

9.0 ELECTRICAL TRANSMISSION LINES

Tampa Electric is seeking certification for linear facilities associated with the proposed Polk 2-5 Conversion Project at PPS. The linear facilities discussed within this chapter are 230-kV transmission lines. In this application, Tampa Electric is seeking certification of two new transmission line corridors, referred to as the Polk-Fishhawk Preferred Corridor and the Polk-Pebbledale Preferred Corridor. Figure 9.0.0-1 depicts the general location of the Project and corridors. New transmission facilities are required to serve the Project. The new transmission facilities will deliver approximately 500 MW of new generation from the Polk 2-5 Conversion Project to the state's electric grid. The proposed corridors generally follow Tampa Electric rights-of-way or other existing linear facilities from Polk to the various substations identified in the following paragraphs.

A new, single-circuit, 230-kV electric transmission line is needed to connect PPS to the existing Mines substation located near the intersection of SR 674 and CR 39 in Hillsborough County and then to the proposed Aspen switching station located near the intersection of CR 672 and Balm-Boyette Road. Two new separate 230-kV transmission lines (both located within the Polk-Fishhawk Preferred Corridor) are needed to connect the proposed Aspen switching station to the existing Fishhawk substation located near the intersection of Fishhawk Boulevard and Boyette Road. A new 230-kV line is also proposed north from PPS to connect to an existing 230-kV transmission line located to the east of Bradley Junction in Polk County (Polk-Pebbledale Preferred Corridor). Approximately 32.4 miles of transmission corridors are being proposed (26.9 miles from Polk to Fishhawk and 5.5 miles from Polk north to east of Bradley Junction). Figure 9.0.0-2 provides the general location of these corridors within the Project vicinity.

The corridors and their widths proposed for certification in this application are depicted in more detail on Figure 9.0.0-3. The following provides the distances of each of the corridor segments proposed in this application. More detailed aerial photographs and maps of the proposed corridors (Subsection 9.1) are found at the end of this chapter:

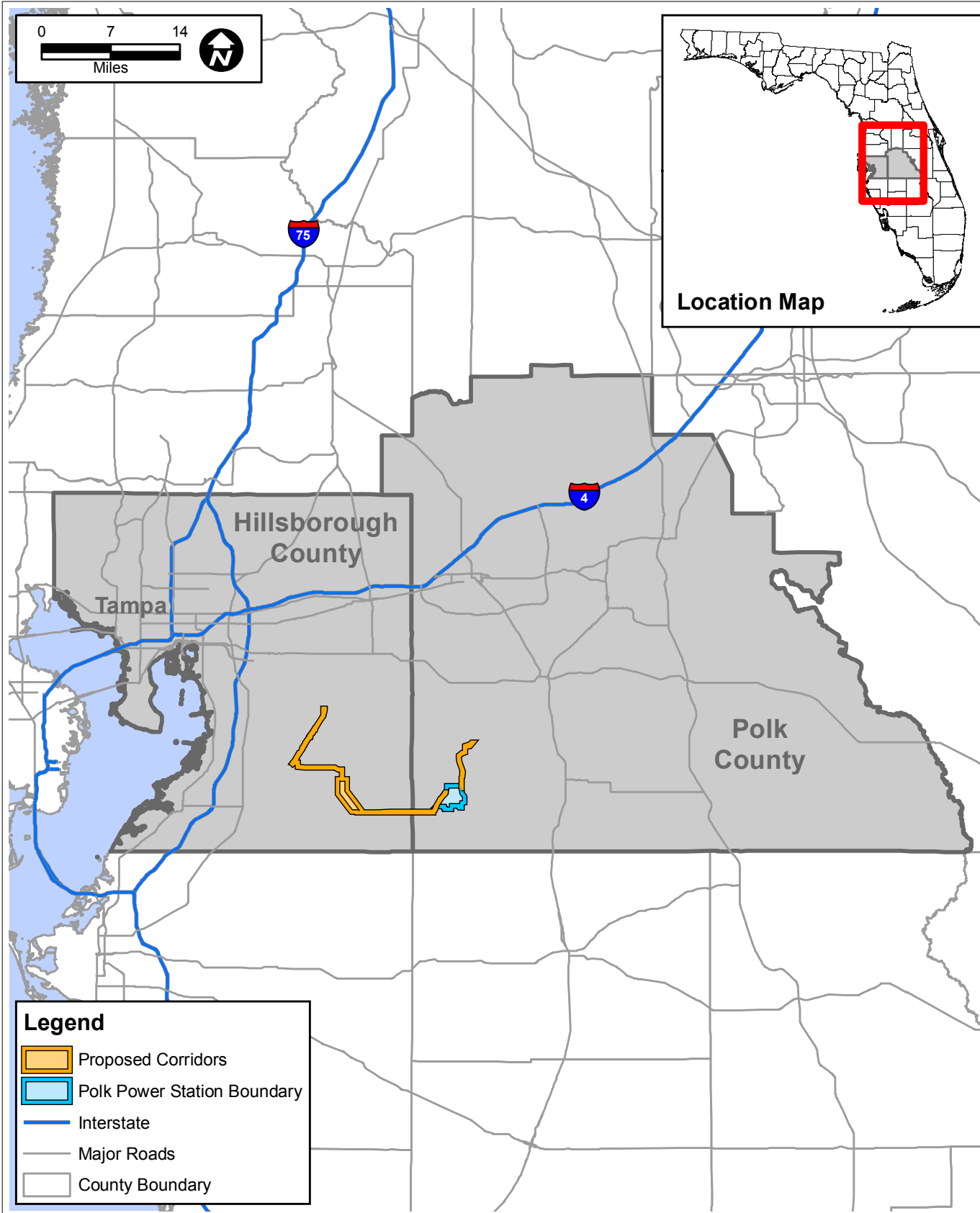


FIGURE 9.0.0-1.
LOCATION OF PROJECT AREA

Sources: FGDL, 2000; TECO, 2012; ECT, 2012.



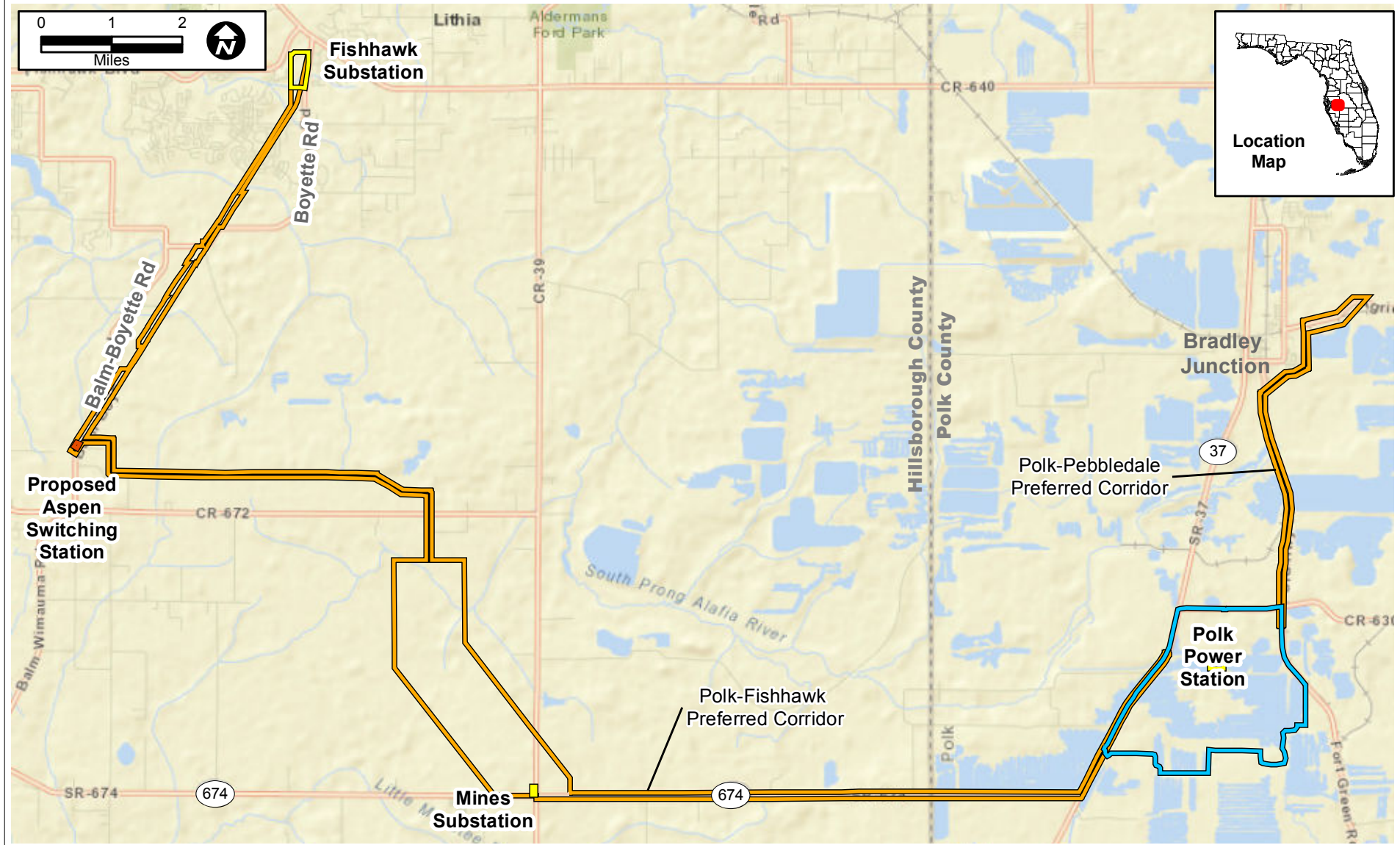


FIGURE 9.0.0-2.
PREFERRED CORRIDORS ALIGNMENT

Legend

- Polk Power Station Boundary
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Preferred Corridors

Sources: ESRI, 2012; TECO, 2012; ECT, 2012.

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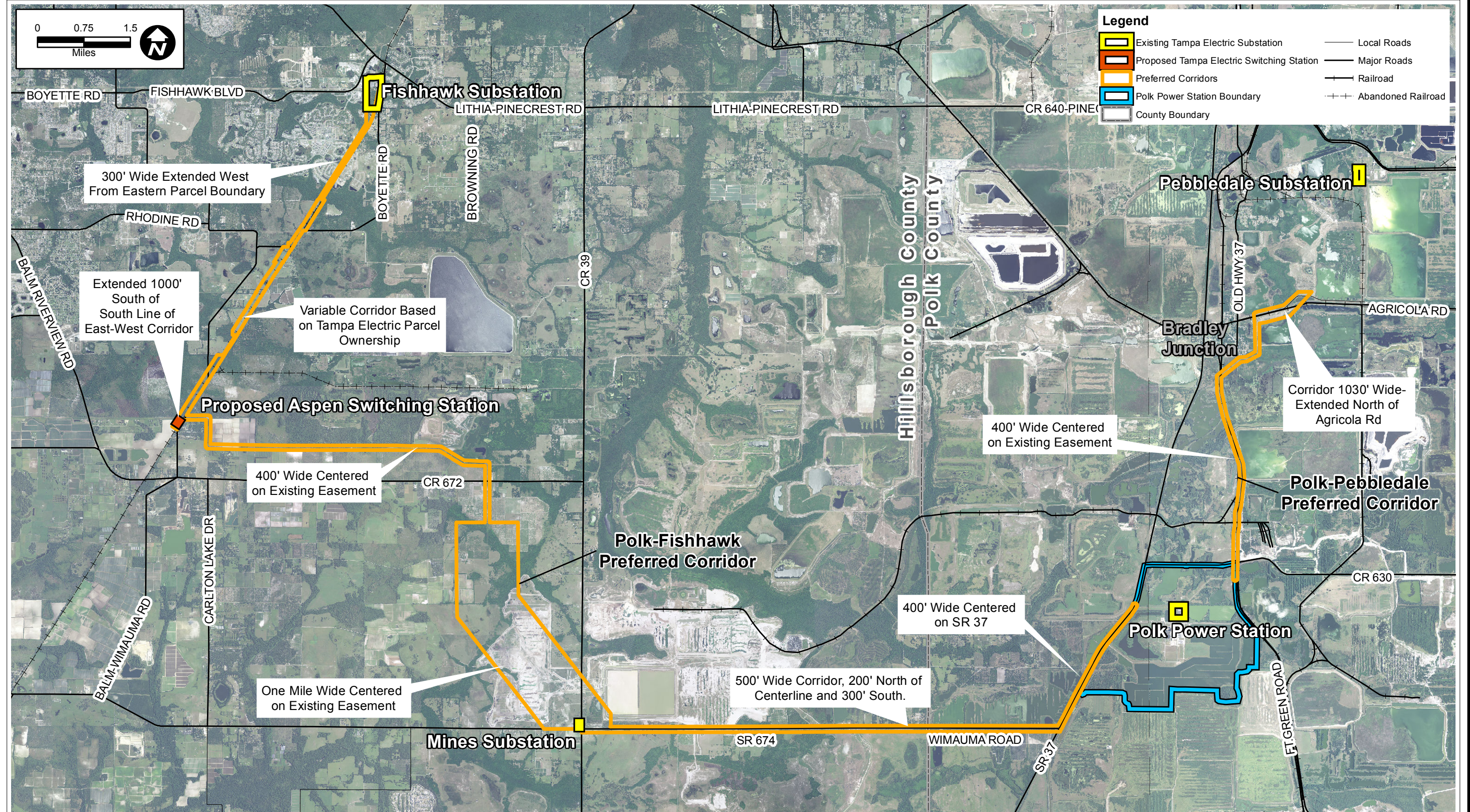


FIGURE 9.0.0-3.
PROJECT PREFERRED CORRIDORS

Sources: USDA, 2010; FDOT, 2011; Federal RR Administration, 2011; TEC, 2012; ECT, 2012.



- Polk-Pebbledale: 5.5 miles.
- Polk-Mines: 9.8 miles.
- Mines-Aspen: 10.5 miles.
- Aspen-Fishhawk: 6.6 miles.

Final design of the transmission facilities will comply with COCs and will be determined based on local conditions and prudent technological options available at the time design is finalized. The proposed new transmission lines are anticipated to use an overhead design. Typical designs currently available that could be used where appropriate are depicted in this application.

9.1 MAPS

Detailed maps appear as follows at the end of this chapter for ease of reference:

- Figure 9.1.0-1 (Sheets 1 through 18)—Aerial Map.
- Figure 9.1.0-2 (Sheets 1 through 18)—Future Land Use Map.
- Figure 9.1.0-3 (Sheets 1 through 12)—Zoning Map.
- Figure 9.1.0-4 (Sheets 1 through 18 and key)—Land Cover/Vegetation.

9.2 PROJECT DESCRIPTION

9.2.1 OVERVIEW

Tampa Electric is seeking certification of two new 230-kV transmission line corridors. The Polk-Fishhawk transmission line will be a new, mostly single-circuit 230-kV transmission line, to be built on a right-of-way of variable width within the Preferred Corridor. A portion of the new corridor will connect the PPS switchyard in Polk County to the existing Mines substation in Hillsborough County. The Mines substation is located at the intersection of CR 39 and SR 674 (Wimauma Road), an area also known as Fort Lonesome. From the Mines substation, the Polk-Fishhawk Preferred Corridor will connect to a new switching station known as Aspen (located near the intersection of CR 672 and Balm-Boyette Road) within or adjacent to existing transmission line easements. From Aspen to the existing Fishhawk substation (located just south of CR 640 [Lithia-Pinecrest Road] and east of Fishhawk Boulevard) within existing Tampa Electric fee-owned right-of-way, there will be two new 230-kV transmission lines. Figure 9.0.0-3 depicts the Polk-Fishhawk Preferred Corridor, which has a total length of 26.9 miles and a width varying from 300 ft to 1 mile.

The Polk-Pebbledale Preferred Corridor will connect the PPS switchyard northwest and north to an existing transmission line easement located near an unincorporated area of Polk County known as Bradley Junction (Pebbledale tie-in). A new 230-kV transmission line will be located within or adjacent to an existing transmission line located west of Old Highway 37. Figure 9.0.0-3 depicts this portion of the Polk-Pebbledale Preferred Corridor, which has a total length of 5.5 miles and a width varying from 400 to approximately 1,030 ft.

The Polk-Fishhawk and Polk-Pebbledale transmission lines are scheduled to be in service by late 2016.

9.2.2 NEED FOR THE LINES

A summary of the need for the entire proposed Polk 2-5 Conversion Project is provided in Chapter 2.0 of this SCA. Specifically for the transmission improvements needed, Tampa Electric has completed stability, short-circuit, and power flow studies to determine the impact of the interconnection and integration of the proposed Project to the bulk electric system. The studies indicate two new 230-kV transmission circuits, three new 230-kV circuit breakers, and a generator step-up transformer will be required to interconnect the new generation to the PPS substation. In addition, new 230-kV transmission lines and upgrades to other 230-kV transmission lines will be required to integrate the Polk 2-5 Conversion Project into the bulk electric system. A total of 16 circuit breakers, associated bus work, and a 69-kV circuit breaker will also need to be upgraded as well as the addition of a switched reactor.

These additions will reliably interconnect and integrate the Project into the bulk electric system. In addition Tampa Electric customers will benefit by the increased import and export capability, reduced exposure to multicircuit structure outages, and improved reliability for the Central Florida region.

9.2.3 PROPOSED TRANSMISSION LINE DESIGN

The proposed transmission lines to be constructed will typically use unguyed steel poles embedded in the ground using concrete or crushed stone backfill. Table 9.2.3-1 provides a list and Figures 9.2.3-1 through 9.2.3-19 illustrate typical structures and cross-sections and their corresponding conductor profiles that are anticipated for use on the Polk 2-5 Conversion Project. In some areas, where warranted, special structures and conductor configurations may be required at specific locations, such as the crossings of major road intersections, or to accommodate

Table 9.2.3-1. Typical Transmission Structure Cross-Sections and Conductor Profiles for Polk 2-5 Conversion Project

Reference Figure	Right-of-Way Configuration	Typical Span Length (ft)	Potential Use Area
9.2.3-1	Typical 230-kV single-circuit with 69-kV under-build	700	• PPS plant site • Along SRs 37 and 674
9.2.3-2	Conductor profile, typical 230-kV single-circuit with 69-kV underbuild	700	• PPS plant site • Along SRs 37 and 674
9.2.3-3	Typical 230-kV single-circuit with 69-kV under-build, roadside	600	• Along SRs 37 and 674
9.2.3-4	Conductor profile, typical 230-kV single-circuit with 69-kV underbuild, roadside	600	• Along SRs 37 and 674
9.2.3-5	Typical 230-kV single-circuit with 69-kV under-build and distribution underbuild, roadside	500	• Along SR 674
9.2.3-6	Conductor profile, typical 230-kV single-circuit with 69-kV underbuild and distribution underbuild, roadside	500	• Along SR 674
9.2.3-7	Typical 230-kV single-circuit with 69-kV under-build, existing Tampa Electric 200-ft right-of-way	700	• Mines substation to Aspen switching station • Paralleling existing Tampa Electric line
9.2.3-8	Conductor profile, typical 230-kV single-circuit with 69-kV underbuild, existing Tampa Electric 200-ft right-of-way	700	• Mines substation to Aspen switching station • Paralleling existing Tampa Electric line
9.2.3-9	Typical 230-kV twin circuits with 69-kV under-build, existing Tampa Electric right-of-way	700, 1,000	• Aspen switching station to Fishhawk substation
9.2.3-10	Conductor profile, typical 230-kV twin circuits with 69-kV underbuild, existing Tampa Electric right-of-way	700	• Aspen switching station to Fishhawk substation
9.2.3-11	Conductor profile, typical 230-kV twin circuits with 69-kV underbuild, existing Tampa Electric right-of-way	1000	• Aspen switching station to Fishhawk substation
9.2.3-12	Typical 230-kV twin circuits with 69-kV under-build, existing Tampa Electric right-of-way	700, 1,000	• Aspen switching station to Fishhawk substation
9.2.3-13	Conductor profile, typical 230-kV twin circuits with 69-kV underbuild, existing TEC right-of-way	700	• Aspen switching station to Fishhawk substation
9.2.3-14	Conductor profile, typical 230-kV twin circuits with 69-kV underbuild, existing Tampa Electric right-of-way	1,000	• Aspen switching station to Fishhawk substation

Table 9.2.3-1. Typical Transmission Structure Cross-Sections and Conductor Profiles for Polk 2-5 Conversion Project (Continued, Page 2 of 2)

Reference Figure	Right-of-Way Configuration	Typical Span Length (ft)	Potential Use Area
9.2.3-15	Typical 230-kV twin single pole, double circuits, existing Tampa Electric right-of-way	700, 1,000	Aspen switching station to Fishhawk substation
9.2.3-16	Typical 230-kV twin single pole, double circuits, existing Tampa Electric right-of-way	700	Aspen switching station to Fishhawk substation
9.2.3-17	Typical 230-kV twin single pole, double circuits, existing Tampa Electric right-of-way	1000	Aspen switching station to Fishhawk substation
9.2.3-18	Typical 230-kV single-circuit with 69-kV under-build, existing Tampa Electric 150-ft right-of-way	700	PPS to Pebbledale
9.2.3-19	Conductor profile, typical 230-kV single-circuit with 69-kV underbuild, existing Tampa Electric 150-ft right-of-way	700	PPS to Pebbledale

Sources: Black & Veatch, 2012.
ECT, 2012.

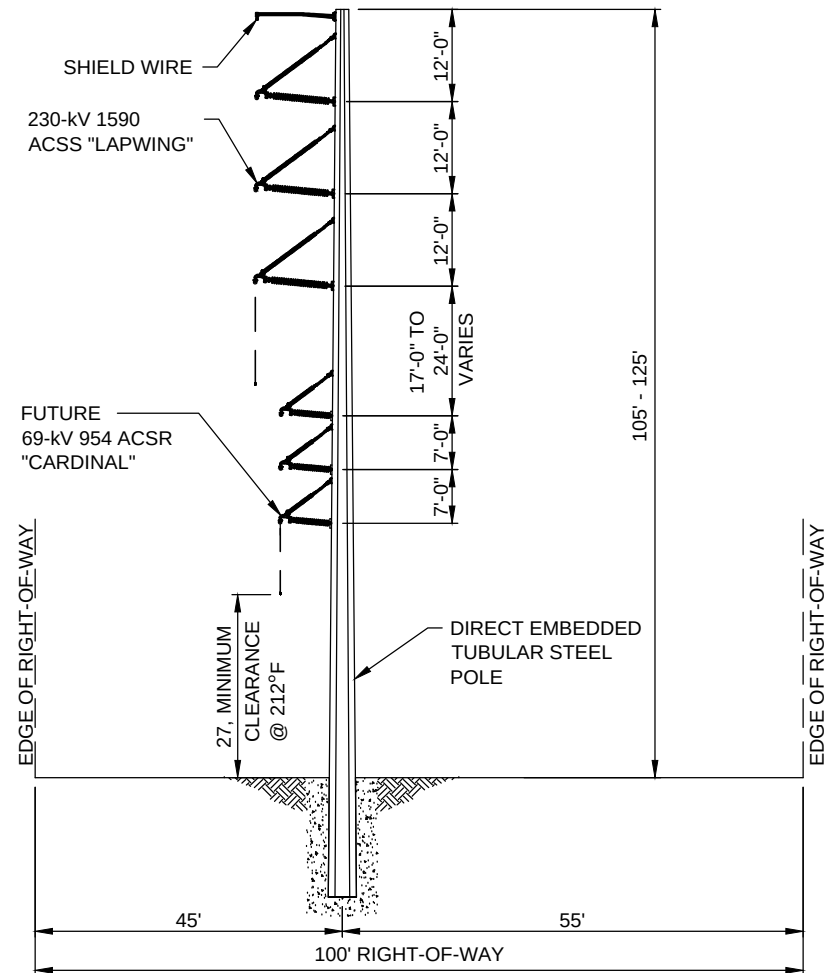
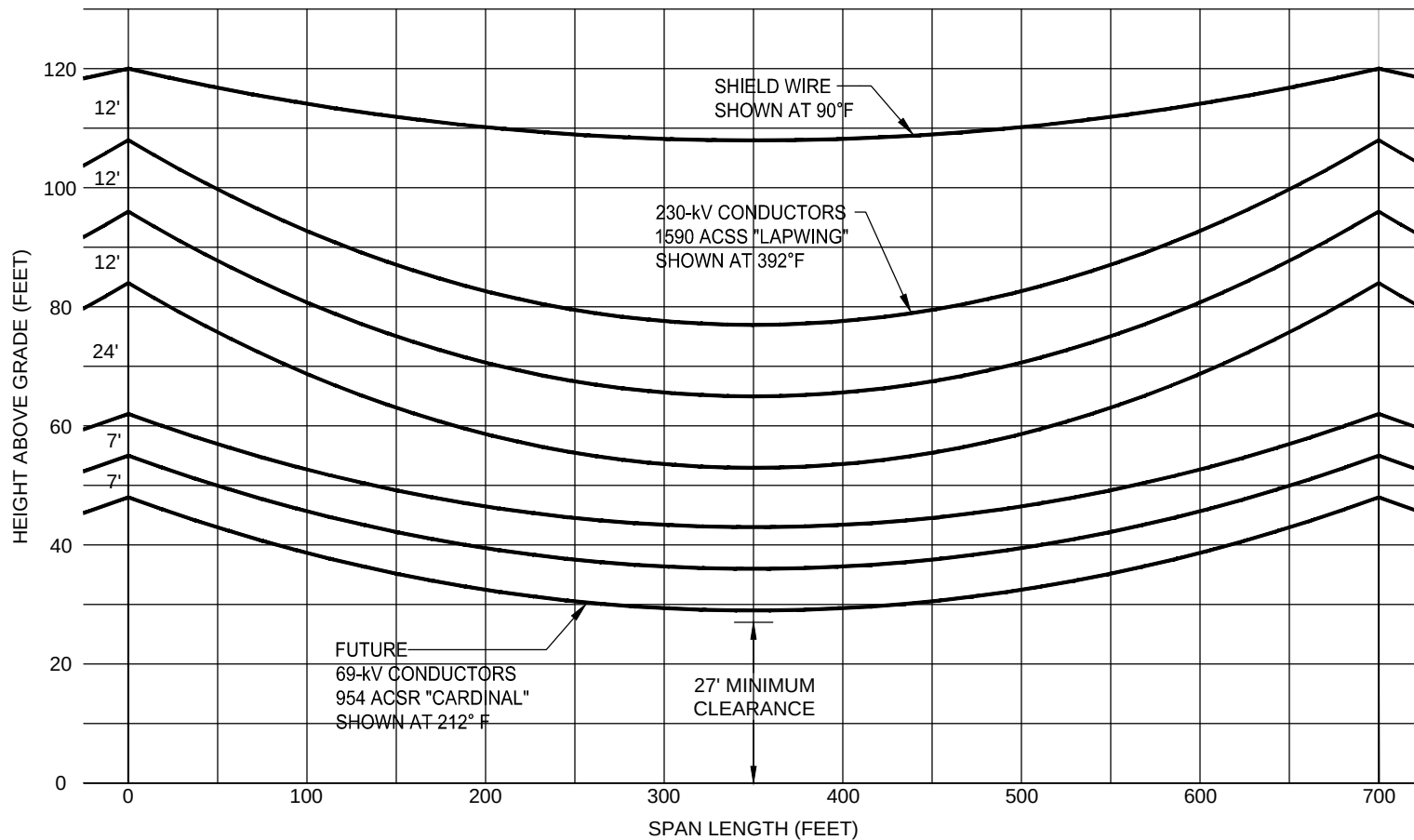


FIGURE 9.2.3-1.
TYPICAL 230-kV SINGLE CIRCUIT WITH 69-kV UNDERBUILD

Source: Black & Veatch, 2012; ECT, 2012.



NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 700' AND
POLE HEIGHTS OF 120' ABOVE GRADE. MIDSPAN
CLEARANCES ALONG THE LINE WILL VARY DEPENDING
ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN
STRUCTURES.

SCALE:
VERT. 1" = 30'
HORIZ. 1" = 100'

FIGURE 9.2.3-2 .
CONDUCTOR PROFILE, 700-FT SPAN
TYPICAL 230-kV SINGLE CIRCUIT WITH 69-kV UNDERBUILD

Source: Black & Veatch, 2012; ECT, 2012.



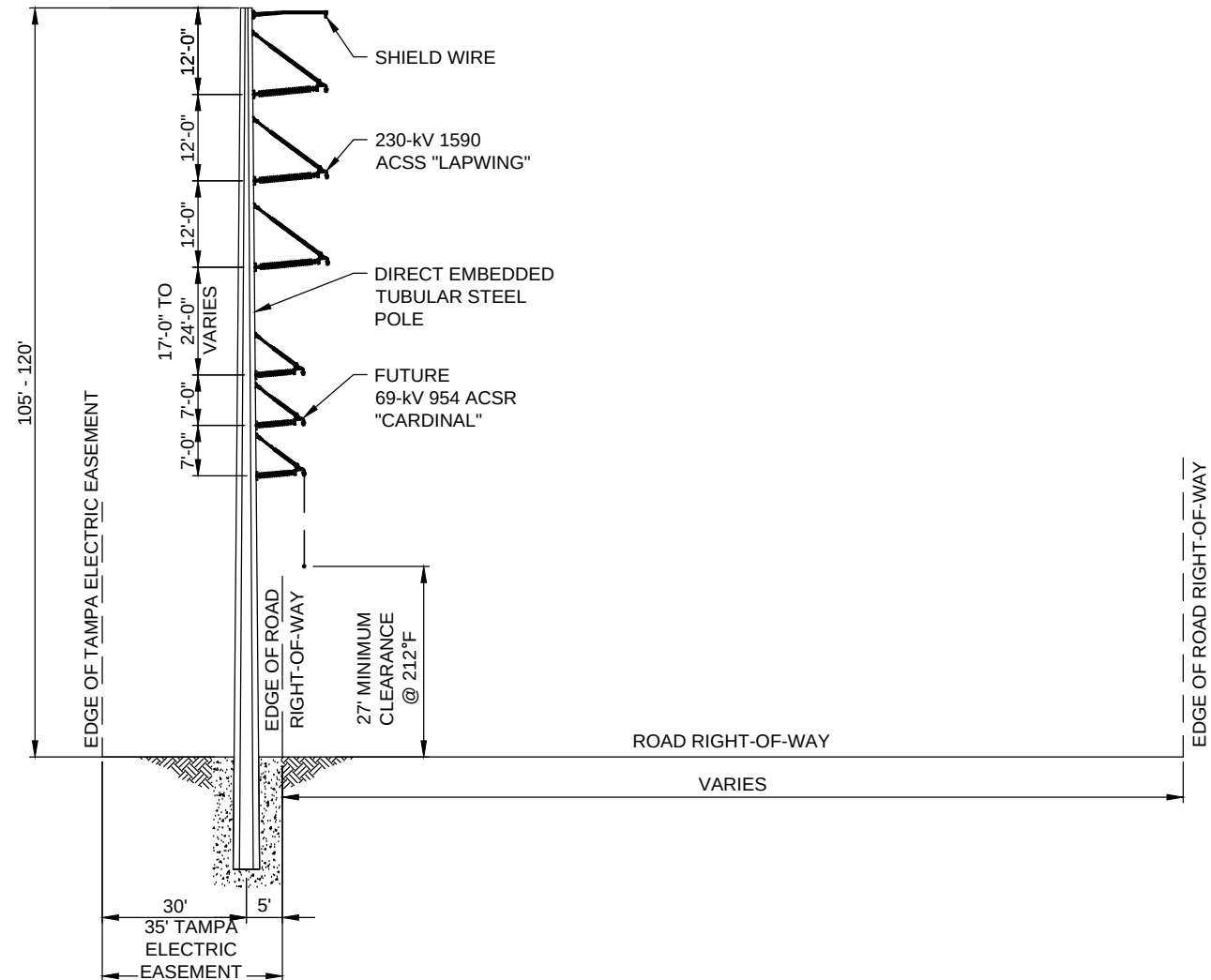
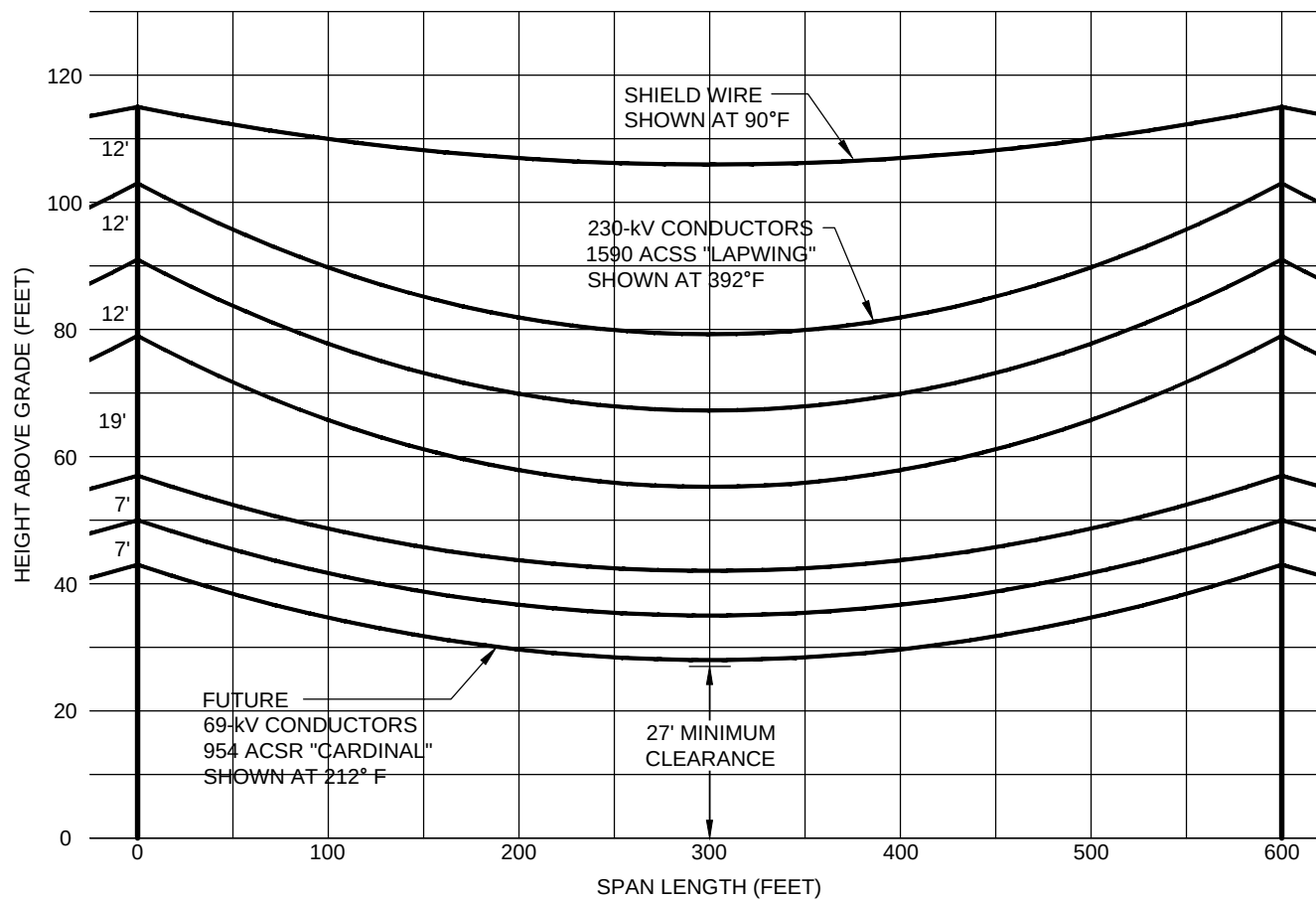


FIGURE 9.2.3-3.
TYPICAL 230-kV SINGLE CIRCUIT WITH 69-kV UNDERBUILD, ROADSIDE

Source: Black & Veatch, 2012; ECT, 2012.





NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 600' AND
POLE HEIGHTS OF 115' ABOVE GRADE. MIDSPAN
CLEARANCES ALONG THE LINE WILL VARY DEPENDING
ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN
STRUCTURES.

SCALE:
VERT. 1" = 30'
HORIZ. 1" = 100'

FIGURE 9.2.3-4.
CONDUCTOR PROFILE, 600-FT SPAN
TYPICAL 230-kV SINGLE CIRCUIT WITH 69-kV UNDERBUILD, ROADSIDE

Source: Black & Veatch, 2012; ECT, 2012.



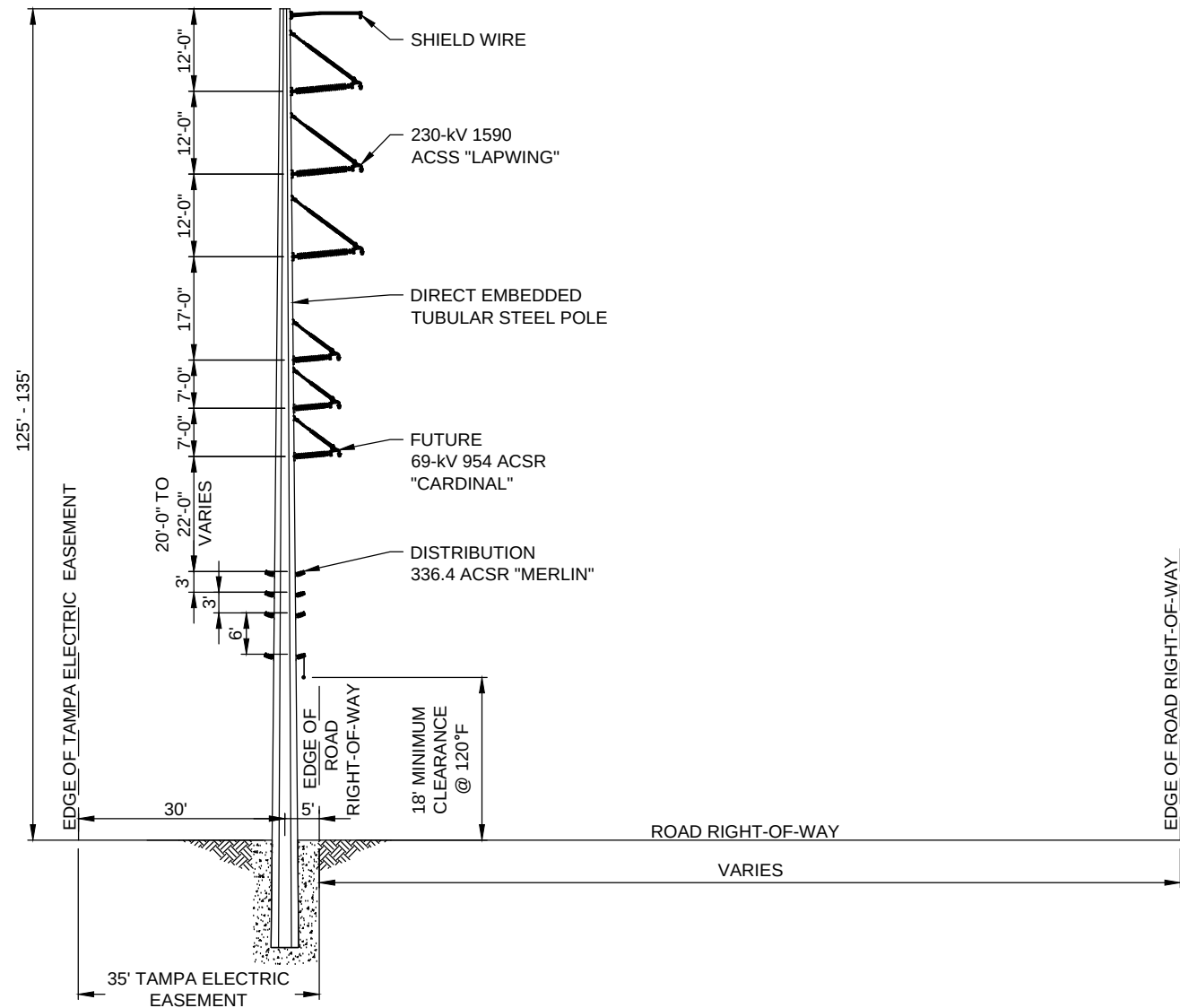
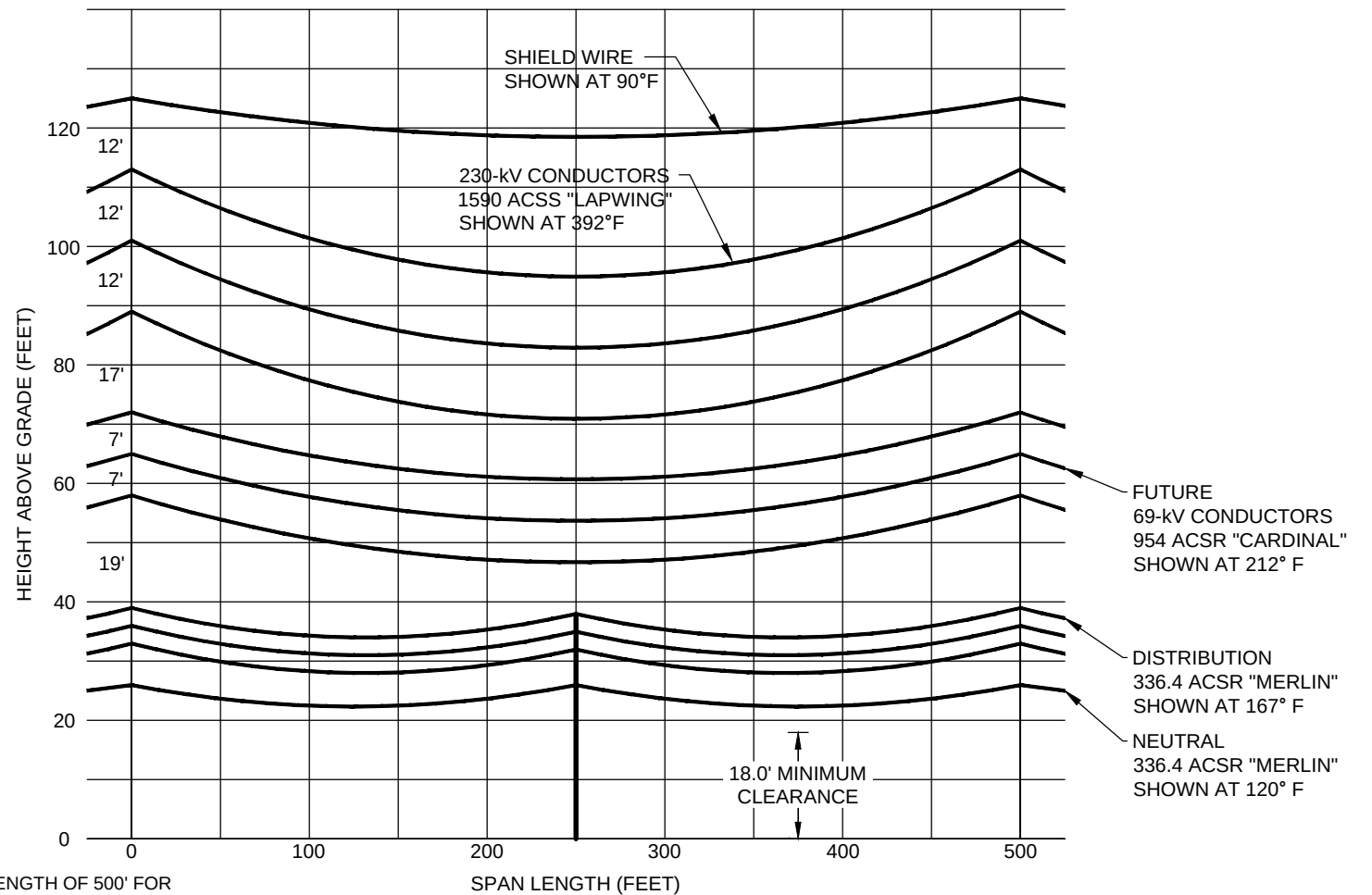


FIGURE 9.2.3-5.

TYPICAL 230-kV SINGLE CIRCUIT WITH 69-kV UNDERBUILD AND DISTRIBUTION
UNDERBUILD, ROADSIDE

Source: Black & Veatch, 2012; ECT, 2012.





NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 500' FOR TRANSMISSION CONDUCTORS AND 250' FOR DISTRIBUTION CONDUCTORS WITH POLE HEIGHTS OF 125' ABOVE GRADE FOR TRANSMISSION LINE STRUCTURES AND 38.5' ABOVE GRADE FOR DISTRIBUTION LINE STRUCTURES. MIDSPAN CLEARANCES ALONG THE LINE WILL VARY DEPENDING ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN STRUCTURES.

