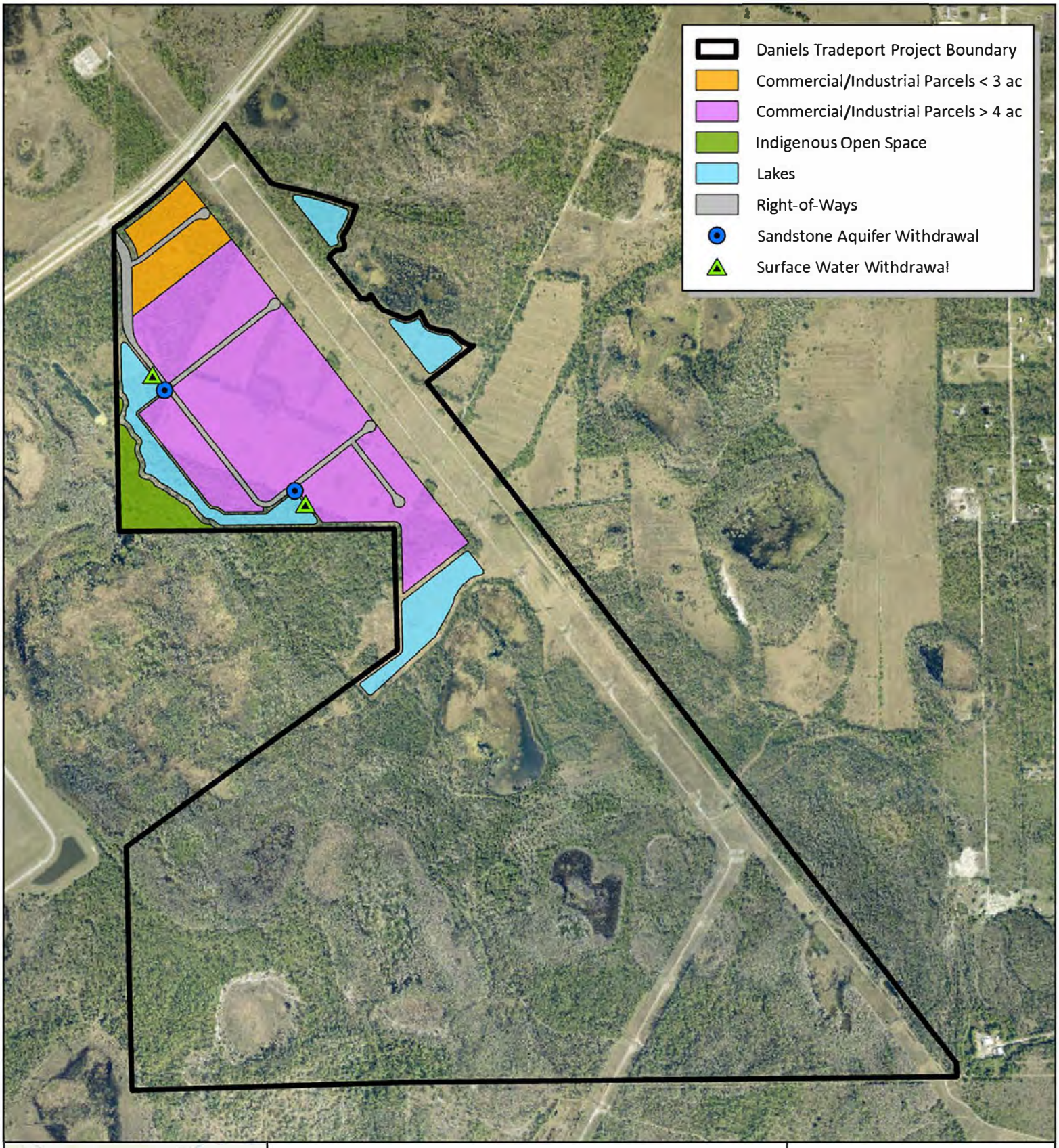

Figure 14
Proposed Irrigation Withdrawals
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 US Feet

Scale: 1:15,000

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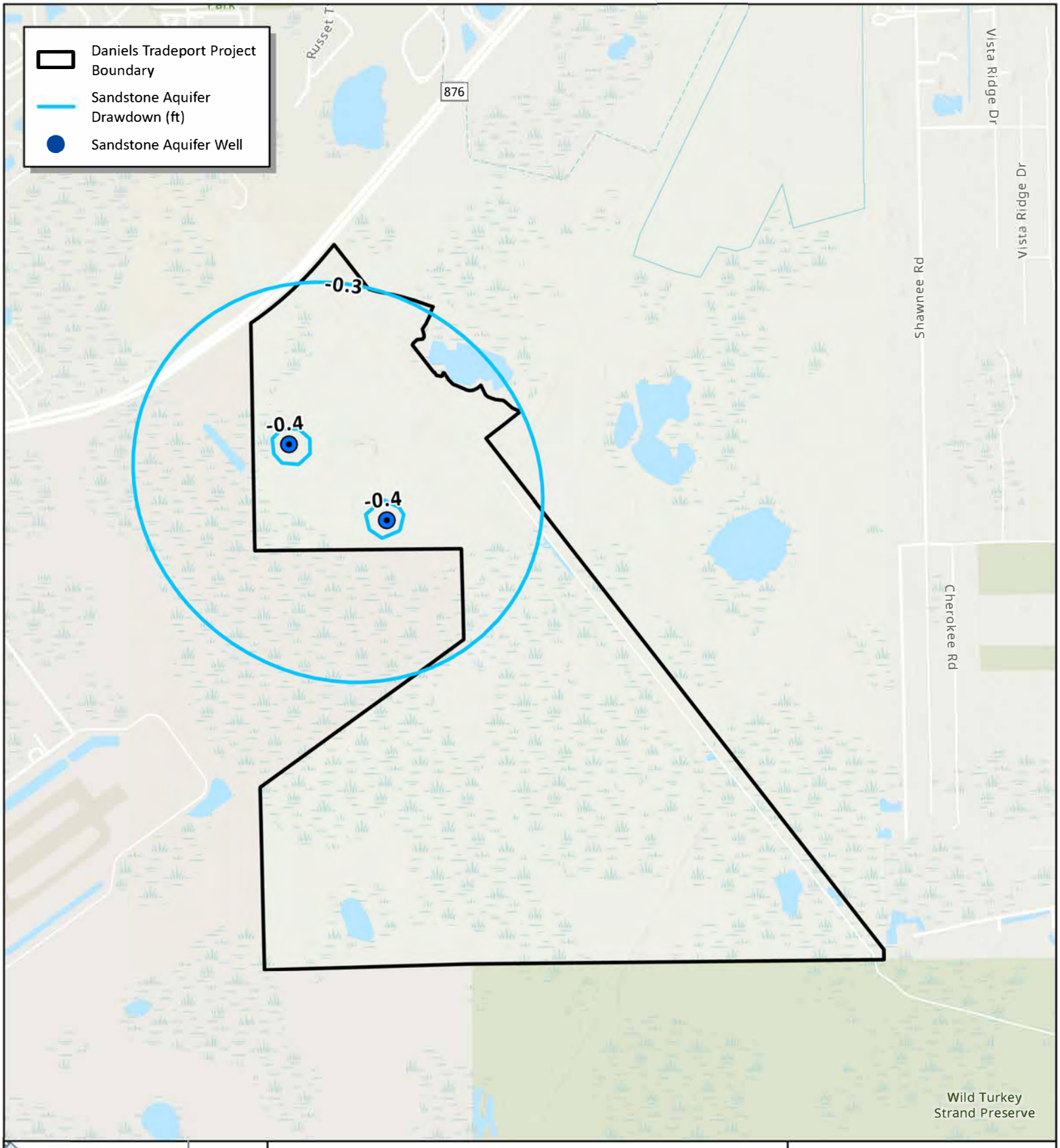
11/18/2025

Image: Esri World Imagery, Morris Depew Associates, Inc.

RESPEC



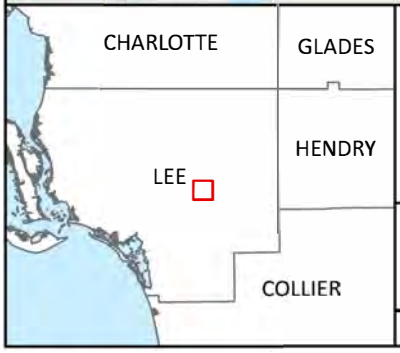


Figure 15
Predicted Sandstone Aquifer Drawdown
90-day Maximum Month Modeling Scenario
Lee County, Florida

N

0 0.07 0.15 0.3 Mi

Scale: 1:20,000

RESPEC Company, LLC 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

11/19/2025

Image: ESRI World Topographic Map

RESPEC

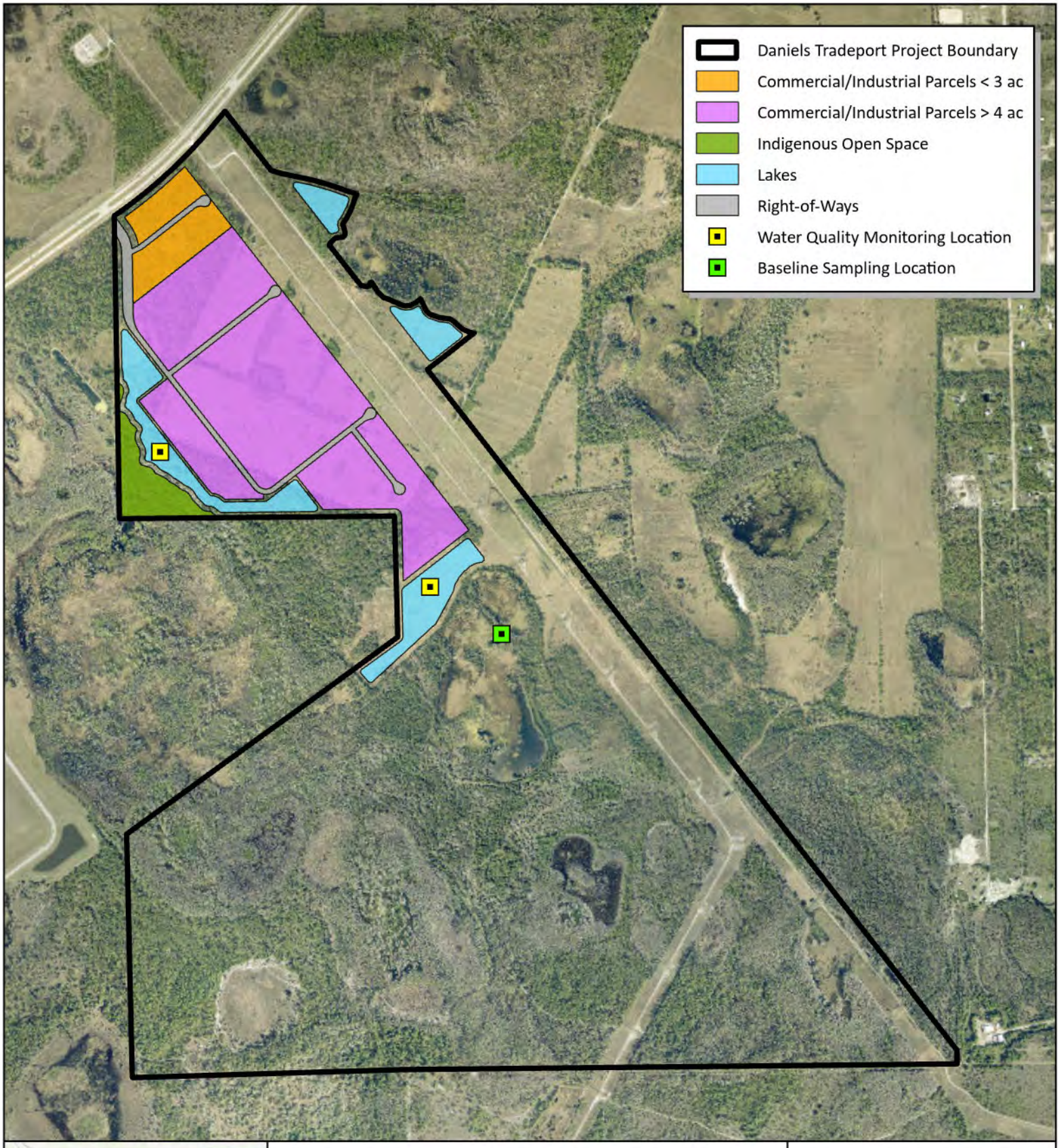


Figure 16
Water Quality Monitoring Locations
Daniels Tradeport
Lee County, Florida

N

0 600 1,200 US Feet

Scale: 1:15,000

RESPEC Company, LLC 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

11/18/2025

Image: Esri World Imagery, Morris Depew Associates, Inc.

RESPEC

Blaney Criddle Irrigation Demands

Attachment 1

RESPEC

Calculations Of Irrigation Requirements (1-in-10)

Rainfall Station: Ft. Myers 1-in-10

Irrigation System: Sprinkler

Irrigated Acreage: 28.50

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)	1.90	2.00	1.50	1.90	4.10	9.40	8.70	8.60	8.40	3.50	1.50	1.50	53.00
Evapotranspiration (inches)	1.86	2.14	3.70	5.11	6.83	7.60	8.05	7.72	6.48	4.92	3.07	2.15	59.63
Average Effective Rainfall (inches)	0.88	0.94	0.79	1.06	2.31	4.91	4.71	4.58	4.19	1.81	0.76	0.72	27.66
1-in-10 Effective Rainfall (inches)	0.74	0.79	0.66	0.89	1.94	4.12	3.96	3.85	3.52	1.52	0.64	0.61	23.24
Average Irrigation (inches)	0.98	1.20	2.91	4.05	4.52	2.69	3.34	3.14	2.29	3.11	2.31	1.43	31.97
1-in-10 Irrigation (inches)	1.12	1.35	3.04	4.22	4.89	3.48	4.09	3.87	2.96	3.40	2.43	1.54	36.39

1-in-10 Annual Supplemental Crop Requirement = 36.39 inches

Annual Supplemental Crop Water Use:

36.39 inches X 28.5 Acres X 1.3 X 0.02715 MG/AC-IN = 36.60 MG

1-in-10 Maximum Monthly Supplemental Crop Requirement = 4.89 inches

Maximum Monthly Supplemental Crop Water Use:

4.89 inches X 28.5 Acres X 1.3 X 0.02715 MG/AC-IN = 4.92 MG

Notes:

Evapotranspiration was calculated using a modified Blaney-Criddle method.
Average effective rainfall is the amount that is useful to crops in an average year.
Drought rainfall is the rainfall minimum representative of a 1-in-10 year drought
Drought effective rainfall is the amount that is useful to crops in a 1-in-10 year drought event.
Average irrigation is the net amount that should be required for maximum yields during an average year.
Drought irrigation is the net amount that should be required for maximum yields during a 1-in-10 year drought.

Professional Geologist Certification

Attachment 2

RESPEC

6561 PALMER PARK CIRCLE
SUITE D
SARASOTA, FL 34238
941.552.5657

Professional Geologist Certification

The groundwater flow modeling impact analysis included as part of this document titled "*Characterization of Ground and Surface Water Resources"* for the Daniels Tradeport property in Lee County, Florida, was completed based on sound geologic principals and the hydrogeologic data available at the time this modeling analysis was performed. The parameters and discretization of simulated withdrawals from the aquifer system are considered to be reasonably accurate; therefore, the Professional Geologist below certifies the results of the model as they pertain to the predicted groundwater impacts. All the preceding geological analysis and interpretation(s) were evaluated and supervised by Devin Lemke, P.G., a Registered Professional Geologist pursuant to Chapter 492, Florida Statutes, (F.S.) and Chapter 61G16, Florida Administrative Code, F.A.C.

11/17/2025

Devin Lemke, P.G. No. 3270
RESPEC Company, LLC
Professional Geologist

Date

Deep Lake Aeration Device

Attachment 3

RESPEC

Vertex Water Features
Pond and Lake Aeration
BOTTOM AERATION

With Vertex MicronBubble™ Technology

AIR3 XL2™

The Vertex Air3 XL2™ pond aerator is a super-efficient, affordable and safe system. In a typical pond, an Air3 XL2™ can aerate approximately 3-4 acres depending on shape, slope, oxygen demand and other factors. A 1/2hp (0.37kW) Brookwood™ SafeStart™ compressor, housed in our rustproof aluminum outdoor cabinet, feeds three bottom mounted CoActive AirStations™ utilizing Vertex's MicronBubble™ technology. The rising force of millions of bubbles circulates the entire water column, entraining bottom water up to the surface allowing vital oxygen to be absorbed and poisonous gasses expelled. With no electricity in the water, Vertex's aeration systems are safe for any type of water recreation.

Our systems have a full 3-year Vertex warranty, excluding wearable parts (air filters and compressor maintenance kits) plus a Limited Lifetime warranty against rust and corrosion on the cabinet, 5-year warranty on the AirStations™ and a 15-year warranty on BottomLine™ supply tubing.

FEATURES

AIRSTATIONXL2™
- Total pumping capacity of up to 11,400 GPM
- Six 9" flexible membrane discs with MicronBubble™ technology
- Shallow water Airstation optional for depths lower than 8'
- Self-cleaning, low maintenance
- Powder-coated stainless steel self-sinking base unit designed to prevent sinking into soft bottom sediments
- 5-year "No Questions" warranty

BROOKWOOD™ COMPRESSOR
- 3-year Vertex warranty, excluding wearable parts (air filters and compressor maintenance kits)
- Vertex SafeStart™ Technology
- UL, 115v or 230v, 35 Max PSI
- Thermal overload protection
- 1/2hp (0.37kW): low electrical costs
- 2-3 year extended duty cycle between scheduled maintenance

QUIETAIR™ CABINET
- Class "A" GFCI protection on all 115v circuits
- Powder coated aluminum for a durable attractive finish
- High capacity 290 CFM fan
- Easy access design with cam lock
- Easy plug-in connection to waterside electrical service
- Disconnect switch
- Heavy duty, light weight mounting pad included
- Sound dampening kit optional
- Limited lifetime warranty against rust

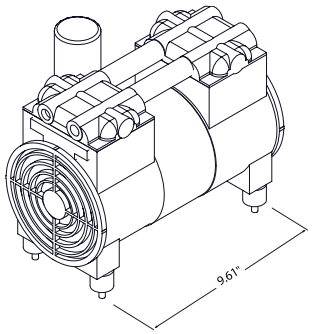
BOTTOMLINE™ TUBING
- Over-sized I.D. for high flow
- Self-weighted for easy installation
- Available in 100' and 500' increments
- 15-year Vertex warranty

BENEFITS TO THE LAKE
- High pumping rate easily penetrates stratification layers
- Circulates entire water column
- Increases oxygen levels throughout water column
- Promotes beneficial bacteria growth
- Prevents low oxygen fish kills
- Reduces nutrient levels and associated algae growth
- Oxidizes/reduces bottom muck
- Expands oxygenated habitat for improved fisheries
- Reduces aquatic midge and mosquito insect hatches
- Eliminates foul odors from undesirable dissolved gases
- Safe entry – no electricity in the water
- Extremely energy efficient

SPECIFICATIONS: AIR3 XL2™ LAKE AERATION SYSTEM

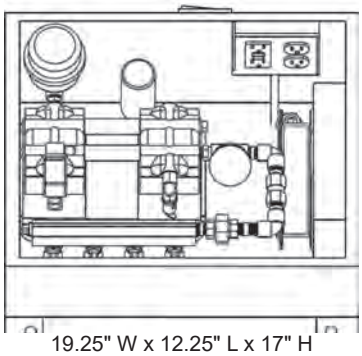
BROOKWOOD™ COMPRESSOR

1/2hp (0.37kW), 115v or 230v, Single Phase piston type compressor. Built for continuous 24/7 operation and equipped with Vertex SafeStart™ technology allowing auto restart under maximum rated pressure without motor damage. Super-duty Brookwood™ compressors incorporate upgraded rotors, stators, valve plates, bearings and capacitors and are thermally protected, oil-free, and require no lubrication; just periodic cleaning of included washable air filter. Extended duty cycle is approximately 2 to 3 years for compressor maintenance, about 2 to 3 times the duty cycle of ordinary piston and rotary vane compressors. All Brookwood™ SafeStart™ compressors carry a 3-year Vertex warranty, excluding wearable parts (air filters and compressor maintenance kits).



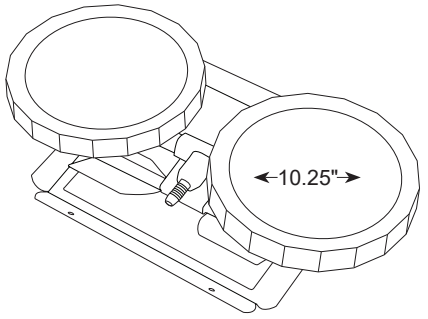
QUIETAIR™ CABINET

Enclosure comes equipped with cam lock for security, fully gasketed and constructed of aluminum with gray electrostatically-bonded powder coating to provide Limited Lifetime warranty against cabinet rust and corrosion. Enclosure furnished with stamped ventilation grills to insure forced air circulation and an integral cooling fan with thermal protection, producing 290 CFM to guard against excessive compressor operating temperatures. Cabinet provided with HDPE mounting pad. Enclosure comes with class a GFCI protection on both the compressor and fan circuits. Quick disconnect switch included. Side mounted muffler box and additional insulation optional for quiter operation.



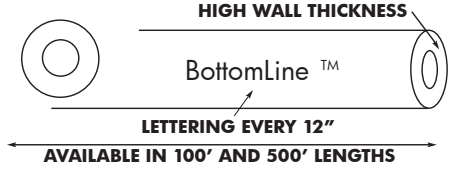
AIRSTATION XL2™ ASSEMBLY

Diffuser station consists of two self-cleaning, 9" diameter, flexible membrane diffusers of EPDM compound with 100% rebound memory, each producing millions of fine 500 to 3000 micron bubbles – the majority 500 to 1000 microns. Each diffuser station base unit is made of powder-coated stainless steel and designed to prevent settling into soft bottom sediments. AIRSTATION™ is designed with adjustable diffuser riser to accommodate any site requirements. AirStations are independently tested and verified to provide stated pumping rates. 5-year warranty.



BOTTOMLINE™ SUPPLY TUBING

Self-weighted, direct burial submersible tubing for connection from compressor to diffuser stations. Tubing is flexible PVC composite construction for use with standard PVC solvent weld cement and insert fittings. Tubing has 0.58" I.D. and high wall thickness for long term durability and protection against punctures. Remains flexible in cold temperatures.



Vertex Water Features
Pond and Lake Aeration
(844) 432-4303 • info@vertexwaterfeatures.com
www.vertexwaterfeatures.com

Install all electrical equipment in accordance with Article 682 of the National Electrical Code and all local codes. Vertex Water Features reserves the right to improve and change our designs and/or specifications of our aerators without notice or obligation.

©Vertex Water Features rev.051116

Lee County Fertilizer Ordinance No. 08-08

Attachment 4

RESPEC

LEE COUNTY ORDINANCE NO. 08-08

AN ORDINANCE REGULATING LANDSCAPE MANAGEMENT PRACTICES INCLUDING THE APPLICATION AND USE OF FERTILIZERS CONTAINING NITROGEN AND/OR PHOSPHORUS WITHIN UNINCORPORATED LEE COUNTY; PROVIDING FINDINGS; PROVIDING FOR PURPOSE AND INTENT; PROVIDING DEFINITIONS; PROVIDING FOR APPLICATION; PROVIDING FOR REGISTRATION OF PROFESSIONAL LANDSCAPING BUSINESSES AND INSTITUTIONAL LANDSCAPERS; PROVIDING FOR TRAINING AND CERTIFICATION OF PROFESSIONAL LANDSCAPING BUSINESSES AND INSTITUTIONAL LANDSCAPERS; PROVIDING FOR MANDATORY BEST MANAGEMENT PRACTICES; PROVIDING FOR EXEMPTIONS TO LANDSCAPING BEST MANAGEMENT PRACTICES; PROVIDING EXEMPTIONS FOR AGRICULTURE, GOLF COURSES AND SPECIALIZED TURF; PROVIDING FOR ENFORCEMENT AND PENALTY; PROVIDING FOR CODIFICATION AND SCRIVENER'S ERRORS; PROVIDING FOR CONFLICTS OF LAW; PROVIDING FOR SEVERABILITY; PROVIDING FOR AN EFFECTIVE DATE, INCLUDING ONE YEAR IMPLEMENTATION PERIOD.

WHEREAS, the Florida Department of Environmental Protection has identified specific water bodies in Lee County as "impaired" as a result of excess nutrients under the Florida Impaired Waters Rule (Chapter 62-303, Florida Administrative Code); and

WHEREAS, surface water runoff containing excess nutrients leaves residential neighborhoods, farms, commercial centers, industrial areas and other lands of Lee County with low permeability soils; and

WHEREAS, base-flow runoff containing excess nutrients flows from residential neighborhoods, farms, commercial centers, industrial areas, and other lands of Lee County with high permeability soils; and

WHEREAS, surface water and baseflow runoff containing excess nutrients enters into natural and artificial stormwater and drainage conveyances and natural water bodies in Lee County; and

WHEREAS, the detrimental effects of nutrient-laden runoff are magnified in a coastal community such as Lee County, due to the proximity of stormwater and drainage conveyances to coastal waters; and

WHEREAS, nutrient-laden runoff fosters plant and algae growth; and

WHEREAS, the quality of our bays, estuaries, streams, lakes, and the Gulf of Mexico is critical to environmental, economic and recreational prosperity and to the health, safety and welfare of the citizens of Lee County; and

WHEREAS, recent red tide blooms, accumulation of red drift algae on local beaches and blue-green algae blooms in our freshwater systems have heightened community concerns about water quality and eutrophication of surrounding waters; and

WHEREAS, leaching and runoff of nutrients from improper landscaping or excess fertilization practices upstream of as well as within Lee County can contribute to nitrogen and phosphorus pollution in the County's stormwater and drainage conveyances and natural water bodies; and

WHEREAS, nitrogen and phosphorus pollution in the County's stormwater and drainage conveyances and natural water bodies leads to the overgrowth of vegetation in these waterways; and

WHEREAS, Lee County's natural and artificial stormwater and drainage conveyances regulate the flow of stormwater to prevent flooding; and

WHEREAS, the overgrowth of vegetation in stormwater and drainage conveyances hinders the goal of flood prevention; and

WHEREAS, it is generally recognized that many Florida soils are naturally high in phosphorus; and

WHEREAS, it has been recognized by soil science professionals that the use of slow release nitrogen sources minimizes harmful nitrate leaching; and

WHEREAS, nitrogen from slow release sources is more likely to be used by plants and less likely to leach out or wash away in stormwater runoff; and

WHEREAS, the Florida Department of Environmental Protection will mandate total maximum daily loads for "impaired" water bodies in Lee County; and

WHEREAS, this ordinance is part of a multi-pronged effort by Lee County to meet these total maximum daily loads and reduce nutrient loading into runoff through such policies as, but not limited to, basin management action planning, stormwater management, water conservation, management of septic systems, public education, and development standards as set forth in the Lee County Land Development Code.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS FOR LEE COUNTY, FLORIDA, that:

SECTION ONE: FINDINGS

The above "WHEREAS" clauses are hereby deemed by Lee County to constitute findings of Lee County for purposes of this Ordinance and are incorporated herein as if fully set forth in this section.

SECTION TWO: PURPOSE AND INTENT

The purpose and intent of this Ordinance is to provide for the regulation of landscape management practices and the application of fertilizers containing nitrogen and/or phosphorus and to provide specific guidelines for landscaping and fertilization in order to meet Federal and State mandated water quality standards and to minimize the negative environmental effects said fertilizers have in and on Lee County's lakes, canals, estuaries, interior freshwater wetlands, the Caloosahatchee River and nearshore waters of the Gulf of Mexico. Collectively these water bodies are a natural asset, which are critical to the environmental, recreational, cultural and economic well being of Lee County and the surrounding areas and contribute to the general health and welfare of the public. Regulation of nutrients, including both phosphorus and nitrogen contained in fertilizer, entering the water bodies in and around Lee County is a crucial step towards improving and maintaining water and habitat quality.

SECTION THREE: DEFINITIONS

The following words, terms, and phrases when used in this Ordinance shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

A. Best Management Practices (BMPs) – a practice or combination of practices based on research, field-testing and expert review, determined to be the most effective and practicable on-location means, including economic and technological considerations, for improving water quality, conserving water supplies and protecting natural resources.

B. BMP Trained Landscaper – any Person who has completed the proper training, obtained a Certificate of Completion and is qualified and responsible to provide lawn care and maintenance or landscaping in unincorporated Lee County.

C. Certificate of Completion – the documentation evidencing completion of a Lee County approved BMP training course or any other future certification or licensing requirements mandated by the State of Florida.

D. Division – the Division of Lee County Natural Resources.

E. Fertilize, Fertilizing or Fertilization – the act of applying fertilizer to Turf, specialized Turf or Landscape Plants.

F. Fertilizer – any substance that contains one or more recognized plant nutrients and promotes plant growth, or controls soil acidity or alkalinity, or provides other soil enrichment, or provides other corrective measures to the soil.

G. Impervious surfaces - a constructed surface such as, sidewalks, roads, parking lots or driveways - covered by impenetrable materials such as asphalt, concrete, brick, pavers, stone and/or highly compacted soils.

H. Institutional Landscaper – any Person, other than a Professional Landscaping Business or Non-Professional Landscaper (unless such definitions also apply under the circumstances), that performs lawn care or maintenance. Institutional Landscapers shall include, but shall not be limited to, owners and managers of public lands, schools, parks, religious institutions, utilities, industrial or business sites and any residential properties maintained in condominium and/or common ownership.

I. Landscape Plant – any native or exotic tree, shrub or groundcover (excluding Turf).

J. Lawn Care and Maintenance or Landscaping (landscaping) - shall include, but not be limited to, mowing, trimming, pruning, edging, liming, fertilizing, mulching, seeding and aerating of turf and/or landscaping plants.

K. Non-Professional Landscaper – any Person other than a Professional Landscaper or Institutional Landscaper who performs lawn care and maintenance on Turf and/or Landscape Plants in Lee County, such as an individual owner of a single-family residential unit.

L. Person – any natural person and shall also mean any business, corporation, association, club, organization and/or any group of people acting as an organized entity.

M. Professional Landscaping Business - means any person, sole proprietor, partnership, corporation, business trust, joint venture, or other legal entity that engages in the business of providing lawn care and maintenance or landscaping in exchange for money, goods, services or other valuable consideration.

N. Rainy Season – June 1 through September 30 of each calendar year.

O. Slow Release, Controlled Release, Timed Release, Slowly Available or Water Insoluble Nitrogen – means a fertilizer containing a plant nutrient in a form which delays its availability for plant uptake and use after application, or which extends its availability to the plant significantly longer than a referenced "rapidly available nutrient fertilizer" such as ammonium nitrate or urea.

P. Specialized Turf – areas of grass used for athletic fields, activity fields, parks, golf course practice and play areas, cemeteries and other similar areas.

Q. Specialized Turf Manager – a Person responsible for lawn care and maintenance or landscaping or directing the lawn care and maintenance or landscaping of a golf course or athletic field.

R. Turf – a piece of grass-covered soil held together by the roots of the grass; sod; lawn.

S. Water Body or Water Bodies - any visible, standing or open body of water. This shall include, but not be limited to: municipal or private storm sewer systems (including inlets, conveyances and structures), ditches, swales, canals, creeks, rivers, streams, tidal waters, lakes, ponds, ponded water, standing water, marshes, swamps or any other body of permanent or temporary standing or visible water whether or not the water body is natural or man-made or contained by impervious surfaces on the bottom or sides. Water body shall not include manmade structures such as pools and water fountains.

SECTION FOUR: APPLICATION

This Ordinance shall be applicable to and shall regulate any and all persons performing landscaping within unincorporated Lee County, unless such person or landscaping activity is specifically exempted or excepted by the terms of this Ordinance.

SECTION FIVE: REGISTRATION OF PROFESSIONAL LANDSCAPING BUSINESSES AND INSTITUTIONAL LANDSCAPERS

A. Professional Landscaping Businesses

1. All Professional Landscaping Businesses must register with the Division prior to performing landscaping in unincorporated Lee County. Any Professional Landscaping Business seeking to register and remain registered with the Division shall have at least one employee who is a Certified Professional Landscaper to qualify the Professional Landscaping Business.

2. All Professional Landscaping Businesses shall provide the Certificate of Completion of a Lee County approved BMP training program and/or future certification or license requirement mandated by the State of Florida from the qualifying employee to the Lee County Tax Collector's Office prior to obtaining a Lee County local business tax receipt.

3. Upon receipt of the current local business tax receipt, a current Certificate of Completion of the qualifying employee and payment of an initial registration fee, the Professional Landscaping Business shall be registered with the Division and be issued vehicle decals identifying the Professional Landscaping Business. Professional Landscaping

Businesses shall affix and maintain a decal on the exterior of all vehicles and trailers used in connection with the Professional Landscaping Business.

4. In addition to the initial registration fee, Professional Landscaping Businesses shall pay an annual registration fee.

5. All Professional Landscaping Businesses shall ensure that at least one (1) BMP Trained Landscaper is on site while fertilizer is being applied.

B. Institutional Landscapers

1. All Institutional Landscapers must register with the Division prior to landscaping in unincorporated Lee County. Any Institutional Landscaper seeking to register and remained registered with the Division shall have at least one (1) employee who is a BMP Trained Landscaper to qualify the Institutional Landscaper.

2. Upon receipt of the Certificate of Completion of the qualifying employee and payment of a registration fee, the Institutional Landscaper shall be registered with the Division.

3. In addition to the initial registration fee, Institutional Landscapers shall pay an annual registration fee.

SECTION SIX: TRAINING AND CERTIFICATION OF PROFESSIONAL LANDSCAPING BUSINESSES AND INSTITUTIONAL LANDSCAPERS

A. In addition to any current or future certification or licensing requirements mandated by the State of Florida or Lee County, any person seeking to register a Professional Landscaping Business with the Division under Section 5(A) above

shall first successfully complete training and receive a Certificate of Completion in accordance with the *"Florida Green Industries Best Management Practices for Protection of Water Resources in Florida, June 2002"*, as revised (*Florida Green BMPs)*. The *Florida Green BMPs* training shall be obtained through a Lee County approved BMP training program and/or any future certification or licensing requirements mandated by the State of Florida.

B. Any person seeking to register as an Institutional Landscaper with the Division under section 5(B) shall first successfully complete training and receive a Certificate of Completion in accordance with the *Florida Green BMPs*. The *Florida Green BMPs* training shall be obtained through a Lee County approved BMP training program.

C. The Division in cooperation with University of Florida Lee County Extension Service Urban Horticulture and Natural Resource Educators or other Lee County Extension Service approved organizations will schedule and conduct all training.

D. Non-professional landscapers are strongly encouraged to participate in the University of Florida IFAS Florida Yards and Neighborhoods Outreach and Public Education Program available at the Lee County Cooperative Extension Service Office.

SECTION SEVEN: MANDATORY BMPs: TIMING OF APPLICATION; FERTILIZER CONTENT AND APPLICATION RATE; IMPERVIOUS SURFACE; BUFFER ZONES; MODE OF APPLICATION; LOW MAINTENANCE ZONES; MANAGEMENT OF GRASS CLIPPINGS AND VEGETATION MATERIAL

A. TIMING OF APPLICATION

No person shall apply fertilizers containing nitrogen and/or phosphorus to Turf

and/or Landscape Plants during the rainy season (June 1 through September 30 of each calendar year).

B. FERTILIZER CONTENT AND APPLICATION RATE

1. No phosphorus Fertilizer shall be applied to Turf and/or Landscape Plants within Lee County at application rates which exceed 0.25 lbs. P_2O_5/1,000 ft^2 per application nor exceed 0.50 lbs. P_2O_5/1,000 ft^2 per year.

2. Fertilizers Applied to Turf and/or Landscape Plants within Lee County shall contain no less than fifty percent (50%) Slow Release Nitrogen per Guaranteed Analysis Label.

3. Fertilizers should be applied to Turf and/or Landscape Plants at the lowest rate necessary. No more than four (4) lbs. of nitrogen per 1000 ft^2 shall be applied to any Turf/landscape area in any calendar year.

C. IMPERVIOUS SURFACE

Fertilizer shall not be applied, spilled or otherwise deposited on any impervious surfaces. Any fertilizer applied, spilled or deposited, either intentionally or accidentally, on any impervious surface shall be immediately and completely removed. Fertilizer released on an impervious surface must be immediately contained and either legally applied to Turf or any other legal site, or returned to the original or other appropriate container.

D. BUFFER ZONES

No fertilizer shall be applied in or within ten (10) feet from the top of bank of any water body, seawall, designated wetland or wetland as defined by the Florida Department of Environmental Protection (Chapter 62-340).

E. MODE OF APPLICATION

Spreader deflector shields are required when fertilizing by use of any broadcast or rotary spreaders. Deflectors must be positioned such that fertilizer granules are deflected away from all impervious surfaces and water bodies, including wetlands.

F. LOW MAINTENANCE ZONES

A voluntary six (6) foot low maintenance zone is strongly recommended, but not mandated, from any pond, stream, water course, lake, wetland or from the top of a seawall. A swale/bern system is recommended for installation at the landward edge of this low maintenance zone to capture and filter runoff. If more stringent Lee County Code regulations apply, this provision does not relieve the requirement to adhere to the more stringent regulations. No mowed or cut vegetative material shall be deposited or left remaining in the zone or deposited in the water.

G. MANAGEMENT OF GRASS CLIPPINGS AND VEGETATIVE MATERIAL

In no case shall any person wash, sweep or blow off grass clippings and/or vegetative material into stormwater drains, ditches, conveyances, water bodies, roadways or other impervious surfaces.

SECTION EIGHT: EXEMPTIONS TO LANDSCAPING BMPs

A. The timing of applications, application rate provisions and other provisions set forth above in Subsections 7(A) and (B) of this Ordinance shall not apply to the following:

1. Newly established Landscape Plants for the first sixty (60) days after installation or planting, provided documentation for newly established Turf and/or Landscape Plants is maintained and *Florida Green BMPs* are followed to support this exemption.

2. Vegetable gardens, provided they are not within fifteen (15) feet of any water body and/or wetland.

3. Yard waste compost, mulches or other similar materials that are primarily organic in nature and are applied to improve the physical condition of the soil.

4. Reclaimed water used for irrigation (which may contain substantial amounts of nitrogen and phosphorus).

SECTION NINE: EXEMPTIONS: AGRICULTURE; GOLF COURSES; SPECIALIZED TURF

The provisions set forth in this Ordinance shall not apply to:

A. Bona fide farm operations as defined in the Florida Right to Farm Act, Section 823.14, Florida Statutes, provided that fertilizers are applied in accordance with the appropriate Best Management Practices Manual adopted by the Department of Agricultural and Consumer Services (DACS), Office of Agricultural Water Policy for the crop in question.

B. Other properties not subject to or covered under the Florida Right to Farm Act that have Pastures used for grazing livestock provided that fertilizers are applied in accordance with the appropriate Best Management Practices Manual adopted by the DACS, Office of Agricultural Water Policy for the crop in question.

C. All golf courses provided that landscaping is done within the provisions of the Florida Department of Environmental Protection document, *"Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses, 2007"*(*Florida Golf Course BMPs*), as updated. *Florida Golf Course BMPs* shall be followed when performing landscaping on golf course practice and play areas. If *Florida Golf Course BMPs* are not adhered to, Lee County may take enforcement action in accordance with Section 10 of this Ordinance.

D. When performing landscaping on all other specialized turf, Specialized Turf Managers shall use their best professional judgment to apply the concepts and principles embodied in the *Florida Green BMPs*, while maintaining the health and function of their Specialized Turf areas.

SECTION TEN: ENFORCEMENT AND PENALTY

A. Any Person, firm, company, corporation or other entity, who refuses to comply with or violates any section of this Ordinance, shall be subject to the following penalties.

1. First violation - $100.00
2. Second violation - $250.00
3. Third violation and violations thereafter - $500.00

Each non-compliance or violation, and each day thereof, shall constitute a separate offense.

B. This Ordinance may be enforced by any duly authorized law enforcement officers or Lee County Officials or Inspectors designated by the Director.

C. The designated Lee County Officials or Inspectors shall be authorized and empowered to make inspections at reasonable hours of all activities regulated by

the Ordinance in order to insure compliance with the provisions of this Ordinance.

D. Nothing contained herein shall prevent the County from taking such other lawful action in any court of competent jurisdiction as is necessary to prevent or remedy any refusal to comply with, or violation of, this Ordinance. Such other lawful action shall include but shall not be limited to, and equitable action for injunctive relief or an action at law for damages.

E. Any person, firm, company, corporation or other entity that violates this Ordinance shall be responsible for the County's cost of prosecution of any violation of this Ordinance, including any County costs to remedy or clean up any environmental condition caused by an act which constitutes a violation of this Ordinance. In the event any such costs are incurred by the County, such person, firm, company, corporation or other entity shall reimburse the County for all such costs within thirty (30) days of the County's invoice for such costs.

SECTION ELEVEN: CODIFICATION AND SCRIVENER'S ERRORS

The Lee County Board of County Commissioners intends that this Ordinance will be made part of the Lee County Code; and that sections of this Ordinance can be renumbered or relettered and the word "Ordinance" can be changed to "Section," "Article" or some other appropriate word or phrase to accomplish codification, and regardless of whether this Ordinance is ever codified, the Ordinance can be renumbered or relettered and typographical errors and clarification of ambiguous wording that do not affect the intent can be corrected with the authorization of the County Manager or his designee, without the need for public hearing.

SECTION TWELVE: CONFLICTS OF LAW

Whenever the requirements or provisions of this Ordinance are in conflict with the requirements or provisions of any other lawfully adopted ordinance or statute, the most restrictive requirement will apply.

SECTION THIRTEEN: SEVERABILITY

The provisions of this Ordinance are severable and it is the legislative intention to confer upon the whole or any part of the Ordinance the powers herein provided for. If any provision of this Ordinance shall be held unconstitutional by any court of competent jurisdiction, the decision of such court shall not affect or impair any remaining provisions of the Ordinance. It is hereby declared to be the legislative intent that this Ordinance would have been adopted had such unconstitutional provision not been included herein.

SECTION FOURTEEN: EFFECTIVE DATE

This Ordinance shall take effect immediately upon receipt of notice from the Florida Department of State of its filing with that office, however, that a one (1) year implementation period from the effective date is hereby established. During this implementation period, no citations, notices to appear or other enforcement actions will be taken by the County.

Commissioner Hall made a motion to adopt the foregoing Ordinance, seconded by Commissioner Janes. The vote was as follows:

ROBERT P. JANES	AYE
BRIAN BIGELOW	AYE
RAY JUDAH	AYE
TAMMARA HALL	AYE
FRANK MANN	AYE

DULY PASSED AND ADOPTED THIS 13th day of May, 2008.

ATTEST: CHARLIE GREEN
CLERK OF COURTS

BY: Marcia Wilson
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS
OF LEE COUNTY, FLORIDA

BY: Ray Judah
Chairman

APPROVED AS TO FORM:

BY:
Office of the County Attorney

FLORIDA DEPARTMENT of STATE

CHARLIE CRIST
Governor

STATE LIBRARY AND ARCHIVES OF FLORIDA

KURT S. BROWNING
Secretary of State

May 20, 2008

Honorable Charlie Green
Clerk of Court
Lee County
Post Office Box 2469
Fort Myers, Florida 33902-2469

Attention: Marcia Wilson, Deputy Clerk

Dear Mr. Green:

Pursuant to the provisions of Section 125.66, Florida Statutes, this will acknowledge receipt of your letter dated May 15, 2008 and certified copies of Lee County Ordinance Nos. 08-07 and 08-08, which were filed in this office on May 16, 2008.

Sincerely,

Liz Cloud

Liz Cloud
Program Administrator

LC/srd

RECEIVED
MINUTES OFFICE

2008 MAY 23 AM 8:20

DIRECTOR'S OFFICE
R.A. Gray Building • 500 South Bronough Street • Tallahassee, Florida 32399-0250
850.245.6600 • FAX: 850.245.6735 • TDD: 850.922.4085 • http://dlis.dos.state.fl.us

COMMUNITY DEVELOPMENT
850.245.6600 • FAX: 850.245.6643

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ADMINISTRATIVE CODE AND WEEKLY
850.245.6270 • FAX: 850.245.6282

Hydrogeologic and Water Resources Report, Corkscrew 80 RPD Lee County, Florida

PREPARED FOR:

Corkscrew Alico, LLC
2240 West First Street, Suite 101
Fort Myers, Florida 33901

J.R. Evans Engineering, P.A.
9961 Interstate Commerce Drive
Suite 230
Fort Myers, Florida 33913

REVISED PER COMMENTS
DATED DECEMBER 10, 2024

PREPARED BY:

13620 Metropolis Avenue, Suite 110
Fort Myers, Florida 33912

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Suite 230
Fort Myers, Florida 33913

REVISED PER COMMENTS DATED DECEMBER 10, 2024

PREPARED BY:

Michael Jessich
Project Manager

Michael Alfieri, P.G., P.Hg., CGWP
Florida Professional Geologist No. 2476
Principal

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FIGURES

FIGURE 1. Location of the Corkscrew 80 RPD

FIGURE 2. Corkscrew 80 RPD, Regional Watershed Setting

FIGURE 3. Aquifer System Underlying Lee County (Lee County Integrated Water Masterplan)

FIGURE 4. Conceptual Site Plan

FIGURE 5. Typical Stormwater Management Lake

FIGURE 6. Location of Nearby LCDNR Monitoring Wells

FIGURE 7. Hydrographs of Nearby Water Level Monitoring Stations

FIGURE 8 Simulated Drawdown Due to Proposed Withdrawals

FIGURE 9. Map Showing Conceptual Monitoring Locations

SECTION 1

EXECUTIVE SUMMARY

The Corkscrew 80 RPD (aka, Enclave at Corkscrew) Project is a proposed residential development located in Section 21, Township 46 South, Range 27 East in Lee County, Florida. The project is situated on the north side of Corkscrew Road, approximately 5 miles east of Alico Road and is primarily bordered by vacant lots to the west and south with existing and former agricultural areas to the north and east. The site consists of 77.94-acres of predominantly former agricultural areas designated as improved pasture and existing wetland and upland areas. The proposed project will include approximately 34.11-acres of single-family residential development. Additionally, the project proposes to preserve approximately 29.5 acres of untouched wetlands in the northern portion of the property and provide an additional 9.75 acres of perimeter preservation within the developable areas. The project will include a 5.24-acre stormwater management system consisting of two lakes, and development of associated infrastructure (i.e., roads, buildings, open space).

The project site has been used for agriculture (crop production and pasture) since the late 1970's. The earliest water use permit (WUP No. 36-01461-W) for the property was issued by the South Florida Water Management District (SFWMD) for the irrigation of 630 acres of potatoes in 1990 and subsequently increased to 1,158 acres in 1991. The permit currently includes the allocations for the irrigation of 1,181-acres of potatoes or about 3.13 million gallons per day (MGD) on an annual average basis and 8.2 MGD on a maximum monthly basis from the Sandstone Aquifer. The permit includes an additional 14.83 million gallons (MG) allocated for freeze protection from the Water Table Aquifer. Projected irrigation demands for the proposed 12.76 acres of residential turf grass and landscaping are 15.12 MG on an annual average basis (or about 0.04 MGD) and 1.9 MG on a maximum monthly basis (or about 0.6 MGD).

Projected irrigation water demands, and proposed irrigation supplies for the project will be developed from a combination of stormwater harvesting of the project's stormwater management system with supplements from a backup standby well installed in the surficial aquifer system and/or Sandstone Aquifer underlying the site as permitted with the SFWMD. Neither of the proposed irrigation water sources are currently used or projected to be used by Lee County Utilities (LCU) or any other major water user in the area. Impact analyses conducted for the project indicate that the proposed irrigation water use meets all conditions for water use permitting with the SFWMD, including impacts to the aquifer system, the environment, or existing legal users including LCU.

The proposed Corkscrew 80 RPD development currently lies within the southeastern extent of the Density Reduction Groundwater Resource (DRGR) land use designation for Lee County, which is intended to provide protections to groundwater resources through restrictions on residential density. The Owner is requesting rezoning from Agricultural (AG-2) to a Residential Planned Development (RPD) to allow for 85 single-family dwelling units. The applicant has carefully considered the Lee Plan Goals and Policy requirements in their project design resulting in a project that meets the criteria of the Lee Plan Goals and Policy for water supply, water management, water levels, and water quality. The subject property is appropriate for residential development as it provides a contiguous and compact growth pattern for the Lee County Planning Community.

2.1 PROJECT OVERVIEW

The Corkscrew 80 project is an approximately 77.94-acre proposed residential development located in Section 21, Township 46 South, Range 27 East in Lee County, Florida. Refer to ***Figure 1*** for a regional location map for the project. The site consists of predominantly vacant land to the west (Lee County 20/20 Lands) and south with existing and former agricultural areas to the north and east. The Troyer Brothers Mining Excavation Planned Development (MEPD) zoned property includes conservation and restoration lands along its southern boundary abutting the northern and eastern Project boundary. The proposed project will include approximately 34-acres of residential development to allow for 85 single-family dwelling units within the project area. The northern third of the property will include proposed wetland conservation areas, which will connect conservation areas spanning to the north and east (Troyer Brothers MEPD) as well as to the west (Lee County 20/20 Lands) of the project site preserving the existing cypress wetlands.

The project is situated on the north side of Corkscrew Road, approximately 5 miles east of the intersection of Alico Road. The project lies within the Imperial River Watershed and the regionally extensive Flint Pen sub-watershed. Existing stormwater runoff for the site generally sheet-flows to the internal agricultural drainage ditches and is conveyed offsite to drainage diches located to the east and west of the site and to the existing drainage and stormwater management easement located on the southern portion of the property along Corkscrew Road. Regional surface water flows are generally conveyed from north to south in the vicinity of the project site.

Figure 1. Location of the Corkscrew 80 RPD Project

The project has a long history of agricultural operations, which have resulted in disconnected surface water flow paths and isolated sub-basins in the vicinity of the site. Further, these drainage features have isolated the site from the primary DRGR area. The Corkscrew 80 RPD Project will include a number of stormwater management lakes to provide improved flood management and water quality treatment of stormwater runoff. A number of onsite design and control features are planned to protect and enhance the water quality in the onsite lakes prior to leaving the development into the adjacent water management basins. The stormwater management system will be designed to meet or exceed state and local water quality standards as outlined and regulated by SFWMD and Lee County. Refer to ***Figure 2*** for a map depicting the regional watershed setting for the Corkscrew 80 RPD project. Review of the SFWMD

database indicates a surface water management system (i.e., Environmental Resource Permits [ERPs]) has been applied for and currently under review.

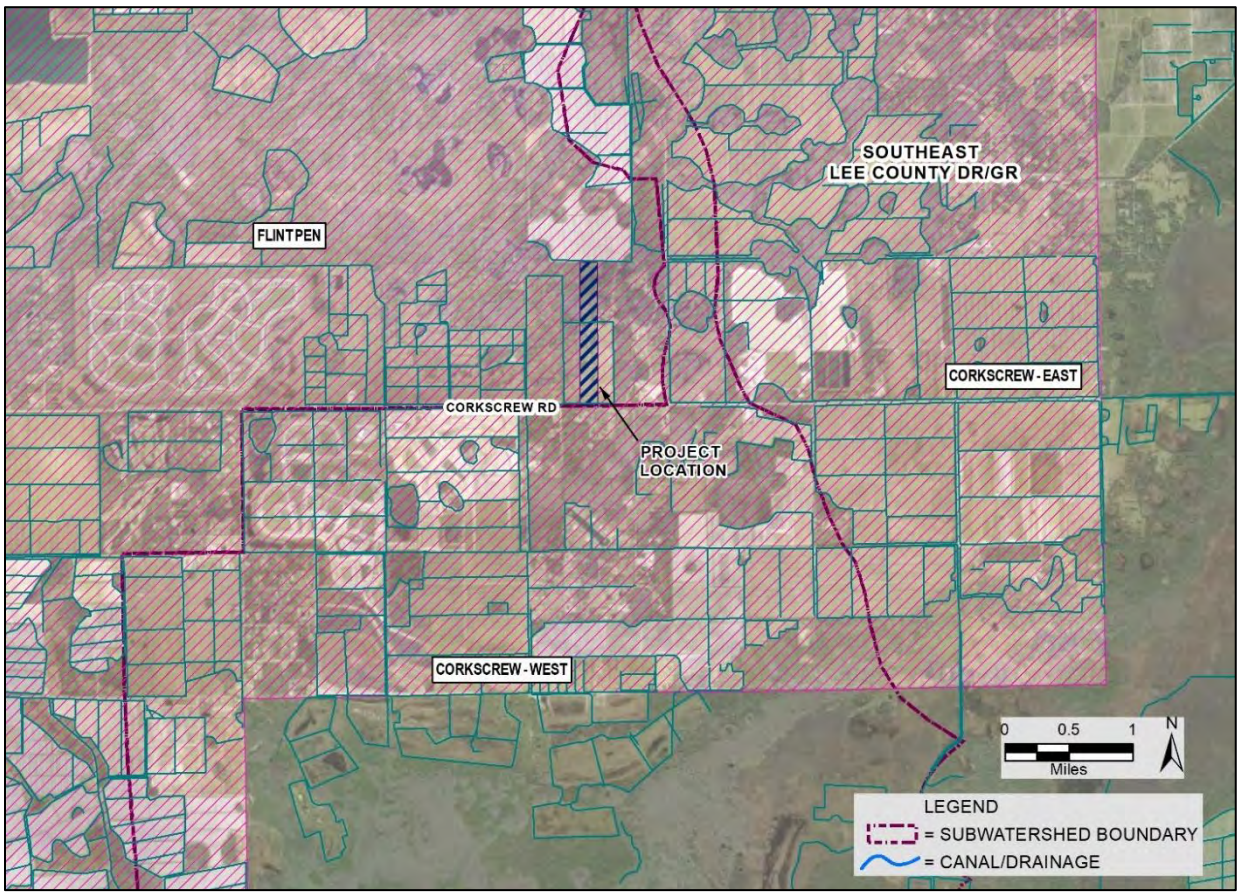

Figure 2. Corkscrew 80 RPD Site, Regional Watershed Setting

2.2 PAST LAND USE AND WATER USE

The site falls within a single 77.9-acre parcel including approximately 29.5 acres of wetland areas occupying the northern third of the site. The majority of the site has been cleared and currently serves as pasture for agricultural operations. The site was largely undisturbed land until the late 1970's, when it was converted to agricultural use which encompassed the Corkscrew 80 RPD site. The agricultural operations, known as the Troyer Brother's Farm project, maintained a water use permit (WUP No. 36-01461-W) for the irrigation through the SFWMD since the early 1990's. Information on file with the SFWMD indicates that the farm initially irrigated up to 630 acres of potatoes until it was subsequently increased to 1,158 acres in 1991 and 1,181 acres in 2001 sectioned into three primary parcel areas. The water table is manipulated during farming operations to maintain optimum moisture to crop roots via a series of agricultural seepage/furrow ditches. The permit currently includes the allocations of about 3.13 MGD on an annual average basis and 8.2 MGD on a maximum monthly basis from the Sandstone Aquifer (the primary water source) via withdrawals from 17 Sandstone Aquifer wells. An additional 14.83 MG is allocated for freeze-protection for withdrawals from the Water Table Aquifer via withdrawals from two standby wells. All existing permitted wells for the Troyer Brother's Farm project identified on the Corkscrew 80 RPD will be plugged and abandoned by a Florida licensed well driller prior to development. Irrigation water demands for the proposed 12.76 acres of residential turf via improved drip irrigation systems is 15.12 MG on an annual average basis (or about 0.04 MGD) and 1.9 MG on a maximum monthly basis (or about 0.6 MGD).

GROUNDWATER RESOURCES

3.1 INTRODUCTION

The hydrostratigraphy underlying the Corkscrew 80 RPD project is typical for southern Lee County with a series of aquifers and confining beds occupying the Surficial, Intermediate, and Floridan aquifer systems. ***Figure 3*** provides a schematic showing the groundwater sources in Lee County. In general, freshwater sources are the Water Table and the Lower Tamiami Aquifers of the Surficial Aquifer System. The underlying Sandstone and Hawthorn Zone 1 Aquifers of the Intermediate Aquifer System are slightly to moderately brackish. Highly brackish and saline water sources include the Lower Hawthorn Aquifer and underlying zones of the Upper Floridan Aquifer.

Four primary aquifers are of significance beneath the Corkscrew 80 RPD site and are described below in order of increasing depth. These are the Water Table, the Sandstone, the Hawthorn Zone 1, and the Lower Hawthorn Aquifers. The Lower Tamiami Aquifer is unconfined at this location and therefore considered a part of the Water Table Aquifer (Surficial Aquifer System). Deeper underlying aquifers are too saline for direct use at the site. The primary sources of information used to characterize the groundwater resources include information from Lee County, SFWMD, and U. S. Geological Survey (USGS).

