www.polk-county.net

LEVEL 3 & 4 DEVELOPMENT REVIEW APPLICATION

Refer to Resolution 01-28 for Applicable Fee(s)

Growth Management Department
Land Development Division
330 W. Church St.
P.O. Box 9005, Drawer GM03
Bartow, FL 33831-9005
(863)534-6792
SUNCOM 569-6792
FAX (863) 534-6407

TYPE OF APPLICATION

( ) Level 3 (✓) Level 4

(✓) Conditional Use

( ) Planned Development

( ) Suburban Planned Development

( ) Sign Plan

( ) Major Modification - Case Number _____

	Owner	Applicant	Contact Person
Name	T. Mims Corp.	Powell Fragala & Associates	Augustine M. Fragala, Jr., AICP
Work Number	(863) 683-9297	(863) 644-0951	(863) 644-0951
Fax Number	(863) 683-1059	(863) 644-3760	(863) 644-0951
Mailing Address	100 S. KentuckyAve., Suite 215 Lakeland, FL 33801	PO Box 6467 Lakeland, FL 33807-6467	PO Box 6467 Lakeland, FL 33807-6467
Email	Mims2Tom@aol.com	amf@pfaplanners.com	amf@pfaplanners.com

Description of Proposed Activity or Use

Please provide a detailed description of the project, quantifying intensity (such as number of units, employees, seats, beds, rooms, children, holes of golf, pumps, vehicle repair bays, etc.), specify phasing, and estimated period for completion.

The Innovation Environmental Park is proposed as a facility to process and dispose of non-hazardous solid waste in general conformance with the Florida Administrative Code (FAC) Chapter 62-701 "Solid Waste Management Facilities". Major components of the processing and disposal of non-hazardous solid waste include inspection, transportation, sorting, recycling, resource recovery, and placement in a permitted landfill. The facility construction and operations to complete these tasks are permitted through and inspected by the Florida Department of Environmental Protection Division of Waste Management (FDEP/WM).

Of the 1,777 acres of project area, about 1,040 acres are designates for permanent waste facility (landfill). The remaining acreage will be used for buffers, access roads, stormwater control, and ancillary activities to support the proposed activity. All permanent waste disposal will be within lined facilities permitted and inspected by the FDEP/WM. No permanent waste disposal will occur within 100 feet of the property boundary.

	Range - Township - Section	Subdivision #	-	Parcel #
Parcel ID Number(s):	R 23 T 30 S 27		-	033010
	(Include others on a separate attachment)			
	R 23 T 30 S 34		-	033010
	R 23 T 30 S 34		-	011050
	R 23 T 30 S 34		-	011040

Address and Location of Property:

The proposed Innovation Environmental Park will be located south of County Road 640 and West of State Road 37, about 4 miles south of the City of Mulberry.

Directions to Property from Bartow

Take SR 60 west to SR 37 in Mulberry. Turn left (south). Drive approximately 3 miles to the intersection with County Road 640. The site is approximately 1.5 miles past this intersection on the right side (west).

Property Description

Future Land Use (and Subdistrict if applicable): Institutional:FLU INS-2: Subdistrict

Property Size: 1,741 acres Development Area: 1,040 acres

Water Provider Name and Phone Number: Polk County Utilities - 863-298-4100

Sewer Provider Name and Phone Number: There are no public or private wastewater utilities providing service

Development of Regional Impact: N/A
(Name and Phase of DRI)

Selected Area Plan: N/A
(Name of SAP)

Green Swamp Area of Critical State Concern: N/A
(Name of Special Protection Area)

Joint Planning Area/Interlocal Agreement N/A

Have Development Rights been transferred to or from the subject property? ___ Yes ✔ No

Additional Parcel ID #s

Range – Township – Section	Subdivision	Parcel #
23 – 30 – 35	N/A	031010
23 – 31 – 02	N/A	013020
23 – 31 – 03	N/A	011020
23 – 31 – 10	N/A	011020
23 – 31 – 11	N/A	031010

Identify existing uses and structures on subject and surrounding properties (e.g. vacant, residential # du/ac, commercial approx. square feet, etc.):

PM Land Use, Mined and Reclaimed Clay Settling Areas. **NW**	County Road 640 PM, IND, BPC, Light Manufactuirng, Mined Lands Pinedale Community is approximately 1000 feet to the north. **N**	Abuts SR 37 Oak Terrace, Residential Enclave in A/RR Land Use. **NE**
PM Land Use, including New Wales Chemical Plant Complex, Gypsum Stacks, and water control areas. **W**	1,741 acres of Existing Mined and Reclaimed PM Land Use. **Subject Property**	Abuts SR 37, Land Use east of SR 37 1/2 mile of PM. CSX Main Line Railroad. **E**
PM Land Use, un-reclaimed clay settling areas. **SW**	PM Land Use 200 ft., Wide Power Transmission Corridor, RCC-R Land Use for Bradley Junction 400 ft. south. **S**	PM Land USe including mine entrance, 200 ft. Power Transmission Corridor. RCC-R Land Use for Bradley Junction 800 ft. south. **SE**

Approval of this application does not waive any other applicable provisions of the Polk County Land Development Code, the Polk County Comprehensive Plan, the Polk County Utility Code which are not part of the request for this application, nor does approval waive any applicable Florida Statutes, Florida Building Code, Florida Fire Prevention Code, or any other applicable laws, rules, or ordinances, whether federal, state or local. The applicant has the obligation and responsibility to be informed of and be in compliance with all applicable laws, rules, codes and ordinances.

I, AUGUSTINE M. FRAGALA, JR (print name), the owner of the property which is the subject of this application, or the authorized representative of owner of the property which is the subject of this application, hereby authorize representatives of Polk County to enter onto the property which is the subject of this application to perform any inspections or site visits necessary for reviewing this application. I understand that representatives of Polk County are not authorized to enter any structures dwellings which may be on the property.

Augustine M. Fragala, Jr. — 2.17.09

Property owner or property owner's authorized representative. Date:

LEVEL 3 AND 4 SUBMITTAL LIST FOR PD, SPD, CU, SIGN PLANS AND MAJOR MODIFICATIONS

Growth Management Department
Land Development Division
330 W. Church St.
P.O. Box 9005, Drawer GM03
Bartow, FL 33831-9005
(863)534-6792
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FAX (863) 534-6407
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All of the following information must be *collated* and *site plans folded* when submitted

Incomplete Packets will not be processed.

(All Re-submittal must Be Submitted Through the Land Development Division)

Land Development Division: Official Records

One (1) Level 3/4 Development Review Application
One (1) Site Plan 24"x 36" (an additional 10 copies due two weeks before Planning Commission Date)
One (1) Impact assessment statement
One (1) Green swamp impact assessment statement (if applicable)
One (1) Reduced site plan (8½"x 11")
One (1) Legal description
One (1) Deed (copies only)
One (1) Owner authorization letter
One (1) Location map
One (1) SPD developable Area Map
One (1) Pre-app Comments (if applicable)
One (1) Major Traffic Study with fee (if applicable)

Land Development Division: Engineering

One (1) Level 3/4 Development Review Application
One (1) Site plan (24"x 36")
One (1) Impact assessment statement
One (1) Green swamp impact assessment statement (if applicable)
One (1) Legal description
One (1) Location map

Land Development Division: Current Planning

One (1) Level 3/4 Development Review Application
One (1) Site plan (24"x 36")
One (1) Impact assessment statement
One (1) Green swamp impact assessment statement (if applicable)
One (1) Reduced site plan (8½"x 11")
One (1) Legal description
One (1) Location map
One (1) SPD developable Area Map
One (1) Pre-app Comments (if applicable)

Polk County Transportation Planning Organization

One (1) Level 3/4 Development Review Application
One (1) Site plan (24"x 36")
One (1) Impact assessment statement
One (1) Location map
One (1) Major Traffic Study with fee (if applicable)

Fire Services & EMS

One (1) Level 3/4 Development Review Application
One (1) Site plan (24"x 36")
One (1) Location map

Polk County Natural Resources

One (1) Level 3/4 Development Review Application
One (1) Site plan (24"x 36")
One (1) Impact assessment statement
One (1) Green swamp impact assessment statement (if applicable)
One (1) Location map

Polk County School Board

One (1) Level 3/4 Development Review Application
One (1) Site plan (24"x 36")
One (1) Location map

Polk County Sheriff's Office

One (1) Level 3/4 Development Review Application
One (1) Site plan (24"x 36")
One (1) Location map

Utilities (Only if in Polk County Utilities service area)

One (1) Level 3/4 Development Review Application
One (1) Site plan (24"x 36")
One (1) Impact assessment statement
One (1) Green swamp impact assessment statement (if applicable)
One (1) Location map

Summary of all Copies Needed for Submittal

10 copies of Level 3/4 Development Review Applications - 11 if in Polk County Utility Service Area
20 copies of Site Plan (24"x 36") – 21 if in Polk County Utility Service Area
7 copies of Impact Assessment Statement – 8 if in Polk County Utility Service Area
5 copies of Green Swamp Impact assessment statement (if applicable) – 6 if in Polk County Utility Service Area
2 copies of Reduced Site Plan (8½"x 11")
3 copies of Legal description
1 copy of Deed (copies only)
1 copy of Owner authorization letter
10 copies of Location Map - 11 if in Polk County Utility Service Area
2 copies of SPD Developable Area Map
2 copy of Pre-app Comments (if applicable)
2 copies Major Traffic Study with fee (if applicable)

Incomplete Packets will not be processed.
The applicant will be called to pick up incomplete packets.

SECTION 2

Project Description

Demonstration of Need

Project Description

Prepared by Mike Cotter, P.E., and Ana C. Wood & Company

INNOVATION AND COLLABORATION

After the enactment of Subtitle D in 1984, cities and counties throughout the country experienced a wave of changes with regard to the handling and management of municipal solid waste. Over time, the change has been dramatic. One can simply compare today's processing and disposal sites to the open dumps of some 30 years ago. While the technology has advanced, it has not solved all the issues associated with solid waste management. Current environmentalism has blossomed into a mainstream movement that has created new opportunities and possibilities on handling waste. Once again just like in the mid 1980's environmental stewardship is propelling the industry into new frontiers.

Most landfill facilities around the country are designed to be filled and then they are no longer used. They are not designed or equipped to have multiple industries on site or on areas surrounding the landfill for quick and easy access to the material used in their manufacturing process.

The concept of *Innovation Environmental Park* (*Innovation*) is unique to the solid waste management business. In most solid waste management enterprises, the main objective is to dispose of solid waste and to maintain an area which is exclusively designed to store solid waste indefinitely. *Innovation* is just the opposite. The *Innovation* complex and surrounding land uses are designed to enable industries to develop around a source of products and materials used in their manufacturing processes, known in a standard manufacturing process as "raw materials." The concept of *Innovation* is not to rely on the county's solid waste for disposal, but rather to see this waste re-manufactured and reconstructed before it leaves our county in a form which can be used around the world. This unique concept is known as "*One Touch Approach*" and it stems from industry foresight based on insights into trends in technology, demographics, regulation, and lifestyles.

UNIQUE CONCEPT: THE ONE TOUCH APPROACH

Innovation, and the surrounding area, is designed to unify a set of disjointed activities (unloading, loading, baling, transporting, shipping, unloading, un-baling and processing) into one activity where materials are touched once, before it is re-conditioned, re-constructed or re-used in the manufacturing process. The goal is not to send material out to a foreign country or outside the county, but to use the material in various manufacturing processes which produce jobs and industry in Polk County. Under the "One Touch Approach" more final products derived from waste should leave the county than waste that comes into the county, in various re-usable forms. In any manufacturing process, the number of times an item or material is "touched" or "handled" increases the costs to manufacture such products. In most recycling processes, the items selected or recycle materials are shipped all over the country or world. This process reduces the ability to recycle to a selected number of products due to the inefficiency of shipping most recycle material.

Project Description

Innovation is designed to significantly increase the number of items which can be re-constructed, re-used, and recycled due to the onsite recycling and manufacturing facilities, not only on the *Innovation* site, but in the surrounding areas, which have extensive heavy industrial type uses.

Because of the Energy Climate Change and Economic Security Act of 2008 (House Bill 7135) signed into law by Governor Crist establishing a new statewide recycling goal of 75% by the year 2020, Innovation will play a key role in assisting the Polk County meet this objective.

INNOVATION will be positioned to offer a variety of environmental services unmatched by any other company in Polk County and central Florida.

The goal of *INNOVATION* is to shift the current recycling paradigm away from the concept of harvesting a small percentage of recoverable materials out of the solid waste stream to a new paradigm of developing strategies to recover or convert all of the waste stream and utilize land filling as a process of last resort. The designers of *INNOVATION* realize not all the infrastructure and technology to achieve this goal is currently available in Polk County. The concepts for *Innovation* have therefore been planned with flexibility to nurture emerging technologies and processes in a safe, realistic environment. *Innovation* will not replace public solid waste but will form a partnership with the public sector to achieve the re-use, re-manufacturing and re-purposing of the solid waste stream the public desires and the environment demands.

Innovation Environmental Park is designed to provide an environmentally sound waste processing site while creating jobs and responsible environmental education in Polk County. A name that aptly resonates with a new direction on how to think, manage and view solid waste management facilities. The overall purpose of *Innovation* will be to promote effective, safe, sustainable and affordable waste management options. It will be a non-hazardous solid waste processing complex comprised of a Class I, Class III, construction and demolition debris (C&DD), land clearing debris, yard waste processing and disposal. This is not just another waste processing and disposal site, *Innovation* has been strategically designed to be much more.

JOB CREATION: ATTRACT NEW BUSINESSES

Innovation will capitalize on industry synergies and serve as a magnet to attract businesses connected to the industry to create new opportunities for the remanufacturing, re-purposing, re-creation and re-using of discarded material that without *Innovation* would be destined for a landfill. Any materials without any potential or recovery value will be disposed of on site. The designers of *Innovation* have indeed looked back to assess where the industry has been and thus, have aimed toward the future to envision the new generation of solid waste management

practices. The concept to create a business environment conducive to industry synergies will, without a doubt, energize Polk's economic base and provide new greater opportunities to local entrepreneurs and small business owners. The recent economic recession, of course, provided additional reason to study a different type of facility and to streamline marketing efforts. Combining these capabilities into a single geographical area will enable *Innovation* to provide better market support, coordinate and deliver services more efficiently to clients.
Polk County stands to benefit greatly by creating needed jobs, stimulate new business development, and reduce waste costs through the creation of the *Innovation* concept.

DISTINCTIVE ADVANTAGES: **TRANSPORTATION, PROXIMITY, POWER, GEOLOGY, RESEARCH**
Innovation will take advantage of resources not available at most solid waste disposal sites in central Florida including:

1. Access to a highway transportation system without interfering with adjacent uses;
2. Available industrial sites in close proximity to *Innovation*;
3. Sound and competent geologic setting for processing and disposal of solid waste;
4. Acreage available on-site and adjacent to the site for processing and technology development without interfering with disposal space;
5. Available skilled workforce;
6. Access to applied research developed at Polk State College and University of South Florida Polytechnic; and
7. Access to the power and gas distribution grids for support of alternative or "green" power generation processes.

As a privately operated environmental complex Innovation, will be able to capitalize on the concept of industry synergies and serve as a magnet to attract businesses which will create new opportunities for the remanufacturing, re-purposing, re-creation and re-using of discarded material that without Innovation would be headed to a landfill. Only those solid waste materials without any potential re-use or recovery value will be disposed of on site.

The citizens of Polk County stand to benefit greatly from *Innovation* through the creation of needed jobs, stimulation of new business development, and reduction of waste costs. Auxiliary uses of *Innovation* would support an estimated 335 jobs directly. The auxiliary uses would be as follows:

- Glass resource recovery and processing facility (30 jobs)
- Wood waste conversion (30 jobs)
- Used tire grinding/shredding (10 jobs)

- De-manufacturing (30 jobs)
- C & DD sorting facility (25 jobs)
- Recycling facility (75 jobs)
- Landfill facility (100 jobs)
- Environmental pavilion (15 jobs)
- Center for research application (20 jobs)

Very few, if any, solid waste disposal sites in Florida have been designed or have the land area around them to support industry onsite to bring the efficiencies, of the "One Touch Approach" to the manufacturing processes needed to support a complete recycling, re-use, and re-construction of solid waste materials. These 335 jobs would be just the beginning. The ripple effect for other types of industries used in the support of these companies could be significant.

DE-MANUFACTURING: ENVIRONMENTAL BENEFITS

De-manufacturing has entered the scene as a trend, but offers long-term environmental benefits. While most people are still learning about de-manufacturing, many are familiar with de-manufactured products such as wood salvaged from destroyed buildings and rejected furniture. Such wood is reused in the creation of "new" buildings, decks, floors, and, most popular right now, "new" furniture. By offering a de-manufacturing facility, *Innovation* would enable the creation of local de-manufactured products.

PUBLIC ENVIRONMENTAL EDUCATION SITE: COMMUNITY ALLIANCES

The public education site of *Innovation* is the significant factor associated with its development. It is the goal of *Innovation* to reach out to the community as a resource readily available to them. It is important to let residents know *Innovation* is present to help ensure protection of local resources. While many residents of Polk County understand the importance of recycling, many do not realize all the items which can be recycled and which need to be disposed of in a careful manner. The environmental education center would be a source of learning about the utility value of discarded materials that could be converted into new products, learning how to develop a proper compost system, learning what products are environmentally friendly, and learning how to identify what products require special disposal. A relationship is being sought with USF Polytechnic to encourage a cutting-edge, environmentally conscious educational institution in Polk County. Five acres of *Innovation* would be *gifted* to University of South Florida-Polytechnic for this purpose. Public seminars would be held by students to encourage environmental awareness among citizens. Further, students would have the opportunity to develop their professional careers by experiencing specific areas of interest first hand. USF Polytechnic would have the unique ability to reach out to the community in an area of need. The designer's of *Innovation* has agreed to further the educational ability of USF Polytechnic by funding a $100,000.00 donation for a research center. This

$100,000.00 to USF Polytechnic will be used in an incubator program for the study, research and development of new technologies for recycling and re-manufacturing of products. This program and research would be located onsite and provide the tools and access for product development.

PROPOSED WASTE PROCESSING RATE:

According to county records, Polk County North Central Landfill managed and landfilled 735,878 tons of waste for calendar year 2007. This includes almost 8% or 57,122 tons of out-of-county waste. During the same period, it is estimated that the total waste generated in Polk County was 1,185,060 tons. Based on these figures, it appears that there are approximately 625,395 tons in the open market. This material is now going to other facilities, both inside and outside the county. For planning purposes, *Innovation* anticipates approximately 1,300 tons per day (tpd) once the complex is operational. This figure represents approximately 60% of the total tonnage available which is not being managed by the county's North-Central Landfill.

Of the total tonnage received per day, it is anticipated that *INNOVATION* will receive over 750 tons per day of Class III and C&DD waste generated by private businesses and building contractors within Polk County. Currently, the facilities in Polk County offer limited recycling opportunities. The goal at *Innovation* will be to recycle as much as 75% of this waste stream. A significant percentage of Class III and C&DD waste generated in the County is transported to facilities, such as the Enterprise Road facility in Pasco County, the Oak Hammock facility in Osceola County, and Cedar Trails Landfill in Bartow. Therefore, a waste processing facility with the ability to segregate, sort, and process this portion of the waste stream will have a significant market advantage in addition to the location advantages and synergies discussed in previous sections of this document.

The benefits of *INNOVATION*, as previously stated, and the auxiliary uses surrounding the facility allow for companies to develop onsite research and manufacture products to achieve a 75% recycling and re-use goal developed by the legislature. The facility will allow on-site uses which significantly reduce the handling of recycled product, which further enhances the viability of recycling and the marketing of such projects.

NATURAL DISASTER RELIEF: COLLABORATIVE AND COST EFFECTIVE

Innovation will be poised to assist the County in responding to emergency debris removal situations like those encountered following the 2004 hurricane season. *Innovation* will provide additional support to Polk County's existing landfill needs in the event of a natural disaster. *Innovation* would become part of the counties initiative to handle and process hurricane debris. In addition, the facility could assist the county in the event a natural disaster disables the existing county facility.

According to Polk County's *2009 Disaster Debris Management Plan*, the County will need an efficient and cost-effective debris removal and disposal alternative in the event of natural disasters like the ones experienced in 2004. *Innovation* is poised to be an integral partner in this effort since its location will enable the County to serve the northwest quadrant of the County. Table 2-3 provides a summary of the acreage needed in the event of a natural disaster.

Table2-3
Debris Volume and Temporary Debris Storage and Reduction Sites Acreage Requirement by Category

Storm Strength	Cubic Yards of Debris	Acreage
Category 1	580,000	29.84
Category 2	2,310,000	118.84
Category 3	7,500,000	385.85
Category 4	14,420,000	741.86
Category 5	23,070,000	1,186.87

*Source: Polk County's 2009 Disaster Management Plan

As a multi-use solid waste processing facility *Innovation* will be uniquely qualified to partner with the Polk County Emergency Management Team to provide assistance with debris-generating disasters. The scope of this partnership could include providing a site, providing equipment, and providing key personnel to operate an emergency site. Such debris generating natural disasters could include tornadoes, floods, and hurricanes. Table 2-3 is a summary taken from the 2009 Polk County Debris Estimate Volume Report. As noted in this table, up to 1,187 acres of temporary debris storage may be required in the event of a category 5 hurricane strike. Table D-1 of the same report provides a matrix table rating the available sites for temporary debris storage and reduction use. The matrix lists issues of concern with each of the proposed private sites. Among the key issues is accessibility by normal over-the-road trucks and availability of acreage for temporary storage. The *Innovation* site will have none of these concerns.

As noted on the conceptual site plan, *Innovation* will be constructed with paved main access roads able to handle large quantities of trucks. The overall landfill footprint for permanent disposal is 1,040 acres. Given the modest tonnage rate anticipated for permanent disposal, significant acreages for temporary disposal (up to 700 acres) and storage will be available for the next 20 years. The site will be surrounded by fencing and berms with no access to residential areas and gated, monitored access to the public road through gates. The Innovation site will be constructed and operated pursuant to all FDEP solid waste permits and can be operated under emergency directives from the FDEP Secretary. Given the large available acreage permanent disposal, air curtain incineration, and volume reduction operations may be possible as final disposal techniques for natural disaster debris.