SCALE:
VERT. 1" = 30'
HORIZ. 1" = 100'

FIGURE 9.2.3-6.
CONDUCTOR PROFILE, 500-FT SPAN TYPICAL 230-kV SINGLE CIRCUIT
WITH 69-kV UNDERBUILD AND DISTRIBUTION UNDERBUILD, ROADSIDE

Source: Black & Veatch, 2012; ECT, 2012.



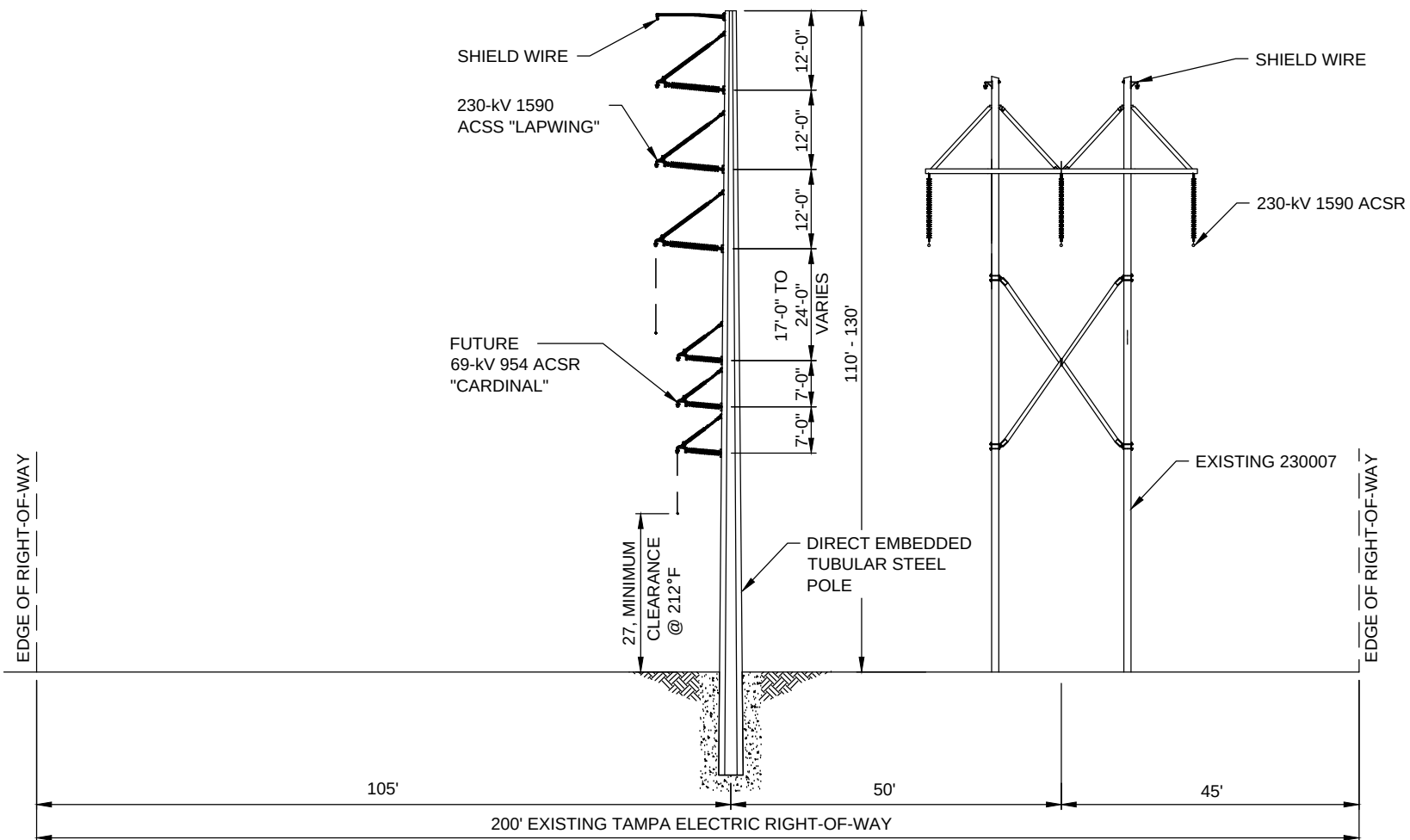
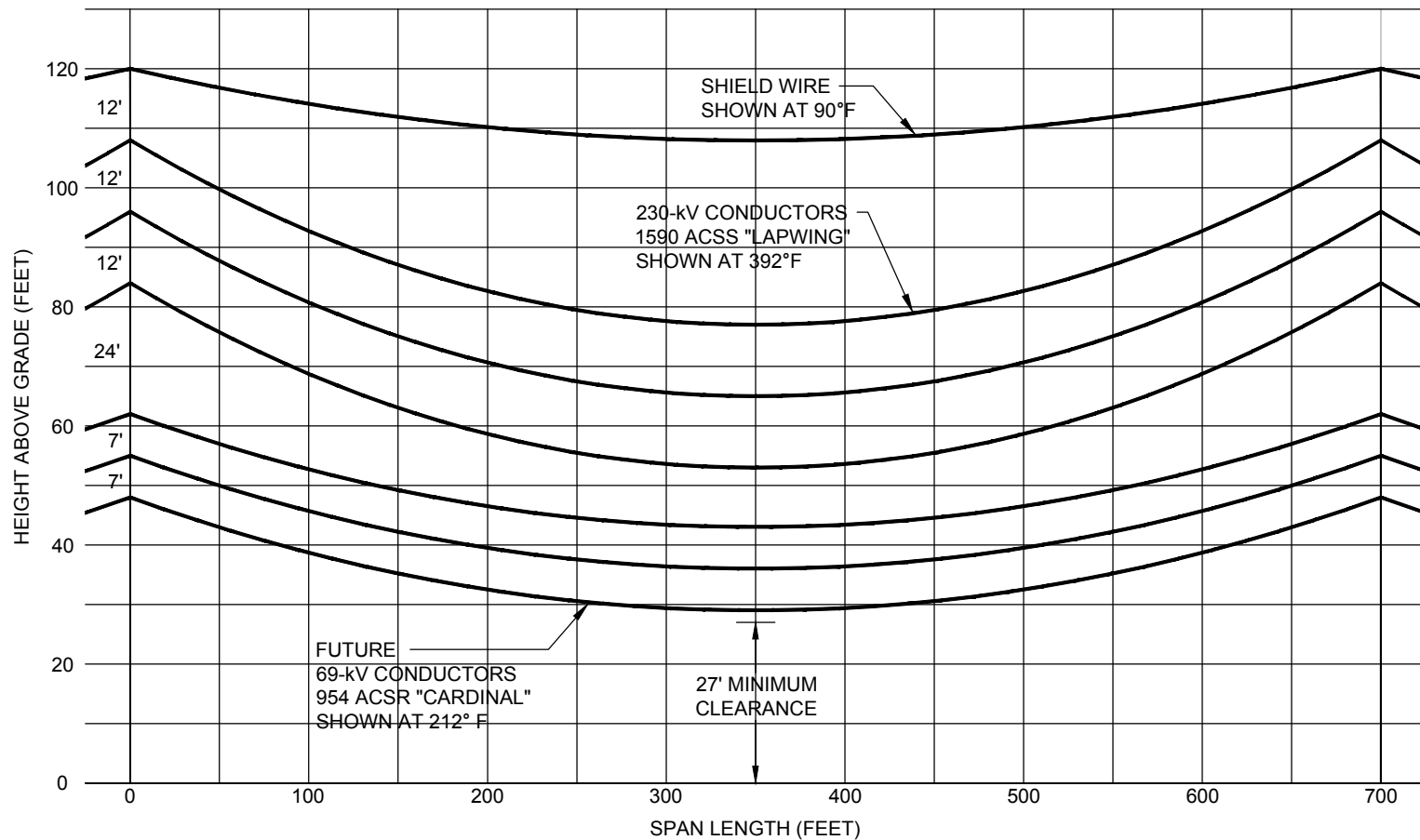


FIGURE 9.2.3-7.

TYPICAL 230-kV SINGLE CIRCUIT WITH 69-kV UNDERBUILD,
EXISTING TAMPA ELECTRIC 200-FT RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.





NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 700' AND
POLE HEIGHTS OF 120' ABOVE GRADE. MIDSPAN
CLEARANCES ALONG THE LINE WILL VARY DEPENDING
ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN
STRUCTURES.

SCALE:
VERT. 1" = 30'
HORIZ. 1" = 100'

FIGURE 9.2.3-8.

CONDUCTOR PROFILE, 700-FT SPAN TYPICAL 230-kV SINGLE CIRCUIT WITH 69-kV UNDERBUILD
EXISTING TAMPA ELECTRIC 200-FT RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.



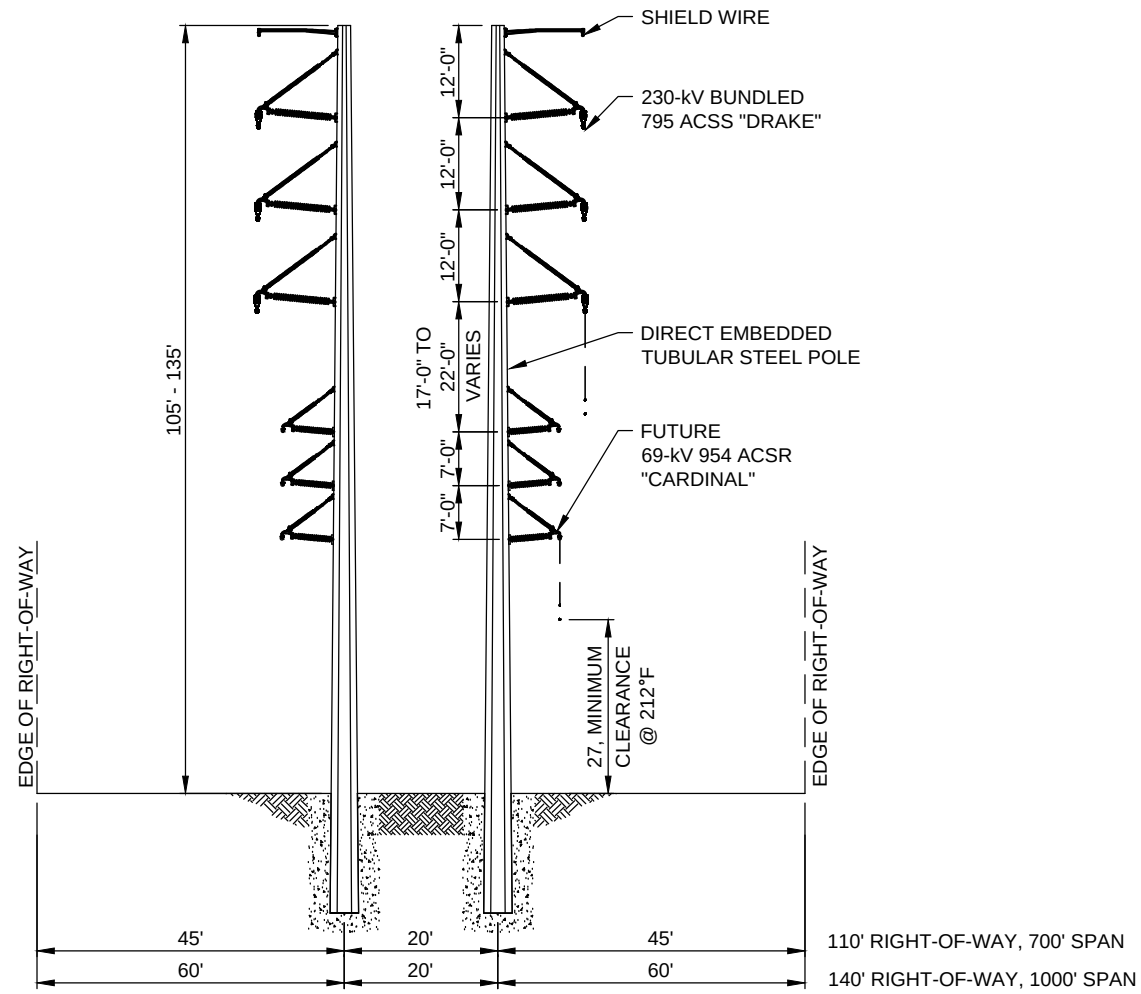
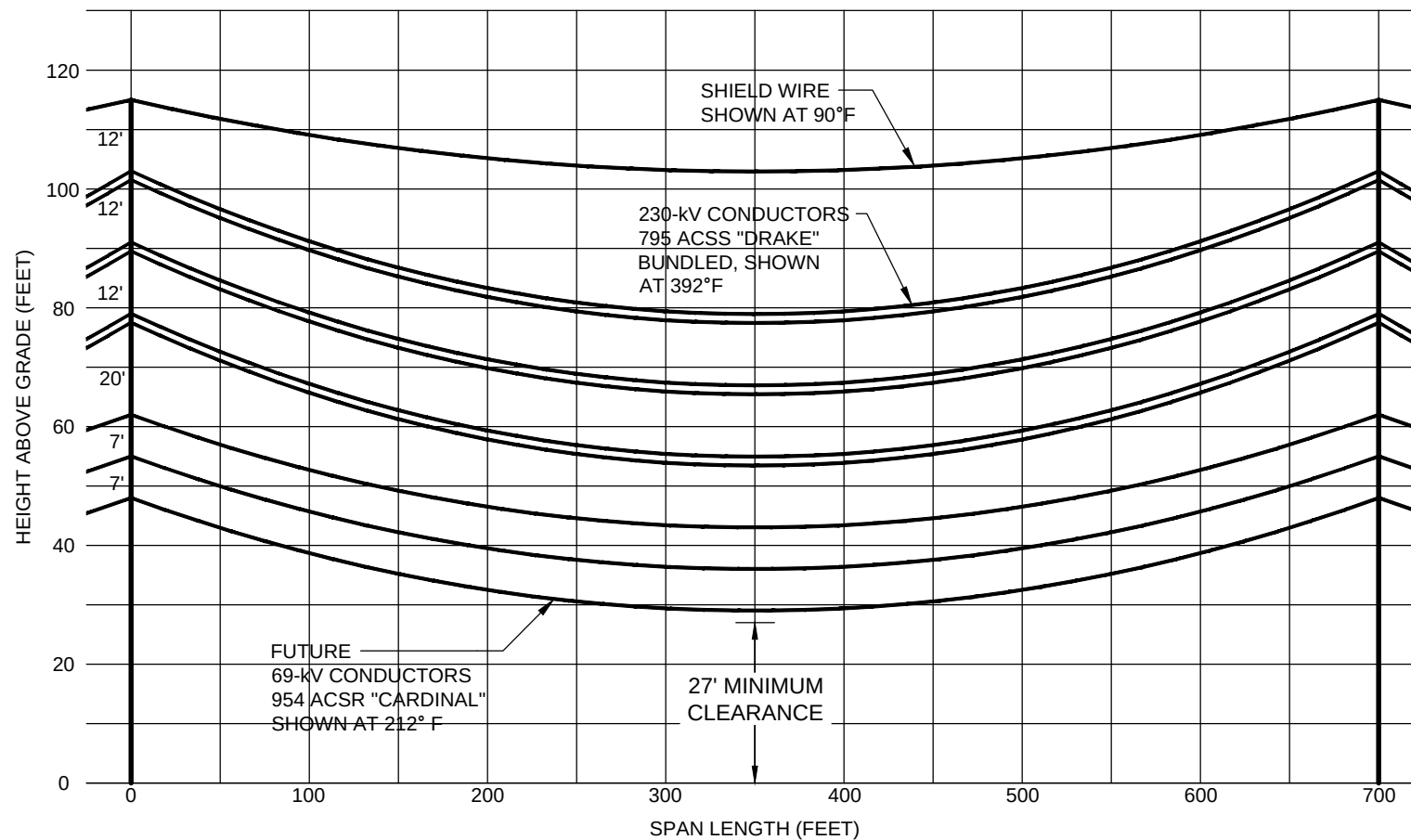


FIGURE 9.2.3-9.

TYPICAL 230-kV TWIN CIRCUITS WITH 69-kV UNDERBUILD,
EXISTING TAMPA ELECTRIC RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.





NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 700' AND
POLE HEIGHTS OF 115' ABOVE GRADE. MIDSPAN
CLEARANCES ALONG THE LINE WILL VARY DEPENDING
ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN
STRUCTURES.

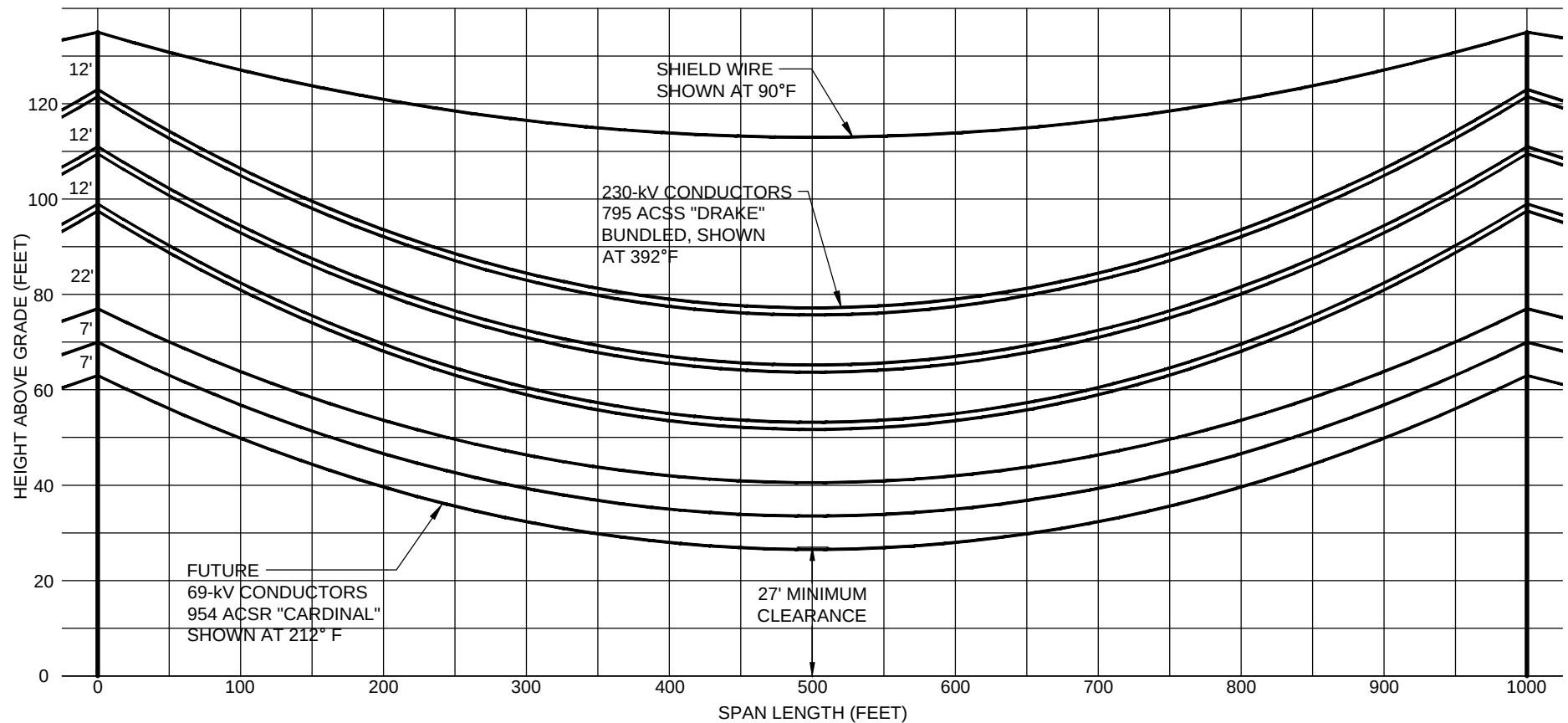
SCALE:
VERT. 1" = 30'
HORIZ. 1" = 100'

FIGURE 9.2.3-10.

CONDUCTOR PROFILE, 700-FT SPAN TYPICAL 230-kV TWIN CIRCUITS WITH 69-kV UNDERBUILD,
EXISTING TAMPA ELECTRIC RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.





NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 1000' AND
POLE HEIGHTS OF 135' ABOVE GRADE. MIDSPAN
CLEARANCES ALONG THE LINE WILL VARY DEPENDING
ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN
STRUCTURES.

SCALE:
VERT. 1" = NTS
HORIZ. 1" = NTS

FIGURE 9.2.3-11.

CONDUCTOR PROFILE, 1000-FT SPAN TYPICAL 230-kV TWIN CIRCUITS WITH 69-kV UNDERBUILD,
EXISTING TAMPA ELECTRIC RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.



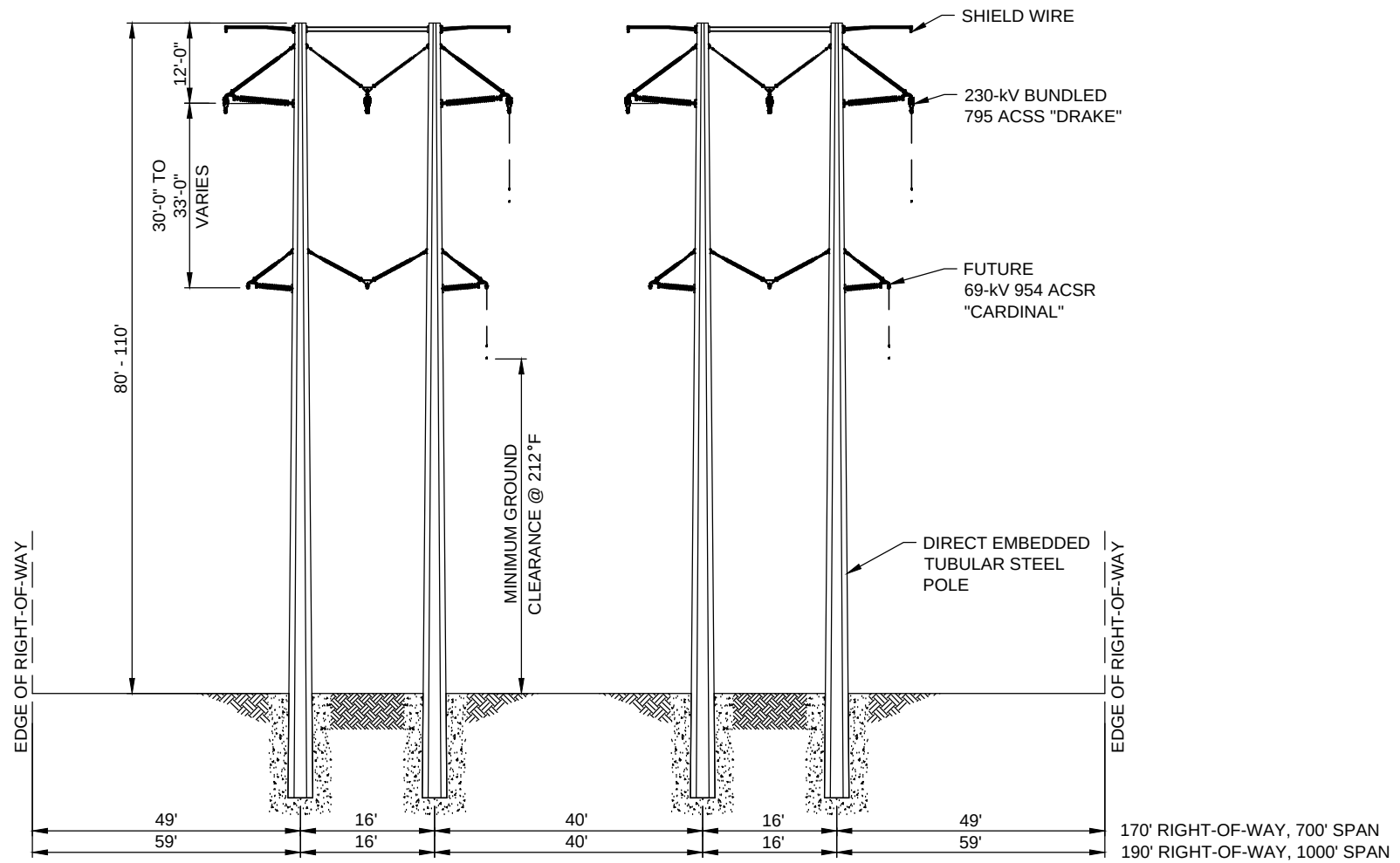
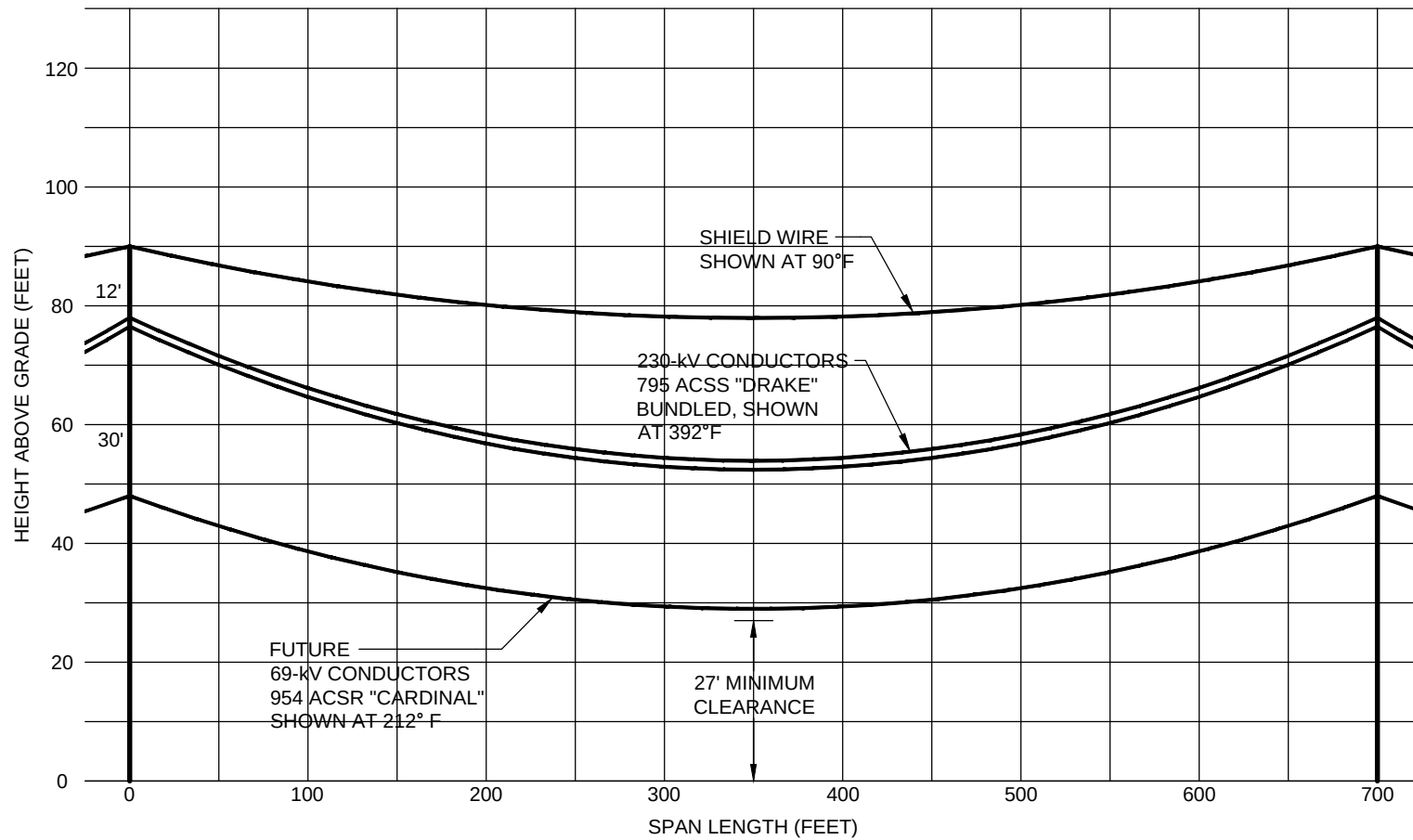


FIGURE 9.2.3-12.

TYPICAL 230-kV TWIN CIRCUITS WITH 69-kV UNDERBUILD,
EXISTING TAMPA ELECTRIC RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.





NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 700' AND
POLE HEIGHTS OF 90' ABOVE GRADE. MIDSPAN
CLEARANCES ALONG THE LINE WILL VARY DEPENDING
ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN
STRUCTURES.

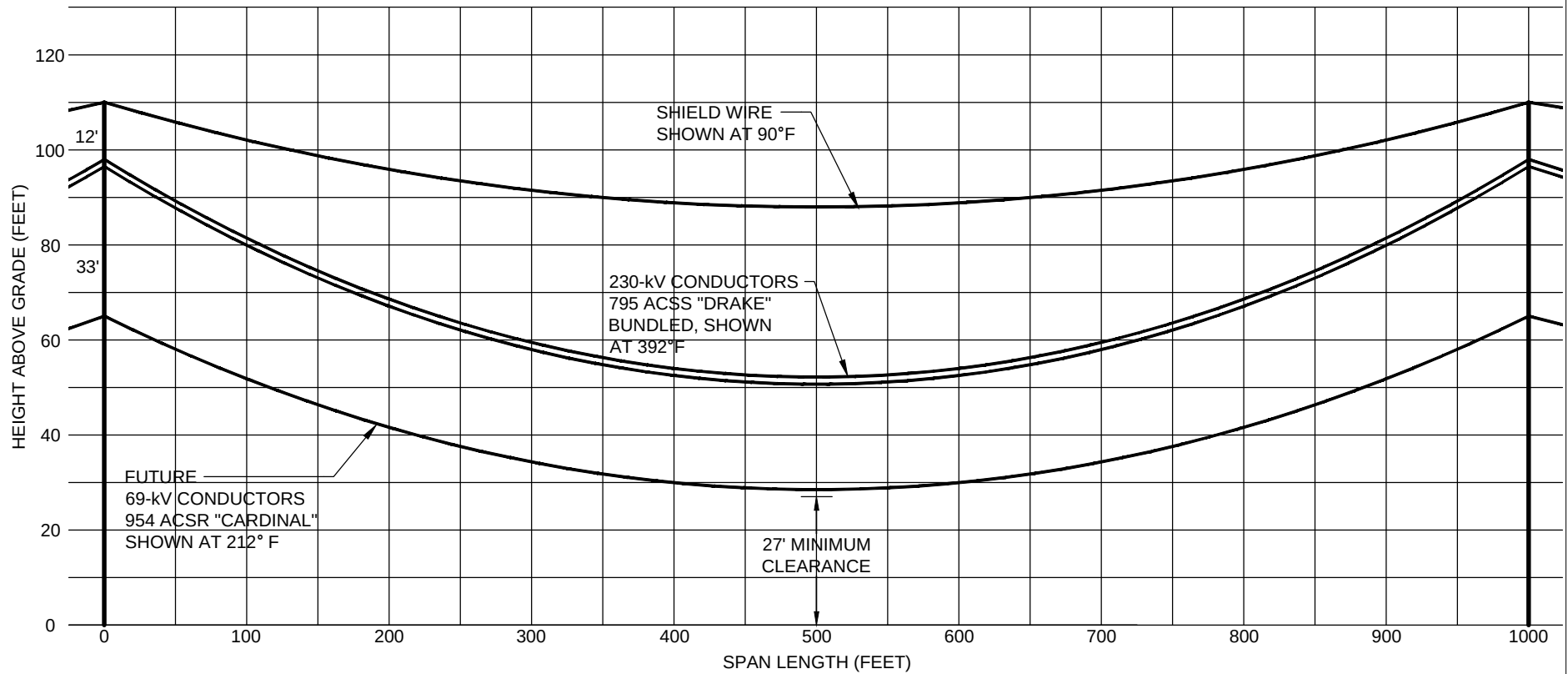
SCALE:
VERT. 1" = 30'
HORIZ. 1" = 100'

FIGURE 9.2.3-13

CONDUCTOR PROFILE, 700-FT SPAN TYPICAL 230-kV SINGLE CIRCUIT WITH 69-kV UNDERBUILD,
EXISTING TAMPA ELECTRIC RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.





NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 1000' AND
POLE HEIGHTS OF 110' ABOVE GRADE. MIDSPAN
CLEARANCES ALONG THE LINE WILL VARY DEPENDING
ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN
STRUCTURES.

SCALE:
VERT. 1" = NTS
HORIZ. 1" = NTS

FIGURE 9.2.3-14.

CONDUCTOR PROFILE, 1000-FT SPAN TYPICAL 230-kV SINGLE CIRCUIT WITH 69-kV UNDERBUILD,
EXISTING TAMPA ELECTRIC RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.



SEGMENT 15
SPANS 700' & 1000'

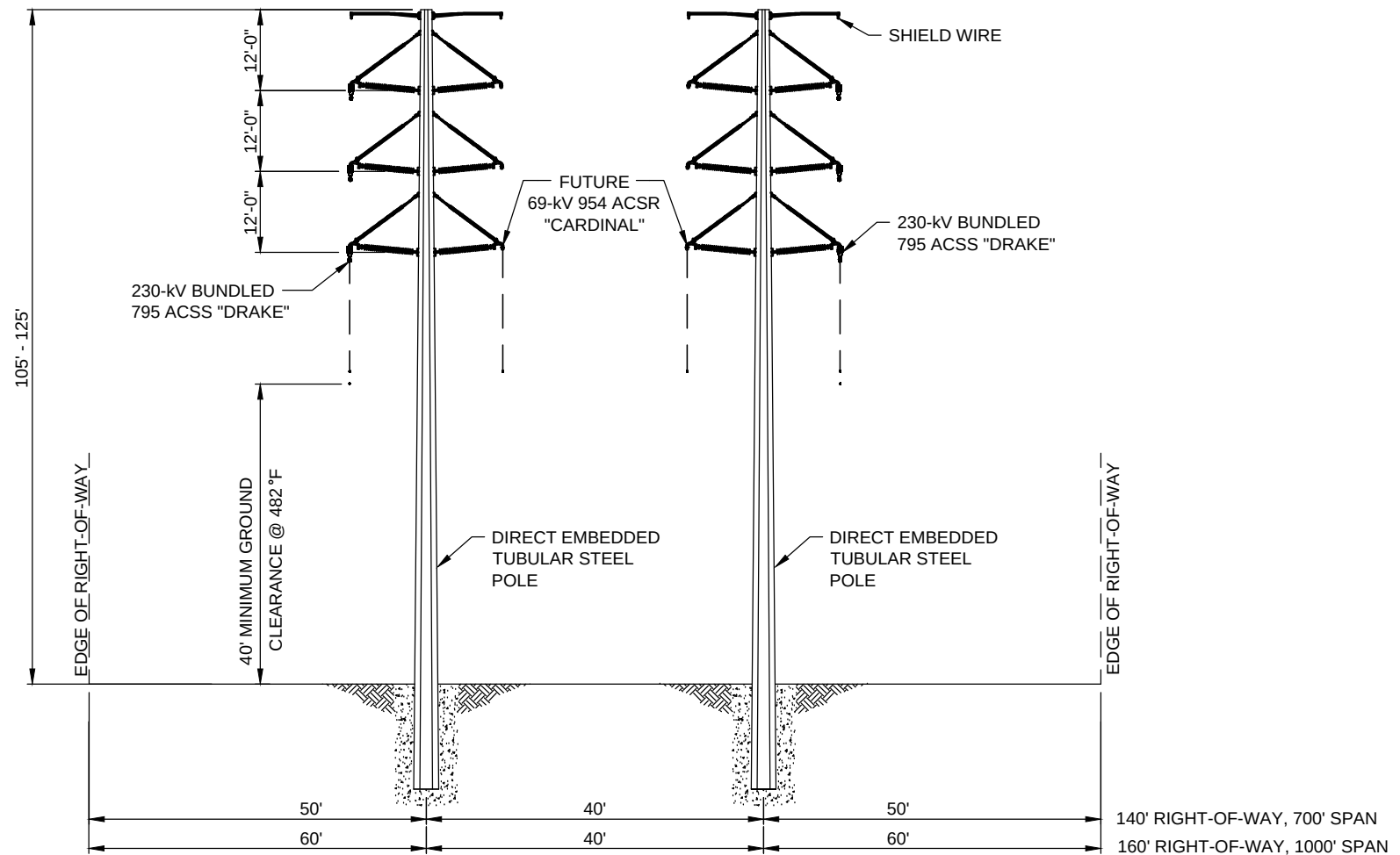
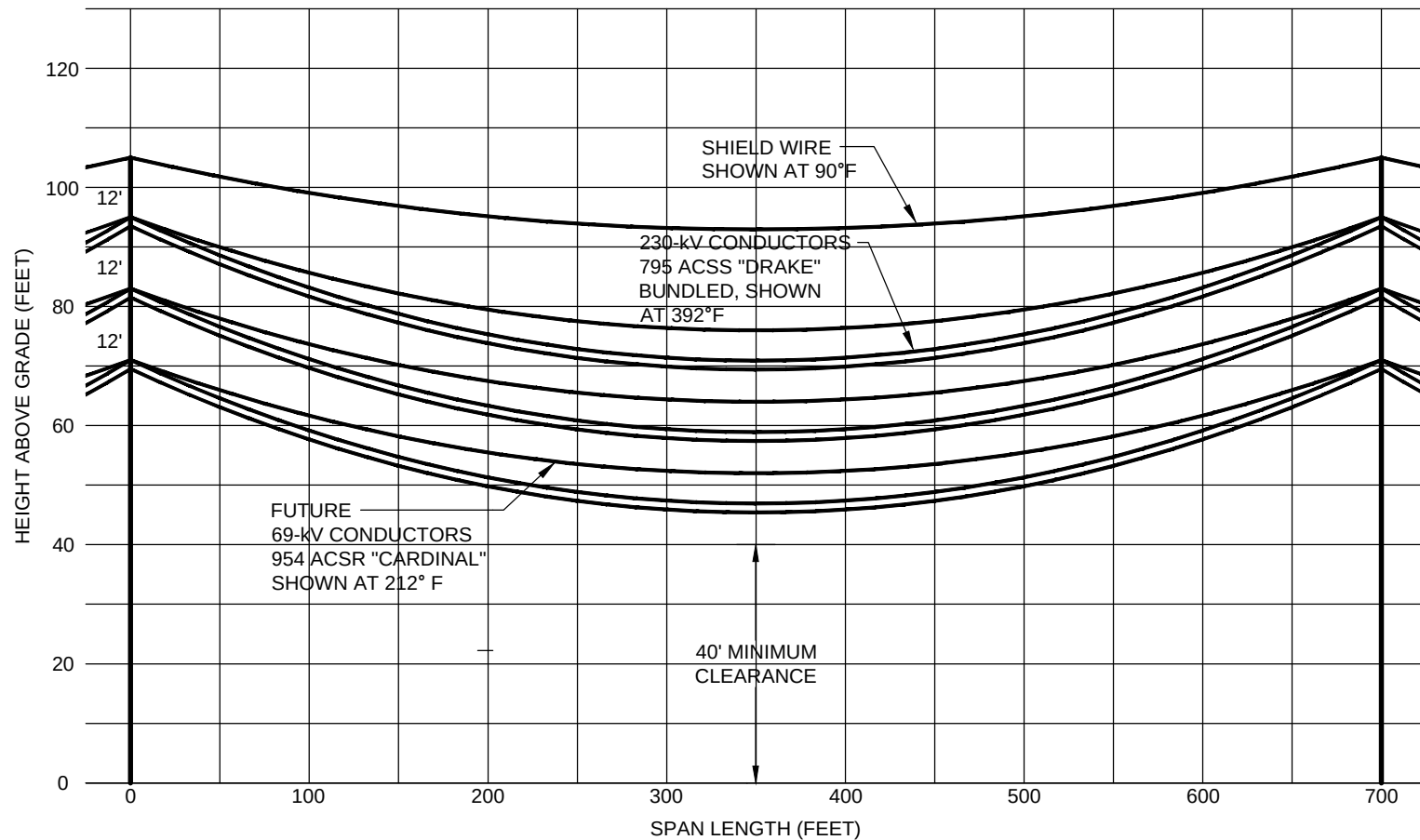


FIGURE 9.2.3-15.

TYPICAL 230-kV TWIN CIRCUITS WITH 69-kV, UNDERBUILD
EXISTING TAMPA ELECTRIC RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.





NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 700' AND
POLE HEIGHTS OF 105' ABOVE GRADE. MIDSPAN
CLEARANCES ALONG THE LINE WILL VARY DEPENDING
ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN
STRUCTURES.

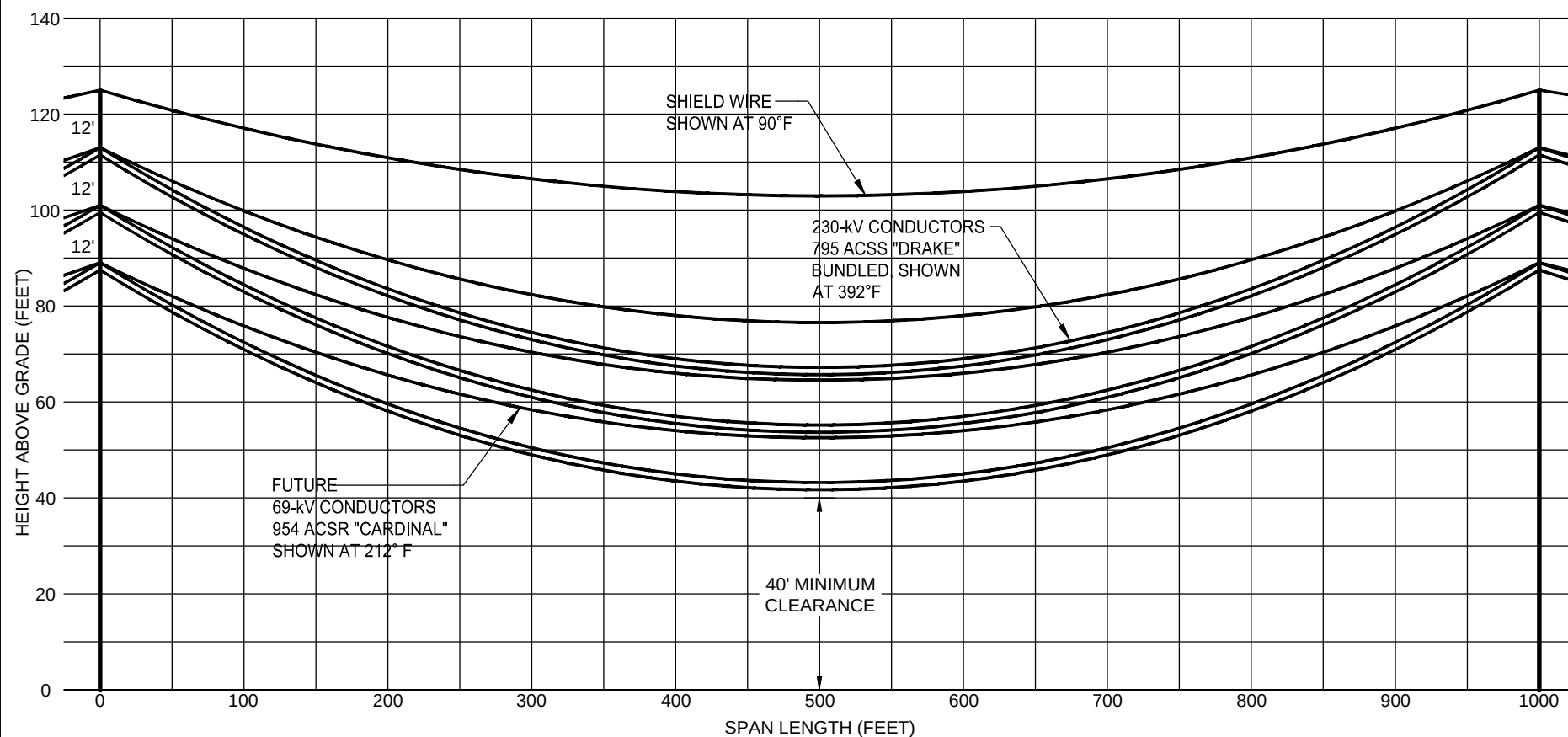
SCALE:
VERT. 1" = 30'
HORIZ. 1" = 100'

FIGURE 9.2.3-16.

CONDUCTOR PROFILE, 700-FT SPAN TYPICAL 230-kV TWIN CIRCUITS WITH 69-kV, UNDERBUILD
EXISTING TAMPA ELECTRIC RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.





NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 1000' AND
POLE HEIGHTS OF 125' ABOVE GRADE. MIDSPAN
CLEARANCES ALONG THE LINE WILL VARY DEPENDING
ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN
STRUCTURES.

SCALE:
VERT. 1" = NTS
HORIZ. 1" = NTS

FIGURE 9.2.3-17.

CONDUCTOR PROFILE, 1000-FT SPAN TYPICAL 230-kV TWIN CIRCUITS WITH 69-kV, UNDERBUILD
EXISTING TAMPA ELECTRIC RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.



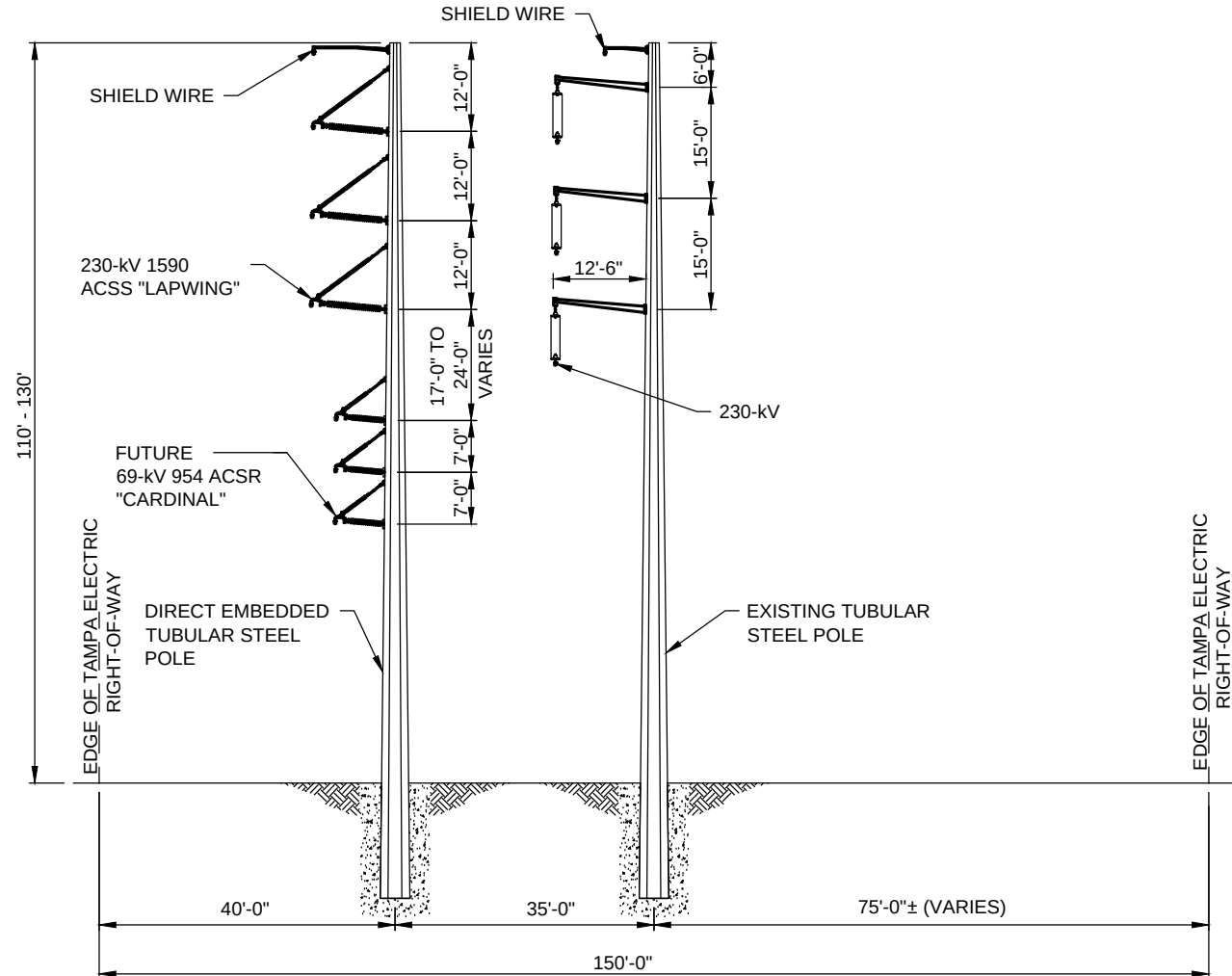
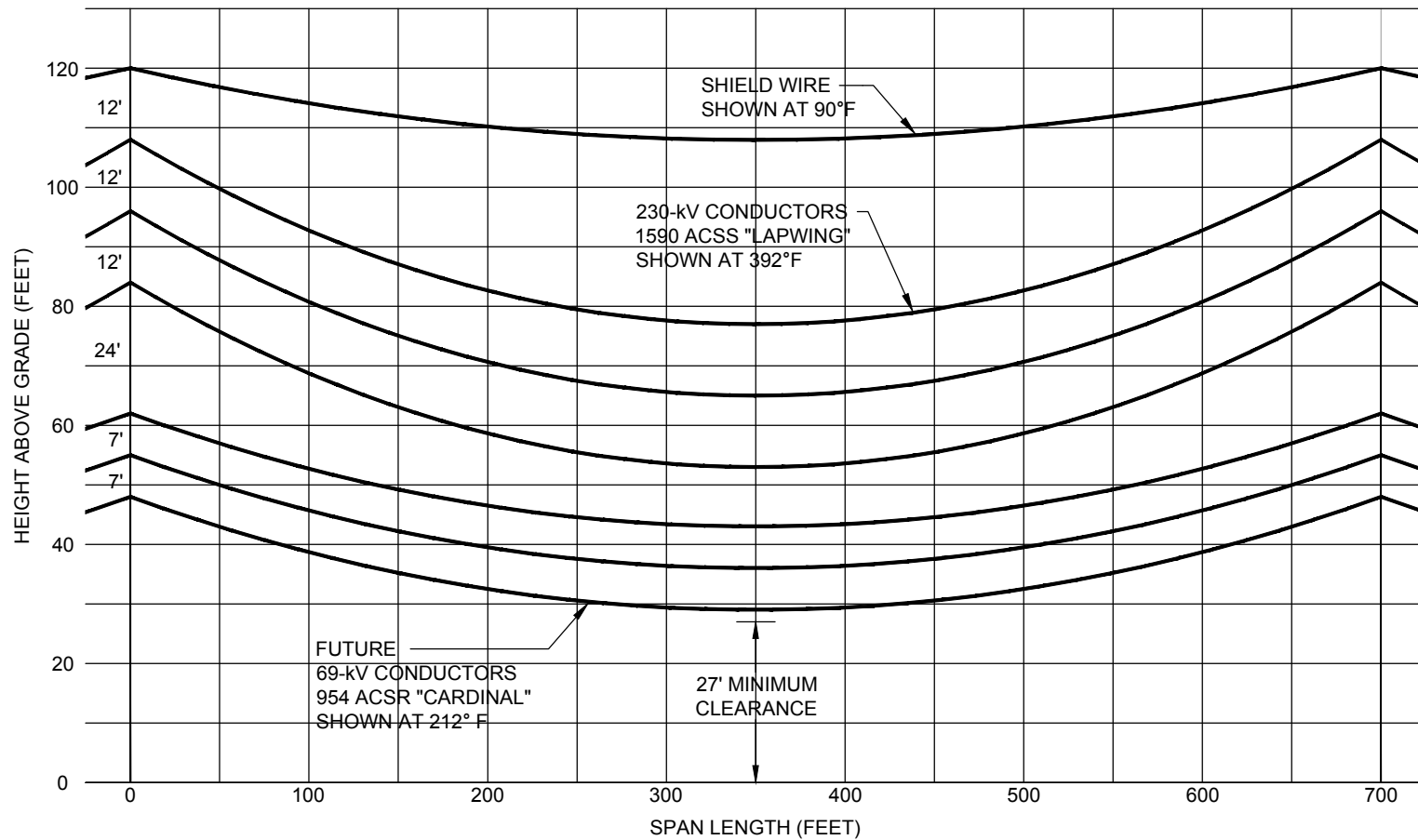


FIGURE 9.2.3-18.
TYPICAL 230-kV SINGLE CIRCUIT WITH 69-kV UNDERBUILD
EXISTING TAMPA ELECTRIC 150-FT RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.





NOTE:
THIS PROFILE ASSUMES A SPAN LENGTH OF 700' AND
POLE HEIGHTS OF 120' ABOVE GRADE. MIDSPAN
CLEARANCES ALONG THE LINE WILL VARY DEPENDING
ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN
STRUCTURES.

SCALE:
VERT. 1" = 30'
HORIZ. 1" = 100'

FIGURE 9.2.3-19.

CONDUCTOR PROFILE, 700-FT SPAN TYPICAL 230-kV SINGLE CIRCUIT WITH 69kV UNDERBUILD
EXISTING TAMPA ELECTRIC 150-FT RIGHT-OF-WAY

Source: Black & Veatch, 2012; ECT, 2012.



specific engineering considerations. Where the transmission line turns large angles or crosses other major linear facilities, the single-pole structure may require guys and anchors.

The conductors of the proposed transmission line will typically be framed in a vertical configuration, as shown on all cross-section figures except Figure 9.2.3-12. Each phase conductor is anticipated to be one 1,590-thousand-circular-mil (kcmil) aluminum conductor, steel supported (ACSS) for all segments of the project except the Aspen switching station to Fishhawk substation segment. The maximum current rating (MCR) design for the 1,590-kcmil conductor is 2,560 amperes. The MCR is the nominal value that would be expected to cause the conductor to reach its design temperature limit of 200 degrees Celsius (°C).

For the Aspen switching station to Fishhawk substation segment, the phase conductors are anticipated to be a bundle of two 795-kcmil ACSS. The MCR for the two 795-kcmil conductors is 3,000 amperes.

In some cases, the transmission line may also provide for other attachments such as underbuilt 69-kV lines, electric distribution lines, communication facilities, or other utility equipment. Span lengths between structures will typically vary between 500 and 1,000 ft, depending on site-specific right-of-way widths and other design considerations.

Transmission line conductor vertical clearances will vary along the length of the line; however, in all instances, the clearances will comply with the National Electrical Safety Code (NESC) (Institute of Electrical and Electronics Engineers, Inc. [IEEE], 2010), as required by Section 366.04, F.S., and Florida PSC regulations.

9.3 CORRIDOR

9.3.1 CORRIDOR SELECTION

9.3.1.1 Study Area

The corridor selection process was based primarily on the geographic configuration of the starting and ending substations, as well as the intermediate substation locations. A study area was first selected that incorporated PPS, all three substations (two existing and one proposed), the Pebbledale substation tie-in, and Tampa Electric's existing transmission lines into those substations (Figure 9.3.1-1). Routing choices were somewhat limited, since much of the study area is

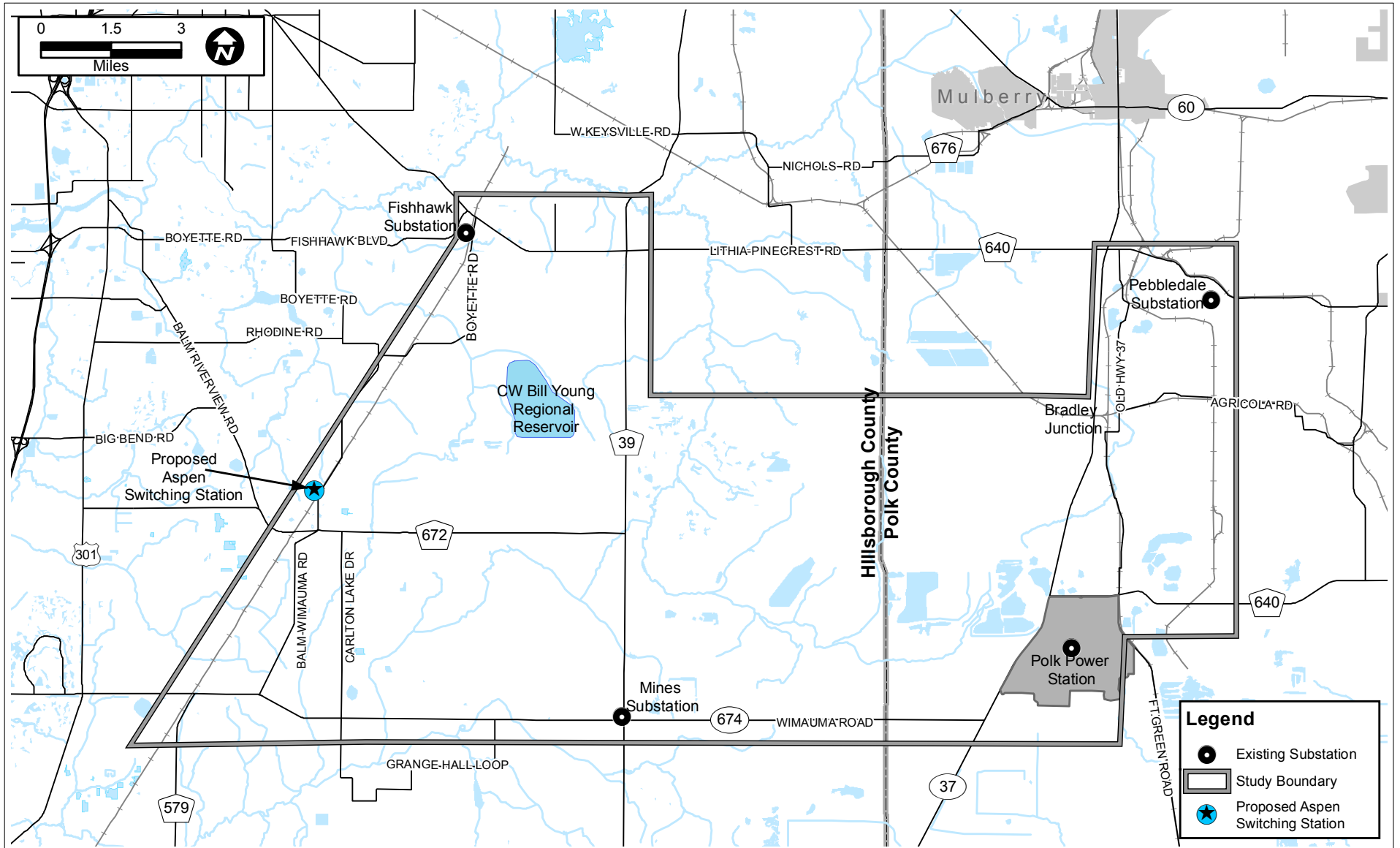


FIGURE 9.3.1-1.
STUDY AREA

Sources: ESRI Street Map, 2005; FDOT, 2010; TECO, 2012; ECT, 2012.

TECO
TAMPA ELECTRIC

dominated by mining activities, and there are relatively few existing linear features (roads, other transmission lines) with which to collocate.

9.3.1.2 Resource Mapping and Alternative Route Identification

Tampa Electric first evaluated the study area for opportunities and constraints in a regional screening mapping exercise. Resource mapping information was obtained from available information sources, including local, state, and federal agency data files and the Florida Geographic Data Library, FNAI, and other commercial nonagency databases. The Tampa Electric licensing team used a technique of overlay mapping through the use of computer mapping software programs such as AutoCAD® and ArcView®. Use of computer mapping allowed flexibility in adding new information as it became available and modifying coverages to analyze certain constraints or opportunities. Table 9.3.1-1 provides a listing of the types of resources mapped. Once those resources were mapped, the team developed alternative routes that attempted to best avoid or minimize certain constraints and take advantage of certain opportunities. Table 9.3.1-2 lists the general route identification guidelines that were used. Figure 9.3.1-2 depicts the regional screening map and alternative routes studied.

9.3.1.3 Alternative Route Evaluation and Preferred Corridor Selection

The first step of the integrated alternative route evaluation process was to perform a systematic, quantitative evaluation of each route alternative using environmental, land use, cost, and engineering criteria. Table 9.3.1-3 presents the criteria used in this evaluation. These criteria are based on application of accepted transmission line siting factors used on projects across Florida.

Data used to apply these criteria came from the regional screening map data, recent digital aerial photography for the study area, input from agencies and local governments, ground and aerial surveys of routes, and input from the community outreach program. Each segment was analyzed for each of the criteria listed in Table 9.3.1-3, and the value for each criterion was recorded by segment.

The relative weight (importance) of each criterion to be used in the alternative route evaluation was then established by the multidisciplinary transmission line siting team. These criteria and weights were validated through input from the community obtained as part of the community outreach program discussed in Section 9.3.1.4.

Table 9.3.1-1. Study Area Resources Mapped

Category	Resource
Base map information	• Highways, roads, streets • County boundaries • City boundaries • Railroads, airports • Existing and proposed Tampa Electric substations • Existing transmission lines • Existing Tampa Electric rights-of-way and fee-simple property • Water bodies, rivers, streams, canals
Land use information	• Existing and proposed development and mining plans for which local approvals are pending • Planned developments and developments of regional impact • Property boundaries • Existing and proposed school properties • National parks, wildlife refuges, estuarine sanctuaries, landmarks, or historical sites • State parks, preserves, Florida Forever Lands (proposed and existing), Areas of Critical State Concern, Conservation and Recreation Lands, Save Our Rivers lands, aquatic preserves • SWFWMD-owned lands • Hillsborough County public lands, parks, recreation areas, and mitigation lands • Polk County public lands, parks, recreation areas, and mitigation lands • Private designated wetland mitigation areas • Privately owned environmental preserves/sanctuaries and conservation easements
Environmental information	• Listed federal and state species and unique habitats, USFWS-designated critical habitats • Wetlands as delineated on USFWS National Wetlands Inventory maps

Source: ECT, 2012.

Table 9.3.1-2. Alternative Route Identification Guidelines

- Maximize collocation with certain linear features (existing Tampa Electric transmission lines, easements, or rights-of-way; roads; railroads)
 - Follow parcel or section lines where practicable and when other linear collocation opportunities do not exist
 - Minimize crossing of constraints identified as a result of regional screening (e.g., environmentally sensitive lands, existing development, and proposed development for which local approvals are pending)
 - Avoid known airports and private airstrips consistent with the Federal Aviation Administration and other applicable regulations
 - Follow disturbed alignments (ditches, roads) through wetlands, where practicable
 - Minimize crossing of existing transmission lines
-

Source: ECT, 2012.

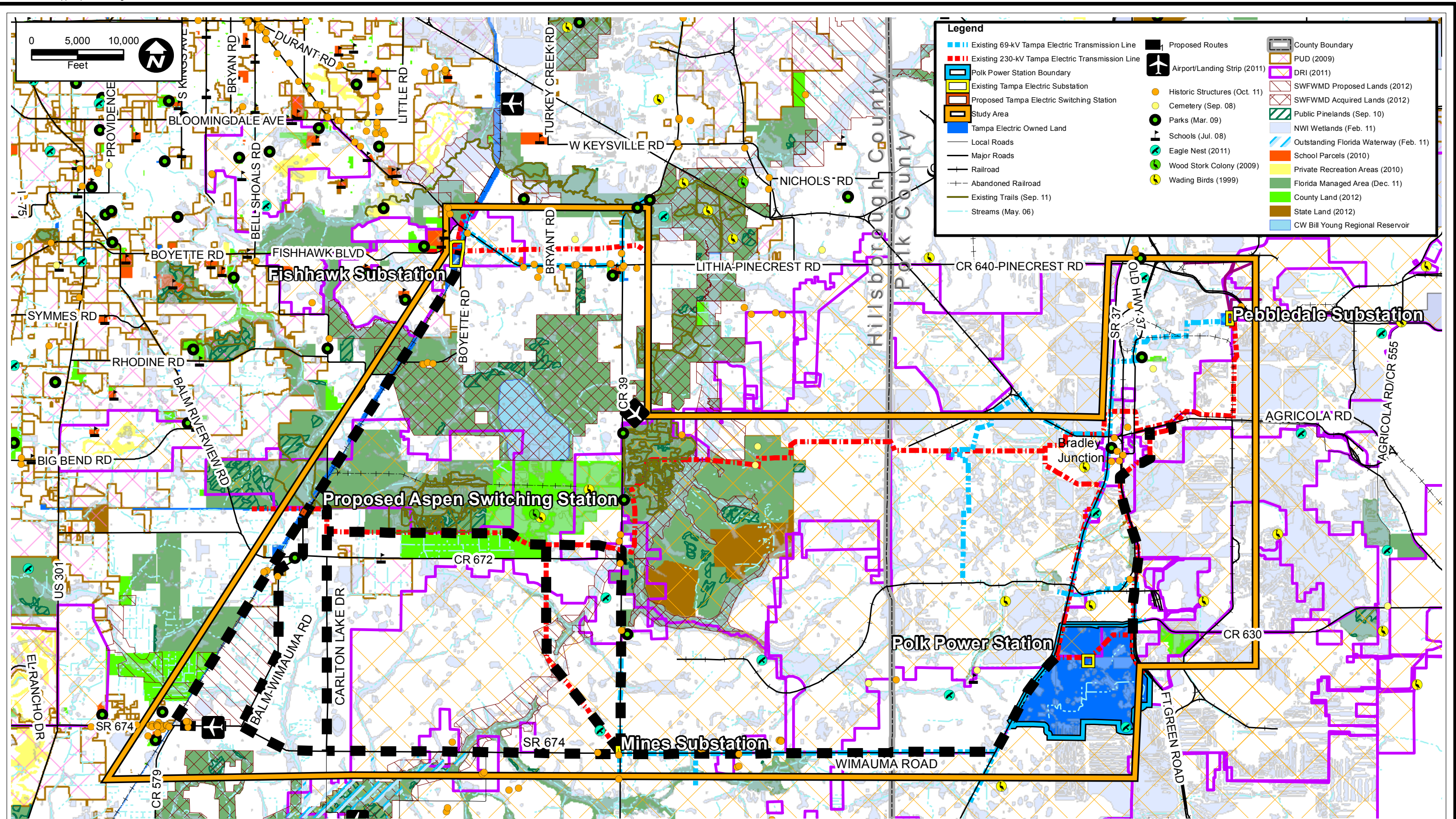


FIGURE 9.3.1-2.
REGIONAL SCREENING MAP

Sources: US Census, 2000,2010; USGS, 2006; FGDL, 2008, 2009, 2010, 2011; FWC, 2007,2011; US FWS, 2009; FL Department of Revenue, 2010; Bureau of Archaeological Research, 2011; FDEP, 2011; US DOT, 2011; FDOT, 2011; Federal RR Administration, 2011; NWI, 2011; Polk County, 2012; Hillsborough County, 2012; SWFWMD, 2012; TEC, 2012; ECT,2012.



Table 9.3.1-3. Alternative Route Quantitative Evaluation Criteria

- Number of buildings within 500 ft of route centerline
 - Number of school properties within 500 ft of route centerline
 - Number of non-Tampa Electric parcels/lots crossed
 - Length of route not following Tampa Electric-owned right-of-way or other transmission line easements
 - Length of route not following other linear features (roads, railroads, canals, etc.)
 - Length of route through existing parks/recreation areas/designated conservation lands
 - Length of forested wetlands crossed
 - Length of nonforested wetlands crossed
 - Number of eagle nests/wading bird colonies within 0.5 mile
 - Engineering/construction cost estimates
-

Source: ECT, 2012.

Recognizing that the quantitative evaluation alone does not provide a complete indication of the potential suitability of the routes, the second step of the integrated alternative route evaluation process involved performing a qualitative assessment of more localized conditions. This evaluation included analyses of siting issues and opportunities, siting constraints, additional ground and aerial surveys, and feedback and comments received at agency workshops and meetings, the three community open houses, and individual meetings with area residents, property owners, and local governments. Table 9.3.1-4 depicts a list of the types of criteria evaluated at this stage.

After evaluation of the identified route alignments and significant consideration of public input throughout the community outreach program, the two Preferred Routes were selected (Figure 9.3.1-3).

Finally, corridor boundaries were delineated along the Polk-Fishhawk and Polk-Pebbledale Preferred Routes. The two Preferred Corridors are of variable width, being wider in certain areas, to give Tampa Electric flexibility in accommodating localized conditions or taking advantage of certain opportunities, and narrower in other areas, to avoid existing siting constraints or to use existing Tampa Electric rights-of-way. Section 9.3.2 describes the Preferred Corridors, which are shown on recent (2011) aerial photographs at a scale of 1 inch equals 1,000 ft in Section 9.1 (Figure 9.1.0-1, Maps 1 through 18). Through field verification and review of the aerial photographs, Tampa Electric verifies that mapped information is representative of the route area and current within 6 months of this application filing. Section 9.3.2 describes the Preferred Corridors.

9.3.1.4 Community Outreach Program

Understanding the importance of public involvement, and in keeping with past practice, Tampa Electric expended considerable effort to inform and involve the public during the route selection process for the two corridors. Tampa Electric used direct mail (both in English and Spanish), three open houses, five newspaper advertisements, a Project Web page, meetings with local governments and regional and state agencies, public surveys, a Project e-mail address, and a Project telephone number to share information and provide an opportunity for interested persons to learn more about the Project and express their views. Attachment A of Appendix 10.1 provides examples of the outreach program's collateral materials.

Table 9.3.1-4. Alternative Route Qualitative Evaluation Criteria

- Available space within existing Tampa Electric rights-of-way, easements, or fee-owned property
 - Available right-of-way along roads, transmission lines, and railroads
 - Road plans (new roads, extensions, widening projects)
 - Proposed development plans
 - Proximity of existing development to collocation rights-of-way
 - Types of development in proximity
 - Proximity and orientation of public airports and private airstrips
 - Ingress/egress at substations
 - Bridge crossings
 - Constructability
 - Acquisition status of existing and proposed conservation lands and/or greenways
 - Current status of phosphate mined lands
 - Ability to avoid or minimize impacts to parks, recreation, and conservation lands
 - Proximity to historical districts, roads, and/or structures
 - Potential listed species presence
 - Potential use of local access roads/trails
 - Proximity to known archaeological locations
-

Source: ECT, 2012.

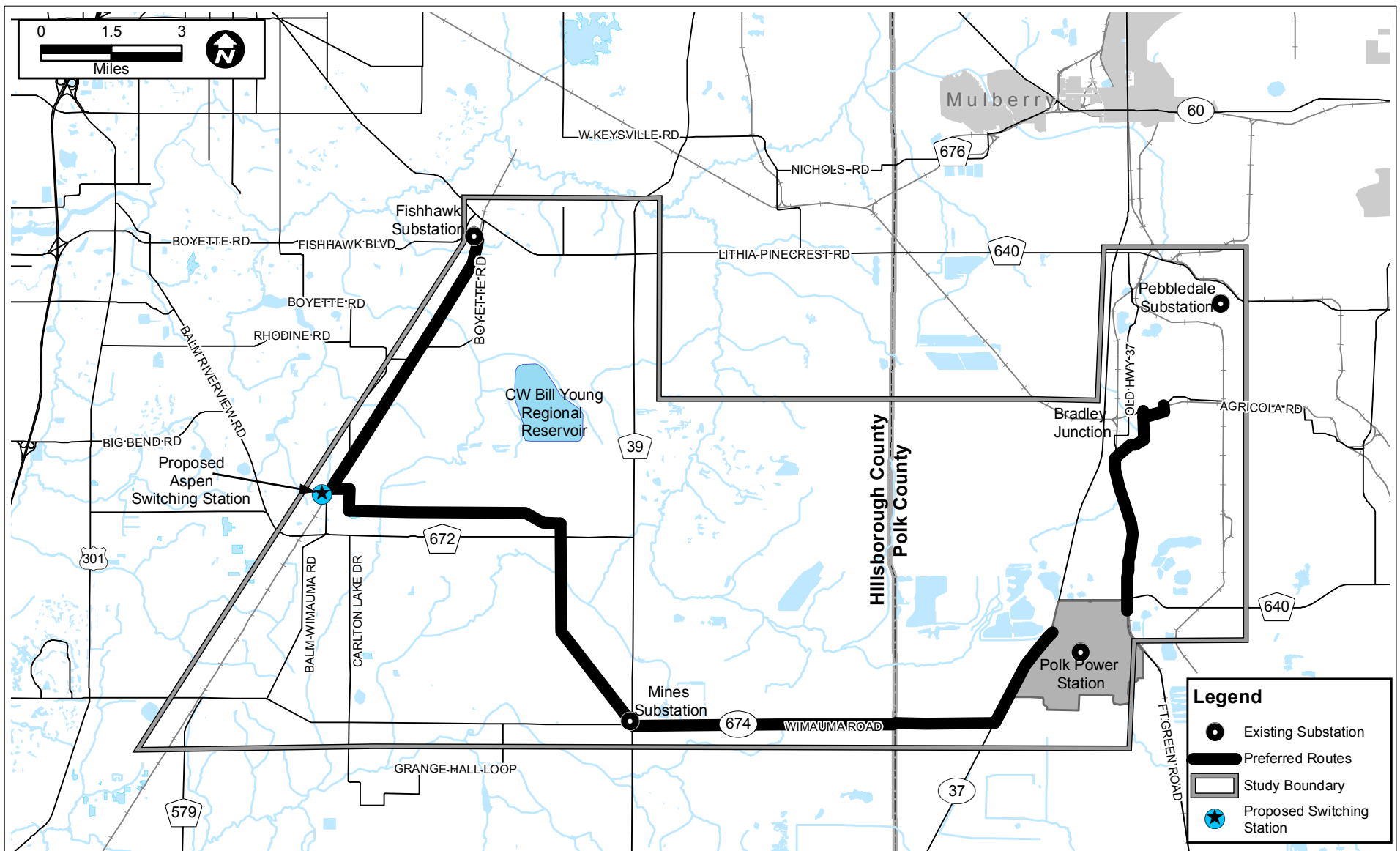


FIGURE 9.3.1-3.
LOCATION OF PREFERRED ROUTES

Sources: ESRI Street Map, 2005; FDOT, 2010; TECO, 2012; ECT, 2012.



Initially, using the Hillsborough and Polk Property Appraisers' and Tampa Electric customer databases, more than 2,760 letters were sent to Tampa Electric customers and property owners within 0.5 mile of the potential routes that were under consideration for both of the corridors. This letter introduced the transmission line improvement project and invited people to attend upcoming open houses. Enclosed with the letter were a map of potential routes being studied and a list of locations, dates, and times for the three open houses.

Three open houses were held in April 2012. With the intent of distributing the open houses geographically along the potential routes, an open house was held in each of the following locations:

- Lithia (Little Union Primitive Baptist Church along SR 39, north of SR 674).
- Fishhawk (Fishhawk Fellowship Church on Fishhawk Boulevard in Lithia).
- Wimauma (Senior Center in Wimauma).

More than 126 people attended these open houses. During the open houses, visitors were able to talk directly, informally, and one-on-one with Tampa Electric Project team members. Attendees could learn about the Project and the routes being considered and view maps and aerial photographs of the routes being evaluated. Engineers, biologists, land use planners, and other Tampa Electric representatives in attendance were available to answer questions and review with attendees the information provided about the Project and Tampa Electric on display boards and in brochures. Attendees at the open houses could express their views and provide feedback for consideration by Tampa Electric in the route selection process.

Additional one-on-one meetings and contacts with local, regional, state, and federal government officials were held throughout the selection process, not only to collect relevant data and maps but also to seek input on route selection issues. Agencies and local governments provided important information about the routes Tampa Electric was studying, as well as identified individuals and groups who might have specific interest in the Project. Appendix 10.1 provides a list of the agency and local government contacts for the Project.

Tampa Electric representatives were available to meet with community groups, homeowner associations, and property owners upon request to discuss the Project route selection process, routes under consideration, as well as the PPSA process.

The input obtained through the community outreach program was incorporated into the preferred corridor selection decision. For example, members of the public and governmental agencies, including local government representatives, who participated through the various components of the program suggested the following:

- Places to consider or avoid in routing.
- Specific linear facilities to consider for collocation with the proposed line.
- Which evaluation criteria should be considered as more important relative to other criteria.
- Specific routes to evaluate.
- Unique or important study area features or characteristics that should be given consideration in route selection.
- Areas under consideration for future development in proximity to routes being evaluated.
- Existing operational considerations for land uses on or near the rights-of-way.
- Preferences on structure design.
- Ways to effectively communicate with the public regarding the Project.

9.3.2 CORRIDOR DESCRIPTION

9.3.2.1 Polk-Fishhawk Preferred Corridor

From the proposed onsite Polk substation, Tampa Electric is proposing one 230-kV line extending from the PPS property boundary along SR 37 southwest to SR 674 and then west to its existing Mines substation located in unincorporated Hillsborough County, northwest of the intersection of SR 674 and CR 39. The Polk-Fishhawk Preferred Corridor is 400 ft wide centered on SR 37 and 500 ft wide along SR 674, with 200 ft north of the road centerline and 300 ft south of the centerline. The length of the Polk-Mines portion of the Preferred Corridor is 9.8 miles.

From the Mines substation, the Polk-Fishhawk Preferred Corridor is proposed northwest within a 1-mile-wide area for approximately 2.5 miles before turning due north. For approximately 1.3 miles, the Preferred Corridor remains 1 mile wide and then is reduced to a width of 400 ft centered on an existing Tampa Electric right-of-way. The north-south portion continues for approximately 1 mile before connecting to an existing east-west Tampa Electric 230-kV transmission line easement. The Polk-Fishhawk Preferred Corridor then proceeds westerly within a

400-ft-wide area centered on an existing transmission line to the proposed Aspen switching station located just west of the intersection of Aspen Avenue and Balm-Boyette Road. The corridor is extended approximately 1,000 ft south at Tampa Electric's Aspen property line to provide maximum flexibility for ingress and egress to the switching station. This 1,000-ft extension is along an abandoned rail line corridor that Tampa Electric has owned for several years. The length of the Mines-Aspen portion of the Polk-Fishhawk Preferred Corridor is 10.5 miles.

From Aspen, two separate 230-kV transmission lines within one right-of-way are proposed to the Fishhawk substation. The Polk-Fishhawk Preferred Corridor will follow existing Tampa Electric rights-of-way to the Fishhawk substation within a variable but generally 300-ft-wide corridor. The total length of this portion of the Polk-Fishhawk Preferred Corridor is approximately 6.6 miles. Tampa Electric acquired this former railroad right-of-way in the late 1980s in anticipation of the future need for electrical facilities to serve electrical load growth in Hillsborough County. At the Fishhawk substation boundary, the corridor is again expanded to include two parcels owned by Tampa Electric, again to provide maximum flexibility in accessing the substation yard.

Figure 9.0.0-3 depicts these varying corridor widths, and Figure 9.3.2-1 shows the Preferred Corridors and existing transmission lines 115 kV and greater within 5 miles. None of the substations discussed within these Preferred Corridors will be certified under this application. Polk, Mines, and Fishhawk are existing substations. The proposed Aspen switching station will be permitted outside this SCA process.

9.3.2.2 Polk-Pebbledale Preferred Corridor

From the proposed onsite substation, Tampa Electric will extend a separate 230-kV transmission line north within the Polk-Pebbledale Preferred Corridor located west of Old Highway 37. The Preferred Corridor extends north, parallel, and west of Old Highway 37 within an approximately 400-ft-wide Tampa Electric right-of-way centered on the existing transmission line. This portion of the Polk-Pebbledale Preferred Corridor extends north for approximately 4 miles before turning northeast, south of Bradley Junction. The Preferred Corridor proceeds northeast for approximately 0.7 mile within a 400-ft-wide area centered on the existing Tampa Electric right-of-way. The Pebbledale substation tie-in occurs approximately 0.6 mile due north along Agricola Road. The Polk-Pebbledale Preferred Corridor widens along Agricola Road to approximately 1,030 ft to include

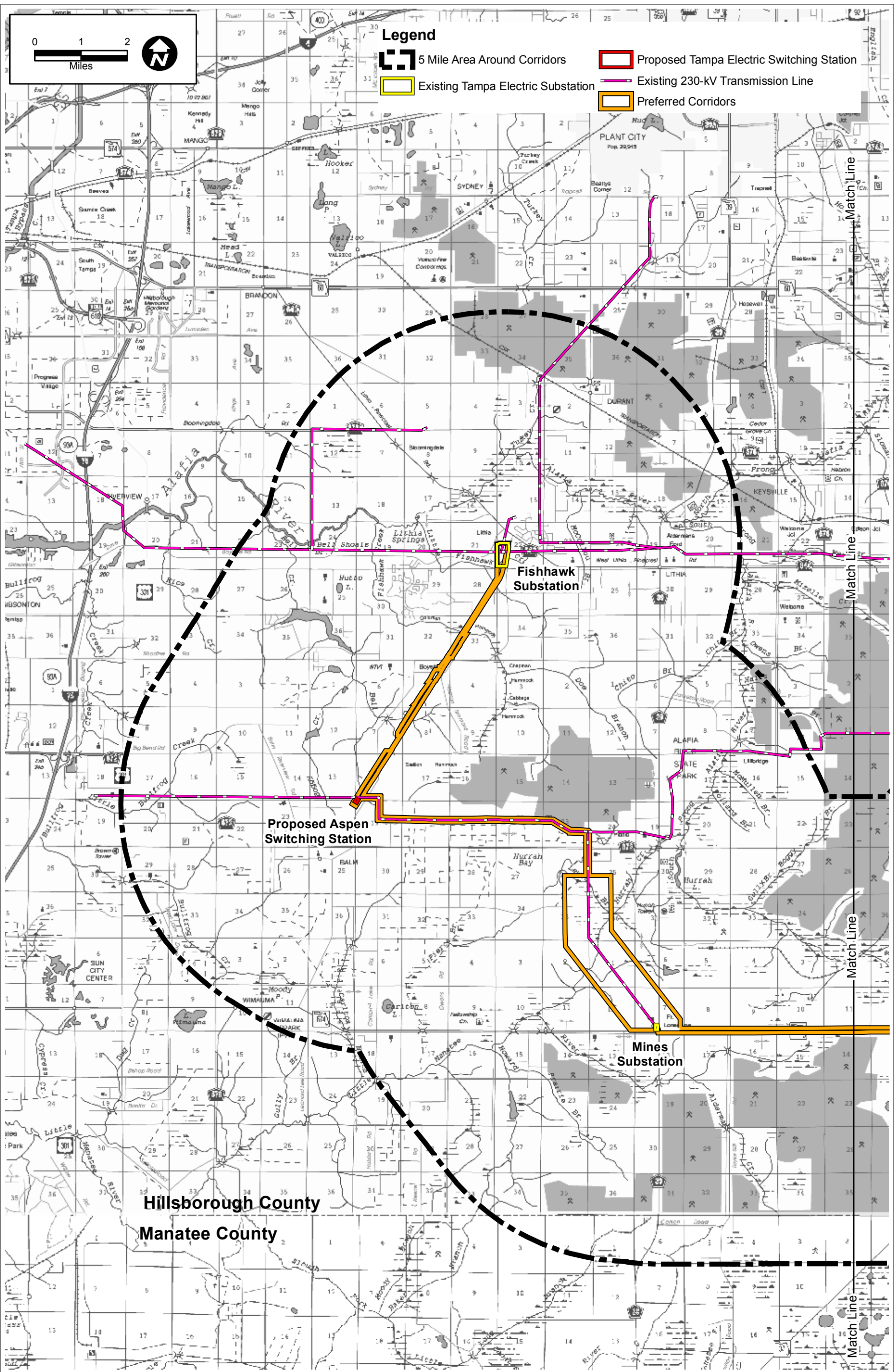


FIGURE 9.3.2-1. (SHEET 1 of 2)
PREFERRED CORRIDORS LOCATION AND EXISTING TRANSMISSION LINES
GREATER THAN 115 KV LOCATED WITHIN 5 MILES

Sources: FDOT, 2003, 2007, 2008, 2009; TECO, 2012; ECT, 2012.





Sources: FDOT, 2003, 2007, 2008, 2009; TECO, 2012; ECT, 2012.



Agricola Road and two separate Tampa Electric easements heading to the Pebbledale substation. Total length of the Polk-Pebbledale Preferred Corridor is 5.5 miles.

9.3.3 ALTERNATE CORRIDORS

Based on recent changes to the PPSA, an applicant under the PPSA has the option to allow other parties to submit alternate corridors to its own proposed transmission line corridors. Tampa Electric is affirmatively exercising this option so that other parties are allowed to file alternate transmission line corridors for consideration in the certification proceeding along with the Tampa Electric Preferred Corridors proposed in this application (see Section 403.5064[1][b], F.S.).

If any party wishes to file an alternate transmission line corridor, they should contact FDEP's Siting Coordination Office for specific instructions or consult the PPSA, Sections 403.501 through .518, F.S., and rules adopted thereunder, Chapter 62-17, Part I, F.A.C. Public notice of any alternate corridor will be required pursuant to Sections 403.5271 and 403.5363, F.S.

9.3.4 ACCESS ROADS

The access to the transmission line right-of-way will be from county roads or state roads. Access roads along the right-of-way, turnarounds, and structure working pads are necessary for installation and maintenance of the transmission line. Existing access roads on Tampa Electric right-of-way will be improved and new access will be constructed as described in the following subsections.

9.3.4.1 Erosion Control

Access road and structure working pad construction activities will be performed in such a manner that impacts to water resources and wetlands, both individually and cumulatively, are minimized. Where there is a potential for erosion, turbidity screens and other erosion control devices and techniques will be implemented to minimize construction impacts to wetlands and water bodies and ensure that state water quality standards for turbidity are met.

9.3.4.2 At-Grade Access Roads

At-grade access roads, as shown in Figure 9.3.4-1, may be used for new access roads and improvement of existing access in upland, herbaceous wetlands, and other areas not subject to flooding. At-grade roads minimize the impact on surface

water flow and floodplain storage volume. At-grade roads may be constructed as follows:

- Prior to placement of geo-textile fabric and rock, trees, brush, stumps, and roots will be removed from the road area.
- Prior to placing the geo-textile fabric, 4 to 6 inches of the road area will be removed, and the road area will be compacted. Where muck is encountered, a sufficient depth of muck will be removed to establish a stable base. Geo-web material filled with clean fill will be used to reestablish the subgrade level.
- Clean, removed soil will be used to restore grade following right-of-way clearing operations. Excess materials will be removed from the site and disposed in an appropriately permitted landfill.
- Geo-textile will be installed over the entire surface of the road area.
- A 4- to 6-inch compacted depth of Class 57 stone will then be placed on top of the geo-textile fabric and thoroughly compacted.
- The completed at-grade road will provide a level and stable working surface.