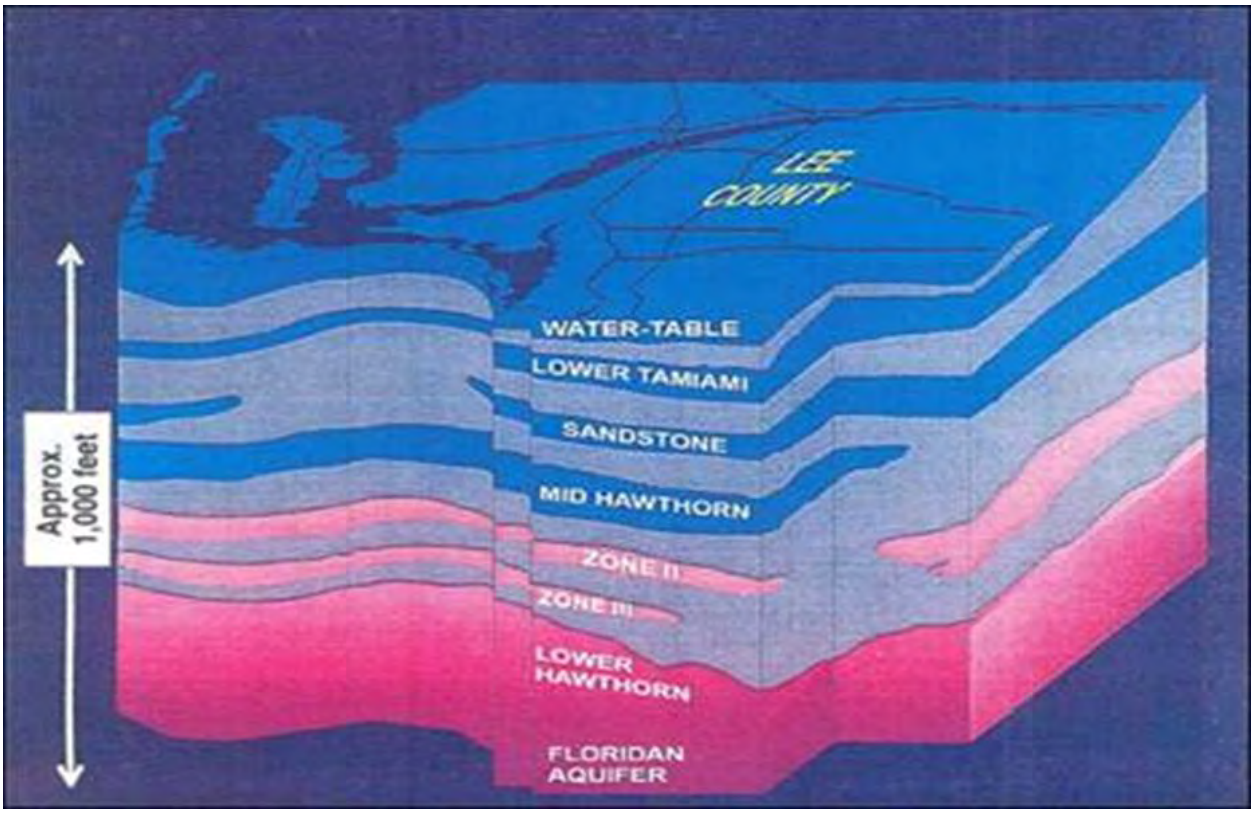

Figure 3. Aquifer System Underlying Lee County (Lee County Integrated Water Masterplan)

3.2 REGIONAL AQUIFERS

3.2.1 Water Table Aquifer/Surficial Aquifer System

The Water Table aquifer is an unconfined aquifer that covers all of Lee County. The aquifer is defined as occurring at or near land surface downward to the top of the first regional confining bed. Beneath the Corkscrew 80 RPD project, the thickness of the aquifer is approximately 110 feet. The upper unconsolidated portion of the Wate Table Aquifer consists of a layer of fine sand and shell with an average thickness of about 15 to 20 feet overlying about 90 feet of porous

limestone beneath the site. The sand is described as brown to gray fine silica sand with variable amounts of silt. The shell layer has been described as gray to white unconsolidated coarse shell and silty fine sand. The top of the underlying limestone occurs at depths of about 20 feet below land surface. The limestone has been described as ranging from white to brown to gray in color, very hard to very soft, sandy, and fossiliferous, with occasional thin beds of coralline limestone and frequent zones of high permeability where loss of drilling fluid circulation occurred. The limestone present within the lower portion of the Water Table Aquifer includes the Pinecrest and Ochopee Members of the Pliocene age Tamiami Formation. The Water Table Aquifer is underlain by low permeability marls and clays with an estimated thickness of about 80 feet at this site. The confining unit below the Water Table Aquifer consists of the Cape Coral Clay Member of the Peace River Formation known as the Upper Hawthorn Confining unit and is encountered approximately 110 feet below land surface.

The limestone portions of the aquifer typically have a moderate to high permeability making the aquifer suitable for medium to large capacity water production wells. The aquifer is used for domestic self-supply and irrigation of agricultural and landscaping foliage. The aquifer is recharged directly by rainfall with discharges occurring by way of natural or man-made surface drainage features, evaporation, and transpiration, and by pumpage from wells. Groundwater flow and levels in the aquifer fluctuate seasonally in response to climatic conditions but are also impacted by local and regional drainage features.

Water quality in the Water Table Aquifer is generally very good and useful for both potable and irrigation needs, although high concentration of naturally occurring iron and organic material are common. Lake extraction is the most efficient use of this aquifer for irrigation purposes, which also typically results in less iron and organic staining, as well as reduced impact to area water levels.

The Water Table Aquifer is used in the area of the project site for public water supply by Lee County Utilities, for agricultural irrigation, for livestock, and by private residences for domestic self-supply. The project site is located a sufficient distance outside the established Lee County Wellfield Protection Area (LCWPA) of the Surficial Aquifer and Sandstone Aquifers. Use of the Surficial Aquifer to supplement stormwater from the onsite lake system is proposed to meet irrigation demands at the Corkscrew 80 RPD project. The proposed irrigation water use meets all conditions for water use permitting with the SFWMD including impacts to the aquifer system, the environment, or existing legal users, including LCU. The projected water use will meet the criteria for a small Individual Water Use Permit issued by the SFWMD and will not exceed annual average allocation of 100,000 gallons per day (gpd). In addition, the project will include a surface water management system that provides for improved management of water levels in the Water Table Aquifer and will increase overall groundwater recharge to the underlying limestones of the Tamiami Formation in the vicinity of the site.

3.2.3 Sandstone Aquifer

The Sandstone Aquifer is the uppermost aquifer in the Intermediate Aquifer System and consists of unconsolidated sands and poorly consolidated sandstones within the Lehigh Acres Sandstone Member of the Peace River Formation. Based on the total depths of nearby public water supply wells and permitted agricultural wells, the top of the Sandstone Aquifer occurs between 140 to 190 feet below land surface in the vicinity of the Corkscrew 80 RPD project site. The Sandstone Aquifer is the uppermost aquifer in the Intermediate Aquifer System and consists of unconsolidated sands and poorly consolidated sandstone. The unit varies in thickness in the vicinity of the project site, ranging from about 40 to 100 feet. The aquifer is recharged where overlying confining beds are thin or absent in Hendry and Glades County or where there is large use of the aquifer that induces increased recharged directly from the Water Table Aquifer through

the overlying confining beds. Discharge from the aquifer generally occurs as pumpage from wells. Large fluctuations in seasonal water levels are common further north of the project site due to the heavy use of the aquifer in those areas with wet season levels near their historic highs but dry season water levels often at depths of 50 feet or more. For this reason, the aquifer is considered a source of limited availability although opportunities for seasonal use and storage may be considered.

The Sandstone Aquifer is considered a freshwater source although there are large areas, especially in the southwestern portions of Lee County and areas near and parallel to the Caloosahatchee River where there are elevated salinity levels which may limit the usefulness of the aquifer for public supply. Salinities, however, are generally low enough for general irrigation supply. Productivity of the aquifer is moderate to low, but it does provide large quantities of water for public water supply by LCU, for domestic self-supply in eastern Lee County and for agricultural irrigation in eastern Lee and western Hendry counties. The use of groundwater from the Sandstone Aquifer is not proposed for the project.

3.2.4 Mid Hawthorn Aquifer

The Hawthorn Zone 1 Aquifer, also referred to the Mid Hawthorn Aquifer in south Lee and Collier counties, is the lowermost aquifer in the Intermediate Aquifer System in Lee County. It consists of moderately permeable limestones of the Arcadia Formation and is separated from the overlying Sandstone Aquifer and underlying Lower Hawthorn Aquifer by thick clay confining beds of the Peace River and Arcadia Formations. It has moderate yield characteristics that limit its use for large capacity water supply. However, it has been used as a water supply source for commercial or irrigation. It exists as a sequence of interbedded limestones and marls that occur at depths between 300 and 400 feet below land surface. Where present, the Mid Hawthorn Aquifer is generally a lower yield, discontinuous water bearing unit that has utility as a limited supply resource or for seasonal storage in an aquifer storage and recovery (ASR) system. This aquifer is recharged north of Charlotte County where the aquifer is much nearer to land surface and overlying confinement is thin or nonexistent.

The Hawthorn Zone 1 Aquifer is typically brackish in southern Lee County and salinity increases considerably to the south into Collier County. Review of data from wells that tap into this aquifer within about a mile of the project site indicates dissolved chloride concentrations approximately between 350 and 1,200 mg/L. Considering the brackish water quality of the Mid-Hawthorn Aquifer and limited blending capacity onsite, this source is not suitable for use at the Corkscrew 80 RPD project.

3.2.5 Lower Hawthorn Aquifer

The Lower Hawthorn Aquifer is the uppermost water bearing unit in the Upper Floridan Aquifer System. The aquifer has good yield potential but contains brackish water that is only useful for irrigation if blended with other freshwater resources and is only useful for public water supply using reverse osmosis or other desalination technologies. The top of this aquifer is anticipated to be encountered at depths between about 500 and 600 feet below land surface at the Corkscrew 80 RPD project site. The aquifer is separated from the overlying Hawthorn Zone I Aquifer by the Lower Hawthorn Confining Zone, which consists of marine silts and clays of very low permeability. The Lower Hawthorn Confining Zone has a thickness of about 100 feet.

The aquifer is recharged in the central Florida highlands area between Tampa and Orlando where the aquifer beds are near land surface and confining beds are thin or absent. In general, the SFWMD supports increased use of the Lower Hawthorn/Upper Floridan aquifer especially for public water supply use. The Corkscrew 80 RPD project proposes no use of the Lower Hawthorn Aquifer.

4.1 ONSITE LAKE

The Corkscrew 80 RPD project will include a stormwater management system to provide flood control and water quality treatment of runoff. Several design and control features will be planned for the Corkscrew 80 RPD development to protect and enhance the quality of water in the lake system and adjacent watersheds and provide for hydrological improvements on the site (refer to ***Figure 4*** for a conceptual site plan).

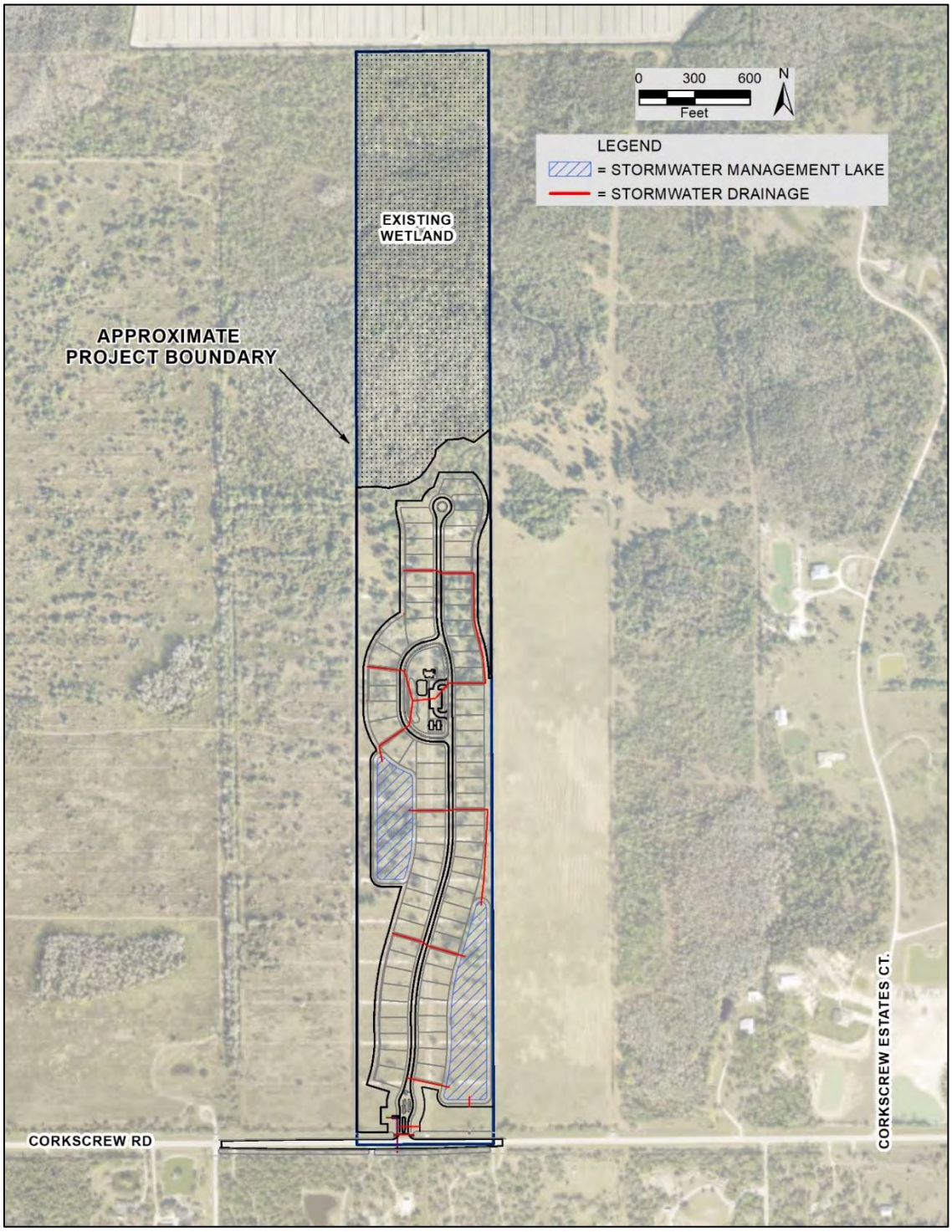

Figure 4. Conceptual Site Plan

These elements will include collection, treatment, and conveyance of stormwater within the **p**roject's water management system including littoral planting areas, the use of water treatment best management practices (BMPs), and centralized control over the application of irrigation water.

Improved surface water quality and attenuation is anticipated through the design and installation of the stormwater management system (example presented on ***Figure 5***). The stormwater management system will include the collection and detention of all water generated on the site and will provide stormwater treatment through various dry and wet detention elements within the development footprint that meet or exceed water quality requirements of the SFWMD, the Florida Department of Environmental Protection (FDEP), and Lee County. The attenuation of stormwater will improve the hydrologically impacted project area through enhanced recharge of groundwater to the Water Table Aquifer. After treatment, stormwater will be directed to the restoration areas to help improve the onsite hydrology. Additional polishing of the runoff water quality and nutrient uptake will occur in the large restoration areas further reducing downstream nutrient loading.

Figure 5. Typical Stormwater Management Lake

The Corkscrew 80 RPD project will include a Lake Management Plan following BMPs for erosion control and bank stabilization; deep lake management; and fertilizer and pesticide use to reduce nitrogen and phosphorous loading to the stormwater management system. Additionally, the project will incorporate multiple required BMPs to ensure a maximum potential treatment stormwater including a water quality treatment train consisting of a combination of sediment traps, dry / wet detention, and planted filter marshes that provide a high level of treatment of both onsite generated stormwater and regional flow-through of surrounding area watersheds.

Centralized control of the operation of the irrigation system results in improved adherence to BMPs and water use compliance than if individual homeowners have control of these functions or the ability to override irrigation programming. Irrigation of residential lots and common areas will be centrally controlled to meet conditions of applicable water use permits, local ordinances, and periodic water use restrictions. Individual homeowners will not have the ability to override irrigation times or quantities.

4.2 ENHANCE LAKE MANAGEMENT PLAN (ELMP)

With the understanding of the historical background and intended development of the Corkscrew 80 RPD property, the purpose of this ELMP is to ensure compliance with applicable Lee County Comprehensive Plan Goals, Objectives, and Policies, specifically that complies with Lee Plan Policy 33.2.4(2)(b). The Developer will be responsible for maintaining compliance with this ELMP until formal control has been turned over to the Homeowner's/Property Owner's Association (HOA). This responsibility will include, but not limited to, the operation and maintenance of the community's stormwater management system, lakes, associated conveyance and control systems, and other components as outlined within this ELMP and as determined under the final development order approval. The Corkscrew 80 RPD project will include a Lake Management

Plan following BMPs for erosion control and bank stabilization; deep lake management; and fertilizer and pesticide use to reduce nitrogen and phosphorous loading to the stormwater management system.

Deep Lake Management: The Corkscrew 80 RPD proposed stormwater management lakes will be deeper than 12 feet with a maximum depth of 20 feet. In accordance with Lee County Land Development Code (Section 10-329(d)(3)), these lakes are therefore designated as "deep lakes" and are subject to specific criteria. Based on Lee County Code, the proposed deep lakes will satisfy the following criteria:

1) The stormwater management deep lakes will not exceed a maximum water depth of 20 feet and will not penetrate any continuous impervious layer of clay or rock.
2) A destratification (i.e., aeration) system will be installed in any lake that exceeds a 12-foot water depth. Documentation that the proposed destratification system is adequately sized and designated for each lake deeper than 12 feet will be submitted to Lee County for approval.
3) Native shade trees meeting the specifications of Lee County Land Development Code Section 10-420 will be planted around each deep lake perimeter at approximately one tree per 100 feet of lake shoreline measured at the detention lake's water level control elevation. Trees and other plants may be grouped or clustered together around the lake perimeter.
4) The deep lake management techniques, including operation of the destratification system, will be maintained for the life of the stormwater management system and will be recorded in the development covenants, in accordance with the County Attorney's Office.
5) A post-construction bathymetric survey verifying each deep lake's finished water depth, sealed by a professional surveyor and mapper, will be submitted to Lee County for approval.

Nuisance and Exotic Vegetation Control: The HOA will be responsible for the removal (in perpetuity) of all nuisance and exotic vegetation from the stormwater management system, as defined by Lee County Land Development Code. Exotic and nuisance plants will be managed through a maintenance contract with a licensed contractor to provide such services. After the initial clearing of the development tracts, exotics are to be maintained/removed through hand clearing or appropriate herbicide treatments by a licensed applicator and in accordance with manufacturer specifications, and all applicable local, state and/or federal guidelines and requirements. Herbicides shall be labeled for use in water areas and are not to be detrimental to littoral plantings.

1) Lakes must be inspected annually, and any prohibited vegetation must be removed by use of hand-clearing or appropriate chemical 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.

Littoral Vegetation: The HOA will be responsible for the maintenance (in perpetuity) of all littoral zone vegetation from the stormwater management system as defined by Lee County Land Development Code. Required littoral vegetation must remain in a healthy and vigorous state in perpetuity in all the stormwater management lakes within the project. The use of trimming,

mowing, and herbicides to remove desirable littoral plants is prohibited. Any trimming or removal of vegetation within littoral areas by Contractors performing landscape or lake maintenance work to promote the survival and viability of littoral vegetation must be performed by hand or by approved herbicides and methods. Appropriate native lake littoral plantings for stormwater management lakes are expected to grow in their natural state. Inspections of littoral plantings to verify the survival of required plants and replanting of littoral vegetation when required must be in accordance with County requirements.

1) Littoral plants that die from natural causes, disturbance, or other activities will be replaced in order to sustain the long-term health and viability of the littoral system. The presence of littoral plants through the lakes is desirable and may contribute to improve the water quality within the lakes.

2) The spread of littoral plans will be encouraged through the designated littoral areas.

3) Disturbance activities such as mechanical trimming and mowing will be prohibited within the littoral zones. Use of herbicides shall be allowed provided that they are utilized to target specific exotics and do not result in by-kill of native littoral species. 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.

Best Management Practices: Fertilizers, Herbicide, and Fungicide Applications: The Corkscrew 80 RPD development through the HOA will provide centralized control of all landscaping maintenance including application of fertilizers and pesticides to all landscaped areas within the Corkscrew 80 RPD development. In compliance with Lee County Fertilizer Ordinance 08-08, a contract will be executed by the future HOA with a company that has at least one person certified in BMPs and be registered with Lee County Tax Collector.

Fertilizer applications will be in compliance with Lee County Fertilizer Ordinance 08-08. The following provisions will be followed.

1) Any person(s) applying commercial fertilizer to an urban landscape must receive a limited certification for urban landscape commercial fertilizer application in compliance with Florida Statue 482.1562 prior to application of any and all fertilizers. The limited certification provides a means of documenting and ensuring compliance with best management practices for commercial fertilizer application to urban landscapes.

2) Fertilizers containing nitrogen and/or phosphorus will not be applied from June 1st to September 30th and will not exceed application limits provided in the Lee County Fertilizer Ordinance.

3) Grass clippings and/or vegetative material shall not be washed, swept, or blown into stormwater drains, ditches, conveyances, water bodies, roadways or other impervious surface.

4) Fertilizer shall not be applied within 10 feet of the top of bank from any lake, designated wetland or wetland defined by the rules of the FDEP (Chapter 62-340 Florida Administrative Code [F.A.C.]). These practices are not expected to apply to newly established landscaping or reclaimed water that may be used on site.

5) Fertilizer may not be applied, spilled, or otherwise deposited on any impervious surfaces. Any fertilizer applied, spilled, or deposited on any impervious surface must be immediately and completely removed.

6) Spreader deflector shields are required when fertilizing by use of any broadcast or rotary spreaders.

7) A low maintenance zone is recommended adjacent to an on the sloped portion of lake banks. The vegetation within the low maintenance zone is encouraged to be maintained higher than surrounding areas to allow the vegetation to help absorb and filter nutrients from runoff.

All applications of pesticides, herbicides and/or fungicides shall be applied by a licensed applicator and applied in accordance with manufacturer specifications, all applicable local, state and/or federal guidelines and requirements and as further outlined in this section. Application of all fertilizers, pesticides, herbicides, and/or fungicides will be controlled and managed by the HOA for turf maintenance. Individual homeowners will be allowed to apply lawn maintenance chemicals.

Commercial applicators of chemical lawn products must register annually with the HOA, its successors, or assigns, and provide a copy of their current occupational license, proof of business liability insurance, and proof of compliance with licensing requirements. It should be noted that the HOA will be required to contract for the application of all pesticides, herbicides and/or fungicides within the project, including on all residential lots, and individual lot owners shall be prohibited from applying pesticides, herbicides and/or fungicides to their lots without prior approval of the HOA/CDD.

The use of any chemical product in a manner that will allow airborne or waterborne entry of such products into surface water is prohibited. This will not apply to the use of chemical agents by certified lake management specialists or the development's maintenance staff for the control of algae and nuisance vegetation within the stormwater lakes or ponds; however, application of such agents must be in compliance with this section.

It is recommended that pesticides, fungicides, and herbicides 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.

Erosion Control and Lake Bank Stabilization: The Corkscrew 80 RPD development will have a series of wet and dry detention areas as part of the stormwater management system. Erosion control and lake bank stabilization will apply best management practices to create a lake shoreline that will minimize overland stormwater runoff velocities and concentrated stormwater runoffs such that the soil maintains in place under normal storm events. Littoral plantings will be provided along the stormwater management lake banks for stabilization purposes. Should shoreline stabilization be necessary, a proposal will be developed by a professional engineer and submitted for review under separate cover.

The project’s stormwater system will meet the standards for quality and quantity treatment of stormwater as outlined and regulated by the SFWMD and Lee County. Outfall or discharge structures associated with the flow to and from the lakes will follow routine inspection to confirm proper operations.

Lake banks will be inspected annually by the HOA/CDD to identify areas of erosion. If erosion is identified, the erosion must be repaired, and the source of erosion shall be eliminated if possible. The following best management practices are encouraged to be incorporated in the project design to help minimize potential ban erosion and maintain long-term bank stabilization:

1. Implement practicable drainage conveyance systems of swales, gutters, downspouts, drains and inlets that would capture the concentrated flows and direct it to the lake areas rather than as overland sheet flows.
2. Downspouts not directed underground will be oriented away from lake banks.

3. Design discharge structures at or below the dry season lake elevation to reduce the potential for overland flow.
4. Design lot grades to reduce the area draining to the lakes.
5. Provide, at a minimum, a 90% compaction rate based upon compaction test results of all stabilized lake bank slopes.
6. Utilize vegetation and/or other engineered protection methods, where appropriate and necessary, to manage sheet flow rates

IRRIGATION WATER DEMAND

Water demands for the project will consist of outside potable water and in-house irrigation uses. Centralized potable water or sanitary sewer utilities are not currently installed in the vicinity of the Corkscrew 80 RPD project site. An amendment to Lee County's services area maps (Maps 4-A and 4-B) to designate the Corkscrew 80 RPD project within the services areas is proposed for future connections. Irrigation demands will be met with onsite sources including harvesting stormwater from the onsite stormwater lake system with up to 100% re-supply by groundwater withdrawals. The lake withdrawals will provide an efficient and low impact method for tapping the Water Table Aquifer underlying the project site and effectively harvest available stormwater supplies. Lake volume storage will minimize potential impacts to surface and groundwater levels. Analyses of potential impacts attributed to proposed irrigation withdrawals and limited request use for the project indicate no adverse impacts to the aquifer systems, area wetlands, or existing water users in the area including LCU.

5.1 POTABLE WATER AND WASTEWATER

LCU will provide potable water and wastewater services respectively for the project. This will eliminate the need for individual domestic self-supply wells and individual onsite sewage treatment and disposal systems (septic tanks) which are common for many rural areas of Lee County. Provision of central public utilities for the project will provide several desirable environmental and hydrological advantages. Supplying potable water for the project from the nearby water treatment facility will remove potentially competing water use from the freshwater aquifers and allow for improved planning and control of area water resources. Similarly, provision of a central sewer system will eliminate septic tank discharges in the area providing a higher level of protection to the existing water resources.

5.2 IRRIGATION WATER

The proposed project will include two stormwater management lakes that will intersect permeable limestone of the Water Table Aquifer. Irrigation will utilize an installed drip irrigation system to reduce overall irrigation requirements and adhere to Lee County and SFWMD conservation measures. The proposed irrigation system will consist of stormwater harvesting from the stormwater lake management system with up to 100% of these withdrawals re-supplied by groundwater. The proposed source of groundwater to supplement lake withdrawals will be fresh groundwater from a backup standby well installed in the Surficial Aquifer System and/or Sandstone Aquifer underlying the site as permitted with the SFWMD. Actual percentages of lake and groundwater withdrawals will be determined during the water use permitting process with the SFWMD and adjusted seasonally. Lake recharge will not occur when the stormwater management system is discharging offsite. The combination of groundwater and fresh stormwater will maintain a chloride level of less than 200 mg/L in compliance with SFWMD policy. Use of stormwater as a primary irrigation resource reduces potential use of potable water supplies, provides additional stormwater treatment, reduces offsite discharges of stormwater, reduces nutrient levels of the stormwater outfalls, and reduces reliance on groundwater systems being used to supply potable water to Lee County.

The irrigated area for the project is estimated to be less than 12.76-acres of turf grass and landscaping. Standard Blaney-Criddle calculations used by the SFWMD for irrigation supply permitting indicate this acreage will result in irrigation water demands of 1.9 MGM on a maximum monthly basis (or about 62,500 gpd) and 15.12 MGY on an average annual basis (or about 41,400 gpd) via improved drip irrigation systems. The project will meet the criteria for issuance of a small Individual Water Use Permit from the SFWMD.

The proposed project will also explore the use of computerized irrigation systems that incorporate onsite data and conditions to provide irrigation on an as-needed basis rather than simply on a scheduled basis. Such systems have been shown to result in reductions in irrigation water use by over 30% in southwest Florida. In general, these systems operate based on computer software that take into account soil moisture, rainfall, and elements that influence evaporation and transpiration to determine which locations require irrigation, how much irrigation is needed, and when to apply irrigation water.

6.1 WATER LEVELS

Water Science reviewed hydrographs of nearby Water Table Aquifer monitoring wells maintained by Lee County Division of Natural Resources (LCDNR), shown on ***Figure 6***. The monitoring wells reviewed for the project site with long term water level data (2007 to present) are 49-GW23, located about 1.2 miles east of the project site in the Trafford Watershed, 49-GW24, located adjacent to the project site along Corkscrew Road, 49-GW25, located about 1.3 miles west of the project site, and 49-GW3, located about 6.25 miles northwest of the project site all located within the Estero Bay Watershed

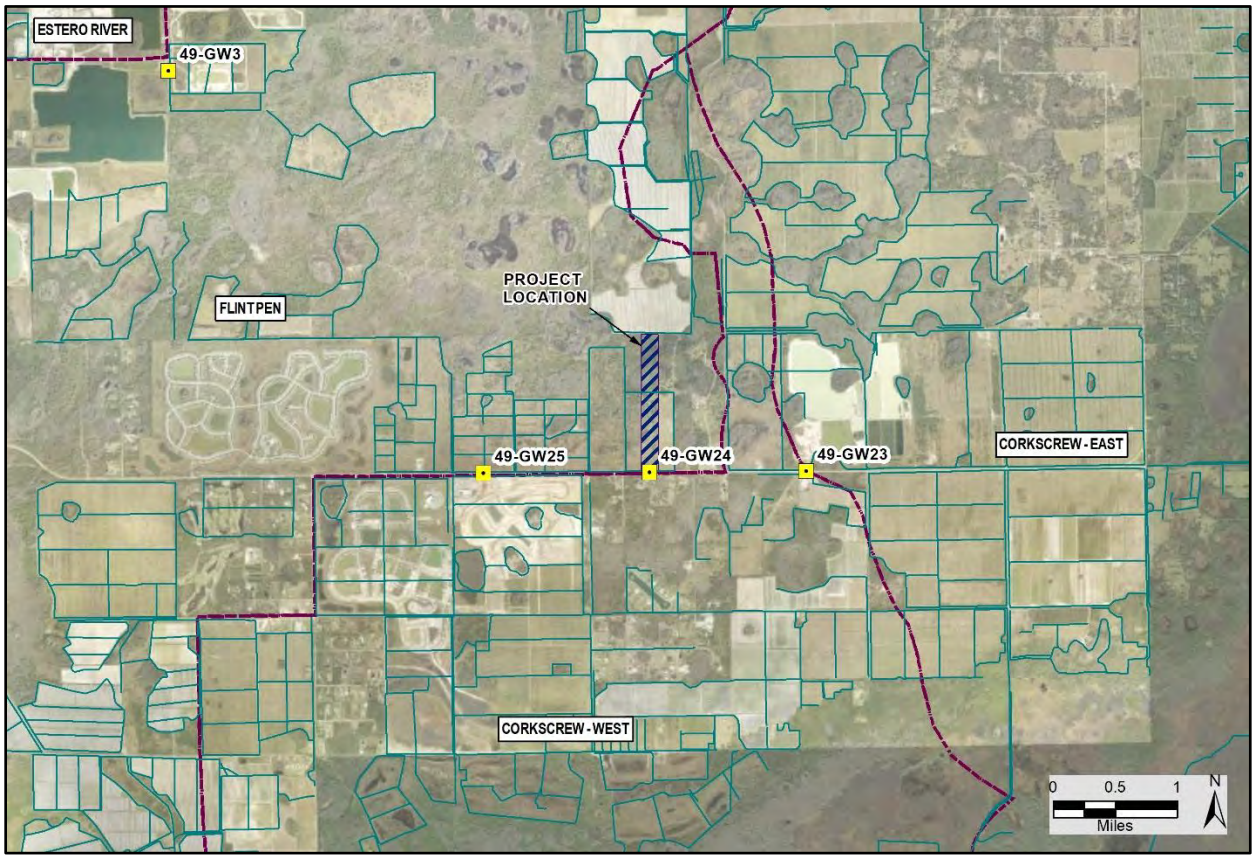

Figure 6. Location of Nearby LCDNR Monitoring Wells

The topography in the area of the site, which influences water elevations, generally decreases from east to west of the project and drops significantly from the uplands along Corkscrew Road to the Corkscrew Regional Ecosystem Watershed (CREW) lands spanning south and southwest of the project site towards the Imperial River/Kehl Canal/regional drainage feature. The Imperial River acts as a natural drainage feature for the surrounding areas including surface water from the Flint Pen and CREW watersheds, located southwest of the project area. Monitor well 49-GW24 located adjacent to the site to the south, show elevated water levels ranging seasonally from 22 to 28 feet NAVD. Monitor well 49-GW23 located east of the project area, well 46-GW25 located west of the project area, and upstream Monitor Well 49-GW3 show water levels ranging seasonally between about 21 to 27 feet NAVD. All monitor wells show a steady range over the period of record of 2007 to present with a steady rise in water levels starting about 2020 in monitor wells 49-GW23 and 49-GW24. Refer to ***Figure 7*** for a hydrograph of nearby Lee County Monitor wells.

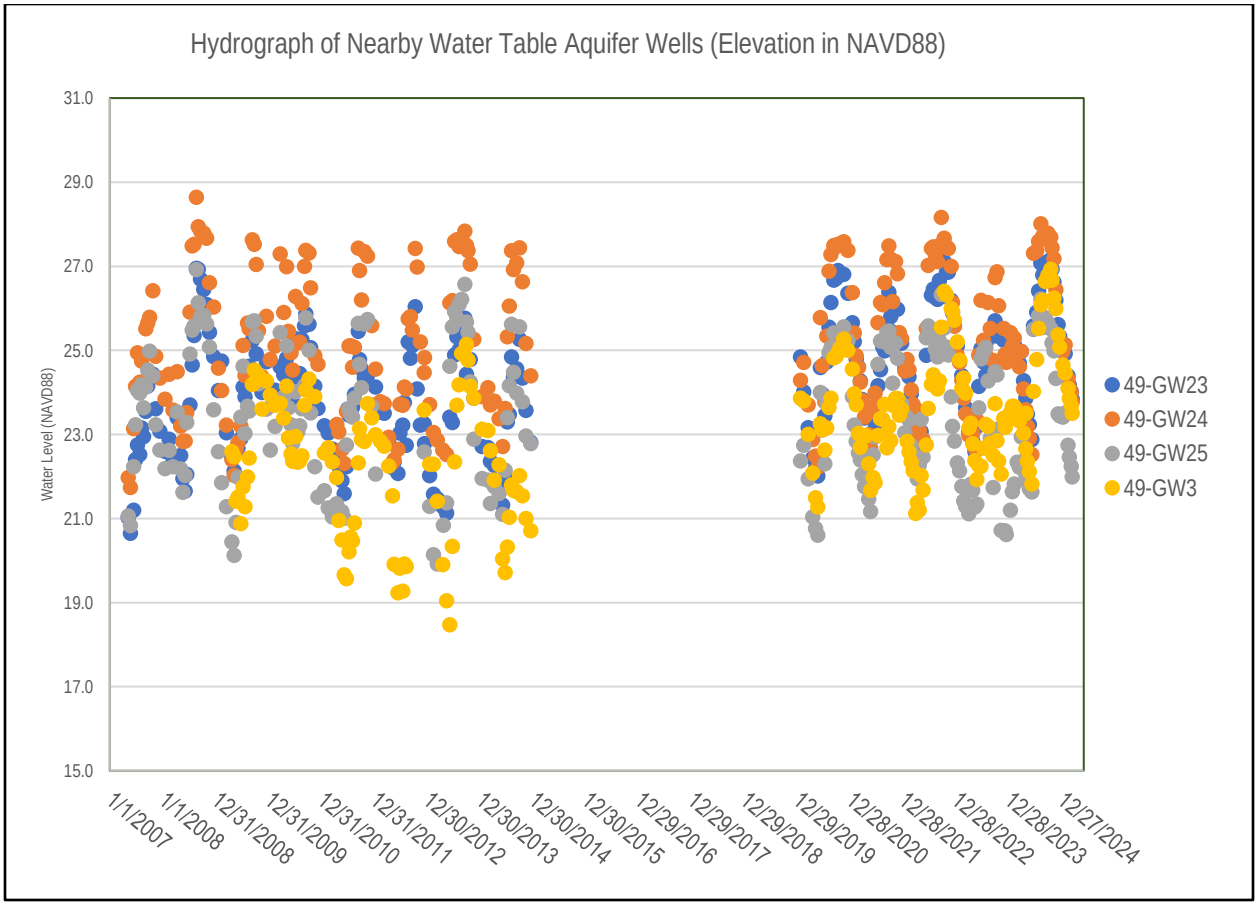

Figure 7. Hydrographs of Nearby Water Level Monitoring Stations

The proposed irrigation system will consist of stormwater harvesting from the stormwater lake management system with up to 100% of these withdrawals re-supplied by groundwater. The proposed source of groundwater to supplement lake withdrawals will be fresh groundwater from a backup standby well installed in the Surficial Aquifer System and/or Sandstone Aquifer underlying the site as permitted with the SFWMD. The potential impacts for groundwater withdrawals from the Surficial Aquifer are discussed in detail under Section 6.2. The project's water management system will provide enhanced water quality treatment and storage thereby providing a positive impact to groundwater recharge and regional water quality.

6.2 GROUNDWATER MODELING

The Corkscrew 80 RPD project will require irrigation water demands of 1.9 MGM on a maximum monthly basis (or about 62,500 gpd) and 15.12 MGY on an average annual basis (or about 41,400 gpd). The project will distribute irrigation water from the onsite lake system, with groundwater recharge proposed from Surficial Aquifer groundwater. The proposed withdrawal facilities include one surface water pump (designated SWP-1) and one backup Surficial Aquifer well (designated PW-1) as shown on ***Figure 9***.

Groundwater Modeling – Surficial Aquifer

To determine the potential impacts to the Surficial Aquifer due to the proposed groundwater allocations, Water Science developed a single-layer analytic groundwater flow model to assess the potential drawdown impacts in accordance with Section 3.0 of the Applicants Handbook (AH) for Water Use Permit Applications using AquiferWin32. The conceptual model consists of a single-layered unconfined aquifer (representing the Surficial Aquifer) with one well (PW-1) pumping at a maximum pumping rate of 62,500 gallons per day. Details of the model and the information used to develop the mode are discussed below.

Hydraulic Coefficients: Water Science reviewed nearby aquifer performance test (APT) data from the SFWMD ePermitting database and previously accepted modeling data (Water Use Permit 36-06587-W) for the Tello Farms project located approximately one mile southeast of the project site to obtain hydraulic coefficients of the Surficial Aquifer System. Based on this information, the reported transmissivity of the Surficial Aquifer is 104,720 gallons per day per food (gpd/ft) in the vicinity of the project. An estimated specific yield of 0.15 was assumed in the model. A summary of model inputs is provided as ***Table 1***.

Table 1. Summary of AquiferWin^{32} Inputs – Surficial Aquifer.

Aquifer Coefficient	Value (unit)
Transmissivity	104,720 gpd/ft
Specific Yield	0.15
Aquifer Thickness	109
β/r2 (required by AquiferWin^{32}™)	1.11E-03

NOTE: β/r^2 was calculated from the following formula:

β/r^2 = 1/b^2

r = radial distance

b = aquifer thickness

Simulation 1- Proposed Pumpage Only Surficial Aquifer: The groundwater model simulated withdrawals from one Surficial Aquifer well at a maximum pumping rate of 62,500 gpd (proposed maximum daily allocation). The model was run for 90 days without recharge from rainfall. Starting heads were presumed to be 0 feet with no initial hydraulic gradient represented. The simulation used the Newman solution 1972 for unconfined aquifers. Refer to ***Exhibit A*** for excerpts of the input/output file from the computer simulation.

Results of the computer simulation indicate that the maximum drawdown in the Surficial Aquifer due to proposed pumpage is about 0.57 feet at the simulated well node. The maximum drawdown at the project boundary is approximately 0.23 feet observed at the western project boundary. The cone of depression (defined as 0.1-foot drawdown contour for the Surficial Aquifer) does not extend to identified onsite or offsite wetlands (***Figure 8).***

The lake withdrawals will provide an efficient and low impact method for tapping the Water Table Aquifer underlying the project site and effectively harvest available stormwater supplies during wet season events. Lake volume storage will minimize potential impacts to surface and groundwater levels. At higher permeabilities, the lake system is expected to support withdrawals without the need for groundwater re-supply. However, at lower permeabilities and during seasonal low water table elevations, groundwater recharge may be necessary should the lake system be unable to support withdrawals. As needed, surface water withdrawals will be re-supplied by groundwater from a proposed backup production well (designated PW-1). The well will not be used for artificial augmentation of lakes and groundwater withdrawals will not exceed surface water withdrawals. Water levels in the Water Table Aquifer are anticipated to range seasonally between about 21 to 28 feet NAVD in the vicinity of the project. Based on the requested allocations, the expected drawdown in the Surficial Aquifer associated with higher permeabilities is presumed to be negligible to upstream, downstream, adjacent users or potentially sensitive areas. Therefore, the potential for harm to the water resource availability as a result of the withdrawal of the recommended allocation is considered minimal.

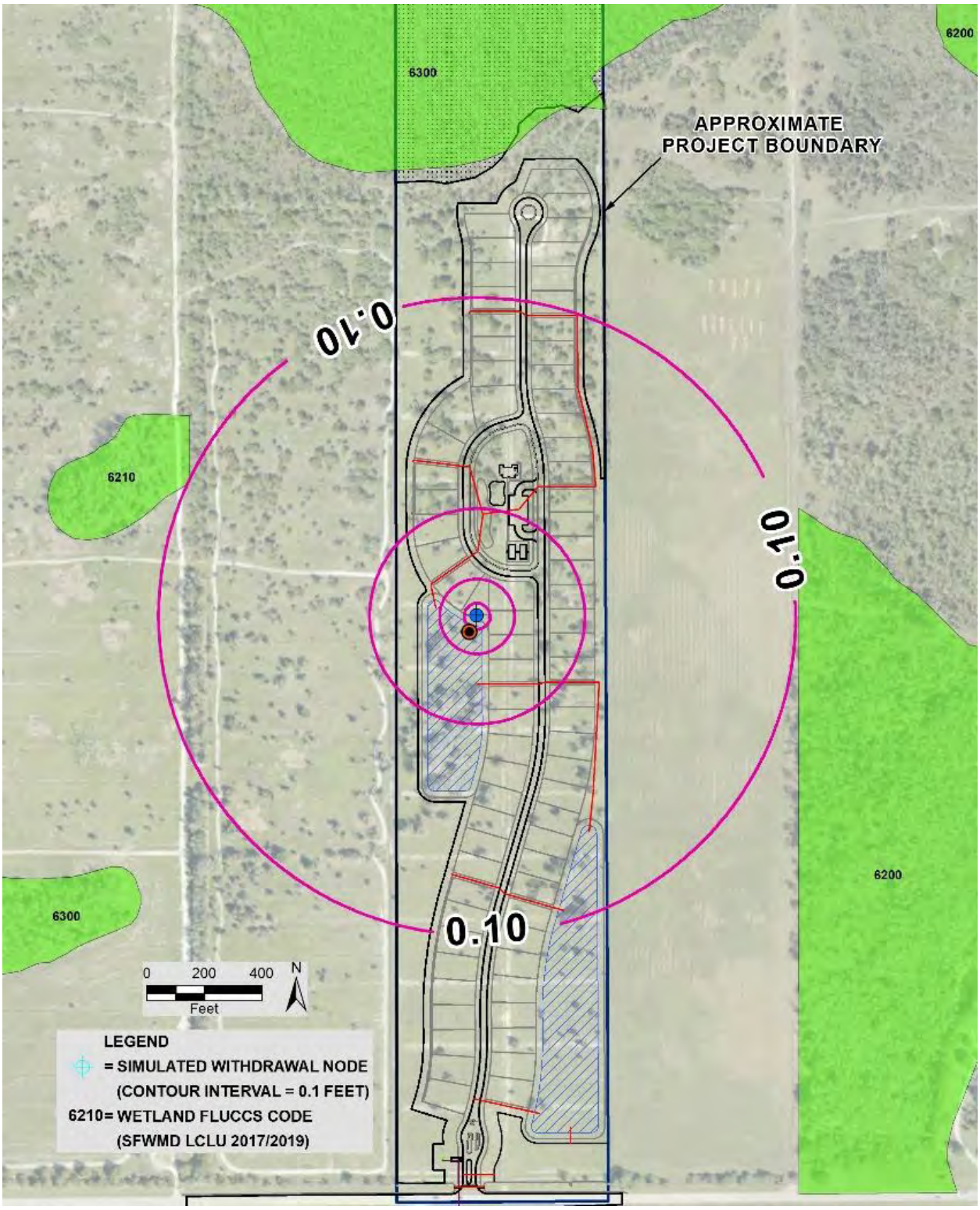

Figure 8. Simulated Drawdown Due to Proposed Withdrawals

SURFACE WATER AND GROUNDWATER MONITORING PLAN

This Surface Water and Groundwater Monitoring Plan will be initiated to establish baseline conditions for the project site and to quantify potential adverse impacts as a result of the proposed residential development. The Surface Water and Groundwater Monitoring Plan includes sampling locations, sampling frequency, reporting requirements, and evaluations of the water level and water quality within the Corkscrew 80 RPD project site. The proposed monitoring plan may be further refined during the Development Order process that may include additional or removal of groundwater and/or surface water sampling locations.

7.1 MONITORING

The development plans for the Corkscrew 80 RPD project site indicate that there are two proposed interconnected lakes to capture stormwater runoff. A proposed outfall control structure is located on the southern project extent of the project, where water can flow out of the stormwater management system and leave the project site. The Surface Water and Groundwater Monitoring Plan includes the installation of two shallow monitor wells tapping the upper portion of the Water Table Aquifer (WT-1 and WT-2), a surface water sample location (typical outfall location), and one staff gauge installed within the irrigation withdrawal lake (SG-1) upon operational completion. Refer to ***Figure 9*** for a map showing the proposed monitoring locations of the Surface Water and Groundwater Monitoring Plan including proposed irrigation withdrawal facilities. All monitor wells and the staff gauge will be equipped with electronic water level transducers set to record water levels every 6 hours. Surface water and groundwater monitoring parameters are provided in ***Table 2***

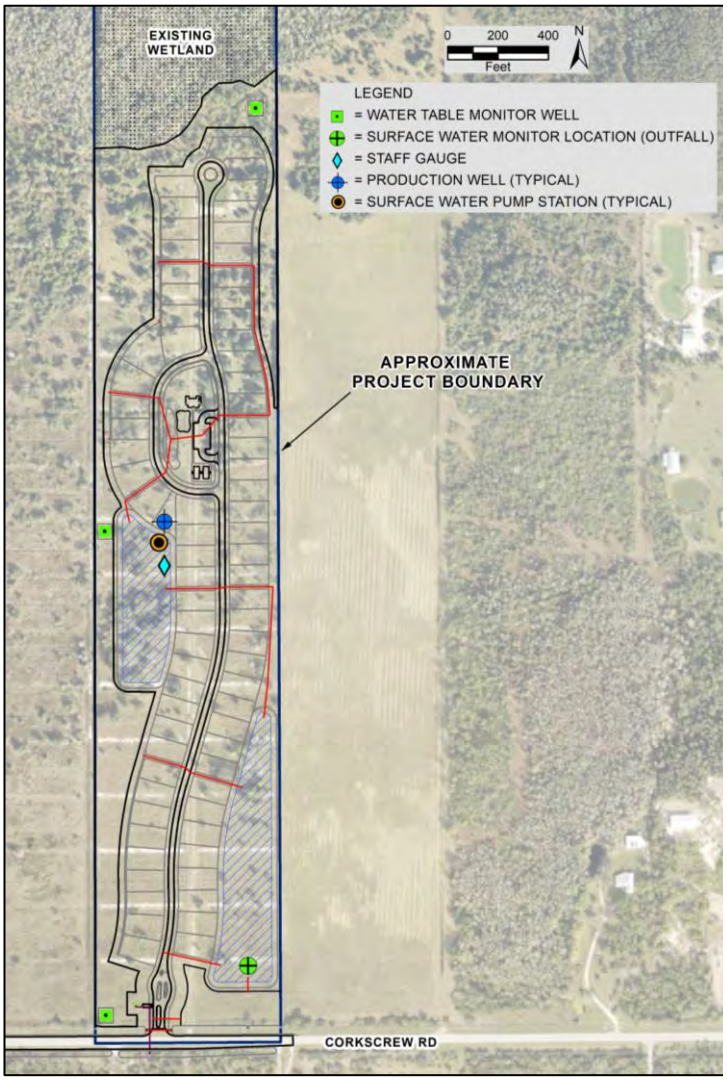

Figure 9. Map Showing Conceptual Monitoring Locations

The proposed Surface Water and Groundwater Monitor Plan include a baseline sampling event prior to construction commencement followed by semi-annual events. The semi-annual sampling events are proposed to occur twice per year during the wet season (June through October). The early wet season monitoring event is proposed to occur in June while the late wet season event is proposed to occur in October. The monitoring will include stage measurements using previously established benchmarks (piezometers) and the discharge condition will be recorded as either a “yes or no”

depending on whether or not water is flowing through the control structures at the time of sampling.

Table 2. Proposed Monitoring Parameters and Schedule

Surface Water Monitoring Parameter	Minimum Detection Level (MDL)	Units	Analysis Type
Stage	0.01	Feet (NAVD)	Field
Turbidity	0.01	NTU	Field
Discharge Condition	NA	Yes or No	Field
Specific Conductance	2	umhos/cm	Field
pH	0.01	S.U.	Field
Dissolved Oxygen	0.1	mg/L	Field
Temperature	0.1	C	Field
Nitrate-Nitrite (NOx)	0.1	mg/L	Laboratory
Total Nitrogen	0.1	mg/L	Laboratory
Chlorophyll A	1.0	mg/m^3	Laboratory
Nitrite	0.01	mg/L	Laboratory
Nitrate	0.01	mg/L	Laboratory
Total Phosphorus	0.05	mg/L	Laboratory
Hardness (as $CaCO_3$)	N/A	mg/L	Laboratory
Iron	0.20	mg/L	Laboratory
Copper	1.0	µg/L	Laboratory
E. coli	100?	MPN	Laboratory

7.1.1 Quality Assurance

Water samples will be collected and handled following protocols contained in FDEP Quality Assurance Rule F.A.C. 62-160 and adopted as the 2014 FDEP Standard Operating Procedures for Field Activities (DEP-SOP-001/01), effective 7/30/2014. Water Quality samples will be collected from both monitor wells and the staff gauge monitoring station. One field blank and a field duplicate will be collected during each sampling event for quality assurance purposes. Chain of custody forms and laboratory analysis reports will be provided in corresponding quarterly reports.

Water samples will be tested by a certified laboratory under the National Environmental Laboratory Accreditation Program (NELAP) using approved test methods and QA testing requirements (i.e., blanks, sample duplicates, surrogates, matrix spikes etc.) as contained in F.A.C 62-160 QA Rules.

7.1.2 Water Monitoring Reporting and Analysis

An annual report which will include a comparison of State Surface Water Quality standards, plots of parameters, and any conclusions or recommendations will be provided to the Division of Natural Resources annually for at least 5 years. The monitoring reports will be submitted once per year as an Electric Data Deliverable (EDD) in a comma delimited text format approved by the Lee County Division of Natural Resources in their approved format within 60 days of receipt of laboratory reports from two wet season monitoring events during the reporting period. Conclusions and recommendations will be based on applicable target levels, statistical analyses, and trends of measured constituents.

Results of water sampling will be compared to applicable State Water Quality Standards based on F.A.C. Chapter 62-302, if listed and deviation from the initial baseline sampling will be analyzed for potential negative impacts and corrected if necessary. Parameters that do not have numeric

target levels will be evaluated for trends. The surface water laboratory results will undergo statistical analysis for the development of conclusions and recommendations within the annual reports.

Water Quality Monitoring will continue for a minimum of 5 years from the date of completion of the stormwater management system. After 5 years of meeting or exceeding state water quality monitoring standards, the developer may amend or discontinue water quality monitoring and reporting after written request, review, and approval by LCDNR.

7.1.3 Contingency Plan

Should indications of water quality concerns be identified by exceedances of target levels, deviations from baselines, or through statistical trend analyses, site conditions will be reviewed for possible onsite and offsite incidents that could be attributed to elevated readings. If no incident or cause can be identified, the samples will be re-collected and re-analyzed for the parameter of concern. Following any re-sampling event, the Applicant will coordinate with the LCDNR to aid in identifying potential causes and potential needs to modify monitoring parameters, frequency, and/or reporting. If resampling shows water quality concerns, Lee County will be notified to discuss potential corrective actions.

Potential investigative and corrective actions may include:

- Review potential nearest upgradient facility lakes;
- Review and revision of lake management, stormwater management, and landscape fertilizer application procedures and schedules;
- Include additional surface water sampling sites; and
- Notification to impacted residents and applicable authorities as needed.

7.2 CONCLUSION

The Corkscrew 80 RPD affords a unique opportunity to improve the hydrologically impacted project area through enhanced stormwater management and recharge of groundwater to the Water Table Aquifer. The proposed project provides a high level of protection, preservation, and enhancement of groundwater resources in accordance with Lee County's goals and objectives.

SECTION 8

PROFESSIONAL CERTIFICATION

I, Michael C. Alfieri, hereby certify that I am a Professional Geologist licensed in the State of Florida and that the accompanying document was prepared by me or under my supervision and is in general conformance with the Department of Business and Professional Regulation, Division of Professions, Board of Professional Geologists Practice Rules and Statutes (Rules Chapter No. 61G16-1 through 61G16-9/ Statute: Chapter 492). Based on current methodologies and the current state of the professional practice of geology, the geologic information provided is true and correct to the best of my knowledge and belief based on the data collected.

Michael C. Alfieri, P.G., P.Hg., CGWP
Florida Professional Geologist No. 2476

Water Science Associates
An Apex Company

EXHIBIT A

Excerpts of Proposed Surficial Model Input/Output File

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AquiferWin32
Analytical Simulation of Groundwater Flow

Developed by

James O. Rumbaugh, III

Douglas B. Rumbaugh

(c) 1997-2020 Environmental Simulations, Inc.