Solid Waste Division	Landfill Tonnage Rep													
Days of Operation	27	25	25	25	24	26	26	26	25	26	26	25	306	
	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Total	% Waste
AR-ASH RESIDUE (WHEELABR)	5,158.02	6,040.34	5,751.18	5,763.44	5,106.75	3,623.06	5,956.91	6,447.45	6,251.44	6,183.30	7,260.01	5,816.35	69,358.25	9.46%
AS-ASBESTOS	11.74	8.14	19.02	8.35	-	4.47	8.49	5.04	19.91	29.67	8.12	7.11	130.06	0.02%
AV-AQUATIC VEGETATION	3.02	81.47	4.85	8.17	79.39	1.02	3.07	12.02	12.18	5.21	3.39	1.52	215.31	0.03%
B-HORTICULTURAL WASTE	1,695.80	1,541.86	1,385.60	1,653.02	1,585.32	1,682.28	1,346.88	1,924.22	2,557.19	1,604.08	1,742.82	1,856.46	20,575.53	2.81%
C-COMMERCIAL	33,749.40	32,460.36	32,946.77	36,702.39	31,956.25	35,546.59	33,327.46	34,364.37	31,827.04	32,791.16	34,377.34	29,527.84	399,576.97	54.50%
CD-CONST/DEMOLITION	3,804.71	3,024.31	2,901.87	3,533.98	3,555.74	3,696.19	3,614.22	4,162.78	3,814.38	3,373.13	3,444.51	3,055.62	41,981.44	5.73%
CT-CUSTOMER TRASH	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
DA-DEAD ANIMALS	36.66	40.28	40.49	48.83	41.58	42.88	51.92	54.17	51.42	50.92	52.85	51.39	563.39	0.08%
F-FURNITURE	14.19	10.27	11.44	16.41	6.92	12.54	10.22	5.36	4.61	1.98	8.83	6.46	109.23	0.01%
HA-GARBAGE-UNINCORP	12,889.03	12,433.65	12,993.90	14,240.54	11,639.65	13,268.19	13,193.69	13,380.48	13,006.15	14,535.05	13,053.30	11,456.98	156,090.61	21.29%
HB-HORTICULTURAL	2,573.20	2,465.76	1,731.00	2,989.88	2,485.18	4,302.90	4,231.80	4,377.28	3,674.45	3,433.80	3,907.72	3,364.55	39,537.52	5.39%
HCD CONST/DEMOLITION	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
HF-FURNITURE	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
HT-TIRES	2.12	1.76	1.48	1.78	2.34	2.09	2.08	1.74	2.19	2.06	2.48	1.76	23.88	0.00%
HTR-TIRES ON RIM	1.43	0.72	0.69	1.03	1.82	1.38	0.69	1.32	1.40	0.85	1.12	0.95	13.40	0.00%
HSM SCRAP METAL	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
HWG-WHITE GOODS	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
HWGF-WHITE GOODS FREON	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
HWGO WHITE WITHOUT FREO	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
RC RECYCLING COUNTY	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
IN-INDUSTRIAL WASTE	87.24	98.37	71.62	131.38	83.82	77.68	94.12	101.73	95.82	98.72	90.94	63.08	1,094.52	0.15%
MHE-MOBILE HOME E	17.98	18.76	54.28	32.60	15.30	169.75	29.99	-	19.98	31.53	-	10.59	400.76	0.05%
MHN-MOBILE HOME N	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
SALT	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
SD-Street Sweeping	296.84	163.75	160.08	235.66	227.95	269.94	246.61	234.49	233.92	243.48	226.99	194.62	2,734.33	0.37%
SH-SPECIAL HANDLING	1.95	-	1.62	12.79	7.58	1.91	11.47	2.88	-	2.54	3.82	-	46.56	0.01%
SHT-SPEC HAND TIRE	6.30	11.99	6.14	7.57	4.68	5.32	14.03	16.79	19.79	13.63	9.35	7.26	122.85	0.02%
SM SCRAP METAL	39.43	42.06	18.79	28.15	34.87	34.17	39.22	16.83	29.13	28.00	27.94	12.60	351.19	0.05%
T-TIRES	0.49	3.42	4.29	1.50	18.05	17.62	18.36	7.74	16.27	10.13	16.54	7.25	121.66	0.02%
TR-TIRES WITH RIMS	0.12	1.29	5.88	5.57	9.46	13.38	9.66	12.18	15.11	5.55	2.25	12.04	92.49	0.01%
TV-TELEVISIONS	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
WG WHITE GOODS	1.25	1.84	1.54	1.62	1.75	2.50	1.72	1.90	1.83	0.43	1.58	1.06	19.02	0.00%
WGF-WHITE GOODS W FREON	2.29	1.99	1.97	3.16	3.96	3.34	3.11	2.17	1.27	1.75	2.59	1.86	29.46	0.00%
														0.00%
														0.00%
														0.00%
														0.00%
Total Tonnage	60,393.21	58,452.39	58,114.50	65,427.82	56,868.36	62,779.20	62,215.72	65,132.94	61,655.48	62,446.97	64,244.49	55,457.35	733,188.43	100%
Assessed tonnage for monthly report	15,465.78	14,901.89	14,727.07	17,233.23	14,128.99	17,574.56	17,428.26	17,760.82	16,684.19	17,971.76	16,964.62	14,824.24	195,665.41	
Revenue-Tonnage	**44,624.29**	**43,374.76**	**43,221.21**	**47,951.36**	**42,506.74**	**44,929.38**	**44,526.82**	**47,120.84**	**44,717.58**	**44,218.10**	**47,043.53**	**40,431.23**	**534,665.84**	

Budget Assessed
193,163
101%

Budget	498,396
% Budget	107%

*Provided by Polk County Solid Waste Division

Solid Waste Division — Landfill Tonnage Re

Days of Operation	26	25	25	26	25	26	26	26	25	26	26	25	307	
	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Total	% Waste
AR-ASH RESIDUE (WHEELABR)	5,384.37	6,917.68	6,691.87	6,037.99	6,580.33	4,025.92	6,752.10	6,733.50	6,699.58	6,168.70	6,212.02	7,270.79	75,474.85	10.52%
AS-ASBESTOS	66.73	38.63	62.54	1.72	1.26	12.65	5.33	4.50	7.67	4.96	13.43	6.97	226.39	0.03%
AV-AQUATIC VEGETATION	4.20	4.92	-	-	4.33	1.77	2.37	5.11	9.73	0.21	4.82	2.48	39.94	0.01%
B-HORTICULTURAL WASTE	2,281.70	1,321.37	1,261.50	1,256.68	1,358.75	1,657.99	1,514.31	1,257.63	1,343.83	1,340.00	1,264.75	1,190.72	17,049.23	2.38%
C-COMMERCIAL	34,404.52	31,749.95	31,478.59	34,608.28	34,908.56	34,191.39	34,119.38	31,605.68	31,133.45	31,905.78	29,903.81	29,341.51	389,350.90	54.28%
CD-CONST/DEMOLITION	4,347.26	3,199.29	2,827.11	2,772.32	2,806.59	3,204.72	2,886.25	3,467.86	3,017.71	3,248.16	2,744.46	2,633.47	37,155.20	5.18%
CT-CUSTOMER TRASH	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
DA-DEAD ANIMALS	47.57	43.16	37.43	48.36	37.23	40.91	38.99	43.38	46.13	53.89	48.39	43.74	529.18	0.07%
F-FURNITURE	7.80	3.48	3.96	-	2.69	4.65	11.86	5.86	12.77	7.29	16.26	16.51	93.13	0.01%
HA-GARBAGE-UNINCORP	12,842.81	12,751.71	12,598.68	13,265.15	12,163.91	12,888.15	12,963.61	12,258.31	11,735.58	13,057.63	11,911.97	11,976.04	150,413.55	20.97%
HB-HORTICULTURAL	3,836.49	2,596.11	1,952.23	3,386.78	3,641.19	4,606.29	5,082.36	3,422.84	2,978.31	4,735.83	3,525.59	3,556.89	43,320.91	6.04%
HCD CONST/DEMOLITION	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
HF-FURNITURE	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
HT-TIRES	1.68	1.00	1.36	1.88	2.17	2.40	1.79	1.63	1.43	1.92	1.86	1.57	20.69	0.00%
HTR-TIRES ON RIM	0.85	0.72	0.72	1.03	0.57	0.98	0.84	1.10	0.58	0.57	0.70	0.66	9.32	0.00%
HSM SCRAP METAL	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
HWG-WHITE GOODS	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
HWGF-WHITE GOODS FREON	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
HWGO WHITE WITHOUT FREO	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
RC RECYCLING COUNTY	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
IN-INDUSTRIAL WASTE	99.04	35.54	2.48	6.59	3.72	3.43	10.13	6.38	18.75	24.16	17.56	20.45	248.23	0.03%
MHE-MOBILE HOME E	14.64	37.13	8.20	0.03	-	8.95	10.13	9.05	-	-	8.88	3.12	100.13	0.01%
MHN-MOBILE HOME N	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
SALT	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
SD-Street Sweeping	241.49	113.59	130.79	178.91	172.18	291.64	275.58	107.25	215.05	283.03	165.96	243.29	2,418.76	0.34%
SH-SPECIAL HANDLING	-	-	-	-	-	-	-	0.18	21.77	9.48	27.55	-	58.98	0.01%
SHT-SPEC HAND TIRE	12.64	6.76	8.70	42.21	6.06	4.22	24.34	17.01	5.73	24.01	17.42	13.33	182.43	0.03%
SM SCRAP METAL	25.31	31.22	14.16	15.39	19.25	16.76	27.95	27.57	8.27	17.11	7.25	10.47	220.71	0.03%
T-TIRES	24.12	25.40	26.61	25.59	24.62	27.60	13.66	8.38	5.73	12.96	6.59	11.69	212.95	0.03%
TR-TIRES WITH RIMS	7.33	1.36	1.68	1.38	1.77	3.46	4.49	4.08	15.20	12.82	4.76	9.42	67.75	0.01%
TV-TELEVISIONS	-		-	-	-	-	-	-	-	-	-	-	-	0.00%
WG WHITE GOODS	1.87	0.99	0.63	3.21	1.22	0.96	1.25	0.09	5.17	2.57	2.41	0.90	21.27	0.00%
WGF-WHITE GOODS W FREON	1.45	1.88	4.55	2.21	0.67	0.36	3.29	1.76	1.30	0.96	0.66	1.79	20.88	0.00%
		-	-	-	-	-	-		-	-	-	-		0.00%
		-	-	-	-	-	-	-	-	-	-	-		0.00%
		-	-	-	-	-	-	-	-	-	-	-		0.00%
		-	-	-	-	-	-	-	-	-	-	-		0.00%
Total Tonnage	63,653.87	58,881.89	57,113.79	61,655.71	61,737.07	60,995.20	63,750.01	58,989.15	57,283.74	60,912.04	55,907.10	56,355.81	717,235.38	100%
										-	-			
Assessed tonnage for monthly report	16,681.83	15,349.54	14,552.99	16,654.84	15,807.84	17,497.82	18,048.60	15,683.88	14,715.90	17,795.95	15,440.12	15,535.16	193,764.47	
Revenue-Tonnage	**46,730.55**	**43,412.00**	**42,421.31**	**44,779.75**	**45,750.99**	**43,201.52**	**45,401.49**	**43,181.01**	**42,347.06**	**42,809.05**	**40,283.60**	**40,564.03**	**520,869.72**	

Budget Assessed
211,200
92%

Budget	523,737
% Budget	99%

*provided by Polk County Solid Waste Division

Polk County Generation Rate
Calendar Year 2007

Per Capita	10.9600		Flat	1.02	1.02	1.03	1.03
		2,007	2,008	2,009	2,010	2,011	2,012
Total Tonnage Managed and Landfilled at the North Central Polk County Landfill (1)		735,878	735,878	750,596	765,607	788,576	812,233
Less Total Ash Landfilled		(71,402)	(71,402)	(71,402)	(71,402)	(71,402)	(71,402)
Plus Ash Landfilled from Polk County Materials @ 20%		14,280	14,280	14,280	14,280	14,280	14,280
Less Yard Waste Processed/Mulched		(61,969)	(61,969)	(61,969)	(61,969)	(61,969)	(61,969)
Total Tonnage Landfilled at North Central Landfill		616,787	616,787	631,505	646,517	669,485	693,142
Polk County Generation Rate - Pounds per Capita Per Day	10.96	2	2	2	2	2	2
Population - Florida Population Studies BEBR 2006-2030 - Interpolated (2)		592,471	608,415	624,787	641,600	658,865	676,596
Polk County Waste Generation		1,185,060	1,216,952	1,249,699	1,283,328	1,317,862	1,353,327
Annual Tons Available		568,273	600,164	618,194	636,811	648,377	660,185
Plus Out of County Portion (80% of Ash)		57,122	57,122	57,122	57,122	57,122	57,122
Total Tons Open Market		625,395	657,286	675,316	693,933	705,498	717,307
Operating Days (5.5 * 52)		286	286	286	286	286	286
Tons Per Day (TPD)		2,187	2,298	2,361	2,426	2,467	2,508
Percentage to IEP		59%	57%	55%	54%	53%	52%
EIP's Tons		1,300	1,300	1,300	1,300	1,300	1,300

Notes:
1 Polk County North Central Scale Report for 2007 Calendar Year
2 Table : Interpolated Polk County Population Data From High Populations Estimates 2006-2030 BEBR Report
High estimates

Innovation Environmental Park

1) Non-hazardous solid waste processing and allied uses:

a) Class I landfill
b) Class III landfill
c) Construction and Demolition Debris landfill
d) Land clearing debris, yard waste processing and disposal

2) Environmentally sound processing activities for non-hazardous solid waste to reduce waste, recycle resources, and produce energy:

a) Bio-Reactor Technology
b) Aerobic and Anaerobic Composting
c) Alternative cover materials
d) Waste stream segregation and sorting technologies
e) Fuel segregation
f) Landfill gas collection and processing
g) Carbon sequestering
h) Class III waste sorting and recycling
i) C&D waste sorting and recycling
j) Appliance/White goods processing and recycling

3) Allied process and facilities that depend on the availability of an environmental park and the non-hazardous solid waste resources to succeed.

a) Post consumer resource recovery and processing of cardboard, paper, glass, metal, and plastic
b) Commercial tire grinding/shredding
c) Consumer electronics recycling
d) Wood waste conversion to landscape mulch

e) Wood waste to carbon sequestering
f) Recycling of agricultural plastic films

4) Maximum permanent disposal area 1,040 acres, maximum height 220 feet above existing ground elevation

6) All permanent disposal and processing areas will be lined and monitored as required by Chapter 62-701 of the Florida Administrative Code (FAC) "Solid Waste Management Facilities" to protect the environment. No disposal or processing will take place within 100 feet of the facility boundary.

Demonstration of Need

1. **Provide a narrative discussing how the need for the proposed Future Land Use meets market demands and outweighs adverse impacts upon existing public facilities, public services, and environmental resources. Also, address the amount of excess vacant land in the County that has the same Future Land Use as proposed. Most of all, discuss why the change is needed now and at the proposed location.**

   No other site in Polk County currently incorporates a combination of recycling/separation, construction and demolition debris, yard debris, and solid waste disposal as envisioned here, at one location. The land necessary for this type of facility with a FLU of Institutional is between 1,000 and 2,000 acres. No other Institutional FLU area exists in Polk County to support this type of state of the art operation.

   Using Phosphate mined land with a current FLU of PM for this use is reasonable, as the land disturbances of the natural systems for the mining have already occurred on the site. Other industrial type uses which could be incorporated in the current PM FLU would cause the same or more intense impacts to the surrounding roadway network. Little demand on other public facilities is likely, as the Institution use is largely self-contained.

   The following tables have been reprinted from the Polk County Comprehensive Plan:

Polk County Population Data From 2006 BEBR Report					
2006	2010	2015	2020	2025	2030
565,049	641,600	732,700	825,700	918,800	1,013,700

Interpolated Polk County Population Data					
		2007	2008	2009	2010
		592,471	608,415	624,787	641,600
102.69100%	Percent decrease by year from 2010 to 2007				

Interpolated Polk County Population Data					
2010	2011	2012	2013	2014	2015
641,600	658,865	676,596	694,803	713,500	732,700
102.69100%	Percent increase by year between 2010 and 2015				

Using the year 2020 projections for total population average per capita solid waste generation, the County is estimated to generate 5,953,208.25 lbs (2,976 tons/day) per day of solid waste. Assuming waste is collected and disposed of an average of 4.5 days per week, 4,629 tons of waste processing and disposal capacity per day will be required to meet the goals and objectives of the Comprehensive Plan.

It should be noted that these projections of solid waste processing capacity do not include many forms of non-hazardous solid waste generated in the County such as yard waste, construction and demolition debris, and class III debris.

In addition to the statistics from the Comprehensive Plan it should be noted that there is growing demand for alternative methods of processing and disposing of solid waste. Alternative methods of processing and disposal may require additional space to segregate, process, store, and dispose of the waste materials. There is only one facility in the County that is currently permitted to receive and dispose of class I solid waste. The County's North Central Landfill has no disposal capacity for Class III or construction and demolition debris.

2. **For Text Amendments, please provide a narrative discussing why the text amendment is needed and what other alternatives besides the request have been or could be sought as a remedy?**
   This request is not for a Text Amendment.

3. **An Analysis of Economic Issues [Minimum population support and market area radius (where applicable)] is required when requesting a Land Use amendment from Residential to a Non-Residential Land Use designation.**
   This request is not requesting a Land Use amendment from Residential to a Non-Residential Land Use designation. Existing Land Use is Phosphate Mining.

SECTION 3

24" x 36" Site Plan

SECTION 4

Impact Assessment Statement

Impact Assessment Statement

A. LAND and NEIGHBORHOOD CHARACTERISTICS

Assess the compatibility of the requested land use with adjacent properties and evaluate the suitability of the site for development. At a minimum, address the following specific questions in your response:

1. **How and why is the location suitable for the proposed uses?**
   This site is suitable for the landfill use because of the isolation from surrounding residential uses and minimal disruption of natural resources. The site has excellent access to the County roadway network, on CR 640 for transporting material in and out of the complex. Access to the site from SR 37 is available for employees, visitors and public safety. Public safety resources are reasonably close, and the site is within a modest distance to the county's population centers. The existing site had a designation of PM, and much of the area has seen significant intensity from the Phosphate industry through the years.

   For this request, the proposed use, landfill, is actually a less intensive use than the existing PM use. Any number of intensive PM development scenarios are currently allowed by right as exemplified by the Mosaic complex to the west; no public hearings would be required to develop with the current FLU.

2. **What are, if any, the incompatibility and special efforts needed to minimize the differences in the proposed use with adjacent uses?**
   The proposed landfill use is not incompatible with the surrounding PM FLU. However, given the exposure of the site to SR 37, buffering will be provided along that road and facing the existing residential enclave or the northeast and southeast. Also, significant setbacks will be provided between any internal use and the surrounding properties.

3. **How will the request influence future development of the area?**
   The proposed request may stimulate the surrounding areas by providing much needed jobs and bring allied businesses into the undeveloped IND and BPC FLUM areas to the north and west. No other changes to future development patterns would be expected because of the nearby mining and rail operations.

B. ACCESS to ROADS and HIGHWAYS

Assess the impact of the proposed development on the existing, planned and programmed road system. At a minimum, address the following specific questions in your response:

1. **What are the numbers of vehicle trips to be generated daily and at PM peak hour based on the latest Institute of Traffic Engineers (ITE)? Please provide a detailed methodology and calculations.**
   Please see the attached Trip Generation Analysis report prepared by Lassiter Transportation Group, Inc. (Attachment A)

2. **What modifications to the present transportation system will be required as a result of the proposed development?**
   The proposed use of INST would generate fewer trips than the existing use of PM as explained in the attached trip generation analysis; therefore, no modification to the present transportation system is anticipated. Entrance improvements meeting the Polk County LDC regulations will be provided on CR 640. These entrance improvements include turn lanes and deceleration lanes.

3. **What is the total number of parking spaces required pursuant to Section 708 of the Land Development Code?**
   The number of required parking spaces cannot be determined at this stage. This calculation will be determined at Level 2 review.

4. **What are the proposed methods of access to existing public roads (e.g., direct frontage, intersecting streets, frontage roads)?**
   Primary access for hauling waste into the facility and products out of the facility will be directly on County Road 640. The applicant proposes to install entrance improvements on County Road 640 as required per code. An entrance on SR 37, north of the regional power transmission corridor will provide access for employees, visitors, and public safety personnel.

C. SEWAGE

Determine the impact caused by sewage generation from the proposed development. At a minimum, address the following specific questions in your response:

1. **What is the amount of sewage in gallons per day (GPD) expected to be generated from the proposed development (*Response may be based on Section 703 of the LDC or the Impact Fee Ordinance)***
   Two hundred-fifty estimated employees are proposed for this facility, including accessory uses. There are no Institutional GPD criteria listed in the State of Florida Dept. of Health Chapter 64E-6, Florida Administrative Code Standards for Onsite Sewage Treatment and Disposal, Table 1 for System Design that reflects the proposed use. For estimated calculations, the criteria for Factories, Office Building, and Warehouse criteria of 15 GPD per employee was used to calculate an estimated overall GPD of 3,750.

2. **If on-site treatment is proposed, what are the proposed methods, level of treatment, and the method of effluent disposal for the proposed sewage?**
   Proposed method of treatment are multiple septic tanks with drain fields. Employees will be assigned to various locations in separate buildings.

3. **Of off-site treatment, who is the service provider?**
   No off-site treatment is proposed.

4. **Where is the nearest sewer (in feet) to the proposed development (Sanitary sewer shall be considered available if a gravity line, force main, manhole, or lift station is located within an easement of right-of-way under certain conditions listed in Section 702E.3 of the Land Development Code)?**
   The closest wastewater provider is the City of Mulberry. No existing wastewater treatment utility services are available or are planned to service this project.

5. **What is the provider's general capacity at the time of application?**
   N/A See answer above.

6. **What is the anticipated date of connection?**
   Since the proposed wastewater treatment is an on-site septic tank and drain-field installation, no connection to Polk County Utilities is proposed.

7. **What improvements to the providers system are necessary to support the proposed request (e.g. lift stations, line extensions/expansions, interconnects, etc.)?**
   N/A See answer above.

D. WATER SUPPLY

Determine the amount of water to be used, how it will be distributed, and the impact on the surrounding area. At a minimum, address the following specific questions in your response:

1. **What is the proposed source of water supply and/or who is the service provider?**
   The proposed water source is an on-site well.

2. **What is the estimated volume of consumption in gallons per day (GPD)?** ***(Response may be based on Section 703 of the LDC or the Impact Fee Ordinance)***

   Based on standard protocol of using the estimated sewer generation and multiplying by 1.25, the estimated overall water generation is 4,688 GPD.

3. **Where is the nearest potable water connection and re-claimed water connection, including the distance and size of the line?**
   The nearest water pipeline is several hundred feet from the project boundary and is located on the opposite side of a main power transmission corridor and SR 37. No known re-claimed water connections are nearby.

4. **Who is the service provider?**
   The service provider for the above mentioned water pipeline is Polk County Utilities.

5. **What is the anticipated date of connection?**
   Since the proposed water source is an on-site well, no connection to Polk County Utilities is proposed.

6. **Is there an existing well on the property(ies)?**
   There are no existing wells on the proposed site.

   Yes What type:

   Permit Capacity:

   No

   Location: N/A

   Water Use permit #: N/A

E. SURFACE WATER MANAGEMENT AND DRAINAGE

Determine the impact of drainage on the groundwater and surface water quality and quantity caused by the proposed development. At a minimum, address the following specific questions in your response:

1. **Discuss the surface water features, including drainage patterns, basin characteristics, and flood hazards (describe the drainage of the site and any flooding issues).**
   The majority of the site currently drains to the south via a series of existing retention areas and conveyances. The flow will continue in the direction, although significant onsite storage will be provided in the developed condition. Post development flows will be at or below the current flow rate.