9.3.4.3 Raised Access Roads and Structure Pads

Raised access roads and raised structure working pads, as shown in Figures 9.3.4-2 and 9.3.4-3, may be used for new access roads and improvement to existing access roads in areas subject to flooding. Raised access roads and structure working pads may be constructed as follows:

- The access road base area will be cleared and grubbed.
- Prior to placement of fill, trees, brush, and felled timber will be removed from the pad area. Low growing grasses will be left in place. Where muck is encountered, a sufficient depth of muck will be removed to establish a stable base. Geo-web material filled with clean fill will be used to reestablish the subgrade level.
- Excess materials will be removed from the site and disposed in an appropriately permitted landfill.
- Geo-textile will be installed over the entire base of the road and pad area.
- Fill will then be placed on top of the geo-textile fabric and compacted in successive horizontal layers not to exceed 12 inches in uncompacted thickness. Soil for fill will be native soil and will be free from roots, rubbish, or other extraneous material. The fill will also support

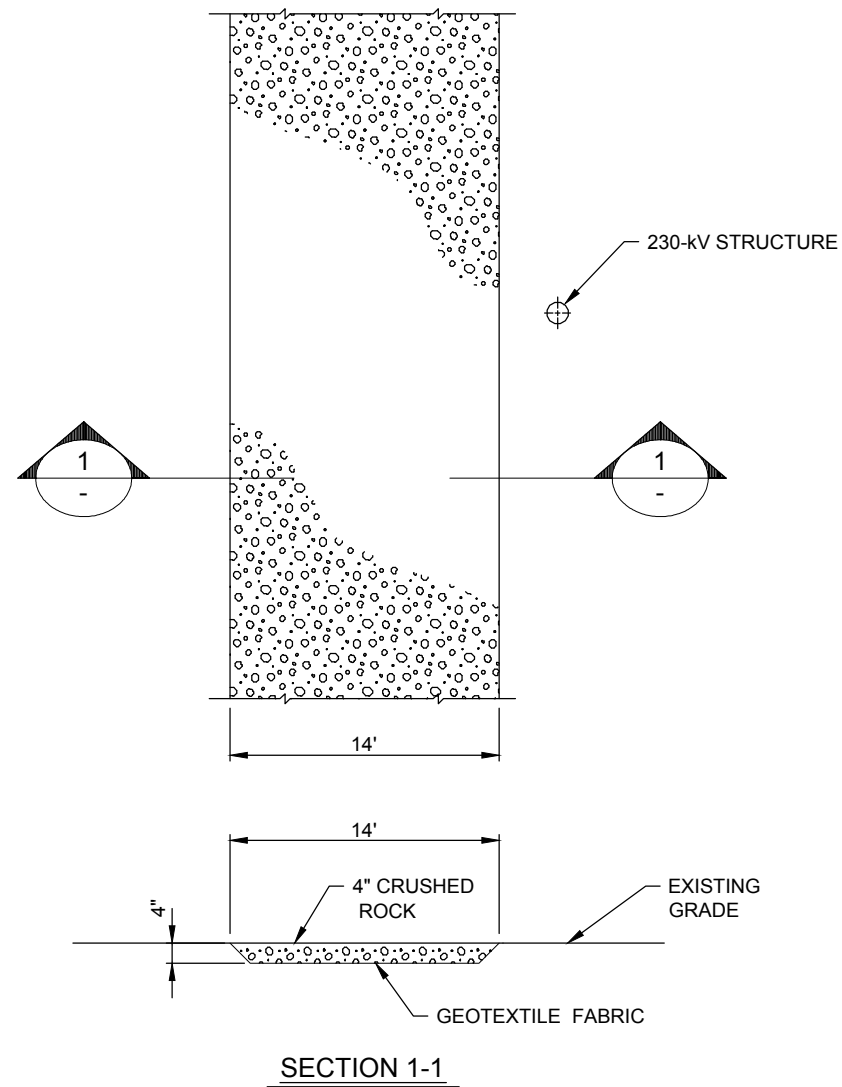
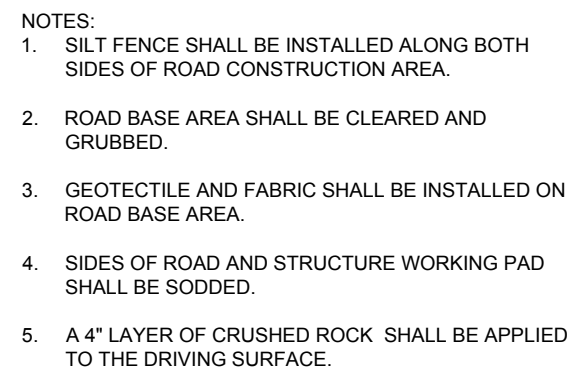
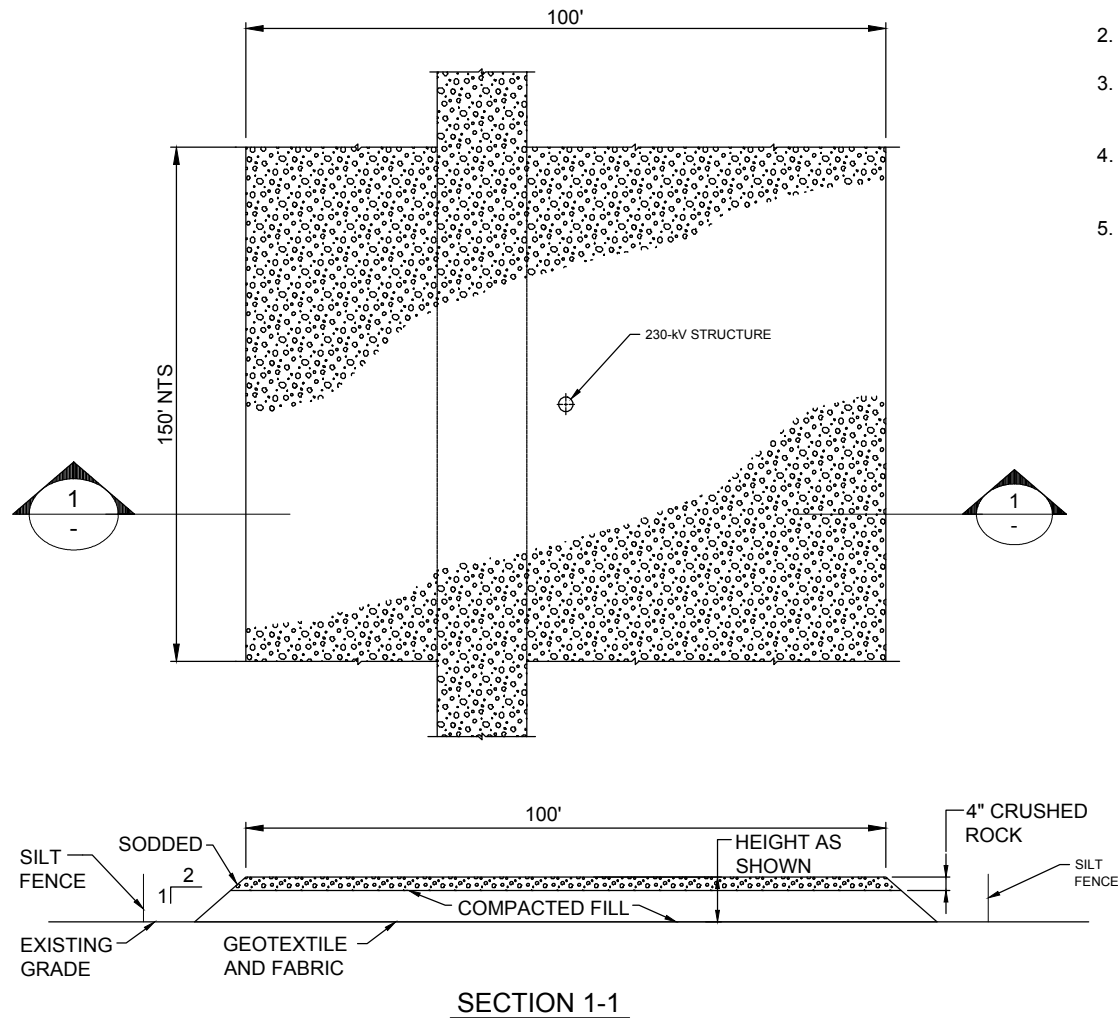


FIGURE 9.3.4-1.
AT-GRADE ACCESS ROAD

Source: Black & Veatch, 2012; ECT, 2012.



Source: Black & Veatch, 2012; ECT, 2012.



NOTES:

1. SILT FENCE SHALL BE INSTALLED AROUND PAD CONSTRUCTION AREA.
2. PAD AREA SHALL BE CLEARED.
3. GEOTECTILE AND FABRIC SHALL BE INSTALLED ON PAD BASE AREA.
4. SIDES OF STRUCTURE WORKING PAD SHALL BE SODDED.
5. A 4" LAYER OF CRUSHED ROCK OR LIMEROCK SHALL BE APPLIED TO THE DRIVING SURFACE.

FIGURE 9.3.4-3.
RAISED STRUCTURE WORKING PAD

Source: Black & Veatch, 2012; ECT, 2012.

the growth of grass and sod. Clean fill from the compensation storage area may be used.

- A 4- to 6-inch compacted depth of Class 57 stone will then be placed on top of the road and pad and thoroughly compacted.
- The sides of road and pad will be sodded.
- The completed pad structure will provide a level, and stable, working surface.

9.3.4.4 CONSTRUCTION OF COMPENSATING FLOODPLAIN STORAGE

Compensating floodplain storage will be constructed to offset any fill placed in floodplain areas. During the final design, compensating storage requirements will be determined, and the design will be provided as a postcertification submittal.

The compensating floodplain storage areas will be constructed as follows:

- Clean fill excavated will be hauled and used to construct the raised access roads and structure working pads.
- Excess excavated materials will be removed from the site and disposed in an appropriately permitted landfill.
- The sides of the compensating storage area will be sodded, and the bottom seeded and mulched.
- The bottom of the compensating storage area will be disked to embed the seed and mulch and will then recompact.

Where roads and pads are necessary in wetland areas, some fill and culverting may be required. Such areas will be identified in the environmental resource permit (ERP) information, which will be provided to the regulatory agencies as a corridor COC (see Section 9.4.2).

9.3.5 COST PROJECTIONS

The exact location of the transmission line and number and types of structures necessary to complete the transmission line project will be determined following corridor certification. The approximate costs are projections based on cost studies of similar lines. The actual cost of the line may vary from these generalized average costs depending on the ultimate locations of structures, cost of right-of-way, and other site-specific conditions. Changes in line length due to conditions imposed on line routing through the certification process may also result in cost variation.

Estimated per-mile cost for transmission line construction, including right-of-way acquisition, right-of-way clearing, access road construction, mitigation, and line construction, is approximately \$2 million per mile. Estimated costs for the proposed transmission lines; the PPS, Mines, Aspen, and Fishhawk substation costs; and other improvements to integrate these facilities which are not covered by this application are \$147.2 million. The estimated total Polk 2-5 Conversion Project costs (2012 dollars) are approximately \$610.4 million.

9.3.6 SOCIAL AND POLITICAL ENVIRONMENT OF THE CORRIDOR AREA

9.3.6.1 Governmental Jurisdictions

The Preferred Corridors are located in both unincorporated Polk and Hillsborough Counties. Figure 9.3.6-1 depicts these jurisdictions, as well as lands owned, managed, or specially designated by governmental jurisdictions located in or near the Preferred Corridors. Table 9.3.6-1 provides a list of these governmental lands that occur within 0.5 mile of the Preferred Corridors.

Other governmental jurisdictions researched but not found in the Preferred Corridors include:

- National parks.
- National forests.
- National wildlife refuges.
- National seashores.
- National wilderness areas.
- National memorials.
- National monuments.
- Properties in the national register of historic places.
- Natural landmarks.
- Marine and estuarine sanctuaries.
- State forests.
- Roadless area review and evaluation (RARE) areas.
- Outstanding Florida Rivers.
- Areas of critical state concern.
- State archaeological landmarks.
- State aquatic preserves.
- Indian reservations.
- Military installations.

9.3.6.2 Land Use Plans

The PPSA, comprising Sections 403.501 through .518, F.S., is the process for licensing of certain electrical generating power plants and associated facilities such as transmission lines. While most large-scale developments typically require permits and approvals from local, regional, and state agencies, certain power plants and associated facilities receive all necessary regulatory approvals through the PPSA process. All procedures for the issuance of local, regional, and state permits and/or approvals are preempted by the PPSA, and only a certification is issued. Unless a variance, exemption, or exception is approved through the PPSA

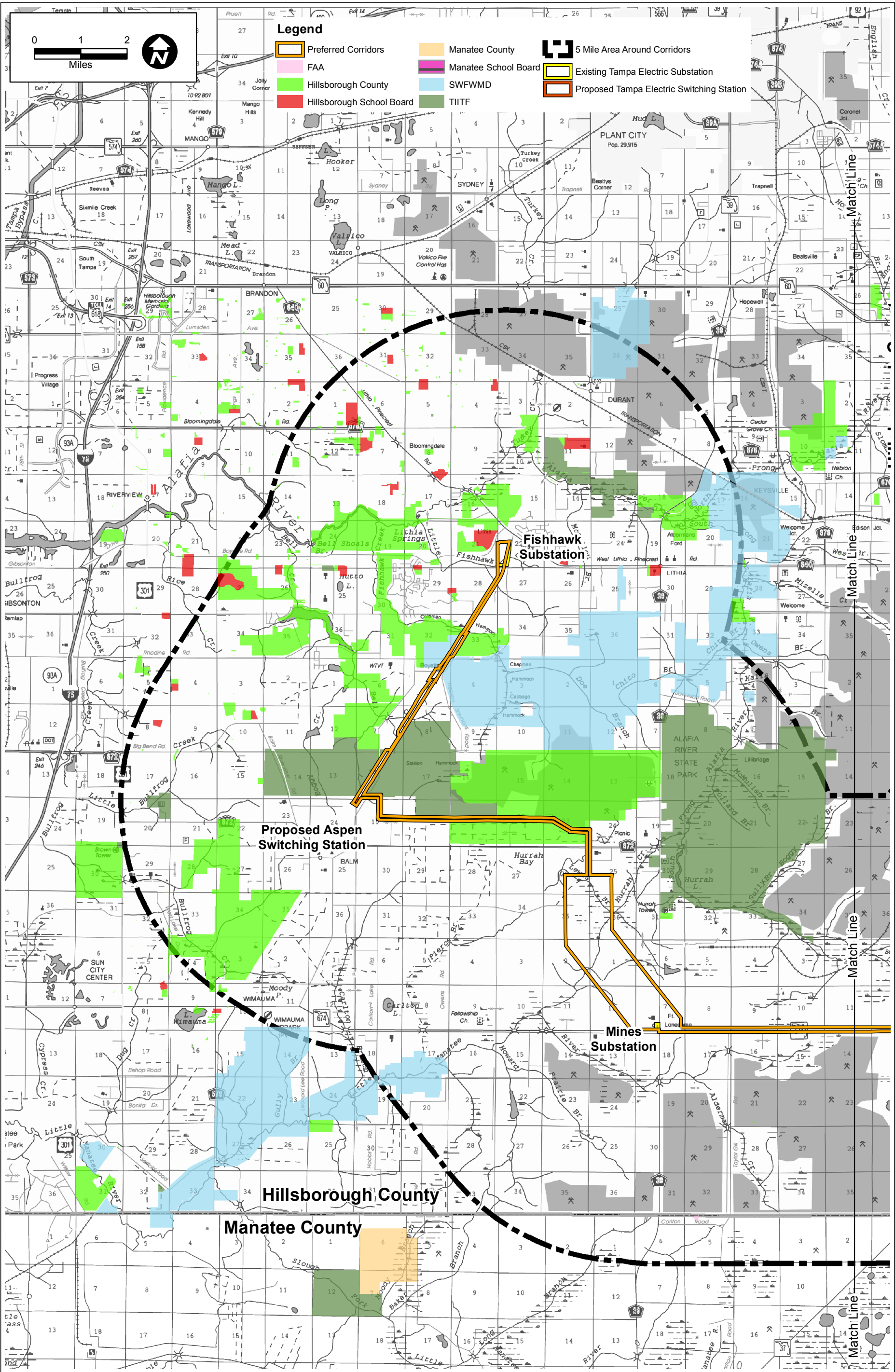


FIGURE 9.3.6-1. (SHEET 1 of 2)
GOVERNMENTAL JURISDICTIONS

Sources: FDOT, 2003, 2007, 2008, 2009; TECO, 2012; ECT, 2012.





Sources: FDOT, 2003, 2007, 2008, 2009; TECO, 2012; ECT, 2012.

Table 9.3.6-1. Governmental Jurisdictions within 0.5 mile of the Preferred Corridors

Name	Governmental Jurisdiction
<u>State</u>	
Balm-Boyette Scrub Preserve	Hillsborough County and Trustees of the Internal Improvement Trust Fund (TIITF)
Peace River Settlement Lands	TIITF
ACTS New Horizons	TIITF
PPS donated land (Chicora Tract)	TIITF
<u>Regional/County</u>	
Alafia River Corridor	SWFWMD
Coleman Hammock (Fishhawk Creek)	Hillsborough County
Kestrel Park	Hillsborough County
Fishhawk Creek Nature Preserve	Hillsborough County and SWFWMD
Fishhawk Ranch Park	Hillsborough County
Bradley Junction Park	Polk County
Hillsborough County Landfill	Hillsborough County
Miscellaneous Parcels	Polk County, Hillsborough County, Polk County School Board, Hillsborough County School Board

Source: ECT, 2012

process, all applicable nonprocedural requirements of the agencies and local governments are applied to the transmission line certified corridor through the agency and governmental review and any appropriate conditions of certification.

Florida law excludes electrical transmission lines and certain other linear utility facilities from the definition of development that is subject to local government comprehensive plans, zoning ordinances, and land development regulations (see Section 163.3164[6], F.S.). Therefore, under Florida law, the Preferred Corridors described herein are not subject to future land use planning or zoning regulations (see also Section 403.50665, F.S.). Substations are not included within this exclusion, but Tampa Electric is not proposing to license the substations in this PPSA proceeding.

To assist in characterizing the areas through which the Preferred Corridors are located, the following subsections describe the various future land use categories and other planning districts (i.e., development areas, overlay districts and/or zoning) crossed by the corridors. Also described are potentially applicable regulations from the codes of ordinances of the local governmental jurisdictions through which the Preferred Corridors are located. The procedures of the PPSA supersede many otherwise applicable procedural provisions of comprehensive plans, zoning ordinances, and land development regulations. References to such nonapplicable procedures in the following paragraphs are provided only for the purpose of a thorough review of the contents of the land use provisions of the various governmental entities.

Comprehensive Plans

Figure 9.1.0-2, provided in Map Sheets 1 through 18 at the end of this Chapter 9.0, shows the location of the Preferred Corridors in relation to the adopted FLUMs of the local governments traversed.

The Preferred Corridors cross unincorporated areas of Polk and Hillsborough Counties. The Local Government Comprehensive Planning and Land Development Regulation Act of 1985 (Chapter 163, F.S.) requires all counties and municipalities within the state prepare comprehensive plans.

The following lists the FLUM categories crossed by the Preferred Corridors:

- Polk County:
 - Phosphate Mining (PM).
 - Rural Cluster Center-Residential (RCC-R).

- Hillsborough County:
 - Natural Preservation (N).
 - Agricultural (A).
 - Agricultural/Mining (AM).
 - Agricultural/Rural (AR).
 - Residential Planned-2 (RP-2).
 - Residential-2 (RES-2).
 - Public/Quasi-Public (P/QP).

Descriptions of the future land use categories crossed by the corridors in the two jurisdictions are provided in the following paragraphs:

- Polk County:
 - Phosphate Mining (PM)—This land use category is generally characterized by existing or proposed phosphate-mining operations, phosphate-mining support facilities, and nonreclaimed phosphate-mined areas.
 - Rural Cluster Center-Residential (RCC-R)—Rural Cluster Centers are designated for the placement of retail and service establishments to accommodate the daily shopping needs of rural residents. The Rural Cluster Center-Residential category allows for residential development up to two dwelling units per acre. Nonresidential uses are limited to an intensity and scale needed to serve the immediate rural population with retail and personal services.
- Hillsborough County:
 - Natural Preservation (N)—This land use category recognizes publicly or privately owned lands of significant environmental importance set aside primarily for conservation purposes. All development is prohibited except for a residence for caretaker and compatible recreational/educational development.
 - Agricultural (A)—The Agricultural land use category designates areas of long term agricultural character, areas currently involved in agricultural productivity or other rural uses. Permitted uses include residential development at a density of up to one dwelling unit per 10 acres, rural scale neighborhood commercial, office and industrial uses, and mining activities.
 - Agricultural Mining (AM)—This land use category designates those areas of long-term agricultural character or those areas involved in agricultural and mining productivity or other rural

areas. Permitted uses include up to one dwelling unit per 20 acres, farms, ranches, feedlots, mining activities, rural-scale neighborhood commercial, office, and industrial uses.

- Agricultural/Rural (AR)—This land use category designates those areas of long-term agricultural character or those areas involved in agricultural productivity or other rural areas. Permitted uses include up to one dwelling unit per 5 acres, farms, ranches, feedlots, mining activities, rural scale neighborhood commercial, office, and industrial uses.
- Residential Planned-2 (RP-2)—Residential Planned-2 is also known as planned village district. The criteria for increasing densities up to the maximum of two dwelling units per gross acre include a 160-acre minimum size, the demonstration of clustering, and mixed use consisting of job opportunities and retail commercial.
- Residential-2 (RES-2)—This land use category designates areas of nonurban density residential development up to two dwelling units per acre. Suburban-level neighborhood commercial, office, multipurpose uses, and agriculture are also allowed.
- Public/Quasi-Public (P/QP)—This land use category recognizes major existing and programmed public facilities. This category also accommodates quasi-public uses such as private establishments generally available for public use such as churches, hospitals, schools, recreation uses, services, facilities, utility facilities, and transportation facilities.

In addition to the land use categories, portions of the Polk-Fishhawk Preferred Corridor traverse the wetlands and significant wildlife habitat overlays of the Hillsborough County Comprehensive Plan FLUM. These two overlays combine to establish an environmental overlay. The environmental overlay uses local, state, and federal regulations to determine the extent of development in environmentally sensitive areas.

Polk County Future Land Use Element

The Preferred Corridors traverse an unincorporated portion of southwestern Polk County. Polk County has five distinct development areas that combine with future land use categories and special-area overlay districts to guide development within

unincorporated Polk County. The Preferred Corridors are located in the Rural Development area (Figure 9.3.6-2).

The Preferred Corridors are located only in the following Special-Area Overlay Districts and areas:

- Floodplain-protection areas (Figure 9.3.6-3).
- Aquifer-protection areas (Figure 9.3.6-4).
- PolkGreen District (Figure 9.3.6-5).

The Preferred Corridors intersect areas of Flood Zone A, are located in the Floridan vulnerable aquifer protection area, and intersect potential network connections of the PolkGreen District overlay. The corridors do not intersect the wellfield-protection district overlay, green swamp protection area, mineral-resource protection overlay, historic preservation sites overlay, airport-buffer district, transit corridors and centers, redevelopment districts, or the SR 17 Ridge Scenic Highway overlay.

Objective 2.123-B of the future land use element limits development and redevelopment within areas subject to flooding, as designated in the floodplain-protection area overlay, to development activities and intensities that will not enlarge the off-site floodplain, alter the natural function of the floodplain, and for which risk of loss of property and life is minimal. Policies 2.123-B1, B2, and B3 establish designation and mapping of the floodplains, development criteria for development within the overlay district, and land development code regulations addressing development in the overlay district.

Objective 2.123-D provides protection to high recharge areas to the Floridan aquifer from direct contamination and to the natural function of such areas. Policies 2.123-D1 and D2 establish designation and mapping of the aquifer protection areas, development criteria for development within the overlay district, and land development code regulations addressing development in the overlay district. The development criteria minimize the threat of contamination through restrictions on the storage, generation, and/or use of hazardous waste and require postdevelopment runoff volumes not to exceed predevelopment runoff volumes, requiring treatment of surface waters and stormwater runoff and prohibiting the reduction of aquifer recharge quality and quantity (volume and rates) in high recharge areas.

Objective 2.124-E provides promotion and integration of public and private investments in green infrastructure such as interconnected networks of open space,

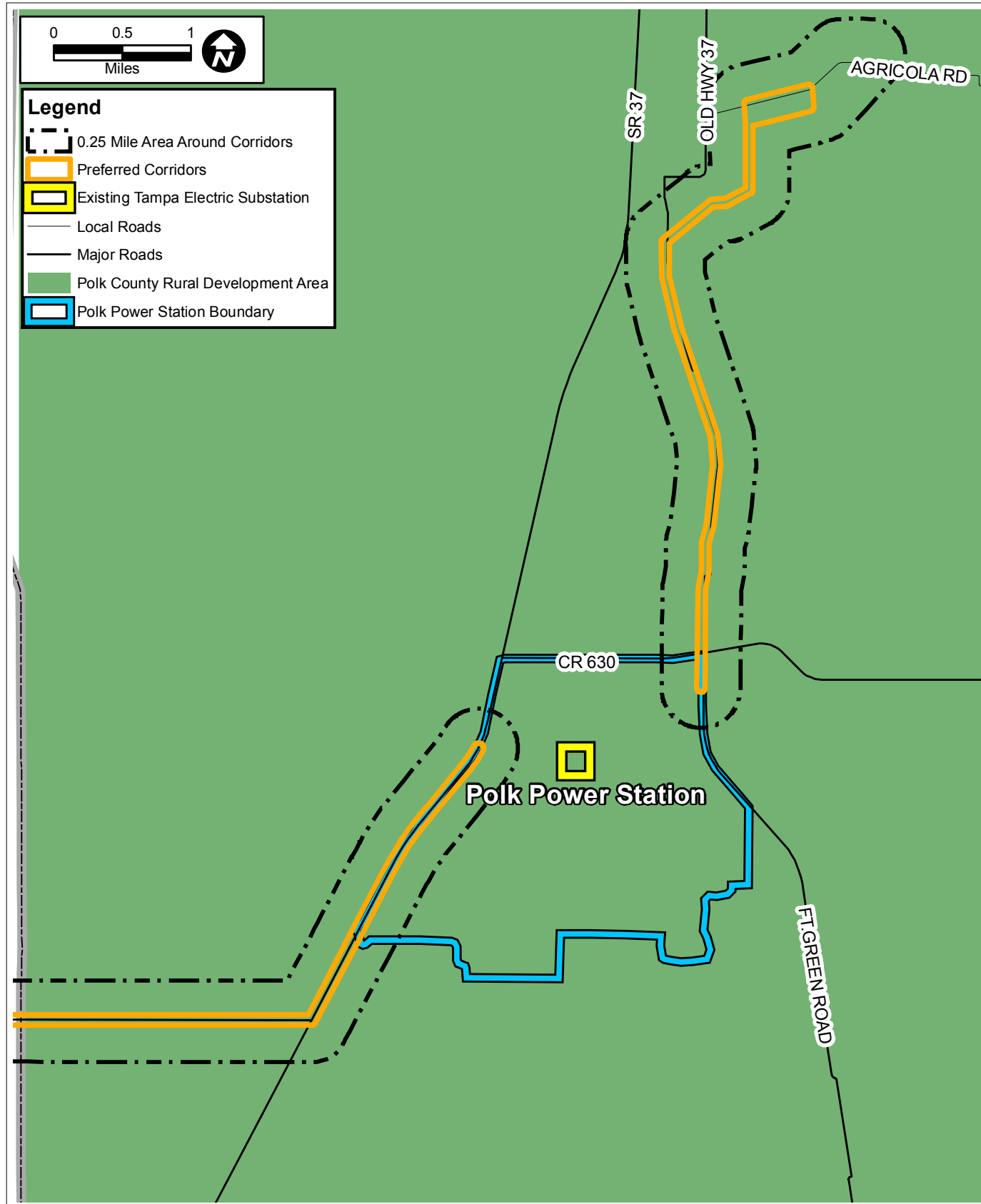


FIGURE 9.3.6-2.
POLK COUNTY RURAL DEVELOPMENT AREA

Sources: Polk County, 2012; ECT, 2012.



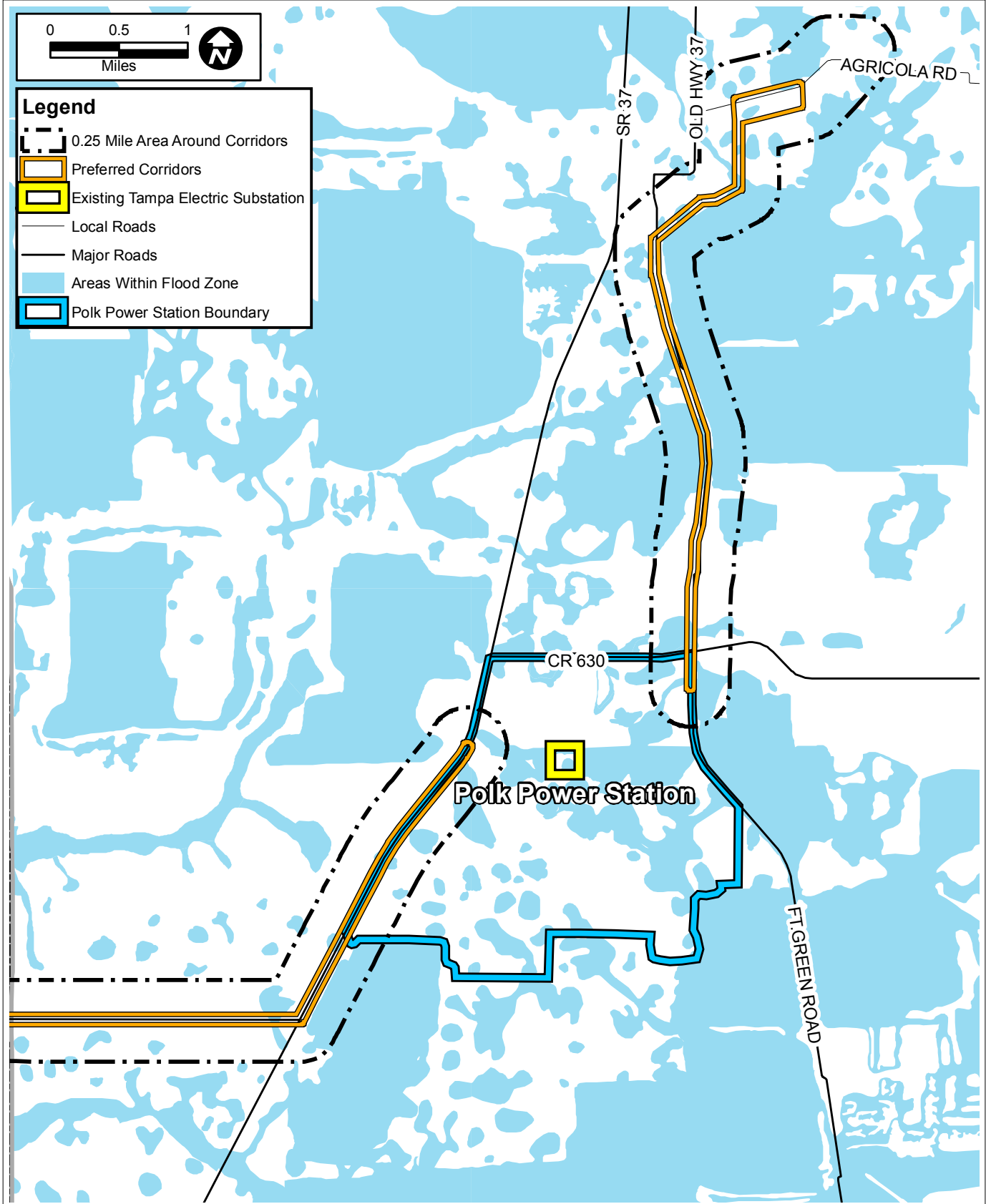


FIGURE 9.3.6-3.
POLK COUNTY FLOOD ZONE AREAS

Sources: Polk County, 2012; ECT, 2012.



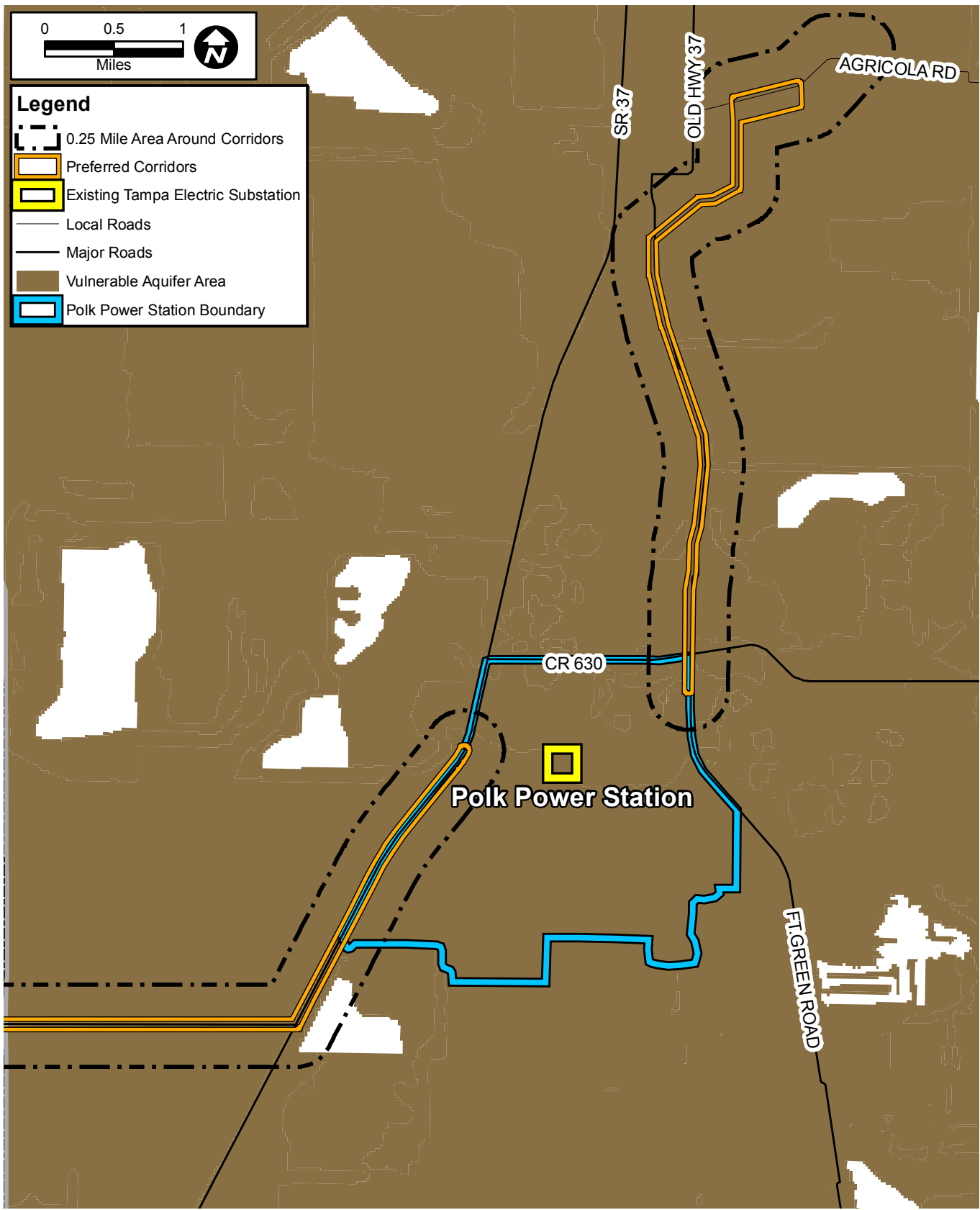


FIGURE 9.3.6-4.
POLK COUNTY AQUIFER-PROTECTION AREAS

Sources: Polk County, 2012; ECT, 2012.



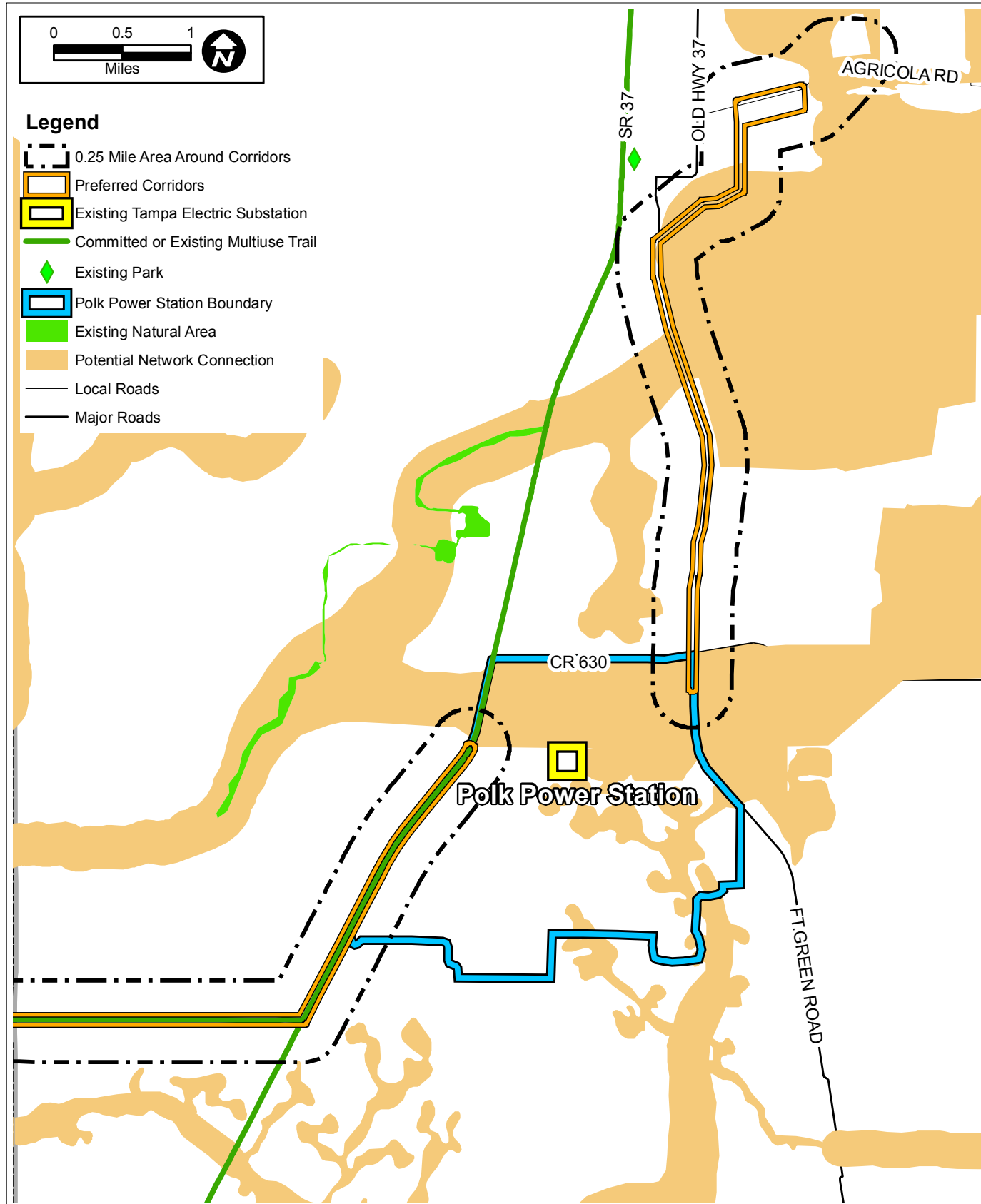


FIGURE 9.3.6-5.
POLK COUNTY - POLK GREEN DISTRICT

Sources: Polk County, 2012; ECT, 2012.



natural areas and agricultural lands. The purposes of the overlay district are the protection of natural resources and wildlife habitat, creation of habitat corridors linking open spaces, protection of archaeological and historical resources, provision of recreational opportunities, provision of health benefits, provision of economic development opportunities, and provision of multiuse trails connecting population centers to natural areas.

The Polk County Comprehensive Plan identifies electrical transmission and distribution facilities, including electrical transmission lines, substations, and related electrical distribution facilities as utility use (see Future Land Use Element Policy 2.125-D1b). Electrical transmission lines are considered a permitted use throughout Polk County in all land use classifications subject to county approval.

Future Land Use Element Policy 2.125-D2 is titled Utilities Development Controls. The policy states, in Part c, “The development of utility facilities shall be permitted in the Rural Development Area, as designated on the FLUM, only when such developments provide regional services, or is incompatible with urban uses, or services the existing needs of the immediate area in which it is located.” The proposed transmission lines are planned to provide a regional service.

Policy 2.102-A9 addresses public facilities and utilities siting. The policy states, “Public facilities and utilities shall be located to:

- Maximize the efficiency of services provided.
- Minimize their cost.
- Minimize their impacts on the natural environment.”

As proposed, the project meets the siting provisions contained in Policy 2.102-A8.

Polk County Comprehensive Plan Map Series

A review of the future transportation map series indicates that there are no planned improvements for SR 37, Old Highway 37, or SR 674 in Polk County. SR 37 is identified as a minor arterial roadway and Old Highway 37 and SR 674 are identified as rural major collector roadways.

Hillsborough County Future Land Use Element

The following policies of the Hillsborough County Future Land Use Element are directly applicable to linear-type electric transmission facilities:

- Policy 11.5—For public facilities that can be designed in a linear fashion, such as utilities, drainage improvements, and parks, Hills-

borough County will seek opportunities for combining the objectives and funding of these projects with the objectives of the Hillsborough Greenways Master Plan, particularly when doing so would provide a connection to an existing or planned greenway on adjacent land.

- Policy 16.4—To prevent the bisecting of established communities, the impact of major roadway and similar corridor projects on existing communities will be evaluated by citizens and other affected parties through their inclusion in the predesign evaluation of alternates, including route selection.
- Objective 45—Any negative effects of bulk electric transmission corridors upon environmentally sensitive lands and residential areas will be minimized through the use of locational criteria.
- Policy 45.1—The location and placement of bulk electric transmission corridors through environmentally sensitive lands and resources will be in compliance with all applicable federal, state, and local environmental regulations.
- Policy 45.2—The location of bulk electric transmission corridors will be discouraged through existing residential neighborhoods.
- Policy 45.3—Bulk electric transmission corridors will be encouraged to locate at the fringe of urban and urbanizing areas.
- Policy 45.4—Electric utilities will be encouraged to use shared utility corridors, wherever feasible.
- Policy 45.5—Electric utilities will be encouraged to locate bulk electric transmission corridors adjacent to other utility and road corridors.
- Policy 45.6—New residential uses will be discouraged in close proximity to bulk electric transmission corridors, and minimum separation distances between these uses should be established based on best available information. When reviewing the relationship between residential uses and bulk transmission lines, the following aspects will be evaluated:
 - The voltage rating of the transmission line.
 - The vertical and horizontal distance of the line to adjacent property lines.

Adherence with Policy 16.4 will be demonstrated through this certification process and Tampa Electric's ongoing outreach program. Objective 45 and Policies 45.1 through 45.6 have been met predominately through locating the Pre-

ferred Corridors within or adjacent to existing roadways, existing transmission easements, or Tampa Electric fee-owned lands. Minimization of impacts to environmentally sensitive lands will be accomplished through pole spacing in compliance with existing, applicable regulations. No existing neighborhoods will be traversed by the Preferred Corridors where existing roadways or fee-owned lands are already located. To the extent practicable, the Preferred Corridors have been sited within the rights-of-way or proximate to the rights-of-way of major paved roads and existing transmission line easements and fee-owned rights-of-way.

The future land use element references the Greenway Master Plan, which was adopted by the Hillsborough County Board of County Commissioners in 1995 (see Policy 11.5). A review of the Greenway Master Plan document indicates that the Polk-Fishhawk Preferred Corridor is a part of the Cross-County Greenway from the Manatee County line to the Pasco County line. The document notes that “TECO has expressed interest in pursuing cooperative efforts for multiple-use of the company’s rights-of-way in the county.”

Hillsborough County Livable Communities Element

The Polk-Fishhawk Preferred Corridor is located within the SouthShore areawide community. The community plan for the SouthShore area recommends strategies for growth and development in three main areas: transportation, environmental/natural, and cultural/historical. The community vision and strategies do not change allowable uses, maximum densities, or other land use approvals. The one specific community within SouthShore that is traversed by a least a portion of the Polk-Fishhawk Preferred Corridor is Riverview. The Riverview community plan has also been completed.

The Riverview community plan does not specifically address electrical transmission lines or the area of the Polk-Fishhawk Preferred Corridor. The plan depicts the area of the Preferred Corridor as open space, by which the plan encourages the acquisition of additional property to add to the Boyette scrub lands and to provide connections to the Hillsborough County Greenway and Trail Master Plan. The plan calls for implementing strategies to enhance the appearance of major roadways, including Boyette Road and Balm-Riverview Road.

Hillsborough County Transportation Element

A review of Map 10-4 of the transportation element, entitled Hillsborough County MPO 2035 Long-Range Transportation Plan, indicates that no improvements are depicted for SR 674 or Boyette Road. In the vicinity of the Polk-Fishhawk Pre-

ferred Corridor, a new two-lane road is depicted extending eastward from the current terminus of Big Bend Road to Balm-Boyette Road, Lithia-Pinecrest Road is shown as a planned four-laned facility from Bloomingdale Road southeast to Boyette Road, and Fishhawk Boulevard is shown as a planned four-laned road from Bell Shoals Road east to Lithia-Pinecrest Road. Map 25 of the transportation element is entitled HC Corridor Preservation Plan. SR 674 is identified as enhanced. The transportation element defines enhanced roads or facilities as roadways that are not being proposed for additional through lanes, but roads that can be improved to increase operating efficiency by adding turn lanes at key intersections, signal timing optimization, bicycle facilities, sidewalks, extra landscaping, drainage considerations, and other similar improvements.

Hillsborough County Conservation Element

As previously noted, portions of the Polk-Fishhawk Preferred Corridor traverse the wetlands and significant wildlife habitat overlays. Policy 13.6 of the conservation element of the Hillsborough County Comprehensive Plan restricts development activities that adversely affect areas identified as essential wildlife habitat within the overlay.

Zoning Districts and Land Development Code

Zoning within the Preferred Corridors is shown at a scale of 1 inch equals 1,000 ft in Figure 9.1.0-3 (Maps 1 through 12) at the end of this chapter. The Polk-Fishhawk Preferred Corridor crosses the following Hillsborough County zoning districts:

- A Agricultural.
- AM Agricultural, Mining.
- AR Agricultural, Rural.
- AS-1 Agricultural, Single Family.
- ASC-1 Agricultural, Single Family, Conventional.
- PD Planned Development.

As previously noted, Polk County uses future land use designations, development areas, and overlay districts to guide development. There are no zoning districts in Polk County.