==========
Date: 9/26/2025
Time: 14:44:03.00

Input File: CORKSCREW-WTA MODEL 09262025
==========

Aquifer Properties

Transmissivity
Specified Value = 104720 gal/d/ft
Storage Coefficient
Specified Value = 0.15
Specific Yield
Specified Value = 0.15
Beta/(r*r)
Specified Value = 0.00111 /sq ft
Porosity
Specified Value = 0.2
Aquifer Thickness
Specified Value = 109 ft
==========

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AquiferWin32
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Porosity
Specified Value = 0.2
Aquifer Thickness
Specified Value = 109 ft
==========

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Pumping Wells

Well: SWP-2 (4004.08, 4912.83) ft
  Constant Pumping Rate 62500 (gal/d)

==========

Calibration Targets

==========

Contour Matrix

Number of nodes in the X-direction = 150
Number of nodes in the Y-direction = 150

Minimum X Coordinate = 2209.230000 ft
Minimum Y Coordinate = 3496.350000 ft

Maximum X Coordinate = 5498.860000 ft
Maximum Y Coordinate = 6472.680000 ft

Minimum Drawdown = 0.048177 ft
Maximum Drawdown = 0.566371 ft

Drawdown Matrix (ft)

Row 1

0.052577	0.053066	0.053554	0.054037	0.054514
0.054981	0.055437	0.055879	0.056304	0.056311
0.056872	0.057423	0.057970	0.058516	0.059067
0.059627	0.060199	0.060788	0.061398	0.062032
0.063160	0.063578	0.064005	0.064435	0.064862
0.065281	0.065686	0.066073	0.066437	0.066776
0.066643	0.067170	0.067679	0.068175	0.068660
0.069138	0.069610	0.070080	0.070548	0.071016
0.071782	0.072125	0.072464	0.072799	0.073127
0.073449	0.073761	0.074064	0.074357	0.074638
0.074908	0.075029	0.075304	0.075566	0.075814

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  Constant Pumping Rate 62500 (gal/d)

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0.054981	0.055437	0.055879	0.056304	0.056311
0.056872	0.057423	0.057970	0.058516	0.059067
0.059627	0.060199	0.060788	0.061398	0.062032
0.063160	0.063578	0.064005	0.064435	0.064862
0.065281	0.065686	0.066073	0.066437	0.066776
0.066643	0.067170	0.067679	0.068175	0.068660
0.069138	0.069610	0.070080	0.070548	0.071016
0.071782	0.072125	0.072464	0.072799	0.073127
0.073449	0.073761	0.074064	0.074357	0.074638
0.074908	0.075029	0.075304	0.075566	0.075814

0.076048	0.076269	0.076476	0.076668	0.076846
0.077010	0.077160	0.077294	0.077414	0.077519
0.077609	0.077684	0.077743	0.077787	0.077816
0.077829	0.077827	0.077810	0.077777	0.077729
0.077666	0.077587	0.077494	0.077385	0.077261
0.077123	0.076970	0.076802	0.076620	0.076424
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0.075101	0.074841	0.074568	0.074283	0.073988
0.073682	0.073367	0.073044	0.072714	0.072378
0.072037	0.071694	0.070897	0.070429	0.069960
0.069490	0.069016	0.068537	0.068049	0.067550
0.067037	0.066505	0.066692	0.066347	0.065976
0.065584	0.065175	0.064753	0.064325	0.063895
0.063470	0.063056	0.061868	0.061240	0.060636
0.060051	0.059482	0.058925	0.058376	0.057830
0.057283	0.056730	0.056609	0.056197	0.055767
0.055322	0.054862	0.054392	0.053914	0.053429
0.052941	0.052451	0.051963	0.051478	0.050792
0.050254	0.049724	0.049201	0.048686	0.048177

Row 2

0.053060	0.053555	0.054045	0.054529	0.055004
0.055466	0.055914	0.056346	0.056377	0.056947
0.057508	0.058065	0.058623	0.059187	0.059762
0.060351	0.060960	0.061592	0.062252	0.063310
0.063743	0.064185	0.064627	0.065065	0.065491
0.065901	0.066289	0.066651	0.066460	0.067016
0.067552	0.068074	0.068585	0.069088	0.069587
0.070084	0.070582	0.071081	0.071854	0.072221
0.072587	0.072949	0.073304	0.073653	0.073993
0.074324	0.074644	0.074953	0.075123	0.075442
0.075749	0.076042	0.076322	0.076589	0.076842
0.077081	0.077307	0.077518	0.077715	0.077898
0.078066	0.078219	0.078358	0.078481	0.078588
0.078681	0.078778	0.078839	0.078883	0.078912
0.078926	0.078924	0.078906	0.078873	0.078825
0.078761	0.078659	0.078562	0.078451	0.078324
0.078182	0.078025	0.077853	0.077666	0.077466
0.077250	0.077021	0.076778	0.076522	0.076252
0.075968	0.075671	0.075362	0.075039	0.074875
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0.057923	0.057365	0.056803	0.056654	0.056237

0.055801	0.055349	0.054883	0.054406	0.053921
0.053429	0.052934	0.052437	0.051942	0.051451
0.050755	0.050210	0.049675	0.049147	0.048626

Row 3

0.053543	0.054041	0.054531	0.055013	0.055482
0.055937	0.056374	0.056426	0.057006	0.057576
0.058143	0.058713	0.059290	0.059879	0.060485
0.061113	0.061766	0.063012	0.063447	0.063895
0.064350	0.064804	0.065250	0.065682	0.066096
0.066484	0.066211	0.066797	0.067362	0.067910
0.068446	0.068974	0.069498	0.070020	0.070545
0.071073	0.071870	0.072262	0.072652	0.073040
0.073422	0.073798	0.074165	0.074523	0.074870
0.075073	0.075436	0.075786	0.076124	0.076450
0.076762	0.077062	0.077348	0.077621	0.077880
0.078125	0.078357	0.078574	0.078797	0.078982
0.079152	0.079307	0.079447	0.079571	0.079680
0.079774	0.079852	0.079913	0.079959	0.079989
0.080003	0.080001	0.079983	0.079949	0.079899
0.079833	0.079751	0.079654	0.079541	0.079413
0.079269	0.079110	0.078936	0.078748	0.078520
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0.076986	0.076683	0.076368	0.076039	0.075698
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0.073702	0.073325	0.072941	0.072553	0.072162
0.071770	0.070937	0.070410	0.069887	0.069364
0.068839	0.068309	0.067771	0.067219	0.066649
0.066754	0.066387	0.065992	0.065573	0.065137
0.064688	0.064234	0.063780	0.063334	0.062904
0.061597	0.060950	0.060328	0.059727	0.059141
0.058567	0.057998	0.057431	0.056859	0.056687
0.056264	0.055822	0.055364	0.054891	0.054407
0.053914	0.053415	0.052913	0.052410	0.051908
0.051412	0.050704	0.050154	0.049613	0.049080

Row 4

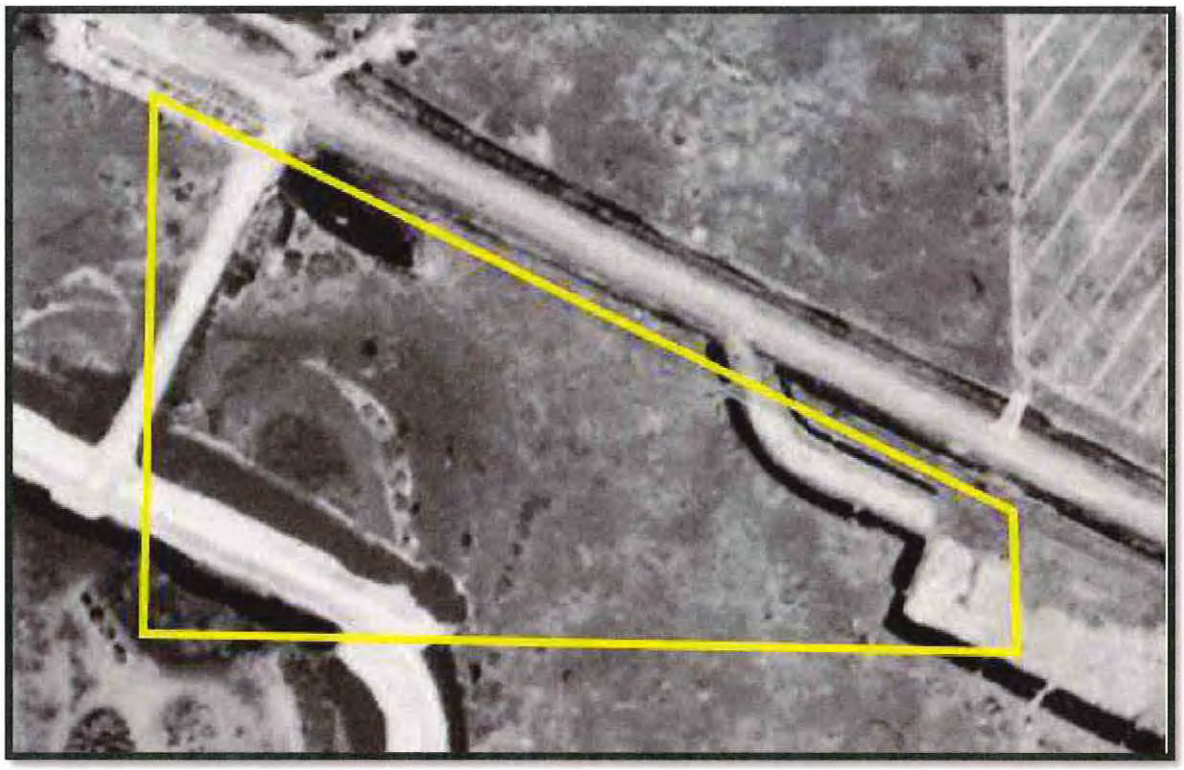
0.054022	0.054520	0.055009	0.055485	0.055947
0.056391	0.056458	0.057046	0.057626	0.058204
0.058785	0.059374	0.059978	0.060600	0.061246
0.061920	0.063120	0.063570	0.064032	0.064499
0.064963	0.065417	0.065855	0.066271	0.066658
0.066512	0.067106	0.067682	0.068243	0.068795
0.069343	0.069889	0.070438	0.070991	0.071831
0.072245	0.072659	0.073071	0.073479	0.073881
0.074275	0.074659	0.075033	0.075285	0.075679

CHARACTERIZATION OF GROUND AND SURFACE WATER RESOURCES

Fena M. and Victor Dante Trust

Lee County, Florida

July 2023



January 26, 1953, aerial photograph

RESPEC Company, LLC ● 6561 Palmer Park Circle ● Suite D ● Sarasota, FL 34238 ● (941) 552-5657

Executive Summary

The Fena M. and Victor Dante Trust is proposing a Commercial Planned Development on lands herein referred to as the "Dante Parcel", located south of State Highway 82 (Immokalee Road), approximately 10 miles east of Interstate 75, in southeast Lee County, Florida. The property is located immediately south and west of Lehigh Acres and is bounded on the east by Alabama Road South, a Lee County Electric Co-op substation, two privately owned 5-acre parcels to the south, and an earthen berm created as part of World War II (WW II) artillery practice range borders the western side of the site. The Lee County Property Appraiser identifies the property as a single parcel (No. 13-45-26-00-00001.0030) and a recent survey indicates a total project area of approximately 15.03 acres. The Dante Parcel is not located within a Special Treatment Area (Lee Plan Map 1-D), or an airport noise restrictive zone (Lee Plan Map 1-E), or in a wellfield protection area (Lee Plan Map 4-C). However, Lee Plan Map 1-B indicates that the property is located along the northern boundary of Southeast Lee's Density Reduction/Groundwater Resource (DR/GR) area.

A review of Florida Land Use and Cover Classification System (FLUCCS) data produced by the South Florida Water Management District (SFWMD) indicates that approximately 93 percent of the Dante Parcel is characterized as cropland and pastureland. However, investigations undertaken as part of this report indicate that this description is wholly inaccurate, given the site's complex land use history dating back prior to 1944 (approximately 80 years ago). Although farming did occur in proximity to the Dante Parcel, historic aerial imagery indicates that significant onsite disturbances associated with WW II military operations precluded the property from being used as cropland. Aerials indicate that construction of a large artillery practice area effectively blocked the property's historic drainage pattern and isolated the site from interacting with surrounding lands. Further hydrologic isolation of the Dante Parcel occurred in early 2016, when an electrical substation was constructed southeast to the property. Field inspections indicate that more recent forms of disturbance have also occurred, including multiple off-road vehicle trails traversing the property.

Prior to its disturbance, the site historically drained to the southwest into the Estero River subwatershed. After construction of the artillery practice area berm in early 1944, stormwater was prevented from discharging offsite, towards the balance of the DR/GR. The earthen berm is approximately 10-foot higher than surrounding lands and not only blocks surface water flows to the southwest, but the triangularly shaped feature also encloses and completely isolates (traps) the extreme southwest corner of the site. To construct the earthen berm, military operators excavated on either side and created water-filled borrow areas, both inside and outside of the feature. Lidar imagery indicates that one of these borrow areas represents the property's lowest land surface elevation. Since its early disturbance, sequential aerial photographs suggest that both native and invasive plant species have recruited overtime within the disturbed area north of the artillery practice berm evolving into a low-quality wetland feature totaling approximately 4 acres. Recent inspections indicate that much of the site, including upland areas, have significant nuisance and exotic plant species.

The National Resources Conservation Service (NRCS) has described the predominate soil type onsite (approximately 46 percent) as *Malabar fine sand-urban land complex*. This soil is described as a sandy, and loamy marine deposit, that is subject to sheet flow conditions during the rainy season. The "*urban land*" designation is due to the anthropogenic changes that have occurred onsite. The second-most prevalent soil type is *Immokalee*. Immokalee and Malabar soils are characterized as poorly drained, but both are also described as exhibiting higher permeability in their upper soil layers. The ability of these soils to demonstrate increased vertical infiltration in their shallower profiles, coupled with the unique configuration of onsite landforms, provides an opportunity to enhance the hydrologic characteristics of the property through increased recharge (see RESPEC's July 2023 Integrated Modeling Analysis).

The proposed Commercial Development's two dry detention stormwater treatment areas will help increase the vertical infiltration of stormwater through enhanced recharge and can contribute to the rehabilitation of the site's overall water resource characteristics. The property's proposed engineered stormwater treatment areas are to be located adjacent to the impounded wetland area, furthering the hydrologic restoration of the site. Therefore, the proposed Commercial Development can improve onsite hydrologic conditions and therefore help recover the water resources within the DR/GR.

The continued development in Lee County along State Highway 82 requires that commercial services be created to meet the projected needs of the residential areas like Lehigh Acres, where existing commercial areas are extremely limited. The Fena M. and Victor Dante Trust therefore desires to develop the site as a Commercial Planned Development to help serve the needs of residents. Potable and wastewater services are proposed to be supplied by FGUA, whereas the development's irrigation of small, landscaped areas surrounding the commercial buildings will be supplied by a proposed Sandstone Aquifer well. Based on the design of the proposed Commercial Development, the water resources of the DR/GR will not only be protected but will also be enhanced.

1.0 Introduction

The Fena M. and Victor Dante Trust is interested in developing a 15.03-acre parcel into a Commercial Planned Development. The property is located east of Daniels Parkway and south of State Highway 82 (Immokalee Road), approximately 10 miles east of Interstate 75. More specifically, the "Dante Parcel" is located within Section 13, Township 45 South, Range 26 East and has been described by the South Florida Water Management District (SFWMD) as predominately composed of cropland and pastureland. Despite this characterization, historic aerial imagery indicates that the Dante Parcel has had no history of farming and has never been used for agricultural purposes. Historic aerial imagery indicates that portions of the site were part of a World War II military training facility that constructed multiple triangularly shaped bermed areas south of Highway 82. A portion of one of the triangular features dominates the southwest corner of the site, and along with more recent changes in surrounding land uses, has led to the property's highly disturbed nature.

As shown in **Figure 1**, the subject property is located just inside the boundary of the Density Reduction/Groundwater Resource (DR/GR) area. In accordance with the Lee Plan, new land uses in the

DR/GR that require rezoning or a development order must demonstrate compatibility with maintaining surface and groundwater levels at their historic levels. The term "Groundwater Resource" was included in the land use category to emphasize the need to protect the County's shallow aquifer systems (i.e., the Water Table and Sandstone Aquifers), particularly regarding existing and future drinking water supplies. However, in some localities the DR/GR designation has been applied to lands which exhibit significant hydrologic alteration and anthropogenic disturbance. Highly disturbed parcels contribute little if any hydrologic benefits. The Dante Parcel clearly exhibits these characteristics. A recent aerial photograph of the Dante Parcel is included as **Figure 2**.

2.0 Property Setting

The subject property is located within the Immokalee Rise Physiographic Province, which has been described as an ancient submarine shoal with weak relict shoreline features due to the low energy conditions that existed as the shoal emerged from receding sea levels. The location of the subject property within the Immokalee Rise Physiographic Province is illustrated in **Figure 3**. The lack of relict shoreline features contributes to the site's generally flat topographic expression. The site exhibits several different soil types with the predominant soil identified as *Malabar fine sand-urban land complex* followed by *Immokalee Sand* as shown on the soils map provided as **Figure 4**. *Malabar fine sands* also occur onsite and combined, these three soils occupy approximately 96 percent of the site.

The National Resources Conservation Service (NRCS) describes the *Malabar fine sand-urban land complex* as a very deep, very poorly to poorly drained, low permeable soil found in sloughs, and shallow depressions in flatwoods areas. Although the soil is poorly drained, the NRCS describes the soil as having rapid permeability in its upper layers, with slow to very slow permeability in the lower soil horizons. The NRCS further adds that the water table in these type soils is typically within 10 inches of land surface during the rainy season and can recede to a depth of more than 40 inches during extended dry periods.

The shallow depth of the seasonal-high water table (10 inches) results in limited soil storage capacity and contributes to its high runoff potential. This aspect also reduces this soil's ability to recharge. These soils occur in the southwest corner of the Dante Parcel and topographic depressions similar to the feature found onsite are described by the NRCS as being ponded for 3 to 6 months of the year. Under current conditions, the disturbed onsite wetland represents the only area where recharge can generally occur. The second most prevalent soil type onsite is Immokalee, which occupies the central and eastern portions of the property where the Commercial Development is proposed. Immokalee soils are deep, very poorly and to poorly drained soils, that were also formed from sandy marine sediments. Similar to the Malabar series soils, the upper layers can also exhibit rapid drainage potential.

Review of the earliest publicly available aerial images of the site indicate that significant disturbance had already occurred by early 1944. However, assumptions regarding the site's pre-disturbance character can be made through observations of undisturbed sections of the property, adjacent undeveloped lands, and information available through Lee County. Prior to any form of development, the subject property

appears to have been characterized as open rangeland and pine flatwoods, with the southwest corner of the Dante Parcel extending into an isolated, shallow wetland feature, that extended offsite.

Lee County's Historic Flow-ways and Connections shapefile depicts the predevelopment wetland feature (blue shading) and is provided as **Figure 5**. The undisturbed sections of the Dante Parcel exhibit a relatively flat topographic relief, with the highest naturally occurring elevations occurring along the northeastern portion of the property. The undisturbed sections of the interior of the property still slope gently to the southwest as indicated on a Digital Elevation Model (DEM) produced by Lee County LIDAR (North American Vertical Datum [NAVD 88]) and included as **Figure 6**. The 2012 LIDAR image clearly shows the gentle topographic gradient of the interior of the property and the lower elevations associated with the historic wetland. However, the image is dominated by the significant land use disturbances related to the historic military training facility.

The land use disturbances seen in the LIDAR are also evident in historic aerial imagery. As shown in **Figure 7**, in early 1944 the earthen berm appears to have been recently constructed and includes an access road that extends to what is now State Highway 82. A recently excavated water-filled borrow area can be seen immediately to the north of the berm. Disturbances associated with the military training facility also appear to have occurred on the northeast section of the Dante Parcel, where an access road and rectangular staging area was also created as shown in the 1953 aerial image provided as **Figure 8**. By 1953, farming is observed in proximity to the site and historic aerials indicate that by 1958 row crop farming occurred immediately north of the property. However, historical imagery clearly demonstrates that no farming activities have ever occurred on the Dante Parcel due to the property's highly disturbed nature and altered surface water hydrology.

Further hydrologic isolation occurred with the construction of the Lee County Electric Co-op substation to the southeast of the Dante Parcel. The 5-acre parcel was modified through perimeter ditching, with removed soils used to create an elevated central area for the electrical infrastructure. As shown in **Figure 9**, the addition of the Electric Co-op substation further isolated the Dante Parcel from surrounding lands and the balance of the DR/GR.

3.0 Existing Groundwater Resources

There are three (3) principal aquifer systems underlying the subject property: 1) the unconfined Surficial Aquifer System, 2) the confined Intermediate Aquifer System, and 3) the confined Upper Floridan Aquifer System (UFAS). Please note that 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 the term "Sandstone Aquifer" will be used to describe the upper producing unit of the Intermediate Aquifer System.

In southeast Lee County, groundwater quality decreases rapidly with depth and potable supplies generally occur less than 300 feet below land surface (bls). Below these depths, groundwater becomes highly mineralized, saline, and is typically artesian. Consequently, groundwater is primarily withdrawn from depths shallower than 300 feet bls. Given the unconfined nature of the Water Table Aquifer, residential

and commercial potable supplies are overwhelmingly derived from the confined Sandstone Aquifer. In the vicinity of the property, the overall yield of the Water Table Aquifer is considered low and is generally only acceptable for low volume livestock watering.

3.1 Surficial Aquifer System (Water Table Aquifer)

The unconfined Water Table Aquifer originates at land surface, with its uppermost portion composed of approximately 10 to 15 feet of unconsolidated surficial deposits consisting of gray-to-dark brown finely 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 highly weathered 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 as well as the Pinecrest Sand Member.

In some areas of Lee County, 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. Where present onsite, the sands and marls of the Tamiami Formation extend from approximately 15 to 30 feet bls, which is significantly thinner than the Formation's vertical extent found in areas located further south and southeast within the DR/GR (FGS Information Circular Report No. 103). Further indication of the differences of the geology onsite, as compared to more southerly DR/GR areas, is the lack of mining operations which excavate the thicker sequences of the upper Tamiami Formation's limestone.

These observations support the relatively thin nature of both the Tamiami Formation and the Water Table Aquifer at the project location as compared to the bulk of the DR/GR. Due to the Water Table Aquifer's relatively thin vertical extent, groundwater withdrawals from the unit are more likely to have a greater impact on wetlands than withdrawals from deeper, confined sources.

The Lee Plan's DR/GR Land Use Category also includes areas that have been designated as important recharge areas for the shallow Water Table Aquifer, which in turn helps to recharge the underlying Sandstone Aquifer. The United States Geological Survey (USGS) reports that the recharge rate to the Water Table Aquifer is estimated to be between one and ten inches per year in the vicinity of the Dante Parcel (Source: USGS/SFWMD report entitled *Recharge to the Surficial Aquifer System in Lee and Hendry Counties, Florida, 1995)*. However, given the existing disturbed nature of the site and the limited soil storage capacity, the opportunity for recharge to the underlying Water Table Aquifer is considered relatively low.

3.2 Intermediate Aquifer System (Sandstone Aquifer)

Immediately beneath the Tamiami Formation are relatively thick sequences of low permeability clayey sediments that separate the Water Table Aquifer from the underlying Sandstone Aquifer. Based upon well construction reports and geological logs proximal to the site, the top of the Sandstone Aquifer occurs at

depths of approximately 80 feet below land surface (bls). However, well construction reports indicate that the vertical extent of the Sandstone Aquifer producing zone appears to be highly variable. Locally, the producing zone of the Sandstone Aquifer appears to occur between approximately 80 and 120 feet bls.

The Sandstone Aquifer is comprised of sandy limestone, cemented sands (sandstone), sandy dolomite and calcareous sands. These sediments are associated with the Peace River Formation of the Hawthorn Group (FGS Information Circular No. 103, 1986). Due to the occurrence of low permeability sediments separating the Sandstone Aquifer from the overlying Water Table Aquifer, the potential for groundwater withdrawals from the Sandstone Aquifer to produce drawdown in the Water Table Aquifer is highly remote. The Commercial Development's limited irrigated area is proposed to be sourced by groundwater withdrawals from the deeper, confined Sandstone Aquifer.

It is important to note that records indicate that a majority of the residential domestic self-supply wells in Lehigh Acres are finished into the Sandstone Aquifer. Although the number of permitted domestic self-supply wells in Lehigh Acres is significant, and their prolonged use has influenced local water resource conditions, the SFWMD's 2022 Lower West Cost Water Supply Plan Update indicates that requests to use the Sandstone Aquifer as a potable and irrigation water supply sources is permissible on a case-by-case basis. Therefore, a Water Use Permit will be sought to use the Sandstone Aquifer from the SFWMD.

4.0 Density Reduction/Groundwater Resource Area

As stated above, the Dante Parcel occurs within the northern extent of Southeast Lee's DR/GR. A review of the DR/GR shapefile obtained from Lee County indicates that much of the area designated as wetlands is associated with the impoundment of surface water north of the historic artillery range berm and is not an accurate representation of delineated wetlands. In addition, Lee County's shapefile indicates a 0.4-acre isolated wetland in the eastern section of the property as shown on **Figure 10**. A detailed environmental assessment performed onsite does not indicate an isolated wetland at the location shown by Lee County and therefore its depiction is considered a mischaracterization. As also indicated on **Figure 10**, Lee County has identified the historic artillery berm in the southwest portion of the Dante Parcel as a DR/GR Resource Area. This assignment is also seen as an inaccurate designation. Given the site's isolated and highly disturbed nature, coupled with its lack of valuable ecological and hydrological features, it appears evident that the property should not have been included in the DR/GR.

5.0 Hydrologic Restoration

Given the totality of hydrologic alterations that have occurred onsite, the ability to reestablish hydrologic connections or "flow-pathways" that would facilitate hydrologic communication with the balance of DR/GR is not possible. However, the proposed commercial development does offer a unique opportunity to enhance recharge potential. The proposed stormwater dry detention areas located adjacent to the onsite wetland will increase the site's overall recharge potential and when combined with the wetland area, equates to approximately 45 percent of the Dante Parcel being dedicated for this purpose. A proposed site plan is included as **Figure 11** and illustrates the proposed dry detention areas. RESPEC's

July 2023 Integrated Modeling Analysis indicates that a net increase in recharge of approximately 237,872 gallons will occur over a 10-day period, assuming a design 25-year, 3-day rainfall event.

6.0 Enhanced Stormwater Management Practices

In order to protect the water resources within the DR/GR, the following management practices are proposed for the proposed Commercial Development. It is important to note that as the development evolves from a "construction phase" to "partial construction" and ultimately to a "post-construction" phase, Best Management Practices (BMPs) are proposed to evolve in a similar manner to maintain water resource protections. The following actions provide a framework of ground and surface water protection measures that will not only safeguard, but help to sustain, the resources of the DR/GR.

6.1 Construction Best Management Practices

During construction of the proposed Commercial Development, the greatest potential for impacts is associated with increased turbidity and/or potential spills of fuels/oils (hydrocarbons), otherwise known as regulated substances, that are used to power earthmoving equipment, etc. The site's general contractor shall be responsible for assuring that each contractor or subcontractor evaluates their respective work areas before construction is initiated to determine if site conditions pose problems for the safe and secure handling of any regulated substances.

6.2 Post-Construction Best Management Practices

After the development's stormwater management system is completed, the primary focus of the BMPs will be in maintaining the quality of the dry detention areas, since all internal runoff will be routed to these features for treatment. It is also anticipated that the Landowner will establish an entity that will be responsible for the perpetual operation and maintenance of all aspects of the stormwater management system. Responsibilities will also include maintaining all stormwater conveyance features and outfalls.

6.3 Operation and Maintenance of the Stormwater Management System

Proper stormwater system maintenance is an integral aspect water resource protection since all internal stormwater runoff is directed to the dry detention areas for treatment. The Commercial Development's controlling entity will be responsible for the removal (in perpetuity) of all nuisance and exotic vegetation from the stormwater management system. Areas will be inspected annually, and any prohibited vegetation will be removed by use of hand-clearing or appropriate chemical treatment. Only aquatic-approved compounds will be utilized. 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's specifications. All applicable local, state, and/or federal guidelines and requirements will also be followed.

Strict adherence will be maintained with Lee County's Fertilizer Ordinance for all irrigated areas. Any person(s) applying fertilizer to the Commercial Development's limited landscaped areas must have received a limited certification in compliance with Florida Statute 482.1562 prior to application of any and all compounds. Additionally, fertilizer content and application rate must be in compliance with Lee

County's Fertilizer Ordinance. All applications of pesticides, herbicides and fungicides on the Commercial Development's landscape and common areas will be applied by a licensed professional applicator, meet the requirements of Lee County, be applied in accordance with the manufacturer's specifications, and will meet all applicable local, state and/or federal guidelines and requirements. Pesticides, fungicides and herbicides will be used only in response to a specific problem and in the manner and amount recommended by the manufacturer. Broad application of pesticides, fungicides and herbicides as a preventative measure will be prohibited.

6.4 Water Quality Management Practices

In 1990, the Florida Department of Environmental Protection developed and implemented the State Water Resource Implementation Rule (Chapter 62-40 F.S.). The Rule codifies implementation guidelines for the State's stormwater program under 62-40.431. As stated in Ch. 62-40.431 2(a) "The primary goals of the state's stormwater management program are to maintain, to the maximum extent practical, during and after construction and development, the pre-development stormwater characteristics of a site; to reduce stream channel erosion, pollution, siltation, sedimentation and flooding; to reduce stormwater pollutant loadings discharged to waters to preserve or restore designated uses...".

The criteria set forth in Chapter 62-40, applied through the SFWMD Environmental Resource Permit (ERP) program, provides reasonable assurance that the surface water resources of the DR/GR will be protected and maintained. When surface waters are maintained, protection is also afforded to shallow groundwater resources. Given the interaction of surface and groundwater, the stormwater management system also provides enhanced recharge potential to the water table as compared to existing conditions, which can further improve the water resources of the DR/GR. If requested, additional details regarding water quality maintenance practices for the stormwater management system can be provided with the first Development Order application.

To further protect the resource, a single surface water baseline, i.e., background, water quality sampling event is proposed for the onsite wetland area and completed prior to commencement of any construction activities. The background sampling will include the following analytes:

- Chlorophyll a (mg/M3)
- Total Kjeldahl Nitrogen (mg/L)
- Ammonia (mg/L)
- Nitrate (mg/L)
- Total Phosphorus (mg/L)
- Field parameters of Turbidity, Water Depth (i.e., Stage), Specific Conductance, pH, Dissolved Oxygen and Temperature will also be obtained during sampling.

In addition, single annual surface water samples (once per year) are proposed to be taken within the onsite wetland for a period of 5 years, during the "wet" season defined as June through September, that includes the same list of analytes above.

7.0 Proposed Irrigation Supplies

Similar to the electrical substation to the southeast, water supplies for landscape irrigation are proposed to be sourced from the confined Sandstone Aquifer. It is estimated that a single 4-inch diameter well can be used for the Commercial Development's limited irrigation demands.

8.0 In Conclusion

The proposed Commercial Planned Development affords a unique opportunity to dramatically improve and restore a highly disturbed and hydrologically impacted property. As provided herein, the proposed development clearly demonstrates a high level of protection, preservation and enhancement of water resources in the DR/GR.

Figures

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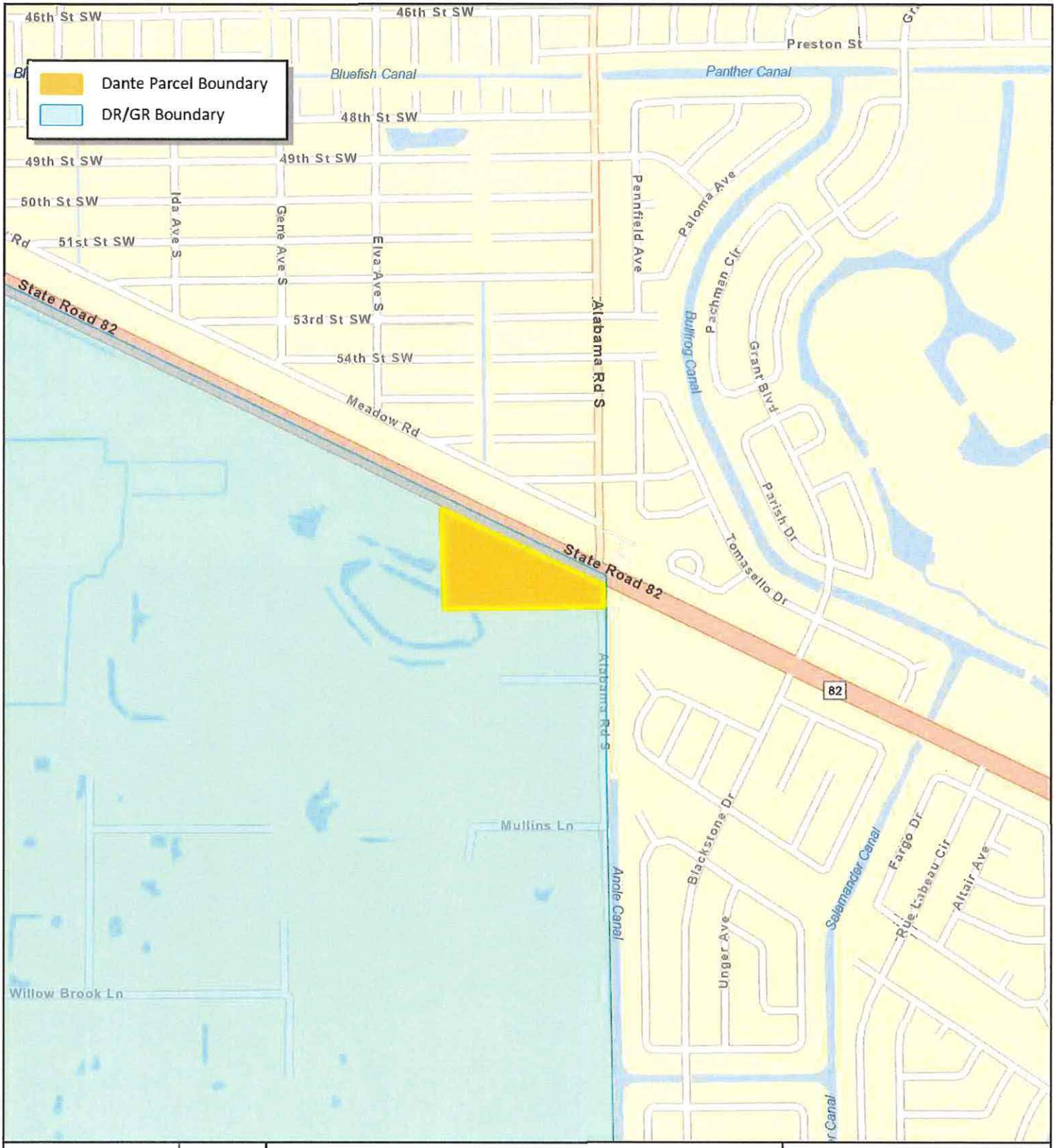

CHARLOTTE | GLADES | HENDRY | LEE | COLLIER

Figure 1
General Location Map
Dante Parcel
Lee County, Florida

N

0 250 500 1,000 Feet
Scale: 1:12,500

RESPEC Company, LLC 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

3/28/2023

Image: ESRI Street Imagery

RESPEC

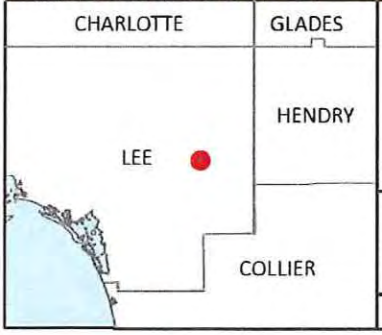

Figure 2
Recent Aerial Imagery
Dante Parcel
Lee County, Florida

N

0 50 100 200 Feet

Scale: 1:2,500

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Image: ESRI World Imagery

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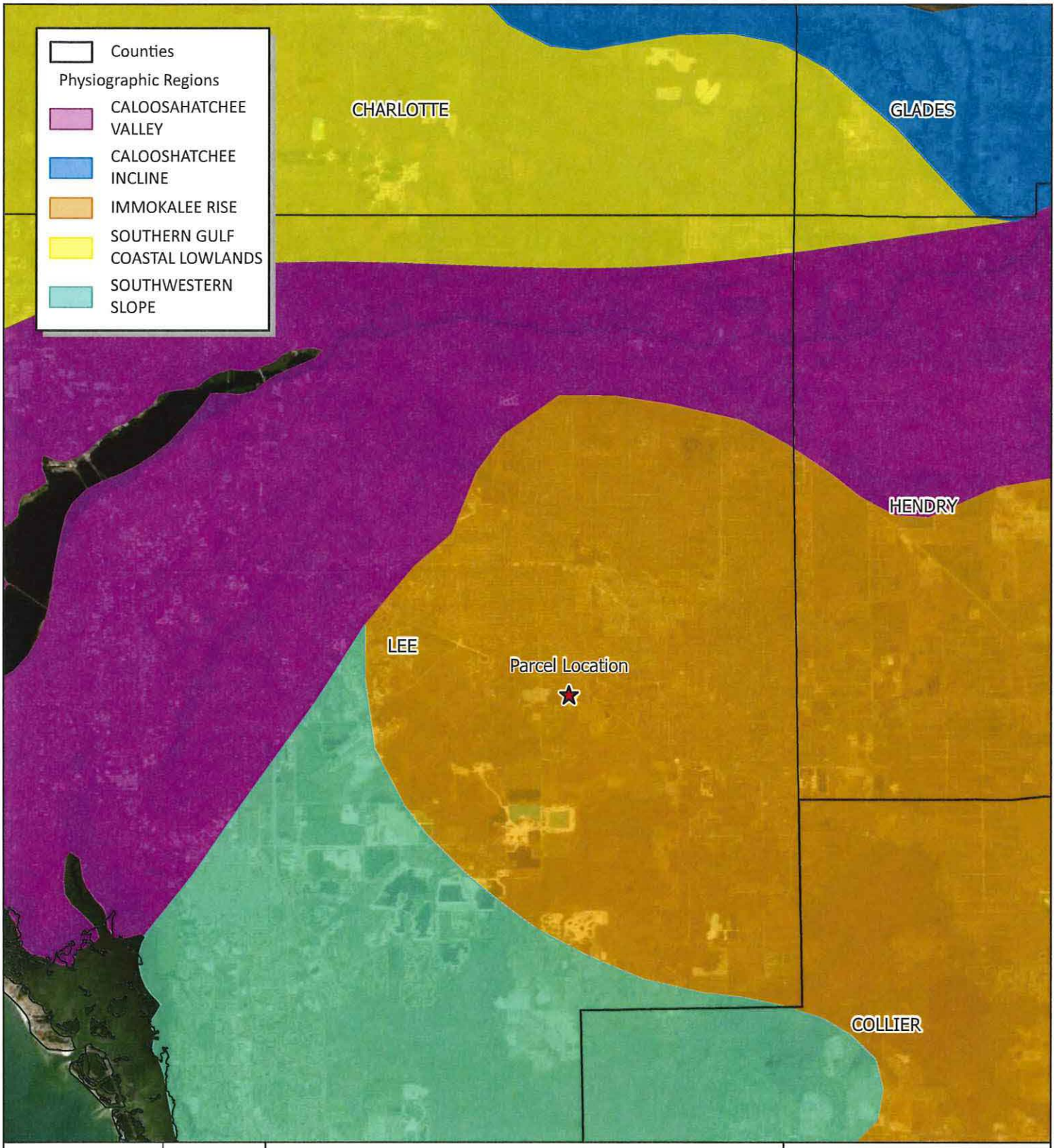

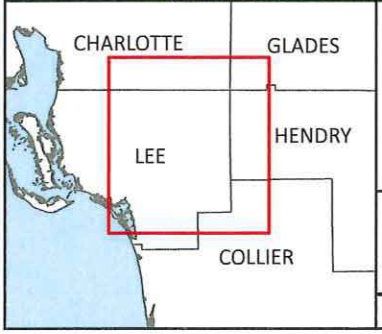

Figure 3
Physiographic Regions
Dante Parcel
Lee County, Florida

N

0 1 2 4 Miles

Scale: 1:250,000

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Image: ESRI World Imagery

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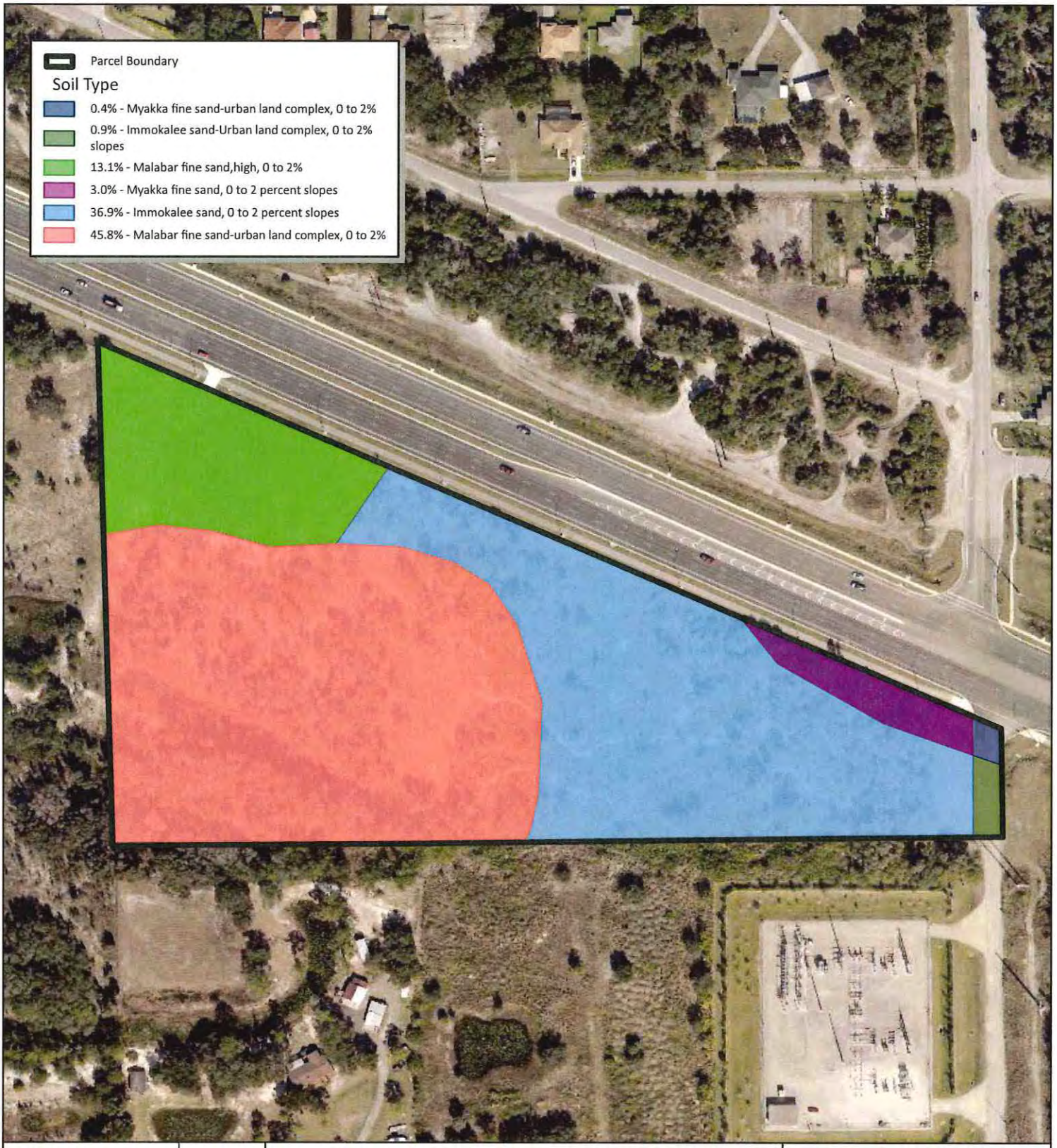

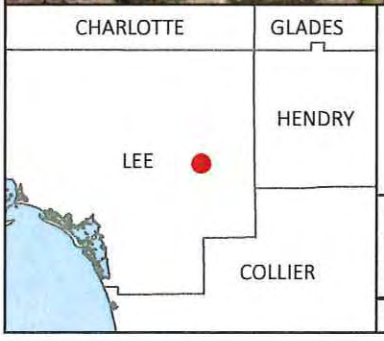

Figure 4
NRCS Soils Map
Dante Parcel
Lee County, Florida

N

0 50 100 200 Feet

Scale: 1:2,500

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Image: ESRI World Imagery, USDA NRCS

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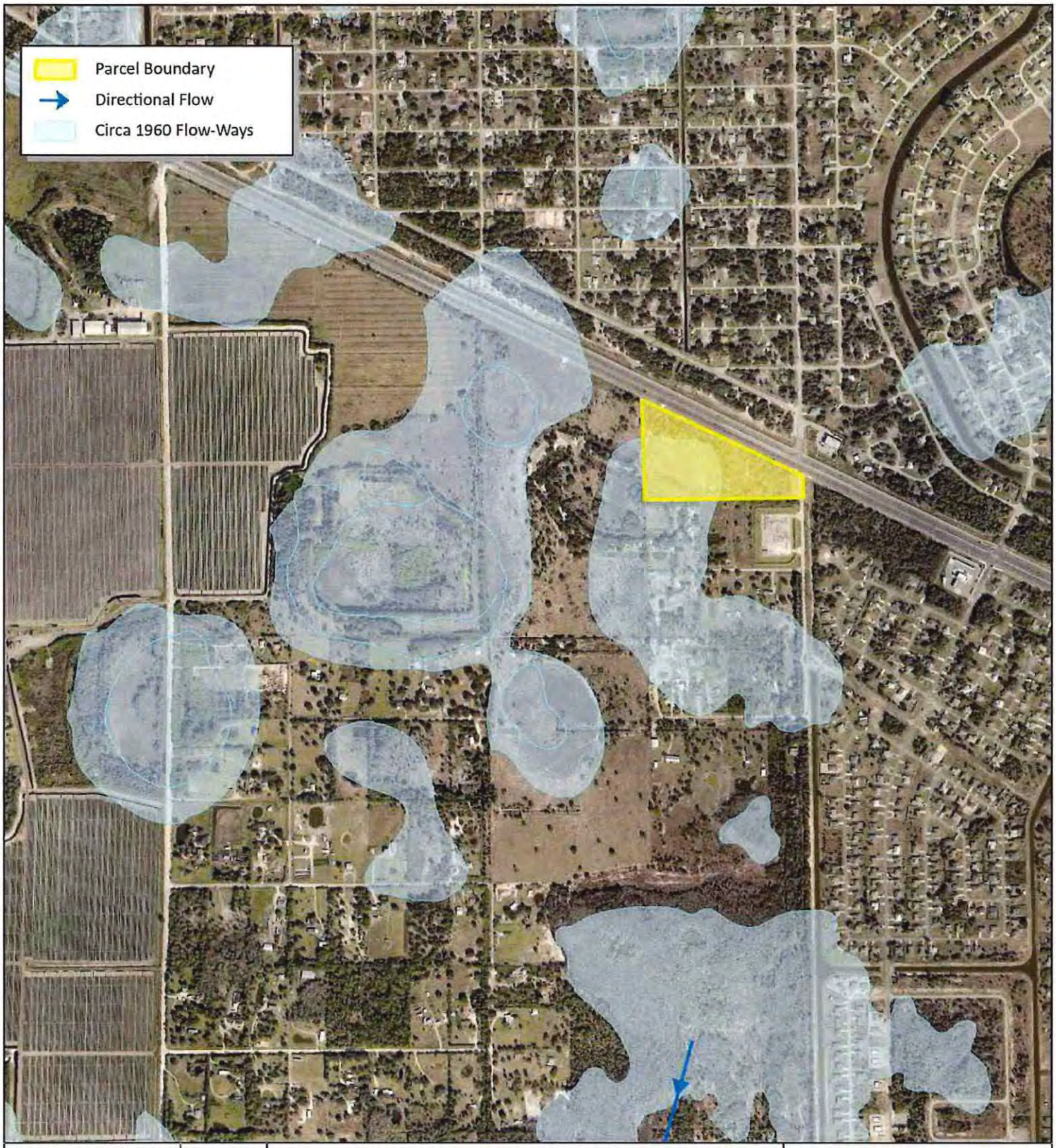

CHARLOTTE | GLADES | HENDRY | LEE | COLLIER

Figure 5
Historic Flow-Ways and Connections
Dante Parcel
Lee County, Florida

N

0 300 600 1,200 Feet
Scale: 1:12,500

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Image: ESRI World Imagery

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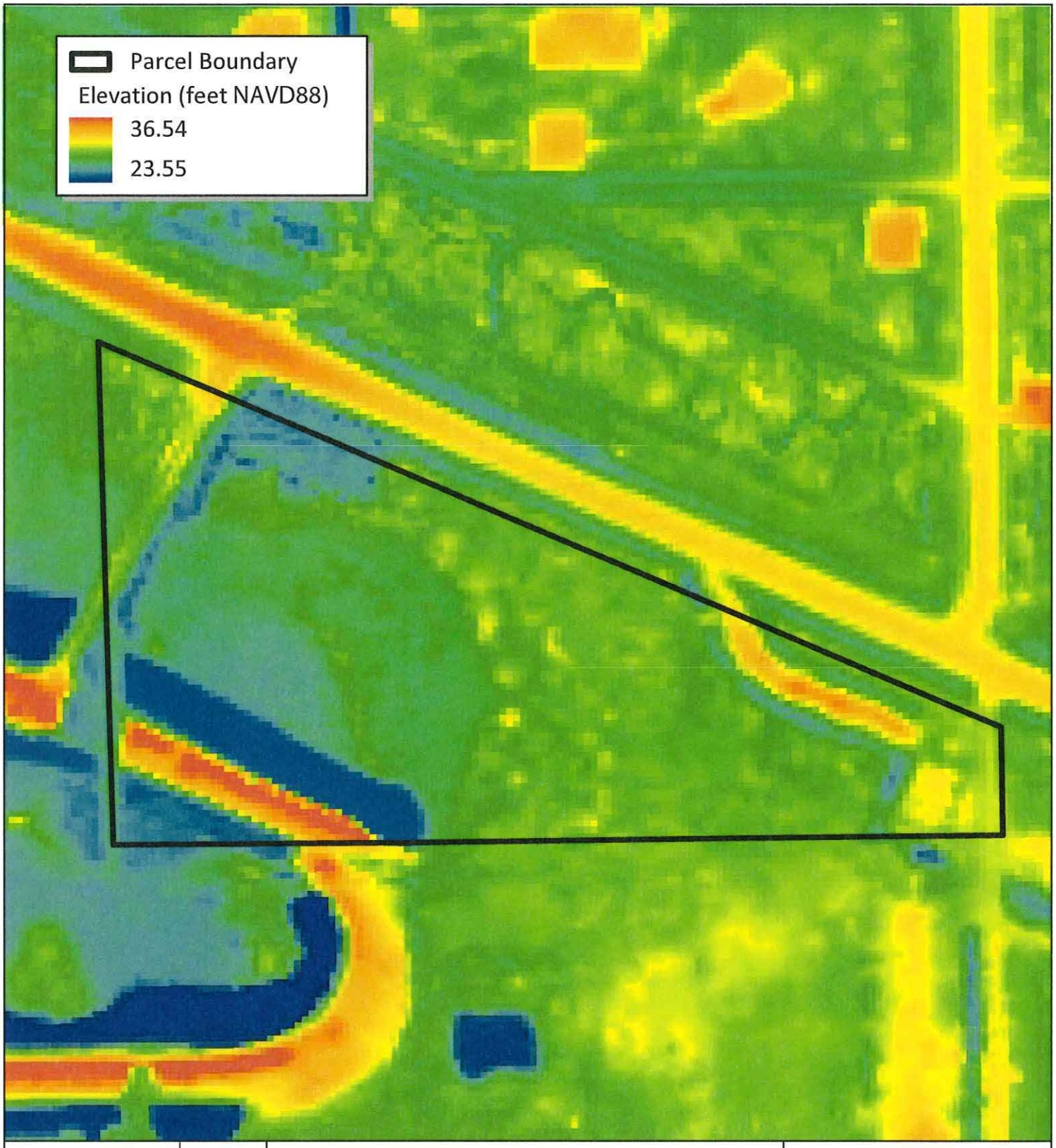

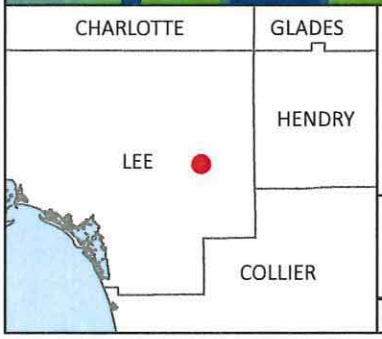

Figure 6
Digital Elevation Model
Dante Parcel
Lee County, Florida

N

0 50 100 200 Feet

Scale: 1:2,500

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Image: Lee County 10-ft DEM (ft NAVD88)

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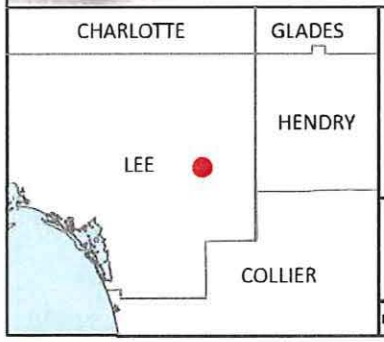

Figure 7
1944 Historic Aerial Imagery
Dante Parcel
Lee County, Florida

N

0 50 100 200 Feet

Scale: 1:2,500

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Image: UFDC Historic Aerial Imagery (1944)

RESPEC

CHARLOTTE | GLADES | HENDRY | LEE | COLLIER

Figure 8
1953 Historic Aerial Imagery
Dante Parcel
Lee County, Florida

N

0 50 100 200 Feet

Scale: 1:2,500

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Image: UFDC Historic Aerial Imagery (1953)

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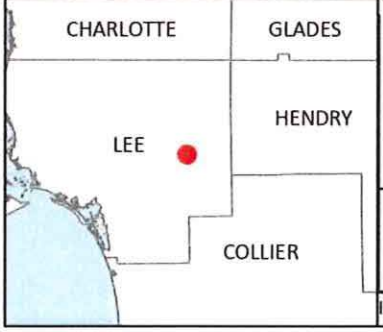

Figure 9
2016 Aerial Imagery
Dante Parcel
Lee County, Florida

N

0 50 100 200 Feet

Scale: 1:2,500

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Image: Google Earth Aerial Imagery (2016)

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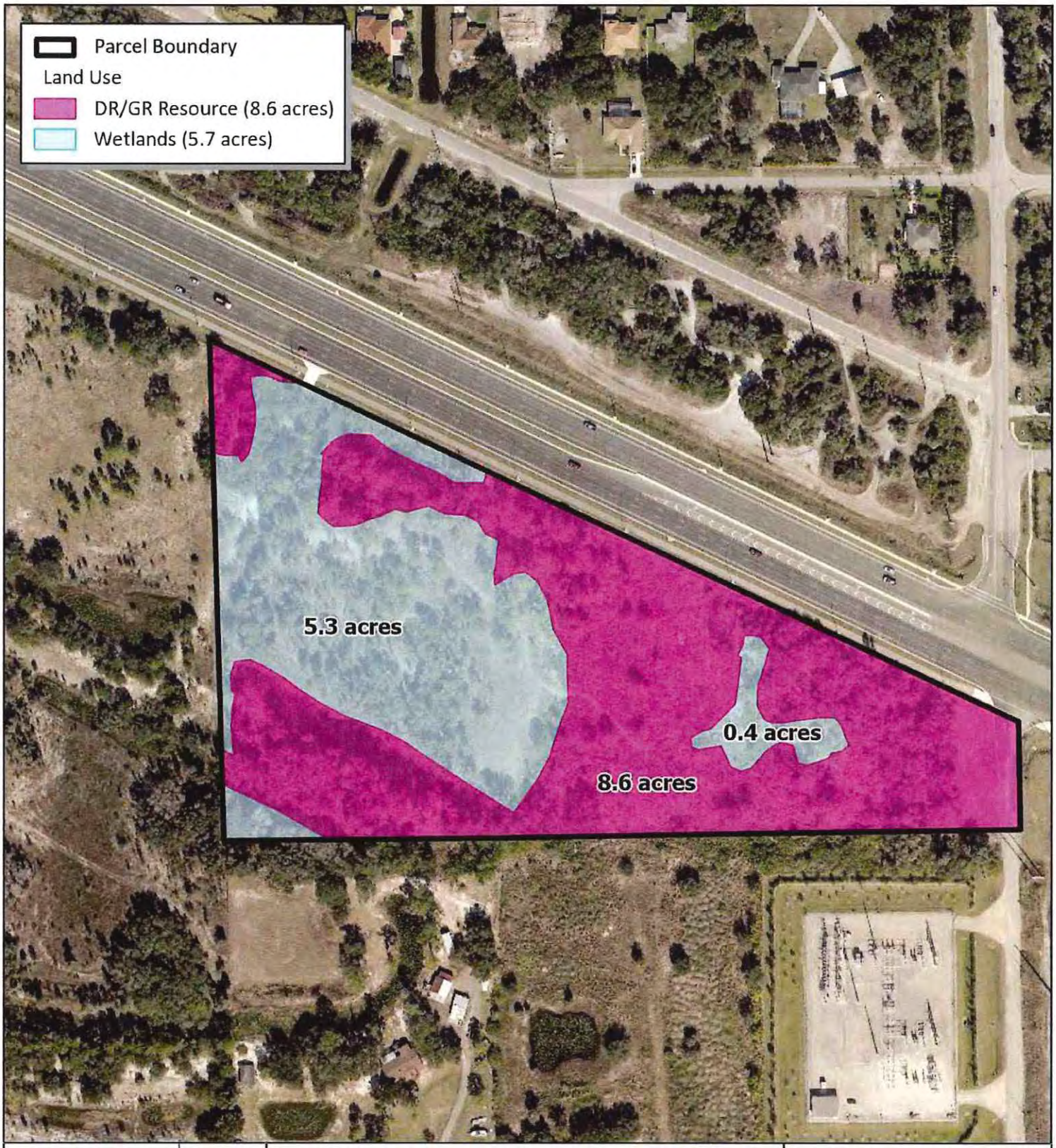

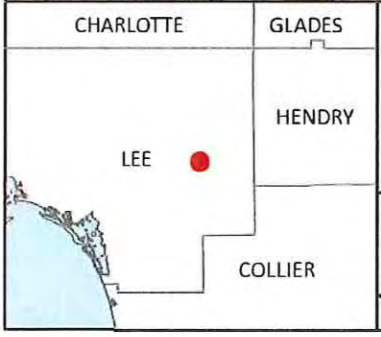

Figure 10
Lee County Future Land Use
Dante Parcel
Lee County, Florida

N

0 50 100 200 Feet

Scale: 1:2,500

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Image: ESRI World Imagery

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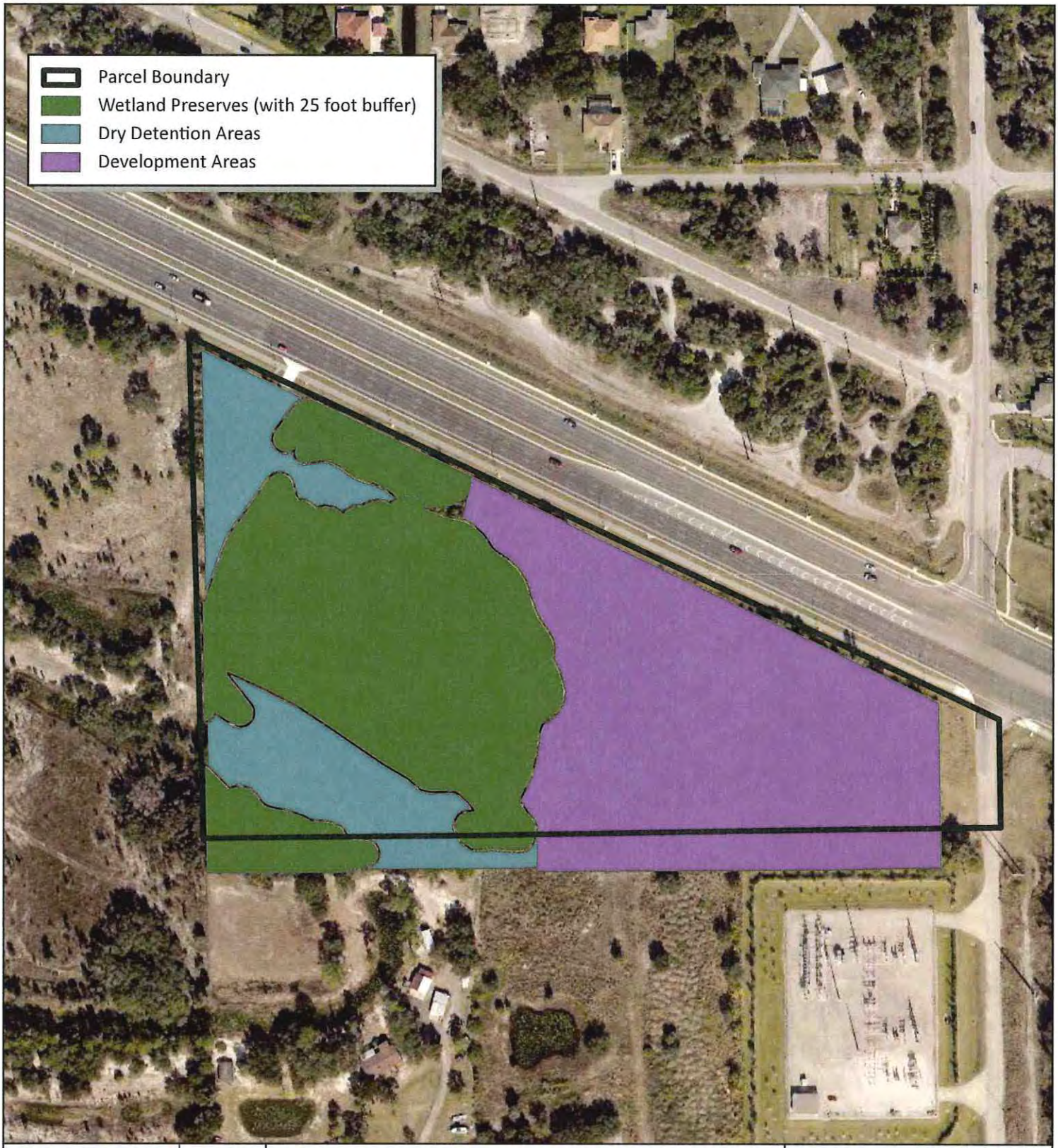

CHARLOTTE | GLADES | HENDRY | LEE | COLLIER

Figure 11
Proposed Site Plan
Dante Parcel
Lee County, Florida

N

0 50 100 200 Feet

Scale: 1:2,500

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3/28/2023

Image: ESRI World Imagery

RESPEC

DANTE CPD
INTEGRATED MODELING ANALYSIS

PREPARED BY
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PREPARED FOR
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JULY 2023

Project Number W0115.21001.001

RESPEC.COM

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Appendix C

Proposed Conditions Input Data
Proposed Conditions Recharge Volume Summary
Proposed Conditions Recharge Volume vs Time Graph

INTEGRATED MODEL ANALYSIS

1.0 BACKGROUND

RESPEC Company, LLC was engaged by the Victor Dante Trust (Client) to develop an integrated groundwater / surface water model to assess pre- and post- development groundwater recharge for its proposed Commercial Planned Development (CPD) project. The project area is located adjacent to the intersection of State Road 82 and Alabama Road S in Lee County, FL and encompasses approximately ±15 acres. The Lee County Property Appraiser identifies the property shown in **Figure 1** as a single parcel (No. 13-45-26-00-00001.0030).