   The site has had significant development through the previous mining process. Reclamation for that activity includes SWFWMD permits 4002613.000 & .001, 40006155.000 &. 001 & .002, 40002595.001 & .002 & .003, DER/DNR Permit #IO53-20852, and released mandatory reclamation areas.

   The existing FEMA map depiction of floodplain is believed to be significantly in error. A Flood Study/LOMR is being conducted to address the true floodplain conditions, which will be submitted upon completion.

Review of the NWI maps indicates that the previously mining altered many of the wetland systems. The onsite wetlands post were obtained from the various existing permits and reclamation plans.

2. **What alteration to the site's natural drainage features, including wetlands, would be necessary to develop the project?**
Very little of the natural wetlands still exist because of the extensive mining operations. To the extent possible, any natural wetland impacts will be avoided. Changes to the existing surface water treatment of wetlands will be addressed during the Level 2 review process.

F. ENVIRONMENTAL ANALYSIS

Provide an analysis of the character of the subject property and surrounding properties, and further assess the site's suitability for the proposed land use classification based on soils, topography, and the presence of wetlands, floodplain, aquifer recharge areas, scrub or other threatened habitat, and historic resources, including, but not limited to:

1. **Discuss the environmental sensitivity of the property and adjacent property in basic terms by identifying any significant features of the site and the surrounding properties.**
Basic site features are the four reclaimed clay-settling areas and the surrounding lake and upland reclamation. Most of the site consists of previously mined and reclaimed lands, which do not contain any threatened habitat types. A preliminary Listed Species Assessment and review of a site specific Florida Natural Areas Inventory does not indicate the presence of any Listed Flora or Fauna Species on the project site.

2. **What are the wetland and floodplain conditions? Discuss the changes to these features, which would result from development of the site.**
The site has had significant development through the previous mining and reclamation process. Reclamation for that activity includes SWFWMD MSSW permits 4002613.000 & .001, 40006155.000 &. 001 & .002, 40002595.001 & .002 & .003, DER/DNR Permit #IO53-20852, and released mandatory reclamation areas.

The existing FEMA map depiction of floodplain is believed to be significantly in error. A Flood Study/LOMR is being conducted to address the true floodplain conditions, which will be submitted upon completion.

Review of the NWI maps indicates that the previously mining altered many of the wetland systems. The onsite wetland shapes post mining and reclamation were obtained from the various existing permits and reclamation plan.

3. **Discuss location of potable water supplies, private wells, public well fields (discuss location, address the potential impacts).**
   No on-site wells. The nearest county potable wells are located over 4,0200 feet east of the property. Based on preliminary investigation of the ground water flows in the vicinity of the site, those wells are located up-gradient from the site.

4. **Discuss the location of Airport Buffer Zones (if any, discuss the location and address potential impacts).**
   South Lakeland Airpark (grass strip), Zone 7, is over six miles away to the northwest of site. This project is not located within an Airport Zone. See Polk County Airport Zoning Regulations Map (Attachment B).

5. **Provide an analysis of the soil types and percentage of coverage on site and what affect it will have on development.**
   Reclaimed soils include sand tailings; overburden spoils, and consolidated waste phosphatic clay cover the entire site. Geotechnical investigations to evaluate appropriate foundation type and design will be completed for each structure on-site. The investigations and evaluations are typical of development in south Lakeland on reclaimed soils. The evaluation and design for the landfill footprint will be similar to work completed for North Central Landfill Phase 3, which is partially located on mined out ground and in a floodplain.

G. INFRASTRUCTURE IMPACT INFORMATION

1. **What is the nearest location (travel distance), provider, capacity or general response time, and estimated demand on the provision for the following services:**

   a. **Parks and Recreation**
      N/A The project does not propose any residential units.

   b. **Educational Facilities**
      N/A The project does not propose any residential units.

   c. **Health Care (e.g., emergency, hospital)**
      Polk County EMS provides rescue services in the unincorporated area of Polk County. The City of Mulberry provides back up rescue services to Polk County. The closest Polk County Hospital is the Bartow Regional Medical Center, 2200 Osprey Blvd., Bartow FL 33831, which is approximately 15 miles from the site. Public safety vehicles will be able to access the site via the CR 640 or SR 37 entrance.

d. Fire Protection

Emergency pumping is proposed from either an on-site well or a surface impoundment within the project boundary. Polk County Fire Station #4 is located in Bradley Junction, approximately 3 miles from the site. The City of Mulberry provides back up fire services to Polk County.

e. Police Protection and Security

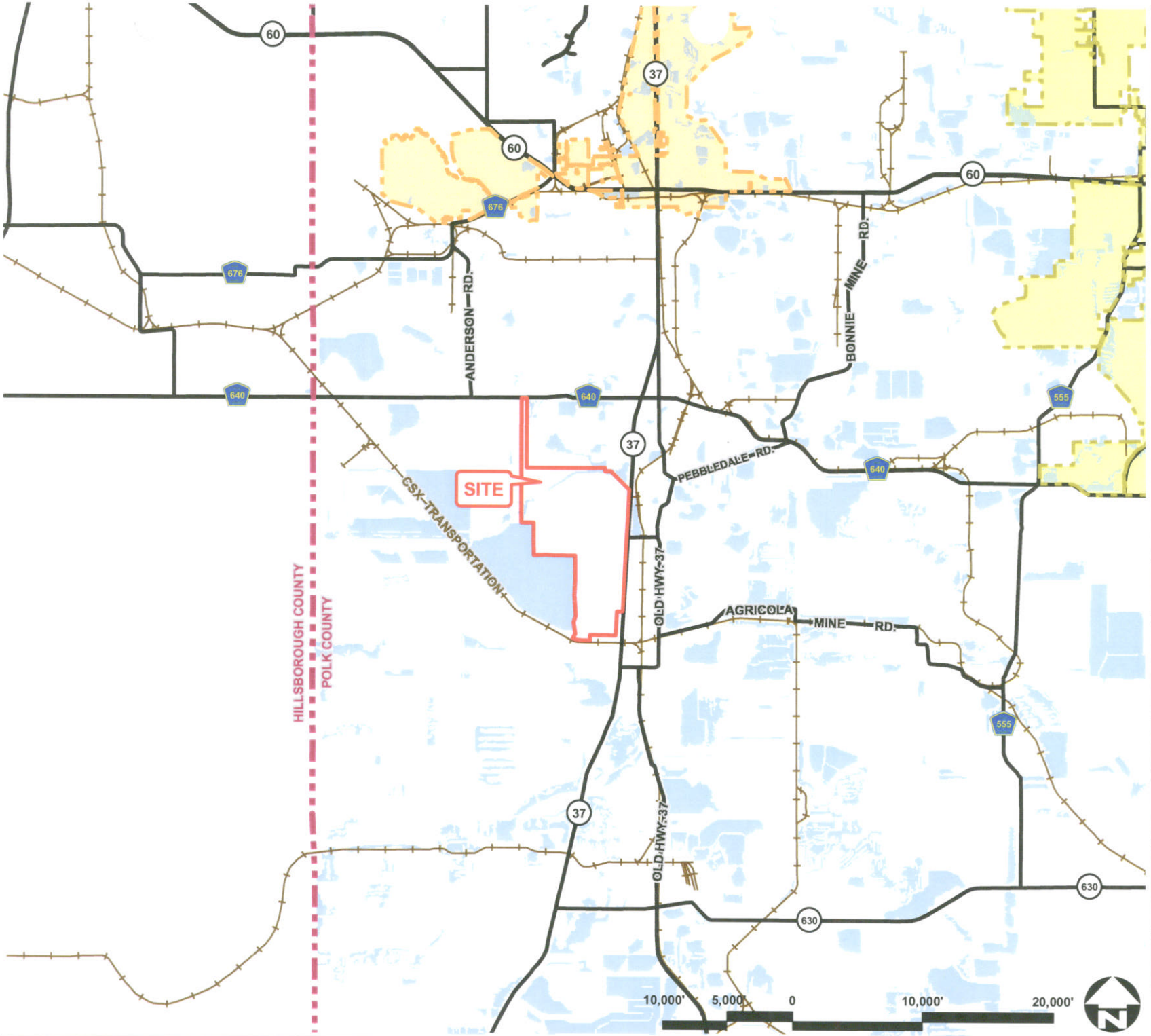
Polk County Sheriff's Office provides police protection in the unincorporated area of Polk County.

f. Emergency Medical Services (EMS)

Polk County EMS provides rescue services in the unincorporated area of Polk County. The City of Mulberry provides back up rescue services to Polk County.

g. Solid Waste

N/A Proposed use will take care of its' own solid waste generation. Unauthorized waste will be stored and removed form the site as required by FDEP regulations and permits. Details of solid waste disposal will be reviewed during the Level 2 application process.



LEGEND

- PROJECT SITE
- COUNTY LINE
- CITY OF MULBERRY
- CITY OF BARTOW
- HYDROLOGY
- RAILROAD

ROADS:

- STATE ROAD
- COUNTY ROAD
- SECONDARY ROADS

SOURCES:
POLK COUNTY PROPERTY APPRAISER - PROJECT SITE; CITYPOLY (09/08/09); HYDROLOGY (09/08/09)
FLORIDA GEOGRAPHIC DATA LIBRARY (FGDL) - RAILROAD (03/31/09); COUNTY LINE (05/15/07)
ESRI DATA & MAPS 9.3 - ROADS (02/10/09)

T. MIMS CORPORATION

CONSULTANT TEAM

ROBERT J. STANZ, P.A. - LEAD COUNSEL
ANA C. WOOD & COMPANY - OPERATIONS-PLANNING
MIKE COTTER, P.E. - WETLANDS PERMITTING & OPERATIONS
DAVID C. CARTER CONSULTING ENGINEERS, LLC - CIVIL
GURR PROFESSIONAL SERVICES, INC. - GEOLOGY
LASSITER TRANSPORTATION GROUP, INC. - TRAFFIC
SOUTHEAST ENVIRONMENTAL SOLUTIONS, INC. - T/E

INNOVATION ENVIRONMENTAL PARK

LOCATION MAP

SCALE: 1" = 10,000'	DRAWN BY: JAR	EXHIBIT: P-A
DATE: 09/09/09	DESIGN BY: JAR	
PROJECT NO: 0908-270	CHECKED BY: AMF	

Post Office Box 6467 863/644-0951 (V)
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Lakeland, Florida 33807-6467 pfaplanners.com

pfaPlanners
Powell, Fragala & Associates, Inc.

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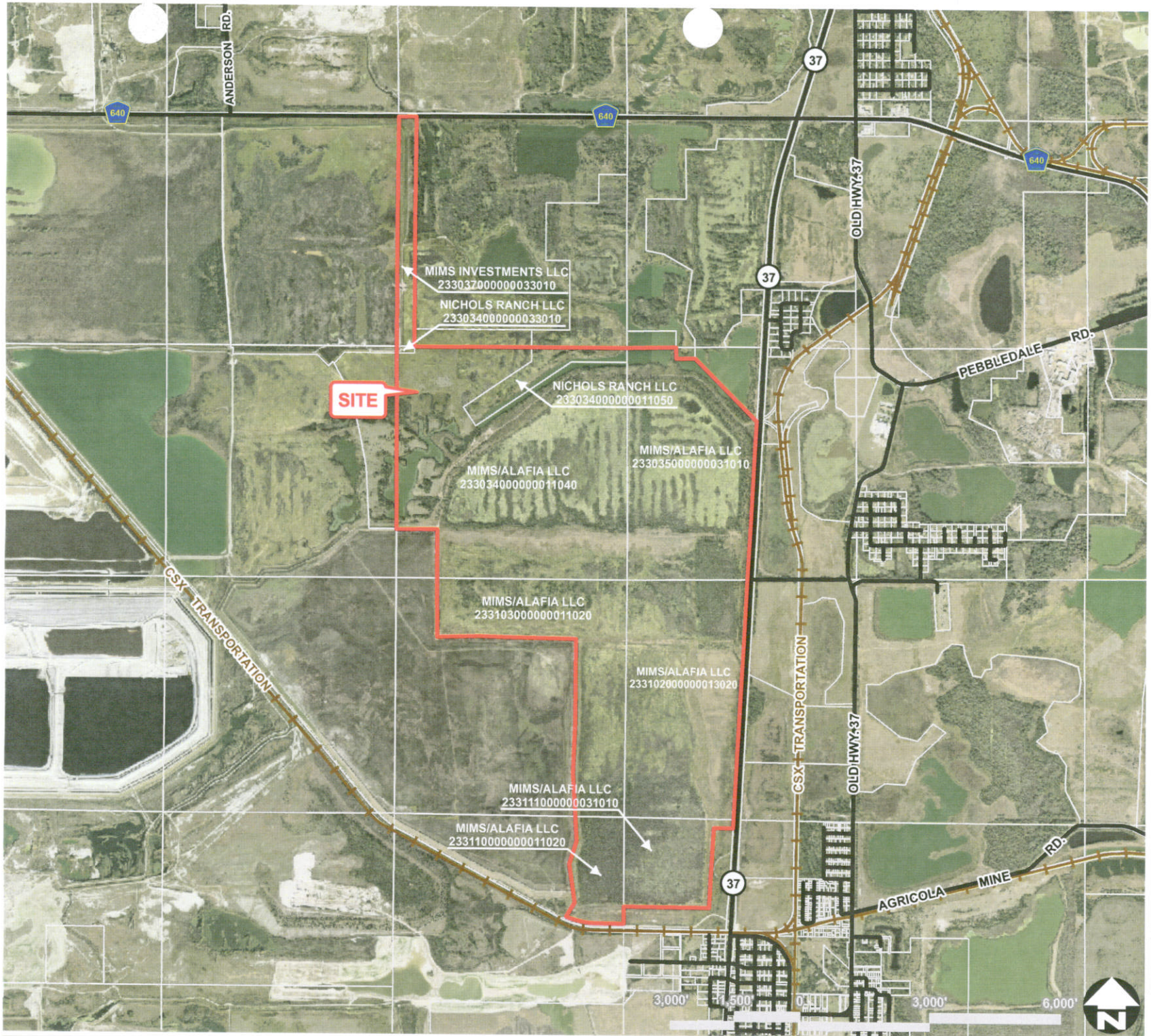

LEGEND

- PROJECT SITE
- PARCELS
- RAILROAD
- ROADS:
  - STATE ROAD
  - COUNTY ROAD
  - SECONDARY ROADS

SOURCES:
SWFWMD - BASE AERIAL (2008)
POLK COUNTY PROPERTY APPRAISER - PROJECT SITE; PARCELS (09/01/09)
FLORIDA GEOGRAPHIC DATA LIBRARY (FGDL) - RAILROAD (03/31/09); ROADS (09/01/09)
ESRI DATA & MAPS 9.3 - ROADS (02/10/09)

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LASSITER TRANSPORTATION GROUP, INC. - TRAFFIC
SOUTHEAST ENVIRONMENTAL SOLUTIONS, INC. - T

INNOVATION ENVIRONMENTAL PARK

SITE AERIAL

SCALE: 1" = 3,000'	DRAWN BY: JAR	EXHIBIT: P-B
DATE: 09/11/09	DESIGN BY: JAR	
PROJECT NO: 0908-270	CHECKED BY: AMF	

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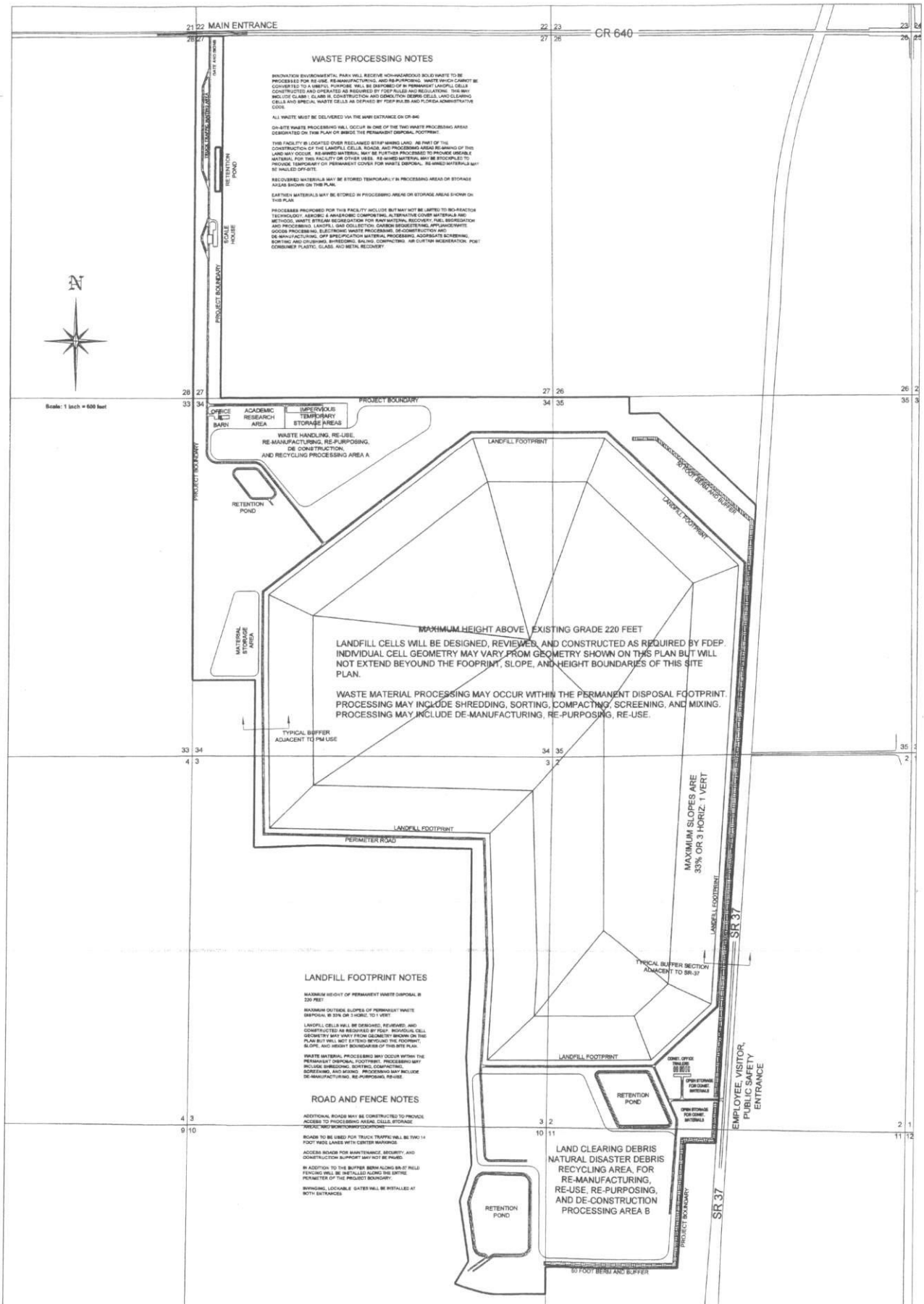


SITE PLAN

September 15, 2009

Innovation Environmental Park

C.R. 640 Polk County, Florida

Phone 863-683-9297 FAX 863-683-1059

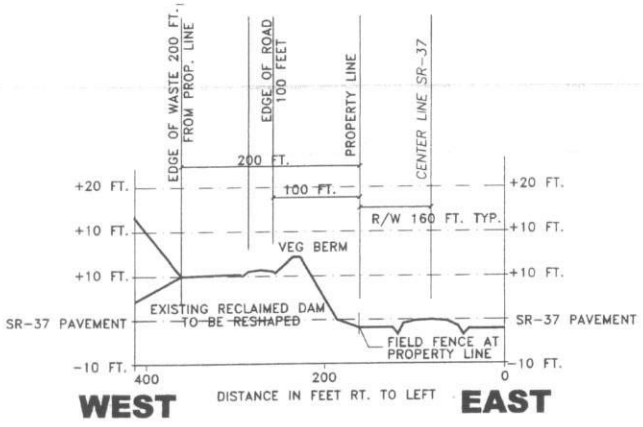
Mike Cotter, P.E., Inc.

1940 High Glen Ct. North

Lakeland, Florida 33813

Phone 863-370-1467 Fax 863-644-2097

TYPICAL PERMITER FENCE AND GATE DETAILS



SR-37 BERM AND BUFFER NOTES

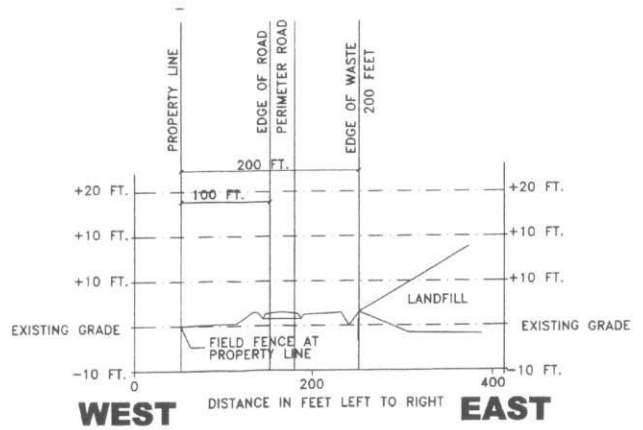
BUFFER AND BERM TO BE CONSTRUCTED AS NOTED ON TYPICAL SECTION DRAWING.

BERM TO BE A MINIMUM OF 12 FEET ABOVE CENTERLINE ELEVATION OF SR-37 OR ADJACENT EXISTING GRADE.

OUTSIDE SLOPE OF BERM FOR A MINIMUM WIDTH OF 40 FEET WILL BE VEGETATED WITH NATIVE TREE SPECIES AND SHRUBS AT A MINIMUM SPACING OF ONE TREE EVERY 10 FEET.

NO PERMANENT WASTE DISPOSAL WITHIN 200 FEET OF SR-37.

TYPICAL SECTION ADJACENT TO SR-37



PM BUFFER NOTES

BUFFER TO BE A MINIMUM OF 40 FEET WIDE FROM PROPERTY LINE INWARD.

BUFFER TO BE VEGETATED FOR A MINIMUM WIDTH OF 40 FEET FROM THE FENCE LINE WITH NATIVE TREE SPECIES AND SHRUBS AT A MINIMUM SPACING OF ONE TREE EVERY 10 FEET.

NO PERMANENT WASTE DISPOSAL WITHIN 200 FEET OF PROPERTY LINE.

TYPICAL BUFFER ADJACENT TO PM USE

TYPICAL FENCE AND BUFFER SECTIONS	**Innovation Environmental Park**	***Mike Cotter, P.E., Inc.***
	C.R. 640 Polk County, Florida	*1940 High Glen Ct. North*
	Phone 863-683-9297 FAX 863-683-1059	*Lakeland, Florida 33813*
September 15, 2009		*Phone 863-370-1467 Fax 863-644-2097*

ATTACHMENT A

Trip Generation Analysis Report

Prepared By
Lassiter Transportation Group, Inc.