Polk County LDC

Typically, potentially relevant portions of the Polk County LDC would be described in this subsection. However, most of these procedural requirements are superseded by the PPSA.

The Polk County LDC defines transmission lines as utilities, Class I (see page 10-75 of the Polk County LDC, Chapter 10, adopted March 1, 2000, and revised June 2012). Class I utilities are permitted in all land use districts (see page 2-11 of the Polk County LDC, Chapter 2, Section 205, Table 2.1).

Polk County has resource protection standards for surface water bodies, wetlands, floodplains, airports, aquifers, ecological communities, wellheads, and historic preservation. Wetland impacts from utility transmission lines are permitted where unavoidable and where properly mitigated as determined by agencies having jurisdiction (see page 6-5 of the Polk County LDC, Chapter 6, Section 620 C 2c).

Polk County Code of Ordinances

Section 10.5-48 of the Polk County Code of Ordinances is known as the Polk County Noise Control Ordinance. The ordinance prohibits activities defined as noise disturbances. There are no numeric (decibel) limits provided in the ordinance. There is a list of exemptions, and Section 10.5-58(m) is an exemption for operation of any regulated utility. Noise associated with transmission lines is therefore exempt from the Polk County Noise Control Ordinance.

Hillsborough County LDC

Section 2.02.02 of the Hillsborough County LDC provides a table indicating the categories of uses allowable in each standard zoning district. Electrical transmission lines are not specifically listed in the use table. Public service facilities, defined as, “[t]he use of land, buildings, or structures by a public utility, railroad, or governmental agency, including water treatment plants or pumping stations, electrical substations, telephone exchanges, and other similar public service structures...,” are allowed as a conditional use in every standard and planned development district except in one airport zoning district.

Section 4.01-03 of the Hillsborough County LDC, identified as a Natural Resources Permit, states that, “except as specifically exempted herein, it shall be unlawful for any person, firm or corporation, either individually or through an agent to cause land alteration within ... Hillsborough County without having obtained a Natural Resources Permit... .”

Section 4.01.03C provides that “[n]o permit under this section is required for: 7. Land alteration activities within new, approved utility rights-of-way or easements necessary to supply gas, water, sewer, telephone, cable television, or electrical service with one exception, provided these activities do not adversely impact an environmentally sensitive area. The exception to this exemption is any land alteration activity within a new electrical transmission corridor greater than 100 ft in width. Pursuant to the definition of land alteration, activities undertaken to maintain existing utility rights-of-way or easements are not regulated by these land alteration regulations.”

Under the section related to the Natural Resources Permit, Section 4.01.05 establishes standards for minimizing impact on soil and water. Section 4.01.06 establishes standards for tree protection and the preservation of natural plant communities. Section 4.01.07 establishes standards for protection of wetlands and natural water bodies. Section 4.01.09 establishes standards for protection of upland significant wildlife habitat. Section 4.01.10 establishes standards for the protection of upland essential wildlife habitat (i.e., upland habitat for populations of endangered and threatened species and species of special concern). Section 4.01.11 establishes standards for protection of land owned by the public or by a private, nonprofit conservation organization and held for natural preservation purposes. Section 4.01.12 establishes standards for onsite preservation of significant wildlife habitat. Section 4.01.13 establishes standards for offsite preservation of significant wildlife habitat.

Section 6.08.04 of the Hillsborough County LDC, identified as Unusually Tall Structures, states that, “[u]nless specifically stated otherwise elsewhere in this Code concerning height, unusually tall structures that are principal structures in themselves, such as high voltage transmission line towers, ... may only exceed the height limitations established for the district wherein they are proposed for relocation following review by the Administrator who may only grant the Permit where he finds:

- A. That the proposed structure is not located on property zoned SPI-Ap, nor would it result in restriction or interference with air traffic or air travel to or from any existing or proposed airport;
- B. That the proposed structure is consistent with the existing surrounding uses, and is compatible with the existing neighborhood development;

- C. That the proposed structure is consistent with any adopted or projected development plan for the area;
- D. That the proposed structure is not detrimental to the existing or proposed use of any neighboring property, and does not unreasonably restrict the free flow of light, sunlight and air to those properties.”

Part 6.01.01, District Performance and Dimension Standards, includes the schedule of area, height, bulk, and placement regulations. Maximum heights generally range from 35 to 50 ft except in the M district, where the height limit is 110 ft.

Hillsborough County Land Development Regulations

The following regulations of Hillsborough County normally would be applicable to the proposed transmission line outside of the PPSA process:

County Ordinance 03-29

The provisions of this ordinance are applicable to rights-of-way use permit applications, which include large facilities.

- Section 8—Supplemental permit requirements for large facilities in the rights-of-way provide as follows:
 - Subsection 8A—Requirements are applicable to all rights-of-way use permit applications that include large facilities. Large facilities are defined as “facilities which when installed will exceed 75 ft in height or poles greater than 24 inches in diameter at the ground line.”
 - Subsection 8B—Large facilities require the application and granting of a supplemental large facilities permit.
 - Subsection 8C—Application should include an analysis of alternate routes or locations.
 - Subsection 8D—Application may only be approved by the Board at a public hearing.
 - Subsection 8E—Applicant should publicize the public hearings by mailing written notice to residents and owners of property within 250 ft and neighborhood associations within 1 mile and by posting a sign at each proposed location identifying the height, width, type, and material composition of the proposed facility.

Through the PPSA process, substantive or nonprocedural portions of the LDC or pertinent ordinances may be required as COCs.

Chapter 1-10 of the Environmental Protection Commission of Hillsborough County rules addresses noise pollution. Sound level limits are measured in decibels (A-weighted Sound Level [dB(A)]). The limits are:

<u>Receiving Land Use</u>	<u>Time</u>	<u>dB(A)</u>
Residential	7 a.m. to 10p.m.	60
	10p.m. to 7a.m.	55
Commercial	At all times	65
Industrial	At all times	70

There are also residential limits for individual octave bands. The lowest limit is 53 dBA for the 250-Hz octave band between 11 p.m. and 7 a.m.

9.3.6.3 Easements, Title, Agency Works

Easements may be necessary for the transmission line to cross lands for which the title is held by the Board of Trustees of the Internal Improvement Trust Fund (TIITF), Hillsborough County, Polk County, or SWFWMD within the Preferred Corridors.

Approvals for crossing or use of state road rights-of-way must be granted pursuant to FDOT regulations. Approvals of crossings or use of county-maintained road rights-of-way must be granted pursuant to the requirements of the two respective counties. This is particularly noteworthy, since much of the Preferred Corridors follow or include crossings of road rights-of-way. All crossings of state roads will conform to specifications contained in FDOT's Utility Accommodation Manual (2010).

Authorizations are also normally required to cross or collocate with canals or works of the district under the jurisdiction of SWFWMD. Such works may include structures, impoundments, wells, streams, canals, or other watercourses officially adopted by SWFWMD's Governing Board. Other than the lands noted in Table 9.3.6-2, no other lands or facilities owned by SWFWMD have been identified within the Preferred Corridor.

Table 9.3.6-2 presents a list of potential lands, roads, or water bodies for which crossing approvals would normally be required.

9.3.6.4 Vicinity Scenic, Cultural, and Natural Landmarks

There are no such designated areas within 1 mile of the Preferred Corridors.

Table 9.3.6-2. Possible Easements, Titles, Crossing Approvals Expected to be Required for Transmission Line Construction in the Preferred Corridors

Facility/Lands	Agency	Approval
<u>Roads</u>		
CR 630	Polk County	Right-of-way use or crossing permit
SR 37	FDOT	Right-of-way use or crossing permit
Old Highway 37	FDOT	Right-of-way use or crossing permit
SR 674	FDOT	Right-of-way use or crossing permit
CR 39	Hillsborough County	Right-of-way use or crossing permit
CR 672	Hillsborough County	Right-of-way use or crossing permit
Balm-Boyette Road	Hillsborough County	Right-of-way use or crossing permit
Boyette Road	Hillsborough County	Right-of-way use or crossing permit
Dorman Road	Hillsborough County	Right-of-way use or crossing permit
<u>Water Bodies/Conservation Lands</u>		
PPS donated land (Chicora Tract)	TIITF	Easement or permit
South Prong Alafia River	Polk County	Easement/use and/or crossing permit
Little Manatee River	Hillsborough County and SWFWMD	Easement/use and/or crossing permit
Balm-Boyette Scrub Preserve	Hillsborough County and TIITF	Easement/use and/or crossing permit
Hurrah Creek	Hillsborough County and FDEP	Easement/use and/or crossing permit Sovereign submerged lands approval
Lewis Branch	Hillsborough County and FDEP	Easement/use and/or crossing permit
Pringle Branch	Hillsborough County	Easement/use and/or crossing permit
Bell Creek	Hillsborough County	Easement/use and/or crossing permit
Coleman Hammock (Fishhawk Creek)	Hillsborough County	Easement/use and/or crossing permit
Fishhawk Creek Nature Preserve/Little Fishhawk Creek	Hillsborough County and SWFWMD	Easement or permit

Source: ECT, 2012.

9.3.6.5 Archaeological and Historic Sites

FDHR was contacted to determine whether any known archaeological or historic sites occurred along the Preferred Corridors. ECT, on behalf of Tampa Electric, submitted a list of all sections, townships, and ranges crossed by the Preferred Corridors. FDHR provided a geographic information system (GIS) database file containing their known records of archaeological/historic sites within each section within which the corridor is located. Using a Preferred Corridors overlay, sites within or adjacent to the Preferred Corridors' boundaries were identified for discussion. Table 9.3.6-3 provides a description of the sites found within the Preferred Corridors.

As indicated, there are 10 archaeological/historic/resource group sites that are located in or partially located in the Preferred Corridors. Two sites are located in Polk County along the Polk-Pebbledale Preferred Corridor, and the remainder is located along the Polk-Fishhawk Preferred Corridor in Hillsborough County.

FDHR will review the Preferred Corridors and make an assessment as to potential impacts on these known or other potential sites. They may also request a cultural resources assessment be performed along certain areas of the proposed right-of-way, once it is selected and acquired. FDHR requests that distribution of information/maps on locations of known sites be limited due to potential vandalism. Therefore, this application does not depict the precise location of those resources discussed.

9.3.7 BIOLOGICAL AND PHYSICAL ENVIRONMENT OF THE CORRIDOR AREA

9.3.7.1 Land Use/Vegetation

The existing land use and vegetation cover types occurring within and for 0.5 mile adjacent to either side of the Preferred Corridors were acquired from the current SWFWMD GIS database (2012). These land use/cover types were classified using FLUCFCS (FDOT, 1999), Levels II and III. The various land use/vegetation types along the Preferred Corridors are shown in Figures 9.1.0-1 (aerial photographs) and 9.1.0-4 (land use/vegetation maps) at the end of this chapter, and descriptions of the major land use and vegetation cover classes along the Preferred Corridors are provided in the following subsections. Although the data provided by SWFWMD were originally generated in 2009, the vegetation/land use covers depicted are representative of the current resources.

Table 9.3.6-3. Known Cultural Resources Located within the Preferred Corridors

Site I.D. Number	General Location	Description
HI 01046	SR 674	Campsite (prehistoric)
HI 03636	Balm-Boyette Road	Specialized site for procurement of raw materials
HI 03817	Lewis Branch	Campsite (prehistoric)
HI 03827	Balm-Boyette Road	Specialized site for procurement of raw materials
HI 03843	SR 674	Land, terrestrial
HI 03852	SR 674	Single artifact
HI 06460	SR 674	Historic residence
HI 00288	Former Rail Line	Resource group
PO 01686	Old Highway 37	Lithic scatter/quarry
PO 07140	Old Highway 37/Rail line	Resource group

Note: HI = Hillsborough County.
PO = Polk County.

Source: ECT, 2012.

Land Use

Land uses mapped within the Preferred Corridors consist of residential, commercial and services, industrial, mining, reclaimed land, institutional, recreational, open land, agricultural, disturbed land, transportation, and utilities. According to the FLUCFCS, these categories include low-density residential (1100), medium-density residential (1200), high-density residential (1300), commercial and services (1400), industrial (1500), extractive (1600), reclaimed land (1650), institutional (1700), recreational (1800), open land (1900), cropland and pastureland (2100), row crops (2140), tree crops (2200), nurseries and vineyards (2400), specialty farms (2500), tropical fish farms (2550), other open lands (2600), disturbed land (7400), transportation (8100), and utilities (8300). Of these land use classifications, the mining, reclaimed land, and agricultural land uses dominate.

The cropland and pastureland (2100) use classification is typically associated with cattle grazing on open fields of pasture grasses. These improved and unimproved pastures have a dominant cover of pasture grasses such as bahia grass (*Paspalum notatum*), Bermudagrass (*Cynodon dactylon*), smutgrass (*Sporobolus indicus*), and big carpetgrass (*Axonopus furcatus*), among others. Depending on the degree of improvement, old field species such as dog fennel (*Eupatorium capillifolium*), sweet broom (*Scoparia dulcis*), common ragweed (*Ambrosia artemisiifolia*), slender goldenrod (*Euthamia caroliniana*), pokeweed (*Phytolacca americana*), manyflower marshpennywort (*Hydrocotyle umbellata*), blackberry (*Rubus* spp.), and other weedy herbaceous species, as well as occasional shrubs of saw palmetto (*Serenoa repens*), wax myrtle (*Myrica cerifera*), Brazilian pepper (*Schinus terebinthifolius*), or netted pawpaw (*Asimina reticulata*) often inhabit these communities. In addition, it should be noted that the reclaimed areas of former mining lands have also mostly been converted to pasture. Other predominant agricultural uses along the Preferred Corridors include citrus groves, vegetable crops, and sod farms.

Residential, commercial and services, industrial, institutional, recreational, disturbed land, and utilities make up a relatively smaller portion of the Preferred Corridors. Although not mapped as transportation (8100), the Preferred Corridors cross and occur along several roadways.

Vegetation

The Preferred Corridors will mostly be located within or adjacent to existing road and transmission line rights-of-way and a Tampa Electric-owned abandoned rail-

road corridor. The maintained rights-of-way of SR 37 and SR 674 are grassy areas. The existing transmission line corridors and the abandoned railroad corridor include grassy areas, reclaimed mine land, citrus groves, row crops, and natural vegetation with extensive canopy species. In addition to the mowed rights-of-way/corridors, a variety of natural communities will be traversed or are located within 0.5 mile of the Preferred Corridors. These vegetation cover classes include shrub and brushland (3200), mixed rangeland (3300), upland coniferous forests (4100), pine flatwoods (4110), upland hardwood forests (4200), hardwood-conifer mixed (4340), tree plantations (4400), stream and lake swamps (6150), cypress (6210), wetland forested mixed (6300), freshwater marshes (6410), wet prairies (6430), emergent aquatic vegetation (6440), and intermittent ponds (6530). Although not technically vegetation communities, lakes (5200) and reservoirs (5300) are also included and described along with the dominant vegetation types in the following subsections. Finally, although not mapped as streams and waterways (5100), there are several named and unnamed natural drainage crossings that are typically associated with the stream and lake swamp (6150) classification (e.g., Lewis Branch, Hurrah Creek, Little Fishhawk Creek, etc.).

Upland Communities

There are seven dominant upland communities within or adjacent to the Preferred Corridors. These communities consist of both natural and altered states of forest and rangeland. Most of the Polk-Pebbledale Preferred Corridor is mapped as reclaimed land (6150) but also includes transportation (8100) and utilities (8300). The following descriptions apply mainly to the Polk-Fishhawk Preferred Corridor unless noted otherwise.

Shrub and Brushland (3200)—Shrub and brushland occurs in several locations throughout the Preferred Corridor. This community is dominated by shrub cover, often has a distinct ground stratum similar to the herbaceous dry prairie, and lacks a predominance of tree canopy cover. Typical shrub species include saw palmetto, wax myrtle, groundsel tree (*Baccharis halimifolia*), winged sumac (*Rhus copallinum*), and Brazilian pepper. Small pine (*Pinus* spp.), oak (*Quercus* spp.), or cabbage palm (*Sabal palmetto*) trees may be scattered throughout this upland community.

Mixed Rangeland (3300)—When more than one-third intermixture of either grassland or shrub and brushland (3200) range species occurs, the specific classification is changed to mixed rangeland (3300). The grassland component of the

system is generally treeless dominated by grasses, rushes, sedges, and other herbs with some shrubs.

Upland Coniferous Forests (4100)/Pine Flatwoods (4110)—Any natural forest with a canopy of at least 66 percent dominated by upland coniferous species is classified as an upland coniferous forest (4100). When the species composition of the tree canopy can be identified, classifications to a Level III in the upland coniferous forest category can be made. Pine flatwoods (4110) occasionally occurs along or adjacent to the Preferred Corridors. It is characterized by a prevalence of pine trees that may vary in age. The dominant pine tree in central Florida is slash pine (*Pinus elliottii*). Occasional stands or individuals of sand pine (*Pinus clausa*) or longleaf pine (*Pinus palustris*) may also be present, as well. In addition to the pines, cabbage palm, saw palmetto, wax myrtle, gallberry (*Ilex glabra*), staggerbushes (*Lyonia* spp.), netted pawpaw, and a variety of flatwoods grasses are also present. Invasive exotic species, such as Brazilian pepper, have become established within many disturbed pine flatwood areas in this region.

Upland Hardwood Forests (4200)—Any natural forest with a canopy cover at least a 66-percent dominance by upland hardwood tree species is classified as an upland hardwood forest (4200). When the species composition of the tree canopy can be identified, classifications to a Level III in the upland hardwood forest category can be made.

Hardwood-Conifer Mixed (4340)—This upland forest community comprises several areas along the Preferred Corridors. It is not dominated by either pines or hardwoods; rather both comprise a significant component of the canopy. Most temperate hardwood species do not inhabit the forested communities of Central Florida, so the hardwood component of the canopy is primarily live oak (*Quercus virginiana*), water oak (*Q. nigra*), and laurel oak (*Q. laurifolia*). Cabbage palm, sweetgum (*Liquidambar styraciflua*), hackberry (*Celtis laevigata*), red maple (*Acer rubrum*), and common persimmon (*Diospyros virginiana*) also may occur here. Slash pine, sand pine, and/or longleaf pine are intermixed. Shrubs typically consist of saw palmetto, wax myrtle, groundsel tree, and/or American beautyberry (*Callicarpa americana*). Sometimes this forest classification may be used to characterize mature scrub communities (i.e., scrub areas that have become overgrown due to a lack of fire maintenance). This occurs along the crossing of the Balm-Boyette Scrub Preserve. These forests are more xeric and contain white sands. The overstory in these mature scrub areas is typically composed of sand live oak (*Quercus geminata*) and sand pine. The understory can contain saw palmetto, hog

plum (*Ximenia americana*), sand blackberry (*Rubus cuneifolius*), Virginia creeper (*Parthenocissus quinquefolia*), grape (*Vitis rotundifolia*), and various scrub oaks (*Quercus* spp.).

Pine Plantations (4400)—The pine plantation forest type consists mainly of slash pine being planted for the purpose of timber production. These pine plantations can be easily distinguished from native woods due to the uniform appearance of the even rows of pine trees all growing at the same height. Other canopy/subcanopy species can include live oaks, water oaks, laurel oaks, and cabbage palms. In most pine plantations, the understory layers are cleared prior to planting; however, there are some areas along the Preferred Corridors where the pines have been planted without clearing the original flatwoods vegetation.

Wetland Communities

Numerous wetlands are present within or adjacent to the Preferred Corridors, which is to be expected considering the prevalence of wetlands in Central Florida. Seven wetland community types and two surface water features have been identified within and/or adjacent to the Preferred Corridors.

Lakes (5200)—The lakes category includes extensive inland water bodies, excluding reservoirs. However, on occasion, smaller bodies of water (ponds) have been classified as lakes.

Reservoirs (5300)—This water category refers to artificial impoundments of water. Reservoirs are typically used for irrigation, flood control, municipal and rural water supplies, recreation, and hydroelectric power generation. The presence of dams, levees, and other water control structures is usually the most evident feature in identifying reservoirs. However, most of these open water systems are either remnant from past phosphate mining reclamation activities or were specifically created to water livestock.

Stream and Lake Swamps (6150)—This bottomland community is dominated by wetland hardwood tree species such as laurel oak, pop ash (*Fraxinus caroliniana*), elm (*Ulmus americana*), American hornbeam (*Carpinus caroliniana*), water hickory (*Carya aquatica*), black gum (*Nyssa sylvatica*), red maple, cabbage palm, swamp bay (*Persea palustris*), and sweet bay (*Magnolia virginiana*), among others. Common shrub/small tree species include Carolina willow (*Salix caroliniana*), elder (*Sambucus nigra*), swamp dogwood (*Cornus foemina*), buttonbush (*Cephalanthus occidentalis*), American snowbell (*Styrax*

americanus), and dahoon holly (*Ilex cassine*). A variety of sedges, rushes, ferns, and epiphytes are also important components of this swamp type. The majority of these forested wetlands occur along creek crossings of the Preferred Corridors. One of the drainages located approximately 2.25 miles south of the Fishhawk substation has a named swamp system, namely Coleman Hammock.

Cypress (6210)—These cypress-dominated forested wetlands typically occur in depressions in the landscape. Dome or pond cypress wetlands occupy circular depressions, and strands occur in linear depressions formed from slow water flow. These wetlands usually are seasonally to semipermanently flooded. However, many of them are ditched and have an altered hydrologic regime. Typical vegetation species include bald cypress (*Taxodium distichum*), pond cypress (*Taxodium ascendens*), black gum, slash pine, cabbage palm, swamp bay, red maple, dahoon holly, Carolina willow, greenbriers (*Smilax* spp.), swamp fern (*Blechnum serrulatum*), fireflag (*Thalia geniculata*), and various bromeliads, among others. Brazilian pepper, an invasive exotic species, often invades cypress swamps and displaces the native species. Some of these swamps have become completely overrun by the invasive species and are pure stands of Brazilian pepper.

Wetland Forested Mixed (6300)—This category includes mixed wetland forest communities in which neither hardwoods or conifers achieve a 66-percent dominance of the tree canopy.

Freshwater Marshes (6410)—Freshwater marshes typically exhibit a distinct vegetation zonation pattern based largely on the depth and duration of flooding. Typical species along the upper rim of the wetland include sand cordgrass (*Spartina bakeri*), soft rush (*Juncus effusus*), spike rushes (*Eleocharis* spp.), maidencane (*Panicum hemitomon*), and various sedges, among others. In the center of the wetland, where water is deeper and present for a longer duration, vegetation species such as sawgrass (*Cladium jamaicense*), fireflag (*Thalia geniculata*), pickerelweed (*Pontedaria cordata*), bladderworts (*Utricularia* spp.), and arrowheads (*Sagittaria* spp.) dominate. Occasional shrubs of Carolina willow, Brazilian pepper, and wax myrtle can sometimes be found in and around these wetlands.

Wet Prairies (6430)—Wet prairies are typically vegetated by a predominance of grasses, sedges, and rushes growing on sandy hydric soils and are usually distinguishable from marshes by having less water and shorter herbage.

Emergent Aquatic Vegetation (6440)—This wetland category includes deeper water systems with a discernible presence of free-floating, floating-leaved emergent, and/or emergent vegetation either occurring along littoral zones or as floating islands. Typical plant species found in these areas include Carolina willow, Peruvian primrosewillow (*Ludwigia peruviana*), cattail (*Typha* sp.), angletstem primrosewillow (*Ludwigia leptocarpa*), paragrass (*Urochloa mustica*), water lettuce (*Pistia stratiotes*), water hyacinth (*Eichhornia crassipes*), duckweeds (*Lemna* spp. and *Spirodela* spp.), fragrant white water lily (*Nymphaea odorata*), and spatterdock (*Nuphar advena*), among others.

Intermittent Ponds (6530)—Intermittent ponds are water bodies that exist for only a portion of the year. This seasonal water body relies on water received directly from precipitation, runoff or spring flow.

9.3.7.2 **Affected Waters and Wetlands**

Wetlands

Given the shallow groundwater table in places, flat topography, and varying soil conditions, there are various types of wetlands within or adjacent to the Preferred Corridors. As described in Section 9.3.7.1, these wetland types include bottomland swamps, cypress swamps, mixed wetland forests, freshwater marshes, wet prairies, emergent aquatic vegetation, and intermittent ponds. The hydrologic regime of these wetlands varies from semipermanently flooded to seasonally flooded, depending on the landscape position and the extent of drainage improvements within the immediate area. Extensive phosphate mining activities in and near portions of the Preferred Corridors have severely altered the natural hydrologic regime of many of the wetlands. Table 9.3.7-1 below provides a listing of the waterways crossed by the Polk-Fishhawk Preferred Corridor. No waterways are crossed by the Polk-Pebbledale Preferred Corridor.

Since the Preferred Corridors follow along several road and existing transmission rights-of-way, many of the water bodies that will be crossed have already been impacted by previous development such as filling, bridging, or culverting at the proposed point of crossing. This will minimize disturbance associated with construction since the area has already been impacted. Limited construction for the placement of poles may be required in jurisdictional wetlands. Detailed design information will be provided to the appropriate regulatory agencies as postcertification submittals (see Section 9.4.2) to ensure that drainage patterns and characteristics are not further altered from the predevelopment condition.

Table 9.3.7-1. Surface Water Bodies within the Preferred Corridors

Water Body	Receiving Water	Comments
Unnamed tributary	Hookers Prairie	Corridor crosses east of Bradley Junction
South Prong Alafia River	Alafia River	Corridor crosses at Old Highway 37 near Harper Grade Road
Little Manatee River	Tampa Bay	Corridor crosses along Wimauma Road (SR 674)
Unnamed tributary	Little Manatee River	Corridor crosses along Wimauma Road
Unnamed tributary	Little Manatee River	Corridor crosses along Wimauma Road
Unnamed tributary	Little Manatee River	Corridor crosses along Wimauma Road (SR 674)
Unnamed tributary	Little Manatee River	Corridor crosses west of CR 39 and north of Wimauma Road (SR 674)
Unnamed tributary	Little Manatee River	Corridor crosses west of CR 39 and north of Wimauma Road (SR 674)
Hurrah Creek	South Prong Alafia River	Corridor crosses west of CR 39
Unnamed tributary	Hurrah Creek	Corridor crosses west of CR 39
Unnamed tributary	Hurrah Creek	Corridor crosses west of CR 39
Lewis Branch	Hurrah Creek	Corridor crosses west of CR 39
Pringle Branch	Fishhawk Creek	Corridor crosses just north of CR 672
Unnamed tributary	Bell Creek	Corridor crosses near proposed Aspen substation, just east of Balm-Boyette Road
Unnamed tributary	Bell Creek	Corridor crosses north of CR 672 and along Balm-Boyette Road
Unnamed tributary	Bell Creek	Corridor crosses north of CR 672 and along Balm-Boyette Road
Bell Creek	Lake Shadow	Corridor crosses north of CR 672 and east of Balm-Boyette Road
Fishhawk Creek (Coleman Hammock)	Alafia River	Corridor crosses along Boyette Road
Unnamed tributary	Little Fishhawk Creek	Corridor crosses north of Dorman Road
Little Fishhawk Creek	Alafia River	Corridor crosses north of Crossroads Lane

Source: ECT, 2012.

9.3.7.3 Ecology

An area including the Preferred Corridors and 1,500 ft beyond either edge of the corridors (study area) was evaluated for the potential presence of listed plant or wildlife species. Listed species include those with a designation of endangered, threatened, species of special concern, or commercially exploited that are regulated by USFWS, the Florida Department of Agriculture and Consumer Services (FDACS), or FWC.

The inclusion of listed species in this application is based on the known or expected occurrence in the study area as residents, migrants, or transients or due to the presence of suitable habitat. The listed plant and animal species identified are presented in the following subsections.

The probability of occurrence of these species was based on known locations for such species, recent and historical reports of occurrence in the scientific literature, and the presence of suitable habitat as shown on land use and land cover maps, National Wetlands Inventory (NWI) maps, and recent aerial photographs. FNAI's database (2012) was also used to identify known occurrences of such species. Since the specific locations of many plant species are not known or mapped and most vertebrates, particularly birds, have extensive ranges and show significant daily and/or seasonal movement and distribution patterns, this section addresses the probability of occurrence in the study area based on suitable habitat and range. This is a conservative approach resulting in more diverse species inventories than solely depending on field observations.

In addition to the probability for occurrence, the potential for impacts due to right-of-way clearing, construction, and maintenance or other concerns such as the presence of ecologically unique or valuable habitats was evaluated for the species identified as potentially occurring in the study area. Individual discussions of the species are presented in the following subsections.

Plant Species

Based on the results of an FNAI search of element occurrences and other data sources, 88 regulated plant species are known to occur within Polk and/or Hillsborough Counties. Due to the rarity of most species and the disturbed condition of most of the habitats crossed by the Preferred Corridors, only 26 of these species are considered to have a reasonable likelihood for occurrence. These species are listed on Table 9.3.7-2. Of the 26 species considered to have a reasonable likelihood for occurrence, only two of the species on Table 9.3.7-2 appear on both state

Table 9.3.7-2. Protected Plant Species Known to Occur in Polk and/or Hillsborough Counties and with Potential for Occurrence in the Study Area

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
Brittle maidenhair fern	<i>Adiantum tenerum</i>	—	E	Sink walls, grottos, and limestone ledges
Pine-woods bluestem*	<i>Andropogon arctatus</i>	—	T	Flatwoods
Curtiss' milkweed*	<i>Asclepias curtissii</i>	—	E	Dry hammocks, scrub and flat-woods
Auricled spleenwort	<i>Asplenium erosum</i>	—	E	Epiphytic on live oaks in mesic hammocks and strand swamp
Florida bonamia	<i>Bonamia grandiflora</i>	T	E	Sandy soil and scrub
Ashe's savory	<i>Calamintha ashei</i>	—	T	Dry pinelands, sand pine scrub, and disturbed areas
Many-flowered grass-pink*	<i>Calopogon multiflorus</i>	—	E	Damp pinelands and meadows
Chapman's sedge	<i>Carex chapmannii</i>	—	E	Hammocks and woodlands
Sand butterfly pea*	<i>Centrosema arenicola</i>	—	E	Open, mixed woodlands and pine or oak-palmetto thickets
Pygmy fringe tree	<i>Chionanthus pygmaeus</i>	E	E	Low nutrient levels; sandy, dry soil of Central Florida scrub
Florida goldenaster*	<i>Chrysopsis floridana</i>	E	E	Sand pine scrub on bare sand
Florida perforate cladonia	<i>Cladonia perforata</i>	E	E	Rosemary scrub
Sweetscented pigeonwings	<i>Clitoria fragrans</i>	T	E	Sandhill, scrub, scrubby flatwoods and roadside
Piedmont jointgrass	<i>Coelorachis tuberculosa</i>	—	T	Marshes and margins of ponds
Avon Park harebells	<i>Crotalaria avonensis</i>	E	E	Bare white sand in partial shade along Lake Wales ridge
Florida tree fern	<i>Ctenitis sloanei</i>	—	E	Limestone ledges, rockland hammocks, and cypress strand swamps
Spoon-leaved sundew	<i>Drosera intermedia</i>	—	T	Seepage slopes, wet flatwoods, depression marshes, sinkhole lakes, and drainage ditches
Florida butterfly orchid*	<i>Encyclia tampensis</i>	—	C	Mangrove, cypress and hardwood swamps and hammocks; epiphytic
Green-fly orchid*	<i>Epidendrum conopseum</i>	—	C	Cypress and hardwood swamps and moist hammocks; epiphytic

Table 9.3.7-2. Protected Plant Species Known to Occur in Polk and/or Hillsborough Counties and with Potential for Occurrence in the Study Area (Continued, Page 2 of 5)

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
Umbelled epidendrum	<i>Epidendrum floridense</i>	—	E	Hammocks; epiphytic
Scrub buckwheat	<i>Eriogonum longifolium</i> var. <i>gnaphalifolium</i>	T	E	Sandhill, scrub, longleaf pine, and Lake Wales ridge
Garberia*	<i>Garberia heterophylla</i>	—	T	Dry sandy pine or pine-oak scrub and prairies
Tampa mock vervain*	<i>Glandularia tampensis</i>	—	E	Flatwoods, hammocks, sandy soil, and disturbed sites
Anglepod	<i>Gonolobus suberosus</i>	—	T	Bluffs and floodplains
Snowy orchid	<i>Habenaria nivea</i>	—	T	Bogs, wet pine savannas and flatwoods, and wet prairies
Threadroot orchid	<i>Harrisella porrecta</i>	—	T	Old orange groves, strand swamps, hardwood swamps, and hammocks; epiphytic
Hartwrightia	<i>Hartwrightia floridana</i>	—	T	Wet flatwoods, bogs, seepage slope clearings, and pine woods
Highlands scrub hypericum	<i>Hypericum cumulicola</i>	E	E	White sand in sand pine scrub
Edison's ascyrum	<i>Hypericum edisonianum</i>	—	E	Depression marshes, seepage slopes, wet prairie, wet flatwoods, and ponds
Star anise	<i>Illicium parviflorum</i>	—	E	Bottomland forest and wet hammocks
Nodding pinweed*	<i>Lechea cernua</i>	—	T	Sand scrub in openings; fire maintained
Spreading pinweed	<i>Lechea divaricata</i>	—	E	Dry, sandy soil and scrubby flatwoods
Florida blazing star	<i>Liatris ohlingerae</i>	E	E	Sand pine scrub on Lake Wales Ridge
Pine lily*	<i>Lilium catesbaei</i>	—	T	Wet flatwoods and bogs, usually with grasses
Tall twayblade orchid	<i>Liparis nervosa</i>	—	E	Cypress swamps, rich humus of hammocks, and wet muck
Southern twayblade	<i>Listera australis</i>	—	T	Rich humus of low moist woods, sphagnum moss, and stream banks
Cardinal flower	<i>Lobelia cardinalis</i>	—	T	Riverbanks, springs, and coastal hammocks

Table 9.3.7-2. Protected Plant Species Known to Occur in Polk and/or Hillsborough Counties and with Potential for Occurrence in the Study Area (Continued, Page 3 of 5)

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
Scrub lupine	<i>Lupinus westianus</i> var. <i>aridorum</i>	E	E	Sand pine scrub and yellow sand
Nodding club-moss*	<i>Lycopodiella cernua</i>	—	C	Wet depressions, ditches, and moist areas
Florida spiny-pod	<i>Matelea floridana</i>	—	E	Bluffs and pine-oak hickory woods
Sandhill spiny-pod	<i>Matelea pubiflora</i>	—	E	Sandhills and scrub
Florida mayten	<i>Maytenus phyllanthoides</i>	—	T	Hammocks and dunes
Celestial lily	<i>Nemastylis floridana</i>	—	E	Clearings in swamps, marshes, and wet pine flatwoods
Britton's beargrass*	<i>Nolina brittoniana</i>	E	E	Dry pinelands and sand pine scrub
Hand fern	<i>Ophioglossum palmatum</i>	—	E	Epiphytic on cabbage palm in hydric hammocks and strand swamps
Erect prickly pear cactus	<i>Opuntia stricta</i>	—	T	Shell mounds and coastal areas
Cinnamon fern*	<i>Osmunda cinnamomea</i>	—	C	Swamps, bogs, marshes
Royal fern*	<i>Osmunda regalis</i>	—	C	Swamps, bogs, marshes
Cutthroat grass	<i>Panicum abscissum</i>	—	E	Wet pinelands and seepage areas
Paper nailwort	<i>Paronychia chartacea</i>	T	E	Shores of karst lakes and scrub
Widespread polypody	<i>Peculuma dispersa</i>	—	E	Epiphytic or on rocks in hammocks
Plume polypody	<i>Peculuma plumula</i>	—	E	Epiphytic or on rocks in hammocks
Swamp plume polypody	<i>Peculuma ptilodon</i> var. <i>bourgeauana</i>	—	E	Epiphytic or on rocks in hammocks and swamps
Creeping leafstalkgrass	<i>Pharus lappulaceus</i>	—	E	Dry woods and rocky hammocks
Blueflower butterwort*	<i>Pinguicula caerulea</i>	—	T	Pine flatwoods, ditches, and roadsides
Yellow-flowered butterwort*	<i>Pinguicula lutea</i>	—	T	Pine flatwoods, seepage bogs, ditches, and roadsides
White-fringed orchid	<i>Platanthera blephariglottis</i> var. <i>conspicua</i>	—	T	Marshes, meadows, depressions, and bogs in pine savannas
Yellow-fringed orchid	<i>Platanthera ciliaris</i>	—	T	Bogs, swamps, marshes, pine savannas, flatwoods, floodplain forests, and forest slopes

Table 9.3.7-2. Protected Plant Species Known to Occur in Polk and/or Hillsborough Counties and with Potential for Occurrence in the Study Area (Continued, Page 4 of 5)

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
Golden-fringed orchid	<i>Platanthera cristata</i>	—	T	Sphagnum and sedge bogs, meadows, pine savannas, flatwoods, wet prairies, and edges of swamps
Palegreen orchid	<i>Platanthera flava</i>	—	T	Mud flats, floodplain swamps, meadows, and swales
Rose pogonia*	<i>Pogonia ophioglossum</i>	—	T	Sphagnum bogs, meadows, swamps, pine savannas, pine flatwoods, and prairies
Lewton's polygala	<i>Polygala lewtonii</i>	E	E	White sand scrub on Central Florida Ridge
Florida jointweed	<i>Polygonella basiramia</i>	E	E	White sand in sand pine and rosemary scrub of Lake Wales and Avon Park Air Force ridges
Small's jointweed	<i>Polygonella myriophylla</i>	E	E	Scrub
Scrub plum	<i>Prunus geniculata</i>	E	E	Sand pine scrub of Central Florida Ridge
Giant orchid*	<i>Pteroglossaspis ecristata</i>	—	T	Sand pine, scrub, sandhills, and pine rockland
Needle palm*	<i>Rhapidophyllum hystrix</i>	—	C	River bluffs, ravine slopes, hammocks, and bottomland
Long bristle beaksedge	<i>Rhynchospora megaplumosa</i>	—	E	Scrubby flatwoods
Leafless beaked orchid*	<i>Sacoila lanceolata</i>	—	T	Open pastures, roadsides, wet pine flatwoods, and sandhills
Hooded pitcherplant	<i>Sarracenia minor</i>	—	T	Flatwoods, bogs and ditches
Inkberry	<i>Scaevola plumieri</i>	—	T	Coastal strand and beaches
Pine scrub bluestem	<i>Schizachyrium niveum</i>	—	E	Rosemary scrub
Chaffseed	<i>Schwalbea americana</i>	E	E	Savannahs and pinelands
Small ladiestresses	<i>Spiranthes brevilabris</i>	—	E	Pine flatwoods
Long lip ladiestresses	<i>Spiranthes longilabris</i>	—	T	Prairies, flatwoods, marshes, and sandy bogs
Scrub stylisma	<i>Stylisma abdita</i>	—	E	Dry pinelands and scrub
Curtiss' hoarypea	<i>Tephrosia angustissima</i> var. <i>curtissii</i>	—	E	Coastal strand, beach dunes and pine rockland

Table 9.3.7-2. Protected Plant Species Known to Occur in Polk and/or Hillsborough Counties and with Potential for Occurrence in the Study Area (Continued, Page 5 of 5)

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
Toothed maidenfern	<i>Thelypteris serrata</i>	—	E	Pond-apple and pop-ash hammocks, guava groves, and cypress sloughs and swamps
Inflated and reflexed wild pine*	<i>Tillandsia balbisiana</i>	—	T	Hammocks, cypress swamp, pineland, and scrubs; epiphytic
Cardinal airplant*	<i>Tillandsia fasciculata</i>	—	E	Hammocks, cypress swamp, and pinelands; epiphytic
Giant wild pine*	<i>Tillandsia utriculata</i>	—	E	Hammocks, cypress swamp, and pinelands; epiphytic
Broadleaved noddingscaps	<i>Triphora amazonica</i>	—	E	Hardwood hammocks
Clasping warea	<i>Warea amplexifolia</i>	E	E	Dry pinelands and sandhills
Carter's mustard	<i>Warea carteri</i>	E	E	Pinelands, scrub and sandhills
Coontie*	<i>Zamia pumila</i>	—	C	Oak hammocks, pinelands, and shell middens
Simpson's zephyr-lily*	<i>Zephyranthes simpsonii</i>	—	T	Wet flatwoods and meadows
Treat's zephyr-lily	<i>Zephyranthes treatiae</i> var. <i>atamasca</i>	—	T	Wet pine flatwoods and adjacent roadsides; fire maintained
Scrub ziziphus	<i>Ziziphus celata</i>	E	E	Between sand pine scrub and longleaf pine (Lake Wales Ridge)

*Could potentially occur within the Preferred Corridors.

Note: E = endangered.
T = threatened.
C = commercially exploited.

Sources: FDACS, 2003.
FNAI, 2012.
www.plantatlas.org, 2012.
ECT, 2012.

and federal listings. Of the 26 species listed by FDACS, nine are listed as endangered, ten are listed as threatened, and seven are listed as commercially exploited. Given the known range of these species, past records of occurrence and the presence of potential habitat on or adjacent to the Preferred Corridors, there is a possibility that some or all of these species could occur. Brief descriptions of these species are provided in the following paragraphs.

Ferns and Fern Allies

Two species of ferns, cinnamon fern and royal fern, and one fern ally, nodding club-moss, are classified as commercially exploited species by FDACS. The fern/fernlike species are fairly common throughout Florida, occur in a variety of wetland habitats, and are expected within the Preferred Corridors. The Polk-Fishhawk Preferred Corridor crosses through the Balm-Boyette Scrub Preserve. Based on species lists, royal fern is known to occur on the Balm-Boyette Scrub Preserve. Given the range in habitat, these three commercially exploited species would be expected to persist in the corridor following the construction of the transmission line.

Lilies, Orchids, and Bromeliads

Eleven of the listed plant species are lilies, orchids, or bromeliads. Of these species, two are lilies, six are orchids, and three are bromeliads. Simpson's zephyr-lily is listed as threatened by FDACS and is a large lily that grows solitarily or clumped. It may be found growing in wet pine flatwoods, meadows, or pastures along the route. It is possible for Simpson's zephyr-lily to coexist with the transmission line, once built, in wet areas with periodically maintained herbaceous cover, similar to wet pasture. The pine lily is also listed as threatened by FDACS. This lily grows in wet flatwoods and bogs. If native shrub layers are not disturbed during clearing or maintenance, pine lily could potentially persist in the transmission line easement.

Both terrestrial and epiphytic orchids could potentially occur within the study area. The four listed terrestrial orchids typically inhabit pine flatwoods. Many-flowered grass-pink is a terrestrial orchid listed as an endangered species by FDACS. Rose pogonia is a terrestrial orchid species listed as threatened by FDACS. Based on species lists, rose pogonia is known to occur at the Balm-Boyette Scrub Preserve. The giant orchid, listed as threatened by FDACS, has been recorded by FNAI as occurring in the Balm-Boyette Scrub Preserve approximately 1,000 ft east of the Preferred Corridors. The third terrestrial orchid species, also listed by FDACS as threatened, is the leafless beaked orchid. Depending

on the level of disturbance associated with clearing and maintenance, the terrestrial orchids could potentially persist in the transmission line easement.

The two epiphytic orchids, Florida butterfly orchid and green-fly orchid, are listed by FDACS as commercially exploited species. Florida butterfly orchids are epiphytic plants that form clusters along the trunks of hardwoods (mostly live oaks) and cypress trees. Although somewhat rare throughout the state of Florida, the orchid is typically abundant where found. Green-fly orchids are epiphytic plants, which, like butterfly orchids, also grow in clusters on the trunks of trees. Since these two orchid species are epiphytic, any tree clearing and maintenance associated with transmission line construction and operation would limit the growth of these orchids to areas outside the transmission line right-of-way.

There are three listed bromeliads (epiphytes of the genus *Tillandsia*) that could potentially occur in the study area, given the presence of preferred habitat. One bromeliad species, inflated and reflexed wild pine, is listed as endangered by FDACS and is somewhat rare in occurrence. The remaining two *Tillandsia* species, giant wild pine and cardinal airplant, although listed as endangered, are more common. Giant wild pine is known to occur within the Balm-Boyette Scrub Preserve. Since these three bromeliad species are epiphytic, any tree clearing and maintenance associated with transmission line construction and operation would limit the growth of these bromeliads to areas outside the transmission line right-of-way.

Other Plant Species

Tampa Vervain—Tampa mock vervain is listed as endangered by FDACS. Since this plant is found in disturbed sites, it is possible that Tampa mock vervain could coexist with the transmission line.