Figure 1 – Site Aerial Map

The integrated model is a requirement of The Lee Plan Policy 33.1.7 which states that impacts of proposed land use disturbances on surface and groundwater resources will be analyzed by means of an integrated surface and groundwater model that utilizes site-specific data to assess potential adverse impacts on water resources and natural systems.

Detailed civil engineering design for development of the project site has not yet occurred. Therefore the modeling narrative provided in support of the CDP is intended for high level planning purposes. When appropriate, reasonable assumptions based on best engineering judgement were made in regards to the conceptual framework of the proposed CPD and associated stormwater management system. Preliminary design parameters are consistent with standards developed by the South Florida Water Management District and Lee County.

2.0 EXISTING CONDITIONS

2.1 SOILS

The site exhibits several different soil types with the predominant soil identified as *Malabar fine sand-urban land complex* followed by *Immokalee Sand* as shown on the soils map provided as **Figure 2**. *Malabar fine sands* also occur onsite and combined, these three soils occupy approximately 96 percent of the site.

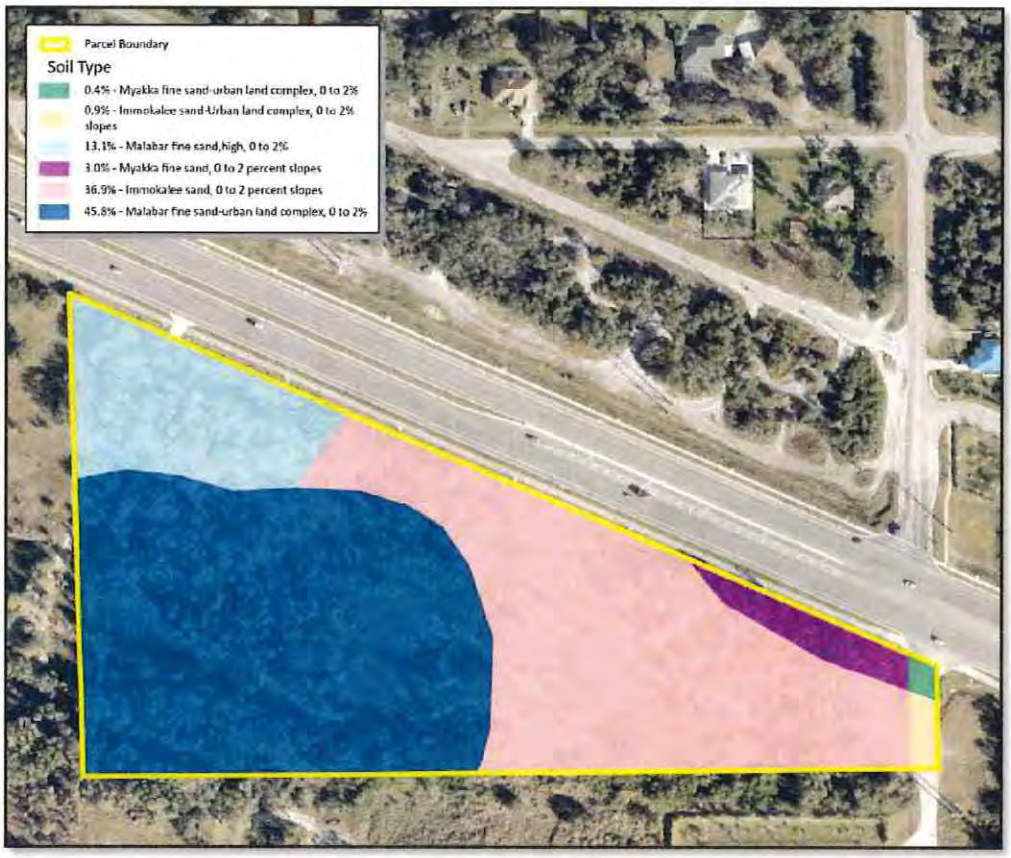


Figure 2 – NRCS Soils Map

The National Resources Conservation Service (NRCS) describes the *Malabar fine sand-urban land complex* as a very deep, very poorly to poorly drained, low permeable soil found in sloughs, shallow depressions in Flatwoods areas. Although the soil is poorly drained, the NRCS describes the soil as having rapid permeability in its upper layers, with slow to very slow permeability in the lower soil horizons. The NRCS further adds that the water table in these type soils is typically within 10-inches of land surface during the rainy season and can recede to a depth of more than 40 inches during extended dry periods.

2.2 LAND USE

A review of Florida Land Use and Cover Classification System (FLUCCS) data produced by the South Florida Water Management District (SFWMD) indicates that the property consists of a mixture of shrub and pastureland. Further site specific investigations of the site's low lying areas indicate approximately 4.07 acres of low quality/disturbed wetlands occurring onsite as well as 1.53 acres of other surface waters (OSW) that appear to be historic borrow pits. These features are depicted on **Figure 3**.

Figure 3 – Onsite Wetland & Other Surface Waters

2.3 MODEL DEVELOPMENT AND ANALYSIS

ICPR Version 4.07.08 software was utilized to assess peak flow discharge from the site as well as groundwater recharge volume under existing conditions. Lee County LIDAR, Soils, and Land Use layers were imported into the ICPR Existing Conditions Model (ECM). Mannings Roughness coefficients relating to the various land use types were based on Table 3-1 of the NRCS TR-55 manual. Soil physical parameters were obtained from the NRCS Soils database and are provided in **Appendix B** along with conductivity and leakage datasets used in the ECM analysis. Please note that in order to facilitate groundwater recharge within the ECM, the Green Ampt excess runoff method was utilized.

The 15.03 acre site is modeled as a single basin that drains to the western onsite wetland represented by a stage-volume node whose associated storage is based on Lee County lidar. The wetland then discharges offsite via an overland weir with cross section data based on lidar.

2D Overland and Groundwater Flow Regions were generated that encompass the project's contributing area and were intersected with Lee County LIDAR, SFWMD land use, and NRCS soils layers. A Pond Control Volume feature based on existing wetland lines was developed within the ECM and serves as the interface between the Overland and Groundwater Flow Regions. **Figure 4** below depicts the triangulation and honeycomb mesh for both 2D Overland (blue and green mesh) and Groundwater (pink and orange mesh) flow regions for the ECM along with mapped basin-node-reach schematic.

The ECM stormwater analysis simulates a 25-year, 72-hour design storm equating to 11 inches of rainfall was utilized. The simulation indicates a peak discharge from the site of 23.34 cfs and groundwater recharge volume of 6.80 ac-ft. ICPR input and output reports for the ECM analysis are provided in **Appendix B**.

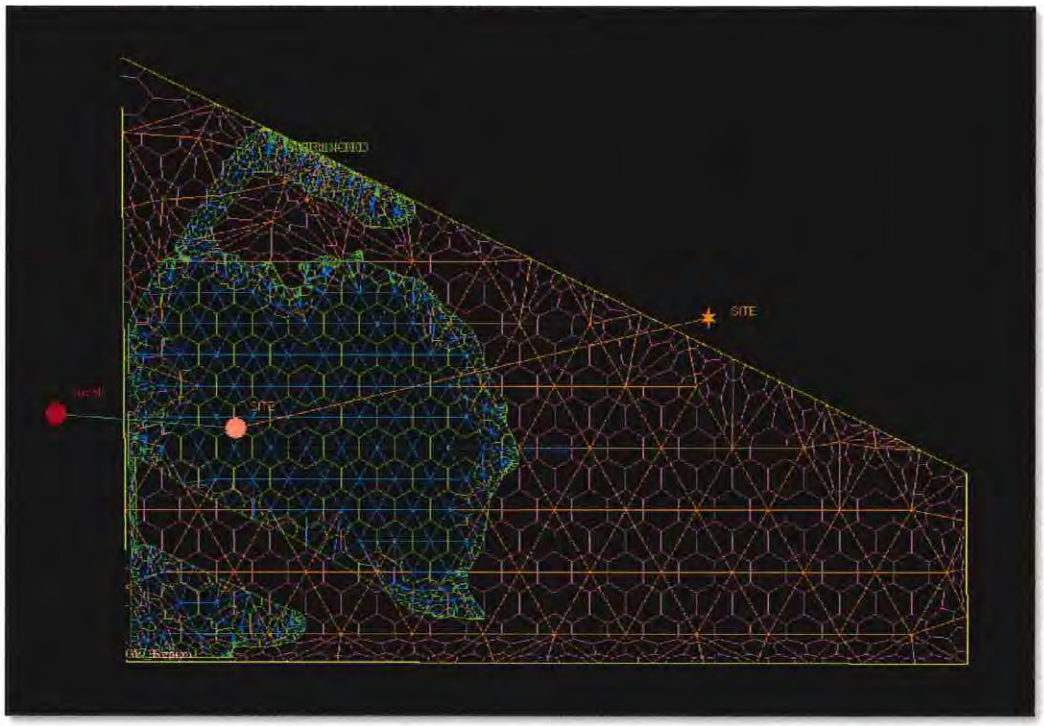


Figure 4 – ECM Schematic and 2D Mesh Framework

3.0 PROPOSED CONDITIONS

3.1 MODEL DEVELOPMENT AND ANALYSIS

In the Proposed Conditions Model (PCM), land use within the project area was classified into three types: commercial development, grassed dry retention, and wetland. The proposed commercial development conceptually encompasses 6.53 acres and is assumed to be 85% impervious. A breakdown of the onsite project area is provided in **Table 1** below.

Table 1- Onsite Land Use Breakdown

Land Use	Area (AC)	% Impervious
Commercial	6.53	85%
Grassed Retention*	2.53	0
Wetland	5.96	0

*includes setback/buffers

Two dry retention ponds, DR1 and DR2, are proposed for the treatment and attenuation of runoff from the proposed development. DR1 and DR2 encompass 0.7 and 1.18 acres respectively as shown in **Figure 5**. Each pond has a bottom elevation of 28-ft NAVD88 and a top of bank elevation of 30-ft NAVD88. Stage-Area information for each pond is presented in **Tables 2A** and **2B** below. A basic digital elevation model (DEM) was developed using these pond elevations and imported in the Proposed Conditions Model (PCM). Please note that this DEM assumes an approximate grade of 31.5-ft within the proposed commercial development area.

Figure 5 – Conceptual Commercial Development and Stormwater Management Areas

Table 2A – Dry Retention 1 Stage-Area

	Stage (ft-NAVD88)	Area (AC)
Bottom	28	0.49
Top of Bank	30	0.7

Table 2B – Dry Retention 2 Stage-Area

	Stage (ft-NAVD88)	Area (AC)
Bottom	28	0.92
Top of Bank	30	1.18

The commercial area occurs within two conceptual ICPR basins, COMM1 and COMM2, which drain to stage-area nodes DR1 and DR2. DR1 and DR2 are connected via a conceptual equalizer pipe and discharge through a proposed control structure, DD-CS, to the onsite wetlands. The wetlands then discharge offsite via the control structure designated as CS.

2D Overland and Groundwater Flow Regions were generated that encompass the project's contributing area and were intersected with the proposed DEM, proposed land use, and NRCS soils layers. To facilitate groundwater recharge within the PCM, the Green Ampt excess runoff method is utilized. Pond Control Volume features were created at the two proposed dry retention areas and onsite wetlands to provide an interface between the 2D Overland and 2D groundwater regions. **Figure 6** below depicts the PCM schematic along with the 2D Overland and 2D Groundwater Flow mesh.

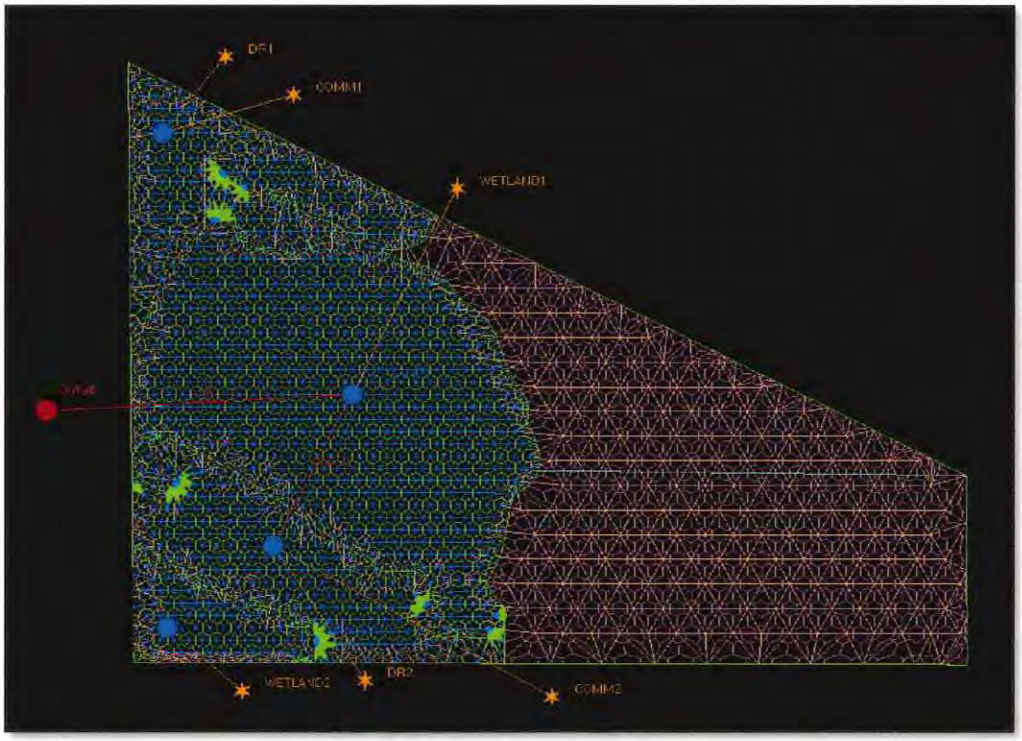


Figure 6– PCM Schematic and 2D Mesh Framework

A 25-year, 3-day storm event was simulated for the PCM analysis. Since irrigation will not occur during a design storm event, it was not included in this integrated model analysis. PCM ICPR input and summary results are provided in **Appendix C.**

3.2 WATER QUALITY

Stormwater pretreatment for the project will be provided within the proposed dry retention areas. In accordance with the SFWMD Basin of Review (BOR), the ponds are designed to treat one-half inch of runoff over the 6.53-acre commercial area which equates to a volume of 0.27 ac-ft. Therefore, the ponds' control elevation will be set at 28.17-ft which equates to 0.28 ac-ft of treatment volume.

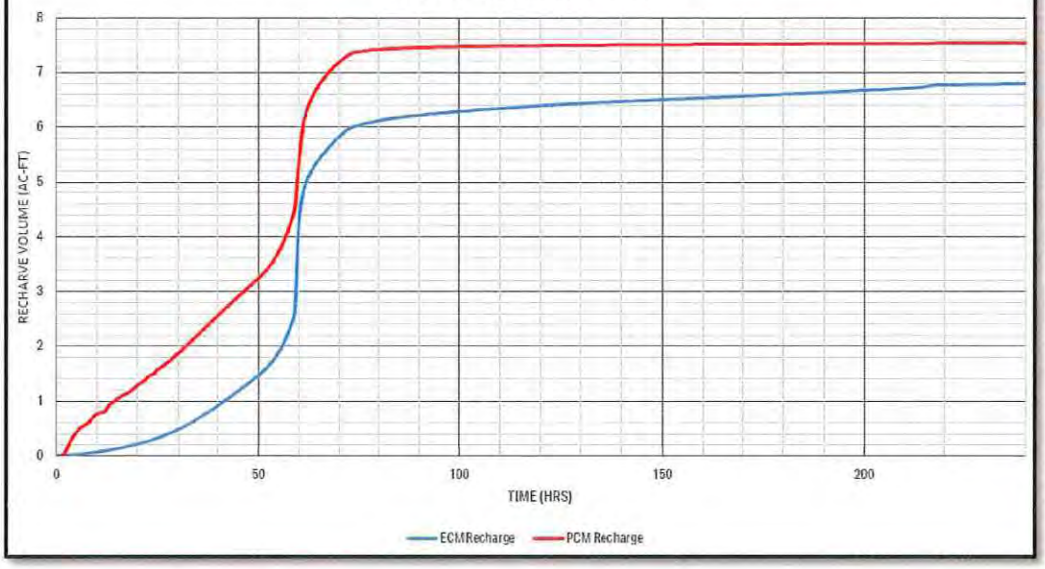
In addition, one inch of wet detention treatment volume associated with the onsite wetlands was calculated over the entire 15.03-acre site. As demonstrated in the calculations provided in **Appendix A**, the required treatment volume equates to 1.88 ac-ft and the allowable volume to discharge in 24-hours is 0.63 ac-ft. Based on the Falling Head Analysis in **Appendix A**, the volume discharged in 24-hours is anticipated to be 0.33 ac-ft using a 4-inch-wide treatment weir and is within the allowable discharge as required by SFWMD criteria.

3.3 RESULTS

Based on the results of the ICPR 4 integrated analysis for a 25-year, 3-day rainfall event, the groundwater recharge volume simulated in the PCM is greater than existing conditions. This result indicates a beneficial increase in recharge to the underlying Water Table Aquifer. The ECM simulates approximately 6.80 ac-ft over a duration of 240 hours, while the Proposed Conditions Model anticipates 7.53 ac-ft (net increase of 0.73 ac-ft). A comparison hydrograph is provided in **Figure 7** below. The results of this integrated analysis demonstrate that over time,

the addition of the stormwater management areas associated with the Dante CPD will enhance water resources by providing a net benefit in groundwater recharge.

FIGURE 7
RECHARGE VOLUME COMPARISON



In addition, the ECM indicates a peak offsite discharge of 23.3 cfs while the PCM simulates a peak discharge of only 0.62-cfs. Based on this significant reduction in peak discharge, no adverse effects are anticipated to adjacent properties.

3.4 OPERATION AND MAINTENANCE

Stormwater management for this site will utilize dry retention ponds. The pond and wetland control structures will need periodic inspections every 6 months to ensure there is no debris blocking the skimmer or grate. The perimeter maintenance berm and side slopes of the wet detention pond will need to be periodically mowed. The site will utilize potable water with separate meter for irrigation.

APPENDIX A
WATER QUALITY CALCULATIONS

Water Management Calulations for Basin | DRY

Water Quality Calculations

Water Quality Volume

1/2" Dry Pre-Treatment

Developed Area x 1/2" (x 1'/12") = WQ Volume (ac-ft)

6.53 x 1"/12' = 0.27 ac-ft

Required WQ Volume = 0.27 ac-ft

Water Quality Elevation (Dry Pre-Treatment)

Water Quality Volume= 0.27 ac-ft

The water quality elevation is interpolated from the stage vs. storage curve.

Stage (ft)	Volume (ac-ft)	
28	0	**28.17 ft, NAVD = WQ Elevation**
30	3.28	

Water Management Calulations for Basin | WET |

Water Quality Calculations

Water Quality Volume

1" Criteria (Overall Site)

Project Area x 1" (x 1'/12") = WQ Volume (ac-ft)

15.03 x 1"/12' = 1.25 ac-ft

2.5 X % Impervious Criteria (Overall Site)

Site Area x % Impervious (x 1'/12") = WQ Volume (ac-ft)

Site Area = (Project Area - Lake - Cons. - Roof) = *7.1 ac*

% Impervious = Impervious Area / Site Area = *78%*

7.1 x2.5x(1'/12")x 78% = 1.16 ac-ft

Water Quality Volume = 1.25 ac-ft

50% Additional WQ = 1.88 ac-ft

Required WQ Volume = 1.88 ac-ft

Water Quality Elevation

Water Quality Volume = 1.88 ac-ft

The water quality elevation is interpolated from the stage vs. storage curve.

Stage (ft)	Volume (ac-ft)	
27	0	**27.32 ft, NAVD = WQ Elevation**
30	17.88	

WATER QUALITY DRAWDOWN ANALYSIS

Total Drainage Area	=	15.03	acres	
Wetland Area	=	5.96	acres	
Half Inch WQ Volume	=	0.63	acre-ft	(allowable discharge)
Required WQ Vol	=	1.88	acre-ft	
Starting Head	=	0.32	feet	
Trial Weir Width	=	0.333	feet	(4 inches)
Delta T	=	1	hour	

Time Hours	Head Feet	Volume Remaining	Q CFS	Incremental Volume
0	0.32	81838	0.19	694
1	0.31	81144	0.19	670
2	0.31	80474	0.18	662
3	0.31	79812	0.18	654
4	0.30	79158	0.18	646
5	0.30	78512	0.18	638
6	0.30	77874	0.18	630
7	0.30	77244	0.17	623
8	0.30	76621	0.17	615
9	0.29	76006	0.17	608
10	0.29	75398	0.17	600
11	0.29	74798	0.16	593
12	0.29	74205	0.16	586
13	0.28	73619	0.16	579
14	0.28	73039	0.16	572
15	0.28	72467	0.16	566
16	0.28	71901	0.16	559
17	0.27	71342	0.15	553
18	0.27	70789	0.15	546
19	0.27	70243	0.15	540
20	0.27	69703	0.15	534
21	0.27	69170	0.15	528
22	0.26	68642	0.14	522
23	0.26	68121	0.14	516
24	0.26	67605	0.14	510
25	0.26	67095	0.14	504
26	0.26	66591	0.14	498
27	0.25	66093	0.14	493
28	0.25	65600	0.14	487
29	0.25	65113	0.13	482
30	0.25	64631	0.13	476
31	0.25	64155	0.13	471
32	0.25	63683	0.13	466
33	0.24	63217	0.13	461

Volume Discharged = 14233 cf = 0.33 ac-ft

34	0.24	62756	0.13	456
35	0.24	62300	0.13	451
36	0.24	61849	0.12	446
37	0.24	61403	0.12	441
38	0.23	60962	0.12	437
39	0.23	60526	0.12	432
40	0.23	60094	0.12	427
41	0.23	59667	0.12	423
42	0.23	59244	0.12	418
43	0.23	58826	0.11	414
44	0.22	58412	0.11	409
45	0.22	58003	0.11	405
46	0.22	57597	0.11	401
47	0.22	57197	0.11	397
48	0.22	56800	0.11	393
49	0.22	56407	0.11	389
50	0.22	56019	0.11	385
51	0.21	55634	0.11	381
52	0.21	55254	0.10	377
53	0.21	54877	0.10	373
54	0.21	54504	0.10	369
55	0.21	54135	0.10	365
56	0.21	53770	0.10	362
57	0.21	53408	0.10	358
58	0.20	53051	0.10	354
59	0.20	52696	0.10	351
60	0.20	52345	0.10	347
61	0.20	51998	0.10	344
62	0.20	51654	0.09	340
63	0.20	51314	0.09	337
64	0.20	50977	0.09	334
65	0.20	50643	0.09	331
66	0.19	50312	0.09	327
67	0.19	49985	0.09	324
68	0.19	49661	0.09	321
69	0.19	49340	0.09	318
70	0.19	49022	0.09	315
71	0.19	48708	0.09	312
72	0.19	48396	0.09	309
73	0.19	48087	0.08	306
74	0.18	47781	0.08	303
75	0.18	47478	0.08	300
76	0.18	47178	0.08	297
77	0.18	46881	0.08	294
78	0.18	46587	0.08	292
79	0.18	46295	0.08	289
80	0.18	46006	0.08	286

81	0.18	45720	0.08	284
82	0.18	45437	0.08	281
83	0.17	45156	0.08	278
84	0.17	44878	0.08	276
85	0.17	44602	0.08	273
86	0.17	44329	0.08	271
87	0.17	44058	0.07	268
88	0.17	43790	0.07	266
89	0.17	43524	0.07	263
90	0.17	43261	0.07	261
91	0.17	43000	0.07	259
92	0.16	42741	0.07	256
93	0.16	42485	0.07	254
94	0.16	42231	0.07	252
95	0.16	41979	0.07	249
96	0.16	41730	0.07	247
97	0.16	41483	0.07	245
98	0.16	41238	0.07	243
99	0.16	40995	0.07	241
100	0.16	40754	0.07	239
101	0.16	40516	0.07	236
102	0.16	40279	0.07	234
103	0.15	40045	0.06	232
104	0.15	39812	0.06	230
105	0.15	39582	0.06	228
106	0.15	39353	0.06	226
107	0.15	39127	0.06	224
108	0.15	38903	0.06	223
109	0.15	38680	0.06	221
110	0.15	38460	0.06	219
111	0.15	38241	0.06	217
112	0.15	38024	0.06	215
113	0.15	37809	0.06	213
114	0.14	37596	0.06	211
115	0.14	37384	0.06	210
116	0.14	37175	0.06	208
117	0.14	36967	0.06	206
118	0.14	36761	0.06	204
119	0.14	36556	0.06	203
120	0.14	36354	0.06	201

APPENDIX B
ECM ICPR REPORTS

Conductivity: Conductivity [Set]

Conductivity Zone	Conductivity [fpd]
Immokalee sand, 0 to 2 percent slopes	21.534
Immokalee sand-Urban land complex, 0 to 2 percent slopes	22.478
Malabar fine sand, 0 to 2 percent slopes	21.834
Malabar fine sand, frequently ponded, 0 to 1 percent slopes	22.129
Malabar fine sand, high, 0 to 2 percent slopes	21.629
Myakka fine sand, 0 to 2 percent slopes	22.759
Myakka fine sand-Urban land complex, 0 to 2 percent slopes	23.087

ECM

Green-Ampt: Green-Ampt [Set]

Soil Zone	Kv Saturated [fpd]	MC Saturated [dec]	MC Residual [dec]	MC Initial [dec]	MC Field [dec]	MC Wilting [dec]
Immokalee sand, 0 to 2 percent slopes	21.534	0.3949	0.0170	0.0910	0.0910	0.0340
Immokalee sand-Urban land complex, 0 to 2 percent slopes	22.478	0.3909	0.0115	0.0610	0.0610	0.0230
Malabar fine sand, 0 to 2 percent slopes	21.834	0.4176	0.0265	0.1260	0.1260	0.0530
Malabar fine sand, frequently ponded, 0 to 1 percent slopes	22.129	0.4171	0.0265	0.1270	0.1270	0.0530
Malabar fine sand, high, 0 to 2 percent slopes	21.629	0.4209	0.0275	0.1290	0.1290	0.0550
Myakka fine sand, 0 to 2 percent slopes	22.759	0.4119	0.0175	0.0970	0.0970	0.0350
Myakka fine sand-Urban land complex, 0 to 2 percent slopes	23.087	0.4102	0.0125	0.0630	0.0630	0.0250

Soil Zone	Pore Size Index [dec]	Bubble Pressure [in]	Allow Recharge	WT Initial [ft]	Layer Thickness [ft]	# of Cells per Layer
Immokalee sand, 0 to 2 percent slopes	0.57	1.615	Yes	1.08	0.00	0
Immokalee sand-Urban land complex, 0 to 2 percent slopes	0.57	1.661	Yes	1.08	0.00	0
Malabar fine sand, 0 to 2 percent slopes	0.50	1.600	Yes	0.98	0.00	0
Malabar fine sand, frequently ponded, 0 to 1 percent slopes	0.50	1.614	Yes	0.30	0.00	0
Malabar fine sand, high, 0 to 2 percent slopes	0.49	1.581	Yes	0.98	0.00	0
Myakka fine sand, 0 to 2 percent slopes	0.56	1.398	Yes	1.05	0.00	0
Myakka fine sand-Urban land complex, 0 to 2 percent slopes	0.55	1.405	Yes	1.08	0.00	0

ECM

Impervious: Impervious [Set]

Land Cover Zone	% Impervious	% DCIA	% Direct	Ia Impervious [in]	Ia Pervious [in]
Cropland and Pastureland	0.00	0.00	0.00	0.000	0.000
Residential, Low Density	5.00	0.00	0.00	0.000	0.000
Upland Hardwood Forests	0.00	0.00	0.00	0.000	0.000
Vegetated Non-Forested Wetlands	0.00	0.00	0.00	0.000	0.000
Wetland Hardwood Forests	0.00	0.00	0.00	0.000	0.000

Node: Outfall

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 27.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	27.00
0	0	0	360.0000	27.00

Comment:

Node: SITE

Scenario: Scenario1
Type: Stage/Volume
Base Flow: 0.00 cfs
Initial Stage: 27.00 ft
Warning Stage: 0.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
26.00	0.00	0
27.00	0.74	32234
28.00	3.86	168142
30.00	25.14	1095098

Comment:

Weir Link: Weir

Scenario: Scenario1
From Node: SITE
To Node: Outfall
Link Count: 1
Flow Direction: Both
Damping: 0.0000 ft
Weir Type: Broad Crested Vertical
Geometry Type: Irregular
Invert: 27.00 ft
Control Elevation: 27.00 ft
Cross Section: Weir

Bottom Clip

Default: 0.00 ft
Op Table:
Ref Node:

Top Clip

Default: 0.00 ft
Op Table:
Ref Node:

Discharge Coefficients

Weir Default: 2.800
Weir Table:
Orifice Default: 0.600
Orifice Table:

Comment:

Simulation: 25Y72H

Scenario: Scenario1
Run Date/Time: 7/12/2023 10:45:20 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	240.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:

Green-Ampt Set: Green-Ampt
Vertical Layers Set:
Impervious Set: Impervious
Roughness Set: Roughness
Crop Coef Set:
Fillable Porosity Set: Fillable Porositiy

Conductivity Set:	Conductivity
Leakage Set:	Leakage

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	11.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Leakage: Leakage [Set]

Leakage Zone	Leakance Value [per day]	Confining Layer Conductivity [fpd]
Immokalee sand, 0 to 2 percent slopes	0.0000	0.004
Immokalee sand-Urban land complex, 0 to 2 percent slopes	0.0000	0.004
Malabar fine sand, 0 to 2 percent slopes	0.0000	0.004
Malabar fine sand, frequently ponded, 0 to 1 percent slopes	0.0000	0.004
Malabar fine sand, high, 0 to 2 percent slopes	0.0000	0.004
Myakka fine sand, 0 to 2 percent slopes	0.0000	0.004
Myakka fine sand-Urban land complex, 0 to 2 percent slopes	0.0000	0.004

ECM

Node Name	Relative Time [hrs]	Maximum Stage [ft]	Maximum Total Inflow Rate [cfs]
Outfall	240.0079	27.00	23.34
SITE	240.0079	27.33	33.10

Fillable Porosity: Fillable Porositiy [Set]

Fillable Porosity Zone	Fillable Porosity Below Ground [dec]	Fillable Porosity Above Ground [dec]
Immokalee sand, 0 to 2 percent slopes	0.200	1.000
Immokalee sand-Urban land complex, 0 to 2 percent slopes	0.200	1.000
Malabar fine sand, 0 to 2 percent slopes	0.200	1.000
Malabar fine sand, frequently ponded, 0 to 1 percent slopes	0.200	1.000
Malabar fine sand, high, 0 to 2 percent slopes	0.200	1.000
Myakka fine sand, 0 to 2 percent slopes	0.200	1.000
Myakka fine sand-Urban land complex, 0 to 2 percent slopes	0.200	1.000

Relative Time [hrs]	Recharge Volume [ac_ft]
0.0000	0.00
1.0000	0.01
2.0000	0.01
3.0000	0.01
4.0000	0.02
5.0000	0.03
6.0000	0.03
7.0000	0.04
8.0000	0.05
9.0000	0.06
10.0000	0.07
11.0000	0.08
12.0000	0.09
13.0000	0.10
14.0000	0.12
15.0000	0.13
16.0000	0.14
17.0000	0.16
18.0000	0.18
19.0000	0.20
20.0000	0.21
21.0000	0.23
22.0000	0.25
23.0000	0.27
24.0000	0.30
25.0000	0.32
26.0000	0.35
27.0000	0.38
28.0000	0.41
29.0000	0.44
30.0000	0.48
31.0000	0.51
32.0000	0.55
33.0000	0.59
34.0000	0.63
35.0000	0.68
36.0000	0.72
37.0000	0.77
38.0000	0.81
39.0000	0.86
40.0000	0.91
41.0000	0.97

ECM

Relative Time [hrs]	Recharge Volume [ac_ft]
42.0000	1.02
43.0000	1.07
44.0000	1.13
45.0000	1.18
46.0000	1.24
47.0000	1.29
48.0000	1.35
49.0000	1.41
50.0000	1.47
51.0000	1.53
52.0000	1.60
53.0000	1.68
54.0000	1.77
55.0000	1.88
56.0000	2.02
57.0000	2.18
58.0000	2.37
59.0000	2.63
60.0000	4.22
61.0000	4.77
62.0000	5.02
63.0000	5.18
64.0000	5.31
65.0000	5.41
66.0000	5.50
67.0000	5.58
68.0000	5.67
69.0000	5.75
70.0000	5.82
71.0000	5.88
72.0000	5.95
73.0000	5.99
74.0000	6.02
75.0000	6.04
76.0000	6.06
77.0000	6.08
78.0000	6.09
79.0000	6.11
80.0000	6.12
81.0000	6.14
82.0000	6.15
83.0000	6.16

Relative Time [hrs]	Recharge Volume [ac_ft]
84.0000	6.17
85.0000	6.18
86.0000	6.19
87.0000	6.20
88.0000	6.21
89.0000	6.21
90.0000	6.22
91.0000	6.23
92.0000	6.24
93.0000	6.25
94.0000	6.25
95.0000	6.26
96.0000	6.27
97.0000	6.27
98.0000	6.28
99.0000	6.29
100.0000	6.29
101.0000	6.30
102.0000	6.30
103.0000	6.31
104.0000	6.32
105.0000	6.32
106.0000	6.33
107.0000	6.33
108.0000	6.34
109.0000	6.34
110.0000	6.35
111.0000	6.35
112.0000	6.36
113.0000	6.36
114.0000	6.37
115.0000	6.37
116.0000	6.38
117.0000	6.38
118.0000	6.39
119.0000	6.39
120.0000	6.40
121.0000	6.40
122.0000	6.41
123.0000	6.41
124.0000	6.42
125.0000	6.42

ECM

Relative Time [hrs]	Recharge Volume [ac_ft]
126.0000	6.42
127.0000	6.43
128.0000	6.43
129.0000	6.43
130.0000	6.44
131.0000	6.44
132.0000	6.45
133.0000	6.45
134.0000	6.45
135.0000	6.46
136.0000	6.46
137.0000	6.46
138.0000	6.47
139.0000	6.47
140.0000	6.47
141.0000	6.48
142.0000	6.48
143.0000	6.48
144.0000	6.49
145.0000	6.49
146.0000	6.49
147.0000	6.50
148.0000	6.50
149.0000	6.51
150.0000	6.51
151.0000	6.51
152.0000	6.52
153.0000	6.52
154.0000	6.52
155.0000	6.52
156.0000	6.53
157.0000	6.53
158.0000	6.53
159.0000	6.54
160.0000	6.54
161.0000	6.54
162.0000	6.55
163.0000	6.55
164.0000	6.55
165.0000	6.56
166.0000	6.56
167.0000	6.56

ECM

Relative Time [hrs]	Recharge Volume [ac_ft]
168.0000	6.57
169.0000	6.57
170.0000	6.57
171.0000	6.58
172.0000	6.58
173.0000	6.58
174.0000	6.59
175.0000	6.59
176.0000	6.59
177.0000	6.60
178.0000	6.60
179.0000	6.60
180.0000	6.61
181.0000	6.61
182.0000	6.61
183.0000	6.62
184.0000	6.62
185.0000	6.62
186.0000	6.63
187.0000	6.63
188.0000	6.63
189.0000	6.64
190.0000	6.64
191.0000	6.65
192.0000	6.65
193.0000	6.65
194.0000	6.66
195.0000	6.66
196.0000	6.66
197.0000	6.67
198.0000	6.67
199.0000	6.68
200.0000	6.68
201.0000	6.68
202.0000	6.69
203.0000	6.69
204.0000	6.69
205.0000	6.70
206.0000	6.70
207.0000	6.71
208.0000	6.71
209.0000	6.71

ECM

Relative Time [hrs]	Recharge Volume [ac_ft]
210.0000	6.72
211.0000	6.72
212.0000	6.72
213.0000	6.73
214.0000	6.73
215.0000	6.74
216.0000	6.76
217.0000	6.77
218.0000	6.78
219.0000	6.78
220.0000	6.78
221.0000	6.78
222.0000	6.78
223.0000	6.78
224.0000	6.78
225.0000	6.78
226.0000	6.79
227.0000	6.79
228.0000	6.79
229.0000	6.79
230.0000	6.79
231.0000	6.79
232.0000	6.79
233.0000	6.79
234.0000	6.80
235.0000	6.80
236.0000	6.80
237.0000	6.80
238.0000	6.80
239.0000	6.80
240.0000	6.80

Roughness: Roughness [Set]

Roughness Zone	Shallow Manning's N [dec]	Deep Manning's N [dec]	Depth Range [ft]	Damping Threshold [ft]	Area Reduction Factor [dec]
Cropland and Pastureland	0.1300	0.1300	3.00	0.0000	1.00
Residential, Low Density	0.0110	0.0110	3.00	0.0000	1.00
Upland Hardwood Forests	0.1920	0.1920	3.00	0.0000	1.00
Vegetated Non-Forested Wetlands	0.1920	0.1920	3.00	0.0000	1.00
Wetland Hardwood Forests	0.1920	0.1920	3.00	0.0000	1.00

APPENDIX C
PCM ICPR REPORTS

RESPEC.COM

Conductivity: Conductivity [Set]

Conductivity Zone	Conductivity [fpd]
Immokalee sand, 0 to 2 percent slopes	21.534
Immokalee sand-Urban land complex, 0 to 2 percent slopes	22.478
Malabar fine sand, 0 to 2 percent slopes	21.834
Malabar fine sand, frequently ponded, 0 to 1 percent slopes	22.129
Malabar fine sand, high, 0 to 2 percent slopes	21.629
Myakka fine sand, 0 to 2 percent slopes	22.759
Myakka fine sand-Urban land complex, 0 to 2 percent slopes	23.087

PCM

Green-Ampt: Green-Ampt [Set]

Soil Zone	Kv Saturated [fpd]	MC Saturated [dec]	MC Residual [dec]	MC Initial [dec]	MC Field [dec]	MC Wilting [dec]
Immokalee sand, 0 to 2 percent slopes	21.534	0.3949	0.0170	0.0910	0.0910	0.0340
Immokalee sand-Urban land complex, 0 to 2 percent slopes	22.478	0.3909	0.0115	0.0610	0.0610	0.0230
Malabar fine sand, 0 to 2 percent slopes	21.834	0.4176	0.0265	0.1260	0.1260	0.0530
Malabar fine sand, frequently ponded, 0 to 1 percent slopes	22.129	0.4171	0.0265	0.1270	0.1270	0.0530
Malabar fine sand, high, 0 to 2 percent slopes	21.629	0.4209	0.0275	0.1290	0.1290	0.0550
Myakka fine sand, 0 to 2 percent slopes	22.759	0.4119	0.0175	0.0970	0.0970	0.0350
Myakka fine sand-Urban land complex, 0 to 2 percent slopes	23.087	0.4102	0.0125	0.0630	0.0630	0.0250

Soil Zone	Pore Size Index [dec]	Bubble Pressure [in]	Allow Recharge	WT Initial [ft]	Layer Thickness [ft]	# of Cells per Layer
Immokalee sand, 0 to 2 percent slopes	0.57	1.615	Yes	1.08	0.00	0
Immokalee sand-Urban land complex, 0 to 2 percent slopes	0.57	1.661	Yes	1.08	0.00	0
Malabar fine sand, 0 to 2 percent slopes	0.50	1.600	Yes	0.98	0.00	0
Malabar fine sand, frequently ponded, 0 to 1 percent slopes	0.50	1.614	Yes	0.30	0.00	0
Malabar fine sand, high, 0 to 2 percent slopes	0.49	1.581	Yes	0.98	0.00	0
Myakka fine sand, 0 to 2 percent slopes	0.56	1.398	Yes	1.05	0.00	0
Myakka fine sand-Urban land complex, 0 to 2 percent slopes	0.55	1.405	Yes	1.08	0.00	0

PCM

Impervious: Impervious [Set]

Land Cover Zone	% Impervious	% DCIA	% Direct	Ia Impervious [in]	Ia Pervious [in]
Commercial	85.00	0.00	0.00	0.000	0.000
Cropland and Pastureland	0.00	0.00	0.00	0.000	0.000
Grass	0.00	0.00	0.00	0.000	0.000
Residential, Low Density	5.00	0.00	0.00	0.000	0.000
Upland Hardwood Forests	0.00	0.00	0.00	0.000	0.000
Vegetated Non-Forested Wetlands	0.00	0.00	0.00	0.000	0.000
Wetland Hardwood Forests	0.00	0.00	0.00	0.000	0.000

Node: DR1

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 27.00 ft
Warning Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
27.00	0.0010	44
28.00	0.0100	436
28.00	0.4900	21344
30.00	0.7000	30492

Comment:

Node: DR2

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 27.00 ft
Warning Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
27.00	0.0010	44
28.00	0.0100	436
28.00	0.9200	40075
30.00	1.1800	51401

Comment:

Node: Outfall

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 27.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	27.00
0	0	0	360.0000	27.00

Comment:

Node: WETLAND1

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 27.00 ft
Warning Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
25.12	0.0964	4200
25.50	0.1691	7367
26.00	0.3489	15200
26.50	0.7025	30600
27.00	1.4968	65200
27.50	2.3783	103600
28.00	4.3779	190700
28.50	5.0275	219000
29.00	5.2548	228900
29.50	5.3421	232700
30.00	5.3618	233561
30.50	5.3618	233561

Comment:

Node: WETLAND2

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 27.00 ft
Warning Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
25.20	0.0023	100
25.50	0.0941	4100
26.00	0.3306	14400
26.50	0.4408	19200
27.00	0.5085	22150
27.50	0.5387	23467
28.00	0.5716	24900
28.50	0.5902	25710
29.00	0.5969	26000
29.50	0.5993	26106
30.00	0.6002	26145
30.50	0.6002	26145

Comment:

Drop Structure Link: CS		Upstream Pipe		Downstream Pipe	
Scenario:	Scenario1	Invert:	26.00 ft	Invert:	26.00 ft
From Node:	WETLAND1	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	Outfall	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	1.25 ft	Max Depth:	1.25 ft
Flow Direction:	Both	Bottom Clip			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	0	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000
Length:	50.00 ft	Top Clip			
FHWA Code:	0	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.00	Op Table:		Op Table:	
Exit Loss Coef:	0.00	Ref Node:		Ref Node:	
Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Sharp Crested Vertical	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	27.00 ft	Ref Node:	
Control Elevation:	27.00 ft	Discharge Coefficients	
Max Depth:	0.33 ft	Weir Default:	3.200
Max Width:	0.33 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment:

Drop Structure Comment:

Drop Structure Link: DD-CS		Upstream Pipe		Downstream Pipe	
Scenario:	Scenario1	Invert:	26.00 ft	Invert:	26.00 ft
From Node:	DR2	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	WETLAND1	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Positive	Bottom Clip			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	0	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000

Length:	240.00 ft
FHWA Code:	0
Entr Loss Coef:	0.00
Exit Loss Coef:	0.00
Bend Loss Coef:	0.00
Bend Location:	0.00 dec
Energy Switch:	Energy

Top Clip

Default:	0.00 ft	Default:	0.00 ft
Op Table:		Op Table:	
Ref Node:		Ref Node:	
Manning's N:	0.0000	Manning's N:	0.0000

Pipe Comment:

Weir Component

Weir:	1
Weir Count:	1
Weir Flow Direction:	None
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Circular
Invert:	27.00 ft
Control Elevation:	27.00 ft
Max Depth:	0.50 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	3.200
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Weir Comment:

Weir Component

Weir:	2
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Horizontal
Geometry Type:	Rectangular
Invert:	28.17 ft
Control Elevation:	27.00 ft
Max Depth:	3.08 ft
Max Width:	4.08 ft
Fillet:	0.00 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	3.200
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Weir Comment:

Weir Component

Weir:	3
Weir Count:	1
Weir Flow Direction:	None
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Rectangular
Invert:	28.17 ft
Control Elevation:	28.17 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Max Depth:	9999.00 ft
Max Width:	0.33 ft
Fillet:	0.00 ft

Discharge Coefficients	
Weir Default:	3.200
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Weir Comment:

Drop Structure Comment:

Pipe Link: DR_EQUALIZER		Upstream		Downstream	
Scenario:	Scenario1	Invert:	24.50 ft	Invert:	24.50 ft
From Node:	DR1	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	DR2	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	850.00 ft	Op Table:		Op Table:	
FHWA Code:	1	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	1.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 dec	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Pipe Link: WETLAND_EQUALIZER		Upstream		Downstream	
Scenario:	Scenario1	Invert:	23.00 ft	Invert:	23.00 ft
From Node:	WETLAND2	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	WETLAND1	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	180.00 ft	Op Table:		Op Table:	
FHWA Code:	1	Ref Node:		Ref Node:	
Entr Loss Coef:	0.50	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	1.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 dec	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Simulation: 25Y72H

Scenario: Scenario1
Run Date/Time: 7/12/2023 10:54:37 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	240.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set: Green-Ampt
Vertical Layers Set:
Impervious Set: Impervious
Roughness Set: Roughness
Crop Coef Set:
Fillable Porosity Set: Fillable Porosity

Conductivity Set:	Conductivity
Leakage Set:	Leakage

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	11.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Leakage: Leakage [Set]

Leakage Zone	Leakance Value [per day]	Confining Layer Conductivity [fpd]
Immokalee sand, 0 to 2 percent slopes	0.0000	0.004
Immokalee sand-Urban land complex, 0 to 2 percent slopes	0.0000	0.004
Malabar fine sand, 0 to 2 percent slopes	0.0000	0.004
Malabar fine sand, frequently ponded, 0 to 1 percent slopes	0.0000	0.004
Malabar fine sand, high, 0 to 2 percent slopes	0.0000	0.004
Myakka fine sand, 0 to 2 percent slopes	0.0000	0.004
Myakka fine sand-Urban land complex, 0 to 2 percent slopes	0.0000	0.004

PCM

Node Name	Relative Time [hrs]	Maximum Stage [ft]	Maximum Total Inflow Rate [cfs]
DR1	240.0023	28.84	12.97
DR2	240.0023	28.66	22.92
Outfall	240.0023	27.00	0.62
WETLAND1	240.0023	28.50	36.94
WETLAND2	240.0023	28.50	4.36

Fillable Porosity: Fillable Porosity [Set]

Fillable Porosity Zone	Fillable Porosity Below Ground [dec]	Fillable Porosity Above Ground [dec]
Immokalee sand, 0 to 2 percent slopes	0.200	1.000
Immokalee sand-Urban land complex, 0 to 2 percent slopes	0.200	1.000
Malabar fine sand, 0 to 2 percent slopes	0.200	1.000
Malabar fine sand, frequently ponded, 0 to 1 percent slopes	0.200	1.000
Malabar fine sand, high, 0 to 2 percent slopes	0.200	1.000
Myakka fine sand, 0 to 2 percent slopes	0.200	1.000
Myakka fine sand-Urban land complex, 0 to 2 percent slopes	0.200	1.000

PCM

Relative Time [hrs]	Recharge Volume [ac_ft]
0.0000	0.00
1.0000	0.00
2.0000	0.03
3.0000	0.18
4.0000	0.32
5.0000	0.42
6.0000	0.51
7.0000	0.55
8.0000	0.60
9.0000	0.69
10.0000	0.75
11.0000	0.79
12.0000	0.80
13.0000	0.91
14.0000	0.97
15.0000	1.03
16.0000	1.08
17.0000	1.12
18.0000	1.15
19.0000	1.22
20.0000	1.28
21.0000	1.33
22.0000	1.37
23.0000	1.46
24.0000	1.48
25.0000	1.56
26.0000	1.61
27.0000	1.67
28.0000	1.72
29.0000	1.79
30.0000	1.85
31.0000	1.92
32.0000	1.99
33.0000	2.06
34.0000	2.13
35.0000	2.20
36.0000	2.27
37.0000	2.34
38.0000	2.41
39.0000	2.48
40.0000	2.55
41.0000	2.62

PCM

Relative Time [hrs]	Recharge Volume [ac_ft]
42.0000	2.69
43.0000	2.76
44.0000	2.83
45.0000	2.90
46.0000	2.96
47.0000	3.03
48.0000	3.10
49.0000	3.17
50.0000	3.23
51.0000	3.30
52.0000	3.38
53.0000	3.47
54.0000	3.58
55.0000	3.71
56.0000	3.86
57.0000	4.04
58.0000	4.25
59.0000	4.52
60.0000	5.33
61.0000	5.99
62.0000	6.30
63.0000	6.49
64.0000	6.64
65.0000	6.76
66.0000	6.85
67.0000	6.95
68.0000	7.03
69.0000	7.11
70.0000	7.17
71.0000	7.23
72.0000	7.29
73.0000	7.33
74.0000	7.36
75.0000	7.37
76.0000	7.38
77.0000	7.39
78.0000	7.40
79.0000	7.41
80.0000	7.41
81.0000	7.42
82.0000	7.42
83.0000	7.43

PCM

Relative Time [hrs]	Recharge Volume [ac_ft]
84.0000	7.43
85.0000	7.43
86.0000	7.44
87.0000	7.44
88.0000	7.44
89.0000	7.45
90.0000	7.45
91.0000	7.45
92.0000	7.45
93.0000	7.45
94.0000	7.46
95.0000	7.46
96.0000	7.46
97.0000	7.46
98.0000	7.46
99.0000	7.46
100.0000	7.47
101.0000	7.47
102.0000	7.47
103.0000	7.47
104.0000	7.47
105.0000	7.47
106.0000	7.47
107.0000	7.47
108.0000	7.47
109.0000	7.48
110.0000	7.48
111.0000	7.48
112.0000	7.48
113.0000	7.48
114.0000	7.48
115.0000	7.48
116.0000	7.48
117.0000	7.48
118.0000	7.48
119.0000	7.48
120.0000	7.48
121.0000	7.49
122.0000	7.49
123.0000	7.49
124.0000	7.49
125.0000	7.49

PCM

Relative Time [hrs]	Recharge Volume [ac_ft]
126.0000	7.49
127.0000	7.49
128.0000	7.49
129.0000	7.49
130.0000	7.49
131.0000	7.49
132.0000	7.49
133.0000	7.49
134.0000	7.49
135.0000	7.49
136.0000	7.49
137.0000	7.50
138.0000	7.50
139.0000	7.50
140.0000	7.50
141.0000	7.50
142.0000	7.50
143.0000	7.50
144.0000	7.50
145.0000	7.50
146.0000	7.50
147.0000	7.50
148.0000	7.50
149.0000	7.50
150.0000	7.50
151.0000	7.50
152.0000	7.50
153.0000	7.50
154.0000	7.50
155.0000	7.50
156.0000	7.50
157.0000	7.50
158.0000	7.51
159.0000	7.51
160.0000	7.51
161.0000	7.51
162.0000	7.51
163.0000	7.51
164.0000	7.51
165.0000	7.51
166.0000	7.51
167.0000	7.51

PCM

Relative Time [hrs]	Recharge Volume [ac_ft]
168.0000	7.51
169.0000	7.51
170.0000	7.51
171.0000	7.51
172.0000	7.51
173.0000	7.51
174.0000	7.51
175.0000	7.51
176.0000	7.51
177.0000	7.51
178.0000	7.51
179.0000	7.51
180.0000	7.51
181.0000	7.51
182.0000	7.51
183.0000	7.51
184.0000	7.51
185.0000	7.51
186.0000	7.52
187.0000	7.52
188.0000	7.52
189.0000	7.52
190.0000	7.52
191.0000	7.52
192.0000	7.52
193.0000	7.52
194.0000	7.52
195.0000	7.52
196.0000	7.52
197.0000	7.52
198.0000	7.52
199.0000	7.52
200.0000	7.52
201.0000	7.52
202.0000	7.52
203.0000	7.52
204.0000	7.52
205.0000	7.52
206.0000	7.52
207.0000	7.52
208.0000	7.52
209.0000	7.52

PCM

Relative Time [hrs]	Recharge Volume [ac_ft]
210.0000	7.52
211.0000	7.52
212.0000	7.52
213.0000	7.52
214.0000	7.52
215.0000	7.52
216.0000	7.52
217.0000	7.52
218.0000	7.53
219.0000	7.53
220.0000	7.53
221.0000	7.53
222.0000	7.53
223.0000	7.53
224.0000	7.53
225.0000	7.53
226.0000	7.53
227.0000	7.53
228.0000	7.53
229.0000	7.53
230.0000	7.53
231.0000	7.53
232.0000	7.53
233.0000	7.53
234.0000	7.53
235.0000	7.53
236.0000	7.53
237.0000	7.53
238.0000	7.53
239.0000	7.53
240.0000	7.53

Roughness: Roughness [Set]

Roughness Zone	Shallow Manning's N [dec]	Deep Manning's N [dec]	Depth Range [ft]	Damping Threshold [ft]	Area Reduction Factor [dec]
Commercial	0.0110	0.0110	3.00	0.0000	1.00
Cropland and Pastureland	0.1300	0.1300	3.00	0.0000	1.00
Grass	0.1000	0.1000	3.00	0.0000	1.00
Residential, Low Density	0.0110	0.0110	3.00	0.0000	1.00
Upland Hardwood Forests	0.1920	0.1920	3.00	0.0000	1.00
Vegetated Non-Forested Wetlands	0.1920	0.1920	3.00	0.0000	1.00
Wetland Hardwood Forests	0.1920	0.1920	3.00	0.0000	1.00

CHARACTERIZATION OF GROUND AND SURFACE WATER RESOURCES

BRIAN FREEMAN, TRUSTEE FOR THE JEFFREY B. FREEMAN TRUST, AND BRIAN SCOTT HOLDINGS, INC. – FREEMAN PROPERTY

LEE COUNTY FLORIDA

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FEBRUARY 9, 2026

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EXECUTIVE SUMMARY

The owners of the subject property, Brian Freeman, Trustee for the Jeffrey B. Freeman Trust, and Brian Scott Holdings, Inc., propose to develop a commercial project on what will herein be referred to as the "Freeman Property." The property is located south of State Highway 82 (Immokalee Road) and west of Alabama Road South, approximately ten miles east of Interstate 75 in Lee County, Florida, and encompasses approximately 187 acres.

A prominent feature of the northern portion of the property is a raised earthen berm constructed for World War II military training exercises. This triangular berm, occupying approximately 15 acres (about 8 percent of the site), significantly alters the natural hydrology of the northern section by disrupting predevelopment surface-water flow patterns. Similar historic military features are common along the south side of State Highway 82 and are easily identifiable in aerial imagery.

Based on the Florida Land Use and Cover Classification System (FLUCCS) mapping from the South Florida Water Management District (SFWMD), approximately 92.5 acres (roughly 50 percent) of the site are classified as improved pasture. Historic aerial photography indicates that much of this area was intensively drained to support past agricultural activities both on and adjacent to the site. Numerous ditches and swales traverse the central and southern portions of the property, reflecting extensive hydrologic modification. These features also facilitated the drainage of historic wetlands, including a large circular wetland in the south-central portion that has been bisected by an east–west drainage ditch, contributing to the site's highly disturbed condition. Remaining natural communities identified by the SFWMD include pine and oak forest, palmetto prairie, hydric pine, wet prairie, and cypress heads. Despite these significant alterations, the property lies within Lee County's Density Reduction/Groundwater Resource (DR/GR) area.

Given the extent of previous disturbance, the proposed development presents an opportunity to restore hydrologic connections and enhance surface water communication with the surrounding DR/GR lands to the south. The stormwater management system will be designed to reestablish historic flow patterns, allowing seasonal high surface waters to move toward the southeastern portion of the property, consistent with predevelopment drainage conditions. The military training berm will be removed, and the reclaimed area will be integrated into the site plan.