Lassiter Transportation Group, Inc.
Engineering and Planning

Ref: 3688.02

TECHNICAL MEMORANDUM

To: Tim Mims, President, T. MIMS CORP.

From: Colleen Nicoulin, AICP

Subject: New Wales Environmental Park – Comprehensive Plan Amendment (CPA)

Date: September 8, 2009

INTRODUCTION

Lassiter Transportation Group, Inc. (LTG) was retained on behalf of T. MIMS CORP. (the Developer) to prepare a trip generation comparison analysis for a Large Scale Comprehensive Plan Amendment to change the Future Land Use Map (FLUM) of the Polk County Comprehensive Plan. The proposed Amendment would change the FLUM designation of a 1,741-acre property from Phosphate Mining (PM) to Institutional (I). The developer proposes to operate the New Wales Environmental Park, consisting of a Landfill and Recycling Facility. The property is located in Polk County, west of SR 37, south of CR 640.

In addition to the subject Comprehensive Plan Amendment, the developer is concurrently processing a Sub-District change to Institutional – 2 and a Conditional Use Permit to allow a Landfill and Recycling Facility on the subject property. Since these companion applications will limit the development on the property to the specific uses of landfill and recycling, the assessment of traffic generation for the proposed future land use will be based on these specific uses.

TRIP GENERATION FOR THE EXISTING FLUM DESIGNATION

According to the Polk County Comprehensive Plan, the existing FLUM designation of Phosphate Mining permits phosphate mining and allied industries, land reclamation, agriculture, and other land uses compatible and related with the extraction and processing of phosphate. The Comprehensive Plan allows a maximum FAR of 0.75 for property designated as PM on the Future Land Use Map. Table 1 lists the maximum development potential under the existing FLUM designation of Phosphate Mining at an FAR of 0.75.

Table 1
Maximum Development Potential – Existing FLUM Designation
New Wales Environmental Park - CPA

Total Acres	FLUM Designation	Development Intensity	KSF
1,741	Phosphate Mining	0.75 FAR	56,878.47

It is recognized that utilizing the maximum FAR of 0.75 established in the Phosphate Mining designation of the County's Comprehensive Plan on the 1,741-acre property yields an improbable 56,878,470 square feet of development. However, without any limiting factors, this represents the theoretical maximum development scenario under the existing FLUM designation.

Since the use Phosphate Mining is not defined in the Institute of Transportation Engineers (ITE) document, *Trip Generation, 8th Edition,* no trip generation data is provided for this use. In order to determine the least potential traffic impact of the existing FLUM designation, the lowest equivalent trip generator - Manufacturing Land Use, as defined by ITE Land Use Code 140, was used to calculate trip generation based on a maximum FAR of 0.75. The total daily and p.m. peak-hour trip generation for this maximum development scenario of the existing FLUM designation is listed in Table 2.

Table 2
P.M. Peak-Hour Trip Generation – Existing FLUM Designation
New Wales Environmental Park - CPA

Time Period	Land Use	Land Use Code	Trip Rate Equation	KSF	Total Trips	% In	% Out	Trips In	Trips Out
Daily	Manufacturing	140	T = 3.88(X) - 20.70	56,878.47	220,668	50%	50%	110,338	110,338
P.M. Peak-Hour	Manufacturing	140	T = 0.78(X) - 15.97	56,878.47	44,349	36%	64%	15,966	28,383

TRIP GENERATION FOR THE SPECIFIC USE OF THE PROPOSED FLUM DESIGNATION

The developer is processing two concurrent applications: a Sub-District Change and a Conditional Use Permit, both which will limit the development under the proposed FLUM designation. As such, maximum development of the proposed FLUM designation is assessed based on the proposed development program of the New Wales Environmental Park, a Landfill and Recycling Facility. In order to determine the maximum daily and p.m. peak-hour impacts of development under the proposed FLUM designation, the trip generation is based on the maximum projected operation of the facility. The proposed land use facility will accommodate up to 400 trucks per day, yielding 800 one-way daily truck trips. In addition to the truck traffic, the facility will accommodate up to 250 employees. Assuming the worst case (highest) trip generation, employees will drive separately to and from work and that they will drive separately off-site for lunch, 250 employees will generate 1,000 daily trips (four one-way trips per day per employee). Miscellaneous deliveries, including postal service, garbage collection, package delivery, etc., will also contribute to the trip generation. In order to provide a conservative analysis, five percent of the total truck and employee trip generation was added to account for miscellaneous deliveries. The estimated total daily trip generation of 1,890 trips for the proposed facility is shown in Table 3.

Table 3
Total Maximum Daily Trip Generation – Proposed Development Program
New Wales Environmental Park - CPA

Time Period	Type	Trips
Daily	Trucks	800
	Employees	1,000
	Deliveries	90
	Total:	**1,890**

The p.m. peak-hour trip generation of the proposed development was determined by assuming ten percent of the truck trips occur after 4:00 p.m., all 250 employees leave the site for the day after 4:00 p.m. and that ten percent of the daily deliveries occur after 4:00 p.m. (approximately ten percent of daily traffic on roads occurs during the p.m. peak-hour). This assumption of 10% of daily trip generation occurring during the p.m. peak-hour is conservative since standard landfill operations typically end before 4:00 p.m. while the traditional p.m. peak-hour typically occurs after 4:00 p.m. The directional split during the p.m. peak-hour was estimated at 10 percent entering the site and 90 percent exiting the site. Utilizing these figures, the p.m. peak-hour trip generation is estimated in Table 4.

Table 4
P.M. Peak-Hour Trip Generation – Anticipated Development Program
New Wales Environmental Park - CPA

Time Period	Type	Trips	% In	% Out	Trips In	Trips Out
P.M. Peak-Hour	Trucks	80	10%	90%	8	72
	Employees	250	10%	90%	25	225
	Deliveries	9	10%	90%	1	8
	Total:	**339**			**34**	**305**

CHANGE IN TRIP GENERATION BETWEEN PROPOSED AND EXISTING FLUM DESIGNATION

Table 5 compares the difference in trips between the existing FLUM designation, and the New Wales Environmental Park development program under the proposed FLUM designation.

Table 5
Trip Generation Comparison
New Wales Environmental Park - CPA

	Existing Phosphate Mining FLUM Designation	Proposed Institutional FLUM Development	Percent of Proposed vs Existing Trips
	(a)	(b)	(b)/(a)
Daily	220,668	1,890	0.85%
P.M. Peak-Hour	44,349	339	0.76%
P.M. Peak-Hr Entering	15,966	34	0.21%
P.M. Peak-Hr Exiting	28,383	305	1.07%

While it is recognized that the estimated trip generation under the existing FLUM designation is improbable, it does represent the theoretical maximum development potential of the property. The trips associated with the specific development allowed within the proposed FLUM designation represent one percent or less of the trips associated with the existing FLUM scenario for both the daily and p.m. peak-hour time periods.

CONCLUSION

This study was conducted to compare the change in trip generation for a Future Land Use Map Amendment to the Polk County Comprehensive plan. Comparison of the specific development proposal of the proposed FLUM designation to the Existing FLUM designation results in a decrease in trip generation potential for the property. As such, this Comprehensive Plan is recommended for adoption.

c: Dave Carter, PE
Mike Cotter, PE
Ana Wood
Augustine M. Fragala, Jr., AICP
Robert J. Stanz, Esq.

I affirm, by affixing my signature below, that the findings contained herein are, to my knowledge, accurate and truthful and were developed using current procedures standard to the practice of professional planning.

Name: Colleen Nicoulin, AICP

Signature: 

Date: September 8, 2009

ATTACHMENT C

Threatened & Endangered Species Report

Prepared By
Southeast Environmental Solutions, Inc.

Innovation Environmental Park
Threatened & Endangered Species Survey
Sections 27, 34 & 35, Township 30 South, Range 23 East
Sections 2, 3, 10 & 11, Township 31 South, Range 23East
Polk County, Florida

Prepared for:

The Mims Group, LLC
100 S. Kentucky Avenue, Suite 215
Lakeland, FL 33801

Prepared by:

Southeast Environmental Solutions, Inc.
801 North Park Road
Plant City, FL 33563

September 2009

Site Surveys: August 24, 2009 & September 3, 2009

Project No. 1218

Innovation Environmental Park
Threatened & Endangered Species Survey
Sections 27, 34 & 35, Township 30 South, Range 23 East
Sections 2, 3, 10 & 11, Township 31 South, Range 23East
Polk County, Florida

Environmental Site Conditions

Site Description

The Innovation Environmental Park project site is located between Mulberry and Bradley Junction, in the southwest area of CR 640 and SR 37 in Polk County (See Figures 1 & 1a). The Mims Group, LLC proposes to utilize the approximately 1,741 acre site as an environmental park. The property consists of disturbed or reclaimed land that was strip mined for phosphate in the past. The Permanent Disposal Area comprising approximately 1,040 acres will be located within the central portion of the property (See Figure 2). Sections of the Natural Resources Conservation Service (NRCS) Topographic map and soil survey are included (Figures 3 & 4).

Soils

The site contains seven (7) mapped soil types (See Figure 3). The following official soil series descriptions were obtained directly from the Natural Resources Conservation Service (NRCS), United States Department of Agriculture (USDA) soil survey of Polk County, Florida.

8 - Hydraquents, clayey

These poorly drained soils occur as areas of slime (colloidal clay), a by-product of phosphate mining. The slime has been pumped into holding ponds. These ponds having standing water, and the soil strength is too weak to support a grazing animal. Holding ponds are built with a 30 to 40 foot dike surrounding them. They are designed so that the water flows through a series of ponds before returning to an outlet stream. The ponds cover from 200 to 1,000 or more acres. In older mined areas, the slime was pumped into open pits that did not have outlets. These also have not dried out.

Hydraquents, clayey, are about 85 percent clay, 10 percent silt, an 5 percent sand. The clay is mainly montmorillonite but includes kaolinite, illite, and attapulgite. The soil material is gray and light gray with some yellowish brown mottles. It is neutral to moderately alkaline. This material generally is saturated with water, and the available water capacity is very high. Natural fertility is high, and the organic matter content is low. Permeability is very slow.

11 - Arents-Water complex

This map unit is a series of open pits that are filled with water and are paralleled by long steep mounds of soil material. It is a result of phosphate mining. Areas of this map unit range from approximately 100 to 1,000 acres. Slopes are steep to very steep. The Arents part consists of piles of soil material or overburden that originally covered the phosphate-bearing strata. The Water part of this map unit is formed after the phosphate-bearing strata has been removed. This map unit is approximately 55 percent Arents and 45 percent water. Included in mapping are pits that are not filled with water.

The high water table of the Arents-Water complex is variable, but the Arents part generally does not have a water table within a depth of 80 inches. The available water capacity generally is low, but it varies throughout the map unit. Permeability generally is rapid, but it also varies.

Most areas are idle, but some of the older areas support limited grazing. This map unit is not suited most cultivated crops because of erosion, slope, and the low water capacity.

12 - Neilhurst sand, 1 to 5 percent slopes

This excessively drained soil is on broad uploands and low knolls. It formed in homogenous sandy material from phosphate and silica mining operation. Areas of this soil range from approximately 100 to 600 acres. Slopes are mainly smooth to concave.

Typically, this soil has a grayish brown sand surface layer approximately 3 inches thick. The underlying material to a depth of at least 80 inches is light gray sand that is mixed with reddish brown and brown sand. Some areas have coarse sand and fragments of rocks.

Included in this soil in mapping are small areas of Arents and Haplaquents, clayey. Some areas may have intermittent ponds. The included soils make up approximately 5 to 10 percent of the map unit. This Neilhurst soil generally does not have a high water table within a depth of 80 inches; however, the water table can be within a depth of 30 inches for brief periods during the summer following heavy rainfall. The available water capacity is very low. Permeability is very rapid.

This soil is not suited to most cultivated crops because of doughtiness and rapid leaching of plant nutrients. It is poorly suited to most plants, and species treatment is required for lawn and ornamental plants. It is moderately well suited to pastures of pangolagrass and bahiagrass.

17 - Smyrna and Myakka fine sands

This soil is poorly drained, and found on broad areas within the flatwoods with smooth to concave slopes of 0 to 2 percent.

This soil typically has a surface layer of black fine sand approximately 4 inches thick. The subsurface layer is about 12 inches deep and consists of gray fine sand. The subsoil is dark brown and brown fine sand to a depth of about 25 inches.

The seasonal high water table can be found within 12 inches of the soil surface for 1 to 4 months each year. The available water capacity is low and the permeability is moderate to moderately rapid in the subsoil.

This Smyrna and Myakka fine sand soil is well suited to pasture grasses. The natural vegetation found on this soil consists of waxmyrtle, saw palmetto, pineland threeawn, gallberry, longleaf pine, slash pine and running oak.

39 - Arents, clayey substratum

These moderately well drained to somewhat poorly drained soils are a result of phosphate or silica mining. Deflocculated clay is pumped into reshaped trenches or into a series of pits from which phosphate has been removed. The clay comes out as one separate after the phosphate pebbles, ore, and sand have been removed. It has a very concentration of water and takes a very long time to dry out under natural conditions. After the clay is dry enough to support some vehicular traffic, a cap of soil material (Arents) is spread over the clay. Areas of these soils range from approximately 100 to 640 acres. Slopes are smooth to convex.

The color and thickness of these soils vary from one area to another. Typically, these soils are brown or yellowish brown to gray or white sand to a a depth of 20 to 4 feet. Some areas have a very compacted mixture of sand and clay that is underlain by several feet of mottled gray or gleyed clay. Some o the more common colors are light gray, dark gray, pale green, and dark greenish gray.

Included in mapping are small areas of Hydraquents and Neilhurst soils and some areas of Arents that do not have a clayey substratum. Also included are small mounds that have slopes of more than 5 percent. The included soils make up 15 to 20 percent of the map unit.

In the Arents, the high water table, available capacity, and permeability are variable. The high water table generally ranges from approximately 2 to 4 feet. The available water capacity generally is low in the surface layer and high in the subsurface layer. Permeability is variable but

generally rapid in the surface and very slow in the subsurface layer. Natural fertlity genrally is low but can range to medium. Most areas of these soils are used for pasture. Ths map unit is not suited to most common cultivated crops. Variability of the topsoil and low natural fertility are the main limitations.

57 - Haplaquents, clayey

These soils occur as areas of slime (colloidal clay), a by-product of phosphate mining. The slime has been pumped to dry. These holding ponds are built with a 30 to 40 foot dike surrounding them. They are designed so that water flows through a series of ponds before returning to an outlet stream. In older mined areas, the slime was pumped into open pits that did not have outlets. These areas have dried out, and a hard crust has formed on the surface. The most recent holding ponds are nearly level and vary in thickness from approximately 3 feet near the edge to more than 30 feet in the center. Areas range from 200 to 1,000 or more acres. Slopes generally are less than 1 percent

Included in mapping are a few small areas of sand tailing; however, most of the holding ponds are pure slime. Haplaquents, clayey (locally called "slickens"), are approximately 88 percent clay, 8 percent silt, and 4 percent sand. The clay is mainly montmorillonite but includes kaolinite, illite, and attapulgite. The soil material is gray and light gray with some yellowish brown mottles. It is neutral to moderately alkaline. This material generally is dry to a depth of 2 feet. Water ponds on the surface after heavy rainfall. The available water capacity is very high. Natural fertility is high, and the organic matter contents is low. Permeability is very slow. Low soil strength and wetness are the main limitations affecting most uses. Most areas are now used for pasture.

68 - Arents, 0 to 5 percent slopes

These highly variable soils have been reworked by earth-moving equipment during phosphate mining. The areas of these soils are reclaimed and planted to grass and pine trees. Slopes are smooth to convex. The areas range from 5 to 500 acres. The soil material is 2 to 20 feet thick. Small open pits filled with water are common in some areas.

Typically, these soils consist of mixed soil material that is white, light gray, brownish yellow, very pale brown, yellowish brown, grayish brown, brown, dark brown, and black. They are fine sand, sand, loamy sand, sand loam, sandy clay, or clay and are remnants of spodic and argillic horizons. They do not have an orderly sequence of horizons.

The available water capacity, although quite variable, generally is low but increases with clay content. Permeability is variable but generally ranges from moderately rapid to slow. Drainage is variable depending upon the amount of clay. In most areas the high water table is within 60 inches of the surface for 2 to 6 months during most years.

These soils are very severely limited for cultivated crops because of variations in soil texture. Water percolation is variable, which causes problems with irrigation, drainage, and erosion. These soils are moderately suited to improved pasture and pine trees. Low fertility, the hazard of erosion, and soil compaction are limiting factors. Bahiagrass is the most common pasture grass. The soils are moderately well suited to use as habitat for upland wildlife.

Threatened & Endangered Species Survey

On August 24, 2009 and September 3, 2009, the proposed Innovation Environmental Park property was surveyed by two biologists from Southeast Environmental Solutions, Inc. (SESI) to determine the potential for threatened and endangered species on the site. SESI staff traveled a series of pedestrian and vehicular transects which traversed through the higher upland portions of the site. Approximately 90 percent of these areas were surveyed using these survey techniques. The remaining areas of the property consisted of lower, wetter habitat created as a result of past phosphate mining activities. The presence of water of unknown depths and overgrown woody vegetation made it unfeasible to survey much of these areas. Due to these conditions, SESI staff surveyed the perimeter of these lower areas closely and scouted inward when interior hummocks with less dense vegetation were present. By utilizing the much higher adjacent berms, the biologists were able to scan the areas, specifically the tree lines, with binoculars for listed species during early morning and afternoon hours of the surveyed dates.

The only listed species observed during the completed surveys was a single American alligator *(Alligator mississippiensis)*. This species is listed as a Species of Special Concern by the Florida Fish and Wildlife Conservation Commission (FWC) and is not listed by the U.S. Fish and Wildlife Service (FWS). The observation was made along the narrow portion of the northern phosphate pit, an area located outside of the proposed Permanent Disposal Area foot print (See Figure 2). Since this area is indeed outside of the footprint, there is no potential for the species to be harmed during land altering activities on the site. There were no direct observations or signs of any other wildlife species listed federally or by the state within the boundary of the property during the survey. All species observed during the surveys are listed in attached Table 1.

In addition to the field survey, a Florida Natural Areas Inventory (FNAI) report was ordered to reveal any historical sightings of listed species within the boundary of the property. The report compiles any documented occurrences from the *FNAI Biodiversity Matrix Geodatabase* and indicates an observed species and location of the sighting on a map with the property boundary

superimposed. The report did not contain records of past observed listed species within the property boundaries (See Attached Report).

The FWC Eagle Nest Locator was also used to reveal the potential of an eagle nest residing within the property boundary. Although three (3) active nests were found within a 5 mile radius of the site's zip code centroid, no records of recent or historical eagle nesting activity was found for the property(See Attached Results).

Conclusions

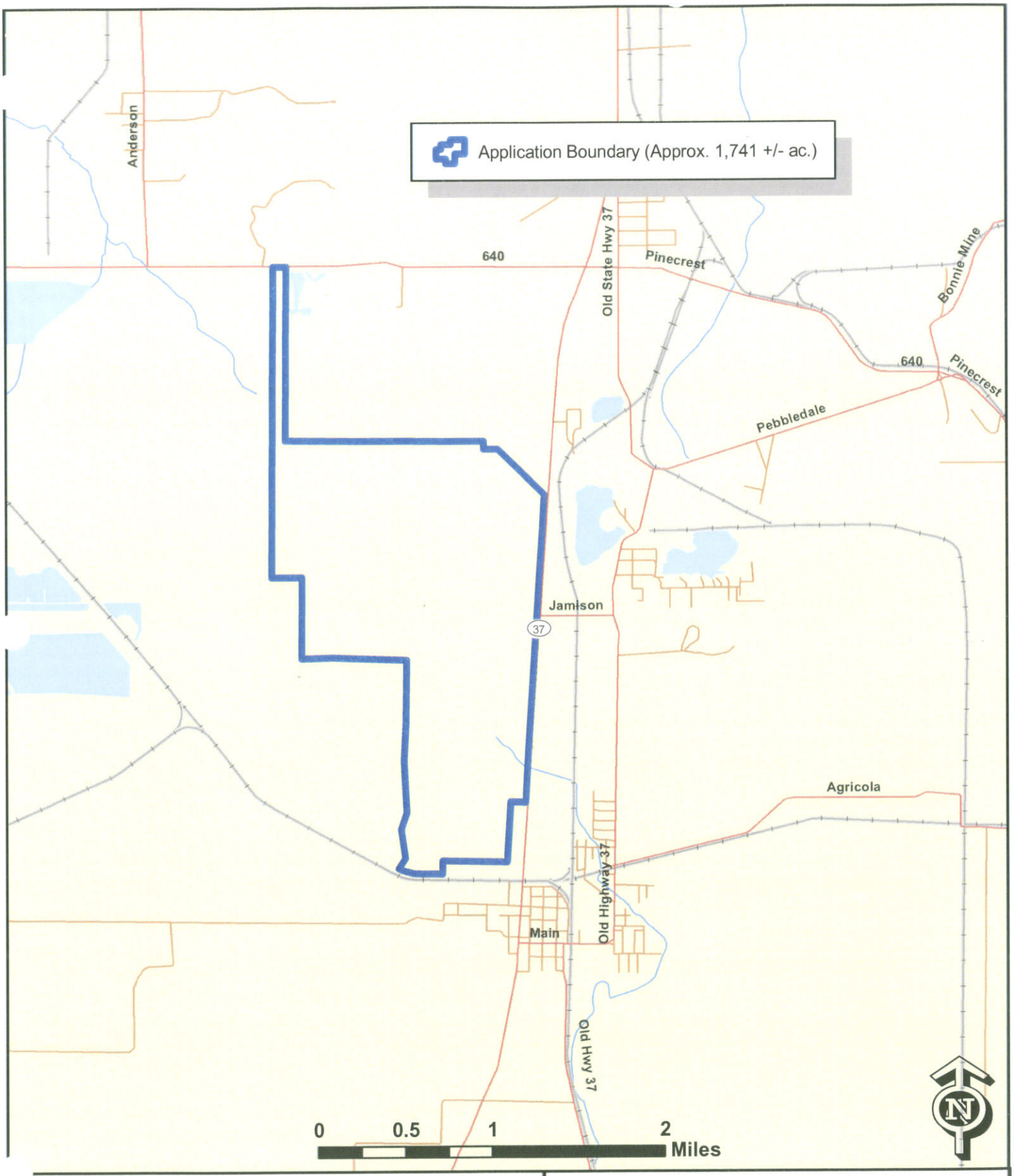
During the Threatened and Endangered Species survey, SESI biologists observed a single American alligator *(Alligator mississippiensis)* within the boundary of the site. Although this species is listed by FWC as a Species of Special Concern, the future activities to occur on site do not have the potential of harming the animal in it's observed location. The species was observed in a portion of the northern pit located outside of the Permanent Disposal Area footprint. Additionally, the attached FNAI report and FWC Eagle Nest Locator results do not reveal any record of listed species occurring within the boundary of the site. When reviewing the results of the field survey, FNAI report and FWC Eagle Nest Locator, it appears that the property could be utilized for a landfill location without the potential for harming any federal or state Listed Species.