Butterworts—There are two butterworts that could potentially occur along pine flatwoods, ditches, and roadsides in the study area. Both the blueflower butterwort and the yellow-flowered butterwort are listed as threatened by FDACS. These two insectivorous plant species could potentially persist within the transmission line right-of-way, depending upon land clearing and maintenance practices.

Needle Palm—This palm is only listed as commercially exploited by FDACS. Since needle palms prefer shady locales, opening up the tree canopy during clearing and maintenance activities associated with the construction of the transmis-

sion line will impact the viability of this species in the transmission line right-of-way.

Coontie—Coontie is a cycad or primitive palm that is listed as commercially exploited by FDACS. Coontie occurs in a variety of well-drained sites including oak hammocks, pinelands, shell middens, and pastures. It is possible that coontie could exist in drier portions of the transmission line right-of-way, where maintenance procedures allow for shrub development.

Florida Goldenaster—Florida goldenaster grows in sunny, bare patches of sand in sand pine scrub, low sand ridges of excessively drained sands, and railroad and highway rights-of-way. This state and federally listed endangered composite species is endemic to West-Central Florida. Based on current FNAI data, there are three records for the occurrence of Florida goldenaster within the Balm-Boyette Scrub Preserve in proximity to the crossing of the Polk-Fishhawk Preferred Corridor (i.e., along the edge to within approximately 2,500 ft from the edge of the Preferred Corridor). If Florida goldenaster is found to be present in the selected transmission line right-of-way, Tampa Electric will coordinate with USFWS to determine an appropriate course of action prior to any land clearing activities. Tampa Electric currently has a maintained 230-kV transmission line south of the preserve.

Sand Butterfly Pea—The sand butterfly pea grows in open, mixed woodlands and pine or oak-saw palmetto thickets. It is listed as an endangered species by FDACS. There is an FNAI record for sand butterfly pea occurring within 5 miles of the Preferred Corridors. If present, it is possible that sand butterfly pea could persist within the transmission line right-of-way.

Pine-Woods Bluestem—The pine-woods bluestem is a perennial grass, which grows in pine flatwoods. There is an FNAI record for pine-woods bluestem occurring within 5 miles of the Preferred Corridors. If present, it is anticipated that this state-listed threatened grass species will be able to potentially persist within the maintained right-of-way.

Britton's Beargrass—Britton's beargrass is listed as a state and federal endangered species by FDACS and USFWS, respectively. Britton's beargrass grows in dry pinelands and sand pine scrub. It has been recorded by FNAI as occurring within 5 miles of the Preferred Corridors. If Britton's beargrass is found to be present in the selected transmission line right-of-way, Tampa Electric will coordinate

with USFWS to determine an appropriate course of action prior to any land clearing activities.

Nodding Pinweed—Nodding pinweed is listed as threatened by FDACS. The nodding pinweed grows in openings of fire-maintained scrub. Based on current FNAI data, there are four records for the occurrence of nodding pinweed in proximity to the Polk-Fishhawk Preferred Corridor (i.e., three records along the edge to within 3,000 ft from the edge of the Preferred Corridor along the Balm-Boyette Scrub Preserve and one record along the southern side of SR 674 approximately 2.5 miles east of the intersection of SR 674 and CR 39). If present, it is possible that nodding pinweed could persist within the transmission line right-of-way.

Curtiss' Milkweed—Curtiss' milkweed is an extremely rare endemic species, listed as endangered by FDACS and confined to deep excessively well-drained sandy habitats in the peninsula. Although widespread throughout the peninsula, its populations are widely scattered and localized. It occurs only in excessively well drained sands with lots of sunlight. Based on species lists, Curtiss' milkweed is known to occur in the Balm-Boyette Scrub Preserve. If present, it is possible that Curtiss' milkweed could persist within the transmission line right-of-way.

Garberia—Garberia is a shrub found in sand pine and oak scrub habitats of Central and North Florida. Although it is listed as a state threatened species due to habitat loss, Garberia is locally frequent. It is possible that Garberia could exist in drier portions of the transmission line right-of-way, where maintenance procedures allow for shrub development.

Wildlife Species

The presence or potential for occurrence of wildlife species within a given area is primarily related to the presence of suitable habitat for cover, feeding, and reproduction. In general, the type and quality of wildlife habitats vary with vegetation type and structure, surrounding land use, and hydrology. For this reason, wildlife habitat types can frequently be equated with vegetation community types.

To determine the vegetation community (i.e., habitat) types intersected by the Preferred Corridors, land use and cover classification maps were obtained from SWFWMD. These maps identified natural community systems as well as developed lands in various stages of disturbance. Using the SWFWMD classification (see Section 9.3.7.1), community systems identified in the study area that constitute the principal wildlife habitat types include pine flatwoods, forested mixed

uplands, and wetlands such as cypress forests, mixed hardwood swamps, freshwater marshes, wet prairies, and emergent wetlands. Habitats such as improved pasture, agricultural operations, transportation rights-of-way, recently or currently active mined lands, and landscaped residential development are of relatively lower value to wildlife due to the limited diversity of niches, which is reflected in the lower wildlife species diversities in such habitats.

Developed residential areas offer little habitat value to native vegetation and wildlife. Such areas occur primarily in the western portion of the Polk-Fishhawk Preferred Corridor south of the Fishhawk substation. In contrast, the undeveloped habitats in and along both Preferred Corridors include a variety of upland and wetland communities representing a wide range of habitat values for specific plant and wildlife species. Areas of potentially high habitat value within the Polk-Fishhawk Preferred Corridor area include the forested areas, swamp, and wet prairie communities found in some of the undisturbed areas of the corridor, such as along tributaries to the Little Manatee River, Hurrah Creek, Fishhawk Creek (Coleman Hammock), and Little Fishhawk Creek. This corridor also passes along the southern boundary of the Balm-Boyette Scrub Preserve, which is a valuable upland wildlife habitat, although the corridor is following existing transmission lines in this area.

The status and potential for occurrence of species listed as endangered, threatened, or of special concern in the study area were determined by a habitat analysis, literature survey, agency contacts, and ground surveys. A total of 21 vertebrate species, including 6 reptiles and amphibians, 13 birds, and 2 mammals, was identified as species occurring or possibly occurring in the study area. The status and potential for occurrence of these vertebrate species in and along the Preferred Corridors are summarized in Table 9.3.7-3 and discussed in the following paragraphs.

Amphibians

The gopher frog (*Rana capito*) is a species of special state concern as identified by FWC. This amphibian is typically considered a commensal species to the gopher tortoise. Therefore, habitat requirements tend to be xeric upland habitats that support gopher tortoise populations. Within the Preferred Corridors wherever xeric habitats (such as Balm-Boyette Scrub Preserve) are found, there is a moderate likelihood this species may be present.

Table 9.3.7-3. Listed Wildlife Species Potentially Occurring in the Tampa Electric Polk-Fishhawk and Polk- Pebbledale Transmission Corridor Study Area

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FWC	
<u>Amphibians</u>				
Gopher frog	<i>Rana capito</i>	—	SSC	Moderate-whenever gopher tortoises are found
<u>Reptiles</u>				
American alligator	<i>Alligator mississippiensis</i>	T(S/A)	T(S/A)	High-in wetlands and water bodies throughout the corridor area
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T	Moderate-especially where gopher tortoises are found; records from study area (FNAI)†
Short-tailed snake	<i>Stilosoma extenuatum</i>	—	T	Moderate-suitable habitat is found in corridor area; records exist within study area (FNAI)
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	—	SSC	Moderate-suitable habitat is found in corridor area; records exist within study area (FNAI)
Gopher tortoise	<i>Gopherus polyphemus</i>	—	T	High-likely found in more xeric portions of corridor; records found throughout the study area (FNAI)
<u>Birds</u>				
Little blue heron	<i>Egretta caerulea</i>	—	SSC	Moderate-in suitable habitats along the corridor; no breeding colonies known within 0.5 mile, although individual records exist for study area (FNAI)
Snowy egret	<i>Egretta thula</i>	—	SSC	Moderate-in suitable habitats along the corridor; no breeding colonies known within 0.5 mile, although individual records exist for study area (FNAI)
Tricolored heron	<i>Egretta tricolor</i>	—	SSC	Moderate-in suitable habitats along the corridor; no breeding colonies known within 0.5 mile, although individual records exist for study area (FNAI)

Table 9.3.7-3. Listed Wildlife Species Potentially Occurring in the Tampa Electric Polk-Fishhawk and Polk- Pebbledale Transmission Corridor Study Area (Continued, Page 2 of 3)

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
White ibis	<i>Eudocimus albus</i>	—	SSC	Moderate-in suitable habitats along the corridor; no breeding colonies known within 0.5 mile, although individual records exist for study area (FNAI)
Wood stork	<i>Mycteria americana</i>	E	E	Moderate-in suitable habitats along the corridor; no breeding colonies known within 0.5 mile, although individual records exist for study area (FNAI)
Limpkin	<i>Aramus guarauna</i>	—	SSC	Low-slow-moving streams generally absent from corridor area; no records exist from study area (FNAI)
Roseate spoonbill	<i>Platalea ajaja</i>	—	SSC	Low-more coastal species, but could occasionally forage inland
Florida sandhill crane	<i>Grus canadensis pratensis</i>	—	T	Moderate-in wet pastures and marshes along the corridor; records exist for the study area (FNAI)
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E	E	Unlikely-historical record (1988) from a mining area north of PPS (FNAI) but study area is outside its normal range.
Bald eagle	<i>Haliaeetus l. leucocephalus</i>	—	—	Present-several records for active nesting in the study area; one recorded active nest within the Polk-Fishhawk Preferred Corridor
Florida burrowing owl	<i>Athene cunicularia floridana</i>	—	SSC	Low-prefers dry, well drained pastures; no records exist for study area (FNAI)
Florida scrub jay	<i>Aphelocoma coerulescens</i>	T	T	Low-scrub habitat does occur along portions of the corridor; no records exist for the study area (FNAI)
Southeastern American kestrel	<i>Falco sparverius paulus</i>	—	T	High-possibly found along roadsides and transmission corridors in the area, suitable habitat present.

Table 9.3.7-3. Listed Wildlife Species Potentially Occurring in the Tampa Electric Polk-Fishhawk and Polk- Pebbledale Transmission Corridor Study Area (Continued, Page 2 of 3)

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
<u>Mammals</u>				
Florida mouse	<i>Podomys floridanus</i>	—	SSC	Low-possibly found where gopher tortoises exist; no records from the study area (FNAI)
Sherman’s fox squirrel	<i>Sciurus niger shermani</i>	—	SSC	Low-preferred habitat generally lacking from corridor; no records exist for study area (FNAI)

* E = endangered.

T = threatened.

T(S/A) = threatened due to similarity in appearance to a federally listed species.

SSC = species of special concern.

†FNAI 2012 records search of rare element occurrences for the study area.

Sources: FWC, 2011.

FNAI, 2012.

ECT, 2012.

Reptiles

American Alligator (*Alligator mississippiensis*)—The alligator is listed as threatened due to similarity of appearance by USFWS and FWC. This reptile would almost certainly be present in wetlands and water bodies traversed by the Preferred Corridors.

Eastern Indigo Snake (*Drymarchon corais couperi*)—This distinctive large, black snake can occur in suitable habitats throughout Florida. It has a wide range of habitat preferences and prey species. Often considered as a gopher tortoise commensal, it can be found in xeric habitats, but also uses more mesic habitats. There is a moderate likelihood that the indigo snake would be found within the Preferred Corridors. Both USFWS and FWC list the indigo snake as a threatened species. FNAI has records of this animal within 5 miles of the Preferred Corridors.

Short-Tailed Snake (*Stilosoma extenuatum*)—The short-tailed snake is generally restricted to sandhill communities, which are xeric habitats. Some xeric habitats are present in the Polk-Fishhawk Preferred Corridor area. FNAI (2012) does have records for this species northwest of the Fishhawk substation. It is currently listed as a threatened species by FWC.

Florida Pine Snake (*Pituophis melanoleucus mugitus*)—The Florida pine snake prefers longleaf pine/xeric oak woodlands. Some xeric habitats are found in the corridor area. FNAI (2012) does show records for this species within 5 miles of the proposed corridors. The pine snake is a species of special concern as listed by FWC.

Gopher Tortoise (*Gopherus polyphemus*)—The range of the gopher tortoise in Florida includes all of the study area. It is likely to be found in xeric habitats found along the length of the Preferred Corridors. Several records exist for the study area (FNAI, 2012). Since the gopher tortoise prefers burrows in sunny locations, xeric habitats along existing road or transmission line rights-of-way may be particularly suited to this species. FWC lists the gopher tortoise as a threatened species.

Birds

Little Blue Heron (*Egretta caerulea*)—This wading bird is listed as a species of special concern by FWC and is found in suitable wetlands throughout Florida. The little blue heron prefers freshwater habitats for foraging. This heron may be

found foraging in suitable habitats within the Preferred Corridors and has been documented within the study area by FNAI (2012).

Snowy Egret (*Egretta thula*)—FWC lists snowy egrets, like the other wading birds, as a species of special concern. This bird is widely distributed in Florida in both fresh and saltwater systems. The snowy egret may occur in wetlands within the Preferred Corridors and has been documented within the study area by FNAI (2012).

Tricolored Heron (*Egretta tricolor*)—The tricolored heron (formerly called Louisiana heron) is a species of special concern as listed by FWC. This wading bird species prefers estuarine habitats, but can be found foraging in almost any wetland system. This species may occur within wetlands within the Preferred Corridors and has been documented within the study area by FNAI (2012).

White Ibis (*Eudocimus albus*)—The white ibis is actually one of the most common wading birds in Florida, but FWC lists it as a species of special concern. Large flocks of this bird are often seen foraging in shallow marshes or wet pastures. The white ibis is likely to occur in suitable wetlands within the Preferred Corridors and has been documented within the study area by FNAI (2012).

Wood Stork (*Mycteria americana*)—The wood stork is an endangered species according to both USFWS and FWC. This large bird prefers nesting in cypress swamps. No known nesting colonies are found near the Preferred Corridor. The corridor selection process ensured that known wood stork colonies were avoided. Individuals of the species almost certainly would be found foraging in marshes and ditches within the Preferred Corridors and has been documented within the study area by FNAI (2012). One wood stork colony is located approximately 0.7 mile north of the Polk-Fishhawk Preferred Corridor and was recorded as active in 2010 by USFWS.

Southeastern American Kestrel (*Falco sparverius paulus*)—This small falcon is the resident subspecies that breeds in Florida. The more common northern migrant is seen very commonly in the winter months perching on snags and powerlines along roadsides in Central Florida. This species is listed as a threatened species by the FWC. The open habitats found along both corridors provide good foraging habitat for this bird, so there is a high likelihood it could be found along the corridors.

Limpkin (*Aramus guarauna*)—FWC lists the limpkin as a species of special concern. The species range is primarily North-Central Florida. The species is found in slow-moving waterways inhabited by the apple snail. The likelihood of occurrence within the Preferred Corridors is considered low due to the lack of these systems in the study area.

Roseate Spoonbill (*Platalea ajaja*)—Roseate spoonbills are a conspicuous bird that nest and primarily forage along the coast. These birds do occasionally forage inland and therefore may occur in the study area due to its proximity to Tampa Bay. It is listed as a species of special concern by FWC.

Florida Sandhill Crane (*Grus canadensis pratensis*)—The sandhill crane is listed as threatened by FWC. The sandhill crane prefers marshes for nesting and pastures, wet prairies or farm fields for foraging. Given the potential habitats within the Preferred Corridors, the likelihood of occurrence of this species is considered moderate. It has been historically recorded in the study area, but no records are shown for the last 5 years (FNAI, 2012).

Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*)—This endangered bird prefers habitats consisting of slow-moving water with emergent vegetation such as maidencane or sawgrass. This species is typically found in the Lake Okeechobee area southward through the Everglades. Although FNAI lists a historical siting (1988) near the PPS Site, its occurrence in the study area is considered unlikely since the Project is outside its normal range.

Bald Eagle (*Haliaeetus leucocephalus*)—USFWS delisted the bald eagle in 2007 and FWC delisted it in 2008, but it is still protected by state and federal management guidelines. The eagle is making a comeback in population numbers in the United States, and, in Florida, eagle nests are becoming more common. Several active nests occur with the Project's study area. One active bald eagle's nest occurs within the Polk-Fishhawk Preferred Corridor: HL 030. This nest occurs approximately 0.5 mile northwest of the Mines substation along Tampa Electric's existing transmission line easement within the Preferred Corridor (see Figure 9.1.0-4 [Map 5 of 18]). The nest was last reported active in 2010.

No other active eagle nests are known to occur in the corridor or within 0.5 mile of the Preferred Corridors.

Burrowing Owl (*Athene cunicularia floridana*)—The burrowing owl prefers xeric pastures with low vegetation. The Preferred Corridors do cross some dry pastures and croplands, but its likelihood of occurrence is considered low, since no records exist for the study area (FNAI, 2012). It is state listed as a species of special concern.

Florida scrub jay (*Aphelocoma coerulescens*)—The Florida scrub jay prefers xeric scrub habitats generally found along the Lake Wales Ridge of Florida, which is located primarily east of the study area. Since scrub habitat is found in portions of the study area, this bird is included although the potential for occurrence is considered low. FNAI (2012) revealed no recorded observations in the study area. The scrub jay is listed as threatened by both USFWS and FWC.

Wading Bird Colonies

FWC and FNAI do list locations of wading bird colonies in the study area. While none are recorded as occurring within 0.5 mile of the Preferred Corridors, several are historically known to occur within 5 miles of the corridors. However many of these records are from the 1970 to 1999 timeframe.

Mammals

Florida Mouse (*Peromyscus floridanus*)—The Florida mouse is recognized as a commensal to the gopher tortoise, commonly found residing in tortoise burrows. FWC lists the species as a species of special concern. Gopher tortoises may exist within the Preferred Corridors, but the Florida mouse's likelihood of occurrence is considered low. FNAI (2012) reports no records for the study area.

Sherman's Fox Squirrel (*Sciurus niger shermani*)—This squirrel has a low likelihood to occur in the study area and within the Preferred Corridors. FWC lists the species as a species of special concern. This species would be expected to be found in drier pine flatwoods, xeric oak, or sandhill communities, which are not common within the Preferred Corridors. FNAI (2012) shows no records of this species within the study area.

9.3.7.4 Other Environmental Features

The preceding subsections presented relevant environmental information regarding the biological and water resources within and near the Polk-Fishhawk and Polk-Pebbledale Preferred Corridors. No other relevant and significant environmental features are known that further describe the environmental characteristics of the Preferred Corridors.

9.4 EFFECTS OF RIGHT-OF-WAY PREPARATION AND TRANSMISSION LINE CONSTRUCTION

9.4.1 CONSTRUCTION TECHNIQUES

Construction is scheduled to begin in October 2014, with a completion date of November 2016. Construction phases will consist of right-of-way clearing, access road construction (where necessary), line construction, and right-of-way restoration. Construction phases generally will be performed sequentially along the right-of-way such that activities in any one area will be short-termed.

9.4.1.1 General Right-of-Way Clearing

Tree trimming and removal will be limited to the amount necessary to ensure the safe and reliable operation of the power lines (i.e., within the proposed right-of-way). All trimming will be performed within the guidelines of all applicable codes and BMPs.

Right-of-way clearing will take place throughout the length of this project in a three step process. First, all vegetation will be removed at ground level within the right-of-way. In upland areas, the stumps will be grubbed. All stump locations will be leveled to facilitate access and safety. Second, any trees or vegetation located outside of the right-of-way that have any aerial encroachment within the right-of-way will be trimmed following the American National Standards Institutes A-300 standard. Third, any and all “danger timber” located outside the right-of-way will be removed. Danger timber is defined as any tree, which upon failure, could impact electrical facilities. Danger timber that is removed will be treated with a cut stump herbicide to prevent any regrowth.

9.4.1.2 Clearing and Grubbing in Upland Areas

In upland areas the right-of-way will be cleared and grubbed. Grubbing will include the removal the entire length of trees and bushes, including the removal of stumps and root mat. After grubbing, holes that result from the clearing operation will be filled, regraded, seeded, and mulched for the area. Clean soils from at-grade access road excavation will be used for filling holes, where practical.

The right-of-way will be disked to embed seed and mulch, and the surface will then be recompact. Seeding will be performed in accordance with the latest FDOT design standards (FDOT Sections 570 and 575). The seed will be watered until established.

Where clearing and grubbing is not required, the right-of-way will be mowed, and debris will be cleaned up and disposed of at an appropriate disposal area.

Trees or vegetation located outside of the right-of-way that have any aerial encroachment within the corridor will be trimmed following the American National Standards Institutes A-300 standard.

9.4.1.3 Clearing in Wetland Areas

In forested wetland areas, restrictive clearing practices will be used during construction of the line. Restrictive clearing is the removal of vegetation by hand, usually with chain saws, or with low-ground-pressure shear or rotary machines to reduce soil compaction and damage to ground cover. Construction matting in conjunction with BMPs may be used in wetlands to support equipment. These methods may be used alone or in combination, as may be appropriate for specific sites. Cut vegetation will be removed from wetlands and disposed in appropriately permitted local landfills.

Danger timber outside the right of way will be removed. Danger timber that is removed will be treated with a cut stump herbicide to prevent any regrowth.

Tree stumps under the conductors will be removed to a width of 20 ft on either side of the conductors. Tree stumps in the area beyond 20 ft on either side of the outer conductors will be left in place to preserve the root mat. Tree stumps including roots, in the structure pads or at-grade access road will be removed entirely.

9.4.1.4 Clearing in Balm-Boyette Scrub Preserve

Within Section 18, Township 31 south, Range 21 east, where the Preferred Corridor is contiguous with the Balm-Boyette Scrub Preserve, vegetation clearing will be performed as previously described except as follows:

- Clearing of natural vegetation at structure sites will not exceed a 75-ft radius from each supporting structure. Raised structure access pads where required will be contained within the cleared area.
- Between supporting structures, the access road area will be cleared for the construction of at-grade or raised access roads, as shown on Figures 9.3.4-1 and 9.3.4-2 and as discussed in Section 9.3.4.

- Between supporting structures, the vegetation under the conductors to the right-of-way edge will be maintained as an upland or scrub community up to 6 ft in height.
- Vegetation management activities will be done in a manner that minimizes the impacts to essential wildlife habitat and xeric significant wildlife habitat but allows for visual inspection of the facilities.

It is important to note that Tampa Electric is proposing to locate along an existing transmission line in the Balm-Boyette Scrub Preserve and will maintain the new line consistent with that existing right-of-way.

9.4.1.5 Access Road and Structure Pad Construction

The access to the transmission line right-of-way will be from county roads or state roads. Access roads along the right-of-way and structure working pads are necessary for installation and maintenance of the transmission line. Existing access roads on Tampa Electric rights-of-way will be improved, and new access will be constructed as outlined in Section 9.3.4. To minimize the impact to surface water flow and floodplain storage volume, at-grade roads will be constructed in uplands, herbaceous wetlands, and other areas not subject to flooding. Raised access roads and raised structure working pads may be used for new access roads and improvement of existing access in areas subject to flooding. Compensating floodplain storage will be constructed to offset any fill placed in floodplain areas.

Tampa Electric will ensure the construction of the Project will have minimal impacts to water resources and wetlands, both individually and cumulatively. Where there is a potential for erosion, turbidity screens and other erosion control devices and techniques will be used to minimize construction impacts to wetlands and water bodies and ensure that state water quality standards for turbidity are met.

9.4.1.6 Transmission Line Construction

Construction of the transmission lines will involve the installation of direct-embedded transmission structures located within existing and proposed Tampa Electric rights-of-way. Structures will be tubular steel poles, typically 100 to 135 ft above ground, and will have an approximate ground line diameter of 4 to 6 ft.

To install the transmission line structures, a digger truck will auger a hole approximately 6 to 8 ft in diameter that will range from approximately 25 to 45 ft deep,

and the single steel poles will be embedded directly into the hole and backfilled with crushed rock or pumped concrete. Taller poles, site-specific geography, or poor subsurface conditions may require additional setting depths. Tampa Electric will frame and erect the structures using cranes and other support vehicles.

Following this work, the structures will be prepared for the stringing of ground wire and conductors. This work should have no wetland impacts (i.e., the work involves the use of winches placed in uplands along the proposed Tampa Electric right-of-way that pull the wire from structure to structure). Following the completion of wire stringing, no other disturbances to wetland substrates and vegetation will occur as a result of construction activity.

When the proposed activities occur adjacent to wetlands, appropriate sediment control methods will be used, as required. Sediment controls include the installation of staked silt fences with hay bales along uplands and shallow wetland edges. Silt screens will be placed downstream of construction areas, as required.

9.4.1.7 Restoration

Once construction activities are completed, construction and vegetative debris will be properly disposed. Disturbed soils will be regraded to preconstruction contours, and bare areas that may be highly susceptible to erosion will be reseeded and mulched.

9.4.2 ENVIRONMENTAL RESOURCE PERMIT

The ERP application information will be submitted for the Preferred Corridors' proposed rights-of-way as a postcertification filing. Once the corridors are certified, Tampa Electric will identify a proposed right-of-way and secure the necessary land rights to the right-of-way. Then, Tampa Electric will perform detailed studies on the right-of-way, which will include wetlands delineation, vegetation mapping, listed plant species survey, and listed wildlife surveys. Results of those surveys will be provided to the applicable regulatory agencies as part of Tampa Electric's postcertification ERP application filing.

Impacts to water bodies and wetlands will be generally as described in the following paragraphs.

A new transmission line of this length will cross some wetland areas. Wetlands in the study area were avoided and minimized by the route selection methodology.

Many of the wetlands within the Preferred Corridors have been previously impacted by existing phosphate mining, agricultural operations, existing transmission lines, or roads. Impacts to these wetlands will be minimized to the extent possible by limiting construction to an existing cleared right-of-way, using existing access roads where available, or locating the new right-of-way immediately adjacent to an existing clearing so only supplemental clearing is needed. It is Tampa Electric's intent to widen existing cleared wetland areas where practicable rather than create new clearings through wetlands. Where a new access road and fill are unavoidable, construction techniques and culverting within these wetlands will comply with FDEP standards.

Water quality along and adjacent to the construction site will be preserved by the implementation of appropriate BMPs to control the quantity and quality of runoff from the construction site.

Section 9.4.1 describes land clearing activities. To the extent possible, native vegetation will be left in place to reduce erosion. However, some vegetation will be disturbed by the construction of the transmission line. As previously noted, the impacts of land clearing will be reduced in forested wetlands by leaving the root mat of most trees in place to minimize potential for erosion and impacts to water quality.

Disturbed areas will be allowed to revegetate as each section of the transmission line is completed. Upon completion of construction, disturbed areas on steep slopes will be seeded and mulched to control erosion (e.g., at canal or ditch crossings).

The construction of the transmission line should require no groundwater withdrawal, dewatering, or relocation of any water bodies.

The construction will create no new connections to waters of the state. Since all water body crossings within the Preferred Corridors are relatively narrow, Tampa Electric will be able to span these waterways. Therefore, no impacts to navigation will occur on any of these waterways.

As noted in previous sections, the study area has characteristically flat to rolling terrain with little topographic relief. The predominant conveyance in this and similarly situated regions is typically via manmade drainage swales, small tributaries, and sheet flow interconnected to natural wetlands and sloughs. These types of

systems do not lend themselves to evaluation by gauging stations. As such, SCS methods will be used to evaluate runoff characteristics for culvert crossings and access road designs.

Where available, Tampa Electric will use existing public roads and private access roads to limit the need for fill to the extent practicable. In these instances, most structure pads will be located and constructed to allow access to the structure from the existing road, thus minimizing the need for new and additional impacts.

Depending on site-specific circumstances, roads in wetland areas may be permanent or temporary. For permanent roads, the construction has previously been described (see Section 9.4.1). Temporary access roads may be used in some wetland areas. Most temporary access roads will be constructed in a manner similar to permanent access roads. Alternatively, the contractor may employ either matting or geotextile fabric covered with temporary fill. Crossings of existing drainage swales, ditches, or canals will require installation of appropriately sized culverts. Culverts used for wetland system and canal/ditch crossings will be sized and located to accommodate up- or downstream flow regimes.

9.4.3 SOLID WASTES

Solid waste generated from right-of-way preparation and line construction generally consists of cleared vegetation and construction-related debris. It is expected that most solid waste generated by the Polk-Fishhawk and Polk-Pebbledale tie-in transmission lines will be disposed in compliance with local landfill regulations. Any proposed onsite chipping or burning will be performed in compliance with local and state regulations.

9.4.4 CHANGES TO VEGETATION, WILDLIFE, AND AQUATIC LIFE

Impacts on terrestrial and aquatic systems and species associated with transmission line right-of-way preparation and construction depend primarily on the location of the selected right-of-way and, to a lesser degree, on clearing and construction techniques.

Through a systematic, environmentally responsive corridor selection process, the crossing of major terrestrial, wetland, and aquatic systems was minimized or avoided to reduce any potential impacts to sensitive habitats and/or endangered and threatened species associated with transmission line construction and maintenance.

nance. The entire length of the Preferred Corridors includes the opportunity to locate within or adjacent to existing road and dedicated transmission line rights-of-way. Where possible in these areas, the proposed transmission line will share existing rights-of-way. In these already altered areas, transmission line construction or maintenance should not have any significant impact on vegetation, wildlife, or aquatic life. The remaining areas included within the Preferred Corridors consist of natural and disturbed upland and wetland community types as well as agricultural lands, pastures, mined land, and vacant land that may become low-density residential developments in the future. The following subsections present an evaluation of potential and expected impacts on vegetation and wildlife components.

9.4.4.1 Vegetation

Because much of the Preferred Corridors contains lands that have already been cleared and maintained, construction associated with the 230-kV transmission line should minimize any significant additional adverse changes to vegetation in these areas. Limited permanent alterations will be associated with right-of-way clearing, access road and structure pad installation, and additional right-of-way maintenance. The Preferred Corridors cross no large expanses of forested uplands or wetlands.

A permanent alteration of limited areas of upland and wetland communities will result from right-of-way clearing and access road and structure pad construction. Section 9.4.1, Construction Techniques, addresses types of impacts associated with construction that are expected to occur to the existing vegetation communities crossed by the Preferred Corridors. In areas of the corridor where collocation opportunities occur with existing roads, forested wetlands may have already been impacted. Limited additional clearing of trees directly adjacent to the existing rights-of-way will be required. In these areas, the right-of-way will subsequently be maintained in a low-growing, early successional state. Adjoining tracts of woodlands will remain intact and provide habitat for forest species. In addition, adjacent communities should not be affected by structure pad and road construction since erosion control measures and proper culverting will be used.

Construction practices in wetlands will retain the vegetative root mat in the right-of-way in areas not filled for road or structure pad construction, thereby minimizing impacts to the wetlands. Impacts to wetlands will also vary depending on the wetland system through which the transmission line is routed. The shift in wetland composition will vary with the type of original overstory and soil alterations

resulting from construction activities. Outside areas where filling may be necessary for roads or structure pads, small, nonforested, freshwater wetlands crossed by the transmission line will not be affected by construction activities since no clearing will be required and proper culverting will maintain the existing hydroperiod.

9.4.4.2 Wildlife

Specific impacts to terrestrial and aquatic animals due to transmission line construction vary by species and depend primarily on the extent of habitat alteration and continued availability of such habitat after construction. The Preferred Corridors cross no federally designated critical habitat. In addition, no aquatic habitats critical to the continued regional presence of important species will be affected. The collocation with existing road and transmission line rights-of-way will minimize habitat losses and creation of barriers to animals' movements.

Individual small burrowing mammals (e.g., rodents), reptiles, or amphibians may be lost during right-of-way clearing. Such individual losses, however, will not affect local or regional populations. No losses of medium-sized or large mammals, birds, or other mobile species due to direct impacts or habitat alterations are expected because of the mobility of these animals. Therefore, no adverse impacts are expected to local or regional populations of game species, species of special concern or commercial importance, or threatened or endangered species occurring or potentially occurring within the right-of-way area.

No significant impacts to resident birds or migratory species are expected since the Preferred Corridors do not include major staging, breeding, or wintering areas for social, migratory species (e.g., waterfowl, shorebirds, passerines). Local disturbance or displacement of wildlife due to construction noise will be minor and short-termed since construction activities in any one location will be intermittent and are not expected to last more than a few weeks. Also, the location of the Preferred Corridors along roadways will further limit the potential for wildlife disturbance since individuals in these areas will already be habituated to traffic noise.

The potential construction impacts on listed species documented for the Preferred Corridors are discussed in the following paragraphs.

The bald eagle was recently delisted by USFWS and FWC. USFWS and FWC have proposed new management guidelines to protect active nests, and these

guidelines have buffer areas ranging from 330 to 660 ft from the nest. The buffer is based on existing similar development present and type of development proposed near the nest. The one nest that falls within the Polk-Fishhawk Preferred Corridor will allow Tampa Electric to meet those buffer guidelines since the corridor is proposed at 1 mile wide in this location. Once a right-of-way has been selected by Tampa Electric, the affected agencies will have an opportunity to review the alignment near the nest to ensure applicable guidelines are met.

No wood stork or other wading bird colonies are documented in the Preferred Corridors' vicinity. While such species would be expected to forage in wetlands along the Preferred Corridors, no impacts to nesting or roosting sites are anticipated from project construction.

While other listed species possibly occur in habitats along the Preferred Corridors, no permanent or long-term impacts from construction are expected. Tampa Electric will be required to conduct site-specific listed species surveys along a preferred right-of-way alignment as part of its postcertification conditions. If listed species are found inhabiting the proposed right-of-way, specific consultation with appropriate agencies will be conducted. Mitigation, relocation, or avoidance methods will be implemented as necessary.

9.4.4.3 Aquatic Life

Impacts on aquatic systems and species are expected to be minor since the Preferred Corridors avoid major lakes and rivers. Additionally Tampa Electric will span any smaller waterways and not place structures or fill within the flow-way.

For ditches, canals, or wetlands that are crossed, the construction of the transmission lines may involve installation of culverts and placement of fill resulting in temporary increases in turbidity and silt deposition. Such impacts will be local and temporary and are not expected to adversely affect aquatic resources. Appropriate control measures, such as staked hay bales and silt curtains, will minimize or eliminate siltation resulting from stormwater runoff. Transmission line and access road (if necessary) construction in wetland areas will use methods such as proper culverting and erosion control as necessary to minimize significant disruption to the aquatic ecosystem or resultant changes in species composition.

9.4.4.4 Summary

In summary, the majority of the proposed 230-kV transmission lines will be situated within or adjacent to existing rights-of-way or in phosphate mining, agricultural, or residential developed lands. This alignment significantly minimizes the crossing of natural or undisturbed systems.

Principal impacts from right-of-way clearing and construction of the Polk-Fishhawk and Polk-Pebbledale tie-in projects will be removal of a limited amount of canopy vegetation and tall, woody vegetation along right-of-way sections crossing mature forested habitats where previously cleared areas will be slightly widened. Because of collocation opportunities of the entirety of the Preferred Corridors along existing rights-of-way, this impact is expected to be minimal and will not result in significant population changes in protected species compositions or in the regional status of ecologically unique or valuable habitats. The clearing and subsequent maintenance of right-of-way vegetation in some areas will change the character of the vegetation and provide new habitat for different species of wildlife. Local displacement of wildlife may occur during periods of construction activities. Such displacement is expected to be temporary and will not affect the local or regional status of important species.

9.4.5 IMPACT ON HUMAN POPULATIONS

Transmission line construction occurs as a series of tasks generally accomplished in sequence by different specialized crews. Tasks (where necessary) include clearing the right-of-way, constructing access roads, preparing foundations, assembling and erecting support structures, stringing conductors, and cleanup activities. Construction of the entire transmission line is expected to take approximately 24 months. Crew sizes vary depending on the task and usually range in size from 6 to 12 members. Although several crews may work simultaneously along the length of a line, the duration of a crew's activities in any one area will be quite short (usually 1 to 2 days, with a few tasks such as wire pulling and setup locations taking 1 to 2 weeks). Inconveniences experienced by residents near the transmission line will be primarily confined to noise from machinery used intermittently at various locations along the right-of-way during construction and minor traffic disruptions from use of heavy equipment along road rights-of-way. Construction and associated noise-producing activities are intermittent in nature and typically will take place during normal daylight working hours unless otherwise required by system constraints. Much of the Preferred Corridors is in rural areas away from residences.

Population density in the vicinity of the Preferred Corridors varies but remains relatively low throughout most of the length of the corridor. The exception is in the vicinity of the Fishhawk substation and areas associated with the Fishhawk Ranch Development of Regional Impact (DRI), where suburban density housing predominates. Much of the Preferred Corridors is along phosphate mining (active mining, active reclamation and reclaimed lands), agricultural land, land developed with rural-density residences, or undeveloped land. In the few areas where development exists in Hillsborough County, the Polk-Fishhawk Preferred Corridor is primarily collocated with existing linear facilities or is located in Tampa Electric fee-owned property.

In Polk County, the Polk-Pebbledale Preferred Corridor from PPS to the county line incorporates both sides of SR 37 to the south of the main entrance to PPS and both sides of SR 674, westward to the county line. The area along SR 37 generally borders phosphate-mined land that has been reclaimed as rangeland for agricultural use. Phosphate-mined land is located along the northern side of SR 674 and portions of the southern side. A large citrus grove is located in the southwestern quadrant of the SR 37 and SR 674 intersection. There are no residences bordering the portions of either roadway in Polk County. The Preferred Corridor from Polk to the Pebbledale tie-in is mostly located along the western of Old Highway 37 and an area located southeast and east of Bradley Junction. This area is being mined, has been mined, or as been reclaimed as range land.

In Hillsborough County, the eastern portion of the Polk-Fishhawk Preferred Corridor is located along both sides of SR 674 from the county line to the intersection of SR 674 and CR 39. Most of the land bordering SR 674 is phosphate-mined land or land in agricultural use (groves or pasture). There are low-density residential uses in the area of Bethlehem Road. At the intersection, the Preferred Corridor intercepts the Mines substation (northwestern corner) and continues northwest along an existing transmission line easement granted by The Mosaic Company, after mining and reclamation of the area of the Preferred Corridor, for approximately 2.5 miles. The land uses in this portion of the Polk-Fishhawk Preferred Corridor are mined land, reclaimed land, and pasture. The Preferred Corridor then turns north for approximately 2.3 miles where it intersects with a Tampa Electric existing transmission line right-of-way located to the north of CR 672. The Preferred Corridor in this area traverses pasture, citrus groves, row crops, undeveloped land, one commercial business, and low-density residences.

From the intersection of the north-west and east-west transmission line corridors, the Polk-Fishhawk Preferred Corridor is primarily oriented east-west until just west of Balm/Boyette Road. This area crosses the forested floodplain of Hurrah Creek and is characterized by agricultural use (groves and pasture), undeveloped land, low-density residences, and an adjacent county landfill (South County). Near Balm/Boyette Road, the Preferred Corridor intersects an abandoned railroad line that is oriented southwest-northeast. In general, this portion of the Preferred Corridor is undeveloped with some agricultural use and low-density residences until approximately 1 mile northeast of the crossing of Boyette Road, where both sides of the corridor are bordered by suburban density residences south of Dorman Road. The housing is associated with the Fishhawk Ranch DRI and the subdivision along the eastern side is known as Channing Park. The northern terminus of the Polk-Fishhawk Preferred Corridor crosses Little Fishhawk Creek and is bordered to the west by residential development and undeveloped land and to the east by low-density residential use and undeveloped land. The Fishhawk substation is located within a large fee-owned property of Tampa Electric.

9.4.6 IMPACT ON REGIONAL SCENIC, CULTURAL, AND NATURAL LANDMARKS

Since no such resources exist within 1 mile of the Preferred Corridors, there will be no impacts to these resources.

9.4.7 IMPACT ON ARCHAEOLOGICAL AND HISTORIC SITES

As discussed in Section 9.3.6.5, according to FDHR's Master Site File, there are ten known archaeological/historic features found along the Preferred Corridors. Every effort will be made to avoid these sites. This can be accomplished with alignment of the actual right-of-way and pole and pad placement.

If requested by FDHR, an archaeological site assessment survey will be conducted of archaeologically sensitive areas (as determined by FDHR) within the eventual right-of-way, and the report of the survey will be submitted to FDHR for review. If any sites within the right-of-way are determined to be significant, FDHR will be consulted regarding appropriate procedures for either preservation or excavation of the significant site(s).

If unforeseen archaeological finds are discovered during construction, FDHR will be notified. Following a determination of the importance of such finds, Tampa

Electric will work with FDHR to assess mitigation measures necessary to minimize adverse impacts.

9.5 POSTCONSTRUCTION IMPACTS AND EFFECTS OF MAINTENANCE

9.5.1 MAINTENANCE

The safe and reliable operation of the new line will be maintained through regular inspection of the poles, conductors, insulators, access areas, and vegetation in and along the right-of-way. The inspections will consist of ground (truck) or aerial (airplane/helicopter) patrols. Transmission lines normally require minimal maintenance; however, Tampa Electric will inspect the line on a regular basis to look for problems caused by weather, vandalism, and vegetation regrowth.

Tampa Electric will manage vegetation on the right-of-way by a variety of methods, including trimming, mowing, and the use of approved herbicides, targeting species that are incompatible with the safe operation, maintenance, and access to the transmission system. This allows a broad diversity of vegetation growth, which enhances wildlife use potential.

The exact manner in which maintenance will be performed will depend on the location, type of terrain, and surrounding environment. Vegetation removal is minimized consistent with safe and reliable operation of the line. Vegetation that could restrict access will be removed. Other species are generally allowed to remain, resulting in a shrubby and herbaceous cover within the right-of-way. Tampa Electric's right-of-way maintenance program is site-specific, and a maintenance plan is often detailed down to the pole spans. Each area of the right-of-way will be addressed based on site-specific vegetation and habitat. Endangered or threatened species, if present, are considered and accommodated in the maintenance program.

Use of herbicides for vegetation control will be selective. Application of these herbicides will meet federal, state, and local regulations. Due to the selective nature of vegetation cutting, the limited use of herbicides, and the infrequent occurrence of maintenance activities, the potential effects on wildlife and water quality will be minimal. Tampa Electric works to control the spread of nuisance plants within the right-of-way through the use of approved herbicides and other removal techniques.

Where possible, Tampa Electric will plant native herbaceous cover instead of re-seeding with grass. As a result of this maintenance program, Tampa Electric's rights-of-way are generally conducive to use by local wildlife. The open effect creates habitat that is attractive to certain raptors, songbirds, and small mammals, and the lower growing vegetation provides forage for deer and a multitude of other species. Open land- or marsh-dwelling wildlife should be unaffected by existence of the transmission lines and maintained right-of-way.

9.5.2 MULTIPLE USES

Tampa Electric rights-of-way are frequently used for other purposes compatible with the operation and maintenance of power lines. Multiple use of a transmission line right-of-way typically includes grazing, citrus and row-crop farming, agricultural operations, controlled landscaping, recreational uses such as golf courses and hiking/biking trails, and other compatible activities that do not interfere with Tampa Electric's full use of the right-of-way and the function of the transmission line facilities. In most cases, Tampa Electric obtains an easement for the construction, maintenance, and operation of its transmission line, as well as the rights of ingress and egress to that line, from another party who retains the fee-simple interest in the property. The easement may provide for acceptable use of the right-of-way by the fee owner for activities that do not interfere with Tampa Electric's full use of its easement and the function of the transmission line facilities.

In some cases, Tampa Electric may purchase the fee interest in the right-of-way. If Tampa Electric owns the right-of-way, all rights to the property will be held by Tampa Electric. If a party wishes to use the company-owned property, a license agreement may be negotiated, allowing for activities that do not interfere with Tampa Electric's full use of the right-of-way and the function of the transmission line facilities. Several portions of the Polk-Fishhawk Preferred Corridor are Tampa Electric fee-owned property.

9.5.3 CHANGES IN SPECIES POPULATIONS

Section 9.3.7.3 discusses the status and potential for occurrence of important species in and along the Preferred Corridors. The absence of significant impacts to important species is not coincidental as efforts were made during the corridor selection study to avoid potentially sensitive habitats as much as possible. The avoidance of ecologically unique or valuable habitats was achieved primarily through placement on, or collocation with, existing transportation rights-of-way and through crossing of agricultural lands, pastures, and developing lands.

Changes in local species populations are not expected as a result of the presence and maintenance of the new transmission lines. Displacement of individuals from the immediate right-of-way area that may occur during construction activities will be temporary. These displaced species are expected to reinhabit the right-of-way areas after construction. Habitat use will decline during actual construction due to noise and human presence. Such avoidance behavior will enable wildlife to escape direct impacts from construction activities, although some losses of individual vertebrates (e.g., rodents, amphibians) may occur during right-of-way clearing. Section 9.4.4.2 previously addressed the active eagle's nest within the Preferred Corridors. No animal or plant species are expected to be permanently displaced out of the Project area as a result of this transmission line.