In alignment with the project's hydrologic restoration goals, the proposed irrigation system will utilize surface water stored within dedicated stormwater–irrigation supply ponds (wet detention areas) to offset groundwater use. The recycling and reuse of stormwater will not only reduce reliance on groundwater for irrigation but also enhance overall water quality through natural settling and filtration processes. These same ponds will also promote recharge to the underlying aquifer systems, providing additional benefits to the DR/GR area.

The irrigation system will be designed to seasonally supplement stored surface water with groundwater on an as-needed basis, thereby reducing overall groundwater demand while maintaining irrigation reliability. Pre- and post-construction monitoring will be conducted to evaluate hydrologic performance, water quality improvements, and system efficiency. Collectively, these measures advance hydrologic restoration, water conservation, and resource protection consistent with the policies and objectives of

the Lee Plan, establishing a robust framework for groundwater and surface-water protection within the DR/GR.

1.0 INTRODUCTION

The owners of the subject property, Brian Freeman, Trustee for the Jeffrey B. Freeman Trust, and Brian Scott Holdings, Inc., propose to develop a commercial project on land located east of Daniels Parkway and south of State Highway 82 (Immokalee Road), approximately ten miles east of Interstate 75 in Lee County, Florida. The site lies within Sections 13 and 24, Township 45 South, Range 26 East, and encompasses approximately 186.83 acres.

According to the SFWMD, approximately 92.5 acres (about 50 percent) of the property are classified as improved pasture, while the remaining areas consist of pine and oak forest, palmetto prairie, hydric pine, wet prairie, and cypress heads.

During World War II, the northern portion of the site was used as a military training facility, resulting in the construction of a triangular bermed area located south of State Highway 82. In addition, the property has been utilized for agricultural purposes since the early 1970s, when an extensive network of farm ditches was installed to support drainage and cultivation. The combination of military-related construction and historic agricultural activities has led to the property's highly disturbed condition and altered hydrology observed today.

As shown in **Figure 1**, and despite the site's substantial hydrologic alteration, the property is located within Lee County's DR/GR land-use category. As illustrated in **Figure 2**, the County has identified two resource classifications on the site: (1) DR/GR, corresponding primarily to the improved pasture areas, and (2) wetlands. This mapping does not fully reflect the extent of historic hydrologic disturbance that has occurred onsite. Nevertheless, the property's disturbed condition presents a unique opportunity to enhance and restore its hydrologic function through thoughtful site planning and design.

In accordance with The Lee Plan, proposed developments within the DR/GR must demonstrate the protection, preservation, and enhancement of both groundwater resources and environmental systems, including wetlands. The designation of "Groundwater Resource" within this land-use category underscores the importance of safeguarding the County's Aquifer Systems (i.e., the Water Table and Sandstone Aquifers), which provide a critical existing and future drinking water supply. The proposed commercial development, together with the resource management objectives outlined herein, provides an opportunity for the property to contribute to the ongoing restoration and hydrologic reclamation of the DR/GR.

2.0 PROPERTY SETTING

Prior to agricultural development, the subject property was predominantly characterized as open rangeland and pine flatwoods, interspersed with shallow freshwater forested/shrub wetlands and emergent wetland areas. As shown in **Figure 3**, the property is situated within the Estero River sub-

watershed of the DR/GR, with surface water flows generally directed southwest toward the Lee County coastline.

The earliest available aerial imagery, dating to 1944 and shown in **Figure 4**, illustrates the triangular berm associated with the military training facility and indicates the presence of semi-connected wetland features in the northwest portion of the site. A large circular wetland in the south-central portion of the property remained undisturbed at that time. By 1958, as shown in **Figure 5**, the site remained largely unaltered, although farming activities were beginning to expand, with cultivated fields north of the property, now part of Lehigh Acres, approaching the site boundaries. Agricultural use of the area increased substantially in the early 1970s, particularly along the site's eastern boundary, which bordered large-scale row crop operations. To facilitate drainage of adjacent farm fields, three large east–west ditches were excavated, including one that completely bisected the south-central circular wetland. These ditches interrupted historic surface water flow paths, a modification clearly visible in the 1970 aerial imagery provided as **Figure 6**.

By 1995, the cumulative effects of agricultural ditching and drainage were clearly evident across the site. Parallel north–south ditches had been constructed along the southeastern boundary, extending into the adjacent forested wetland system to the south. A gridwork of row crop drainage furrows is also apparent in the south-central portion of the property. Collectively, these modifications—superimposed on the site since the early 1940s, have substantially altered natural hydrology, effectively disconnecting the property from its historical contributions to surrounding DR/GR lands. **Figure 7**, a January 1995 aerial photograph, clearly illustrates the extent and collective impact of these agricultural alterations.

Drainage features such as those described above are typical of agricultural operations in south Florida, as they facilitate the removal of excess surface water, thereby extending the growing season and enabling cultivation of crops sensitive to saturated soils. However, these hydrologic alterations can also promote the establishment and spread of exotic and nuisance plant species. Areas most heavily impacted by historic farming activities are classified as cropland and pastureland according to the FLUCCS, as shown in **Figure 8** (SFWMD data). Onsite inspections indicate that a significant portion of these areas are currently dominated by exotic and nuisance vegetation, further reflecting the altered hydrologic and ecological condition of the property.

The aggregate extent of disturbance and drainage is further evident in LiDAR imagery. As shown in **Figure 9**, the site generally exhibits relatively flat topography, with the highest elevation of approximately 37.5 feet NAVD88 occurring at the top of the military berm immediately south of Highway 82. The lowest elevations, around 25 feet NAVD88, occur within depressional wetland areas, drainage ditches, and the borrow pits used to construct the military berm. The Digital Elevation Model (DEM) derived from Lee County LiDAR data illustrates the gradual southeastward topographic gradient and highlights the agricultural drainage ditches and furrows traversing the site.

Although no detailed flood maps are available for the project site, the Federal Emergency Management Agency (FEMA) National Flood Hazard Map indicates that the property lies within Flood Zone X, which is defined as an area of minimal flood hazard. Wetlands on the site are identified by the National Wetland Inventory (NWI) and include areas northwest and west of the military berm, the circular south-central wetland, and the forested wetland in the southern portion of the property. These NWI-designated wetlands are illustrated in **Figure 10**.

3.0 EXISTING GROUNDWATER RESOURCES

There are three (3) principal aquifer systems underlying the subject property: 1) the unconfined Surficial Aquifer System (SAS), 2) the confined Intermediate Aquifer System (IAS), and 3) the confined Floridan Aquifer System (FAS). 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 SAS, and the terms "Sandstone Aquifer" and "Mid-Hawthorn Aquifer" will be used to describe the upper and middle producing units of the IAS, respectively. In central Lee County, groundwater quality decreases rapidly with depth and potable supplies generally occur at depths of less than 300 feet below land surface (bls). Below these depths, groundwater becomes highly mineralized, saline, and is typically artesian. Consequently, groundwater is primarily withdrawn from depths shallower than 300 feet bls.

Suitable water quality and quantity for agricultural or commercial irrigation at the project location is available from both the Water Table and Mid-Hawthorn Aquifers. However, based on the hydrogeology in the vicinity of the property, the overall yield of the Water Table Aquifer is considered low and may only be acceptable for low volume livestock watering. Therefore, the confined Mid-Hawthorn Aquifer will be utilized.

3.1 SURFICIAL AQUIFER SYSTEM

The unconfined SAS (Water Table Aquifer) originates at land surface, with its uppermost portion composed of approximately 8 to 17 feet of unconsolidated surficial deposits consisting of gray to dark-brown, fine-grained silty quartz sand with minor shell content. Below these surficial sands, the Tamiami Formation includes the Ochopee and Buckingham Limestone Members, as well as the Pinecrest Sand Member of the Tamiami Formation (Green, Campbell, and Scott, 1990). Uneven upper contacts of limestones are associated with the Tamiami Formation.

Where present onsite, the sands and marls of the Tamiami Formation extend from approximately 17 to 30 feet bls, which is significantly thinner than the Formation's vertical extent found throughout the DR/GR areas located to the south and southeast (Johnson, 1986). Further indication of the differences of the geology onsite as compared to DR/GR areas located to the south and southeast is the lack of nearby active mining operations which excavate the thicker sequences of the upper Tamiami Formation's limestone. These observations support the aforementioned contrast of the relatively thin nature of both the Tamiami Formation and the Water Table Aquifer at the project location as compared to the bulk of the DR/GR.

The limestones of the Tamiami Formation can serve as a major regional source of groundwater supply in Lee County due to its shallow depth and high transmissivity. Historically, agricultural operations and other water users have taken advantage of the ease with which water supplies can be developed in the near-surface Tamiami Formation when thick limestones are present. However, due to its relatively thin vertical extent onsite, groundwater withdrawals from the unconfined Water Table Aquifer are more likely to have a greater impact on wetlands and existing legal users than withdrawals from deeper sources. The proposed groundwater withdrawals for irrigation will be from the deeper, confined Mid-Hawthorn Aquifer,

which is not expected to impact Water Table Aquifer water levels and environmental systems and therefore provide protection to the shallow water resources within the DR/GR.

The Lee Plan's DR/GR Land Use Category also includes areas that have been designated as important recharge areas for the shallow Water table Aquifer. The reported recharge rate to the SAS is estimated to be between one and ten inches per year (Krulikas, Giese, 1995). However, given the existing onsite drainage ditches, the opportunity for recharge to the underlying SAS at the project location is considered relatively low.

3.2 INTERMEDIATE AQUIFER SYSTEM

Immediately beneath the Tamiami Formation are relatively thick sequences of low-permeability clayey sediments that separate the Water Table Aquifer from the underlying Sandstone Aquifer. Below the Sandstone Aquifer is the Peace River Mid-Hawthorn confining unit, which separates the Sandstone and Mid-Hawthorn Aquifers. Within Lee County, the top of the Mid-Hawthorn Aquifer ranges from 105 to 374 feet bls, averaging 208 feet bls. The thickness of the Mid-Hawthorn Aquifer averages approximately 125 feet (AECOM and CDM, 2010).

The Mid-Hawthorn Aquifer is predominantly composed of biomicritic limestone, phosphate, shell and lime mud, associated with the Arcadia Formation of the Hawthorn Group (Geddes, Richardson, and Dodd, 2015). Because low-permeability sediments separate the Mid-Hawthorn Aquifer from the overlying Sandstone Aquifer, groundwater withdrawals from the Mid-Hawthorn Aquifer are unlikely to cause significant drawdown in the Sandstone Aquifer, which serves as a domestic water source in the area.

4.0 PROPOSED IRRIGATION SUPPLIES

A review of existing reclaimed water infrastructure indicates that no such pipelines are located in proximity to the property. Consequently, all irrigation demands will be met primarily using surface water captured in onsite stormwater management lakes, with seasonal augmentation from groundwater on an as-needed basis. The conceptual site layout includes several stormwater management lakes, designed to capture, store, and reuse stormwater for irrigation, thereby reducing reliance on groundwater resources. During periods of prolonged drought, however, surface water availability within the lakes may be limited. In such instances, lake levels are proposed to be minimally supplemented using groundwater from the Mid-Hawthorn Aquifer. Based on the most recent engineering schematics, approximately 12.41 acres of common areas will require irrigation, and it is estimated that up to two (2) Mid-Hawthorn Aquifer wells may be needed to augment surface water supplies during dry periods.

An analysis of irrigation requirements was performed using the SFWMD modified Blaney-Criddle irrigation allocation spreadsheet. As shown in **Appendix A,** the 12.41 acres of landscape will require an annual allocation of 15.94 million gallons (or 43,669 gallons per day). These quantities are proposed to be roughly split (halved) by the two proposed irrigation pumping facilities indicated on **Figure 11**.

The combined use of surface and groundwater for irrigation is expected to optimize water resource conservation, ensuring that groundwater withdrawals are minimized whenever sufficient surface water is

available. This integrated approach enhances the project's sustainability and ensure that the project's groundwater use is low-impact and fully compatible with the protective intent of Lee Plan Policies 2.3.1 and 2.3.2, including the County's goals for safeguarding the DR/GR groundwater resource area. Therefore, the proposed withdrawals are consistent with Lee Policy 2.3.2.

5.0 GROUNDWATER FLOW MODELING

To demonstrate that the proposed use of the Mid-Hawthorn Aquifer for supplemental irrigation will not cause adverse impacts to surrounding existing legal users, a single-layer groundwater flow model was developed using capabilities of AquiferWin32 to evaluate potential drawdown impacts resulting from the proposed maximum monthly withdrawals.

The analytical groundwater modeling scenario includes one stress period that represents transient / future or proposed conditions and was run for 90 days with no recharge to simulate the maximum monthly allocation for the three driest months of the year (March, April, and May). The Hantush and Jacob, 1955 (Leaky Aquifer) solution was utilized in this modeling scenario.

The results of the 90-day maximum monthly modeling scenario are shown for the Mid-Hawthorn Aquifer in **Figure 12.** The greatest drawdown predicted to occur as a result of the requested maximum month quantity is approximately 0.83 feet and occurs within the property boundary at the proposed well nodes. Per Section 3.1.2 of the SFWMD's Applicant Handbook, modeling analyses must include proposed wells, as well as any other permitted groundwater withdrawals within the "cone of depression" of proposed use. SFWMD defines the "cone of depression" of the proposed use as the 1.0-foot drawdown contour for confined aquifer systems. However, as shown in **Figure 12**, no drawdown greater than 1.0 foot is predicted as a result of the maximum monthly groundwater model. Therefore, the potential for harm to occur to existing legal users as a result of the requested allocation is considered to be de minimis and not adverse and a cumulative impact assessment was not performed.

A statement from a Professional Geologist certifying the results of these groundwater flow modeling scenarios is provided herein as **Attachment B** and the required modeling files will be provided to District staff under a separate cover.

6.0 HYDROLOGIC RESTORATION

Given the extensive hydrologic alterations that have historically occurred onsite, the proposed commercial development presents a strategic opportunity to restore and enhance the natural hydrologic connectivity of the property, thereby reestablishing functional interactions with the broader DR/GR area. The engineered stormwater management system is designed to emulate pre-development hydroperiods, capturing, conveying, and attenuating surface water flows to minimize offsite impacts while promoting groundwater recharge. Concurrently, targeted wetland restoration activities, including enhancement of native wetland vegetation, will reinstate the site's natural water retention and filtration functions. The systematic removal of nuisance and exotic plant species will further support hydrologic function by improving surface water flow, reducing evapotranspiration from invasive species, and

allowing native flora to stabilize soil and enhance groundwater-surface water interactions. Collectively, these measures are expected to significantly enhance the site's hydrologic character, restore ecological functionality, and integrate the property into the regional water balance and DR/GR hydrologic network. The proposed commercial site plan is included as **Figure 13**. As shown, several large stormwater management lakes (wet detention areas) are proposed.

7.0 ENHANCED LAKE MANAGEMENT PRACTICES

To ensure the long-term protection and sustainability of water resources within the DR/GR, the following suite of site-specific management practices is proposed for the commercial development. It is essential to recognize that as the project transitions through the construction phase, partial construction, and ultimately reaches full post-construction operation, the associated Best Management Practices (BMPs) must be adaptively implemented and refined to correspond with each stage, thereby maintaining continuous protection of surface water and groundwater resources. The proposed framework incorporates a combination of hydrologic, ecological, and operational measures designed to minimize impacts, enhance water quality, and support regional groundwater-surface water interactions.

Specific measures include restrictions on the use of motorized vessels within the project's stormwater management lakes to prevent sediment resuspension, erosion, and nutrient redistribution, thereby preserving lake water quality and aquatic habitat integrity. Additionally, a detailed Enhanced Lake Management Plan (ELMP) is included below that addresses sediment control, vegetative management, and nutrient reduction strategies. Collectively, these measures establish a robust, stage-specific framework to safeguard and sustain the hydrologic and ecological functions of the DR/GR. It is important to note that the subject property is not within a Wellfield Protection Zone.

7.1 CONSTRUCTION BEST MANAGEMENT PRACTICES

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. The developer/owner will ultimately be responsible for maintaining compliance with applicable BMPs. The site's general contractor shall also be responsible in assuring that each contractor or subcontractor evaluates their respective work areas before construction is initiated to determine if site conditions pose specific problems for the safe and secure handling of any regulated substances. When obtained, the SFWMD Environmental Resource Permit (ERP) will also have requirements to safeguard water resources during construction.

7.2 POST-CONSTRUCTION BEST MANAGEMENT PRACTICES

After the development's stormwater management system is completed, the primary focus of the BMPs will be to maintain the quality of the lakes (i.e., wet detention areas) since all internal runoff will be routed to these features for treatment. It is also anticipated that the developer/owner will be responsible for the perpetual operation and maintenance of all aspects of the stormwater management system, including

the lakes. Responsibilities will also include maintaining all stormwater conveyance features and lake level control components or outfalls.

7.3 DEEP LAKE MANAGEMENT

As shown in **Figure 13**, there are several stormwater detention lakes, all of which are proposed to be deeper than 12 feet in depth. In accordance with Lee County Land Development Code Section 10-329(d)(3), these lakes are therefore designated as "deep lakes" and are subject to specific criteria.

Based on Lee County Code, the proposed deep lakes will satisfy the following criteria:

1. The stormwater detention deep lakes will not exceed a maximum water depth of 20 feet and will not penetrate any continuous impervious layer of soil or rock.
2. A destratification (i.e., aeration) system will be installed in any lake that exceeds a 12-foot water depth. Documentation that the proposed destratification system is adequately sized and designed for each lake deeper than 12 feet will be submitted to Lee County for approval. An example of a deep lake aeration device is provided as **Appendix C**.
3. Native shade trees, meeting the specifications of Lee County Land Development Code Section 10-420 will be planted around each deep lake perimeter, at approximately one tree per 100 feet of lake shoreline measured at the detention lake's water level control elevation. Trees and other plants may be grouped or clustered together around the lake perimeter.
4. The deep lake management techniques, including operation of the destratification system, will be maintained for the life of the lake and will be recorded in the development's covenants in accordance with the County Attorney's office.
5. A post-construction bathymetric survey verifying each deep lake's finished water depth, sealed by a professional surveyor and mapper, will be submitted to Lee County for approval.

7.4 OPERATION AND MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEM

Proper stormwater lake maintenance is a critical component of surface water resource protection and long-term hydrologic functionality. The developer/owner will assume perpetual responsibility for the removal of all nuisance and exotic vegetation from the stormwater management system. Lakes will undergo annual inspections, during which any prohibited vegetation will be removed using manual (hand-clearing) methods or appropriate chemical treatments. Only aquatic-approved chemical compounds will be utilized, and all herbicide and algaecide applications will be performed in strict accordance with manufacturer specifications by a licensed professional applicator who meets all applicable Lee County requirements. All applicable local, state, and federal regulations will be observed to ensure compliance and minimize environmental impacts.

Fertilizer application on all irrigated areas will adhere strictly to Lee County's Fertilizer Ordinance. Individuals applying fertilizers must possess the required limited certification under Florida Statute (F.S.) 482.1562 before applying any compounds. Fertilizer formulations and application rates will comply fully with local regulatory requirements to prevent nutrient overloading and downstream water quality degradation.

The application of pesticides, herbicides, and fungicides on common areas will also be performed exclusively by licensed professional applicators, in accordance with manufacturer specifications, and in compliance with all local, state, and federal guidelines. Such treatments will be applied only in response to documented pest, disease, or invasive species issues, and only at the rates and frequencies recommended by the manufacturer. Preventative, broad-spectrum applications of pesticides, herbicides, or fungicides will be strictly prohibited, ensuring that chemical usage is targeted, environmentally responsible, and protective of both aquatic and terrestrial resources within the development.

7.5 WATER QUALITY MANAGEMENT PRACTICES

In 1990, the Florida Department of Environmental Protection (FDEP) developed and implemented the Water Resource Implementation Rule, codified as Chapter 62-40 of the Florida Administrative Code (FAC). This rule establishes the regulatory framework and implementation guidelines for the State's stormwater management program under Section 62-40.431. As stated in Ch. 62-40.431(2)(a), "The primary goals of the state's stormwater management program are to maintain, to the maximum extent practicable, during and after construction and development, the pre-development stormwater characteristics of a site; to reduce stream channel erosion, pollution, siltation, sedimentation and flooding; to reduce stormwater pollutant loadings discharged to waters to preserve or restore designated uses…"

The criteria outlined in Chapter 62-40, as applied through the SFWMD ERP program, provide reasonable assurance that the surface water resources of the DR/GR will be adequately protected and maintained. By maintaining surface water systems, concomitant protection is afforded to shallow groundwater resources, particularly since the proposed stormwater management system lakes will be excavated to depths extending below the local water table. This interaction between surface and groundwater enhances groundwater recharge, thereby improving the hydrologic function and overall water resource sustainability within the DR/GR. If requested, supplemental information detailing water quality maintenance practices for the stormwater management system can be provided with the first Development Order (DO) application.

To further safeguard the resource, a single baseline surface water quality sampling event is proposed for the onsite central wetland area prior to the commencement of any construction activities. This background sampling event will provide a reference condition against which post-construction water quality can be evaluated and will include analysis for the following analytes:

- Chlorophyll A (mg/m^3)
- Total Kjeldahl Nitrogen (mg/L)
- Ammonia (mg/L)
- Nitrate (mg/L)
- Total Phosphorus (mg/L)

Field parameters to be measured during sampling include:

- Turbidity (NTUs)

- Water Depth (feet bls)
- Specific Conductance (µs/cm)
- pH (SU)
- Dissolved Oxygen (mg/L)
- Temperature (°C)

An annual surface water monitoring program is proposed with samples collected once per year during the wet season (June through September). The program will begin with a single baseline sampling event, to be collected at the south-central wetland followed by repeat sampling events over a period of five (5) consecutive years. All sampling will target the same analytes established during the baseline event, providing a consistent and comparable dataset for evaluating temporal trends in water quality and the effectiveness of the site's stormwater and wetland management practices. Additionally, two (2) of the proposed stormwater management lakes will be sampled during the wet season to assess water quality conditions and verify compliance with applicable water quality standards. These lakes, together with the central wetland sampling location, are identified on **Figure 14**. The data collected through this program will support ongoing assessment of the stormwater management system's performance, including nutrient retention, sediment control, and the protection and enhancement of both surface water and groundwater resources within the DR/GR.

8.0 CONCLUSION

The proposed Commercial Planned Development represents a significant opportunity to restore and enhance a property that has been extensively disturbed and hydrologically compromised. The development incorporates a multifaceted water resource management strategy, prioritizing the protection, preservation, and enhancement of both surface and groundwater systems within the designated DR/GR area. Key components include engineered stormwater management infrastructure, targeted retention and detention systems, and systematic removal of exotic and nuisance vegetation, collectively designed to restore natural hydrologic connectivity, promote aquifer recharge, and improve downstream water quality. The integrated approach aligns with applicable regional water management objectives, including maintenance of wetland function and compliance with DR/GR policies, and demonstrates a proactive commitment to sustainable land use practices. Overall, the project is anticipated to substantially improve ecological function, enhance hydrologic resilience, and provide long-term environmental benefits on a property historically characterized by significant hydrologic alteration.

9.0 REFERENCES

AECOM and CDM, 2010, *Integrated Water Resources Master Plan Summary Report,* Lee County Utilities.

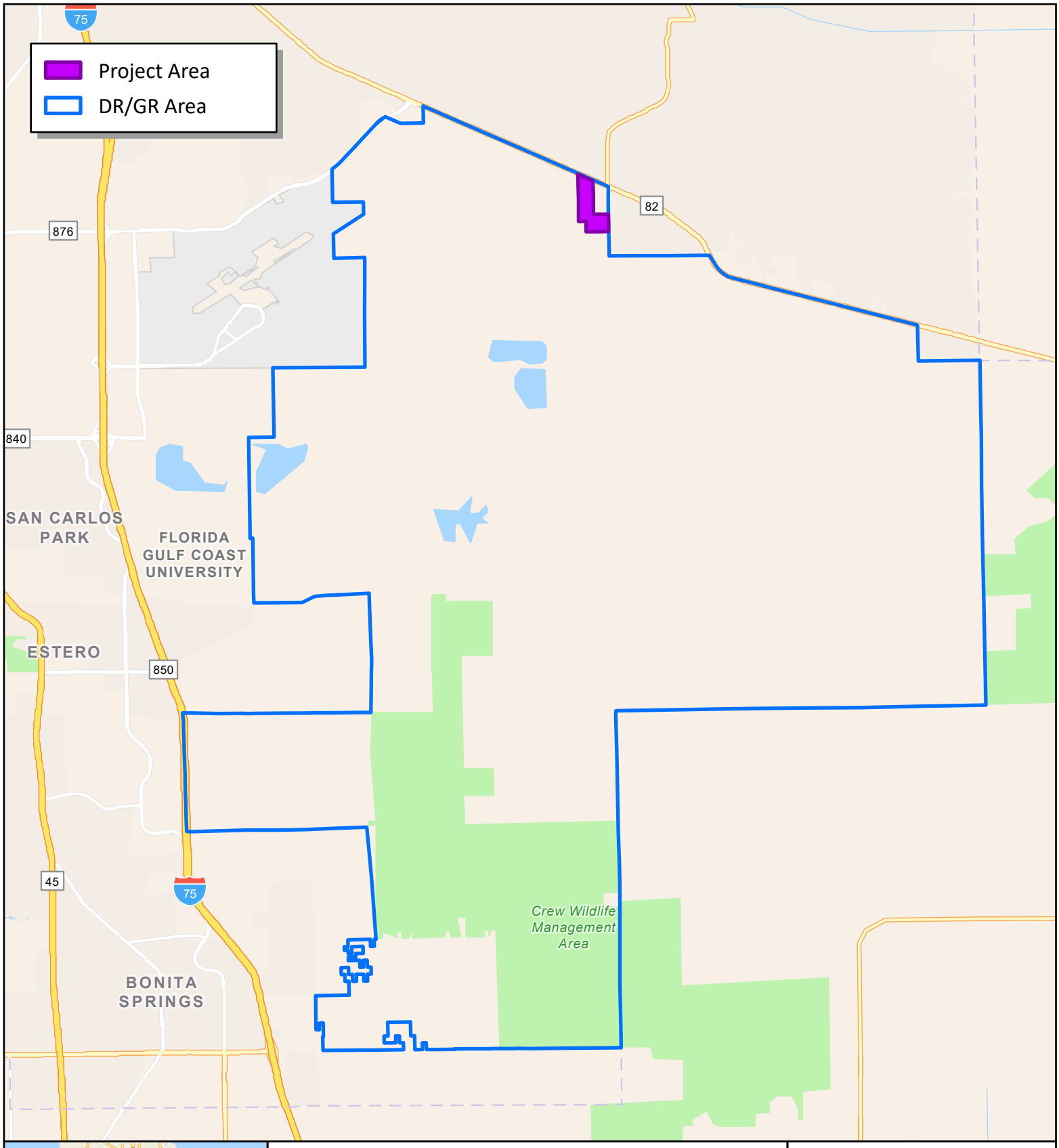
Geddes, E., Richardson, E., and Dodd, A., 2015, *Hydrogeologic Unit Mapping Update for the Lower West Coast Water Supply Planning Area: Technical Publication WS-35,* SFWMD.

Green, R. C., Campbell, K. M., and Scott, T. M., 1990, *Core Drilling project: Lee, Hendry and Collier Counties: FGS Open-File Report 37,* FGS.

Johnson, R. A., 1986, *Shallow Stratigraphic Core Tests on File at the Florida Geological Survey: FGS Information Circular 103,* FGS.

Krulikas, R. K., Giese, G. L., 1995, *Recharge to the surficial aquifer system in Lee and Hendry counties, Florida,* United States Geological Survey (USGS), SFWMD.

FIGURES



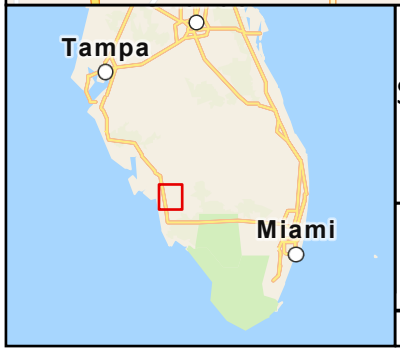


Figure 1
Southeast Lee County DR/GR Special Planning Area
Freeman Property
Lee County, Florida

N

0 0.75 1.5 3 Mi

Scale: 1:150,000

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Image: Esri Imagery, Lee County

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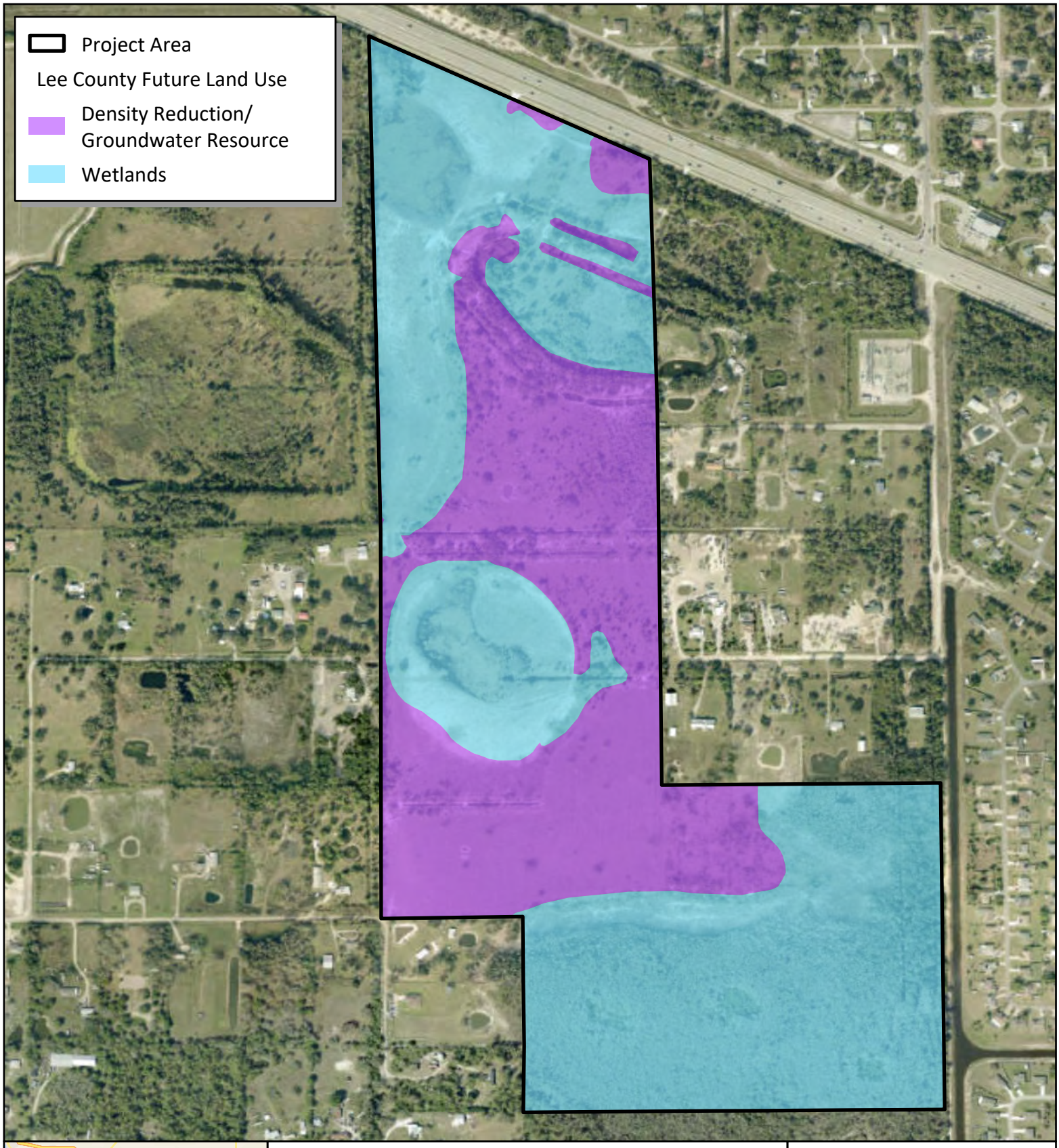

Figure 2
Lee County Future Land Use
Freeman Property
Lee County, Florida

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0 150 300 600 Feet

Scale: 1:8,000

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Image: Lee County, Esri Imagery

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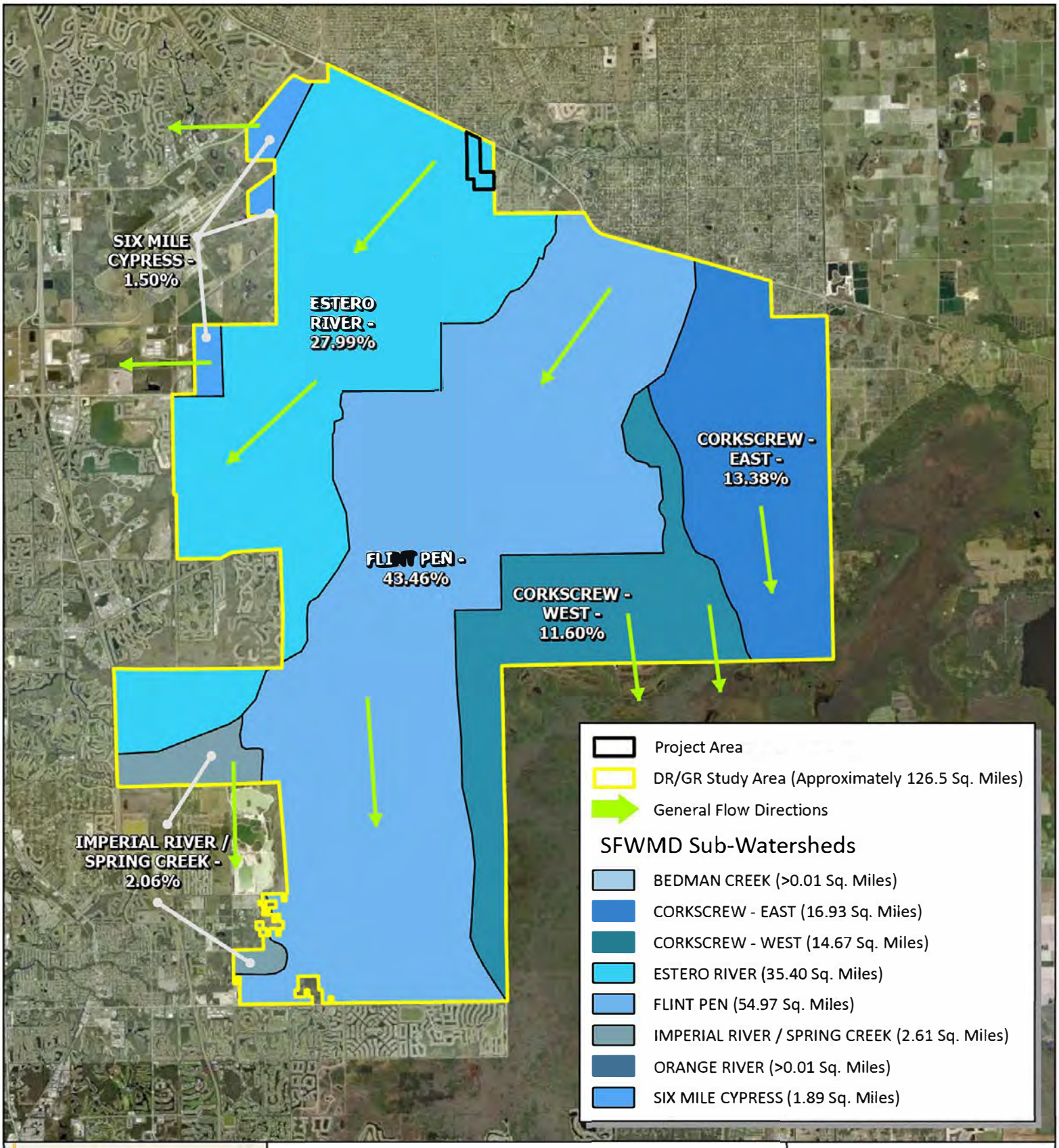

Figure 3
SFWMD Sub-Watersheds Within DR/GR
Freeman Property
Lee County, Florida

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0 1.25 2.5 Mi

Scale: 1:150,000

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Image: Esri Imagery

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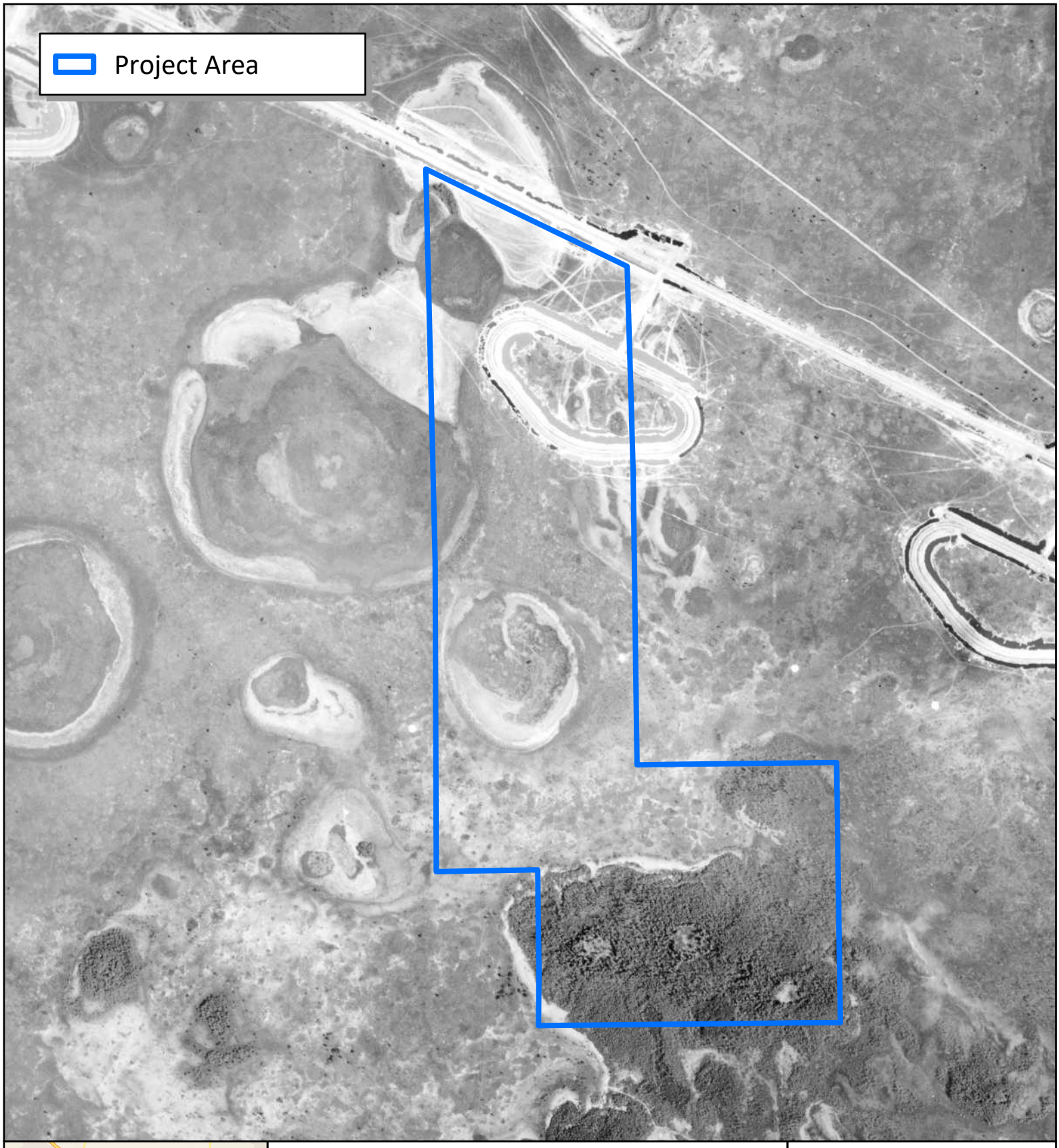

Figure 4
1944 Historical Imagery
Freeman Property *Lee County, Florida*

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Scale: 1:10,000

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Image: UFDC

RESPEC

Figure 5
1958 Historical Imagery
Freeman Property *Lee County, Florida*

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Scale: 1:10,000

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Image: UFDC

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Figure 6
1970 Historical Imagery
Freeman Property
Lee County, Florida

N

0 350 700 Feet

Scale: 1:8,000

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Image: UF, Esri Imagery

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Figure 7
1995 Historical Imagery
Freeman Property *Lee County, Florida*

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Scale: 1:10,000

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Image: UFDC

RESPEC

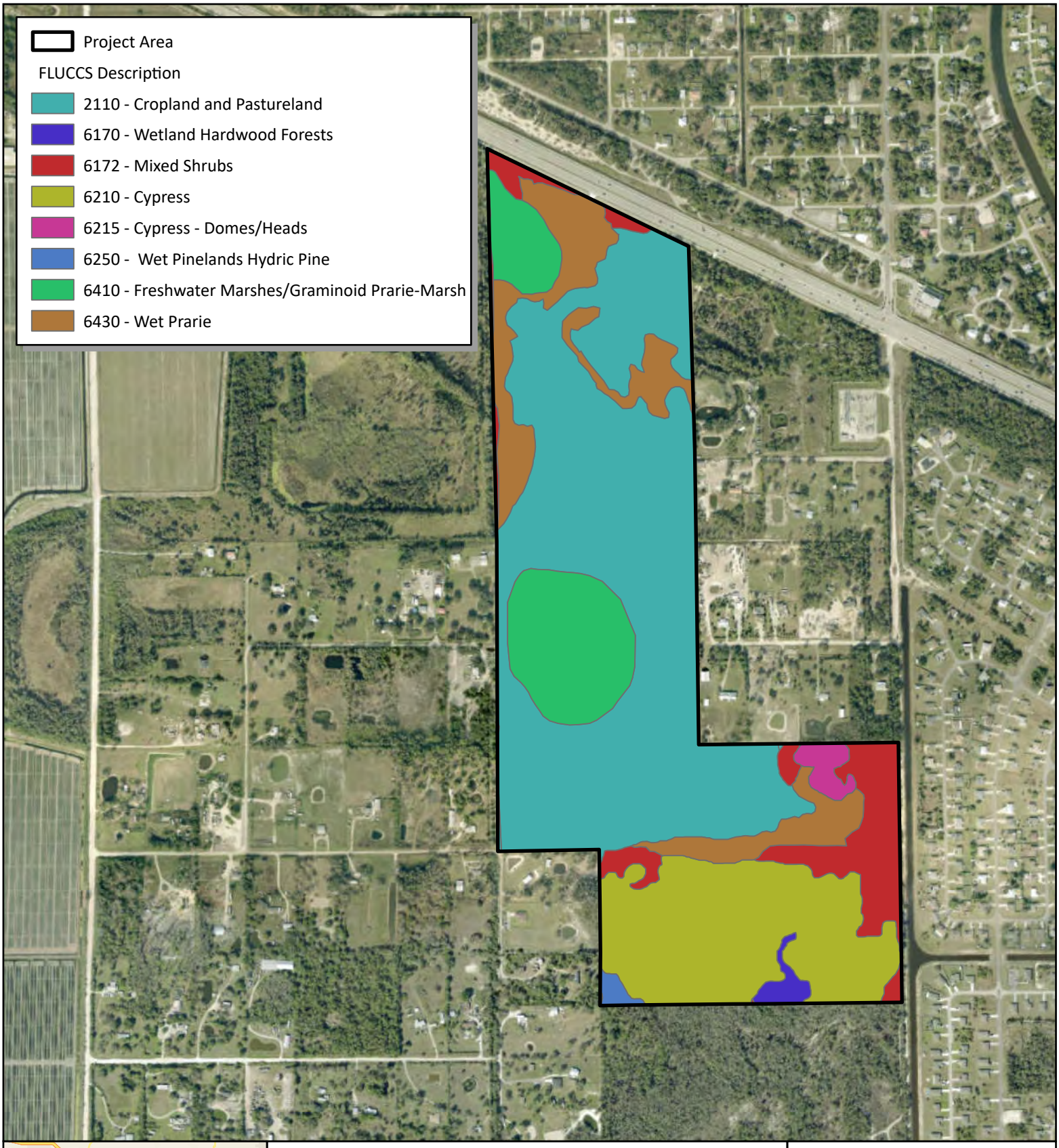

Figure 8
SFWMD FLUCCS Classifications
Freeman Property
Lee County, Florida

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Scale: 1:10,000

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Image: Esri Imagery, SFWMD

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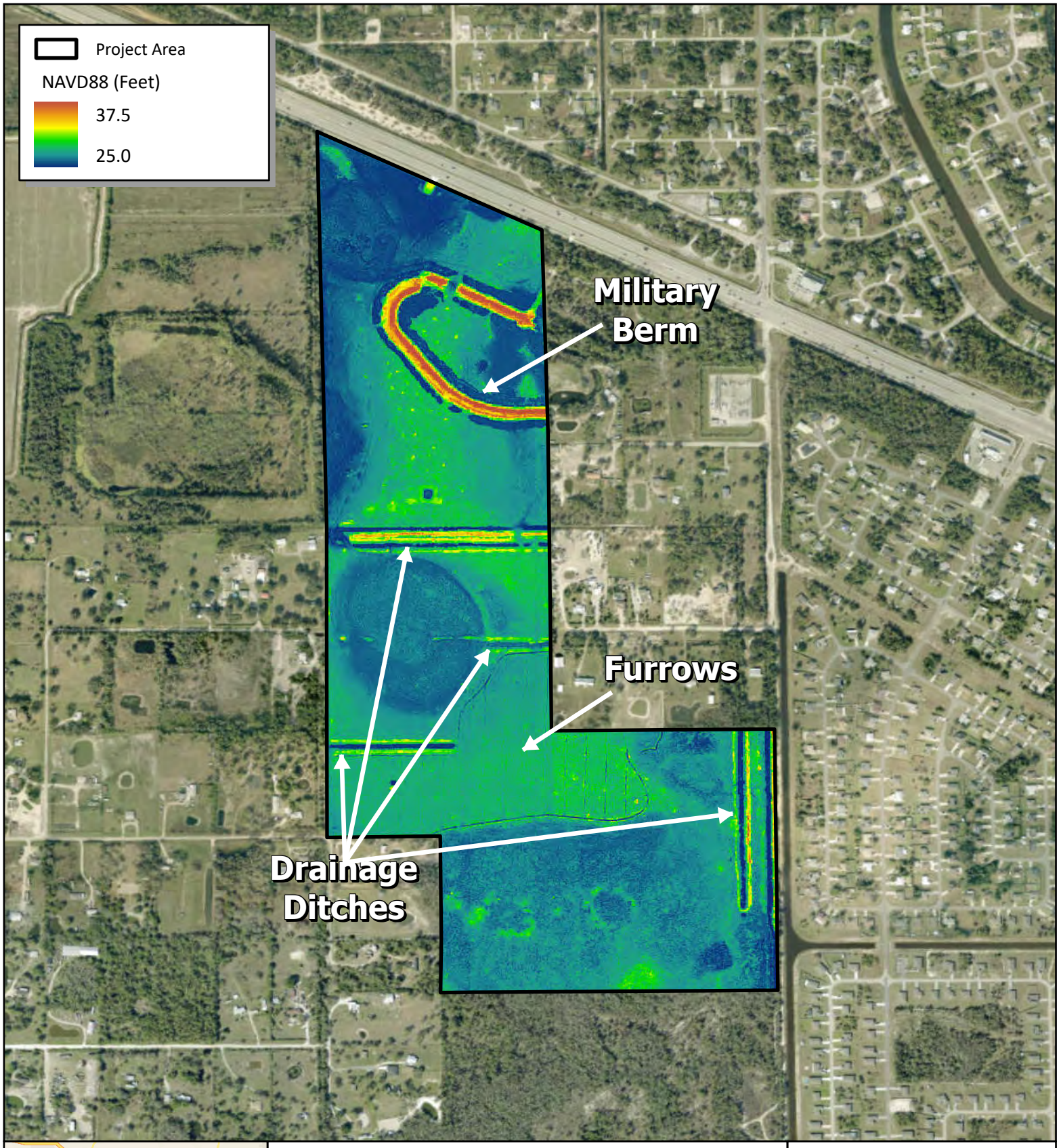

Figure 9
LiDAR Imagery
Freeman Property
Lee County, Florida

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Scale: 1:10,000

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Image: Esri Imagery, Florida State Government

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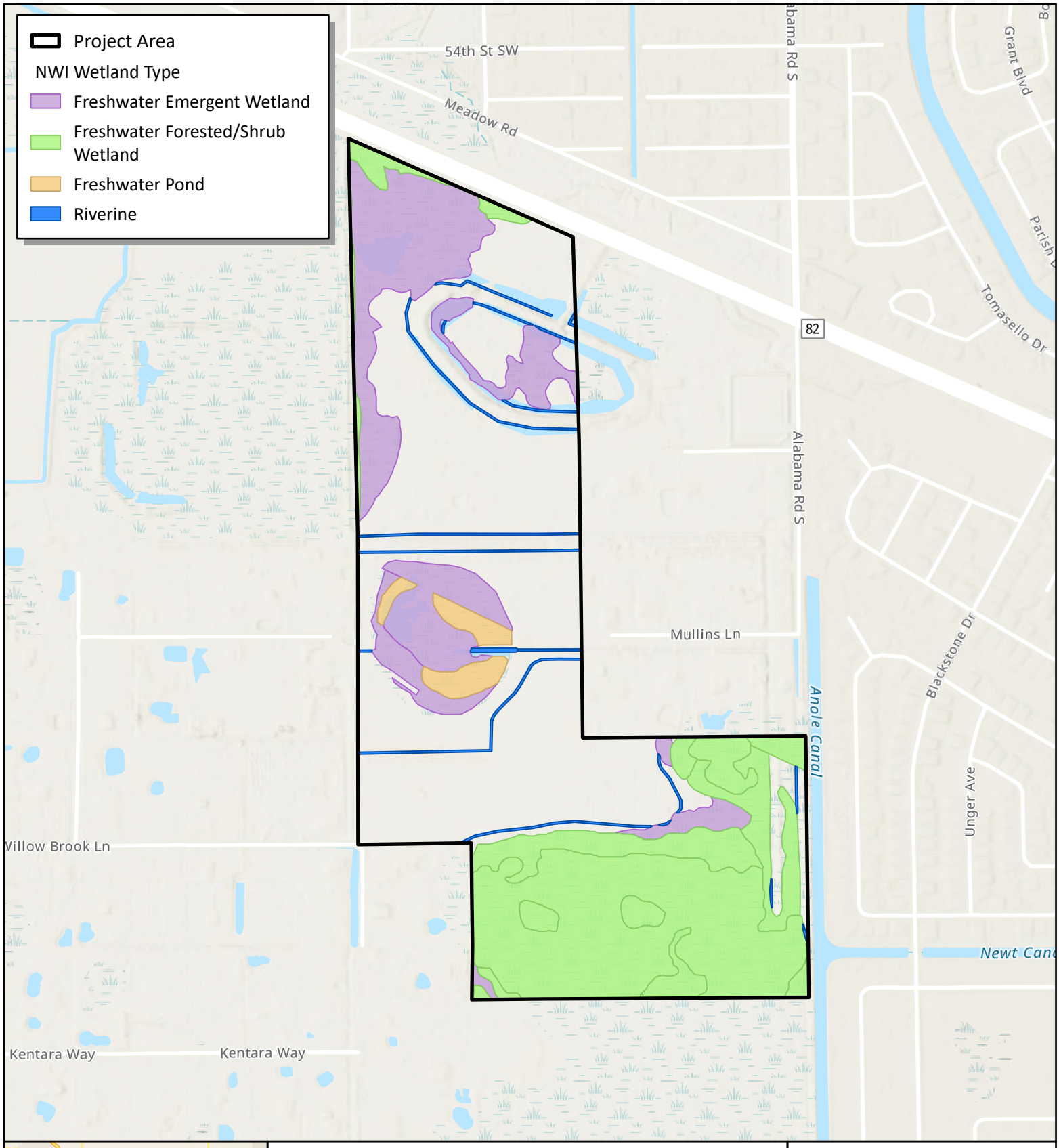

Figure 10
NWI Inventory
Freeman Property
Lee County, Florida

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Scale: 1:10,000

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Image: Esri Imagery, US Fish and Wildlife Service

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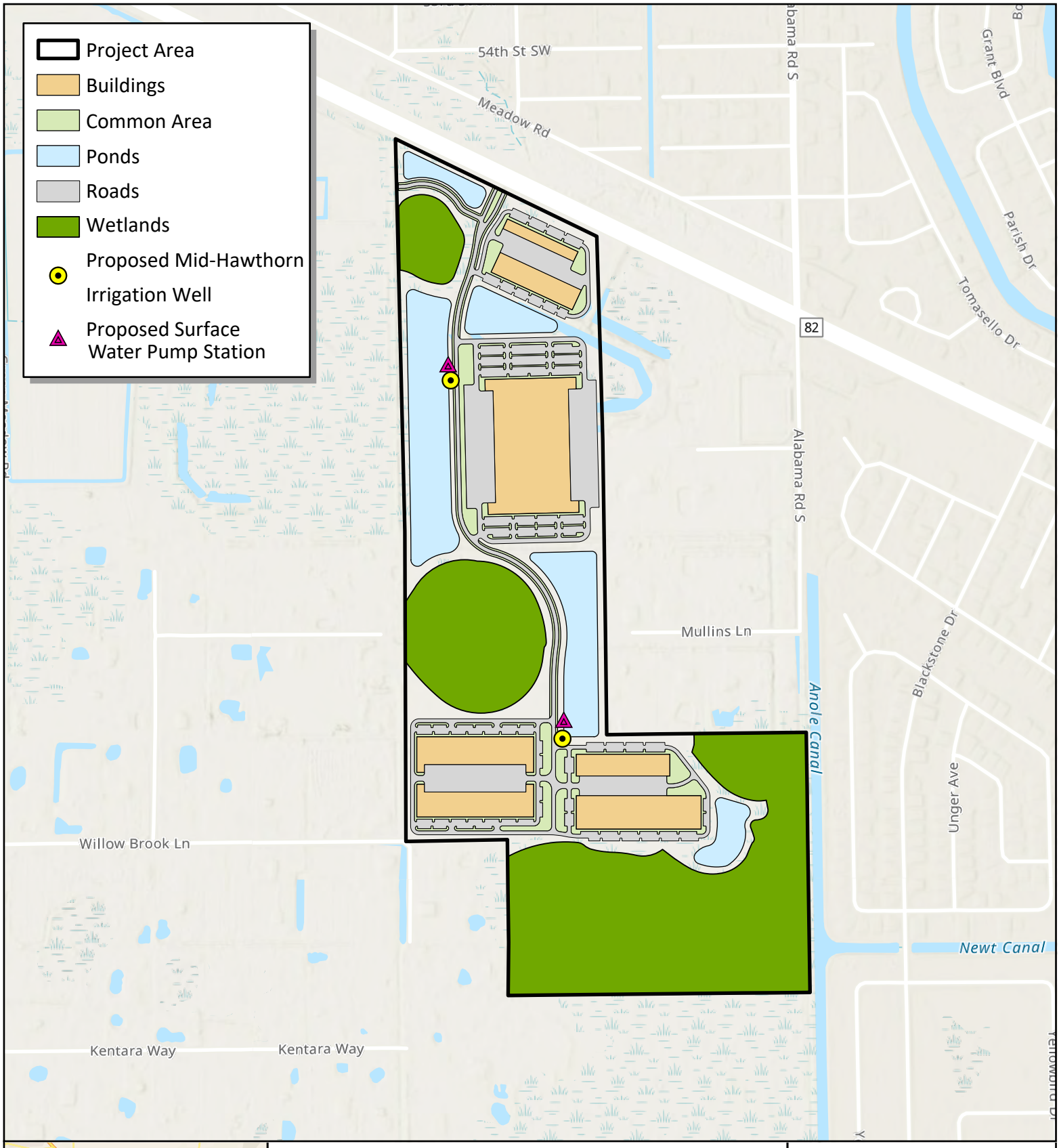

Figure 11

Proposed Irrigation Facility Locations
Freeman Property
Lee County, Florida

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Scale: 1:10,000

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Image: Esri Imagery, RVI Planning