TABLE 1

WILDLIFE OBSERVED					
SPECIES	COMMON NAME	STATE STATUS	FEDERAL STATUS	NO. OBSERVED	INDIRECT EVIDENCE
FISH					
Gambusia affinis	Mosquitofish	*	*	<10	-
Micropterus salmoides	Largemouth Bass	*	*	<5	-
AMPHIBIAN					
Rana grylio	Pig Frog	*	*	<5	-
Hyla cinerea	American Green Tree Frog	*	*	<5	-
REPTILE					
Coluber constrictor	Black Racer Snake	*	*	1	-
Alligator mississippiensis	American Alligator	SSC	*	1	-
Trachemy sp.	Slider Turtle	*	*	1	-
Apalone ferox	Florida Softshell Turtle	*	*	<10	-
BIRD					
Zenaida macroura	Mourning Dove	*	*	Numerous	-
Columbina passerina	Common Ground Dove	*	*	Numerous	-
Colinus virginianus	Northern Bobwhite Quail	*	*	Numerous	-
Mimus polyglottos	Northern Mockingbird	*	*	Numerous	-
Cardinalis cardinalis	Northern Cardinal	*	*	<5	-
Colaptes auratus	Northern Flicker	*	*	<5	-
Charadrius vociferus	Killdeer	*	*	Numerous	-
Quiscalus major	Boat-tailed Grackle	*	*	<5	-
Pipilo erythrophthalmus	Eastern Towhee	*	*	<5	-
Sturnella magna	Eastern Meadowlark	*	*	<10	-
Bubulcus ibis	Cattle Egret	*	*	<10	-
Ardea herodias	Great Blue Heron	*	*	1	-
Corvus brachyrhynchos	American Crow	*	*	Numerous	-
Coragyps atratus	Black Vulture	*	*	<10	-
Circus cyaneus	Marsh Hawk	*	*	1	-
Buteo lineatus	Red-shouldered Hawk	*	*	1	-
Myiarchus crinitus	Great Crested Flycatcher	*	*	1	-
Lanius ludovicianus	Loggerhead Shrike	*	*	<5	Impaled insects on barbwire fence
INSECT					
Dichromorpha viridis	Green Slantfaced Grasshopper	*	*	Numerous	-
Aptenopedes sphenariodes	Linearwinged Grasshopper	*	*	Numerous	-
Pieris rapae	Cabbage Butterfly	*	*	Numerous	-
ARACHNID					
Nephila clavipes	Golden Silk Spider	*	*	Numerous	-
Gasteracantha cancriformis	Spiny orb-weaver	*	*	Numerous	-
MAMMAL					
Odocoileus virginianus	White-tailed Deer	*	*	12	Antler rubs observed on trees
Sus scrofa	Wild Boar	*	*	1	Rooting observed in many areas
Procyon lotor	Common Raccoon	*	*	1	-
Sylvilagus palustris	Marsh Rabbit	*	*	1	Scat observed in low areas

* Common Species

SSC = Species of Special Concern



SOUTHEAST ENVIRONMENTAL SOLUTIONS, INC.

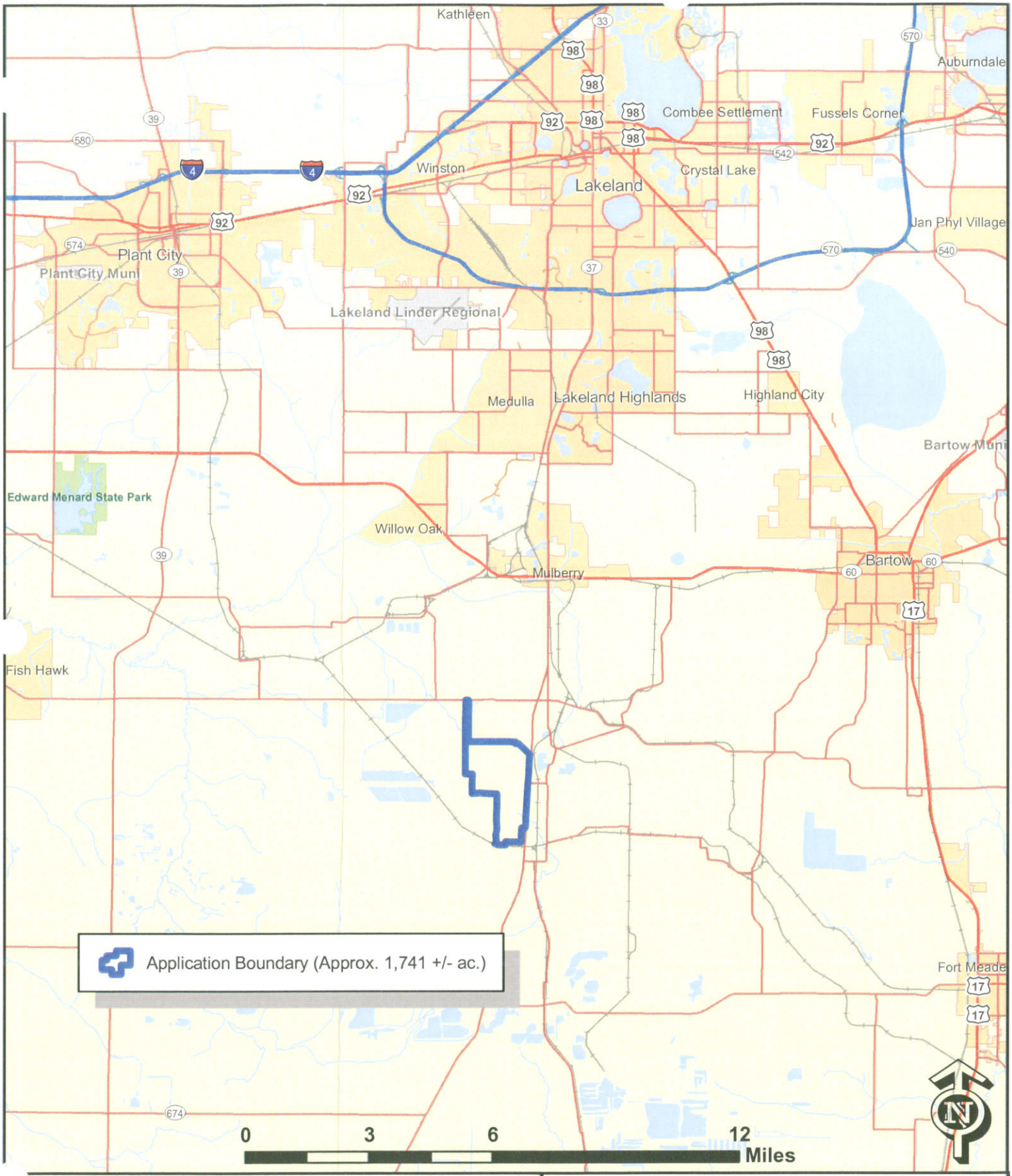
801 North Park Road
Plant City, FL 33563
Phone (813) 752-1289 Fax (813) 757-0721

Innovation Environmental Park

Location Map

Project No. 1218

Figure 1



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Innovation Environmental Park

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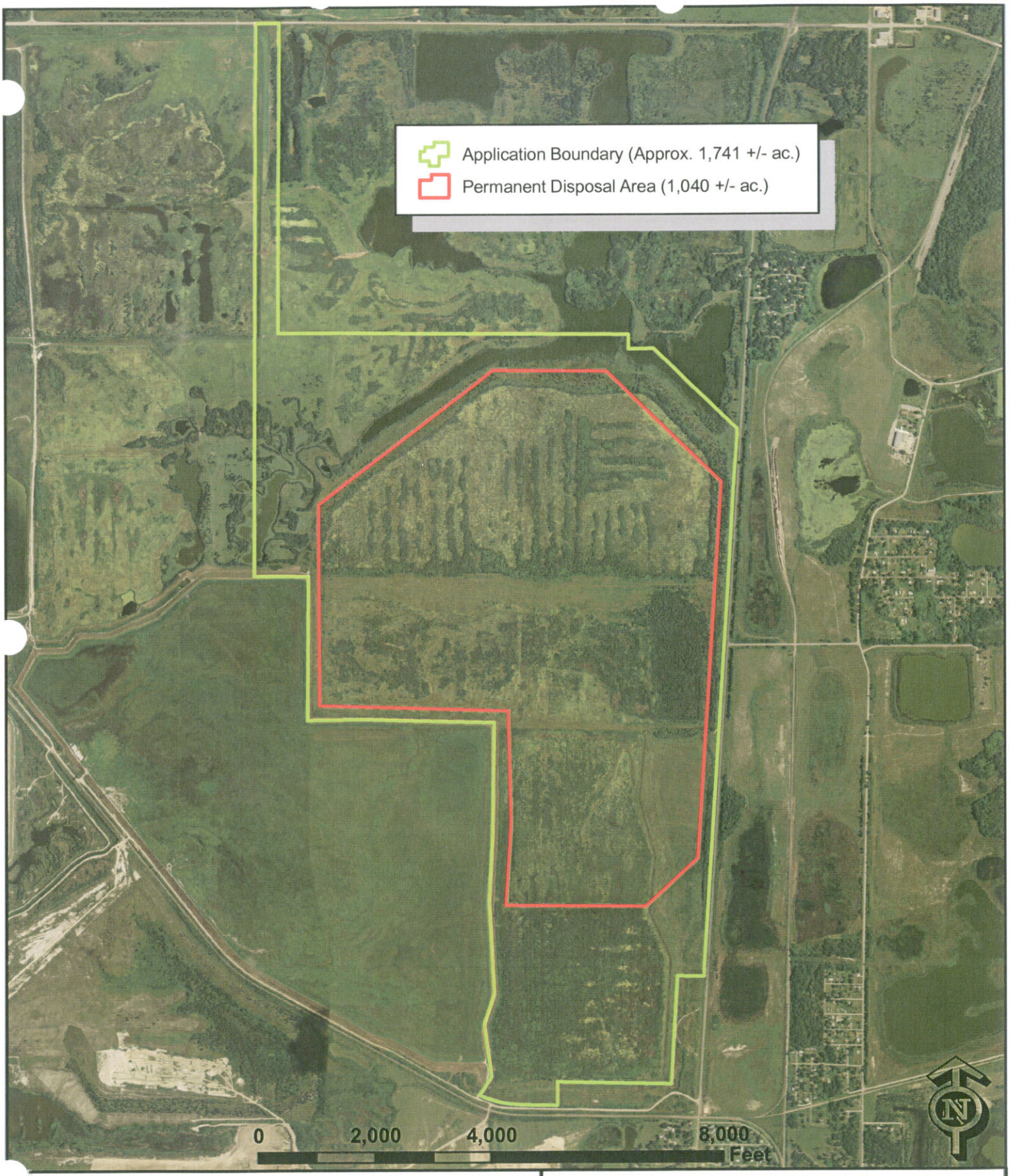
Location Map

Project No. 1218

Figure 1a



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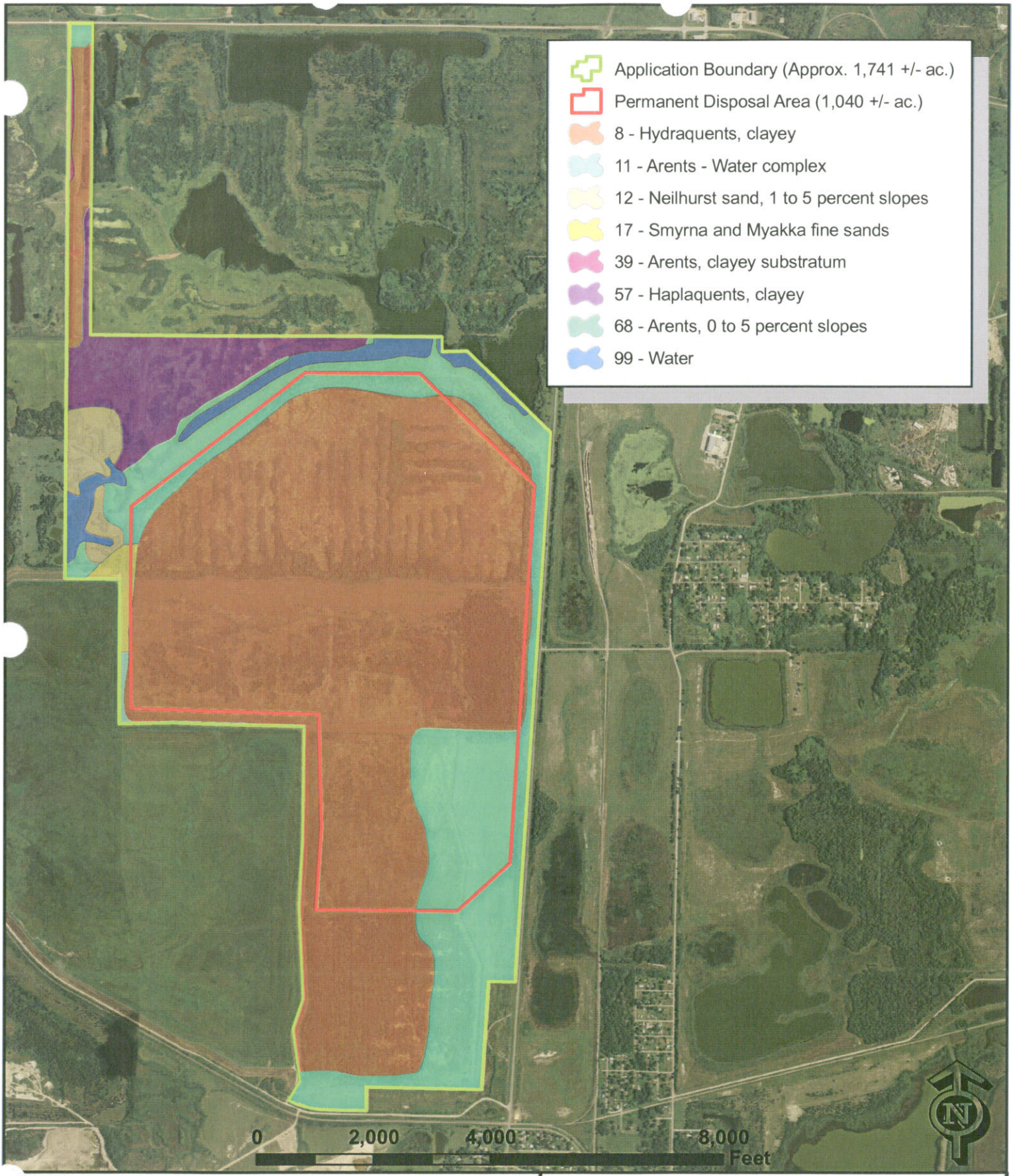
Innovation Environmental Park

Aerial Photography

Project No. 1218

Figure 2



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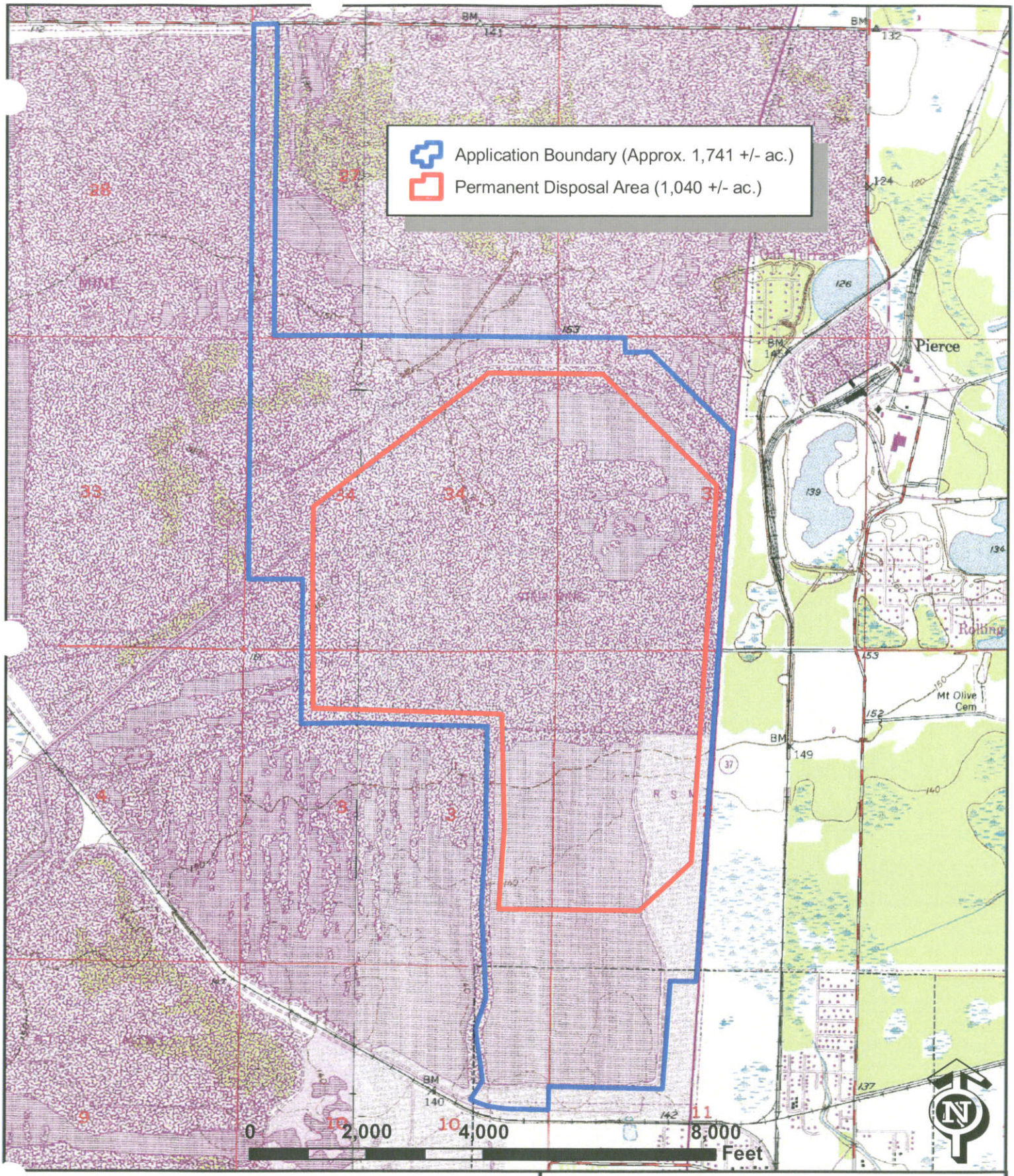
NRCS Soil Survey

Project No. 1218

Figure 3



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Innovation Environmental Park

NRCS Topographic Map

Project No. 1218

Figure 4

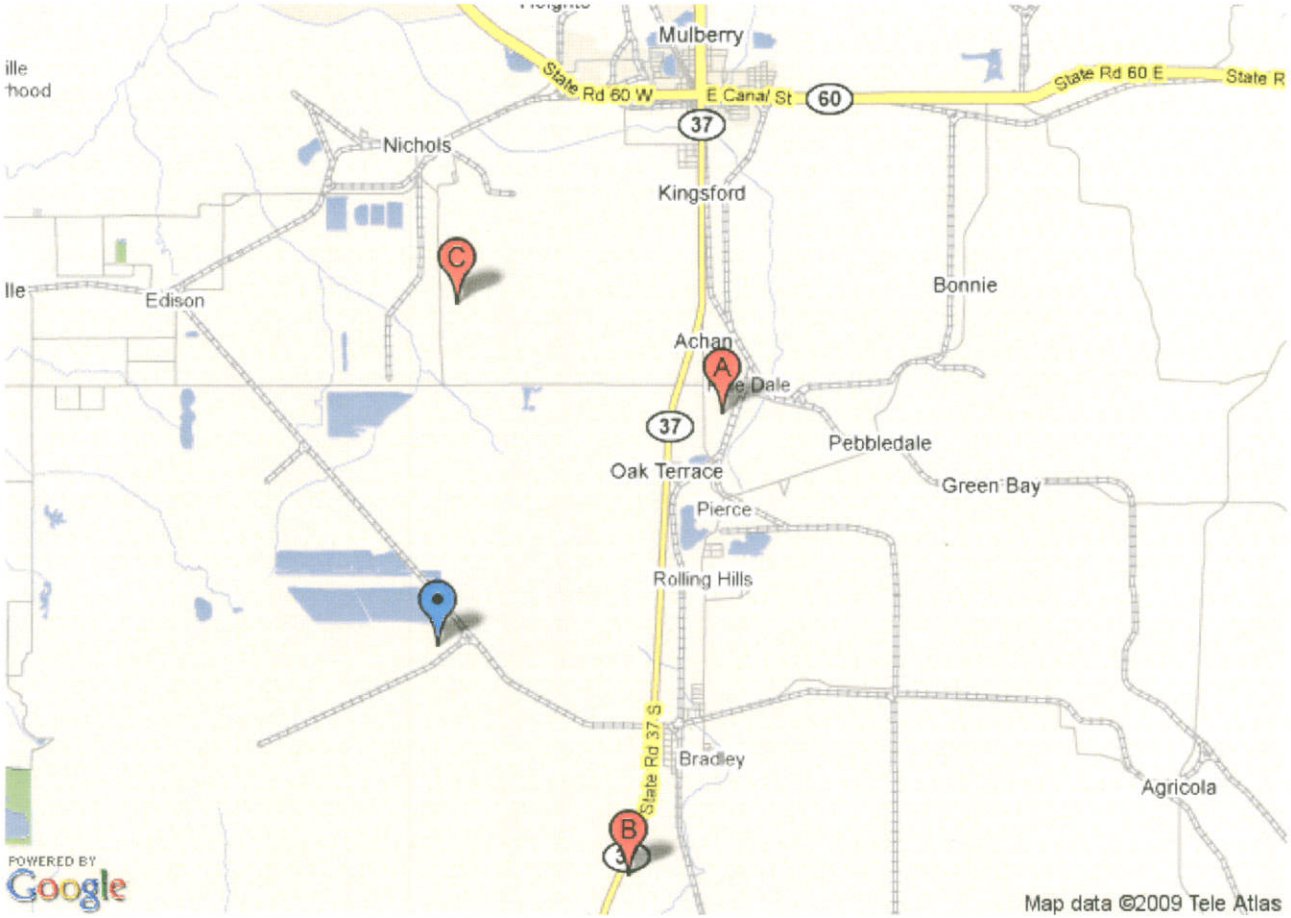
Date: 9/15/2009 1:02:26 PM

Search Entered: Within 5 miles of Mulberry, FL 33860, USA 33860 (latitude 27.8112629 and longitude -82.0189155); All Search Results

3 record(s) were found; 3 record(s) are shown

(see disclaimer that follows)

Map Letter	Nest ID	County	Latitude	Longitude	Town-ship	Range	Section	Gaz Page	Last Known Active	Last Surveyed	Act 2005	Act 2006	Act 2007	Act 2008	Act 2009	Distance (Miles)
A	PO071	Polk	27 50.80	81 58.20	30S	23E	25	92	2008	2008	Y	Y	Y	Y	*	3.86
B	PO151	Polk	27 46.58	81 59.17	31S	23E	23	92	2008	2008	Y	Y	Y	Y	*	3.13
C	PO198	Polk	27 51.80	82 00.93	30S	23E	21	92	2008	2008	-	-	-	Y	*	3.60



This report was generated using the Florida Fish and Wildlife Conservation Commission's (FWC) eagle nest locator web site, which can be found at http://myfwc.com/eagle/mapping/nestlocator.aspx. The data displayed reflect all known FWC documented eagle nesting territories that fall within the search criteria specified at the top of the page. Search results reflect the activity status observed by FWC and are current through spring 2009. Nest locations were determined with the use of aircraft-based Global Positioning System (GPS) units. The accuracy of the locations is estimated to be within one-tenth of a mile of the true location. Locations are given in longitude and latitude to one-hundredth of a minute and stored and displayed in NAD83 datum, a latitude and longitude coordinate system. Township, range, and section were determined from the Public Land Survey System grid that includes Land Grant parcels. The 'Last Known Active' column denotes the year in which the nest was last observed to be active. The 'Last Surveyed' column denotes the most recent year that the territory was surveyed. For search results containing nest history information, 'Y' denotes an active nest, 'N' denotes an inactive nest, 'U' denotes a nest that was visited but status was undetermined, '-' denotes an unobserved nest, and '*' denotes a nest that was not surveyed. Nest activity histories are provided for the last five nesting seasons. Not all eagle nests in Florida have been documented by the FWC. Non-documented nests receive the same level of protection as FWC documented nests.