Due to necessary maintenance practices in the right-of-way, a decrease in structural diversity will occur in formerly forested areas (i.e., permanent loss of a tree canopy layer). However, this will be offset by an increase in species diversity as additional shrubs and herbs colonize the right-of-way in response to increased sunlight and decreased competition due to canopy removal. Since most of the Preferred Corridors are collocated with existing rights-of-way or follow previously disturbed lands, clearing of canopy vegetation will be minimal. In those portions of the Preferred Corridors where clearing is necessary, only a relatively narrow strip of canopy will be lost. In these areas, clearing of overstory vegetation and subsequent maintenance requirements will not result in the loss of entire tracts or significant portions of regional wildlife habitat types.

In nonforested systems, such as marshes and shrub swamps, maintenance clearing or alteration may not be necessary. In many instances, these community types can be spanned, thereby eliminating the need to affect structural or functional habitat characteristics and wildlife use.

The route selection process used by Tampa Electric minimized proximity to known wading or water bird concentrations. Therefore, no change in the local population of wading birds or any avian group is expected to occur because of transmission line presence and maintenance activities. No ecologically unique or sensitive habitat types will be lost in the study area, and, as a result, no significant impacts to protected indigenous species populations are expected.

9.5.4 EFFECTS OF PUBLIC ACCESS

It is Tampa Electric's policy to provide locked gates at the point where the transmission line access road intersects previously fenced property. Since Tampa Electric will install locked gates at any location that is currently fenced, no increased vehicle access is anticipated following construction except by Tampa Electric personnel performing routine maintenance. Where structures are placed adjacent to an existing roadway, maintenance of the line would have no additional impact on public access to the adjacent properties. No impacts to environmentally sensitive areas or resident wildlife populations from additional public access are expected.

9.5.5 OTHER POSTCONSTRUCTION EFFECTS

9.5.5.1 Electric and Magnetic Fields

The electric field produced by a transmission line is a function of the voltage of the line, geometry of the right-of-way, structure geometry, and the height of the conductors above the ground and is relatively constant over time. The magnetic field produced fluctuates over time depending on load on the line and is a function of the amount of current being carried by the line, height of the wires above ground, geometry of the structure, and geometry of the right-of-way.

An electric and magnetic field (EMF) study was performed on the various structure and conductor configurations described in Section 9.2.3. FDEP guidelines (Section 62-814, F.A.C.) govern EMF limits at the edge of a right-of-way and maximum electric field within the right-of-way. The field limits specified by FDEP for 230-kV lines include:

- Electric Field Limit—2.0 kilovolts per meter (kV/m) at the edge of the right-of-way; 8.0 kV/m maximum within the right-of-way.
- Magnetic Field Limit—150 milliGauss (mG) at the edge of the right-of-way or less than the existing configuration.

The Project complies with the Florida EMF regulations specified in Section 62-814, F.A.C. The strength of the magnetic field under a transmission line is primarily a function of the amount of current carried by the line and height of the conductors above the ground. The electric field is primarily a function of the voltage impressed on the line and conductor height above the ground. Consequently, the electric field near the transmission line is relatively constant over time, but the magnetic field fluctuates depending on customer demand for power. EMFs produced by the proposed transmission lines were calculated in accordance with the requirements of Section 62-814.460, F.A.C. EMFs associated with the new

transmission line comply with the standards set forth in the Florida EMF Rule, as demonstrated in Table 9.5.5-1. Although the current carried by the transmission lines will vary throughout the day, the value used in the calculations is the maximum quantity of electric current noted in Table 9.5.5-1, as required in Chapter 62-814, F.A.C.

Appendix 10.8 provides data depicting the maximum EMF at maximum operating conditions for each of the typical line configurations, both on and at the edge of the right-of-way. In the event additional configurations are required by the detailed design of the transmission line after certification, Tampa Electric will submit the EMF compliance demonstrations to FDEP at least 90 days prior to the start of construction.

9.5.5.2 Audible Noise

The audible noise associated with a transmission line is generated by either corona from the conductors or from gap-type discharges. Corona is a phenomenon that occurs when there is an irregularity on the surface of the conductor, such as buildup from fog, water droplets, significant particulate matter, etc. Corona activity at the surface of the conductors produces a low-level audible noise. Under wet conditions, higher noise levels are experienced than would occur under dry conditions. However, the background noise from various sources (inclement weather, traffic, etc.) has the effect of masking transmission line noise.

For a small portion of time, when the conductors are wet from rainfall or heavy fog, transmission line noise will increase. As shown in Table 9.5.5-2, during wet conditions, the median (L_{50}) A-weighted sound pressure level of the transmission line noise will range from 32.0 to 45.2 dBA at the edge of the right-of-way, depending on the right-of-way cross-section configuration.

During fair weather and under normal operating conditions, the audible noise levels calculated for the proposed transmission line designs will be less than the ambient outdoor noise levels.

The noise level produced by the transmission lines will comply with applicable noise ordinances in Polk and Hillsborough Counties.

Table 9.5.5-1. Maximum EMF Capable of Being Produced by Project Transmission Lines

Reference Figure	Right-of-Way Configuration	Maximum Continuous Rating, MCR (Amperes)	Electric Field (kV/m)		Magnetic Field at MCR Edge of Right-of-Way (mG)
			On Right-of-Way	Edge of Right-of-Way	
9.2.3-1	Typical 230-kV single-circuit with 69-kV underbuild	2,560	1.1	0.5	76.1
9.2.3-3	Typical 230-kV single-circuit with 69-kV underbuild, roadside	2,560	1.1	1.1	105.5
9.2.3-5	Typical 230-kV single-circuit with 69-kV underbuild and distribution underbuild, roadside	2,560	0.1	0.1	95.9
9.2.3-7	Typical 230-kV single-circuit with 69-kV underbuild, existing TECO 200-ft right-of-way	2,560	3.1	1.5	141.1
9.2.3-9	Typical 230-kV twin circuits with 69-kV underbuild, existing TECO right-of-way	3,000	1.5	0.6	89.1
9.2.3-12	Typical 230-kV twin circuits with 69-kV underbuild, existing TEC right-of-way	3,000	2.6	1.2	119.0
9.2.3-15	Typical 230-kV twin single pole, double circuits, existing TEC right-of-way	3,000	2.1	0.5	104.0
9.2.3-18	Typical 230-kV single-circuit with 69-kV underbuild, existing TECO 150-ft right-of-way	2,560	2.3	0.7	119.4
	Florida EMF Rule limit for new 230-kV lines*		8.0	2.0	150

*These standard field levels are established in Rule 62-814.450, F.A.C.

Note: The field levels of the proposed transmission line shown in this table are based on the highest fields anticipated for the 230-kV transmission line configuration, even though structural configurations with lower fields may be employed for some portions of the line. The transmission line will generally operate at a level well under the MCR.

Sources: EzEMF software program developed through Florida Electric Power Coordinating Group and accepted by FDEP.
Black & Veatch, 2012.
Tampa Electric, 2012.

Table 9.5.5-2. Maximum Audible Noise at the Edge of Right-of-Way for Project Transmission Corridors

Reference Figure	Right-of-Way Configuration	L ₅₀ (dBA)
9.2.3-1	230-kV single-circuit with 69-kV underbuild	43.9
9.2.3-3	230-kV single-circuit with 69-kV underbuild, roadside	44.5
9.2.3-5	230-kV single-circuit with 69-kV underbuild and distribution underbuild, roadside	42.2
9.2.3-7	230-kV single-circuit with 69-kV underbuild, existing Tampa Electric 200-ft right-of-way	45.0
9.2.3-9	230-kV twin circuits with 69-kV underbuild, existing Tampa Electric right-of-way	36.2
9.2.3-12	230-kV twin circuits with 69-kV underbuild, existing Tampa Electric right-of-way	32.0
9.2.3-15	230-kV twin single pole, double circuits, existing Tampa Electric right-of-way	38.3
9.2.3-18	230-kV single-circuit with 69-kV underbuild, existing Tampa Electric 150-ft right-of-way	45.2
	<i>Hillsborough County Noise Limit, Environmental Protection Commission of Hillsborough County</i>	60
	<i>7 a.m. to 10 p.m.</i>	55
	<i>10 p.m. to 7 a.m.</i>	
	<i>Polk County Land Development Code, Based on Land Use Designation</i>	
	<i>BPC-2, IND, HIC</i>	75
	<i>CC, NAC, CAC, RAC, LCC, L/R, CE, TC, TCC, RDD, BPC-1, EC</i>	65

Sources: Black & Veatch, 2012.
Tampa Electric, 2012

9.5.5.3 Radio and Television Interference

Corona, which can occur on high-voltage transmission lines, produces electromagnetic noise. When this noise is sufficiently strong, it can cause interference with radio signals. Television interference is no longer an issue for low levels of noise, because it has been converted to a digital signal format. Because corona is enhanced by water droplets or water vapor, the magnitude of this noise is greater during wet or rainy periods than during dry or fair weather periods.

The amplitude-modulated (AM) broadcast radio band is susceptible to potential interference. No interference is expected for frequency-modulated (FM) or satellite radio, cable or satellite television systems, cellular telephones, home cordless telephones, or wireless networking.

In general, EMF noise levels from a transmission line decrease with increasing distance from the right-of-way. Thus, interference effects are greatest immediately adjacent to the right-of-way and at the lower broadcast frequencies.

Radio and television interference calculation results serve as a general indication of the likelihood for interference. Actual interference from transmission line corona will depend on numerous factors, including the weather, terrain, broadcast signal strength, and frequency.

EMF noise levels produced by transmission line corona were calculated using software produced by Bonneville Power Administration. This software performs noise calculations as a function of the transmission line configuration, the frequency of the EMF noise, and the distance from the transmission line. These EMF noise levels were compared to typical broadcast radio signal strength to evaluate radio interference in the AM broadcast frequency. Specifically, the calculated L_{50} (median) radio interference and television interference levels were used to determine distances at which the noise levels dropped below typical broadcast signal strengths minus a required noise margin (to meet a target signal to noise ratio). The results of these evaluations are summarized in the following paragraphs. Because the noise levels decrease with increasing frequency, the evaluation was conservatively performed at the low end of the frequency bands being considered.

Radio

For areas that receive normal broadcast signal strength as required by the Federal Communications Commission (FCC), interference is unlikely anywhere outside the right-of-way during either fair or foul weather.

For areas that receive weak signal strengths, below that required by FCC, interference is possible at the low end of the AM band within 72 ft of the edge of the right-of-way during fair weather conditions and within 360 ft of the edge of the right-of-way during foul weather conditions.

Television

No interference is expected for cable or satellite television systems or for citizens receiving television service over antenna anywhere along the preferred corridor.

Summary

Due to the 230-kV operating voltage of the proposed transmission lines and the conservative evaluation method, the overall impact to radio or television is expected to be minimal, with the main potential for impact being the lower frequency AM radio band. In general, corona effects from transmission lines at 230 kV or lower are not a significant issue. Should any homeowner or business experience abnormal interference as a result of this transmission line, Tampa Electric will work with them to resolve the interference issue.

9.5.5.4 Safety

As required by the Florida PSC in Section 25-6.0345, F.A.C., the proposed transmission lines will comply with all requirements of the appropriate NESC edition (2012 or newer). The purpose of this code is, among other things, the practical safeguarding of persons during the installation, operation, and maintenance of electric transmission lines and associated equipment.

Tampa Electric standards require that fences and gates either crossing or parallel and within transmission line right-of-way be grounded to mitigate shock hazards. Tampa Electric will provide this grounding as part of its construction activities.

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 - County boundaries (2000).
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- Florida Forever/Board of Trustees (FFBOT) Environmental Lands, 2012-File: FDEP Managed lands.
- Element Occurrences (EO) quadrangle-File listed species/high quality habitats by quadrangle.
- Data report form, 2012-Element occurrence within study area; June, 2012.

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- Existing/proposed substations.
- Existing fee rights-of-way.

Southwest Florida River Water Management District (SWFWMD). Digital files for:

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Street Atlas of Hillsborough County, Map Source, Inc. (no date).

Street Atlas of Polk County, Map and Globe Stores, Inc. (no date).

U.S. Geological Survey (USGS). Digital 1:24,000 scale quadrangle maps: Baird, Bradley Junction, Duette NE, Fort Lonesome, Riverview, and Lithia, Florida.

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U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), National Agriculture Imagery Program (NAIP) Imagery. 2010.

WEB SITES:

Areas of critical concern http://www.fgdl.org/metadata/fgdc_html/dca_acsc.fgdc.htm

County codes <http://www.municode.com/Library/FL>

Estuarine Sanctuaries <http://www.sanctuaries.nos.noaa.gov/welcome.html>

Florida Department of Environmental Protection <http://www.dep.state.fl.us/siting/transmission.htm>

Florida Natural Areas Inventory <http://www.fnai.org>

Hillsborough County <http://www.hillsboroughcounty.org>

Hillsborough County City-County Planning <http://www.theplanningcommission.org/hillsborough>

Commission	http://www.theplanningcommission.org/maps
Marine Sanctuaries	http://sanctuaries.noaa.gov/
Military Installations	http://www.themilitaryzone.com/military_bases.html
Municipal Code Corporation	http://www.municode.com/Library/FL
National Forests	http://www.fs.usda.gov/florida
National Historic Landmarks	http://tps.cr.nps.gov/nhl/
National Natural Landmarks	http://www.nwi.org/Maps/WildernessData.html#anchor1087485
National Parks	http://www.nps.gov/state/fl/index.htm?program=parks
National Register of Historic Places	http://www.nationalregisterofhistoricplaces.com/
National Seashores	http://www.floridasmart.com/sciencenature/naturalflorida/seashores.htm
National Wildlife Refuge	http://www.fws.gov/refuges/
National Wilderness Area	http://www.wilderness.net/index.cfm?fuse=NWPS&sec=stateView&state=fl&map=gasouthflnorth
Native American Reservations	http://www.seminoletribe.com http://www.miccosukee.com/
Outstanding Florida Waters	http://www.dep.state.fl.us/water/wqssp/ofw.htm
Polk County	http://www.polk-county.net http://www.polk-county.net/subpage.aspx?menu_id=226&id=478 http://www.polk-county.net/subpage.aspx?menu_id=226&id=492
RARE Areas	http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gDfxMDT8MwRydLA1cj72BTFzMTAwjQL8h2VAQAJP-nEg!!?ss=119930&navtype=BROWSEBYSUBJECT&navid=0910000000000000&pnavid=null&ttype=roadmain&cid=FS_E_003853&position=RELATEDLINKS&pname=Roadless-Home
State Aquatic Preserves	http://www.dep.state.fl.us/coastal/programs/aquatic.htm

State Archaeological
Landmarks or Landmark
Zones <http://dhr.dos.state.fl.us/archaeology/>

State Forests http://www.floridaforestservice.com/state_forests/

State Game Management
Areas <http://myfwc.com/hunting/wma-brochures>

State Parks <http://www.floridastateparks.org/>

Southwest Florida Water
Management District <http://www.swfwmd.state.fl.us/>

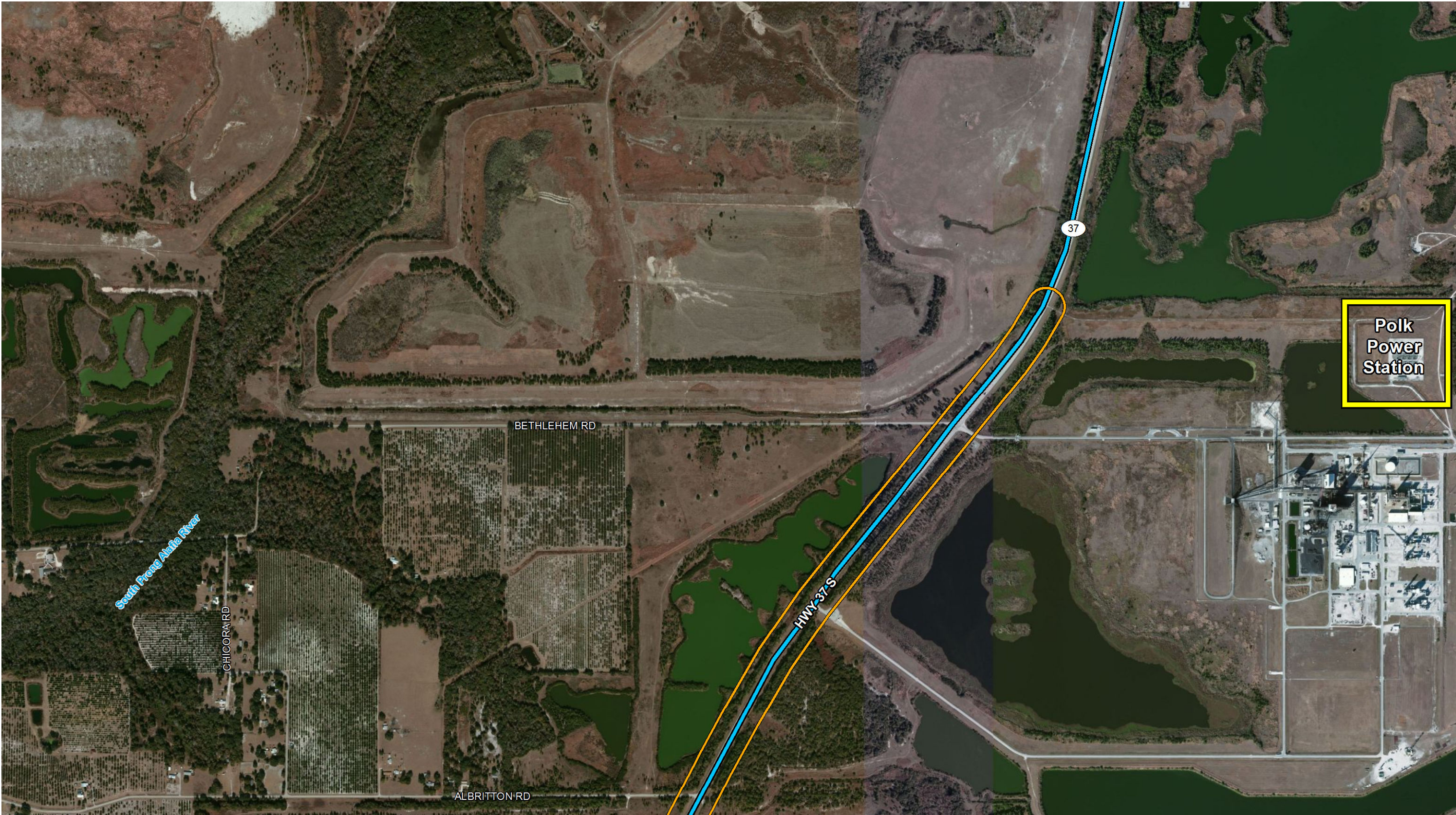
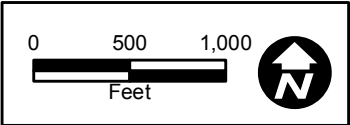


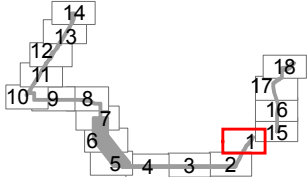
FIGURE 9.1.0-1. (SHEET 1 of 18)
AERIAL MAP

Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.



Legend

- Polk-Fishhawk Preferred Corridor
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary



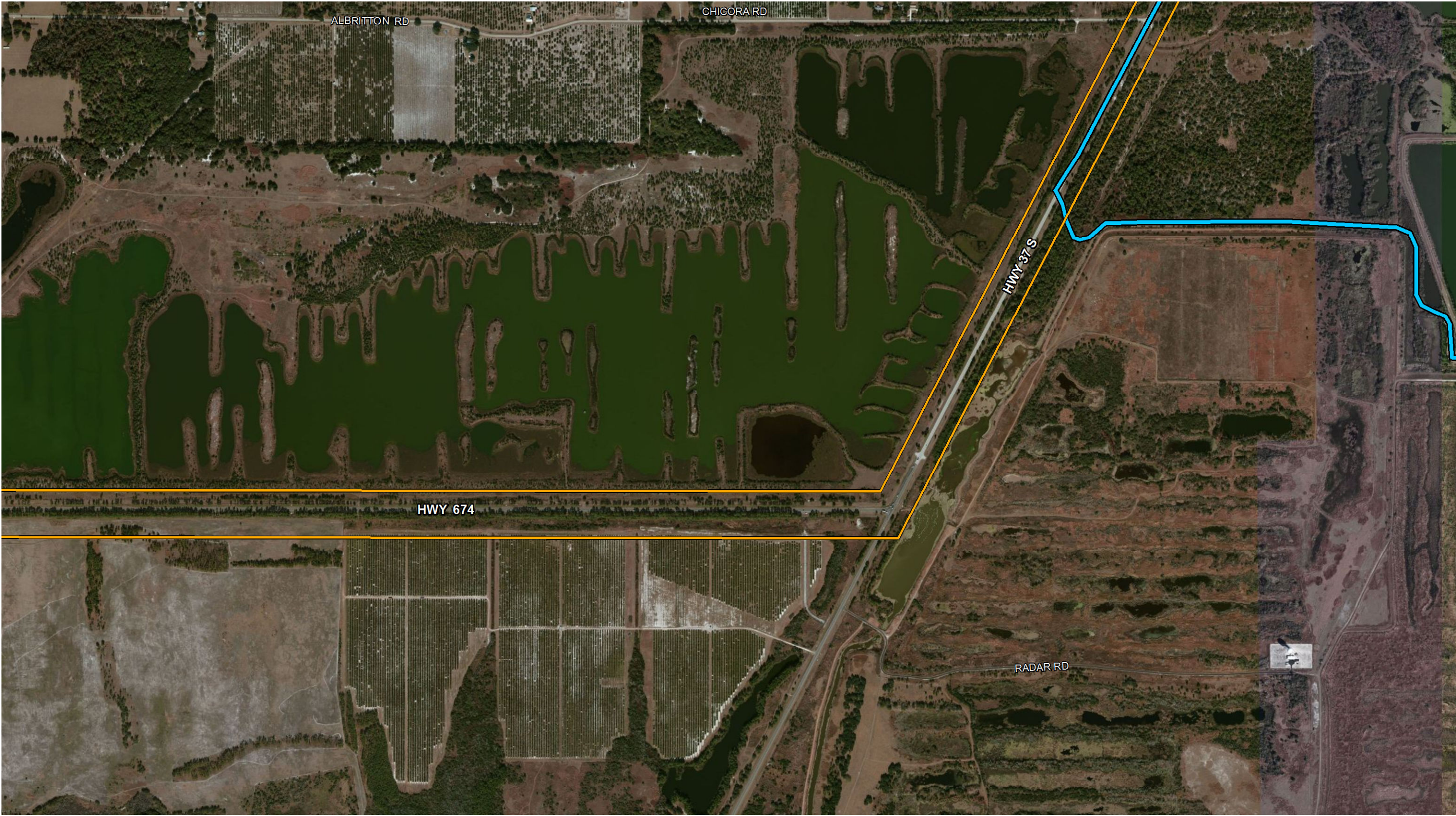
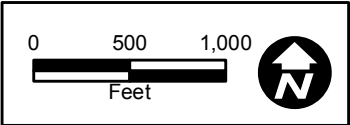


FIGURE 9.1.0-1. (SHEET 2 of 18)
AERIAL MAP

Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.



Legend

- Polk-Fishhawk Preferred Corridor
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary

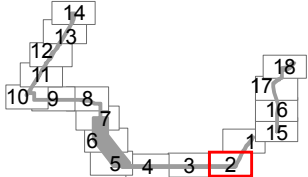




FIGURE 9.1.0-1. (SHEET 3 of 18)
AERIAL MAP

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Feet

Legend

Polk-Fishhawk Preferred Corridor

Existing Tampa Electric Substation

Proposed Tampa Electric Switching Station

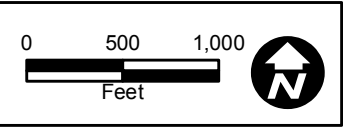
Polk Power Station Boundary

County Boundary

9-125



FIGURE 9.1.0-1. (SHEET 4 of 18)
AERIAL MAP



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

- | | | |
|------------------------------------|---|-----------------|
| Polk-Fishhawk Preferred Corridor | Proposed Tampa Electric Switching Station | County Boundary |
| Existing Tampa Electric Substation | Polk Power Station Boundary | |

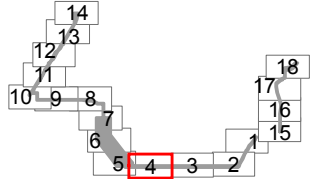
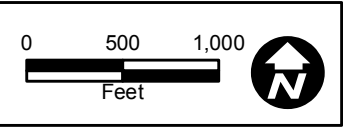




FIGURE 9.1.0-1. (SHEET 5 of 18)
AERIAL MAP



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

- Polk-Fishhawk Preferred Corridor
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary

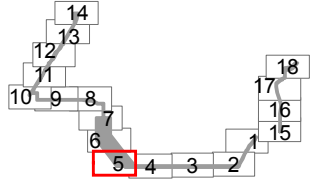
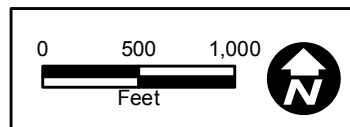


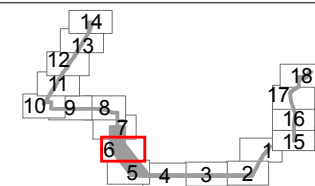


FIGURE 9.1.0-1. (SHEET 6 of 18)
AERIAL MAP



Legend

- Polk-Fishhawk Preferred Corridor
- Proposed Tampa Electric Switching Station
- Existing Tampa Electric Substation
- Polk Power Station Boundary
- County Boundary



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

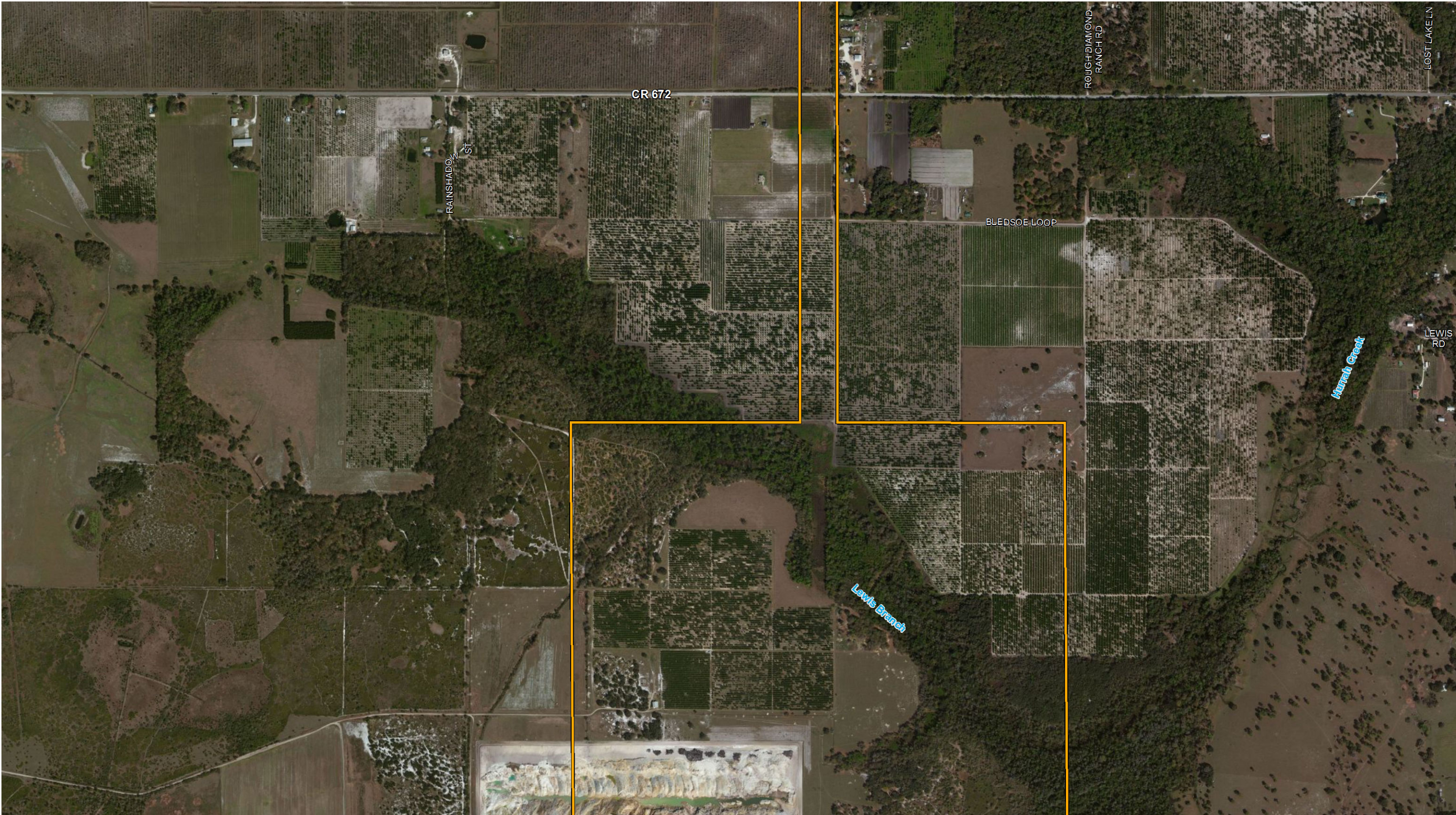


FIGURE 9.1.0-1. (SHEET 7 of 18)
AERIAL MAP

Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

- Polk-Fishhawk Preferred Corridor
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary

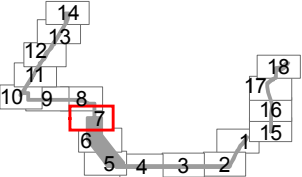
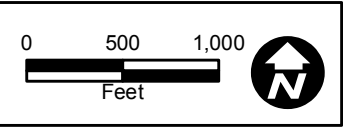




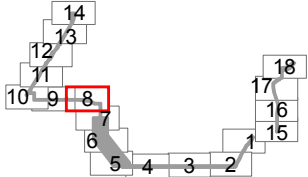
FIGURE 9.1.0-1. (SHEET 8 of 18)
AERIAL MAP



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

- | | | |
|------------------------------------|---|-----------------|
| Polk-Fishhawk Preferred Corridor | Proposed Tampa Electric Switching Station | County Boundary |
| Existing Tampa Electric Substation | Polk Power Station Boundary | |



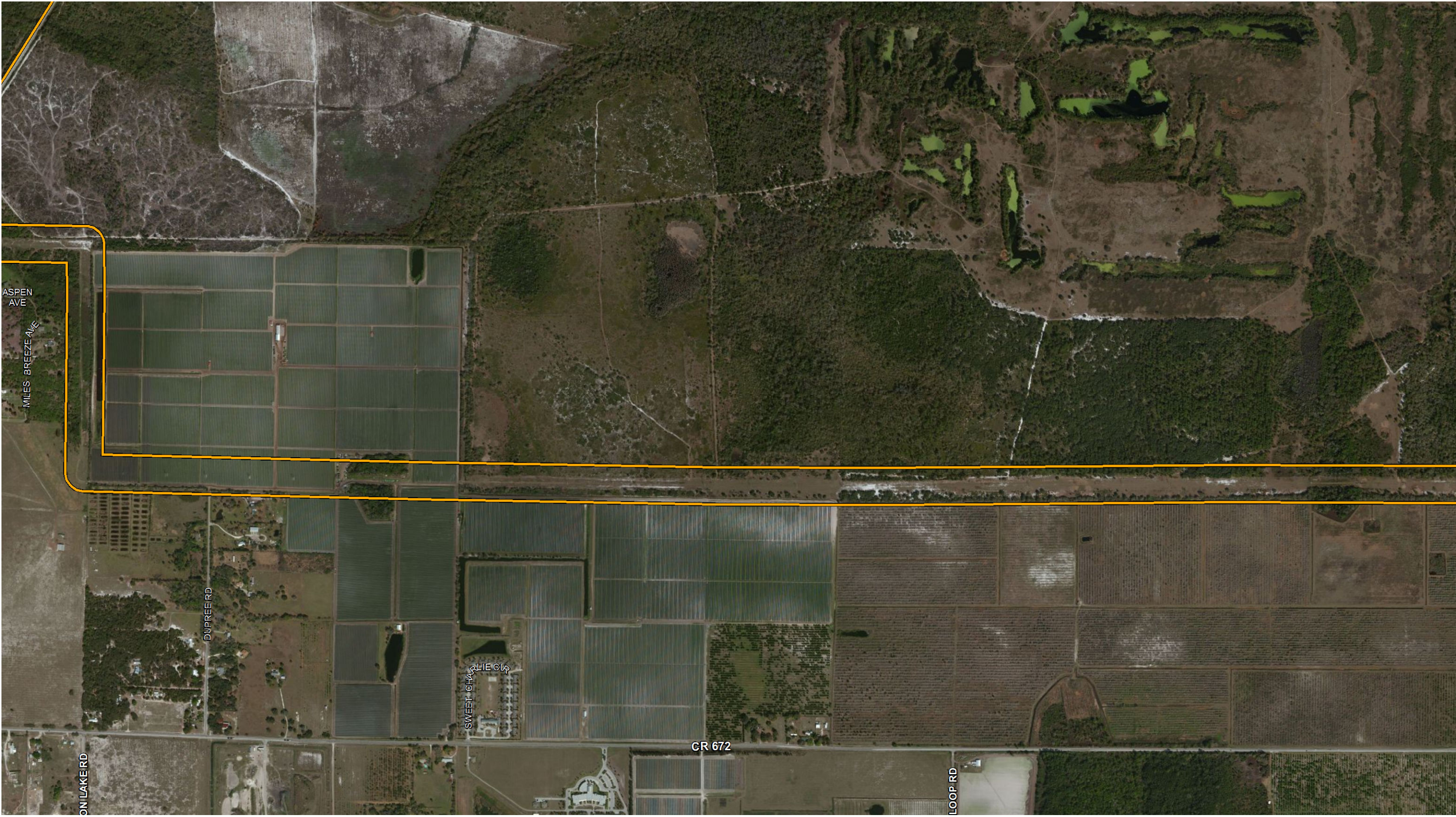


FIGURE 9.1.0-1. (SHEET 9 of 18)
AERIAL MAP

Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.



Legend

- Polk-Fishhawk Preferred Corridor
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary

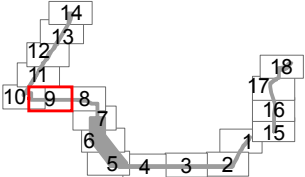
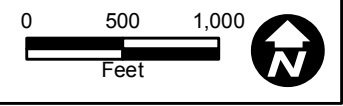


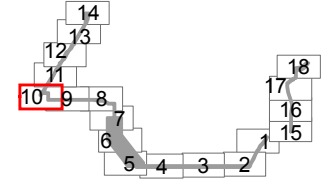


FIGURE 9.1.0-1. (SHEET 10 of 18)
AERIAL MAP



Legend

- Polk-Fishhawk Preferred Corridor
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

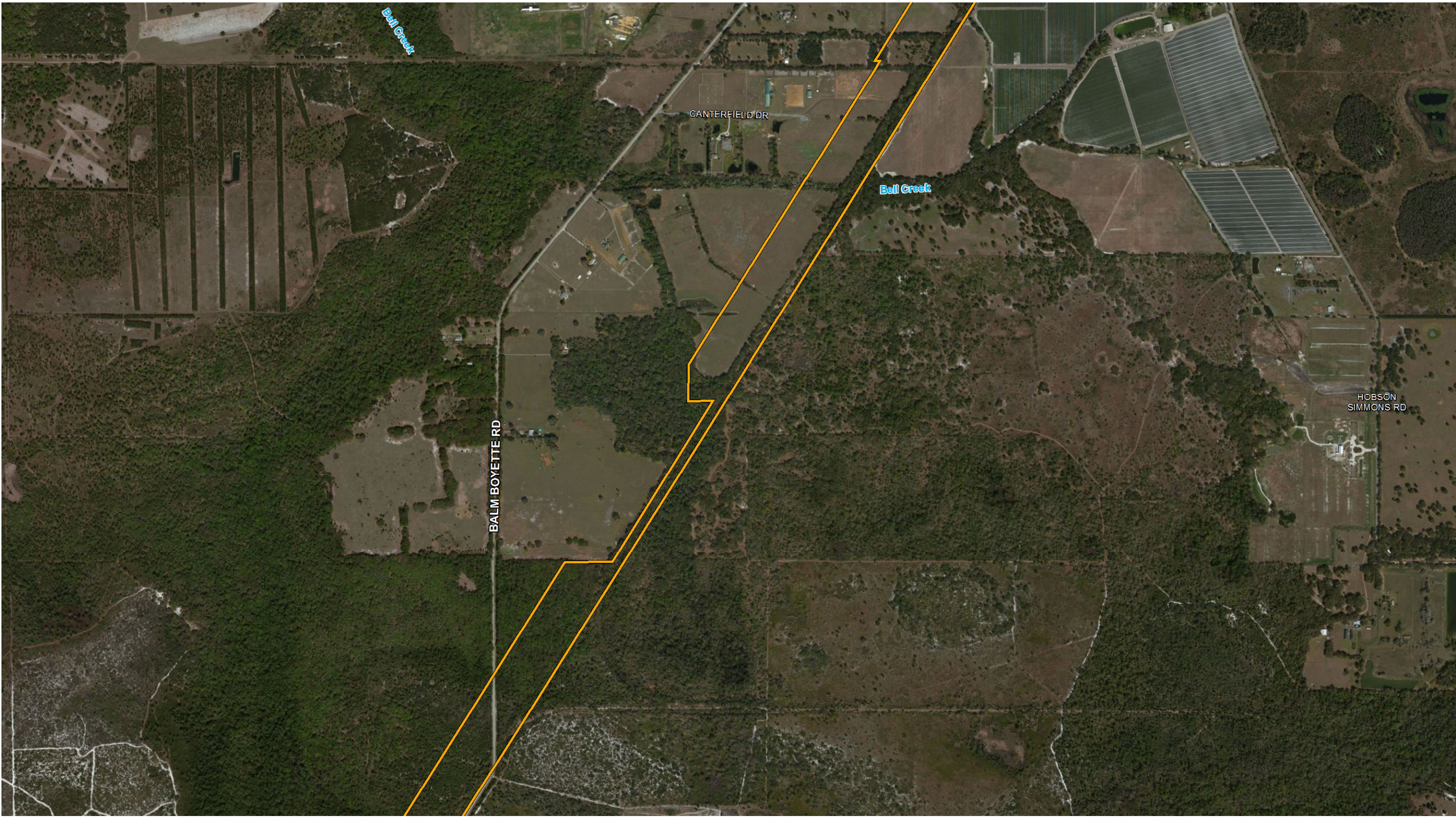
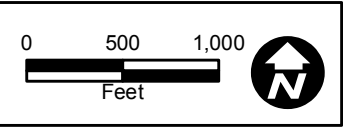


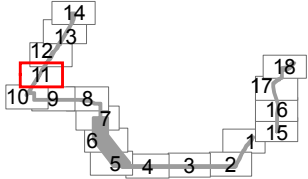
FIGURE 9.1.0-1. (SHEET 11 of 18)
AERIAL MAP



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

- | | | |
|------------------------------------|---|-----------------|
| Polk-Fishhawk Preferred Corridor | Proposed Tampa Electric Switching Station | County Boundary |
| Existing Tampa Electric Substation | Polk Power Station Boundary | |



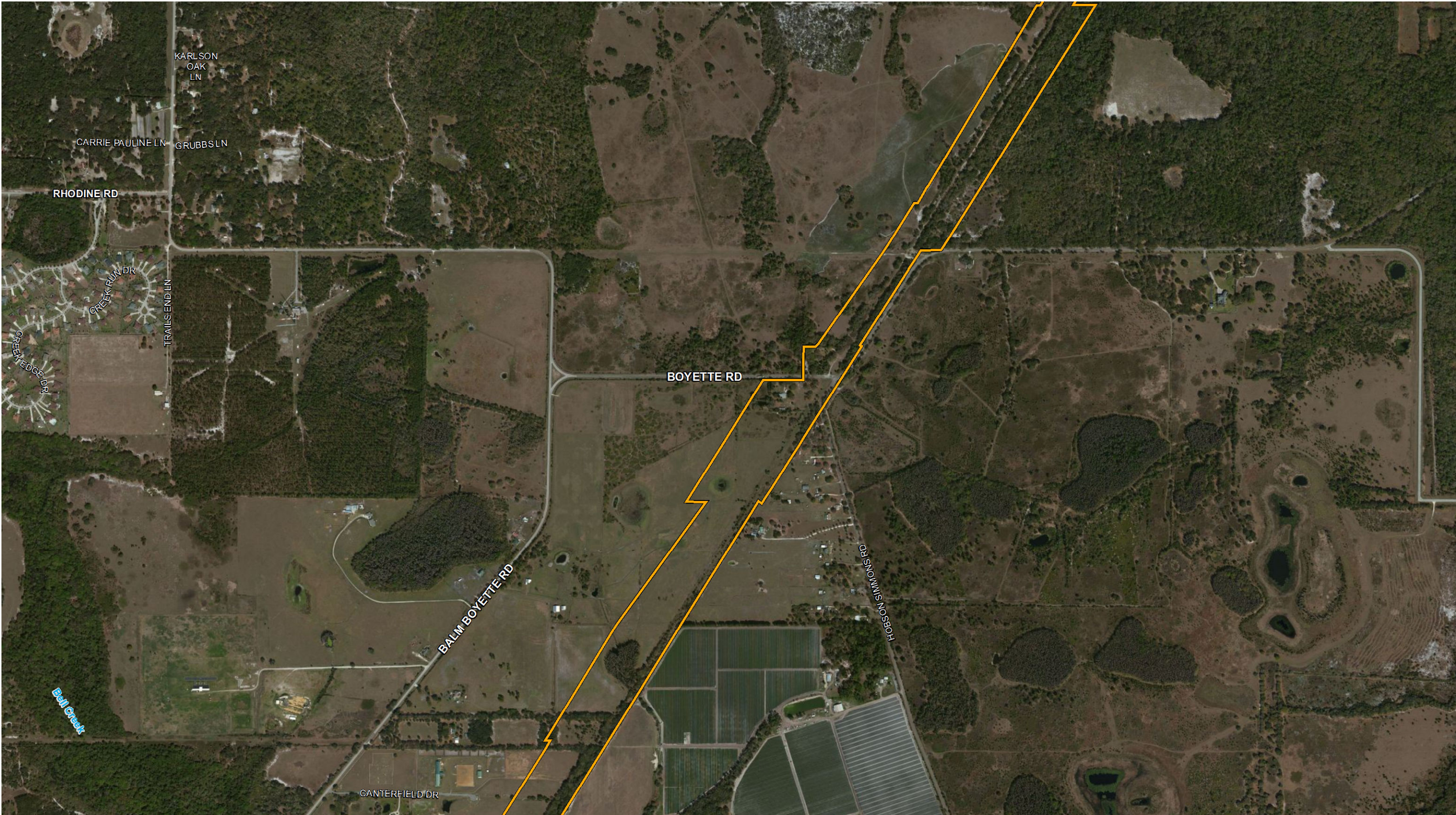
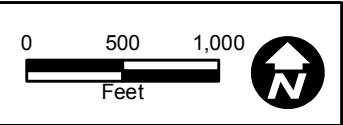


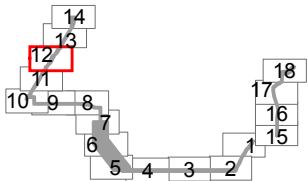
FIGURE 9.1.0-1. (SHEET 12 of 18)
AERIAL MAP



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

- | | | |
|------------------------------------|---|-----------------|
| Polk-Fishhawk Preferred Corridor | Proposed Tampa Electric Switching Station | County Boundary |
| Existing Tampa Electric Substation | Polk Power Station Boundary | |



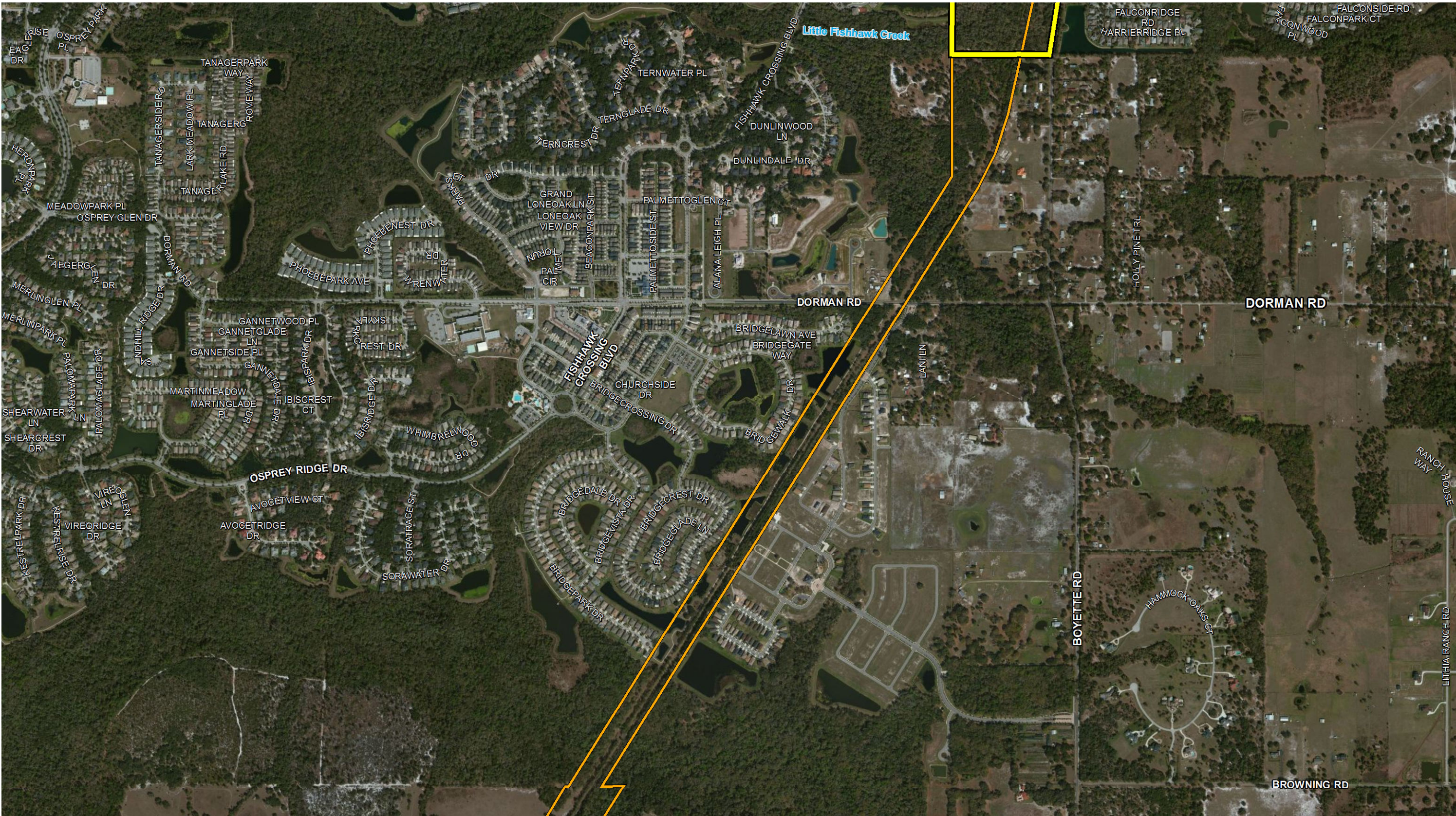
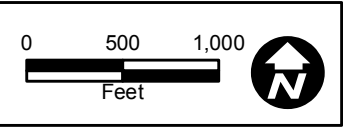


FIGURE 9.1.0-1. (SHEET 13 of 18)
AERIAL MAP



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

- Polk-Fishhawk Preferred Corridor
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary

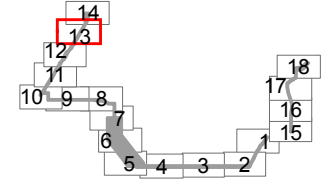
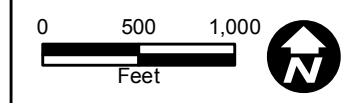




FIGURE 9.1.0-1. (SHEET 14 of 18)
AERIAL MAP



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

-  Polk-Fishhawk Preferred Corridor
 Existing Tampa Electric Substation
 Proposed Tampa Electric Switching Station
 Polk Power Station Boundary
 County Boundary

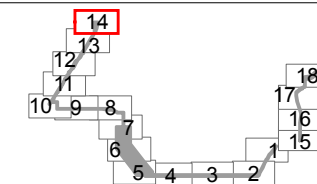
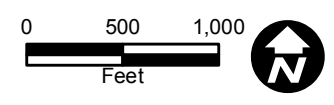


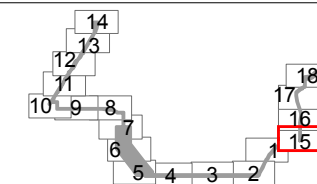


FIGURE 9.1.0-1. (SHEET 15 of 18)
AERIAL MAP



Legend

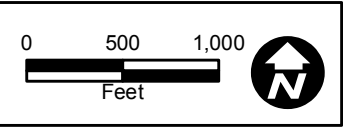
- Polk-Pebbledale Preferred Corridor
- Proposed Tampa Electric Switching Station
- Existing Tampa Electric Substation
- Polk Power Station Boundary
- County Boundary



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.