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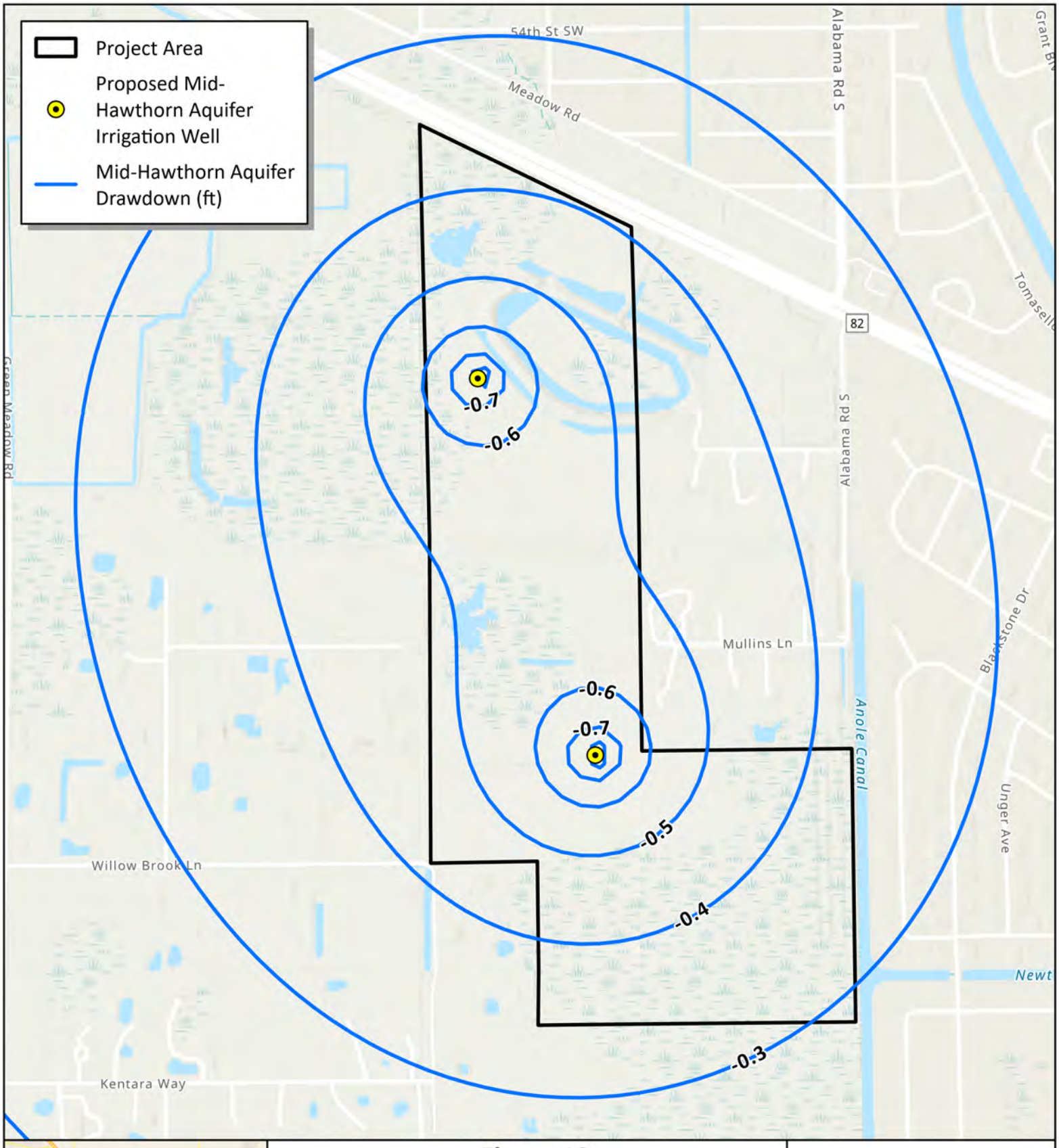

Figure 12

Predicted Mid-Hawthorn Aquifer Drawdown
Max Monthly Groundwater Modeling Scenario
Freeman Property
Lee County, Florida

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Scale: 1:9,500

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2/9/2026

Image: ESRI World Topographic Map

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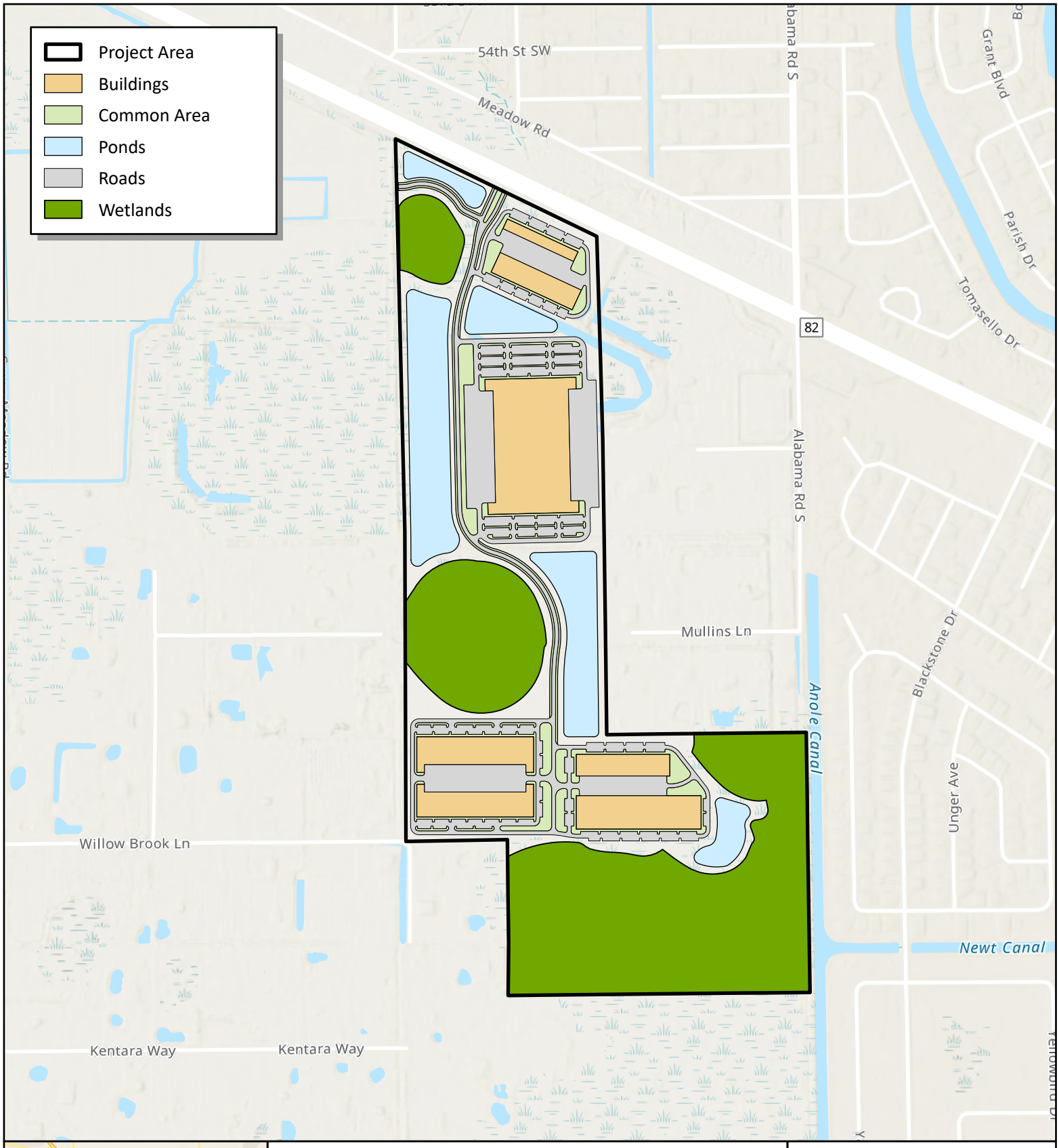

Figure 13
Conceptual Site Plan
Freeman Property
Lee County, Florida

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Scale: 1:10,000

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10/17/2025

Image: Esri Imagery, RVI Planning

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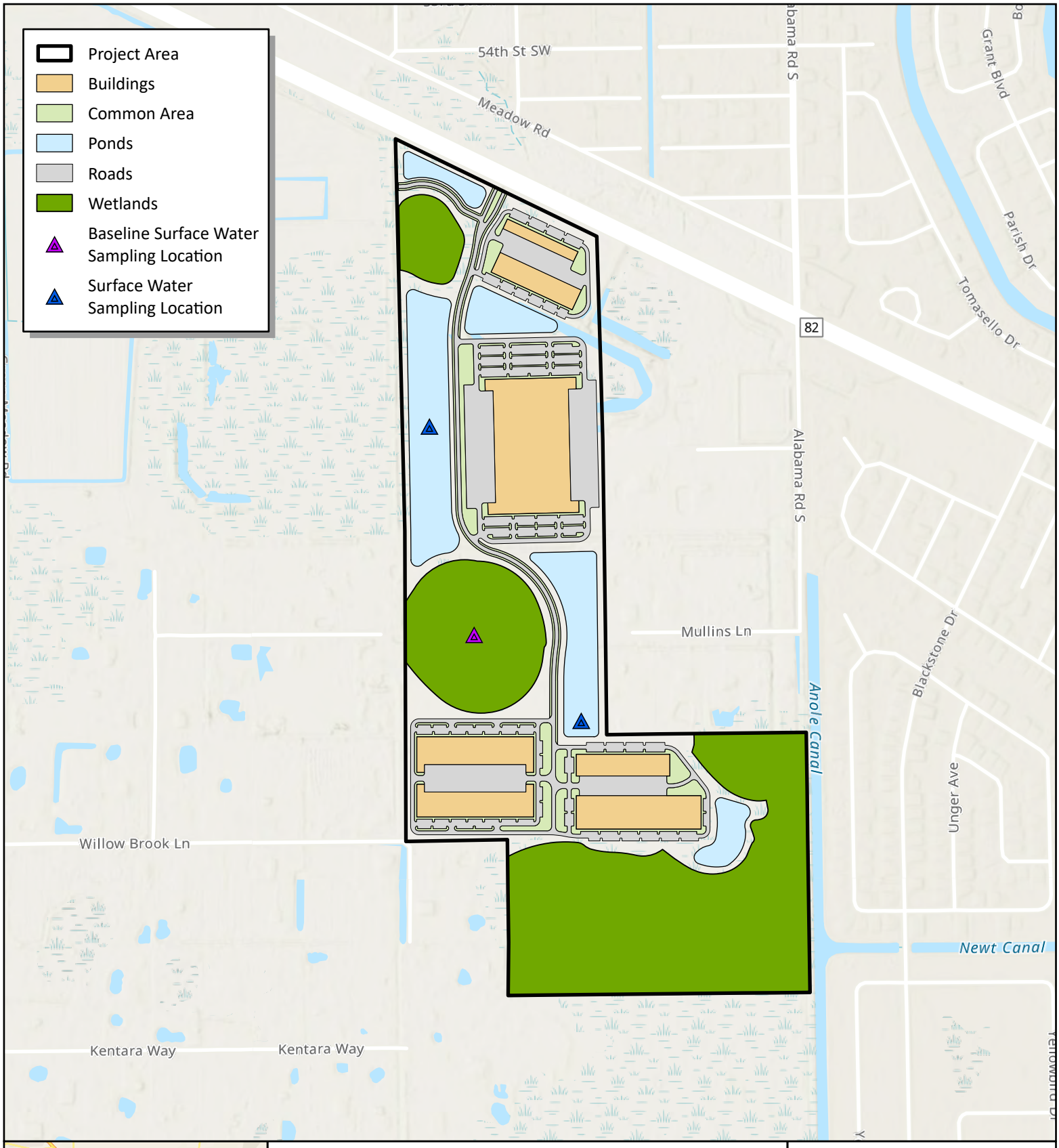

Figure 14

Proposed Surface Water Sampling Locations
Freeman Property
Lee County, Florida

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Scale: 1:10,000

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10/17/2025

Image: Esri Imagery, RVI Planning

RESPEC

APPENDIX A: BLANEY CRIDDLE IRRIGATION DEMANDS

Calculations of Irrigation Requirements (1-in-10)

Rainfall Station:	Ft. Myers 1-in-10	**Crop No.:**	1
Irrigation System:	Sprinkler	**Parcel Name:**	
Irrigated Acreage:	12.41	**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)	1.90	2.00	1.50	1.90	4.10	9.40	8.70	8.60	8.40	3.50	1.50	1.50	53.00
Evapotranspiration (inches)	1.86	2.14	3.70	5.11	6.83	7.60	8.05	7.72	6.48	4.92	3.07	2.15	59.63
Average Effective Rainfall (inches)	0.88	0.94	0.79	1.06	2.31	4.91	4.71	4.58	4.19	1.81	0.76	0.72	27.66
1-in-10 Effective Rainfall (inches)	0.74	0.79	0.66	0.89	1.94	4.12	3.96	3.85	3.52	1.52	0.64	0.61	23.24
Average Irrigation (inches)	0.98	1.20	2.91	4.05	4.52	2.69	3.34	3.14	2.29	3.11	2.31	1.43	31.97
1-in-10 Irrigation (inches)	1.12	1.35	3.04	4.22	4.89	3.48	4.09	3.87	2.96	3.40	2.43	1.54	36.39

1-in-10 Annual Supplemental Crop Requirement = 36.39 inches

Annual Supplemental Crop Water Use:

36.39 inches X 12.41 Acres X 1.3 X 0.02715 MG/AC-IN = 15.94 MG

1-in-10 Maximum Monthly Supplemental Crop Requirement = 4.89 inches

Maximum Monthly Supplemental Crop Water Use:

4.89 inches X 12.41 Acres X 1.3 X 0.02715 MG/AC-IN = 2.14 MG

Notes:

Evapotranspiration was calculated using a modified Blaney-Criddle method.
Average effective rainfall is the amount that is useful to crops in an average year
Drought rainfall is the rainfall minimum representative of a 1-in-10 year drought
Drought effective rainfall is the amount that is useful to crops in a 1-in-10 year drought event.
Average irrigation is the net amount that should be required for maximum yields during an average year.
Drought irrigation is the net amount that should be required for maximum yields during a 1-in-10 year drought.

EXHIBIT

APPENDIX B: PROFESSIONAL GEOLOGIST CERTIFICATION

6561 PALMER PARK CIRCLE
SUITE D
SARASOTA, FL 34238
941.552.5657

Professional Geologist Certification

The groundwater flow modeling impact analysis included as part of this document titled "*Characterization of Ground and Surface Water Resources"* for the Freeman property in Lee County, Florida, was completed based on sound geologic principals and the hydrogeologic data available at the time this modeling analysis was performed. The parameters and discretization of simulated withdrawals from the aquifer system are considered to be reasonably accurate; therefore, the Professional Geologist below certifies the results of the model as they pertain to the predicted groundwater impacts. All the preceding geological analysis and interpretation(s) were evaluated and supervised by Devin Lemke, P.G., a Registered Professional Geologist pursuant to Chapter 492, Florida Statutes, (F.S.) and Chapter 61G16, Florida Administrative Code, F.A.C.

2/9/2026

Devin Lemke, P.G. No. 3270
RESPEC Company, LLC
Professional Geologist

Date

APPENDIX C:
DEEP LAKE AERATION DEVICE

Vertex Water Features
Pond and Lake Aeration
BOTTOM AERATION

With Vertex MicronBubble™ Technology

AIR3 XL2™

The Vertex Air3 XL2™ pond aerator is a super-efficient, affordable and safe system. In a typical pond, an Air3 XL2™ can aerate approximately 3-4 acres depending on shape, slope, oxygen demand and other factors. A 1/2hp (0.37kW) Brookwood™ SafeStart™ compressor, housed in our rustproof aluminum outdoor cabinet, feeds three bottom mounted CoActive AirStations™ utilizing Vertex's MicronBubble™ technology. The rising force of millions of bubbles circulates the entire water column, entraining bottom water up to the surface allowing vital oxygen to be absorbed and poisonous gasses expelled. With no electricity in the water, Vertex's aeration systems are safe for any type of water recreation.

Our systems have a full 3-year Vertex warranty, excluding wearable parts (air filters and compressor maintenance kits) plus a Limited Lifetime warranty against rust and corrosion on the cabinet, 5-year warranty on the AirStations™ and a 15-year warranty on BottomLine™ supply tubing.

FEATURES

AIRSTATIONXL2™
- Total pumping capacity of up to 11,400 GPM
- Six 9" flexible membrane discs with MicronBubble™ technology
- Shallow water Airstation optional for depths lower than 8'
- Self-cleaning, low maintenance
- Powder-coated stainless steel self-sinking base unit designed to prevent sinking into soft bottom sediments
- 5-year "No Questions" warranty

BROOKWOOD™ COMPRESSOR
- 3-year Vertex warranty, excluding wearable parts (air filters and compressor maintenance kits)
- Vertex SafeStart™ Technology
- UL, 115v or 230v, 35 Max PSI
- Thermal overload protection
- 1/2hp (0.37kW): low electrical costs
- 2-3 year extended duty cycle between scheduled maintenance

QUIETAIR™ CABINET
- Class "A" GFCI protection on all 115v circuits
- Powder coated aluminum for a durable attractive finish
- High capacity 290 CFM fan
- Easy access design with cam lock
- Easy plug-in connection to waterside electrical service
- Disconnect switch
- Heavy duty, light weight mounting pad included
- Sound dampening kit optional
- Limited lifetime warranty against rust

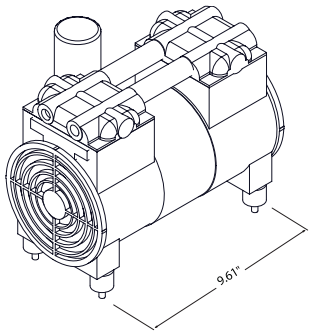
BOTTOMLINE™ TUBING
- Over-sized I.D. for high flow
- Self-weighted for easy installation
- Available in 100' and 500' increments
- 15-year Vertex warranty

BENEFITS TO THE LAKE
- High pumping rate easily penetrates stratification layers
- Circulates entire water column
- Increases oxygen levels throughout water column
- Promotes beneficial bacteria growth
- Prevents low oxygen fish kills
- Reduces nutrient levels and associated algae growth
- Oxidizes/reduces bottom muck
- Expands oxygenated habitat for improved fisheries
- Reduces aquatic midge and mosquito insect hatches
- Eliminates foul odors from undesirable dissolved gases
- Safe entry – no electricity in the water
- Extremely energy efficient

SPECIFICATIONS: AIR3 XL2™ LAKE AERATION SYSTEM

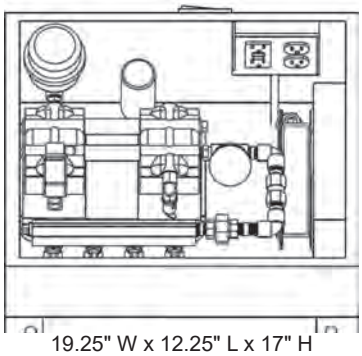
BROOKWOOD™ COMPRESSOR

1/2hp (0.37kW), 115v or 230v, Single Phase piston type compressor. Built for continuous 24/7 operation and equipped with Vertex SafeStart™ technology allowing auto restart under maximum rated pressure without motor damage. Super-duty Brookwood™ compressors incorporate upgraded rotors, stators, valve plates, bearings and capacitors and are thermally protected, oil-free, and require no lubrication; just periodic cleaning of included washable air filter. Extended duty cycle is approximately 2 to 3 years for compressor maintenance, about 2 to 3 times the duty cycle of ordinary piston and rotary vane compressors. All Brookwood™ SafeStart™ compressors carry a 3-year Vertex warranty, excluding wearable parts (air filters and compressor maintenance kits).



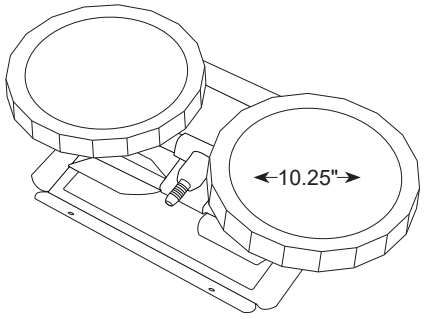
QUIETAIR™ CABINET

Enclosure comes equipped with cam lock for security, fully gasketed and constructed of aluminum with gray electrostatically-bonded powder coating to provide Limited Lifetime warranty against cabinet rust and corrosion. Enclosure furnished with stamped ventilation grills to insure forced air circulation and an integral cooling fan with thermal protection, producing 290 CFM to guard against excessive compressor operating temperatures. Cabinet provided with HDPE mounting pad. Enclosure comes with class a GFCI protection on both the compressor and fan circuits. Quick disconnect switch included. Side mounted muffler box and additional insulation optional for quiter operation.



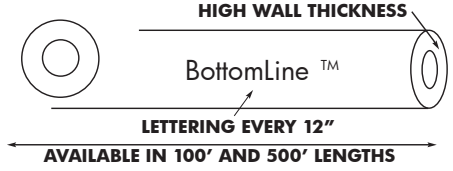
AIRSTATION XL2™ ASSEMBLY

Diffuser station consists of two self-cleaning, 9" diameter, flexible membrane diffusers of EPDM compound with 100% rebound memory, each producing millions of fine 500 to 3000 micron bubbles – the majority 500 to 1000 microns. Each diffuser station base unit is made of powder-coated stainless steel and designed to prevent settling into soft bottom sediments. AIRSTATION™ is designed with adjustable diffuser riser to accommodate any site requirements. AirStations are independently tested and verified to provide stated pumping rates. 5-year warranty.



BOTTOMLINE™ SUPPLY TUBING

Self-weighted, direct burial submersible tubing for connection from compressor to diffuser stations. Tubing is flexible PVC composite construction for use with standard PVC solvent weld cement and insert fittings. Tubing has 0.58" I.D. and high wall thickness for long term durability and protection against punctures. Remains flexible in cold temperatures.



Vertex Water Features
Pond and Lake Aeration
(844) 432-4303 • info@vertexwaterfeatures.com
www.vertexwaterfeatures.com

Install all electrical equipment in accordance with Article 682 of the National Electrical Code and all local codes. Vertex Water Features reserves the right to improve and change our designs and/or specifications of our aerators without notice or obligation.

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WHITE WILLOW

INTEGRATED MODEL ANALYSIS FOR SURFACE AND GROUNDWATER RESOURCES

PREPARED BY
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DECEMBER 2025

Project Number W0084.25006

RESPEC.COM

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Green-Ampt Soil Parameters

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ECM Input/Output Reports

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PCM Input/Output Reports

WHITE WILLOW

1.0 BACKGROUND

RESPEC Company, LLC was engaged by Pulte Home Corporation (Client) to prepare an integrated groundwater / surface water model to assess pre- and posft- development groundwater recharge relating to the proposed White Willow project in Lee County, FL. The integrated model is a requirement of The Lee Plan Policy 33.1.7 which states that impacts of proposed land use disturbances within the Density Reduction-Groundwater Resource (DR/GR) area will be analyzed by means of an integrated surface and groundwater model that utilizes site-specific data to assess potential adverse impacts on water resources and natural systems. The Project Area is located along Bonita Beach Road and encompasses a total of 47 acres (AC) as shown on **Figures 1 and 2**. Please note that where appropriate, input data used in the integrated model is consistent with the stormwater design parameters utilized by the Engineer of Record (Barraco and Associates, Inc.).

2.0 EXISTING CONDITIONS

ICPR Version 4.07.08 software was used to compare existing and proposed conditions for the project to demonstrate that no adverse impacts on water resources are anticipated to occur. As described below, the Existing Conditions Model (ECM) utilizes soil and landuse parameters obtained from the Southern Lee County (SLC) ICPR regional model developed by Streamline Technologies.

2.1 EXISTING LANDUSE

RESPEC utilized the Florida Land Use Cover and Classification System to characterize the existing land use conditions for the site. As shown in **Figure 3**, the site consists primarily of Herbaceous (Dry Prairie) (3100), Reservoirs (5300), and Wetland Hardwood Forest (617). Impervious coverages associated with each land use type were obtained from the SLC regional model and are provided in **Table 1** below. Review of historic aerial imagery indicates that the onsite reservoir features were constructed prior to 1984.

Table 1. ECM Impervious Coverage

Land Cover Zone	% Impervious	% DCIA	% Direct
Residential, Low Density	38	20	0
Residential, High Density	72	55	0
Commercial and Services	85	70	0
Recreational	10	0	0
Herbaceous (Dry Prairie)	0	0	0
Reservoirs	0	0	0
Wetland Hardwood Forests	0	0	0
Wetland Coniferous Forests	0	0	0

2.2 EXISTING SOILS

Natural Resources Conservation Service (NRCS) soils are depicted on **Figure 4**. As shown, the predominant soils within the project area are *Pompano fine sand, frequently ponded, 0 to 1 percent slopes* and *Immokalee sand, 0 to 2 percent slopes*, both of which are described by the NRCS as being poorly drained soils with a high runoff potential. Corresponding Green-Ampt soil parameters were obtained from the SLC regional model and incorporated into RESPEC's ECM. The parameters are provided in **Appendix A**.

2.3 EXISTING TOPOGRAPHY AND DRAINAGE

Lee County's 2018 LIDAR Digital Elevation Model (DEM) was used for topographic characterization of the site. Land surface elevations within the Project Area generally range from approximately 11.5-ft to 14.5-ft NAVD88. In addition, bathymetry of the existing reservoirs indicates an average bottom elevation of approximately 3-ft NAVD88.

The site is within WBID No. 3258EE (Kehl Canal) which is part of the Estero Bay Planning Unit. WBID 3258EE is not identified as an impaired water body by the Florida Department of Environmental Protection (FDEP). The Kehl Canal is located approximately 1,400-ft north of the Project Area.

2.4 RAINFALL AND EVAPOTRANSPIRATION

Consistent with the SLC model, RESPEC's ECM performs a continuous simulation of rainfall for 2017. Daily rainfall is based on historic NEXRAD data (Pixel 55336) obtained from the SLC regional model and includes precipitation associated with Hurricane Irma which significantly impacted Lee County in early September of 2017. The ECM also utilizes reference evapotranspiration (ET) data previously included in the SLC model. The corresponding lookup table for ET Crop Coefficients for each landuse type is provided in **Table 2**.

Table 2. ECM Evapotranspiration Crop Coefficients

Land Cover Zone	Crop Coefficient	Root Depth (ft)
Residential, Low Density	1	1.5
Residential, High Density	1	1.5
Commercial and Services	1	1.5
Recreational	1	1.5
Herbaceous (Dry Prairie)	0.7	2
Reservoirs	1	1.5
Wetland Hardwood Forests	0.7	3
Wetland Coniferous Forests	0.7	3

2.5 BOUNDARY CONDITION

RESPEC relied on 2017 time-stage data for Kehl Canal Node NF00102017 taken from the SLC regional model prepared by Streamline Technologies.

2.6 ECM SCHEMATIC

2D Overland Flow and Groundwater Flow Regions serve as the basis for the ECM and are driven by triangulation, diamond, and honeycomb mesh networks that enable the accumulation and conveyance of stormwater runoff. A Mapped Basin Feature was included in the Overland Flow Region to integrate traditional hydrology within the Project Area with the 2D Groundwater Flow Region. In addition, Pond Control Volumes containing overland and groundwater breakpoint patterns were created for the onsite reservoirs to facilitate interaction of surface water and groundwater at these locations.

Overland Weirs were created that allow the site to discharge to the offsite boundary condition (Kehl Canal). Corresponding weir cross sections are based on the 2018 Lee County LIDAR DEM. A schematic map for the ECM is depicted on **Figure 6** and ICPR model input/output reports are provided in **Appendix B**.

3.0 PROPOSED CONDITIONS

The proposed improvements are depicted in the Preliminary Site Plan prepared by the EOR and include the development of 94 residential lots served by a series of local and connector roads. As shown, some filling of the existing reservoir perimeters will occur to accommodate the buildout of the lots. Stormwater runoff generated by the proposed development will be conveyed to the existing reservoir features which will provide full stormwater retention.

To evaluate the effects of the Preliminary Site Plan, RESPEC prepared a Proposed Conditions Model (PCM) that incorporates the improvements into the ECM. The results of the PCM were then compared against the baseline conditions simulated in the ECM to assess impacts on water resources, specifically relating to groundwater recharge. In preparing the PCM, no changes were made to the soil types, rainfall/ET distributions, or boundary conditions and the PCM was also utilized to simulate weather conditions for 2017.

3.1 PROPOSED LANDUSE

The landuse layer utilized in the PCM was updated to reflect the proposed Site Plan including build-out of residential lots and streets and reconfiguration of existing reservoirs. The proposed landuse layer shown in **Figure 7** was imported into the PCM and utilized for roughness, impervious, and ET parameterization. Please note that an impervious coverage of 45% was utilized for the residential tracts as shown in **Table 3**. In addition, onsite roadways were assumed to be 100% directly connected impervious area (DCIA). The total impervious area associated with the Project equates to 18.3 AC.

Table 3. PCM Impervious Coverage

Land Cover Zone	% Impervious	%DCIA	%Direct
Residential, Low Density	38	20	0
Residential, High Density	72	55	0
Commercial and Services	85	70	0
Recreational	10	0	0
Herbaceous (Dry Prairie)	0	0	0
Reservoirs	0	0	0
Wetland Hardwood Forests	0	0	0
Wetland Coniferous Forests	0	0	0
Project Lake	0	0	0
Project Road	100	100	0
Project Tract	45	0	0

3.2 PROPOSED TOPOGRAPHY

The 2018 Lee County LIDAR DEM was modified by RESPEC to include the proposed lake configuration and approximate onsite finished grade for terrain characterization. The proposed DEM is depicted in **Figure 8**.

3.3 PROPOSED IRRIGATION

Irrigation requirements for the proposed lawn and landscape areas were determined by the South Florida Water Management District's Blaney Criddle calculator and are shown in **Table 4** below. Please note that daily irrigation depths (inch per day) were calculated by dividing the monthly supplemental irrigation requirements (see 1-in-10 Irrigation row) by the number of days in the corresponding month as demonstrated in **Table 5**.

Table 4. Blaney Criddle Irrigation Requirements for Sprinklered Turf Grass

Calculations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average Rainfall (inches)	1.90	2.00	1.50	1.90	4.10	9.40	8.70	8.60	8.40	3.50	1.50	1.50	53.00
Evapotranspiration (inches)	1.86	2.14	3.70	5.11	6.83	7.60	8.05	7.72	6.48	4.92	3.07	2.15	59.63
Average Effective Rainfall (inches)	0.88	0.94	0.79	1.06	2.31	4.91	4.71	4.58	4.19	1.81	0.76	0.72	27.66
1-in-10 Effective Rainfall (inches)	0.74	0.79	0.66	0.89	1.94	4.12	3.96	3.85	3.52	1.52	0.64	0.61	23.24
Average Irrigation (inches)	0.98	1.20	2.91	4.05	4.52	2.69	3.34	3.14	2.29	3.11	2.31	1.43	31.97
1-in-10 Irrigation (inches)	1.12	1.35	3.04	4.22	4.89	3.48	4.09	3.87	2.96	3.40	2.43	1.54	36.39

Table 5. Irrigation Rate Summary

Month	Monthly Irrigation Inch Application Rate	Days	Daily Irrigation Inch Application Rate
January	1.12	31	0.036
February	1.35	28	0.048
March	3.04	31	0.098
April	4.22	30	0.141
May	4.89	31	0.158
June	3.48	30	0.116
July	4.09	31	0.132
August	3.87	31	0.125
September	2.96	30	0.099
October	3.4	31	0.110
November	2.43	30	0.081
December	1.54	31	0.050

Please note that because irrigation quantities will be withdrawn from the confined Sandstone aquifer, the irrigation source in ICPR was set to external as there is minimal interaction between the Water Table Aquifer and the Sandstone.

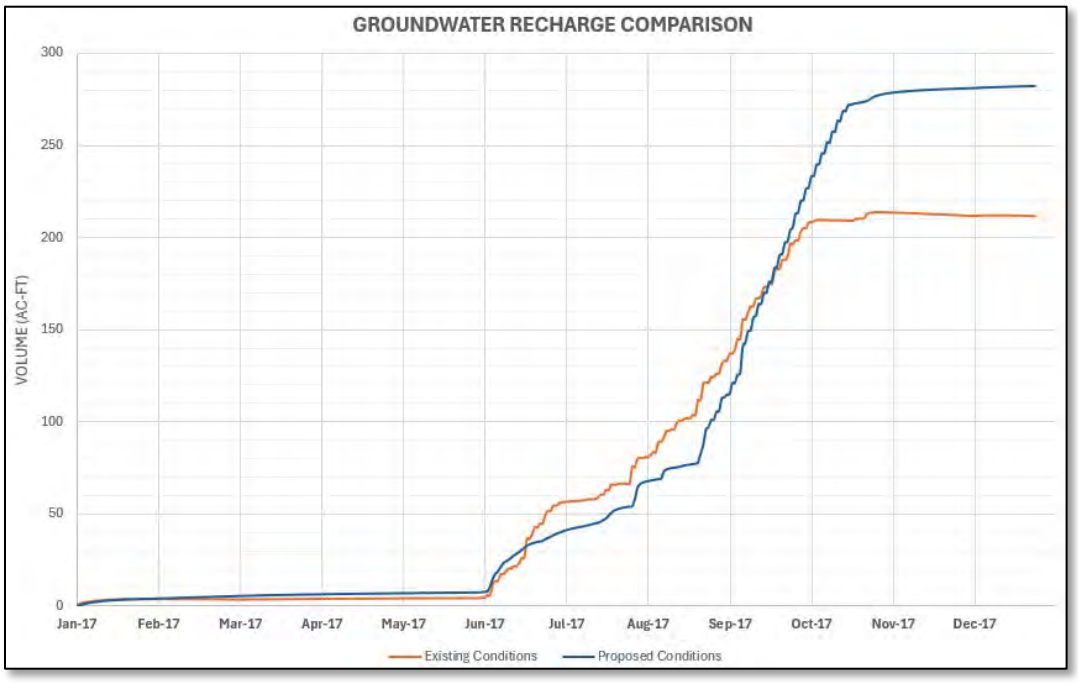
3.4 PROPOSED SCHEMATIC

As previously stated, drainage associated with the residential lots will be conveyed to the two (2) equalized reservoirs via a stormwater collection system. A Mapped Basin Feature was created for the Project Area and two (2) Pond Control Volumes associated with each reservoir were embedded in the Overland Flow Region. Break point patterns were generated internal to each Pond Control Volume to facilitate surface water and groundwater interactions within each of these features. As the reservoirs are intended to provide full retention, no outfall structure was included in the PCM. However, a pipe link was provided between the two ponds for equilibration of water levels. The PCM schematic is depicted on **Figure 9** and model input/output reports are provided in **Appendix C.**

4.0 RESULTS

Based on the results of the ICPR4 integrated analysis for a continuous simulation of 2017 weather conditions, the groundwater recharge volume simulated in the PCM is greater than existing conditions. This result indicates a beneficial increase in recharge to the underlying Water Table Aquifer. The ECM simulates approximately 211.4 ac-ft of groundwater recharge while the PCM simulates 281.9 ac-ft of recharge. The increase in volume equates to 70.5 ac-ft.

A comparison hydrograph is provided below. The results of this integrated analysis demonstrate that over time, the proposed project will enhance water resources by providing a net benefit in groundwater recharge.



FIGURES

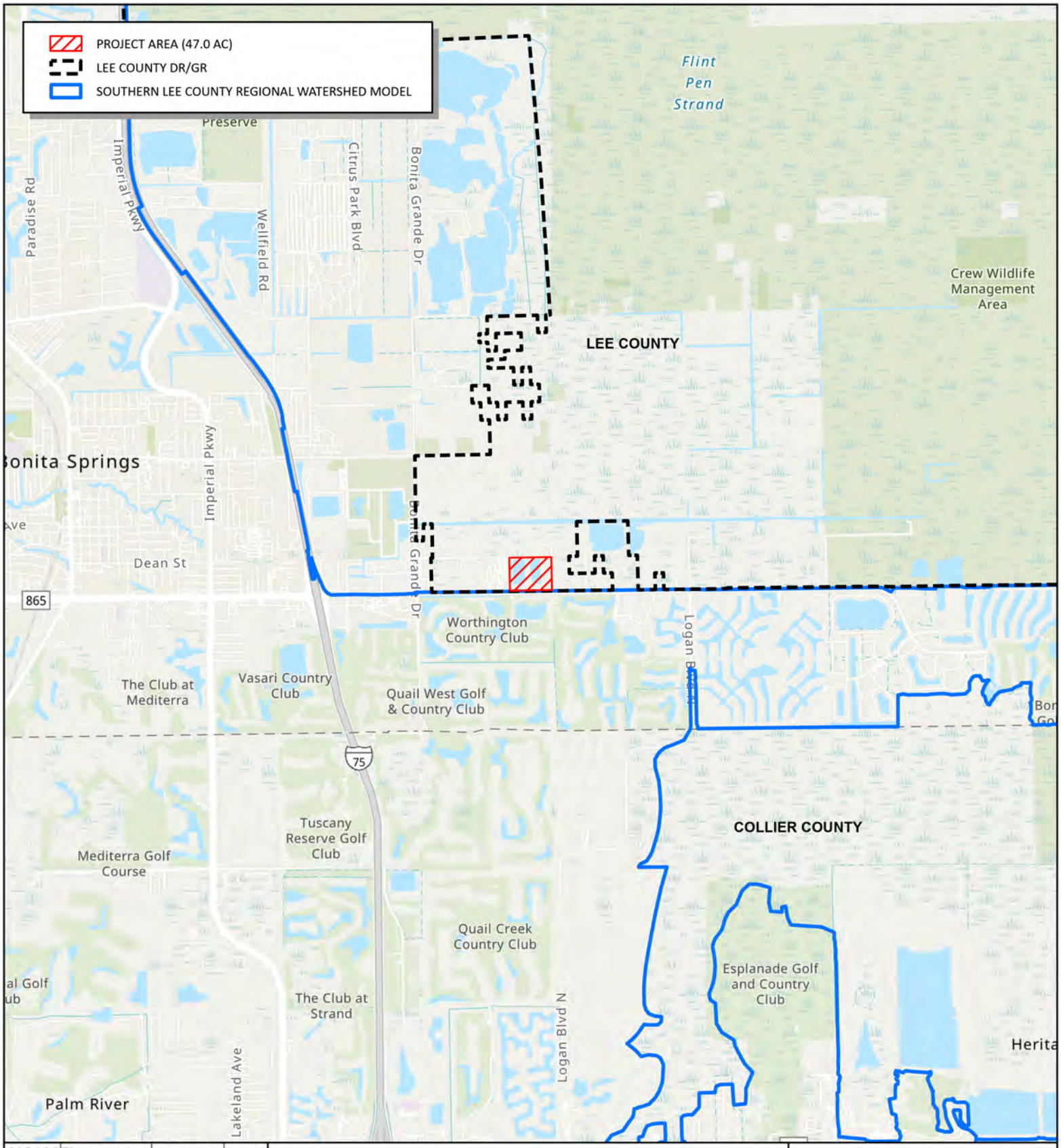


FIGURE 1
GENERAL LOCATION MAP
LEE COUNTY, FL

N

0 2,500 5,000 US Feet

Scale: 1:60,000

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12/08/2025

Image: ESRI WORLD TOPOGRAPHIC MAP

RESPEC

FIGURE 2
AERIAL SITE MAP
LEE COUNTY, FL

N

0 150 300 US Feet

Scale: 1:3,600

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Image: ESRI WORLD IMAGERY HYBRID

RESPEC

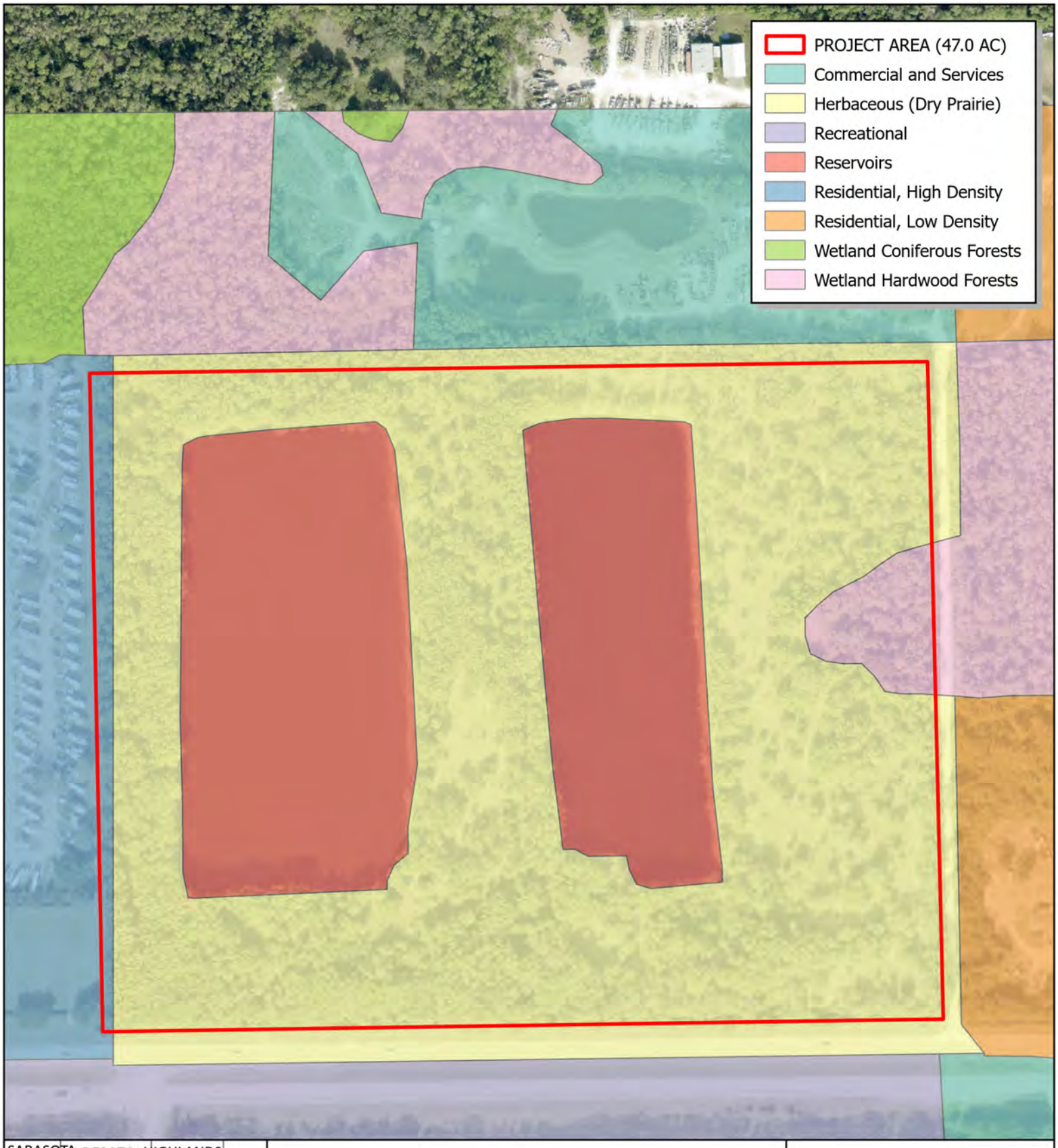

FIGURE 3
EXISTING LANDUSE MAP
LEE COUNTY, FL

N

0 125 250 US Feet

Scale: 1:3,000

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Image: ESRI WORLD IMAGERY HYBRID

RESPEC

FIGURE 4
NRCS SOILS MAP
LEE COUNTY, FL

N

0 125 250 US Feet

Scale: 1:3,000

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Image: ESRI WORLD IMAGERY

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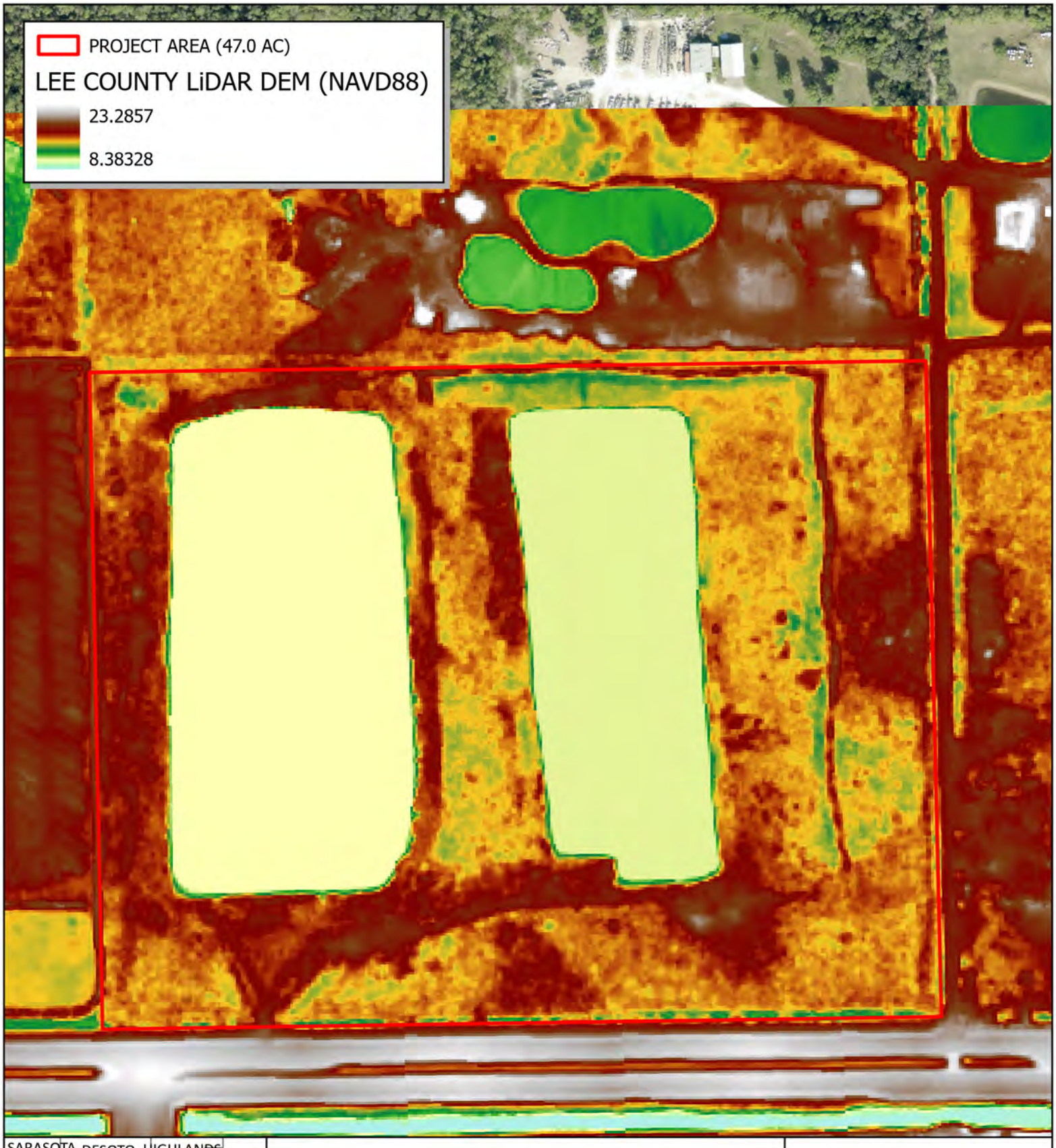

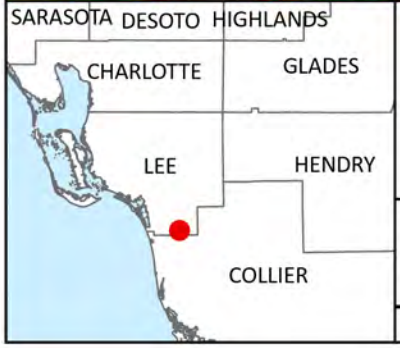

FIGURE 5
LEE COUNTY LiDAR DEM MAP
LEE COUNTY, FL

N

0 125 250 US Feet

Scale: 1:3,000

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Image: ESRI WORLD IMAGERY

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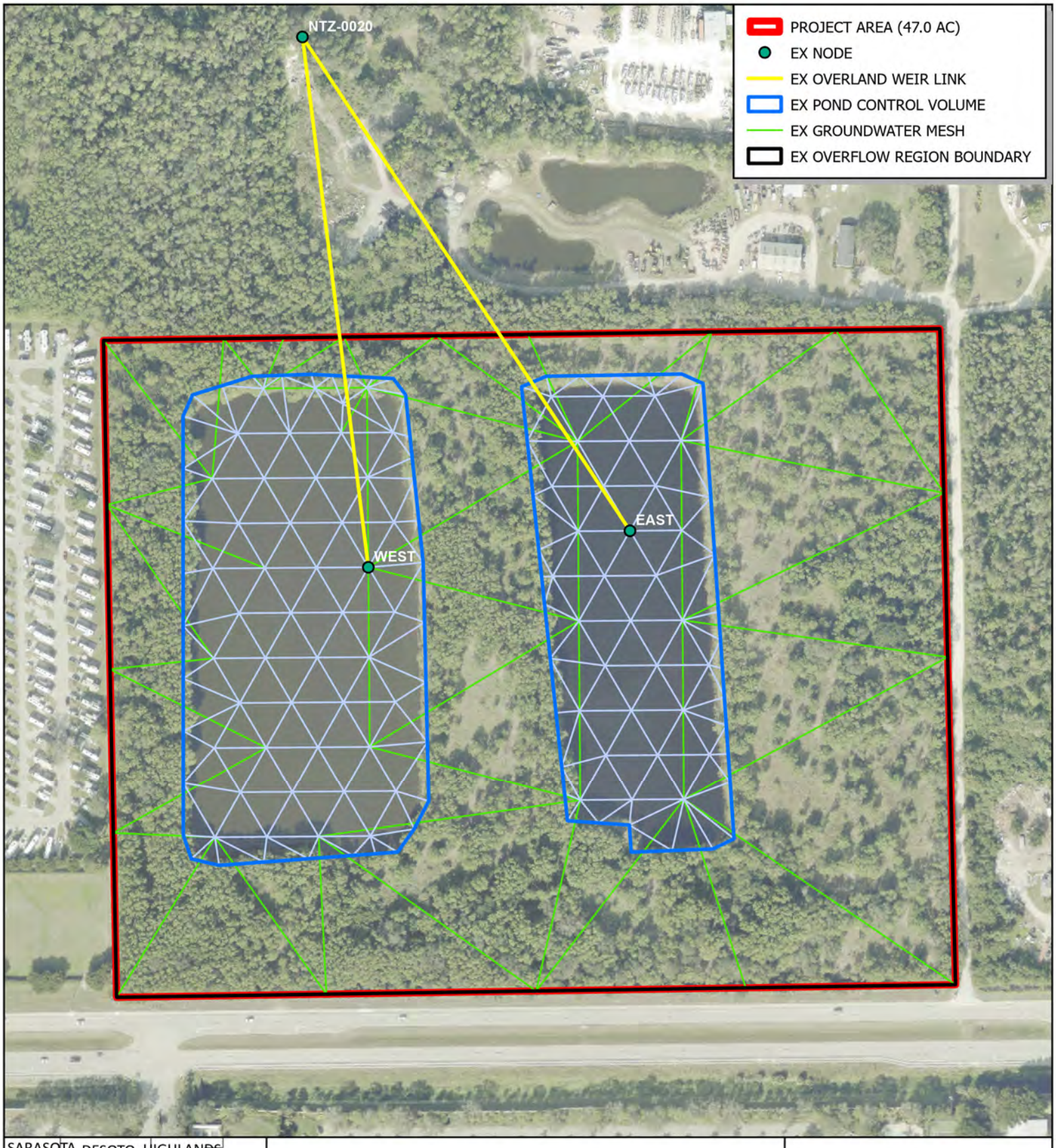

FIGURE 6
ECM SCHEMATIC
LEE COUNTY, FL

N

0 125 250 US Feet

Scale: 1:3,000

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Image: ESRI WORLD IMAGERY

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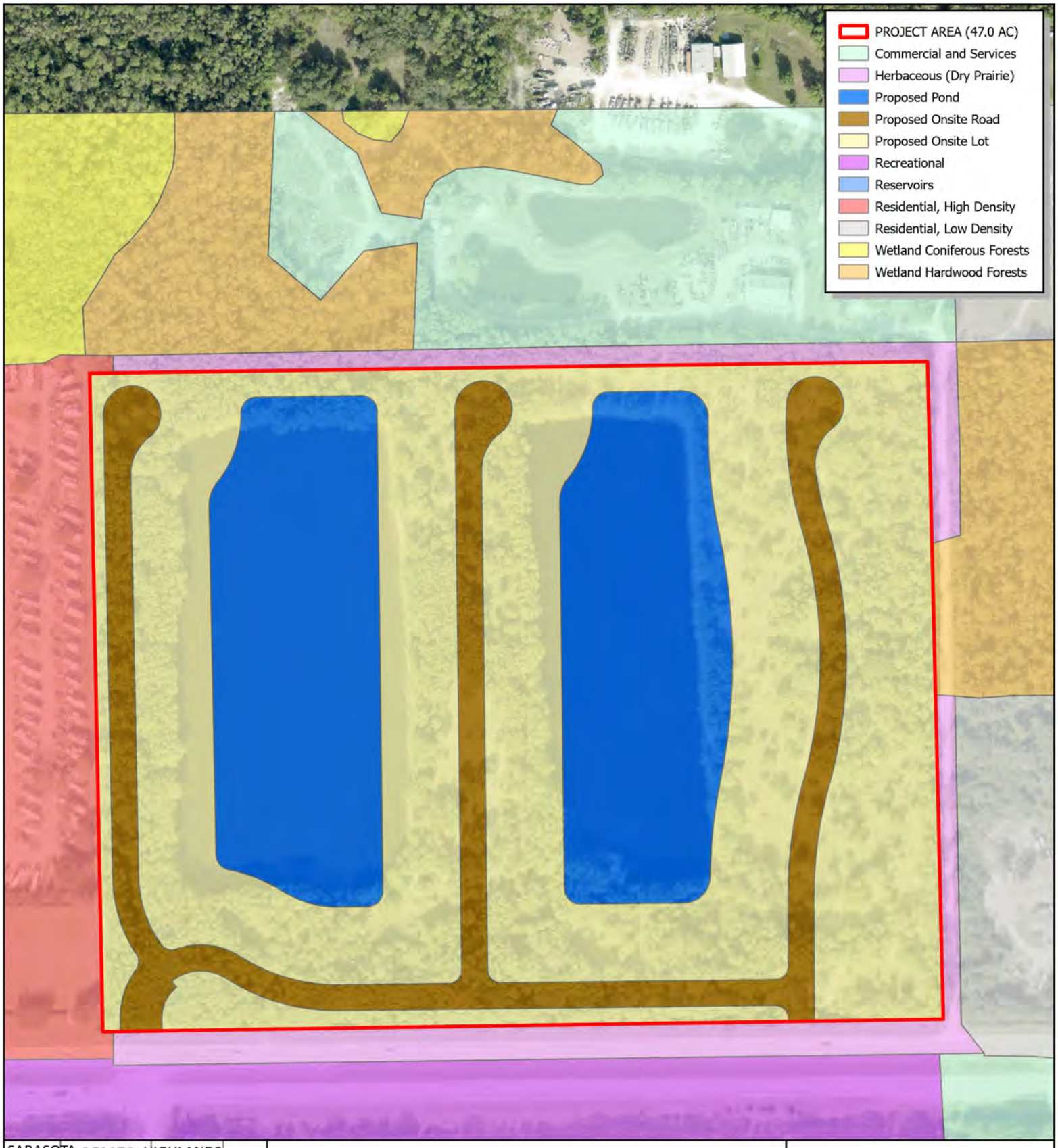