FLORIDA
Natural Areas
INVENTORY

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fax 850-681-9364
www.fnai.org

September 15, 2009

Fred Crabill
Southeast Environmental Solutions, Inc.
801 North Park Road
Plant City, FL 33563

Dear Mr. Crabill,

Thank you for your request for information from the Florida Natural Areas Inventory (FNAI). We have compiled the following information for your project area.

Project: Innovation Environmental Park – Project # 1218

Date Received: August 25, 2009

Location: Near Mulberry, Polk County

Element Occurrences

A search of our maps and database indicates that currently we have several Element Occurrences mapped within the vicinity of the study area (see enclosed map and element occurrence table). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

The Element Occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, Element Occurrences generally refer to more than a casual sighting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant.

*Several of the species and natural communities tracked by the Inventory are considered **data sensitive**. Occurrence records for these elements contain information that we consider sensitive due to collection pressures, extreme rarity, or at the request of the source of the information. The Element Occurrence Record has been labeled "Data Sensitive." We request that you not publish or release specific locational data about these species or communities without consent from the Inventory. If you have any questions concerning this please do not hesitate to call.*

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed Biodiversity Matrix Report). These species should be taken into consideration in field surveys, land management, and impact avoidance and mitigation.

FNAI habitat models indicate areas, which based on land cover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Habitat models have been developed

Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

for approximately 300 of the rarest species tracked by the Inventory, including all federally listed species.

FNAI species range models indicate areas that are within the known or predicted range of a species, based on climate variables, soils, vegetation, and/or slope. Species range models have been developed for approximately 340 species, including all federally listed species.

The FNAI Biodiversity Matrix Geodatabase compiles Documented, Likely, and Potential species and natural communities for each square mile Matrix Unit statewide.

The Inventory always recommends that professionals familiar with Florida's flora and fauna should conduct a site-specific survey to determine the current presence or absence of rare, threatened, or endangered species.

Please visit www.fnai.org/trackinglist.cfm for county or statewide element occurrence distributions and links to more element information.

The database maintained by the Florida Natural Areas Inventory is the single most comprehensive source of information available on the locations of rare species and other significant ecological resources. However, the data are not always based on comprehensive or site-specific field surveys. Therefore, this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. Inventory data are designed for the purposes of conservation planning and scientific research, and are not intended for use as the primary criteria for regulatory decisions.

Information provided by this database may not be published without prior written notification to the Florida Natural Areas Inventory, and the Inventory must be credited as an information source in these publications. FNAI data may not be resold for profit.

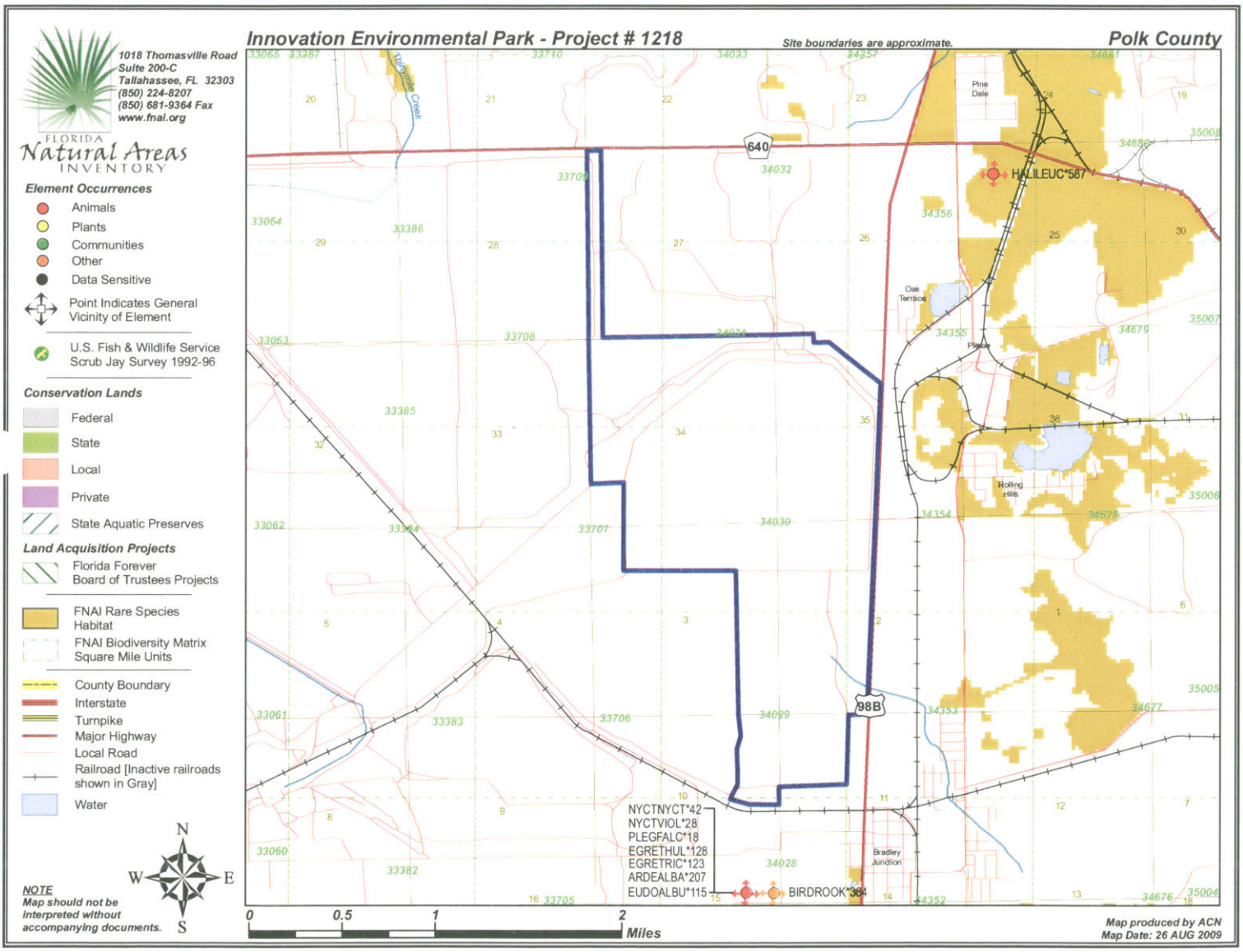
Thank you for your use of FNAI services. If I can be of further assistance, please give me a call at (850) 224-8207.

Sincerely,

Alicia C. Newberry

Alicia C. Newberry
Data Services Coordinator

Encl


Innovation Environmental Park - Project # 1218
Site boundaries are approximate.
Polk County
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(850) 681-9364 Fax
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FLORIDA Natural Areas INVENTORY
Element Occurrences
Animals
Plants
Communities
Other
Data Sensitive
Point Indicates General Vicinity of Element
U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96
Conservation Lands
Federal
State
Local
Private
State Aquatic Preserves
Land Acquisition Projects
Florida Forever Board of Trustees Projects
FNAI Rare Species Habitat
FNAI Biodiversity Matrix Square Mile Units
County Boundary
Interstate
Turnpike
Major Highway
Local Road
Railroad [Inactive railroads shown in Gray]
Water
NOTE
Map should not be interpreted without accompanying documents.
N
W
E
S
640
98B
Pine Dale
Oak Terrace
Rolling Hills
Bradley Junction
HALILEUC*587
NYCTNYCT*42
NYCTVIOL*28
PLEGFALC*18
EGRETHUL*128
EGRETRIC*123
ARDEALBA*207
EUDOALBU*115
BIRDROOK*364
0
0.5
1
2
Miles
Map produced by ACN
Map Date: 26 AUG 2009

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

ELEMENT OCCURRENCES DOCUMENTED ON OR NEAR

Innovation Environmental Park - Project # 1218

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
BIRDROOK*364	Bird Rookery		GNR	SNR	N	N	1989-04-26	Near strip mine.	Multi-species rookery, 9 species. 11-100 birds 1987-04-30, >1,000 birds 1989-04-20 and 1989-04-26. Great Egret present 1987; Snowy Egret present 1987, 1989-04- 26; Tricolored Heron present 1989-04-26; White Ibis present 1989-04-26; Glossy Ibis present 19
ARDEALBA*207	Ardea alba	Great Egret	G5	S4	N	N	1987-04-30	Near strip mine.	Species present 1987-4-30. Not observed 1989-04-20 and 1989-04-26.
PLEGFALC*18	Plegadis falcinellus	Glossy Ibis	G5	S3	N	N	1989-04-26	Near strip mine.	Species present 1989-04-26. Not observed 1987-04-30 and 1989-04-20.
EGRETHUL*128	Egretta thula	Snowy Egret	G5	S3	N	LS	1989-04-26	Near strip mine.	Species present 1987-04-30 and 1989-04-26. Not observed 1989-04-20 (but unidentified small white waders - >1000 birds - present).
[illegible]CTNYCT*42	Nycticorax nycticorax	Black-crowned Night-heron	G5	S3	N	N	1989-04-26	Near strip mine.	Species present 1989-04-26. Not observed 1987-04-30 and 1989-04-20.
[illegible]CTVIOL*28	Nyctanassa violacea	Yellow-crowned Night-heron	G5	S3	N	N	1989-04-26	Near strip mine.	Species present 1989-04-26. Not observed 1987-04-30 and 1989-04-20.
EUDOALBU*115	Eudocimus albus	White Ibis	G5	S4	N	LS	1989-04-26	Near strip mine.	Species present 1989-04-26. Not observed 1987-04-30 and 1989-04-20, (but unidentified small white waders - >1000 birds - present 1989-04-20).
EGRETRIC*123	Egretta tricolor	Tricolored Heron	G5	S4	N	LS	1989-04-26	Near strip mine.	Species present 1989-04-26. Not observed 1987-04-30 and 1989-04-20.
HALILEUC*587	Haliaeetus leucocephalus	Bald Eagle	G5	S3	N	N	2003	No general description given	Nest status 1999-2003: Active - 2003, 2001, 2000, 1999; Inactive - 2002;Status 1995-98: Continuously active. (U03FWC01FLUS). Previous data (note different format) NEST: 1987-1988 ACTIVE. FLEDGED YOUNG 1988.

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 33707					
Potential					
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Matrix Unit ID: 33708					
Potential					
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida Beargrass	G3	S3	N	LT
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Matrix Unit ID: 33709					
Potential					
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Litsea aestivalis	Pondspice	G3	S2	N	LE
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

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Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida Beargrass	G3	S3	N	LT
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Matrix Unit ID: 34028					
Likely					
Bird Rookery		GNR	SNR	N	N
Egretta thula	Snowy Egret	G5	S3	N	LS
Egretta tricolor	Tricolored Heron	G5	S4	N	LS
Eudocimus albus	White Ibis	G5	S4	N	LS
Nyctanassa violacea	Yellow-crowned Night-heron	G5	S3	N	N
Nycticorax nycticorax	Black-crowned Night-heron	G5	S3	N	N
Plegadis falcinellus	Glossy Ibis	G5	S3	N	N
Potential					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Andropogon arctatus	Pine-woods Bluestem	G3	S3	N	LT
Ardea alba	Great Egret	G5	S4	N	N
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Litsea aestivalis	Pondspice	G3	S2	N	LE
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Zephyranthes simpsonii	Rain Lily	G2G3	S2S3	N	LT
Matrix Unit ID: 34029					
Potential					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Andropogon arctatus	Pine-woods Bluestem	G3	S3	N	LT
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Litsea aestivalis	Pondspice	G3	S2	N	LE
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Zephyranthes simpsonii	Rain Lily	G2G3	S2S3	N	LT

Matrix Unit ID: 34030

Potential

Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Panicum abscissum	Cutthroat Grass	G3	S3	N	LE
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE

Matrix Unit ID: 34031

Potential

Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Matrix Unit ID: 34353					
Likely					
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Potential					
Aimophila aestivalis	Bachman's Sparrow	G3	S3	N	N
Andropogon arctatus	Pine-woods Bluestem	G3	S3	N	LT
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Litsea aestivalis	Pondspice	G3	S2	N	LE
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Zephyranthes simpsonii	Rain Lily	G2G3	S2S3	N	LT
Matrix Unit ID: 34354					
Likely					
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Potential					
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Litsea aestivalis	Pondspice	G3	S2	N	LE
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Zephyranthes simpsonii	Rain Lily	G2G3	S2S3	N	LT

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 34355					
Likely					
Rostrhamus sociabilis plumbeus	Snail Kite	G4G5T3Q	S2	LE	LE
Potential					
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	LE
Carex chapmanii	Chapman's Sedge	G3	S3	N	LE
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	LE
Drymarchon couperi	Eastern Indigo Snake	G3	S3	LT	LT
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	LT
Grus canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	LT
Litsea aestivalis	Pondspice	G3	S2	N	LE
Matelea floridana	Florida Spiny-pod	G2	S2	N	LE
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	LE
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Podomys floridanus	Florida Mouse	G3	S3	N	LS
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	LT
Rana capito	Gopher Frog	G3	S3	N	LS
Zephyranthes simpsonii	Rain Lily	G2G3	S2S3	N	LT

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GLOBAL AND STATE RANKS

Florida Natural Areas Inventory (FNAI) defines an **element** as any rare or exemplary component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature. FNAI assigns two ranks to each element found in Florida: the **global rank**, which is based on an element's worldwide status, and the **state rank**, which is based on the status of the element within Florida. Element ranks are based on many factors, including estimated number of occurrences, estimated abundance (for species and populations) or area (for natural communities), estimated number of adequately protected occurrences, range, threats, and ecological fragility.

GLOBAL RANK DEFINITIONS

G1	Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2	Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3	Either very rare and local throughout its range (21-100 occurrences or less than 10,0000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4	Apparently secure globally (may be rare in parts of range).
G5	Demonstrably secure globally.
G#?	Tentative rank (e.g., G2?)
G#G#	Range of rank; insufficient data to assign specific global rank (e.g., G2G3)
G#T#	Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)
G#Q	Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
G#T#Q	Same as above, but validity as subspecies or variety is questioned.
GH	Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
GNA	Ranking is not applicable because element is not a suitable target for conservation (e.g. as for hybrid species)
GNR	Not yet ranked (temporary)
GNRTNR	Neither the full species nor the taxonomic subgroup has yet been ranked (temporary)
GX	Believed to be extinct throughout range
GXC	Extirpated from the wild but still known from captivity/cultivation
GU	Unrankable. Due to lack of information, no rank or range can be assigned (e.g., GUT2).

STATE RANK DEFINITIONS

Definition parallels global element rank: substitute "S" for "G" in above global ranks, and "in Florida" for "globally" in above global rank definitions.

FEDERAL AND STATE LEGAL STATUSES (U.S. Fish and Wildlife Service – USFWS) PROVIDED BY FNAI FOR INFORMATION ONLY.

For official definitions and lists of protected species, consult the relevant state or federal agency.

FEDERAL LEGAL STATUS

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

LE	Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.
LE,XN	A non essential experimental population of a species otherwise Listed as an Endangered Species in the List of Endangered and Threatened Wildlife and Plants. LE,XN for Grus americana (Whooping crane), Federally listed as XN (Non essential experimental population) refers to the Florida experimental population only. Federal listing elsewhere for Grus americana is LE.
PE	Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
LT	Listed as Threatened Species, defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
LT,PDL	Species currently listed Threatened but has been proposed for delisting.
PT	Proposed for listing as Threatened Species.
C	Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants, Category 1. Federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
SAT	Threatened due to similarity of appearance to a threatened species.
SC	Species of Concern, species is not currently listed but is of management concern to USFWS.
N	Not currently listed, nor currently being considered for addition to the List of Endangered and Threatened Wildlife and Plants.

FLORIDA LEGAL STATUSES (Florida Fish and Wildlife Conservation Commission – FFWCC/ Florida Department of Agriculture and Consumer Services – FDACS)

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission - FFWCC, 1 August 1997, and subsequent updates.

LE	Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.
LT	Listed as Threatened Species by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
LT*	Indicates that a species has LT status only in selected portions of its range in Florida. LT* for Ursus americanus floridanus (Florida black bear) indicates that LT status does not apply in Baker and Columbia counties and in the Apalachicola National Forest. LT* for Neovison vison pop. 1 (Southern mink, South Florida population) state listed as Threatened refers to the Everglades population only (Note: species formerly listed as Mustela vison mink pop. 1. Also, priorly listed as Mustela evergladensis).
LS	Listed as Species of Special Concern by the FFWCC, defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification,

environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species.

LS* Indicates that a species has LS status only in selected portions of its range in Florida. LS* for Pandion haliaetus (Osprey) state listed as LS (Species of Special Concern) in Monroe County only.

PE Proposed for listing as Endangered.

PT Proposed for listing as Threatened.

PS Proposed for listing as a Species of Special Concern.

N Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or please visit: http://DOACS.State.FL.US/PI/Images/Rule05b.pdf

LE Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.

PE Proposed by the FDACS for listing as Endangered Plants.

LT Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered. LT* indicates that a species has LT status only in selected portions of its range in Florida.

PT Proposed by the FDACS for listing as Threatened Plants.

N Not currently listed, nor currently being considered for listing.

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Tracking Florida's Biodiversity

ATTACHMENT D

Geology & Hydrology Report

Prepared By
Gurr Professional Services, Inc.

GEOLOGY AND HYDROLOGY REPORT
Prepared By Gurr Professional Services, Inc.

Topography and Drainage

The site lies in the Central Florida Phosphate District in southwestern Polk County in the Polk Upland physiographic province. The pre-mining site elevations in the 1950's were approximately 160 feet above mean sea level (MSL), dropping in elevation to the north and south on the site to 140 feet MLS or less northward toward the North Prong of Alafia River drainage basin and southward towards the South Prong Alafia River drainage basin (G-1). The Alafia River watershed drains westward and empties into Tampa Bay at Riverview, Florida in Hillsborough County.

Most, if not all, of the site has been mined and used for phosphate mining waste clay disposal. Most of the site is elevated above the pre-mining topography as a result of the waste clay disposal. Due to the age of the settling basins, the overburden spoil piles from the prior mining are protruding above the settling waste clay. Current site elevations range from approximately 190 feet MSL on the crest of the highest waste clay dam near the center of the site to a low of less than 160 feet to 145 feet MSL in the post mining drainage ways. The post mining / reclamation drainage is similar to the pre-mining drainage.

Geology and Hydrologic Setting

The geologic system beneath the site and the majority of Polk County consists of a thick sequence of carbonate rocks overlain by a sequence of unconsolidated sand, silt, and clay deposits, which has a minimum thickness of about 5,300 feet at Mulberry.[1] The geologic formations dip toward and thicken to the south-southwest and consist of Tertiary (Paleocene) to Quaternary (Holocene) sediments (G-2 and G-3). The formations in Polk County dip at low angles and thicken to the southeast, south and southwest, from the north-central portion of the county (the Green Swamp area north of Lakeland) as a result of the subsurface structural feature referred to as the Ocala uplift. [2]

The site lies in the Central Florida Phosphate District. Underlying a thin layer of surface sands and clays (overburden - ten to 50 feet in thickness) is the phosphorite-rich clastic portion of the Peace River Formation, i.e., the Bone Valley Member which is the stratum mined for phosphate and is locally referred to as "matrix." The mining zone or "matrix" is generally less than 40 feet in thickness and consists of approximately equal parts of phosphate sand and gravel, quartz sand, and various clay and silt sized particles. The sediments that comprise the minable phosphate zone were deposited in a beach or alluvial (riverine) environment between 4 and 6 million years ago.[3]

Aquifers

The site lies in the Southwest Florida Water Management District (SWFWMD). The hydrogeologic units underlying the study area consist of the surficial aquifer system (SAS); the intermediate aquifer system (IAS) or intermediate confining unit; and the Upper Floridan aquifer (FAS), the middle confining unit

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[1] Spechler, R.M. and Kroening, S.E., 2007, *Hydrology of Polk County, Florida,* U.S. Geological Survey Scientific Investigation Report 2006-5320, p 13.

[2] Stewart, Herbert G. Jr., 1966, *Ground-Water Resources of Polk County*, Florida Geological Survey, Report of Investigations No. 44, p 48.

[3] Cathcart and others

(MFCU), and the Lower Floridan aquifer (LFAS).[4] The aquifer units dip south southwestward off of the subsurface structural feature referred to as the Ocala Arch.

The hydrology of the SWFWMD region and this portion of Polk County generally consists of three aquifers as follows:

Surficial Aquifer System (SAS): The surficial aquifer system (SAS) is the upper most water-bearing zone throughout Florida and is unconfined. The upper surface of the SAS is contiguous with the water table, which is just below the land surface. The surficial aquifer ranges in thickness from a thin veneer of sand to in excess of fifty feet. The sediments comprising the surficial aquifer range from undifferentiated sands, clay and shell. The surface is generally quartz sand, which is generally uniform throughout the unit, which grades to clay with depth as the surficial aquifer system approaches the upper surface of the intermediate aquifer system.

Rainfall is the principal source of recharge to the surficial aquifer system. The water table generally rises to within five to ten feet of the land surface, depending upon the season of the year (closest to the surface in the rainy season and vice versa in the dry season). The water table is generally exposed along river cut banks or is at land surface within the low-lying swampy floodplains and the adjacent lowlands. The surficial aquifer is a contributor to the base flows of streams and drainages in the region. The surficial aquifer generally drains towards the rivers except in the karstic or sinkhole regions where drainage or groundwater flow in the SAS is downwards to the lower aquifers.

The SAS is an unconfined aquifer and lacks the protection of impermeable barriers to prevent contamination from surface spills, underground leaks or waste disposal activities. Throughout much of Florida and especially in Central Florida and Polk County the SAS is used to supply residences and livestock with a low volume supply of water.