FIGURE 7
PROPOSED LANDUSE MAP
LEE COUNTY, FL

N

0 125 250 US Feet

Scale: 1:3,000

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12/08/2025

Image: ESRI WORLD IMAGERY HYBRID

RESPEC

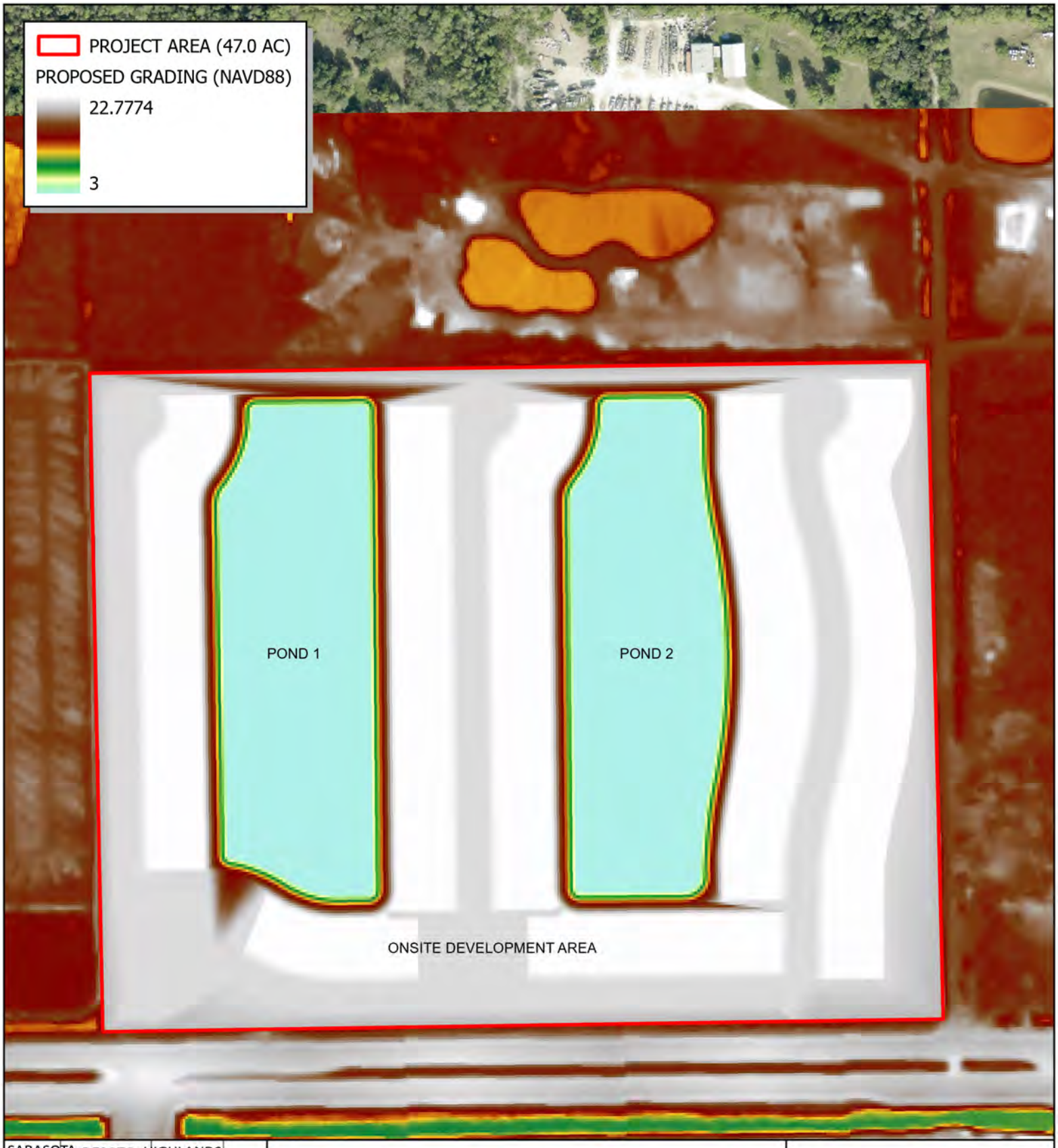

FIGURE 8
PROPOSED LiDAR DEM TOPOGRAPHY
LEE COUNTY, FL

N

0 125 250 US Feet

Scale: 1:3,000

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12/08/2025

Image: ESRI WORLD IMAGERY

RESPEC

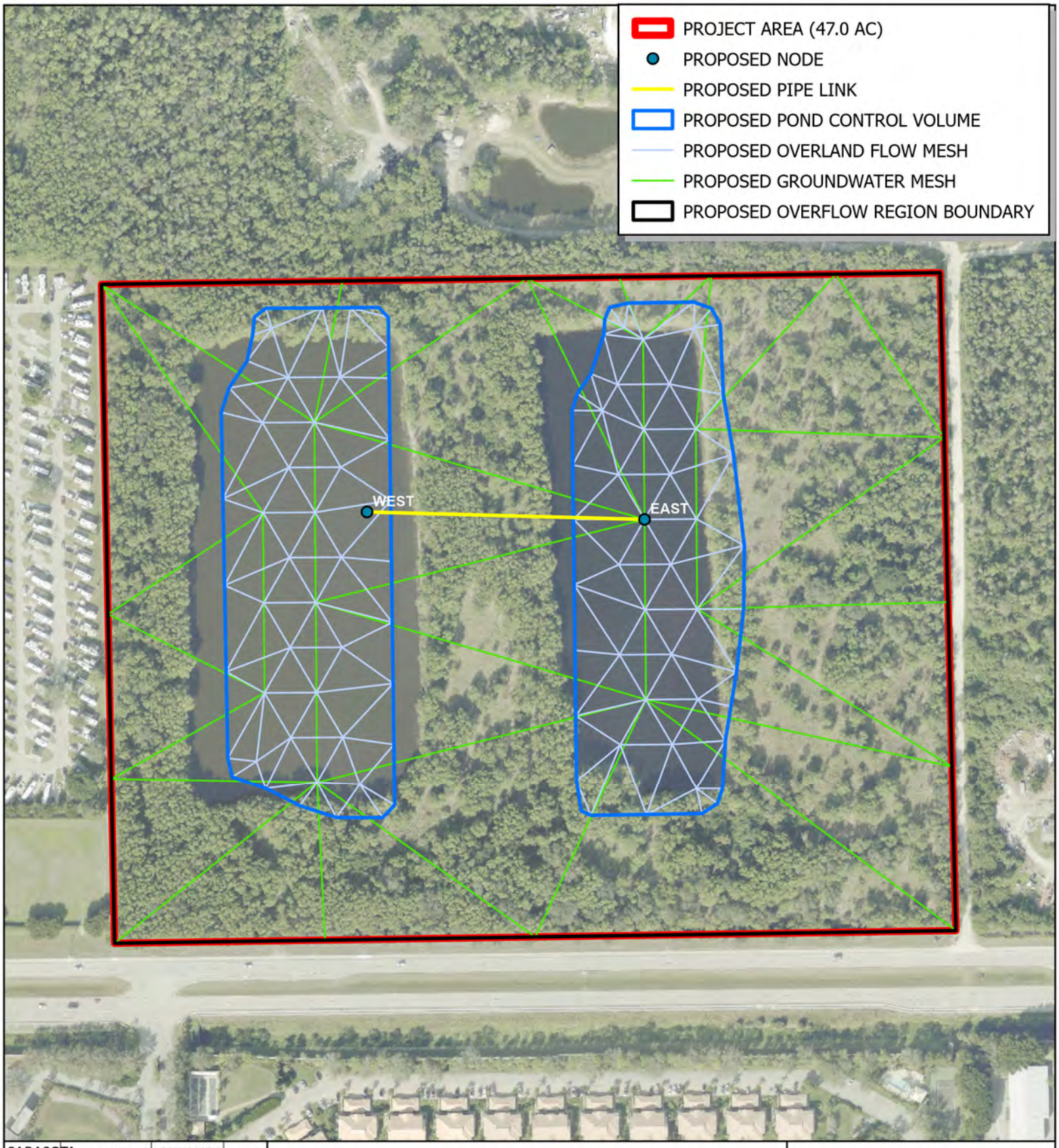

FIGURE 9
PCM SCHEMATIC
LEE COUNTY, FL

N

0 125 250 US Feet

Scale: 1:3,000

RESPEC Company, LLC 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

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APPENDIX A
GREEN-AMPT SOIL PARAMETERS

Soil Zone	Name	Kv Saturated (fpd)	MC Saturated	MC Residual	MC Initial	MC Field	MC Wilting	Pore Size Index	Bubble Pressure (in)	Allow Recharge	WT Initial (ft)
1483424	Pompano fine sand, frequently ponded, 0 to 1 percent slopes	13.04	0.383	0.0086	0.14825	0.14825	0.0304	0.6029	1.7599	Groundwater Only	1.51
1483425	Immokalee sand, 0 to 2 percent slopes	10.2	0.366	0.0164	0.1587	0.1587	0.047	0.5938	1.9563	Groundwater Only	2
1483439	Malabar fine sand, frequently ponded, 0 to 1 percent slopes	11.096	0.3552	0.0271	0.18615	0.18615	0.0731	0.5295	2.5552	Groundwater Only	1.51
1483470	Water	11.131	0.4251	0.0304	0.21225	0.21225	0.080925	0.527	1.69	Groundwater Only	0.01
3102899	Pompano fine sand, ponded-Urban land complex, 0 to 1 percent slopes	13.04	0.383	0.0086	0.14825	0.14825	0.0304	0.6029	1.7599	Groundwater Only	1.51
3102952	Immokalee sand-Urban land complex, 0 to 2 percent slopes	10.2	0.366	0.0164	0.1587	0.1587	0.047	0.5938	1.9563	Groundwater Only	2

APPENDIX B
ECM INPUT/OUTPUT REPORTS

Node: EAST

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.80 ft
Warning Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
3.00	5.5378	241225
3.50	5.6216	244875
4.00	5.7283	249525
4.50	5.8138	253250
5.00	5.9045	257200
5.50	6.0067	261650
6.00	6.0939	265450
6.50	6.1892	269600
7.00	6.2919	274075
7.50	6.3797	277900
8.00	6.4790	282225
8.50	6.5783	286550
9.00	6.6678	290450
9.50	6.7430	293725
10.00	6.7924	295879
10.50	6.8199	297075
11.00	6.8381	297867
11.50	6.8515	298450
12.00	6.8570	298689
12.50	6.8620	298911
13.00	6.8678	299161
13.50	6.8678	299161

Comment:

Node: NTZ-0020

Scenario: Scenario1
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 8.80 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
2017	1	1	0.0000	8.80
2017	1	1	6.0000	8.80
2017	1	1	12.0000	8.80
2017	1	1	18.0000	8.80
2017	1	2	0.0000	8.80
2017	1	2	6.0000	8.80
2017	1	2	12.0000	8.80
2017	1	2	18.0000	8.80
2017	1	3	0.0000	8.80
2017	1	3	6.0000	8.80
2017	1	3	12.0000	8.80
2017	1	3	18.0000	8.80
2017	1	4	0.0000	8.80

Year	Month	Day	Hour	Stage [ft]
2017	1	4	6.0000	8.80
2017	1	4	12.0000	8.80
2017	1	4	18.0000	8.80
2017	1	5	0.0000	8.80
2017	1	5	6.0000	8.80
2017	1	5	12.0000	8.80
2017	1	5	18.0000	8.80
2017	1	6	0.0000	8.80
2017	1	6	6.0000	8.80
2017	1	6	12.0000	8.80
2017	1	6	18.0000	8.80
2017	1	7	0.0000	8.80
2017	1	7	6.0000	8.80
2017	1	7	12.0000	8.80
2017	1	7	18.0000	8.80
2017	1	8	0.0000	8.80
2017	1	8	6.0000	8.80
2017	1	8	12.0000	8.80
2017	1	8	18.0000	8.80
2017	1	9	0.0000	8.80
2017	1	9	6.0000	8.80
2017	1	9	12.0000	8.80
2017	1	9	18.0000	8.80
2017	1	10	0.0000	8.80
2017	1	10	6.0000	8.80
2017	1	10	12.0000	8.80
2017	1	10	18.0000	8.80
2017	1	11	0.0000	8.80
2017	1	11	6.0000	8.80
2017	1	11	12.0000	8.80
2017	1	11	18.0000	8.80
2017	1	12	0.0000	8.80
2017	1	12	6.0000	8.80
2017	1	12	12.0000	8.80
2017	1	12	18.0000	8.80
2017	1	13	0.0000	8.80
2017	1	13	6.0000	8.80
2017	1	13	12.0000	8.80
2017	1	13	18.0000	8.80
2017	1	14	0.0000	8.80
2017	1	14	6.0000	8.80
2017	1	14	12.0000	8.79
2017	1	14	18.0000	8.79
2017	1	15	0.0000	8.79
2017	1	15	6.0000	8.79
2017	1	15	12.0000	8.79
2017	1	15	18.0000	8.79
2017	1	16	0.0000	8.79
2017	1	16	6.0000	8.79
2017	1	16	12.0000	8.79
2017	1	16	18.0000	8.79
2017	1	17	0.0000	8.79
2017	1	17	6.0000	8.79
2017	1	17	12.0000	8.79
2017	1	17	18.0000	8.79
2017	1	18	0.0000	8.79

Year	Month	Day	Hour	Stage [ft]
2017	1	18	6.0000	8.79
2017	1	18	12.0000	8.79
2017	1	18	18.0000	8.79
2017	1	19	0.0000	8.79
2017	1	19	6.0000	8.79
2017	1	19	12.0000	8.79
2017	1	19	18.0000	8.79
2017	1	20	0.0000	8.79
2017	1	20	6.0000	8.79
2017	1	20	12.0000	8.79
2017	1	20	18.0000	8.79
2017	1	21	0.0000	8.79
2017	1	21	6.0000	8.79
2017	1	21	12.0000	8.79
2017	1	21	18.0000	8.79
2017	1	22	0.0000	8.79
2017	1	22	6.0000	8.79
2017	1	22	12.0000	8.79
2017	1	22	18.0000	8.79
2017	1	23	0.0000	8.79
2017	1	23	6.0000	8.79
2017	1	23	12.0000	8.80
2017	1	23	18.0000	8.80
2017	1	24	0.0000	8.80
2017	1	24	6.0000	8.80
2017	1	24	12.0000	8.80
2017	1	24	18.0000	8.80
2017	1	25	0.0000	8.80
2017	1	25	6.0000	8.80
2017	1	25	12.0000	8.80
2017	1	25	18.0000	8.80
2017	1	26	0.0000	8.80
2017	1	26	6.0000	8.79
2017	1	26	12.0000	8.79
2017	1	26	18.0000	8.79
2017	1	27	0.0000	8.79
2017	1	27	6.0000	8.79
2017	1	27	12.0000	8.79
2017	1	27	18.0000	8.79
2017	1	28	0.0000	8.79
2017	1	28	6.0000	8.79
2017	1	28	12.0000	8.79
2017	1	28	18.0000	8.79
2017	1	29	0.0000	8.79
2017	1	29	6.0000	8.79
2017	1	29	12.0000	8.79
2017	1	29	18.0000	8.80
2017	1	30	0.0000	8.80
2017	1	30	6.0000	8.80
2017	1	30	12.0000	8.80
2017	1	30	18.0000	8.80
2017	1	31	0.0000	8.80
2017	1	31	6.0000	8.80
2017	1	31	12.0000	8.80
2017	1	31	18.0000	8.80
2017	2	1	0.0000	8.80

Year	Month	Day	Hour	Stage [ft]
2017	2	1	6.0000	8.80
2017	2	1	12.0000	8.80
2017	2	1	18.0000	8.80
2017	2	2	0.0000	8.80
2017	2	2	6.0000	8.80
2017	2	2	12.0000	8.80
2017	2	2	18.0000	8.79
2017	2	3	0.0000	8.79
2017	2	3	6.0000	8.79
2017	2	3	12.0000	8.79
2017	2	3	18.0000	8.79
2017	2	4	0.0000	8.79
2017	2	4	6.0000	8.79
2017	2	4	12.0000	8.79
2017	2	4	18.0000	8.79
2017	2	5	0.0000	8.79
2017	2	5	6.0000	8.79
2017	2	5	12.0000	8.79
2017	2	5	18.0000	8.79
2017	2	6	0.0000	8.79
2017	2	6	6.0000	8.79
2017	2	6	12.0000	8.79
2017	2	6	18.0000	8.79
2017	2	7	0.0000	8.79
2017	2	7	6.0000	8.79
2017	2	7	12.0000	8.79
2017	2	7	18.0000	8.79
2017	2	8	0.0000	8.79
2017	2	8	6.0000	8.79
2017	2	8	12.0000	8.79
2017	2	8	18.0000	8.79
2017	2	9	0.0000	8.79
2017	2	9	6.0000	8.79
2017	2	9	12.0000	8.79
2017	2	9	18.0000	8.79
2017	2	10	0.0000	8.79
2017	2	10	6.0000	8.79
2017	2	10	12.0000	8.79
2017	2	10	18.0000	8.79
2017	2	11	0.0000	8.79
2017	2	11	6.0000	8.79
2017	2	11	12.0000	8.79
2017	2	11	18.0000	8.79
2017	2	12	0.0000	8.79
2017	2	12	6.0000	8.79
2017	2	12	12.0000	8.79
2017	2	12	18.0000	8.79
2017	2	13	0.0000	8.79
2017	2	13	6.0000	8.79
2017	2	13	12.0000	8.79
2017	2	13	18.0000	8.79
2017	2	14	0.0000	8.79
2017	2	14	6.0000	8.79
2017	2	14	12.0000	8.79
2017	2	14	18.0000	8.79
2017	2	15	0.0000	8.79

Year	Month	Day	Hour	Stage [ft]
2017	2	15	6.0000	8.79
2017	2	15	12.0000	8.79
2017	2	15	18.0000	8.79
2017	2	16	0.0000	8.79
2017	2	16	6.0000	8.79
2017	2	16	12.0000	8.79
2017	2	16	18.0000	8.79
2017	2	17	0.0000	8.79
2017	2	17	6.0000	8.79
2017	2	17	12.0000	8.79
2017	2	17	18.0000	8.79
2017	2	18	0.0000	8.79
2017	2	18	6.0000	8.79
2017	2	18	12.0000	8.79
2017	2	18	18.0000	8.79
2017	2	19	0.0000	8.79
2017	2	19	6.0000	8.79
2017	2	19	12.0000	8.79
2017	2	19	18.0000	8.79
2017	2	20	0.0000	8.79
2017	2	20	6.0000	8.79
2017	2	20	12.0000	8.79
2017	2	20	18.0000	8.79
2017	2	21	0.0000	8.79
2017	2	21	6.0000	8.79
2017	2	21	12.0000	8.79
2017	2	21	18.0000	8.79
2017	2	22	0.0000	8.79
2017	2	22	6.0000	8.79
2017	2	22	12.0000	8.79
2017	2	22	18.0000	8.79
2017	2	23	0.0000	8.79
2017	2	23	6.0000	8.79
2017	2	23	12.0000	8.79
2017	2	23	18.0000	8.79
2017	2	24	0.0000	8.79
2017	2	24	6.0000	8.79
2017	2	24	12.0000	8.79
2017	2	24	18.0000	8.79
2017	2	25	0.0000	8.79
2017	2	25	6.0000	8.79
2017	2	25	12.0000	8.79
2017	2	25	18.0000	8.79
2017	2	26	0.0000	8.79
2017	2	26	6.0000	8.79
2017	2	26	12.0000	8.79
2017	2	26	18.0000	8.79
2017	2	27	0.0000	8.79
2017	2	27	6.0000	8.79
2017	2	27	12.0000	8.79
2017	2	27	18.0000	8.79
2017	2	28	0.0000	8.79
2017	2	28	6.0000	8.79
2017	2	28	12.0000	8.79
2017	2	28	18.0000	8.79
2017	3	1	0.0000	8.79

Year	Month	Day	Hour	Stage [ft]
2017	3	1	6.0000	8.79
2017	3	1	12.0000	8.79
2017	3	1	18.0000	8.79
2017	3	2	0.0000	8.79
2017	3	2	6.0000	8.79
2017	3	2	12.0000	8.79
2017	3	2	18.0000	8.79
2017	3	3	0.0000	8.79
2017	3	3	6.0000	8.79
2017	3	3	12.0000	8.79
2017	3	3	18.0000	8.79
2017	3	4	0.0000	8.79
2017	3	4	6.0000	8.79
2017	3	4	12.0000	8.79
2017	3	4	18.0000	8.79
2017	3	5	0.0000	8.79
2017	3	5	6.0000	8.79
2017	3	5	12.0000	8.79
2017	3	5	18.0000	8.79
2017	3	6	0.0000	8.79
2017	3	6	6.0000	8.79
2017	3	6	12.0000	8.79
2017	3	6	18.0000	8.79
2017	3	7	0.0000	8.79
2017	3	7	6.0000	8.79
2017	3	7	12.0000	8.79
2017	3	7	18.0000	8.79
2017	3	8	0.0000	8.79
2017	3	8	6.0000	8.79
2017	3	8	12.0000	8.79
2017	3	8	18.0000	8.79
2017	3	9	0.0000	8.79
2017	3	9	6.0000	8.79
2017	3	9	12.0000	8.79
2017	3	9	18.0000	8.79
2017	3	10	0.0000	8.79
2017	3	10	6.0000	8.79
2017	3	10	12.0000	8.79
2017	3	10	18.0000	8.79
2017	3	11	0.0000	8.79
2017	3	11	6.0000	8.79
2017	3	11	12.0000	8.79
2017	3	11	18.0000	8.79
2017	3	12	0.0000	8.79
2017	3	12	6.0000	8.79
2017	3	12	12.0000	8.79
2017	3	12	18.0000	8.79
2017	3	13	0.0000	8.79
2017	3	13	6.0000	8.79
2017	3	13	12.0000	8.79
2017	3	13	18.0000	8.79
2017	3	14	0.0000	8.79
2017	3	14	6.0000	8.79
2017	3	14	12.0000	8.79
2017	3	14	18.0000	8.79
2017	3	15	0.0000	8.79

Year	Month	Day	Hour	Stage [ft]
2017	3	15	6.0000	8.79
2017	3	15	12.0000	8.79
2017	3	15	18.0000	8.79
2017	3	16	0.0000	8.79
2017	3	16	6.0000	8.79
2017	3	16	12.0000	8.79
2017	3	16	18.0000	8.79
2017	3	17	0.0000	8.79
2017	3	17	6.0000	8.79
2017	3	17	12.0000	8.79
2017	3	17	18.0000	8.79
2017	3	18	0.0000	8.79
2017	3	18	6.0000	8.79
2017	3	18	12.0000	8.79
2017	3	18	18.0000	8.79
2017	3	19	0.0000	8.79
2017	3	19	6.0000	8.79
2017	3	19	12.0000	8.79
2017	3	19	18.0000	8.79
2017	3	20	0.0000	8.79
2017	3	20	6.0000	8.79
2017	3	20	12.0000	8.79
2017	3	20	18.0000	8.79
2017	3	21	0.0000	8.79
2017	3	21	6.0000	8.79
2017	3	21	12.0000	8.79
2017	3	21	18.0000	8.79
2017	3	22	0.0000	8.79
2017	3	22	6.0000	8.79
2017	3	22	12.0000	8.79
2017	3	22	18.0000	8.79
2017	3	23	0.0000	8.79
2017	3	23	6.0000	8.79
2017	3	23	12.0000	8.79
2017	3	23	18.0000	8.79
2017	3	24	0.0000	8.79
2017	3	24	6.0000	8.79
2017	3	24	12.0000	8.79
2017	3	24	18.0000	8.79
2017	3	25	0.0000	8.79
2017	3	25	6.0000	8.79
2017	3	25	12.0000	8.79
2017	3	25	18.0000	8.79
2017	3	26	0.0000	8.79
2017	3	26	6.0000	8.79
2017	3	26	12.0000	8.79
2017	3	26	18.0000	8.79
2017	3	27	0.0000	8.79
2017	3	27	6.0000	8.79
2017	3	27	12.0000	8.79
2017	3	27	18.0000	8.79
2017	3	28	0.0000	8.79
2017	3	28	6.0000	8.79
2017	3	28	12.0000	8.79
2017	3	28	18.0000	8.79
2017	3	29	0.0000	8.79

Year	Month	Day	Hour	Stage [ft]
2017	3	29	6.0000	8.79
2017	3	29	12.0000	8.79
2017	3	29	18.0000	8.79
2017	3	30	0.0000	8.79
2017	3	30	6.0000	8.79
2017	3	30	12.0000	8.79
2017	3	30	18.0000	8.79
2017	3	31	0.0000	8.79
2017	3	31	6.0000	8.79
2017	3	31	12.0000	8.79
2017	3	31	18.0000	8.79
2017	4	1	0.0000	8.79
2017	4	1	6.0000	8.79
2017	4	1	12.0000	8.79
2017	4	1	18.0000	8.79
2017	4	2	0.0000	8.79
2017	4	2	6.0000	8.79
2017	4	2	12.0000	8.79
2017	4	2	18.0000	8.79
2017	4	3	0.0000	8.79
2017	4	3	6.0000	8.79
2017	4	3	12.0000	8.79
2017	4	3	18.0000	8.79
2017	4	4	0.0000	8.79
2017	4	4	6.0000	8.79
2017	4	4	12.0000	8.79
2017	4	4	18.0000	8.79
2017	4	5	0.0000	8.79
2017	4	5	6.0000	8.79
2017	4	5	12.0000	8.79
2017	4	5	18.0000	8.79
2017	4	6	0.0000	8.79
2017	4	6	6.0000	8.79
2017	4	6	12.0000	8.79
2017	4	6	18.0000	8.79
2017	4	7	0.0000	8.79
2017	4	7	6.0000	8.79
2017	4	7	12.0000	8.79
2017	4	7	18.0000	8.79
2017	4	8	0.0000	8.79
2017	4	8	6.0000	8.79
2017	4	8	12.0000	8.79
2017	4	8	18.0000	8.79
2017	4	9	0.0000	8.79
2017	4	9	6.0000	8.79
2017	4	9	12.0000	8.79
2017	4	9	18.0000	8.79
2017	4	10	0.0000	8.79
2017	4	10	6.0000	8.79
2017	4	10	12.0000	8.79
2017	4	10	18.0000	8.79
2017	4	11	0.0000	8.79
2017	4	11	6.0000	8.79
2017	4	11	12.0000	8.79
2017	4	11	18.0000	8.79
2017	4	12	0.0000	8.79

Year	Month	Day	Hour	Stage [ft]
2017	4	12	6.0000	8.79
2017	4	12	12.0000	8.79
2017	4	12	18.0000	8.79
2017	4	13	0.0000	8.79
2017	4	13	6.0000	8.79
2017	4	13	12.0000	8.79
2017	4	13	18.0000	8.79
2017	4	14	0.0000	8.79
2017	4	14	6.0000	8.79
2017	4	14	12.0000	8.79
2017	4	14	18.0000	8.79
2017	4	15	0.0000	8.79
2017	4	15	6.0000	8.79
2017	4	15	12.0000	8.79
2017	4	15	18.0000	8.79
2017	4	16	0.0000	8.79
2017	4	16	6.0000	8.79
2017	4	16	12.0000	8.79
2017	4	16	18.0000	8.79
2017	4	17	0.0000	8.79
2017	4	17	6.0000	8.79
2017	4	17	12.0000	8.79
2017	4	17	18.0000	8.79
2017	4	18	0.0000	8.79
2017	4	18	6.0000	8.79
2017	4	18	12.0000	8.79
2017	4	18	18.0000	8.79
2017	4	19	0.0000	8.79
2017	4	19	6.0000	8.79
2017	4	19	12.0000	8.79
2017	4	19	18.0000	8.79
2017	4	20	0.0000	8.79
2017	4	20	6.0000	8.79
2017	4	20	12.0000	8.79
2017	4	20	18.0000	8.79
2017	4	21	0.0000	8.79
2017	4	21	6.0000	8.79
2017	4	21	12.0000	8.79
2017	4	21	18.0000	8.79
2017	4	22	0.0000	8.79
2017	4	22	6.0000	8.79
2017	4	22	12.0000	8.79
2017	4	22	18.0000	8.79
2017	4	23	0.0000	8.79
2017	4	23	6.0000	8.79
2017	4	23	12.0000	8.79
2017	4	23	18.0000	8.79
2017	4	24	0.0000	8.79
2017	4	24	6.0000	8.79
2017	4	24	12.0000	8.79
2017	4	24	18.0000	8.79
2017	4	25	0.0000	8.79
2017	4	25	6.0000	8.79
2017	4	25	12.0000	8.79
2017	4	25	18.0000	8.79
2017	4	26	0.0000	8.79

Year	Month	Day	Hour	Stage [ft]
2017	4	26	6.0000	8.79
2017	4	26	12.0000	8.79
2017	4	26	18.0000	8.79
2017	4	27	0.0000	8.79
2017	4	27	6.0000	8.79
2017	4	27	12.0000	8.79
2017	4	27	18.0000	8.79
2017	4	28	0.0000	8.79
2017	4	28	6.0000	8.79
2017	4	28	12.0000	8.79
2017	4	28	18.0000	8.79
2017	4	29	0.0000	8.79
2017	4	29	6.0000	8.79
2017	4	29	12.0000	8.79
2017	4	29	18.0000	8.79
2017	4	30	0.0000	8.79
2017	4	30	6.0000	8.79
2017	4	30	12.0000	8.79
2017	4	30	18.0000	8.79
2017	5	1	0.0000	8.79
2017	5	1	6.0000	8.79
2017	5	1	12.0000	8.79
2017	5	1	18.0000	8.79
2017	5	2	0.0000	8.79
2017	5	2	6.0000	8.79
2017	5	2	12.0000	8.79
2017	5	2	18.0000	8.79
2017	5	3	0.0000	8.79
2017	5	3	6.0000	8.79
2017	5	3	12.0000	8.79
2017	5	3	18.0000	8.79
2017	5	4	0.0000	8.79
2017	5	4	6.0000	8.79
2017	5	4	12.0000	8.79
2017	5	4	18.0000	8.79
2017	5	5	0.0000	8.79
2017	5	5	6.0000	8.79
2017	5	5	12.0000	8.79
2017	5	5	18.0000	8.79
2017	5	6	0.0000	8.79
2017	5	6	6.0000	8.79
2017	5	6	12.0000	8.79
2017	5	6	18.0000	8.79
2017	5	7	0.0000	8.79
2017	5	7	6.0000	8.79
2017	5	7	12.0000	8.79
2017	5	7	18.0000	8.79
2017	5	8	0.0000	8.79
2017	5	8	6.0000	8.79
2017	5	8	12.0000	8.79
2017	5	8	18.0000	8.79
2017	5	9	0.0000	8.79
2017	5	9	6.0000	8.79
2017	5	9	12.0000	8.79
2017	5	9	18.0000	8.79
2017	5	10	0.0000	8.79

Year	Month	Day	Hour	Stage [ft]
2017	5	10	6.0000	8.79
2017	5	10	12.0000	8.79
2017	5	10	18.0000	8.79
2017	5	11	0.0000	8.79
2017	5	11	6.0000	8.79
2017	5	11	12.0000	8.79
2017	5	11	18.0000	8.79
2017	5	12	0.0000	8.79
2017	5	12	6.0000	8.79
2017	5	12	12.0000	8.79
2017	5	12	18.0000	8.79
2017	5	13	0.0000	8.79
2017	5	13	6.0000	8.79
2017	5	13	12.0000	8.79
2017	5	13	18.0000	8.79
2017	5	14	0.0000	8.79
2017	5	14	6.0000	8.79
2017	5	14	12.0000	8.79
2017	5	14	18.0000	8.79
2017	5	15	0.0000	8.79
2017	5	15	6.0000	8.79
2017	5	15	12.0000	8.79
2017	5	15	18.0000	8.79
2017	5	16	0.0000	8.79
2017	5	16	6.0000	8.79
2017	5	16	12.0000	8.79
2017	5	16	18.0000	8.79
2017	5	17	0.0000	8.79
2017	5	17	6.0000	8.79
2017	5	17	12.0000	8.79
2017	5	17	18.0000	8.79
2017	5	18	0.0000	8.79
2017	5	18	6.0000	8.79
2017	5	18	12.0000	8.79
2017	5	18	18.0000	8.79
2017	5	19	0.0000	8.79
2017	5	19	6.0000	8.79
2017	5	19	12.0000	8.79
2017	5	19	18.0000	8.79
2017	5	20	0.0000	8.79
2017	5	20	6.0000	8.79
2017	5	20	12.0000	8.79
2017	5	20	18.0000	8.79
2017	5	21	0.0000	8.79
2017	5	21	6.0000	8.79
2017	5	21	12.0000	8.79
2017	5	21	18.0000	8.79
2017	5	22	0.0000	8.79
2017	5	22	6.0000	8.79
2017	5	22	12.0000	8.79
2017	5	22	18.0000	8.79
2017	5	23	0.0000	8.79
2017	5	23	6.0000	8.79
2017	5	23	12.0000	8.79
2017	5	23	18.0000	8.79
2017	5	24	0.0000	8.79

Year	Month	Day	Hour	Stage [ft]
2017	5	24	6.0000	8.79
2017	5	24	12.0000	8.79
2017	5	24	18.0000	8.79
2017	5	25	0.0000	8.79
2017	5	25	6.0000	8.79
2017	5	25	12.0000	8.79
2017	5	25	18.0000	8.79
2017	5	26	0.0000	8.79
2017	5	26	6.0000	8.79
2017	5	26	12.0000	8.79
2017	5	26	18.0000	8.79
2017	5	27	0.0000	8.79
2017	5	27	6.0000	8.79
2017	5	27	12.0000	8.79
2017	5	27	18.0000	8.79
2017	5	28	0.0000	8.79
2017	5	28	6.0000	8.79
2017	5	28	12.0000	8.79
2017	5	28	18.0000	8.79
2017	5	29	0.0000	8.79
2017	5	29	6.0000	8.79
2017	5	29	12.0000	8.79
2017	5	29	18.0000	8.79
2017	5	30	0.0000	8.79
2017	5	30	6.0000	8.79
2017	5	30	12.0000	8.79
2017	5	30	18.0000	8.79
2017	5	31	0.0000	8.79
2017	5	31	6.0000	7.28
2017	5	31	12.0000	4.21
2017	5	31	18.0000	3.23
2017	6	1	0.0000	3.03
2017	6	1	6.0000	2.93
2017	6	1	12.0000	2.85
2017	6	1	18.0000	2.79
2017	6	2	0.0000	2.75
2017	6	2	6.0000	2.71
2017	6	2	12.0000	2.68
2017	6	2	18.0000	2.65
2017	6	3	0.0000	2.63
2017	6	3	6.0000	2.61
2017	6	3	12.0000	2.60
2017	6	3	18.0000	2.59
2017	6	4	0.0000	2.58
2017	6	4	6.0000	2.57
2017	6	4	12.0000	2.57
2017	6	4	18.0000	2.56
2017	6	5	0.0000	2.56
2017	6	5	6.0000	2.55
2017	6	5	12.0000	2.55
2017	6	5	18.0000	2.55
2017	6	6	0.0000	2.55
2017	6	6	6.0000	2.68
2017	6	6	12.0000	4.78
2017	6	6	18.0000	5.71
2017	6	7	0.0000	7.47

Year	Month	Day	Hour	Stage [ft]
2017	6	7	6.0000	7.94
2017	6	7	12.0000	7.74
2017	6	7	18.0000	8.92
2017	6	8	0.0000	9.22
2017	6	8	6.0000	8.94
2017	6	8	12.0000	8.63
2017	6	8	18.0000	8.43
2017	6	9	0.0000	8.22
2017	6	9	6.0000	8.04
2017	6	9	12.0000	7.93
2017	6	9	18.0000	7.84
2017	6	10	0.0000	7.74
2017	6	10	6.0000	7.68
2017	6	10	12.0000	9.97
2017	6	10	18.0000	10.25
2017	6	11	0.0000	10.25
2017	6	11	6.0000	10.24
2017	6	11	12.0000	10.23
2017	6	11	18.0000	10.24
2017	6	12	0.0000	10.24
2017	6	12	6.0000	10.24
2017	6	12	12.0000	10.24
2017	6	12	18.0000	10.25
2017	6	13	0.0000	10.25
2017	6	13	6.0000	10.25
2017	6	13	12.0000	10.26
2017	6	13	18.0000	10.35
2017	6	14	0.0000	10.36
2017	6	14	6.0000	10.37
2017	6	14	12.0000	10.71
2017	6	14	18.0000	10.92
2017	6	15	0.0000	11.02
2017	6	15	6.0000	11.09
2017	6	15	12.0000	11.16
2017	6	15	18.0000	11.42
2017	6	16	0.0000	11.54
2017	6	16	6.0000	11.64
2017	6	16	12.0000	11.74
2017	6	16	18.0000	11.83
2017	6	17	0.0000	11.92
2017	6	17	6.0000	12.01
2017	6	17	12.0000	12.14
2017	6	17	18.0000	12.54
2017	6	18	0.0000	12.63
2017	6	18	6.0000	12.67
2017	6	18	12.0000	12.69
2017	6	18	18.0000	12.76
2017	6	19	0.0000	12.78
2017	6	19	6.0000	12.79
2017	6	19	12.0000	12.96
2017	6	19	18.0000	13.21
2017	6	20	0.0000	13.26
2017	6	20	6.0000	13.27
2017	6	20	12.0000	13.26
2017	6	20	18.0000	13.25
2017	6	21	0.0000	13.23

Year	Month	Day	Hour	Stage [ft]
2017	6	21	6.0000	13.20
2017	6	21	12.0000	13.17
2017	6	21	18.0000	13.14
2017	6	22	0.0000	13.11
2017	6	22	6.0000	13.08
2017	6	22	12.0000	13.04
2017	6	22	18.0000	13.01
2017	6	23	0.0000	12.98
2017	6	23	6.0000	12.95
2017	6	23	12.0000	12.92
2017	6	23	18.0000	12.93
2017	6	24	0.0000	12.91
2017	6	24	6.0000	12.87
2017	6	24	12.0000	12.84
2017	6	24	18.0000	12.81
2017	6	25	0.0000	12.77
2017	6	25	6.0000	12.73
2017	6	25	12.0000	12.69
2017	6	25	18.0000	12.65
2017	6	26	0.0000	12.61
2017	6	26	6.0000	12.57
2017	6	26	12.0000	12.53
2017	6	26	18.0000	12.65
2017	6	27	0.0000	12.87
2017	6	27	6.0000	12.92
2017	6	27	12.0000	12.89
2017	6	27	18.0000	12.84
2017	6	28	0.0000	12.77
2017	6	28	6.0000	12.69
2017	6	28	12.0000	12.61
2017	6	28	18.0000	12.57
2017	6	29	0.0000	12.58
2017	6	29	6.0000	12.56
2017	6	29	12.0000	12.54
2017	6	29	18.0000	12.74
2017	6	30	0.0000	12.76
2017	6	30	6.0000	12.73
2017	6	30	12.0000	12.67
2017	6	30	18.0000	12.68
2017	7	1	0.0000	12.62
2017	7	1	6.0000	12.54
2017	7	1	12.0000	12.46
2017	7	1	18.0000	12.40
2017	7	2	0.0000	12.35
2017	7	2	6.0000	12.28
2017	7	2	12.0000	12.21
2017	7	2	18.0000	12.26
2017	7	3	0.0000	12.18
2017	7	3	6.0000	12.11
2017	7	3	12.0000	12.03
2017	7	3	18.0000	11.99
2017	7	4	0.0000	11.96
2017	7	4	6.0000	11.90
2017	7	4	12.0000	11.84
2017	7	4	18.0000	11.81
2017	7	5	0.0000	11.77

Year	Month	Day	Hour	Stage [ft]
2017	7	5	6.0000	11.72
2017	7	5	12.0000	11.67
2017	7	5	18.0000	11.65
2017	7	6	0.0000	11.62
2017	7	6	6.0000	11.57
2017	7	6	12.0000	11.52
2017	7	6	18.0000	11.54
2017	7	7	0.0000	11.48
2017	7	7	6.0000	11.43
2017	7	7	12.0000	11.37
2017	7	7	18.0000	11.33
2017	7	8	0.0000	11.28
2017	7	8	6.0000	11.23
2017	7	8	12.0000	11.18
2017	7	8	18.0000	11.19
2017	7	9	0.0000	11.16
2017	7	9	6.0000	11.13
2017	7	9	12.0000	11.10
2017	7	9	18.0000	11.09
2017	7	10	0.0000	11.05
2017	7	10	6.0000	11.02
2017	7	10	12.0000	10.99
2017	7	10	18.0000	10.96
2017	7	11	0.0000	10.93
2017	7	11	6.0000	10.90
2017	7	11	12.0000	10.86
2017	7	11	18.0000	10.99
2017	7	12	0.0000	10.98
2017	7	12	6.0000	10.96
2017	7	12	12.0000	10.94
2017	7	12	18.0000	10.97
2017	7	13	0.0000	10.99
2017	7	13	6.0000	10.97
2017	7	13	12.0000	10.95
2017	7	13	18.0000	10.93
2017	7	14	0.0000	10.90
2017	7	14	6.0000	10.87
2017	7	14	12.0000	10.85
2017	7	14	18.0000	11.03
2017	7	15	0.0000	11.02
2017	7	15	6.0000	10.98
2017	7	15	12.0000	10.94
2017	7	15	18.0000	10.90
2017	7	16	0.0000	10.86
2017	7	16	6.0000	10.82
2017	7	16	12.0000	10.78
2017	7	16	18.0000	10.74
2017	7	17	0.0000	10.71
2017	7	17	6.0000	10.67
2017	7	17	12.0000	10.71
2017	7	17	18.0000	10.90
2017	7	18	0.0000	10.90
2017	7	18	6.0000	10.88
2017	7	18	12.0000	10.91
2017	7	18	18.0000	11.32
2017	7	19	0.0000	11.37

Year	Month	Day	Hour	Stage [ft]
2017	7	19	6.0000	11.34
2017	7	19	12.0000	11.43
2017	7	19	18.0000	11.44
2017	7	20	0.0000	11.40
2017	7	20	6.0000	11.36
2017	7	20	12.0000	11.37
2017	7	20	18.0000	11.34
2017	7	21	0.0000	11.30
2017	7	21	6.0000	11.26
2017	7	21	12.0000	11.65
2017	7	21	18.0000	11.62
2017	7	22	0.0000	11.57
2017	7	22	6.0000	11.52
2017	7	22	12.0000	11.67
2017	7	22	18.0000	11.72
2017	7	23	0.0000	11.67
2017	7	23	6.0000	11.60
2017	7	23	12.0000	11.54
2017	7	23	18.0000	11.49
2017	7	24	0.0000	11.44
2017	7	24	6.0000	11.39
2017	7	24	12.0000	11.34
2017	7	24	18.0000	11.29
2017	7	25	0.0000	11.24
2017	7	25	6.0000	11.19
2017	7	25	12.0000	11.14
2017	7	25	18.0000	11.13
2017	7	26	0.0000	11.13
2017	7	26	6.0000	11.12
2017	7	26	12.0000	11.11
2017	7	26	18.0000	11.12
2017	7	27	0.0000	11.10
2017	7	27	6.0000	11.09
2017	7	27	12.0000	11.06
2017	7	27	18.0000	11.02
2017	7	28	0.0000	10.99
2017	7	28	6.0000	10.96
2017	7	28	12.0000	10.93
2017	7	28	18.0000	10.90
2017	7	29	0.0000	10.87
2017	7	29	6.0000	10.83
2017	7	29	12.0000	10.85
2017	7	29	18.0000	10.83
2017	7	30	0.0000	10.80
2017	7	30	6.0000	10.77
2017	7	30	12.0000	10.78
2017	7	30	18.0000	10.81
2017	7	31	0.0000	10.86
2017	7	31	6.0000	11.22
2017	7	31	12.0000	12.04
2017	7	31	18.0000	12.15
2017	8	1	0.0000	12.55
2017	8	1	6.0000	12.91
2017	8	1	12.0000	13.46
2017	8	1	18.0000	13.63
2017	8	2	0.0000	13.79

Year	Month	Day	Hour	Stage [ft]
2017	8	2	6.0000	13.78
2017	8	2	12.0000	13.75
2017	8	2	18.0000	13.71
2017	8	3	0.0000	13.67
2017	8	3	6.0000	13.61
2017	8	3	12.0000	13.54
2017	8	3	18.0000	13.54
2017	8	4	0.0000	13.51
2017	8	4	6.0000	13.47
2017	8	4	12.0000	13.42
2017	8	4	18.0000	13.36
2017	8	5	0.0000	13.29
2017	8	5	6.0000	13.26
2017	8	5	12.0000	13.20
2017	8	5	18.0000	13.21
2017	8	6	0.0000	13.21
2017	8	6	6.0000	13.18
2017	8	6	12.0000	13.13
2017	8	6	18.0000	13.18
2017	8	7	0.0000	13.14
2017	8	7	6.0000	13.07
2017	8	7	12.0000	13.00
2017	8	7	18.0000	12.94
2017	8	8	0.0000	12.88
2017	8	8	6.0000	12.81
2017	8	8	12.0000	12.74
2017	8	8	18.0000	12.71
2017	8	9	0.0000	12.64
2017	8	9	6.0000	12.55
2017	8	9	12.0000	12.46
2017	8	9	18.0000	12.37
2017	8	10	0.0000	12.29
2017	8	10	6.0000	12.21
2017	8	10	12.0000	12.14
2017	8	10	18.0000	12.07
2017	8	11	0.0000	12.27
2017	8	11	6.0000	13.29
2017	8	11	12.0000	13.51
2017	8	11	18.0000	13.50
2017	8	12	0.0000	13.45
2017	8	12	6.0000	13.40
2017	8	12	12.0000	13.33
2017	8	12	18.0000	13.25
2017	8	13	0.0000	13.16
2017	8	13	6.0000	13.07
2017	8	13	12.0000	12.97
2017	8	13	18.0000	12.87
2017	8	14	0.0000	12.77
2017	8	14	6.0000	12.67
2017	8	14	12.0000	12.58
2017	8	14	18.0000	12.53
2017	8	15	0.0000	12.47
2017	8	15	6.0000	12.40
2017	8	15	12.0000	12.33
2017	8	15	18.0000	12.25
2017	8	16	0.0000	12.19

Year	Month	Day	Hour	Stage [ft]
2017	8	16	6.0000	12.13
2017	8	16	12.0000	12.07
2017	8	16	18.0000	12.04
2017	8	17	0.0000	11.97
2017	8	17	6.0000	11.92
2017	8	17	12.0000	11.85
2017	8	17	18.0000	11.92
2017	8	18	0.0000	12.07
2017	8	18	6.0000	12.03
2017	8	18	12.0000	11.96
2017	8	18	18.0000	11.88
2017	8	19	0.0000	11.82
2017	8	19	6.0000	11.75
2017	8	19	12.0000	11.68
2017	8	19	18.0000	11.62
2017	8	20	0.0000	11.55
2017	8	20	6.0000	11.49
2017	8	20	12.0000	11.43
2017	8	20	18.0000	11.44
2017	8	21	0.0000	11.42
2017	8	21	6.0000	11.37
2017	8	21	12.0000	11.32
2017	8	21	18.0000	11.27
2017	8	22	0.0000	11.21
2017	8	22	6.0000	11.16
2017	8	22	12.0000	11.11
2017	8	22	18.0000	11.07
2017	8	23	0.0000	11.02
2017	8	23	6.0000	10.98
2017	8	23	12.0000	10.93
2017	8	23	18.0000	10.99
2017	8	24	0.0000	10.96
2017	8	24	6.0000	10.93
2017	8	24	12.0000	10.97
2017	8	24	18.0000	11.31
2017	8	25	0.0000	11.36
2017	8	25	6.0000	11.90
2017	8	25	12.0000	12.31
2017	8	25	18.0000	12.29
2017	8	26	0.0000	12.61
2017	8	26	6.0000	12.88
2017	8	26	12.0000	13.20
2017	8	26	18.0000	13.22
2017	8	27	0.0000	13.67
2017	8	27	6.0000	14.08
2017	8	27	12.0000	14.26
2017	8	27	18.0000	14.36
2017	8	28	0.0000	14.44
2017	8	28	6.0000	14.46
2017	8	28	12.0000	14.49
2017	8	28	18.0000	14.48
2017	8	29	0.0000	14.49
2017	8	29	6.0000	14.47
2017	8	29	12.0000	14.44
2017	8	29	18.0000	14.41
2017	8	30	0.0000	14.38

Year	Month	Day	Hour	Stage [ft]
2017	8	30	6.0000	14.34
2017	8	30	12.0000	14.29
2017	8	30	18.0000	14.25
2017	8	31	0.0000	14.20
2017	8	31	6.0000	14.15
2017	8	31	12.0000	14.09
2017	8	31	18.0000	14.02
2017	9	1	0.0000	13.95
2017	9	1	6.0000	13.88
2017	9	1	12.0000	13.80
2017	9	1	18.0000	13.91
2017	9	2	0.0000	13.90
2017	9	2	6.0000	13.99
2017	9	2	12.0000	14.00
2017	9	2	18.0000	13.97
2017	9	3	0.0000	13.94
2017	9	3	6.0000	13.89
2017	9	3	12.0000	13.84
2017	9	3	18.0000	13.79
2017	9	4	0.0000	13.71
2017	9	4	6.0000	13.63
2017	9	4	12.0000	13.54
2017	9	4	18.0000	13.44
2017	9	5	0.0000	13.34
2017	9	5	6.0000	13.23
2017	9	5	12.0000	13.12
2017	9	5	18.0000	13.06
2017	9	6	0.0000	13.05
2017	9	6	6.0000	13.00
2017	9	6	12.0000	12.94
2017	9	6	18.0000	12.87
2017	9	7	0.0000	12.81
2017	9	7	6.0000	12.74
2017	9	7	12.0000	12.67
2017	9	7	18.0000	12.68
2017	9	8	0.0000	12.77
2017	9	8	6.0000	12.73
2017	9	8	12.0000	12.67
2017	9	8	18.0000	12.60
2017	9	9	0.0000	12.53
2017	9	9	6.0000	12.46
2017	9	9	12.0000	12.39
2017	9	9	18.0000	12.49
2017	9	10	0.0000	13.13
2017	9	10	6.0000	13.38
2017	9	10	12.0000	13.89
2017	9	10	18.0000	14.65
2017	9	11	0.0000	14.82
2017	9	11	6.0000	14.90
2017	9	11	12.0000	14.96
2017	9	11	18.0000	14.98
2017	9	12	0.0000	15.00
2017	9	12	6.0000	15.00
2017	9	12	12.0000	15.00
2017	9	12	18.0000	14.99
2017	9	13	0.0000	14.98

Year	Month	Day	Hour	Stage [ft]
2017	9	13	6.0000	14.97
2017	9	13	12.0000	14.97
2017	9	13	18.0000	14.98
2017	9	14	0.0000	14.98
2017	9	14	6.0000	14.98
2017	9	14	12.0000	14.98
2017	9	14	18.0000	15.00
2017	9	15	0.0000	15.16
2017	9	15	6.0000	15.16
2017	9	15	12.0000	15.16
2017	9	15	18.0000	15.15
2017	9	16	0.0000	15.14
2017	9	16	6.0000	15.13
2017	9	16	12.0000	15.12
2017	9	16	18.0000	15.11
2017	9	17	0.0000	15.10
2017	9	17	6.0000	15.09
2017	9	17	12.0000	15.08
2017	9	17	18.0000	15.06
2017	9	18	0.0000	15.05
2017	9	18	6.0000	15.04
2017	9	18	12.0000	15.02
2017	9	18	18.0000	15.01
2017	9	19	0.0000	14.99
2017	9	19	6.0000	14.98
2017	9	19	12.0000	14.96
2017	9	19	18.0000	14.94
2017	9	20	0.0000	14.93
2017	9	20	6.0000	14.90
2017	9	20	12.0000	14.88
2017	9	20	18.0000	14.86
2017	9	21	0.0000	14.84
2017	9	21	6.0000	14.82
2017	9	21	12.0000	14.79
2017	9	21	18.0000	14.77
2017	9	22	0.0000	14.75
2017	9	22	6.0000	14.73
2017	9	22	12.0000	14.70
2017	9	22	18.0000	14.86
2017	9	23	0.0000	14.84
2017	9	23	6.0000	14.82
2017	9	23	12.0000	14.79
2017	9	23	18.0000	14.78
2017	9	24	0.0000	14.77
2017	9	24	6.0000	14.74
2017	9	24	12.0000	14.71
2017	9	24	18.0000	14.68
2017	9	25	0.0000	14.64
2017	9	25	6.0000	14.60
2017	9	25	12.0000	14.56
2017	9	25	18.0000	14.52
2017	9	26	0.0000	14.48
2017	9	26	6.0000	14.43
2017	9	26	12.0000	14.38
2017	9	26	18.0000	14.33
2017	9	27	0.0000	14.28

Year	Month	Day	Hour	Stage [ft]
2017	9	27	6.0000	14.22
2017	9	27	12.0000	14.16
2017	9	27	18.0000	14.10
2017	9	28	0.0000	14.02
2017	9	28	6.0000	13.94
2017	9	28	12.0000	13.86
2017	9	28	18.0000	13.76
2017	9	29	0.0000	13.81
2017	9	29	6.0000	13.75
2017	9	29	12.0000	13.71
2017	9	29	18.0000	13.88
2017	9	30	0.0000	14.03
2017	9	30	6.0000	14.03
2017	9	30	12.0000	14.01
2017	9	30	18.0000	13.99
2017	10	1	0.0000	13.95
2017	10	1	6.0000	13.90
2017	10	1	12.0000	13.84
2017	10	1	18.0000	13.76
2017	10	2	0.0000	13.67
2017	10	2	6.0000	13.57
2017	10	2	12.0000	13.47
2017	10	2	18.0000	13.43
2017	10	3	0.0000	13.34
2017	10	3	6.0000	13.24
2017	10	3	12.0000	13.15
2017	10	3	18.0000	13.10
2017	10	4	0.0000	13.02
2017	10	4	6.0000	12.94
2017	10	4	12.0000	12.85
2017	10	4	18.0000	12.78
2017	10	5	0.0000	12.70
2017	10	5	6.0000	12.63
2017	10	5	12.0000	12.55
2017	10	5	18.0000	12.49
2017	10	6	0.0000	12.43
2017	10	6	6.0000	12.37
2017	10	6	12.0000	12.30
2017	10	6	18.0000	12.23
2017	10	7	0.0000	12.17
2017	10	7	6.0000	12.10
2017	10	7	12.0000	12.04
2017	10	7	18.0000	11.98
2017	10	8	0.0000	11.92
2017	10	8	6.0000	11.87
2017	10	8	12.0000	11.81
2017	10	8	18.0000	11.75
2017	10	9	0.0000	11.70
2017	10	9	6.0000	11.65
2017	10	9	12.0000	11.59
2017	10	9	18.0000	11.53
2017	10	10	0.0000	11.48
2017	10	10	6.0000	11.43
2017	10	10	12.0000	11.38
2017	10	10	18.0000	11.33
2017	10	11	0.0000	11.28

Year	Month	Day	Hour	Stage [ft]
2017	10	11	6.0000	11.24
2017	10	11	12.0000	11.19
2017	10	11	18.0000	11.14
2017	10	12	0.0000	11.10
2017	10	12	6.0000	11.05
2017	10	12	12.0000	11.01
2017	10	12	18.0000	10.97
2017	10	13	0.0000	10.93
2017	10	13	6.0000	10.89
2017	10	13	12.0000	10.85
2017	10	13	18.0000	10.81
2017	10	14	0.0000	10.77
2017	10	14	6.0000	10.75
2017	10	14	12.0000	10.75
2017	10	14	18.0000	10.76
2017	10	15	0.0000	10.77
2017	10	15	6.0000	10.74
2017	10	15	12.0000	10.71
2017	10	15	18.0000	10.69
2017	10	16	0.0000	10.66
2017	10	16	6.0000	10.62
2017	10	16	12.0000	10.59
2017	10	16	18.0000	10.56
2017	10	17	0.0000	10.69
2017	10	17	6.0000	10.73
2017	10	17	12.0000	10.72
2017	10	17	18.0000	10.70
2017	10	18	0.0000	10.67
2017	10	18	6.0000	10.65
2017	10	18	12.0000	10.62
2017	10	18	18.0000	10.59
2017	10	19	0.0000	10.56
2017	10	19	6.0000	10.52
2017	10	19	12.0000	10.48
2017	10	19	18.0000	10.44
2017	10	20	0.0000	10.39
2017	10	20	6.0000	10.34
2017	10	20	12.0000	10.29
2017	10	20	18.0000	10.24
2017	10	21	0.0000	10.19
2017	10	21	6.0000	10.15
2017	10	21	12.0000	10.11
2017	10	21	18.0000	10.13
2017	10	22	0.0000	10.12
2017	10	22	6.0000	10.10
2017	10	22	12.0000	10.07
2017	10	22	18.0000	10.05
2017	10	23	0.0000	10.02
2017	10	23	6.0000	10.00
2017	10	23	12.0000	9.97
2017	10	23	18.0000	9.96
2017	10	24	0.0000	9.94
2017	10	24	6.0000	9.98
2017	10	24	12.0000	10.28
2017	10	24	18.0000	10.34
2017	10	25	0.0000	10.56

Year	Month	Day	Hour	Stage [ft]
2017	10	25	6.0000	10.59
2017	10	25	12.0000	10.59
2017	10	25	18.0000	10.59
2017	10	26	0.0000	10.57
2017	10	26	6.0000	10.54
2017	10	26	12.0000	10.51
2017	10	26	18.0000	10.48
2017	10	27	0.0000	10.43
2017	10	27	6.0000	10.38
2017	10	27	12.0000	10.32
2017	10	27	18.0000	10.26
2017	10	28	0.0000	10.22
2017	10	28	6.0000	10.18
2017	10	28	12.0000	10.22
2017	10	28	18.0000	10.73
2017	10	29	0.0000	11.02
2017	10	29	6.0000	11.07
2017	10	29	12.0000	11.06
2017	10	29	18.0000	11.04
2017	10	30	0.0000	11.02
2017	10	30	6.0000	10.99
2017	10	30	12.0000	10.96
2017	10	30	18.0000	10.93
2017	10	31	0.0000	10.90
2017	10	31	6.0000	10.86
2017	10	31	12.0000	10.83
2017	10	31	18.0000	10.80
2017	11	1	0.0000	10.76
2017	11	1	6.0000	10.72
2017	11	1	12.0000	10.68
2017	11	1	18.0000	10.64
2017	11	2	0.0000	10.60
2017	11	2	6.0000	10.56
2017	11	2	12.0000	10.51
2017	11	2	18.0000	10.47
2017	11	3	0.0000	10.42
2017	11	3	6.0000	10.37
2017	11	3	12.0000	10.32
2017	11	3	18.0000	10.28
2017	11	4	0.0000	10.25
2017	11	4	6.0000	10.22
2017	11	4	12.0000	10.19
2017	11	4	18.0000	10.17
2017	11	5	0.0000	10.14
2017	11	5	6.0000	10.12
2017	11	5	12.0000	10.10
2017	11	5	18.0000	10.08
2017	11	6	0.0000	10.06
2017	11	6	6.0000	10.04
2017	11	6	12.0000	10.02
2017	11	6	18.0000	10.01
2017	11	7	0.0000	9.99
2017	11	7	6.0000	9.97
2017	11	7	12.0000	9.95
2017	11	7	18.0000	9.94
2017	11	8	0.0000	9.92

Year	Month	Day	Hour	Stage [ft]
2017	11	8	6.0000	9.90
2017	11	8	12.0000	9.89
2017	11	8	18.0000	9.87
2017	11	9	0.0000	9.86
2017	11	9	6.0000	9.84
2017	11	9	12.0000	9.83
2017	11	9	18.0000	9.81
2017	11	10	0.0000	9.80
2017	11	10	6.0000	9.78
2017	11	10	12.0000	9.77
2017	11	10	18.0000	9.75
2017	11	11	0.0000	9.74
2017	11	11	6.0000	9.73
2017	11	11	12.0000	9.71
2017	11	11	18.0000	9.70
2017	11	12	0.0000	9.69
2017	11	12	6.0000	9.67
2017	11	12	12.0000	9.66
2017	11	12	18.0000	9.65
2017	11	13	0.0000	9.66
2017	11	13	6.0000	9.65
2017	11	13	12.0000	9.64
2017	11	13	18.0000	9.63
2017	11	14	0.0000	9.61
2017	11	14	6.0000	9.60
2017	11	14	12.0000	9.59
2017	11	14	18.0000	9.58
2017	11	15	0.0000	9.57
2017	11	15	6.0000	9.56
2017	11	15	12.0000	9.56
2017	11	15	18.0000	9.55
2017	11	16	0.0000	9.54
2017	11	16	6.0000	9.53
2017	11	16	12.0000	9.52
2017	11	16	18.0000	9.51
2017	11	17	0.0000	9.50
2017	11	17	6.0000	9.49
2017	11	17	12.0000	9.48
2017	11	17	18.0000	9.48
2017	11	18	0.0000	9.47
2017	11	18	6.0000	9.46
2017	11	18	12.0000	9.45
2017	11	18	18.0000	9.44
2017	11	19	0.0000	9.43
2017	11	19	6.0000	9.42
2017	11	19	12.0000	9.42
2017	11	19	18.0000	9.41
2017	11	20	0.0000	9.40
2017	11	20	6.0000	9.39
2017	11	20	12.0000	9.38
2017	11	20	18.0000	9.38
2017	11	21	0.0000	9.37
2017	11	21	6.0000	9.36
2017	11	21	12.0000	9.35
2017	11	21	18.0000	9.34
2017	11	22	0.0000	9.34

Year	Month	Day	Hour	Stage [ft]
2017	11	22	6.0000	9.33
2017	11	22	12.0000	9.32
2017	11	22	18.0000	9.32
2017	11	23	0.0000	9.31
2017	11	23	6.0000	9.31
2017	11	23	12.0000	9.30
2017	11	23	18.0000	9.30
2017	11	24	0.0000	9.30
2017	11	24	6.0000	9.30
2017	11	24	12.0000	9.29
2017	11	24	18.0000	9.29
2017	11	25	0.0000	9.28
2017	11	25	6.0000	9.27
2017	11	25	12.0000	9.27
2017	11	25	18.0000	9.26
2017	11	26	0.0000	9.25
2017	11	26	6.0000	9.25
2017	11	26	12.0000	9.24
2017	11	26	18.0000	9.24
2017	11	27	0.0000	9.23
2017	11	27	6.0000	9.23
2017	11	27	12.0000	9.22
2017	11	27	18.0000	9.22
2017	11	28	0.0000	9.21
2017	11	28	6.0000	9.21
2017	11	28	12.0000	9.20
2017	11	28	18.0000	9.19
2017	11	29	0.0000	9.19
2017	11	29	6.0000	9.18
2017	11	29	12.0000	9.18
2017	11	29	18.0000	9.17
2017	11	30	0.0000	9.17
2017	11	30	6.0000	9.16
2017	11	30	12.0000	9.16
2017	11	30	18.0000	9.15
2017	12	1	0.0000	9.15
2017	12	1	6.0000	9.14
2017	12	1	12.0000	9.14
2017	12	1	18.0000	9.13
2017	12	2	0.0000	9.13
2017	12	2	6.0000	9.12
2017	12	2	12.0000	9.12
2017	12	2	18.0000	9.12
2017	12	3	0.0000	9.11
2017	12	3	6.0000	9.11
2017	12	3	12.0000	9.10
2017	12	3	18.0000	9.10
2017	12	4	0.0000	9.10
2017	12	4	6.0000	9.09
2017	12	4	12.0000	9.09
2017	12	4	18.0000	9.09
2017	12	5	0.0000	9.09
2017	12	5	6.0000	9.08
2017	12	5	12.0000	9.08
2017	12	5	18.0000	9.08
2017	12	6	0.0000	9.07

Year	Month	Day	Hour	Stage [ft]
2017	12	6	6.0000	9.07
2017	12	6	12.0000	9.07
2017	12	6	18.0000	9.07
2017	12	7	0.0000	9.06
2017	12	7	6.0000	9.06
2017	12	7	12.0000	9.06
2017	12	7	18.0000	9.06
2017	12	8	0.0000	9.05
2017	12	8	6.0000	9.05
2017	12	8	12.0000	9.05
2017	12	8	18.0000	9.05
2017	12	9	0.0000	9.04
2017	12	9	6.0000	9.05
2017	12	9	12.0000	9.16
2017	12	9	18.0000	9.17
2017	12	10	0.0000	9.17
2017	12	10	6.0000	9.17
2017	12	10	12.0000	9.16
2017	12	10	18.0000	9.15
2017	12	11	0.0000	9.15
2017	12	11	6.0000	9.15
2017	12	11	12.0000	9.14
2017	12	11	18.0000	9.14
2017	12	12	0.0000	9.13
2017	12	12	6.0000	9.13
2017	12	12	12.0000	9.13
2017	12	12	18.0000	9.12
2017	12	13	0.0000	9.12
2017	12	13	6.0000	9.11
2017	12	13	12.0000	9.11
2017	12	13	18.0000	9.11
2017	12	14	0.0000	9.10
2017	12	14	6.0000	9.10
2017	12	14	12.0000	9.10
2017	12	14	18.0000	9.09
2017	12	15	0.0000	9.09
2017	12	15	6.0000	9.09
2017	12	15	12.0000	9.08
2017	12	15	18.0000	9.08
2017	12	16	0.0000	9.08
2017	12	16	6.0000	9.08
2017	12	16	12.0000	9.07
2017	12	16	18.0000	9.07
2017	12	17	0.0000	9.07
2017	12	17	6.0000	9.06
2017	12	17	12.0000	9.06
2017	12	17	18.0000	9.06
2017	12	18	0.0000	9.06
2017	12	18	6.0000	9.05
2017	12	18	12.0000	9.05
2017	12	18	18.0000	9.05
2017	12	19	0.0000	9.05
2017	12	19	6.0000	9.05
2017	12	19	12.0000	9.04
2017	12	19	18.0000	9.04
2017	12	20	0.0000	9.04

Year	Month	Day	Hour	Stage [ft]
2017	12	20	6.0000	9.04
2017	12	20	12.0000	9.03
2017	12	20	18.0000	9.03
2017	12	21	0.0000	9.03
2017	12	21	6.0000	9.03
2017	12	21	12.0000	9.03
2017	12	21	18.0000	9.02
2017	12	22	0.0000	9.02
2017	12	22	6.0000	9.02
2017	12	22	12.0000	9.02
2017	12	22	18.0000	9.02
2017	12	23	0.0000	9.01
2017	12	23	6.0000	9.01
2017	12	23	12.0000	9.01
2017	12	23	18.0000	9.01
2017	12	24	0.0000	9.01
2017	12	24	6.0000	9.00
2017	12	24	12.0000	9.00
2017	12	24	18.0000	9.00
2017	12	25	0.0000	9.00
2017	12	25	6.0000	9.00
2017	12	25	12.0000	8.99
2017	12	25	18.0000	8.99
2017	12	26	0.0000	8.99
2017	12	26	6.0000	8.99
2017	12	26	12.0000	8.99
2017	12	26	18.0000	8.98
2017	12	27	0.0000	8.98
2017	12	27	6.0000	8.98
2017	12	27	12.0000	8.98
2017	12	27	18.0000	8.98
2017	12	28	0.0000	8.97
2017	12	28	6.0000	8.97
2017	12	28	12.0000	8.97
2017	12	28	18.0000	8.97
2017	12	29	0.0000	8.97
2017	12	29	6.0000	8.96
2017	12	29	12.0000	8.96
2017	12	29	18.0000	8.96
2017	12	30	0.0000	8.96
2017	12	30	6.0000	8.96
2017	12	30	12.0000	8.96
2017	12	30	18.0000	8.96
2017	12	31	0.0000	8.95

Comment:

Node: WEST

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.80 ft
Warning Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
3.00	8.2467	359225
3.50	8.3351	363075
4.00	8.4487	368025
4.50	8.5463	372275
5.00	8.6358	376175
5.50	8.7534	381300
6.00	8.8481	385425
6.50	8.9400	389425
7.00	9.0605	394675
7.50	9.1552	398800
8.00	9.2522	403025
8.50	9.3721	408250
9.00	9.4674	412400
9.50	9.5512	416050
10.00	9.6103	418625
10.50	9.6218	419125
11.00	9.6430	420050
11.50	9.6499	420350
12.00	9.6579	420700
12.50	9.6648	421000
13.00	9.6722	421322
13.50	9.6790	421619
14.00	9.6790	421619

Comment:

Weir Link: L-0010W

Scenario:	Scenario1
From Node:	WEST
To Node:	NTZ-0020
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Broad Crested Vertical
Geometry Type:	Irregular
Invert:	12.65 ft
Control Elevation:	12.65 ft
Cross Section:	X-0010W

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	2.800
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Comment:

Weir Link: L-0020W

Scenario:	Scenario1
From Node:	EAST
To Node:	NTZ-0020
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Broad Crested Vertical
Geometry Type:	Irregular

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Invert: 12.65 ft
Control Elevation: 12.65 ft
Cross Section: X-0010W

Discharge Coefficients

Weir Default: 2.800
Weir Table:
Orifice Default: 0.600
Orifice Table:

Comment:

Simulation: 2017 SAOR

Scenario: Scenario1
Run Date/Time: 12/9/2025 4:37:52 PM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	2017	1	1	0.0000
End Time:	2017	12	31	0.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	900.0000	0.1000	86400.0000
Max Calculation Time:		300.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	1440.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	1440.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	1440.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder: NEXRAD
Reference ET Folder: ET
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set: 2017
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set: GREEN-AMPT
Vertical Layers Set:
Impervious Set: IMPERVIOUS
Roughness Set: ROUGHNESS
Crop Coef Set: EXISTING ET

Fillable Porosity Set:	POROSITY
Conductivity Set:	CONDUCTIVITY
Leakage Set:	LEAKAGE

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	4	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0050 ft	Smp/Man Basin Rain Opt:	Basin Specification
Max dZ:	1.0000 ft	OF Region Rain Opt:	Region Specification
Link Optimizer Tol:	0.0005 ft		
Edge Length Option:	Automatic		
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017:1:1:0.0000	0.0000	0
2017:1:2:0.0000	24.0000	30859
2017:1:3:0.0000	48.0000	55081
2017:1:4:0.0000	72.0000	73884
2017:1:5:0.0000	96.0000	88872
2017:1:6:0.0000	120.0000	101070
2017:1:7:0.0000	144.0000	111158
2017:1:8:0.0000	168.0000	119759
2017:1:9:0.0000	192.0000	127391
2017:1:10:0.0000	216.0000	133987
2017:1:11:0.0000	240.0000	139731
2017:1:12:0.0000	264.0000	144730
2017:1:13:0.0000	288.0000	148821
2017:1:14:0.0000	312.0000	152282
2017:1:15:0.0000	336.0000	155368
2017:1:16:0.0000	360.0000	158075
2017:1:17:0.0000	384.0000	160247
2017:1:18:0.0000	408.0000	161997
2017:1:19:0.0000	432.0000	163537
2017:1:20:0.0000	456.0000	164800
2017:1:21:0.0000	480.0000	165736
2017:1:22:0.0000	504.0000	166232
2017:1:23:0.0000	528.0000	166360
2017:1:24:0.0000	552.0000	166667
2017:1:25:0.0000	576.0000	167036
2017:1:26:0.0000	600.0000	167383
2017:1:27:0.0000	624.0000	167533
2017:1:28:0.0000	648.0000	167711
2017:1:29:0.0000	672.0000	167827
2017:1:30:0.0000	696.0000	168470
2017:1:31:0.0000	720.0000	168825
2017:2:1:0.0000	744.0000	168869
2017:2:2:0.0000	768.0000	168776
2017:2:3:0.0000	792.0000	168543
2017:2:4:0.0000	816.0000	168180
2017:2:5:0.0000	840.0000	167623
2017:2:6:0.0000	864.0000	167135
2017:2:7:0.0000	888.0000	166609
2017:2:8:0.0000	912.0000	166478
2017:2:9:0.0000	936.0000	166537
2017:2:10:0.0000	960.0000	166487
2017:2:11:0.0000	984.0000	166175
2017:2:12:0.0000	1008.0000	166002
2017:2:13:0.0000	1032.0000	165877
2017:2:14:0.0000	1056.0000	165780
2017:2:15:0.0000	1080.0000	165593
2017:2:16:0.0000	1104.0000	165198
2017:2:17:0.0000	1128.0000	164793
2017:2:18:0.0000	1152.0000	164434

Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017:2:19:0.0000	1176.0000	164170
2017:2:20:0.0000	1200.0000	163694
2017:2:21:0.0000	1224.0000	163146
2017:2:22:0.0000	1248.0000	162765
2017:2:23:0.0000	1272.0000	162713
2017:2:24:0.0000	1296.0000	162620
2017:2:25:0.0000	1320.0000	162298
2017:2:26:0.0000	1344.0000	161780
2017:2:27:0.0000	1368.0000	161104
2017:2:28:0.0000	1392.0000	160333
2017:3:1:0.0000	1416.0000	159600
2017:3:2:0.0000	1440.0000	158982
2017:3:3:0.0000	1464.0000	158224
2017:3:4:0.0000	1488.0000	157508
2017:3:5:0.0000	1512.0000	156755
2017:3:6:0.0000	1536.0000	157009
2017:3:7:0.0000	1560.0000	157639
2017:3:8:0.0000	1584.0000	158266
2017:3:9:0.0000	1608.0000	158883
2017:3:10:0.0000	1632.0000	159489
2017:3:11:0.0000	1656.0000	160073
2017:3:12:0.0000	1680.0000	160638
2017:3:13:0.0000	1704.0000	161227
2017:3:14:0.0000	1728.0000	161798
2017:3:15:0.0000	1752.0000	162467
2017:3:16:0.0000	1776.0000	163030
2017:3:17:0.0000	1800.0000	163573
2017:3:18:0.0000	1824.0000	164100
2017:3:19:0.0000	1848.0000	164616
2017:3:20:0.0000	1872.0000	165114
2017:3:21:0.0000	1896.0000	165604
2017:3:22:0.0000	1920.0000	166094
2017:3:23:0.0000	1944.0000	166573
2017:3:24:0.0000	1968.0000	167042
2017:3:25:0.0000	1992.0000	167504
2017:3:26:0.0000	2016.0000	167968
2017:3:27:0.0000	2040.0000	168433
2017:3:28:0.0000	2064.0000	168883
2017:3:29:0.0000	2088.0000	169325
2017:3:30:0.0000	2112.0000	169759
2017:3:31:0.0000	2136.0000	170189
2017:4:1:0.0000	2160.0000	170714
2017:4:2:0.0000	2184.0000	171279
2017:4:3:0.0000	2208.0000	171813
2017:4:4:0.0000	2232.0000	172328
2017:4:5:0.0000	2256.0000	172724
2017:4:6:0.0000	2280.0000	173128
2017:4:7:0.0000	2304.0000	173528
2017:4:8:0.0000	2328.0000	173903

Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017:4:9:0.0000	2352.0000	174286
2017:4:10:0.0000	2376.0000	174663
2017:4:11:0.0000	2400.0000	175035
2017:4:12:0.0000	2424.0000	175407
2017:4:13:0.0000	2448.0000	175793
2017:4:14:0.0000	2472.0000	176161
2017:4:15:0.0000	2496.0000	176519
2017:4:16:0.0000	2520.0000	176865
2017:4:17:0.0000	2544.0000	177257
2017:4:18:0.0000	2568.0000	177641
2017:4:19:0.0000	2592.0000	178015
2017:4:20:0.0000	2616.0000	178364
2017:4:21:0.0000	2640.0000	178704
2017:4:22:0.0000	2664.0000	179043
2017:4:23:0.0000	2688.0000	179471
2017:4:24:0.0000	2712.0000	179966
2017:4:25:0.0000	2736.0000	180456
2017:4:26:0.0000	2760.0000	180940
2017:4:27:0.0000	2784.0000	181347
2017:4:28:0.0000	2808.0000	181692
2017:4:29:0.0000	2832.0000	182005
2017:4:30:0.0000	2856.0000	182300
2017:5:1:0.0000	2880.0000	182601
2017:5:2:0.0000	2904.0000	182893
2017:5:3:0.0000	2928.0000	183200
2017:5:4:0.0000	2952.0000	183506
2017:5:5:0.0000	2976.0000	183795
2017:5:6:0.0000	3000.0000	184231
2017:5:7:0.0000	3024.0000	184628
2017:5:8:0.0000	3048.0000	184905
2017:5:9:0.0000	3072.0000	185206
2017:5:10:0.0000	3096.0000	185486
2017:5:11:0.0000	3120.0000	185763
2017:5:12:0.0000	3144.0000	186031
2017:5:13:0.0000	3168.0000	186298
2017:5:14:0.0000	3192.0000	186566
2017:5:15:0.0000	3216.0000	186831
2017:5:16:0.0000	3240.0000	187094
2017:5:17:0.0000	3264.0000	187425
2017:5:18:0.0000	3288.0000	187711
2017:5:19:0.0000	3312.0000	187975
2017:5:20:0.0000	3336.0000	188279
2017:5:21:0.0000	3360.0000	188525
2017:5:22:0.0000	3384.0000	188808
2017:5:23:0.0000	3408.0000	189247
2017:5:24:0.0000	3432.0000	189681
2017:5:25:0.0000	3456.0000	190096
2017:5:26:0.0000	3480.0000	190536
2017:5:27:0.0000	3504.0000	190971

Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017:5:28:0.0000	3528.0000	191392
2017:5:29:0.0000	3552.0000	191725
2017:5:30:0.0000	3576.0000	192064
2017:5:31:0.0000	3600.0000	192332
2017:6:1:0.0000	3624.0000	192592
2017:6:2:0.0000	3648.0000	193445
2017:6:3:0.0000	3672.0000	194879
2017:6:4:0.0000	3696.0000	196534
2017:6:5:0.0000	3720.0000	198488
2017:6:6:0.0000	3744.0000	200672
2017:6:7:0.0000	3768.0000	239584
2017:6:8:0.0000	3792.0000	398604
2017:6:9:0.0000	3816.0000	513328
2017:6:10:0.0000	3840.0000	570451
2017:6:11:0.0000	3864.0000	655753
2017:6:12:0.0000	3888.0000	738307
2017:6:13:0.0000	3912.0000	783926
2017:6:14:0.0000	3936.0000	814740
2017:6:15:0.0000	3960.0000	853053
2017:6:16:0.0000	3984.0000	899186
2017:6:17:0.0000	4008.0000	931797
2017:6:18:0.0000	4032.0000	966116
2017:6:19:0.0000	4056.0000	1007308
2017:6:20:0.0000	4080.0000	1053052
2017:6:21:0.0000	4104.0000	1361862
2017:6:22:0.0000	4128.0000	1494429
2017:6:23:0.0000	4152.0000	1626974
2017:6:24:0.0000	4176.0000	1673732
2017:6:25:0.0000	4200.0000	1766745
2017:6:26:0.0000	4224.0000	1815298
2017:6:27:0.0000	4248.0000	1922115
2017:6:28:0.0000	4272.0000	2066646
2017:6:29:0.0000	4296.0000	2166015
2017:6:30:0.0000	4320.0000	2221157
2017:7:1:0.0000	4344.0000	2325308
2017:7:2:0.0000	4368.0000	2354574
2017:7:3:0.0000	4392.0000	2404991
2017:7:4:0.0000	4416.0000	2419574
2017:7:5:0.0000	4440.0000	2434385
2017:7:6:0.0000	4464.0000	2440971
2017:7:7:0.0000	4488.0000	2449179
2017:7:8:0.0000	4512.0000	2455939
2017:7:9:0.0000	4536.0000	2459934
2017:7:10:0.0000	4560.0000	2462668
2017:7:11:0.0000	4584.0000	2464044
2017:7:12:0.0000	4608.0000	2468213
2017:7:13:0.0000	4632.0000	2477612
2017:7:14:0.0000	4656.0000	2484626
2017:7:15:0.0000	4680.0000	2496279

Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017:7:16:0.0000	4704.0000	2504100
2017:7:17:0.0000	4728.0000	2506611
2017:7:18:0.0000	4752.0000	2513257
2017:7:19:0.0000	4776.0000	2550730
2017:7:20:0.0000	4800.0000	2589410
2017:7:21:0.0000	4824.0000	2610409
2017:7:22:0.0000	4848.0000	2717450
2017:7:23:0.0000	4872.0000	2782791
2017:7:24:0.0000	4896.0000	2822863
2017:7:25:0.0000	4920.0000	2825247
2017:7:26:0.0000	4944.0000	2827832
2017:7:27:0.0000	4968.0000	2828355
2017:7:28:0.0000	4992.0000	2831642
2017:7:29:0.0000	5016.0000	2829598
2017:7:30:0.0000	5040.0000	2830524
2017:7:31:0.0000	5064.0000	2839288
2017:8:1:0.0000	5088.0000	3139139
2017:8:2:0.0000	5112.0000	3328423
2017:8:3:0.0000	5136.0000	3360145
2017:8:4:0.0000	5160.0000	3389012
2017:8:5:0.0000	5184.0000	3431939
2017:8:6:0.0000	5208.0000	3485967
2017:8:7:0.0000	5232.0000	3596986
2017:8:8:0.0000	5256.0000	3645158
2017:8:9:0.0000	5280.0000	3735057
2017:8:10:0.0000	5304.0000	3766262
2017:8:11:0.0000	5328.0000	3874615
2017:8:12:0.0000	5352.0000	4105006
2017:8:13:0.0000	5376.0000	4194345
2017:8:14:0.0000	5400.0000	4243313
2017:8:15:0.0000	5424.0000	4329928
2017:8:16:0.0000	5448.0000	4354537
2017:8:17:0.0000	5472.0000	4429670
2017:8:18:0.0000	5496.0000	4471114
2017:8:19:0.0000	5520.0000	4538253
2017:8:20:0.0000	5544.0000	4541002
2017:8:21:0.0000	5568.0000	4577751
2017:8:22:0.0000	5592.0000	4578247
2017:8:23:0.0000	5616.0000	4582552
2017:8:24:0.0000	5640.0000	4592899
2017:8:25:0.0000	5664.0000	4662852
2017:8:26:0.0000	5688.0000	4924720
2017:8:27:0.0000	5712.0000	5088049
2017:8:28:0.0000	5736.0000	5315513
2017:8:29:0.0000	5760.0000	5380804
2017:8:30:0.0000	5784.0000	5494497
2017:8:31:0.0000	5808.0000	5540453
2017:9:1:0.0000	5832.0000	5650963
2017:9:2:0.0000	5856.0000	5718839

Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017:9:3:0.0000	5880.0000	5872923
2017:9:4:0.0000	5904.0000	5929555
2017:9:5:0.0000	5928.0000	6047159
2017:9:6:0.0000	5952.0000	6096628
2017:9:7:0.0000	5976.0000	6187817
2017:9:8:0.0000	6000.0000	6243813
2017:9:9:0.0000	6024.0000	6330922
2017:9:10:0.0000	6048.0000	6430118
2017:9:11:0.0000	6072.0000	6941204
2017:9:12:0.0000	6096.0000	7001757
2017:9:13:0.0000	6120.0000	7118913
2017:9:14:0.0000	6144.0000	7168494
2017:9:15:0.0000	6168.0000	7345990
2017:9:16:0.0000	6192.0000	7401409
2017:9:17:0.0000	6216.0000	7517203
2017:9:18:0.0000	6240.0000	7563391
2017:9:19:0.0000	6264.0000	7678146
2017:9:20:0.0000	6288.0000	7725297
2017:9:21:0.0000	6312.0000	7841753
2017:9:22:0.0000	6336.0000	7887988
2017:9:23:0.0000	6360.0000	8069778
2017:9:24:0.0000	6384.0000	8127709
2017:9:25:0.0000	6408.0000	8253095
2017:9:26:0.0000	6432.0000	8302083
2017:9:27:0.0000	6456.0000	8424588
2017:9:28:0.0000	6480.0000	8472994
2017:9:29:0.0000	6504.0000	8595370
2017:9:30:0.0000	6528.0000	8711611
2017:10:1:0.0000	6552.0000	8840554
2017:10:2:0.0000	6576.0000	8892199
2017:10:3:0.0000	6600.0000	9017979
2017:10:4:0.0000	6624.0000	9071781
2017:10:5:0.0000	6648.0000	9161777
2017:10:6:0.0000	6672.0000	9213825
2017:10:7:0.0000	6696.0000	9297661
2017:10:8:0.0000	6720.0000	9324827
2017:10:9:0.0000	6744.0000	9355537
2017:10:10:0.0000	6768.0000	9353988
2017:10:11:0.0000	6792.0000	9361662
2017:10:12:0.0000	6816.0000	9358354
2017:10:13:0.0000	6840.0000	9357167
2017:10:14:0.0000	6864.0000	9354023
2017:10:15:0.0000	6888.0000	9351733
2017:10:16:0.0000	6912.0000	9348280
2017:10:17:0.0000	6936.0000	9349017
2017:10:18:0.0000	6960.0000	9349044
2017:10:19:0.0000	6984.0000	9349023
2017:10:20:0.0000	7008.0000	9347432
2017:10:21:0.0000	7032.0000	9344730

Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017:10:22:0.0000	7056.0000	9344377
2017:10:23:0.0000	7080.0000	9344647
2017:10:24:0.0000	7104.0000	9344880
2017:10:25:0.0000	7128.0000	9377071
2017:10:26:0.0000	7152.0000	9385142
2017:10:27:0.0000	7176.0000	9388148
2017:10:28:0.0000	7200.0000	9388372
2017:10:29:0.0000	7224.0000	9506865
2017:10:30:0.0000	7248.0000	9532351
2017:10:31:0.0000	7272.0000	9542098
2017:11:1:0.0000	7296.0000	9544491
2017:11:2:0.0000	7320.0000	9545242
2017:11:3:0.0000	7344.0000	9544705
2017:11:4:0.0000	7368.0000	9543867
2017:11:5:0.0000	7392.0000	9542366
2017:11:6:0.0000	7416.0000	9540591
2017:11:7:0.0000	7440.0000	9538607
2017:11:8:0.0000	7464.0000	9536568
2017:11:9:0.0000	7488.0000	9534341
2017:11:10:0.0000	7512.0000	9532064
2017:11:11:0.0000	7536.0000	9529676
2017:11:12:0.0000	7560.0000	9526822
2017:11:13:0.0000	7584.0000	9525409
2017:11:14:0.0000	7608.0000	9525575
2017:11:15:0.0000	7632.0000	9522534
2017:11:16:0.0000	7656.0000	9519787
2017:11:17:0.0000	7680.0000	9516828
2017:11:18:0.0000	7704.0000	9513752
2017:11:19:0.0000	7728.0000	9510684
2017:11:20:0.0000	7752.0000	9507188
2017:11:21:0.0000	7776.0000	9503559
2017:11:22:0.0000	7800.0000	9500145
2017:11:23:0.0000	7824.0000	9497446
2017:11:24:0.0000	7848.0000	9496405
2017:11:25:0.0000	7872.0000	9496742
2017:11:26:0.0000	7896.0000	9496281
2017:11:27:0.0000	7920.0000	9493141
2017:11:28:0.0000	7944.0000	9490351
2017:11:29:0.0000	7968.0000	9486696
2017:11:30:0.0000	7992.0000	9483146
2017:12:1:0.0000	8016.0000	9479526
2017:12:2:0.0000	8040.0000	9476075
2017:12:3:0.0000	8064.0000	9472869
2017:12:4:0.0000	8088.0000	9469803
2017:12:5:0.0000	8112.0000	9466635
2017:12:6:0.0000	8136.0000	9463728
2017:12:7:0.0000	8160.0000	9460877
2017:12:8:0.0000	8184.0000	9458056
2017:12:9:0.0000	8208.0000	9455135

Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017:12:10:0.0000	8232.0000	9462124
2017:12:11:0.0000	8256.0000	9464949
2017:12:12:0.0000	8280.0000	9466410
2017:12:13:0.0000	8304.0000	9467313
2017:12:14:0.0000	8328.0000	9467934
2017:12:15:0.0000	8352.0000	9468415
2017:12:16:0.0000	8376.0000	9468784
2017:12:17:0.0000	8400.0000	9469032
2017:12:18:0.0000	8424.0000	9469072
2017:12:19:0.0000	8448.0000	9468989
2017:12:20:0.0000	8472.0000	9468803
2017:12:21:0.0000	8496.0000	9468545
2017:12:22:0.0000	8520.0000	9468160
2017:12:23:0.0000	8544.0000	9467688
2017:12:24:0.0000	8568.0000	9467107
2017:12:25:0.0000	8592.0000	9466279
2017:12:26:0.0000	8616.0000	9465036
2017:12:27:0.0000	8640.0000	9463421
2017:12:28:0.0000	8664.0000	9461612
2017:12:29:0.0000	8688.0000	9459541
2017:12:30:0.0000	8712.0000	9457845
2017:12:31:0.0000	8736.0000	9456042

APPENDIX C
PCM INPUT/OUTPUT REPORTS

Node: EAST

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.80 ft
Warning Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
3.00	5.2261	227650
3.50	5.2726	229675
4.00	5.3444	232800
4.50	5.4488	237350
5.00	5.5228	240575
5.50	5.5785	243000
6.00	5.6732	247125
6.50	5.7751	251562
7.00	5.8144	253275
7.50	5.9062	257275
8.00	6.0193	262200
8.50	6.0709	264450
9.00	6.1433	267600
9.50	6.2546	272450
10.00	6.3303	275750
10.50	6.3832	278050
11.00	6.4721	281925
11.50	6.5504	285338
12.00	6.5622	285850
12.50	6.6219	288450
13.00	6.6346	289003
13.50	6.6346	289003
18.50	8.1500	355014

Comment:

Node: WEST

Scenario: Scenario1
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.80 ft
Warning Stage: 0.00 ft

Stage [ft]	Area [ac]	Area [ft2]
3.00	5.4190	236050
3.50	5.4890	239100
4.00	5.5917	243575
4.50	5.6600	246550
5.00	5.7306	249625
5.50	5.8247	253725
6.00	5.8982	256925
6.50	5.9762	260325
7.00	6.0503	263550
7.50	6.1473	267775
8.00	6.2242	271125
8.50	6.2948	274200
9.00	6.4004	278800

Stage [ft]	Area [ac]	Area [ft2]
9.50	6.4738	282000
10.00	6.5467	285175
10.50	6.6426	289350
11.00	6.7195	292700
11.50	6.7545	294225
12.00	6.7898	295763
12.50	6.8518	298462
13.00	6.8518	298464
13.50	6.8518	298464
18.50	8.4000	365904

Comment:

Pipe Link: EQUALIZER		Upstream		Downstream	
Scenario:	Scenario1	Invert:	8.00 ft	Invert:	8.00 ft
From Node:	WEST	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	EAST	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Damping:	0.0000 ft	Default:	0.00 ft	Default:	0.00 ft
Length:	360.00 ft	Op Table:		Op Table:	
FHWA Code:	1	Ref Node:		Ref Node:	
Entr Loss Coef:	0.70	Manning's N:	0.0000	Manning's N:	0.0000
Exit Loss Coef:	1.00	Top Clip			
Bend Loss Coef:	0.00	Default:	0.00 ft	Default:	0.00 ft
Bend Location:	0.00 dec	Op Table:		Op Table:	
Energy Switch:	Energy	Ref Node:		Ref Node:	
		Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Simulation: 2017 SAOR

Scenario:	Scenario1
Run Date/Time:	12/9/2025 4:45:29 PM
Program Version:	ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	2017	1	1	0.0000
End Time:	2017	12	31	0.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	900.0000	0.1000	86400.0000
Max Calculation Time:		300.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	1440.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	1440.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	1440.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder: NEXRAD
Reference ET Folder: ET
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set: 2017
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set: GREEN-AMPT
Vertical Layers Set:
Impervious Set: PROPOSED IMPERVIOUS
Roughness Set: PROPOSED ROUGHNESS
Crop Coef Set: PROPOSED ET
Fillable Porosity Set: POROSITY
Conductivity Set: CONDUCTIVITY
Leakage Set: LEAKAGE

Tolerances & Options

Time Marching: SAOR
Max Iterations: 4
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0050 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0005 ft

Edge Length Option: Automatic

Dflt Damping (2D): 0.0050 ft
Min Node Srf Area (2D): 100 ft2
Energy Switch (2D): Energy

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False

Smp/Man Basin Rain Opt: Basin Specification
OF Region Rain Opt: Region Specification

Dflt Damping (1D): 0.0050 ft
Min Node Srf Area (1D): 100 ft2
Energy Switch (1D): Energy

Comment:

Sim	Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017 SAOR	2017:1:1:0.0000	0.0000	0
2017 SAOR	2017:1:2:0.0000	24.0000	21608
2017 SAOR	2017:1:3:0.0000	48.0000	39460
2017 SAOR	2017:1:4:0.0000	72.0000	54493
2017 SAOR	2017:1:5:0.0000	96.0000	67440
2017 SAOR	2017:1:6:0.0000	120.0000	78705
2017 SAOR	2017:1:7:0.0000	144.0000	88635
2017 SAOR	2017:1:8:0.0000	168.0000	97555
2017 SAOR	2017:1:9:0.0000	192.0000	105780
2017 SAOR	2017:1:10:0.0000	216.0000	113225
2017 SAOR	2017:1:11:0.0000	240.0000	120017
2017 SAOR	2017:1:12:0.0000	264.0000	126224
2017 SAOR	2017:1:13:0.0000	288.0000	131670
2017 SAOR	2017:1:14:0.0000	312.0000	136565
2017 SAOR	2017:1:15:0.0000	336.0000	141124
2017 SAOR	2017:1:16:0.0000	360.0000	145336
2017 SAOR	2017:1:17:0.0000	384.0000	149065
2017 SAOR	2017:1:18:0.0000	408.0000	152378
2017 SAOR	2017:1:19:0.0000	432.0000	155468
2017 SAOR	2017:1:20:0.0000	456.0000	158272
2017 SAOR	2017:1:21:0.0000	480.0000	160741
2017 SAOR	2017:1:22:0.0000	504.0000	162772
2017 SAOR	2017:1:23:0.0000	528.0000	164413
2017 SAOR	2017:1:24:0.0000	552.0000	166103
2017 SAOR	2017:1:25:0.0000	576.0000	168010
2017 SAOR	2017:1:26:0.0000	600.0000	169957
2017 SAOR	2017:1:27:0.0000	624.0000	171728
2017 SAOR	2017:1:28:0.0000	648.0000	173504
2017 SAOR	2017:1:29:0.0000	672.0000	175197
2017 SAOR	2017:1:30:0.0000	696.0000	177368
2017 SAOR	2017:1:31:0.0000	720.0000	179476
2017 SAOR	2017:2:1:0.0000	744.0000	181418
2017 SAOR	2017:2:2:0.0000	768.0000	183268
2017 SAOR	2017:2:3:0.0000	792.0000	184988
2017 SAOR	2017:2:4:0.0000	816.0000	186569
2017 SAOR	2017:2:5:0.0000	840.0000	187916
2017 SAOR	2017:2:6:0.0000	864.0000	189442
2017 SAOR	2017:2:7:0.0000	888.0000	191291
2017 SAOR	2017:2:8:0.0000	912.0000	193537
2017 SAOR	2017:2:9:0.0000	936.0000	196041
2017 SAOR	2017:2:10:0.0000	960.0000	198464
2017 SAOR	2017:2:11:0.0000	984.0000	200739
2017 SAOR	2017:2:12:0.0000	1008.0000	202985
2017 SAOR	2017:2:13:0.0000	1032.0000	205178
2017 SAOR	2017:2:14:0.0000	1056.0000	207311
2017 SAOR	2017:2:15:0.0000	1080.0000	209352
2017 SAOR	2017:2:16:0.0000	1104.0000	211257
2017 SAOR	2017:2:17:0.0000	1128.0000	213096
2017 SAOR	2017:2:18:0.0000	1152.0000	214912

Sim	Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017 SAOR	2017:2:19:0.0000	1176.0000	216702
2017 SAOR	2017:2:20:0.0000	1200.0000	218396
2017 SAOR	2017:2:21:0.0000	1224.0000	220059
2017 SAOR	2017:2:22:0.0000	1248.0000	221762
2017 SAOR	2017:2:23:0.0000	1272.0000	223507
2017 SAOR	2017:2:24:0.0000	1296.0000	225432
2017 SAOR	2017:2:25:0.0000	1320.0000	227454
2017 SAOR	2017:2:26:0.0000	1344.0000	229506
2017 SAOR	2017:2:27:0.0000	1368.0000	231553
2017 SAOR	2017:2:28:0.0000	1392.0000	233573
2017 SAOR	2017:3:1:0.0000	1416.0000	235553
2017 SAOR	2017:3:2:0.0000	1440.0000	237487
2017 SAOR	2017:3:3:0.0000	1464.0000	239376
2017 SAOR	2017:3:4:0.0000	1488.0000	241219
2017 SAOR	2017:3:5:0.0000	1512.0000	243015
2017 SAOR	2017:3:6:0.0000	1536.0000	244764
2017 SAOR	2017:3:7:0.0000	1560.0000	246467
2017 SAOR	2017:3:8:0.0000	1584.0000	248124
2017 SAOR	2017:3:9:0.0000	1608.0000	249739
2017 SAOR	2017:3:10:0.0000	1632.0000	251313
2017 SAOR	2017:3:11:0.0000	1656.0000	252848
2017 SAOR	2017:3:12:0.0000	1680.0000	254346
2017 SAOR	2017:3:13:0.0000	1704.0000	255809
2017 SAOR	2017:3:14:0.0000	1728.0000	257238
2017 SAOR	2017:3:15:0.0000	1752.0000	258635
2017 SAOR	2017:3:16:0.0000	1776.0000	260000
2017 SAOR	2017:3:17:0.0000	1800.0000	261337
2017 SAOR	2017:3:18:0.0000	1824.0000	262645
2017 SAOR	2017:3:19:0.0000	1848.0000	263927
2017 SAOR	2017:3:20:0.0000	1872.0000	265182
2017 SAOR	2017:3:21:0.0000	1896.0000	266413
2017 SAOR	2017:3:22:0.0000	1920.0000	267621
2017 SAOR	2017:3:23:0.0000	1944.0000	268805
2017 SAOR	2017:3:24:0.0000	1968.0000	269968
2017 SAOR	2017:3:25:0.0000	1992.0000	271110
2017 SAOR	2017:3:26:0.0000	2016.0000	272232
2017 SAOR	2017:3:27:0.0000	2040.0000	273334
2017 SAOR	2017:3:28:0.0000	2064.0000	274417
2017 SAOR	2017:3:29:0.0000	2088.0000	275483
2017 SAOR	2017:3:30:0.0000	2112.0000	276531
2017 SAOR	2017:3:31:0.0000	2136.0000	277562
2017 SAOR	2017:4:1:0.0000	2160.0000	278577
2017 SAOR	2017:4:2:0.0000	2184.0000	279578
2017 SAOR	2017:4:3:0.0000	2208.0000	280564
2017 SAOR	2017:4:4:0.0000	2232.0000	281536
2017 SAOR	2017:4:5:0.0000	2256.0000	282495
2017 SAOR	2017:4:6:0.0000	2280.0000	283441
2017 SAOR	2017:4:7:0.0000	2304.0000	284373
2017 SAOR	2017:4:8:0.0000	2328.0000	285292

Sim	Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017 SAOR	2017:4:9:0.0000	2352.0000	286198
2017 SAOR	2017:4:10:0.0000	2376.0000	287092
2017 SAOR	2017:4:11:0.0000	2400.0000	287973
2017 SAOR	2017:4:12:0.0000	2424.0000	288842
2017 SAOR	2017:4:13:0.0000	2448.0000	289700
2017 SAOR	2017:4:14:0.0000	2472.0000	290547
2017 SAOR	2017:4:15:0.0000	2496.0000	291383
2017 SAOR	2017:4:16:0.0000	2520.0000	292209
2017 SAOR	2017:4:17:0.0000	2544.0000	293024
2017 SAOR	2017:4:18:0.0000	2568.0000	293830
2017 SAOR	2017:4:19:0.0000	2592.0000	294625
2017 SAOR	2017:4:20:0.0000	2616.0000	295412
2017 SAOR	2017:4:21:0.0000	2640.0000	296189
2017 SAOR	2017:4:22:0.0000	2664.0000	296957
2017 SAOR	2017:4:23:0.0000	2688.0000	297717
2017 SAOR	2017:4:24:0.0000	2712.0000	298474
2017 SAOR	2017:4:25:0.0000	2736.0000	299235
2017 SAOR	2017:4:26:0.0000	2760.0000	299995
2017 SAOR	2017:4:27:0.0000	2784.0000	300751
2017 SAOR	2017:4:28:0.0000	2808.0000	301503
2017 SAOR	2017:4:29:0.0000	2832.0000	302247
2017 SAOR	2017:4:30:0.0000	2856.0000	302985
2017 SAOR	2017:5:1:0.0000	2880.0000	303714
2017 SAOR	2017:5:2:0.0000	2904.0000	304436
2017 SAOR	2017:5:3:0.0000	2928.0000	305150
2017 SAOR	2017:5:4:0.0000	2952.0000	305857
2017 SAOR	2017:5:5:0.0000	2976.0000	306556
2017 SAOR	2017:5:6:0.0000	3000.0000	307248
2017 SAOR	2017:5:7:0.0000	3024.0000	307933
2017 SAOR	2017:5:8:0.0000	3048.0000	308610
2017 SAOR	2017:5:9:0.0000	3072.0000	309281
2017 SAOR	2017:5:10:0.0000	3096.0000	309945
2017 SAOR	2017:5:11:0.0000	3120.0000	310603
2017 SAOR	2017:5:12:0.0000	3144.0000	311254
2017 SAOR	2017:5:13:0.0000	3168.0000	311899
2017 SAOR	2017:5:14:0.0000	3192.0000	312539
2017 SAOR	2017:5:15:0.0000	3216.0000	313172
2017 SAOR	2017:5:16:0.0000	3240.0000	313800
2017 SAOR	2017:5:17:0.0000	3264.0000	314422
2017 SAOR	2017:5:18:0.0000	3288.0000	315038
2017 SAOR	2017:5:19:0.0000	3312.0000	315649
2017 SAOR	2017:5:20:0.0000	3336.0000	316255
2017 SAOR	2017:5:21:0.0000	3360.0000	316856
2017 SAOR	2017:5:22:0.0000	3384.0000	317452
2017 SAOR	2017:5:23:0.0000	3408.0000	318048
2017 SAOR	2017:5:24:0.0000	3432.0000	318645
2017 SAOR	2017:5:25:0.0000	3456.0000	319241
2017 SAOR	2017:5:26:0.0000	3480.0000	319880
2017 SAOR	2017:5:27:0.0000	3504.0000	320628

Sim	Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017 SAOR	2017:5:28:0.0000	3528.0000	321436
2017 SAOR	2017:5:29:0.0000	3552.0000	322268
2017 SAOR	2017:5:30:0.0000	3576.0000	323105
2017 SAOR	2017:5:31:0.0000	3600.0000	323939
2017 SAOR	2017:6:1:0.0000	3624.0000	324766
2017 SAOR	2017:6:2:0.0000	3648.0000	325826
2017 SAOR	2017:6:3:0.0000	3672.0000	327321
2017 SAOR	2017:6:4:0.0000	3696.0000	330468
2017 SAOR	2017:6:5:0.0000	3720.0000	339251
2017 SAOR	2017:6:6:0.0000	3744.0000	350927
2017 SAOR	2017:6:7:0.0000	3768.0000	459063
2017 SAOR	2017:6:8:0.0000	3792.0000	641889
2017 SAOR	2017:6:9:0.0000	3816.0000	760693
2017 SAOR	2017:6:10:0.0000	3840.0000	822867
2017 SAOR	2017:6:11:0.0000	3864.0000	921224
2017 SAOR	2017:6:12:0.0000	3888.0000	1006789
2017 SAOR	2017:6:13:0.0000	3912.0000	1057941
2017 SAOR	2017:6:14:0.0000	3936.0000	1094638
2017 SAOR	2017:6:15:0.0000	3960.0000	1142170
2017 SAOR	2017:6:16:0.0000	3984.0000	1195816
2017 SAOR	2017:6:17:0.0000	4008.0000	1235719
2017 SAOR	2017:6:18:0.0000	4032.0000	1277060
2017 SAOR	2017:6:19:0.0000	4056.0000	1326734
2017 SAOR	2017:6:20:0.0000	4080.0000	1377513
2017 SAOR	2017:6:21:0.0000	4104.0000	1427638
2017 SAOR	2017:6:22:0.0000	4128.0000	1460423
2017 SAOR	2017:6:23:0.0000	4152.0000	1483563
2017 SAOR	2017:6:24:0.0000	4176.0000	1501127
2017 SAOR	2017:6:25:0.0000	4200.0000	1515845
2017 SAOR	2017:6:26:0.0000	4224.0000	1528319
2017 SAOR	2017:6:27:0.0000	4248.0000	1543327
2017 SAOR	2017:6:28:0.0000	4272.0000	1582558
2017 SAOR	2017:6:29:0.0000	4296.0000	1610610
2017 SAOR	2017:6:30:0.0000	4320.0000	1638685
2017 SAOR	2017:7:1:0.0000	4344.0000	1673838
2017 SAOR	2017:7:2:0.0000	4368.0000	1702517
2017 SAOR	2017:7:3:0.0000	4392.0000	1727654
2017 SAOR	2017:7:4:0.0000	4416.0000	1753672
2017 SAOR	2017:7:5:0.0000	4440.0000	1776699
2017 SAOR	2017:7:6:0.0000	4464.0000	1795523
2017 SAOR	2017:7:7:0.0000	4488.0000	1812553
2017 SAOR	2017:7:8:0.0000	4512.0000	1829056
2017 SAOR	2017:7:9:0.0000	4536.0000	1843283
2017 SAOR	2017:7:10:0.0000	4560.0000	1855708
2017 SAOR	2017:7:11:0.0000	4584.0000	1866424
2017 SAOR	2017:7:12:0.0000	4608.0000	1877516
2017 SAOR	2017:7:13:0.0000	4632.0000	1891187
2017 SAOR	2017:7:14:0.0000	4656.0000	1906400
2017 SAOR	2017:7:15:0.0000	4680.0000	1922746

Sim	Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017 SAOR	2017:7:16:0.0000	4704.0000	1940249
2017 SAOR	2017:7:17:0.0000	4728.0000	1954743
2017 SAOR	2017:7:18:0.0000	4752.0000	1968732
2017 SAOR	2017:7:19:0.0000	4776.0000	1993965
2017 SAOR	2017:7:20:0.0000	4800.0000	2032475
2017 SAOR	2017:7:21:0.0000	4824.0000	2067753
2017 SAOR	2017:7:22:0.0000	4848.0000	2133033
2017 SAOR	2017:7:23:0.0000	4872.0000	2201640
2017 SAOR	2017:7:24:0.0000	4896.0000	2252115
2017 SAOR	2017:7:25:0.0000	4920.0000	2281774
2017 SAOR	2017:7:26:0.0000	4944.0000	2301839
2017 SAOR	2017:7:27:0.0000	4968.0000	2316860
2017 SAOR	2017:7:28:0.0000	4992.0000	2330208
2017 SAOR	2017:7:29:0.0000	5016.0000	2341448
2017 SAOR	2017:7:30:0.0000	5040.0000	2351236
2017 SAOR	2017:7:31:0.0000	5064.0000	2361060
2017 SAOR	2017:8:1:0.0000	5088.0000	2525490
2017 SAOR	2017:8:2:0.0000	5112.0000	2795553
2017 SAOR	2017:8:3:0.0000	5136.0000	2883810
2017 SAOR	2017:8:4:0.0000	5160.0000	2917986
2017 SAOR	2017:8:5:0.0000	5184.0000	2938249
2017 SAOR	2017:8:6:0.0000	5208.0000	2953134
2017 SAOR	2017:8:7:0.0000	5232.0000	2966314
2017 SAOR	2017:8:8:0.0000	5256.0000	2978956
2017 SAOR	2017:8:9:0.0000	5280.0000	2989637
2017 SAOR	2017:8:10:0.0000	5304.0000	2999683
2017 SAOR	2017:8:11:0.0000	5328.0000	3010963
2017 SAOR	2017:8:12:0.0000	5352.0000	3182469
2017 SAOR	2017:8:13:0.0000	5376.0000	3227110
2017 SAOR	2017:8:14:0.0000	5400.0000	3247947
2017 SAOR	2017:8:15:0.0000	5424.0000	3261383
2017 SAOR	2017:8:16:0.0000	5448.0000	3271080
2017 SAOR	2017:8:17:0.0000	5472.0000	3278697
2017 SAOR	2017:8:18:0.0000	5496.0000	3292771
2017 SAOR	2017:8:19:0.0000	5520.0000	3310750
2017 SAOR	2017:8:20:0.0000	5544.0000	3323823
2017 SAOR	2017:8:21:0.0000	5568.0000	3335074
2017 SAOR	2017:8:22:0.0000	5592.0000	3345867
2017 SAOR	2017:8:23:0.0000	5616.0000	3354176
2017 SAOR	2017:8:24:0.0000	5640.0000	3362275
2017 SAOR	2017:8:25:0.0000	5664.0000	3396427
2017 SAOR	2017:8:26:0.0000	5688.0000	3604717
2017 SAOR	2017:8:27:0.0000	5712.0000	3812517
2017 SAOR	2017:8:28:0.0000	5736.0000	4168302
2017 SAOR	2017:8:29:0.0000	5760.0000	4229430
2017 SAOR	2017:8:30:0.0000	5784.0000	4394538
2017 SAOR	2017:8:31:0.0000	5808.0000	4405334
2017 SAOR	2017:9:1:0.0000	5832.0000	4588461
2017 SAOR	2017:9:2:0.0000	5856.0000	4604245

Sim	Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017 SAOR	2017:9:3:0.0000	5880.0000	4905785
2017 SAOR	2017:9:4:0.0000	5904.0000	4928872
2017 SAOR	2017:9:5:0.0000	5928.0000	4998133
2017 SAOR	2017:9:6:0.0000	5952.0000	5008074
2017 SAOR	2017:9:7:0.0000	5976.0000	5267807
2017 SAOR	2017:9:8:0.0000	6000.0000	5276537
2017 SAOR	2017:9:9:0.0000	6024.0000	5463171
2017 SAOR	2017:9:10:0.0000	6048.0000	5492826
2017 SAOR	2017:9:11:0.0000	6072.0000	6144965
2017 SAOR	2017:9:12:0.0000	6096.0000	6220958
2017 SAOR	2017:9:13:0.0000	6120.0000	6496008
2017 SAOR	2017:9:14:0.0000	6144.0000	6510792
2017 SAOR	2017:9:15:0.0000	6168.0000	6811758
2017 SAOR	2017:9:16:0.0000	6192.0000	6861951
2017 SAOR	2017:9:17:0.0000	6216.0000	7128028
2017 SAOR	2017:9:18:0.0000	6240.0000	7138172
2017 SAOR	2017:9:19:0.0000	6264.0000	7393289
2017 SAOR	2017:9:20:0.0000	6288.0000	7400640
2017 SAOR	2017:9:21:0.0000	6312.0000	7654720
2017 SAOR	2017:9:22:0.0000	6336.0000	7662276
2017 SAOR	2017:9:23:0.0000	6360.0000	7971579
2017 SAOR	2017:9:24:0.0000	6384.0000	8016588
2017 SAOR	2017:9:25:0.0000	6408.0000	8291819
2017 SAOR	2017:9:26:0.0000	6432.0000	8314066
2017 SAOR	2017:9:27:0.0000	6456.0000	8582630
2017 SAOR	2017:9:28:0.0000	6480.0000	8604012
2017 SAOR	2017:9:29:0.0000	6504.0000	8871469
2017 SAOR	2017:9:30:0.0000	6528.0000	8945505
2017 SAOR	2017:10:1:0.0000	6552.0000	9254898
2017 SAOR	2017:10:2:0.0000	6576.0000	9288614
2017 SAOR	2017:10:3:0.0000	6600.0000	9562332
2017 SAOR	2017:10:4:0.0000	6624.0000	9586169
2017 SAOR	2017:10:5:0.0000	6648.0000	9852738
2017 SAOR	2017:10:6:0.0000	6672.0000	9876395
2017 SAOR	2017:10:7:0.0000	6696.0000	10141903
2017 SAOR	2017:10:8:0.0000	6720.0000	10160232
2017 SAOR	2017:10:9:0.0000	6744.0000	10420664
2017 SAOR	2017:10:10:0.0000	6768.0000	10433158
2017 SAOR	2017:10:11:0.0000	6792.0000	10687836
2017 SAOR	2017:10:12:0.0000	6816.0000	10694650
2017 SAOR	2017:10:13:0.0000	6840.0000	10945650
2017 SAOR	2017:10:14:0.0000	6864.0000	10950324
2017 SAOR	2017:10:15:0.0000	6888.0000	11198859
2017 SAOR	2017:10:16:0.0000	6912.0000	11203007
2017 SAOR	2017:10:17:0.0000	6936.0000	11451334
2017 SAOR	2017:10:18:0.0000	6960.0000	11455470
2017 SAOR	2017:10:19:0.0000	6984.0000	11687769
2017 SAOR	2017:10:20:0.0000	7008.0000	11691762
2017 SAOR	2017:10:21:0.0000	7032.0000	11827818

Sim	Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017 SAOR	2017:10:22:0.0000	7056.0000	11831990
2017 SAOR	2017:10:23:0.0000	7080.0000	11862958
2017 SAOR	2017:10:24:0.0000	7104.0000	11869124
2017 SAOR	2017:10:25:0.0000	7128.0000	11879224
2017 SAOR	2017:10:26:0.0000	7152.0000	11894834
2017 SAOR	2017:10:27:0.0000	7176.0000	11908509
2017 SAOR	2017:10:28:0.0000	7200.0000	11920176
2017 SAOR	2017:10:29:0.0000	7224.0000	11951993
2017 SAOR	2017:10:30:0.0000	7248.0000	12002430
2017 SAOR	2017:10:31:0.0000	7272.0000	12032090
2017 SAOR	2017:11:1:0.0000	7296.0000	12053341
2017 SAOR	2017:11:2:0.0000	7320.0000	12069997
2017 SAOR	2017:11:3:0.0000	7344.0000	12083741
2017 SAOR	2017:11:4:0.0000	7368.0000	12095463
2017 SAOR	2017:11:5:0.0000	7392.0000	12105683
2017 SAOR	2017:11:6:0.0000	7416.0000	12114742
2017 SAOR	2017:11:7:0.0000	7440.0000	12122869
2017 SAOR	2017:11:8:0.0000	7464.0000	12130219
2017 SAOR	2017:11:9:0.0000	7488.0000	12136931
2017 SAOR	2017:11:10:0.0000	7512.0000	12143104
2017 SAOR	2017:11:11:0.0000	7536.0000	12148812
2017 SAOR	2017:11:12:0.0000	7560.0000	12154113
2017 SAOR	2017:11:13:0.0000	7584.0000	12159092
2017 SAOR	2017:11:14:0.0000	7608.0000	12163756
2017 SAOR	2017:11:15:0.0000	7632.0000	12168138
2017 SAOR	2017:11:16:0.0000	7656.0000	12172276
2017 SAOR	2017:11:17:0.0000	7680.0000	12176193
2017 SAOR	2017:11:18:0.0000	7704.0000	12179910
2017 SAOR	2017:11:19:0.0000	7728.0000	12183446
2017 SAOR	2017:11:20:0.0000	7752.0000	12186815
2017 SAOR	2017:11:21:0.0000	7776.0000	12190047
2017 SAOR	2017:11:22:0.0000	7800.0000	12193147
2017 SAOR	2017:11:23:0.0000	7824.0000	12196130
2017 SAOR	2017:11:24:0.0000	7848.0000	12199021
2017 SAOR	2017:11:25:0.0000	7872.0000	12201808
2017 SAOR	2017:11:26:0.0000	7896.0000	12204486
2017 SAOR	2017:11:27:0.0000	7920.0000	12207064
2017 SAOR	2017:11:28:0.0000	7944.0000	12209553
2017 SAOR	2017:11:29:0.0000	7968.0000	12211944
2017 SAOR	2017:11:30:0.0000	7992.0000	12214254
2017 SAOR	2017:12:1:0.0000	8016.0000	12216489
2017 SAOR	2017:12:2:0.0000	8040.0000	12218663
2017 SAOR	2017:12:3:0.0000	8064.0000	12220790
2017 SAOR	2017:12:4:0.0000	8088.0000	12223082
2017 SAOR	2017:12:5:0.0000	8112.0000	12225232
2017 SAOR	2017:12:6:0.0000	8136.0000	12227323
2017 SAOR	2017:12:7:0.0000	8160.0000	12229354
2017 SAOR	2017:12:8:0.0000	8184.0000	12231323
2017 SAOR	2017:12:9:0.0000	8208.0000	12233234

Sim	Absolute Time	Relative Time [hrs]	Recharge Volume [ft3]
2017 SAOR	2017:12:10:0.0000	8232.0000	12237955
2017 SAOR	2017:12:11:0.0000	8256.0000	12240321
2017 SAOR	2017:12:12:0.0000	8280.0000	12242713
2017 SAOR	2017:12:13:0.0000	8304.0000	12245090
2017 SAOR	2017:12:14:0.0000	8328.0000	12247434
2017 SAOR	2017:12:15:0.0000	8352.0000	12249734
2017 SAOR	2017:12:16:0.0000	8376.0000	12251983
2017 SAOR	2017:12:17:0.0000	8400.0000	12254176
2017 SAOR	2017:12:18:0.0000	8424.0000	12256311
2017 SAOR	2017:12:19:0.0000	8448.0000	12258387
2017 SAOR	2017:12:20:0.0000	8472.0000	12260393
2017 SAOR	2017:12:21:0.0000	8496.0000	12262306
2017 SAOR	2017:12:22:0.0000	8520.0000	12264168
2017 SAOR	2017:12:23:0.0000	8544.0000	12265971
2017 SAOR	2017:12:24:0.0000	8568.0000	12267728
2017 SAOR	2017:12:25:0.0000	8592.0000	12269438
2017 SAOR	2017:12:26:0.0000	8616.0000	12271092
2017 SAOR	2017:12:27:0.0000	8640.0000	12272697
2017 SAOR	2017:12:28:0.0000	8664.0000	12274261
2017 SAOR	2017:12:29:0.0000	8688.0000	12275792
2017 SAOR	2017:12:30:0.0000	8712.0000	12277300
2017 SAOR	2017:12:31:0.0000	8736.0000	12278773