SAS Site Vicinity: The surficial aquifer in the vicinity of the site generally lies within 5 to 10 feet of the land surface. The surficial aquifer occurs in the upper sandy sediments. The surficial aquifer is a low yield aquifer that is generally used for limited agricultural water supplies for livestock, lawn irrigation and very limited private water supplies. The pre-mining SAS at the site was approximately 40 to 70 feet in thickness.

Intermediate Aquifer System: The intermediate aquifer system (IAS) includes water-bearing and confining units between the SAS and the underlying Floridan Aquifer System.[5] The intermediate aquifer system consists of inter-bedded confining and aquifer units: an upper confining unit (UICU) consisting of a clayey and pebbly sand, clay and marl; an upper aquifer unit (PZ 2) consisting of a carbonate rocks, sand and discontinuous beds of sand and clay (mostly Arcadia Formation), an intermediate confining unit (MICU), consisting of beds of sands and clays; a lower intermediate aquifer unit (PZ 3), consisting of carbonate rocks, minor sandy zones, clays, and local chert (Tampa Member).[6]

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[4] Miller, J.A., 1986, *Hydrogeologic Framework Of The Floridan Aquifer System In Florida And Parts of Georgia, Alabama and South Carolina,* USGS Professional Paper No. 1403-B, 91 p.

[5] Duerr, A.D., Hunn, J.D., Lewelling, B.R., and Trommer, J.T., 1988, *Geohydrology and 1985 Water Withdraws of the Aquifer Systems in Southwest Florida, With Emphasis on the Intermediate Aquifer System*: U.S. Geological Survey Water Resources Investigations Report 87-4259, 115 p.

[6] Duerr, *Ibid.*

The confining units of the IAS retard the vertical movement of the ground water between the water producing zones of the IAS, and between the SAS and the underlying Floridan Aquifer.

Recharge to the IAS is by downward leakage from the SAS and more directly through sinkholes that breach the semi-confining layers. The ISA is a major source of water throughout much of Central Florida. Well yields from the ISA are greater than from the SAS; however, they are much less than from the wells penetrating the lower Florida Aquifer System.[7]

IAS Site Vicinity: In the site vicinity the thickness of the IAS is estimated from drilling records for the New Wales Chemical Plant Gypsum Stack Phase II Expansion and the Green Bay Chemical Plant Gypsum Stack Expansion and Regional Storage Pond DRI and FDEP construction permit applications to be on the order of 150 to 200 feet in thickness.[8]

The upper confining unit in the site vicinity has reported to be on the order of 110 feet thick and consists of an inter-bedded sequence of relatively low permeability clays and carbonates. The vertical hydraulic conductivities tests of intact core samples of the upper confining unit have been measured to range from 10^{-6} to 10^{-8} cm/sec (G-6).

The producing zone of the ISA in the site vicinity consists of approximately 80 feet of relatively permeable sandy limestone and sand deposits of the Tampa and Nocatee Members of the Arcadia Formation (G-5). The measured horizontal hydraulic conductivity in the site vicinity ranges from 10^{-5} to 10^{-6} cm/sec (G-6). The water level in the ISA producing zone varies from 40 feet to 90 feet (NGVD) depending on the season of the year (wet/dry).[9, 10]

The lower confining unit of the IAS in the vicinity of the site ranges in thickness from 10 to 15 feet and consists of relatively low permeability clay which occurs at the base of the Nocatee Member of the Arcadia Formation (G-5). The vertical hydraulic conductivity of the lower confining unit clay was measured at 10^{-7} to 10^{-9} cm/sec (G-6).[11]

The total thickness of the IAS in the site vicinity is on the order of 200 feet plus in thickness (G-5).

Floridan Aquifer System (FAS): The Floridan Aquifer System (FAS) is a thick sequence of generally continuous carbonate rocks of Tertiary Age that are generally of high permeability, hydraulically connected to each other, and with a permeability (ability to supply water), which is of a much greater

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7 Barr, G.L., 1992, *Ground-Water Contamination Potential and Quality in Polk County, Florida*, U.S. Geological Survey, Water-Resources Investigations Report 92-4086, p 17, 92.p

8 New Wales Gypsum Stack Expansion ADA/DRI, Green Bay Gypsum Stack Expansion and Regional Storage Pond.

9 Ardaman & Associates, Inc., 2001, *Engineering Report in Support of FDEP Construction/Operation Permit Application, Phase II Gypsum Stack Expansion, New Wales Plant, IMC Phosphates Company*, p. 4-8

10 SWWMD GIS files, September 2001 and May 2001 ISA, shape files of USGS Intermediate Aquifer Potentiometric Surface May and September 2001.

11 Ardaman & Associates, Inc. 1988, Engineering Report for New Wales Gypsum Stack and Cooling Pond Expansion, Volume I, IMC-Fertilizer, Inc., New Wales Operations.

magnitude than the sediments / rock above or below this zone.[12] The FAS is comprised of upper and lower aquifers that are separated by a middle-confining unit.[13]

The Upper FAS (UFAS) is the fresh water zone (except along the coastal areas and where it is mineralized to the south), while the middle confining unit and the Lower Floridan Aquifer generally contain saltwater.[14] In most reports, the Floridan aquifer is the term used to apply to only the upper water-bearing unit. The water bearing rocks of the UFAS are composed of carbonate units of the Suwannee and Ocala Limestones and the Avon Park Formation of Oligocene and Eocene age.

The Mid Florida Confining Unit (MFCU) is characterized by limestone which has reduced permeability due to the presence of inter-granular evaporates.[15] The MFCU consists of a thick, massive sequence of evaporite materials of very low permeability.[16]

The Lower Floridan Aquifer System (LFAS) consists of interbedded dolomite and anhydrite generally with low permeability. The connate water in the LFAS is saltwater brine.[17] The poor quality water, deep depth, low yields, and separation from the UFAS by the MFCU has resulted in the LFAS being used in Central Florida for the disposal of industrial waste through deep well injection.

The UFAS is the major water supply zone utilized as a water source by almost all major production wells for such interests as municipal, industrial, mining and agricultural except in Pinellas County where salt water intrusion from prior over pumping has caused salt water intrusion making it unusable as a source of water supply.

UFAS Site Vicinity: In the vicinity of the site the depth estimates to the top of the UFAS vary, ranging from approximately 175 feet below surface[18] to 275 feet below land surface.[19] Geotechnical investigations at the nearby New Wales Gypsum Stack Phase II Expansion reported that the depth to the top of the UFAS was 275 feet (G-5).[20] Recent documents by the USGS indicate that the depth to the

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12 Ryder, P.D., 1985, Hydrology of the Floridan Aquifer System in West-Central Florida: U.S. Geological Survey Professional Paper 1403-F, 63 p.

13 Miller, J.A., 1986, Hydrogeologic Framework of the Floridan Aquifer System in Florida and in Parts of Georgia, South Carolina, and Alabama: U.S. Geological Survey Professional Paper 1403-B, 91p.

14 Ryder, P.D., 1985, Hydrology of the Floridan Aquifer System in West-Central Florida: U.S. Geological Survey Professional Paper 1403-F, 63 p.

15 Southeastern Geological Society, 1986, *Hydrogeological Units of Florida*: Florida Geological Survey Special Publication 28, 9 p.

16 Miller, *Ibid*, 1986.

17 Miller, *Ibid*, 1986.

18 SWFWMD, 2000, modified from GIS files prepared by Jonathan Arthur, Florida Geological Survey.

19 Ardaman & Associates, Inc., *Ibid*, 2001, p 4-5.

20 Ardaman & Associates, Inc., *Ibid*, 2001, p 4-5.

UFAS is on the order of 250 to 300 feet in the vicinity of the site.[21] A generalized depth to the top of the Floridan Aquifer has been generated from these sources (G-7).

The elevation of the potentiometric surface of the FAS in the vicinity of the site ranges from 50 to 70 feet elevation from the dry season to the wet season (G-9). The groundwater flow direction is east to the west-southwest across the site (G-8 and G-9).

Proximity to Wells

The Polk County Utilities Department has several water supply wells to the east of the site in Bradley Junction and Rolling Hills (G-10). The Rolling Hills public supply well is approximately 4,200 feet east of the site and is up-gradient of the site. The Bradley Junction public supply well is located approximately 5,700 feet to the southeast of the site and is also located up-gradient of the site. In addition, there is an additional well located in Bradley Junction that is approximately 5,500 feet south of the site which is side-gradient to the site (G-10). Most of the down-gradient wells are sealing water wells for the prior mining operations (G-10).

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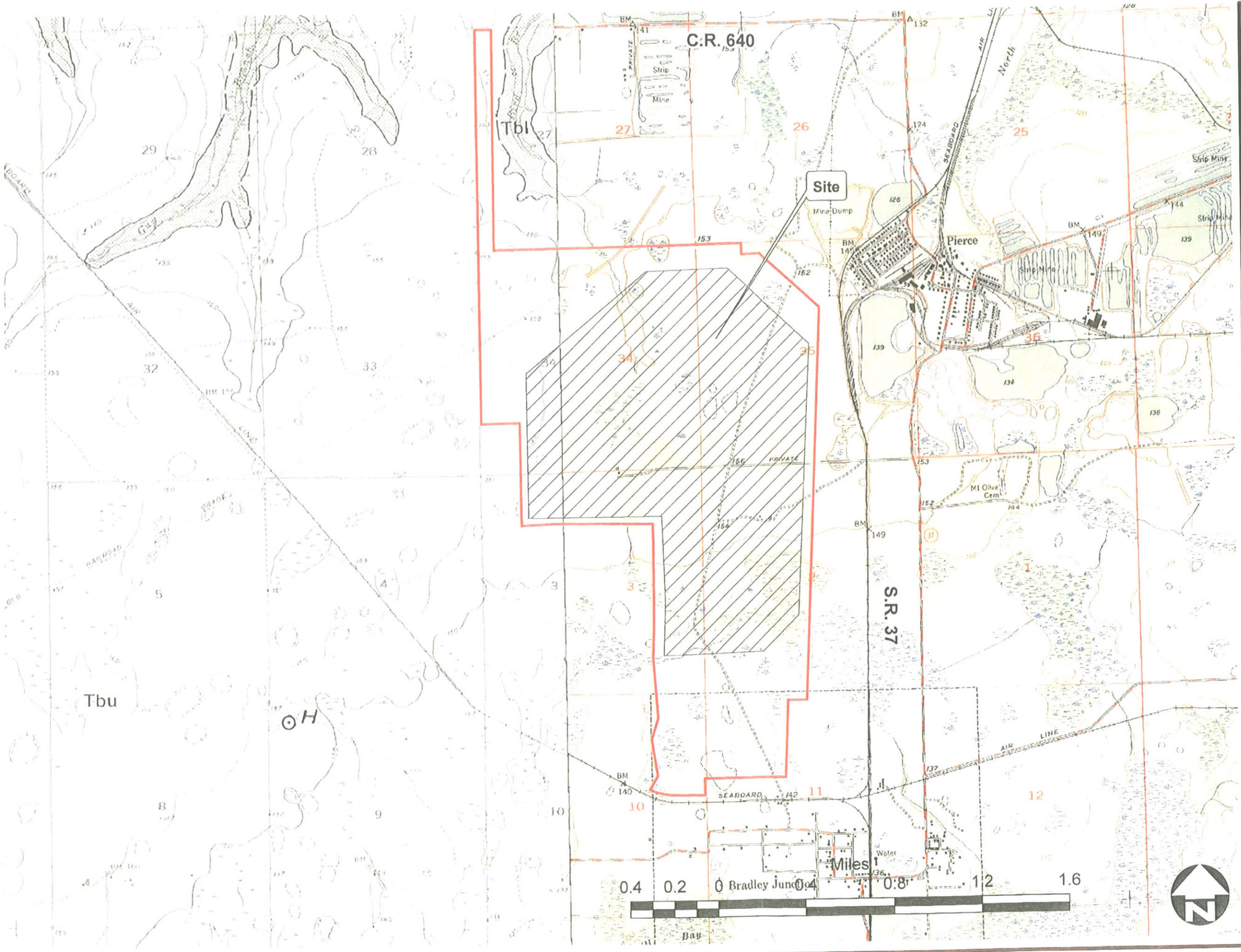
[21] Spechler, R.M. and Kroening, S.E., 2007, *Hydrology of Polk County Florida*: U.S. Geological Survey Scientific Investigations Report 2006-5320, Figure 23, p. 29.



LEGEND

- Site Boundary
- Landfill Foot Print
- County Boundaries

SOURCES:

FGDL Polk Core
USGS Bradley Junction 1950 Quadrangle Map
USGS Mulberry 1950 Quadrangle Map
USGS, Geological Survey Bulletin 1128,
Cathcart, James B, Geologic Map of the
Keysville Quadrangle, Florida 1957.

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INNOVATION ENVIRONMENTAL PARK

HISTORICAL TOPOGRAPHY (Pre-mining)

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DATE: 09/12/09	DESIGN BY: TMG	
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D:\ARCDATA\Innovation Env Park\G-1 Historical Topography_Z

System	Series	Stratigraphic Unit	General Lithology	Major Lithologic Unit	Hydrogeologic Unit	
Quaternary	Holocene and Pleistocene	Surficial sand, terrace sand, phosphorite	Predominantly fine sand; interbedded clay, marl, shell, and phosphorite.	Sand	Surficial Aquifer	
Tertiary	Pliocene	Caloosahatchee Formation / Tamiami Formation	Clayey and pebbly sand; clay, marl, shell, phosphatic.	Clastic	Upper Confining Unit	Intermediate Aquifer System
	Miocene	Hawthorn Group: Bone Valley Member / Venice Clay; Peace River Formation	Dolomite, sand, clay, and limestone, silty, phosphatic.	Carbonate and Clastic	Middle Confining Unit	
		Hawthorn Group: Arcadia Formation; Tampa Member / Nocatee Member	Limestone, sandy, phosphatic, fossiliferous; sand and clay in lower part in some areas.		Lower Confining Unit	
	Oligocene	Suwannee Limestone	Limestone, sandy limestone, fossiliferous.	Carbonate	Upper Floridan Aquifer	Floridan Aquifer System
	Eocene	Ocala Limestone	Limestone, chalky, foraminiferal, dolomitic, near bottom.			
		Avon Park Formation	Limestone and hard brown dolomite; intergranular evaporite in lower part in some areas.			
	Paleocene	Oldsmar and Cedar Keys Formations	Dolomite and limestone with intergranular gypsum and anhydrite.	Carbonate with Evaporites	Middle Confining Unit / Lower Floridan Aquifer	
				Evaporites	Sub-Floridan Confining Unit	

SOURCES:

SWFWMD Aquifer Characteristics within the Southwest Florida Water Management District, Report 99-1, February 2000.

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INNOVATION ENVIRONMENTAL PARK

HYDROGEOLOGIC FRAMEWORK

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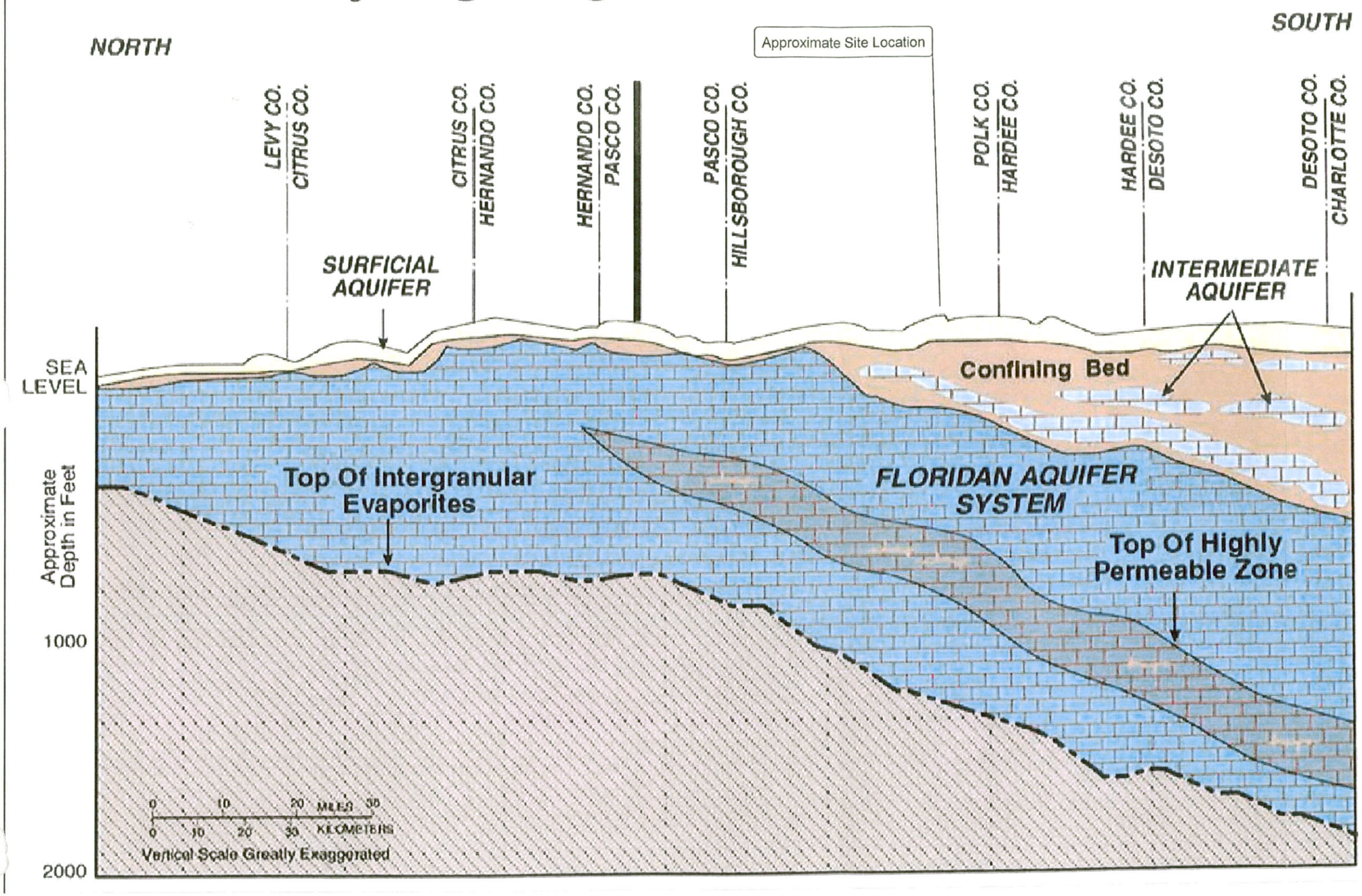
General Hydrogeologic Cross Section of the Region



SOURCES:

SWFWMD

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INNOVATION ENVIRONMENTAL PARK

REGIONAL HYDROGEOLOCIC CROSS-SECTION

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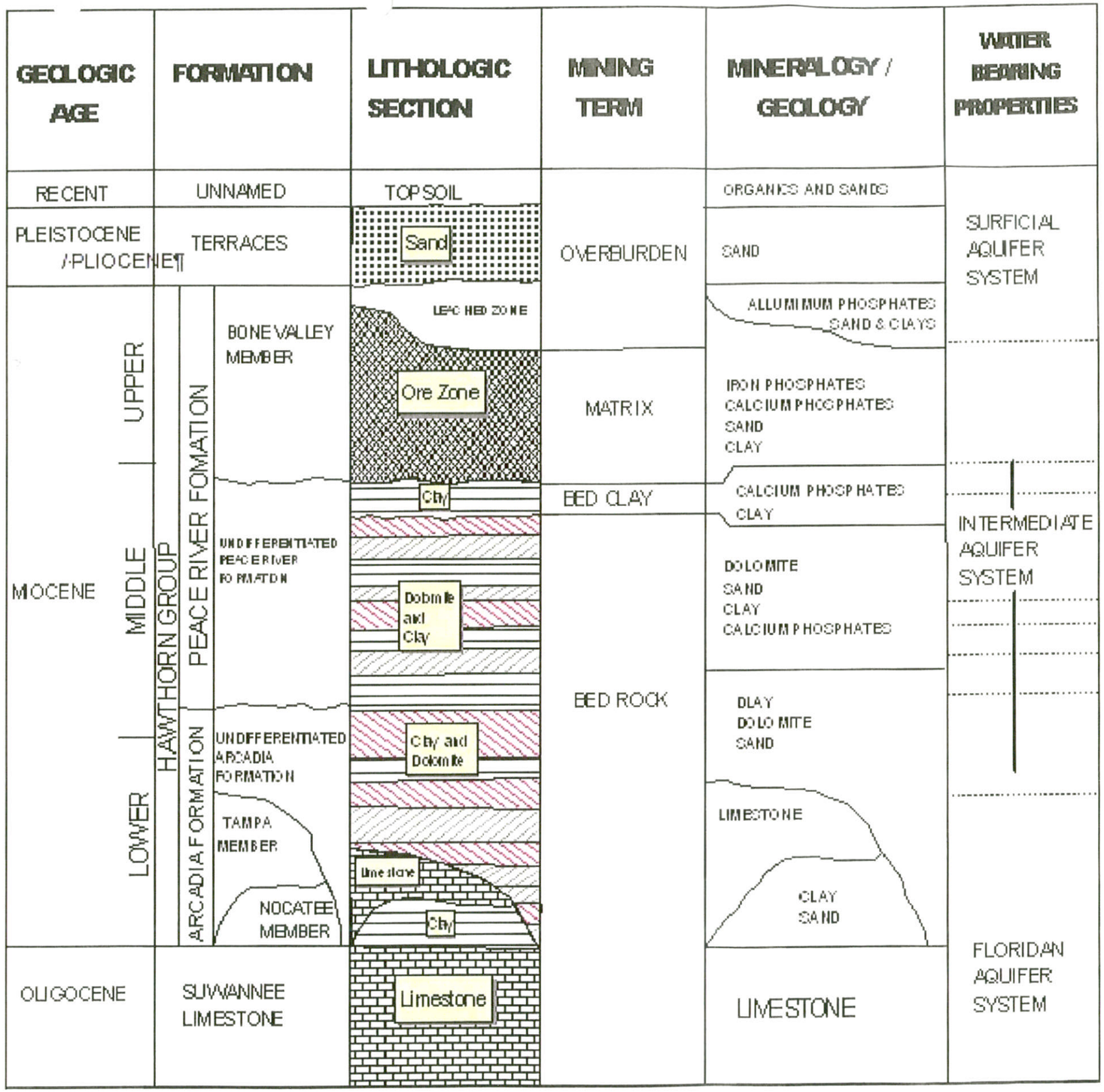

Source: Yon, 1983: Scott, 1986: Campbell, 1986

SOURCES:
Ona Mine DRI Figure 14-1

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HYDROGEOLOGIC FRAMEWORK OF PHOSPHATE DISTRICT

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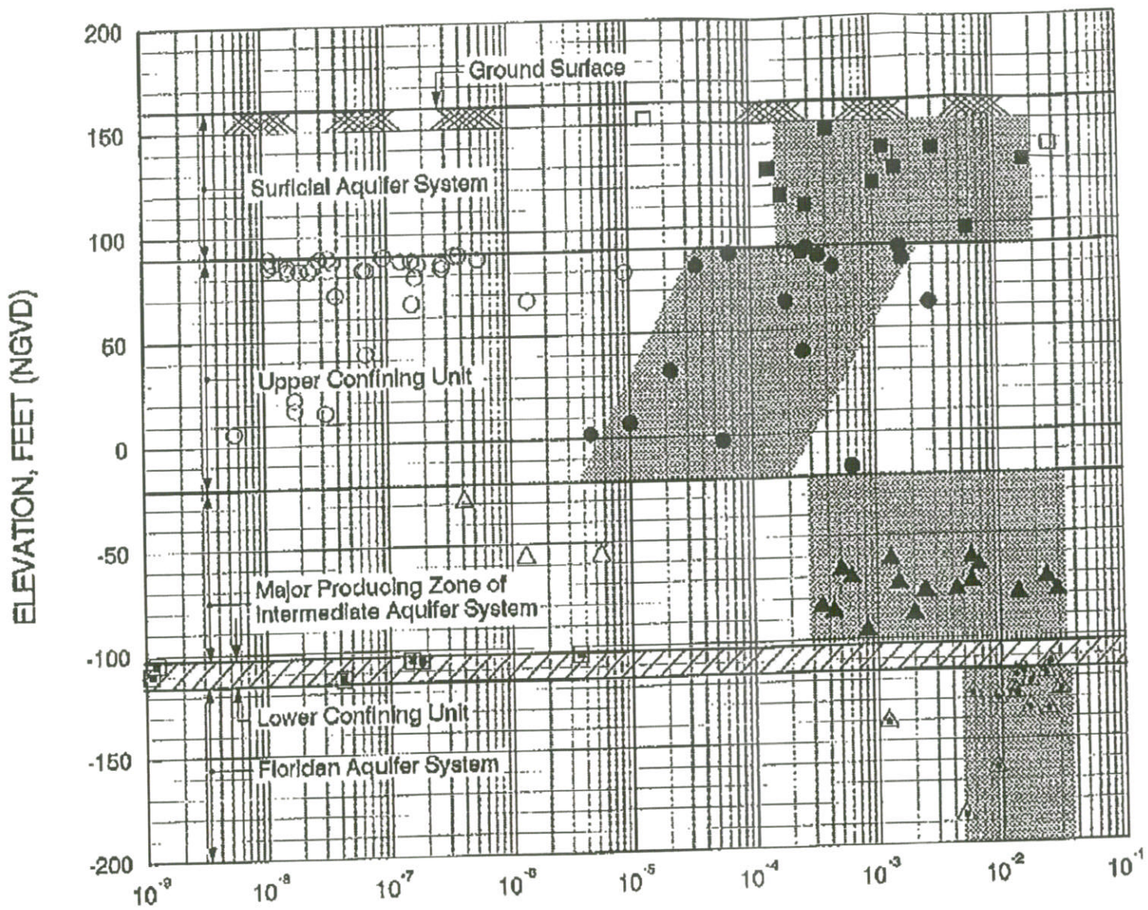

SYMBOL	DIRECTION	HYDROSTRATIGRAPHIC UNIT
■	K_h	Surficial Aquifer System
□	K_v	
●	K_h	Upper Confining Unit
○	K_v	
▲	K_h	Major Producing Zone of Intermediate Aquifer System
△	K_v	
[▪]	K_v	Lower Confining Unit
▲	K_h	Floridan Aquifer System

K_h= Horizontal Hydraulic Conductivity from Field Slug Tests

K_v= Vertical Hydraulic Conductivity from Laboratory Permeability Tests on Intact Samples

SOURCES:
New Wales Gypsum Stack
ADA/DRI, Figure 4-6

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INNOVATION ENVIRONMENTAL PARK

HYDRAULIC CONDUCTIVITY VS DEPTH IN SITE VICINITY

SCALE: 1" = XXX'	DRAWN BY: TMG	DRAWING NO: G-6
DATE: 09/12/09	DESIGN BY: TMG	
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D:\ARCDATA\InnovationEnvParkIG-6 Hydraulic Conductivity Vs Depth

System	Series	Geologic Formation			Average Depth (feet) From	Average Depth (feet) To	Approximate Average Elevation (feet, NGVD) From	Approximate Average Elevation (feet, NGVD) To	Hydrostratigraphic Unit	
Quaternary	Holocene / Pleistocene / Pliocene	Undifferentiated Surficial Soils			0	40	+160	+120	Surficial Aquifer System	
Tertiary	Miocene	Hawthorn Group	Peace River Formation	Bone Valley Member	40	70	+120	+90	Surficial Aquifer System	
				Undifferentiated	70	76	+90	+84	Intermediate Aquifer System	Upper Confining Unit
			Arcadia Formation	Undifferentiated	76	181	+84	-21		
				Tampa Member	181	253	-21	-93		Producing Zone
				Nocatee Member – Sand	253	263	-93	-103		
				Nocatee Member – Clay	263	275	-103	-115		Lower Confining Unit
	Oligocene	Suwannee Limestone			275	445±	-115	-285±	Floridan Aquifer System*	

* Floridan aquifer system extends to a depth of approximately 1375 feet and includes the underlying Eocene age Ocala Group limestone and upper portion of the Eocene age Avon Park limestone.

SOURCES:

Enginnering Report In Support of
FDEP Construction/Operation
Permit Application
Phase II Gypsum Stack Expansion
New Wales Plant
IMC Phosphate Company
April 30, 2001
Ardaman & Associates, Inc. p. 4-10.

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INNOVATION ENVIRONMENTAL PARK

STRATIGRAPHY IN SITE VICINITY

SCALE:	DRAWN BY:	DRAWING NO:
1" = XXX'	TMG	G-5
DATE: 09/12/09	DESIGN BY: TMG	
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D:\ARCDATA\InnovationEnvPark\G-5 Stratigraphy in Site Vicinity

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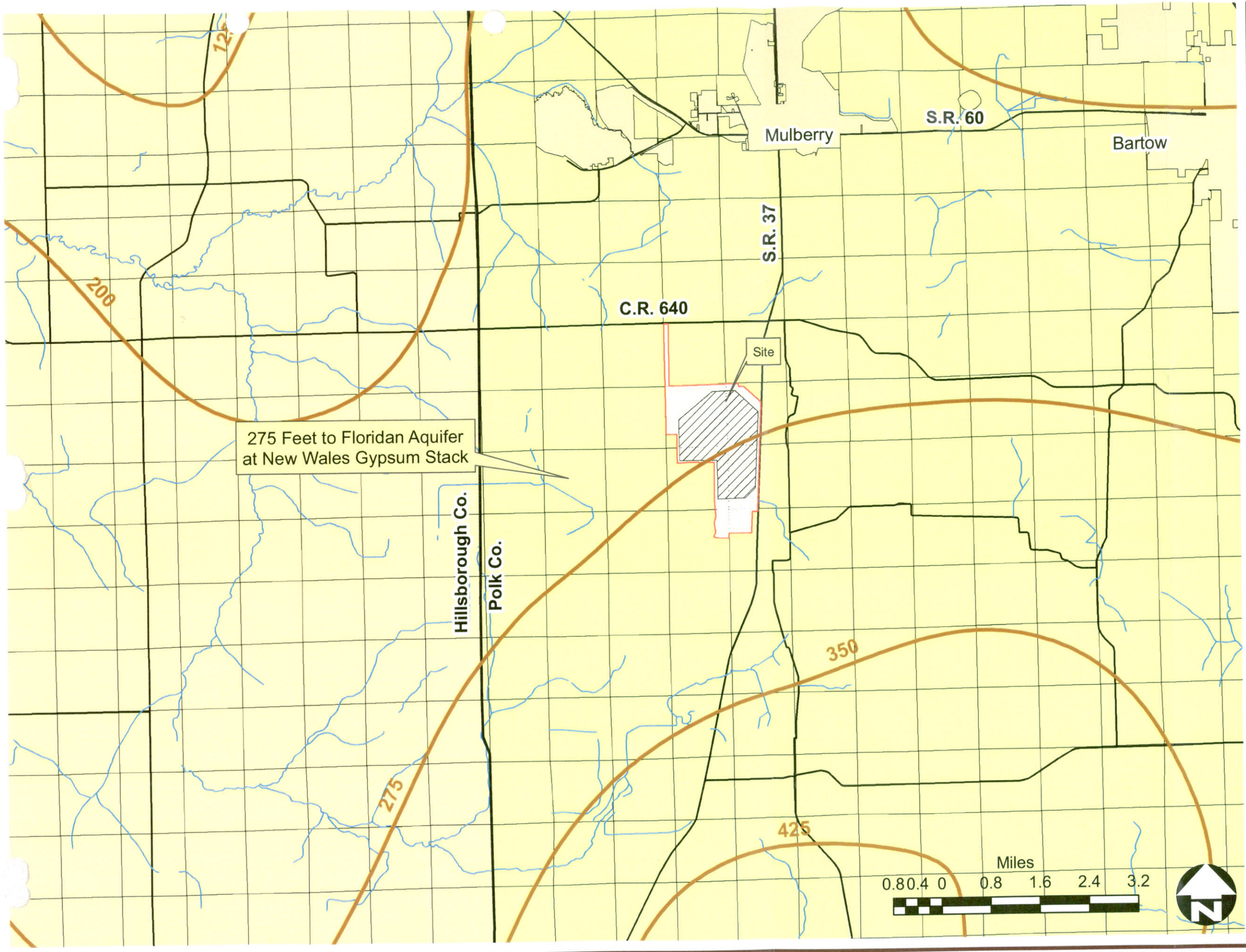

LEGEND

- Site Boundary
- Landfill Foot Print
- Depth to Floridan Aquifer (Feet)
- Streams
- Roads
- Sections
- Municipalities
- County Boundaries

SOURCES:

MODIFIED FROM:
Arthur J, etal, 2007 Hydrogeologic Framework of the Southwest Florida Water Management District: Tallahassee, Florida Geological Survey Bulletin 68,
Spechler and Kroening, 2007,
and Ardaman & Associates 2001.
FGDL Polk Core, Hillsborough Core

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INNOVATION ENVIRONMENTAL PARK

GENERALIZED DEPTH TO FLORIDAN AQUIFER (FEET)

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DATE: 09/12/09	DESIGN BY: TMG	
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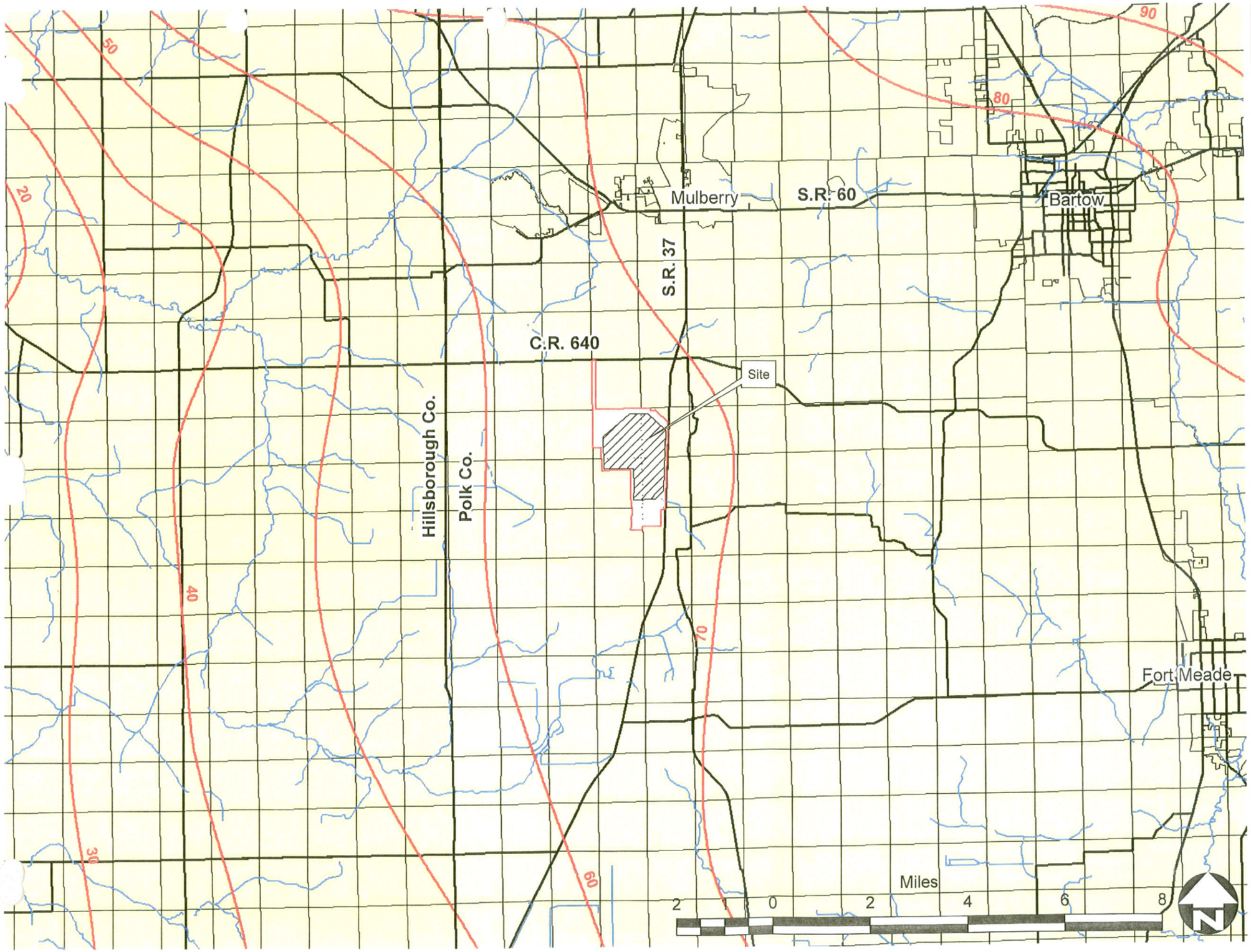

LEGEND

- Landfill Foot Print
- Site Boundary
- County Boundaries
- FL Aquifer Sept 2008 Elev
- Streams
- Roads
- Sections
- Municipalities

SOURCES:
SWFWMD GIS POT MAPS
FGDL Polk Core, Hillsborough Core

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INNOVATION ENVIRONMENTAL PARK

FLORIDAN AQUIFER POTENTIOMETRIC ELEVATION SEPTEMBER 2008

SCALE: 1" = XXX'	DRAWN BY: TMG	DRAWING NO: G-8
DATE: 09/12/09	DESIGN BY: TMG	
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D:\ARCDATA\InnovationEnvPark\IG-08_FLAQPot Sept 2008

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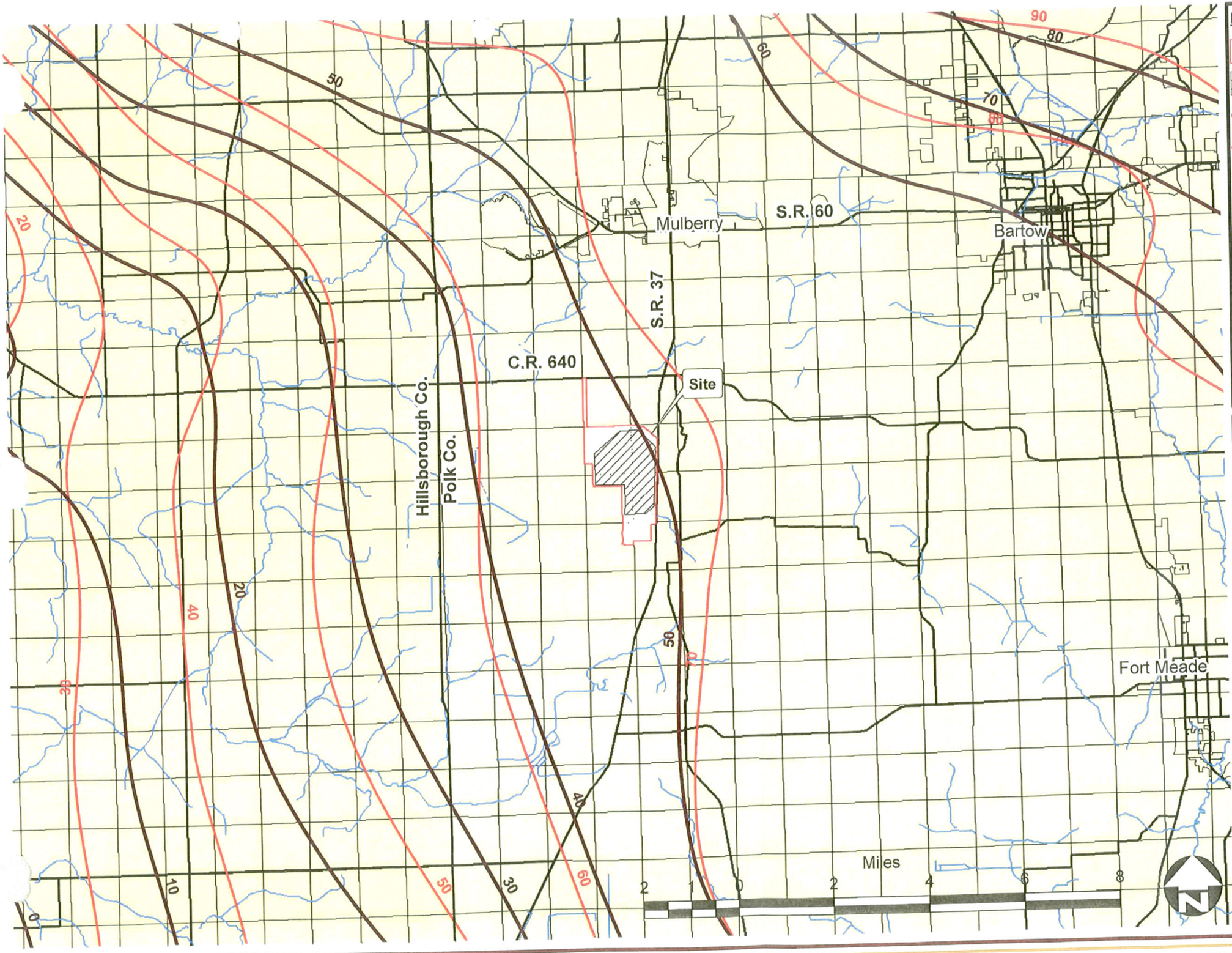

LEGEND

- Site Boundary
- Landfill Foot Print
- FL Aquifer May 2008 Elev
- FL Aquifer Sept 2008 Elev
- Streams
- Roads
- Sections
- Municipalities
- County Boundaries

SOURCES:
SWFWMD - BASE AERAL (2008)
POLK COUNTY PROPERTY APPRAISER - PARCELS (08/17/09)

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INNOVATION ENVIRONMENTAL PARK

FLORIDAN AQUIFER POTENTIOMETRIC ELEVATION SEPTEMBER vs MAY 2008

SCALE: 1" = XXX'	DRAWN BY: TMG	DRAWING NO: G-9
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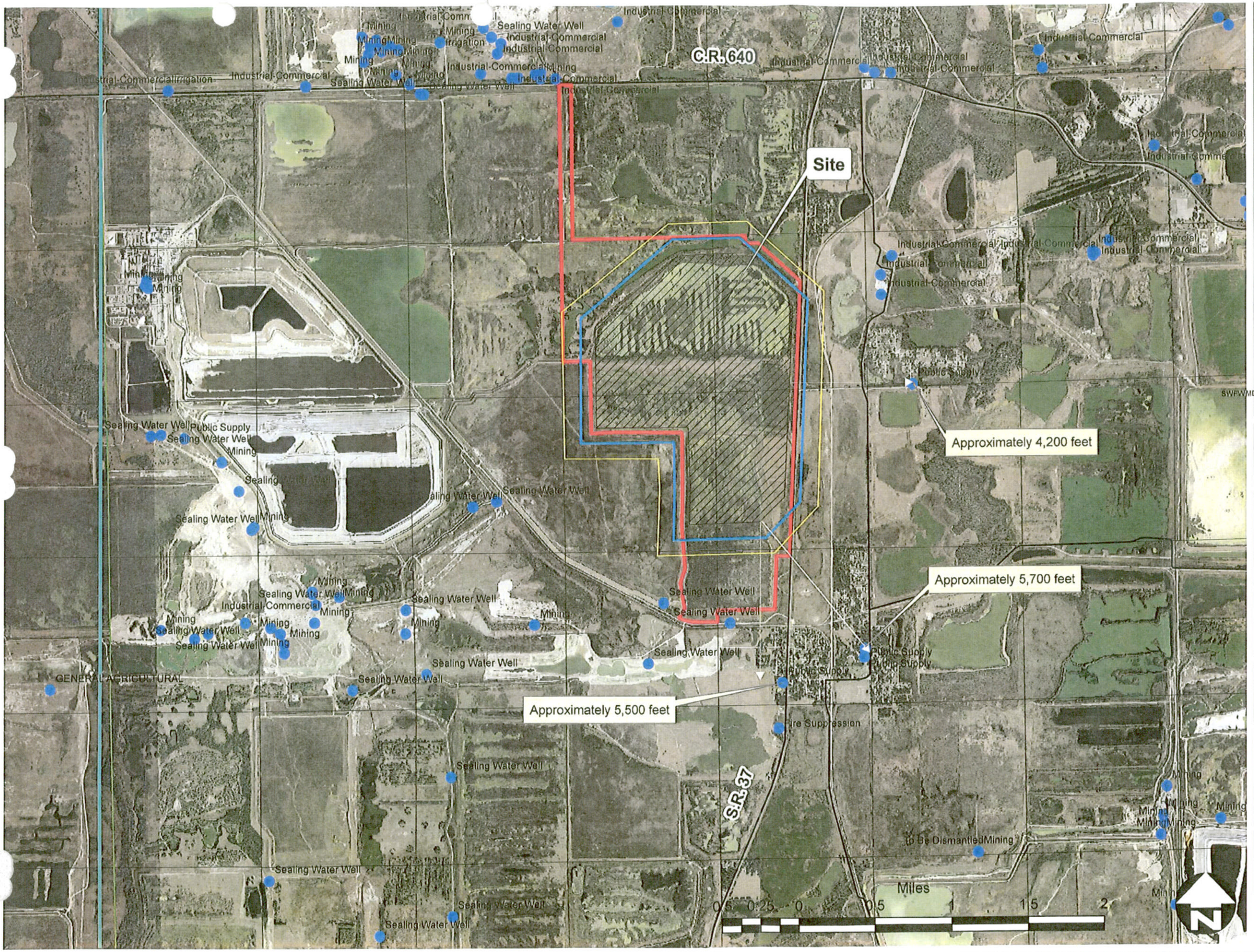

LEGEND

- Site Boundary
- Landfill Foot Print
- Landfill_FP+500 Feet
- Landfill_FP+1000 Feet
- WUP Wells
- Roads
- Sections
- County Boundaries

SOURCES:
SWFWMD GIS, Aerial Photograph 2008
FDGL Polk Core

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INNOVATION ENVIRONMENTAL PARK

WELLS IN VICINITY OF SITE

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D:\ARCDATA\InnovationEnvPark\G-10 Area Wells