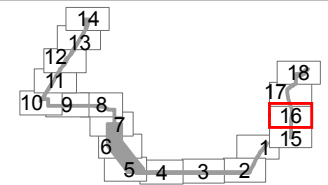
FIGURE 9.1.0-1. (SHEET 16 of 18)
AERIAL MAP



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

-  Polk-Pebbledale Preferred Corridor
-  Proposed Tampa Electric Switching Station
-  County Boundary
-  Existing Tampa Electric Substation
-  Polk Power Station Boundary



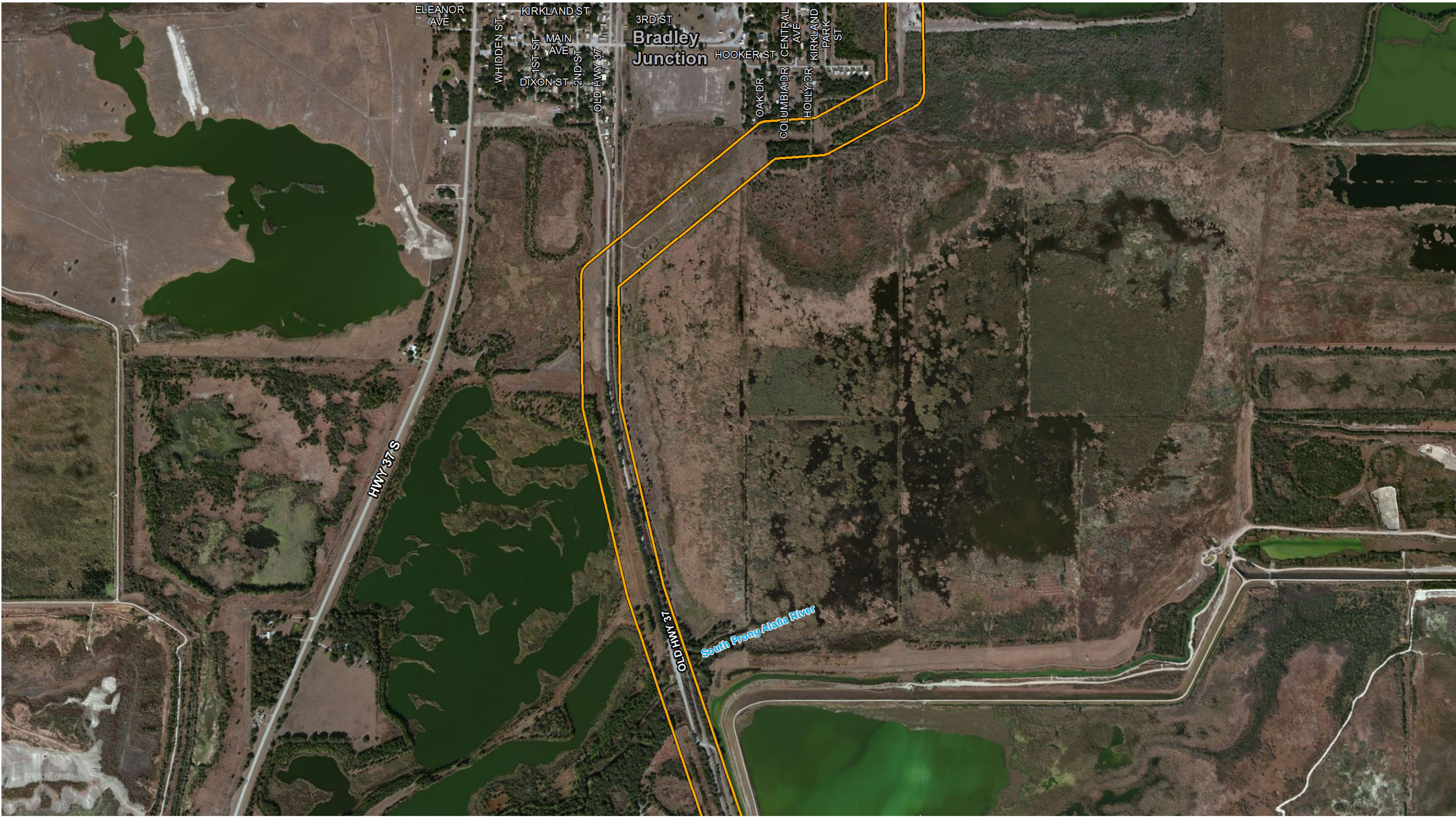
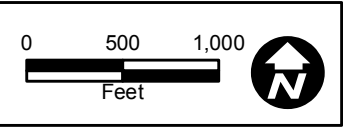


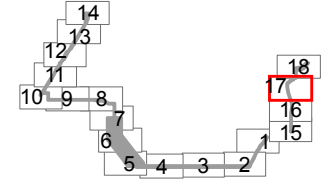
FIGURE 9.1.0-1. (SHEET 17 of 18)
AERIAL MAP

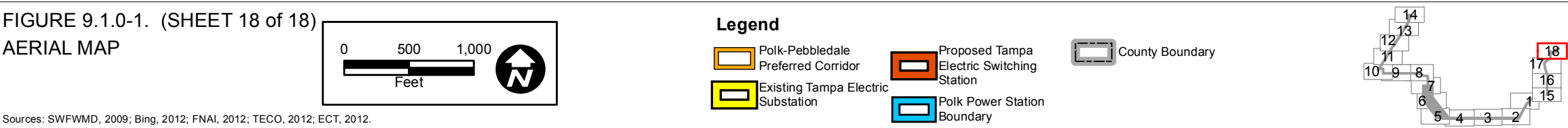
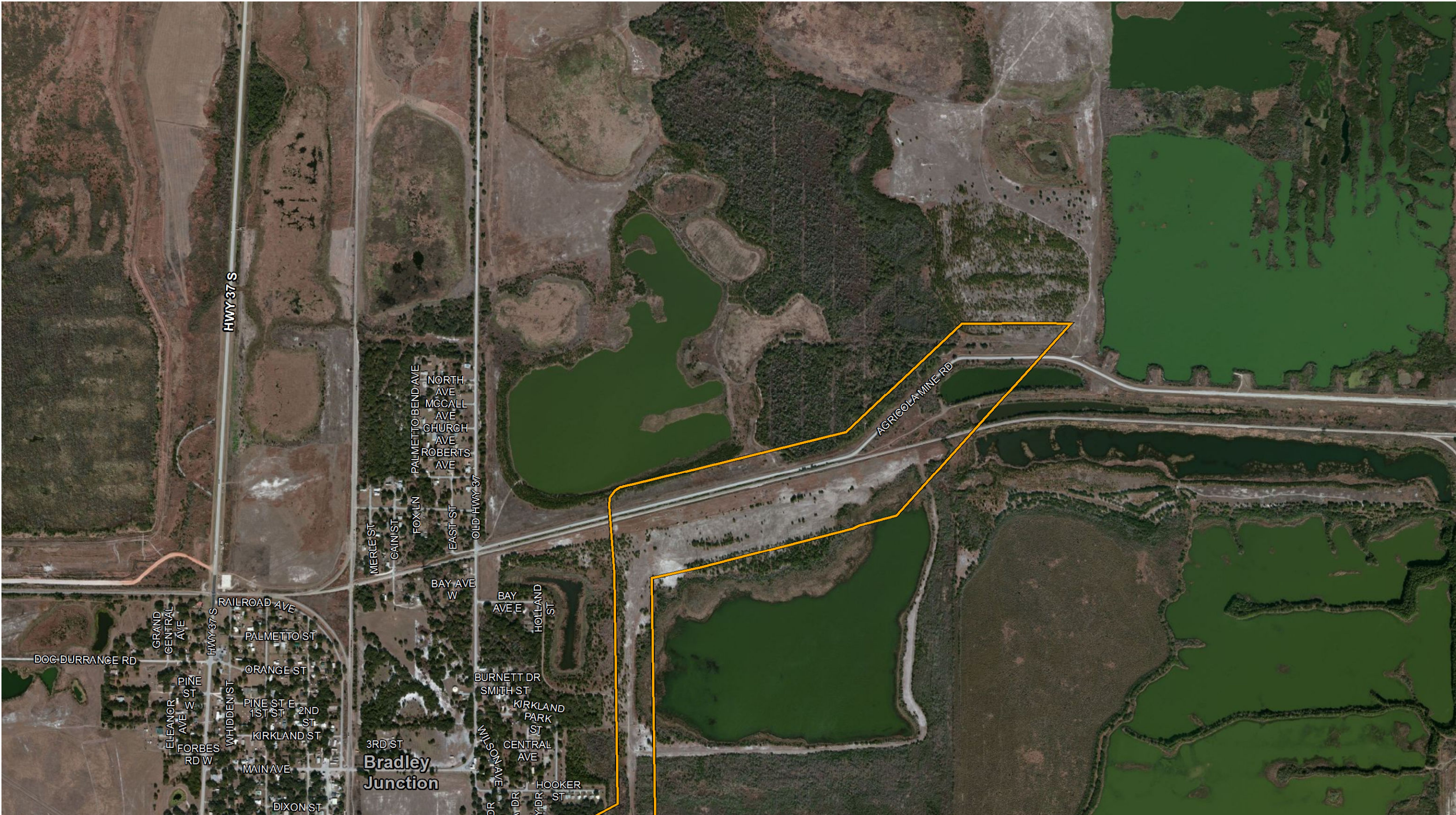


Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

- Polk-Pebbledale Preferred Corridor
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary





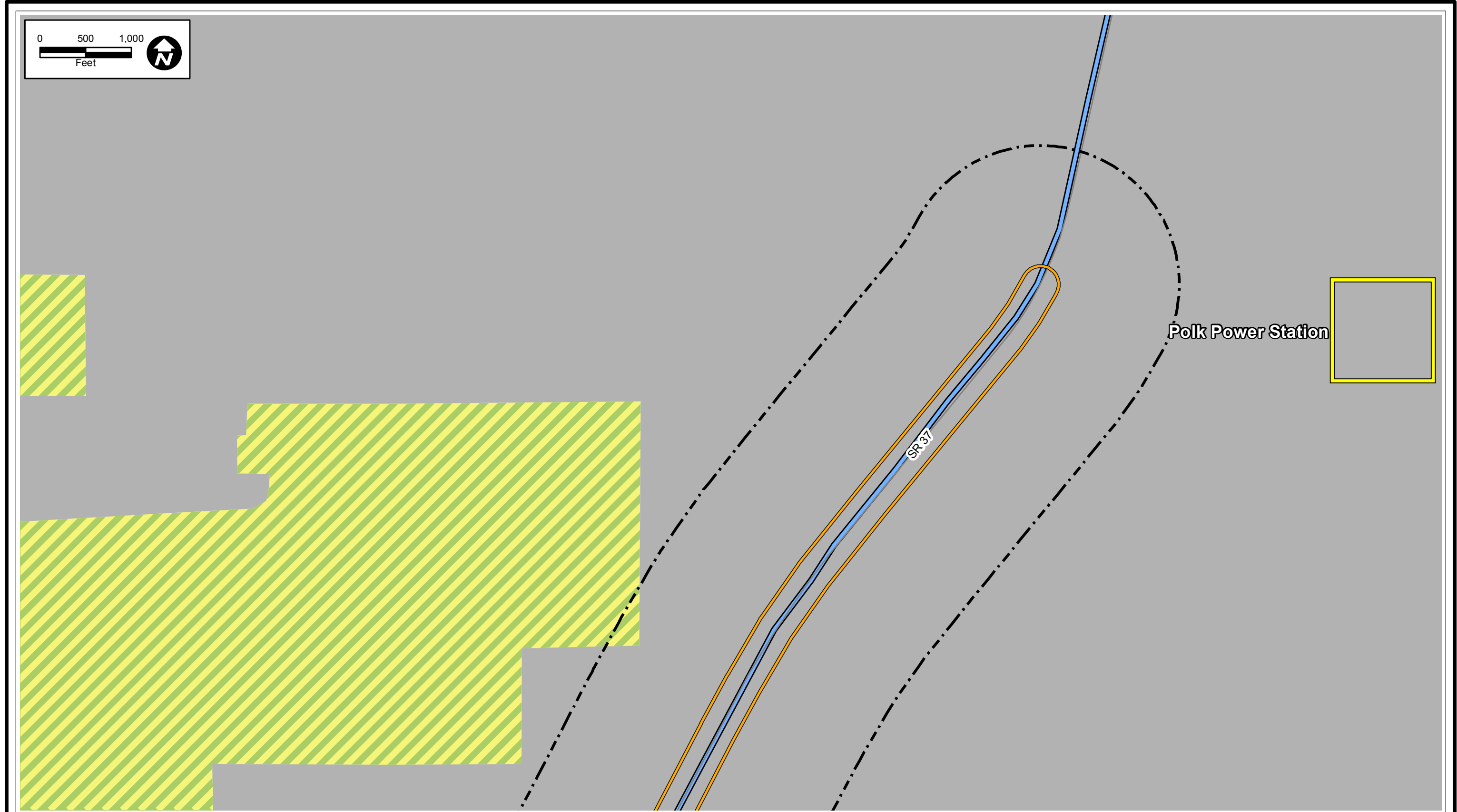


FIGURE 9.1.0-2. (SHEET 1 of 18)
FUTURE LAND USE MAP

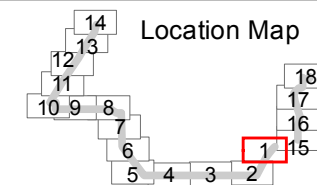
Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

Legend

- Major Roads
- ▭ Existing Tampa Electric Substation
- ▭ Polk-Fishhawk Preferred Corridor
- ▭ Polk Power Station Boundary
- · - 0.25 Mile Area Around Corridors

Polk County Future Land Use

- ▨ Agricultural / Rural Residential
- Phosphate Mining



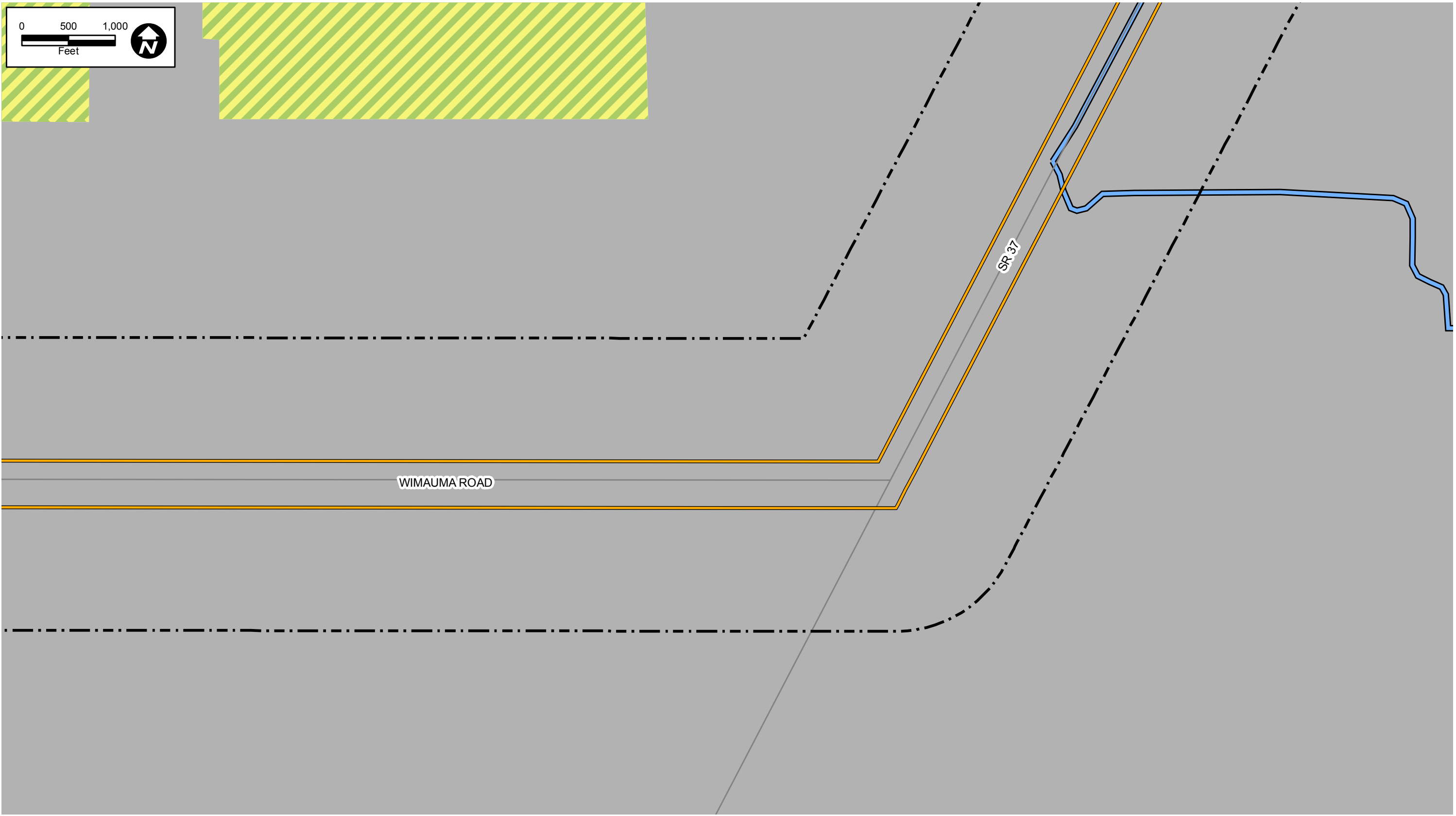


FIGURE 9.1.0-2. (SHEET 2 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

Legend

—

Major Roads

Polk-Fishhawk Preferred Corridor

- - -

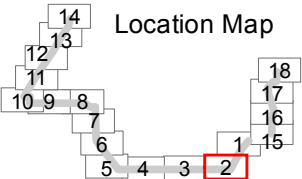
0.25 Mile Area Around Corridors

Polk Power Station Boundary

Polk County Future Land Use

Agricultural / Rural Residential

Phosphate Mining



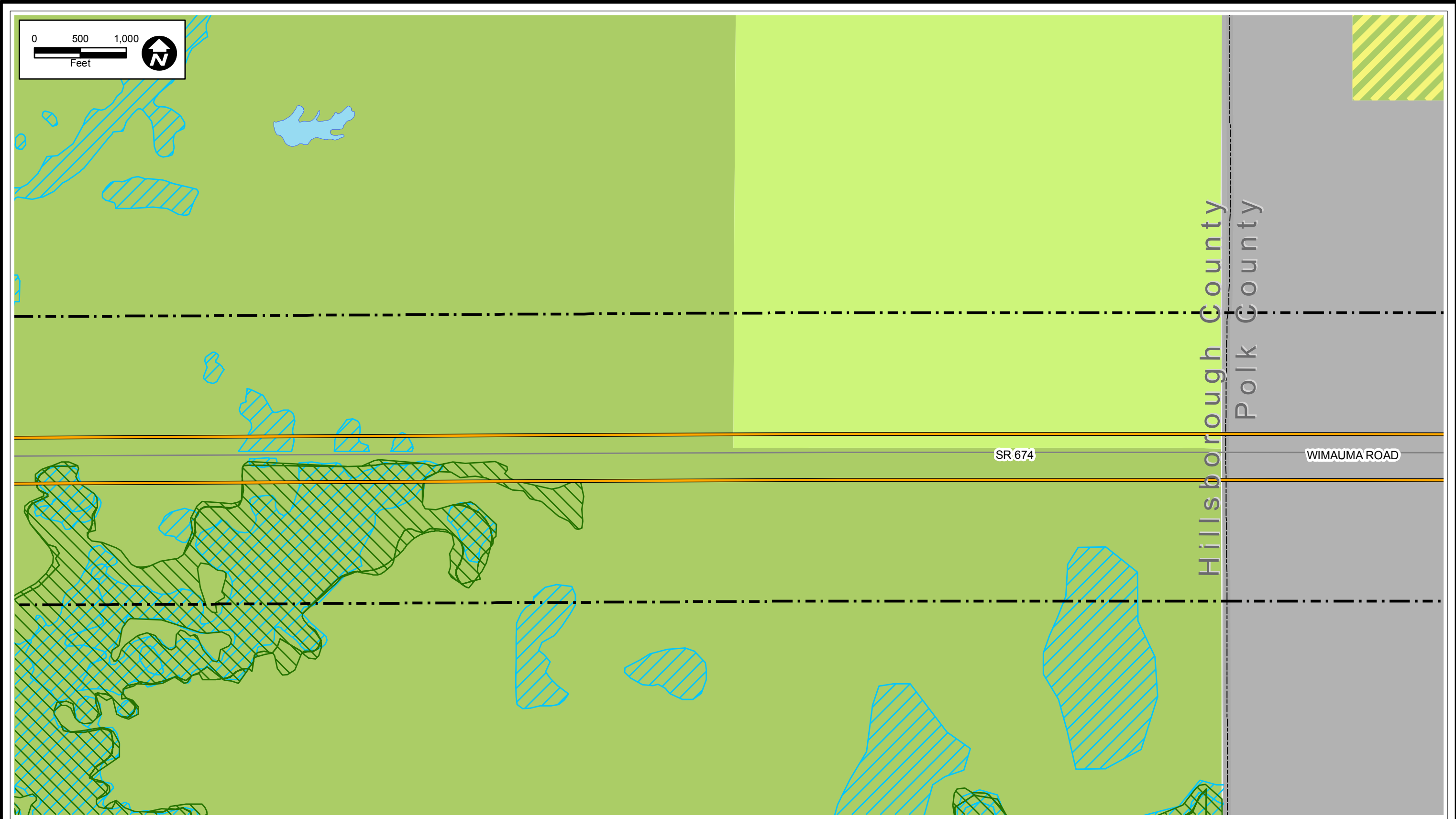


FIGURE 9.1.0-2. (SHEET 3 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

Legend

- Major Roads
- Polk-Fishhawk Preferred Corridor
- 0.25 Mile Area Around Corridors

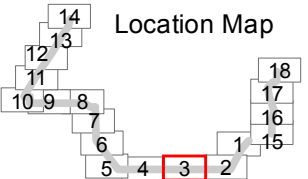
Polk County Future Land Use

- Agricultural / Rural Residential
- Phosphate Mining

Hillsborough County Future Land Use

- Agricultural/Mining
- Agricultural/Rural

- Open Water
- Significant Wildlife Habitat Overlay
- Hillsborough County Wetlands Overlay



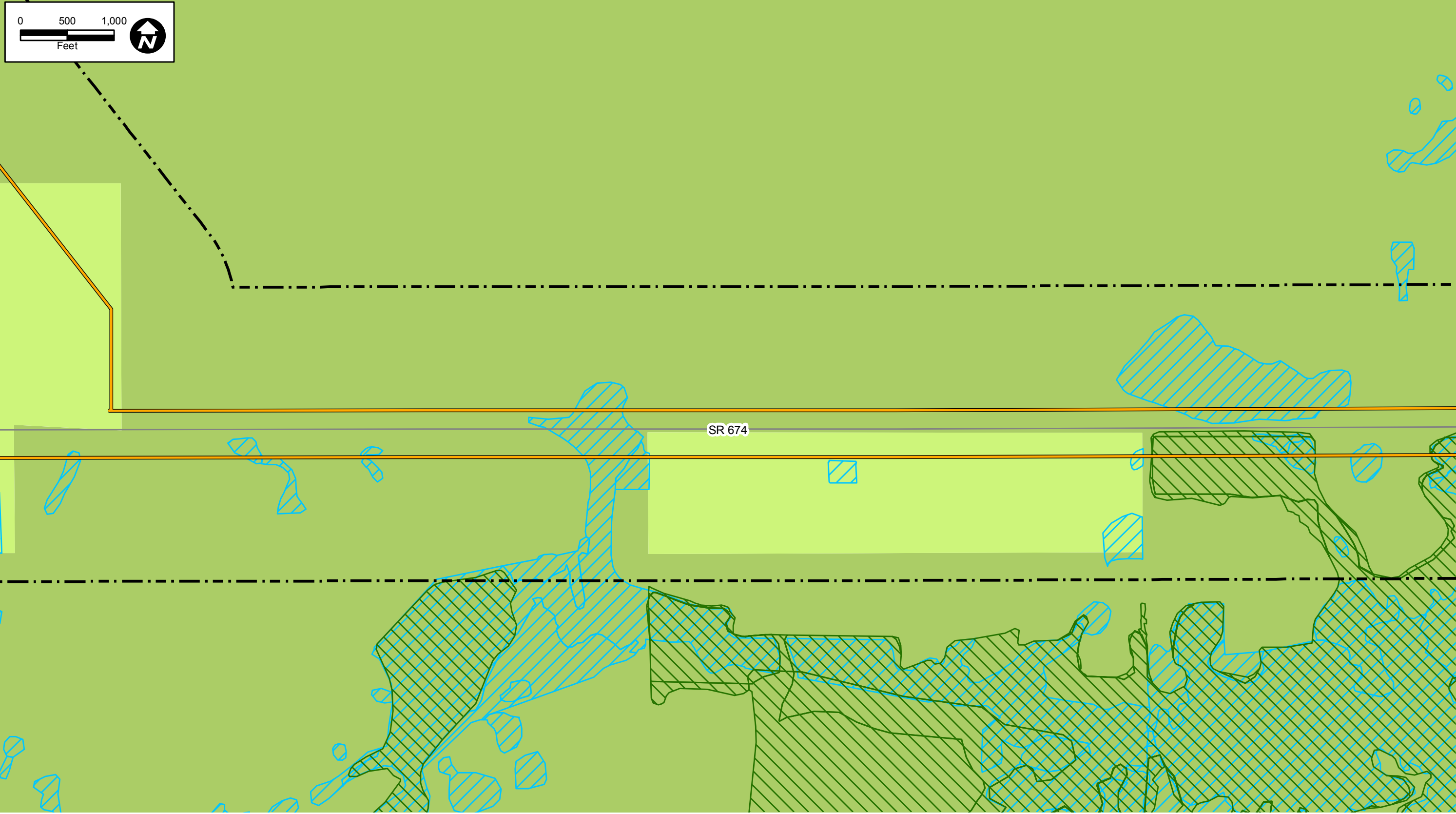


FIGURE 9.1.0-2. (SHEET 4 of 18)

FUTURE LAND USE MAP

Legend

Major Roads

Polk-Fishhawk Preferred Corridor

0.25 Mile Area Around Corridors

Hillsborough County Future Land Use

Agricultural/Mining

Agricultural/Rural

Significant Wildlife Habitat Overlay

Hillsborough County Wetlands Overlay

Location Map

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

9-144

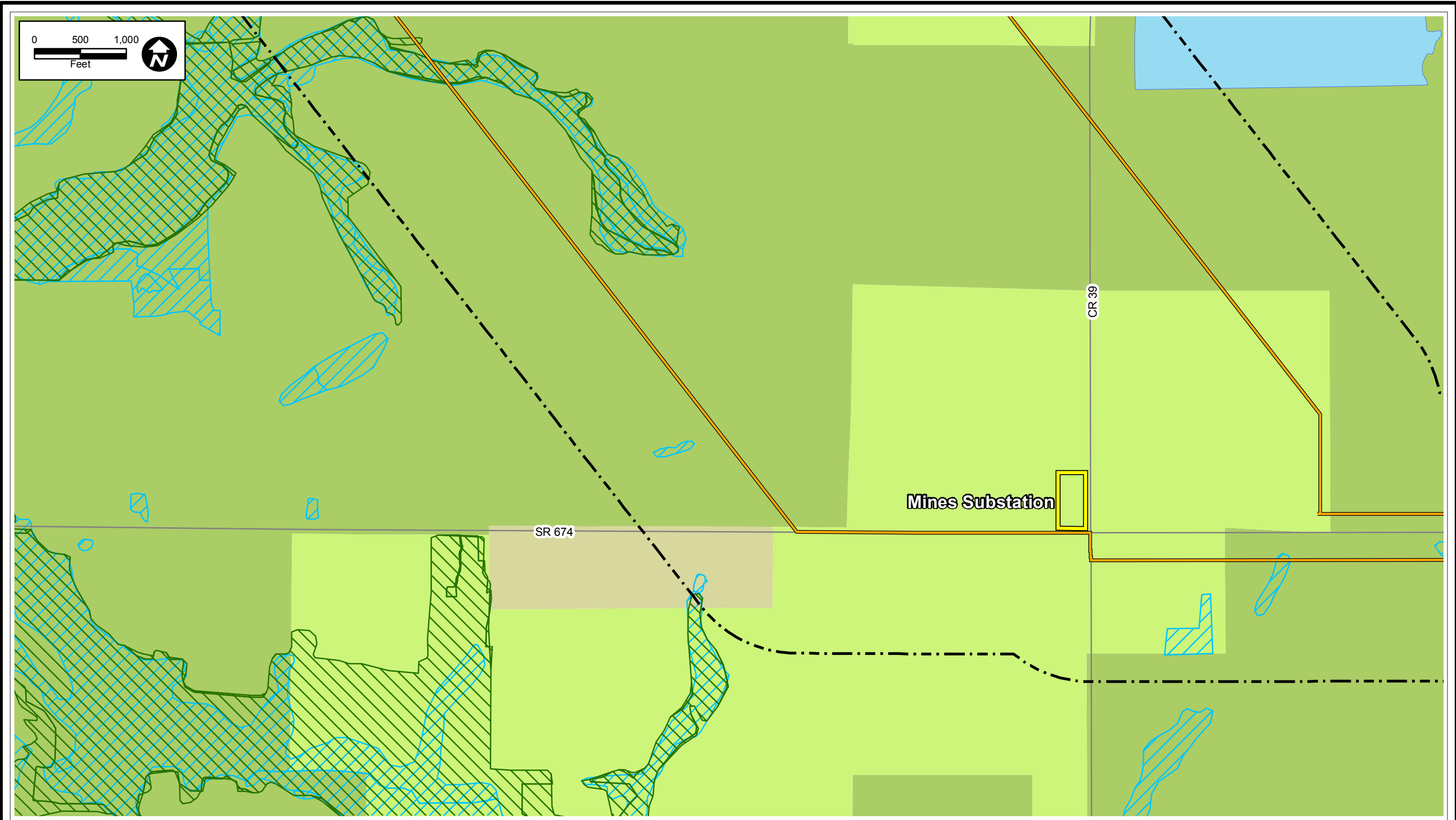


FIGURE 9.1.0-2. (SHEET 5 of 18)
FUTURE LAND USE MAP

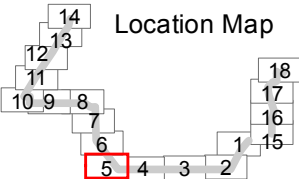
Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

Legend

- Major Roads
- Polk-Fishhawk Preferred Corridor
- 0.25 Mile Area Around Corridors
- Existing Tampa Electric Substation

Hillsborough County Future Land Use

- Agricultural/Mining
- Agricultural/Rural
- Residential -1
- Open Water



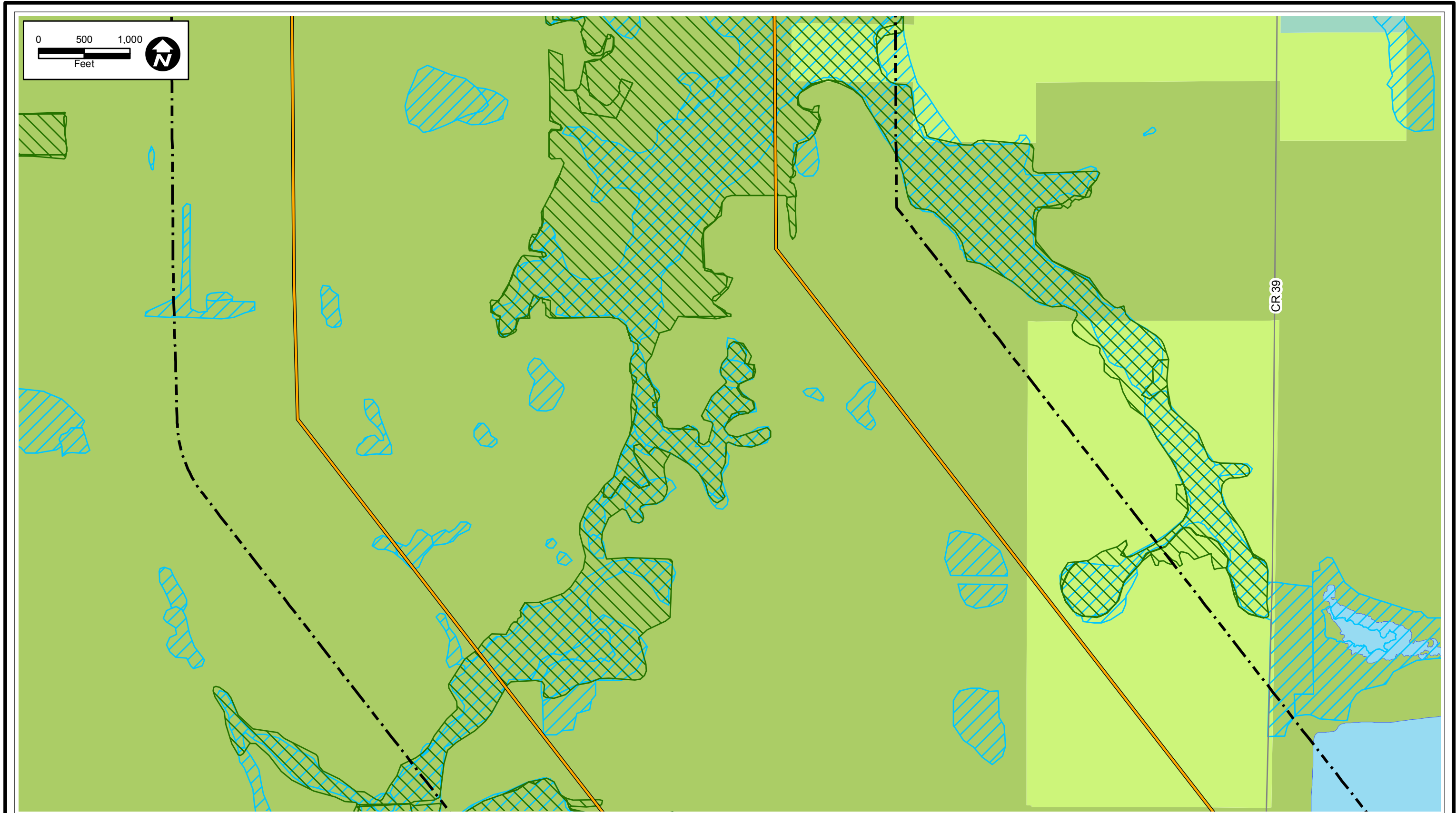


FIGURE 9.1.0-2. (SHEET 6 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

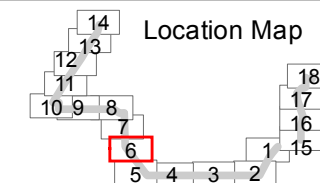
Legend

- Major Roads
- Polk-Fishhawk Preferred Corridor
- 0.25 Mile Area Around Corridors

Hillsborough County Future Land Use

- Agricultural/Mining
- Agricultural/Rural
- Natural Preservation

- Open Water
- Significant Wildlife Habitat Overlay
- Hillsborough County Wetlands Overlay



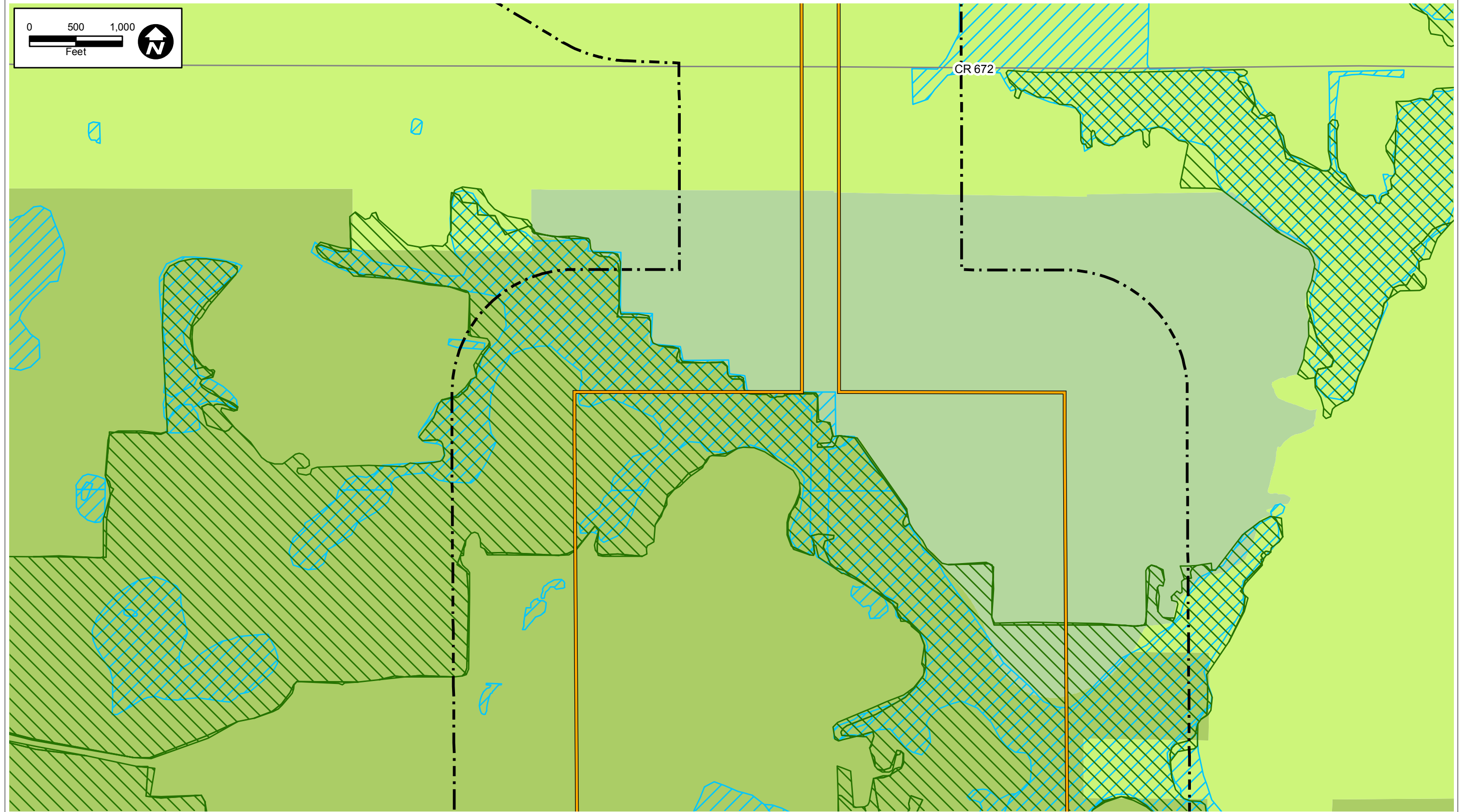


FIGURE 9.1.0-2. (SHEET 7 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

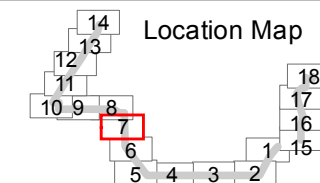
Legend

- Major Roads
- Polk-Fishhawk Preferred Corridor
- 0.25 Mile Area Around Corridors

Hillsborough County Future Land Use

- Agricultural
- Agricultural/Mining

- Agricultural/Rural
- Significant Wildlife Habitat Overlay
- Hillsborough County Wetlands Overlay



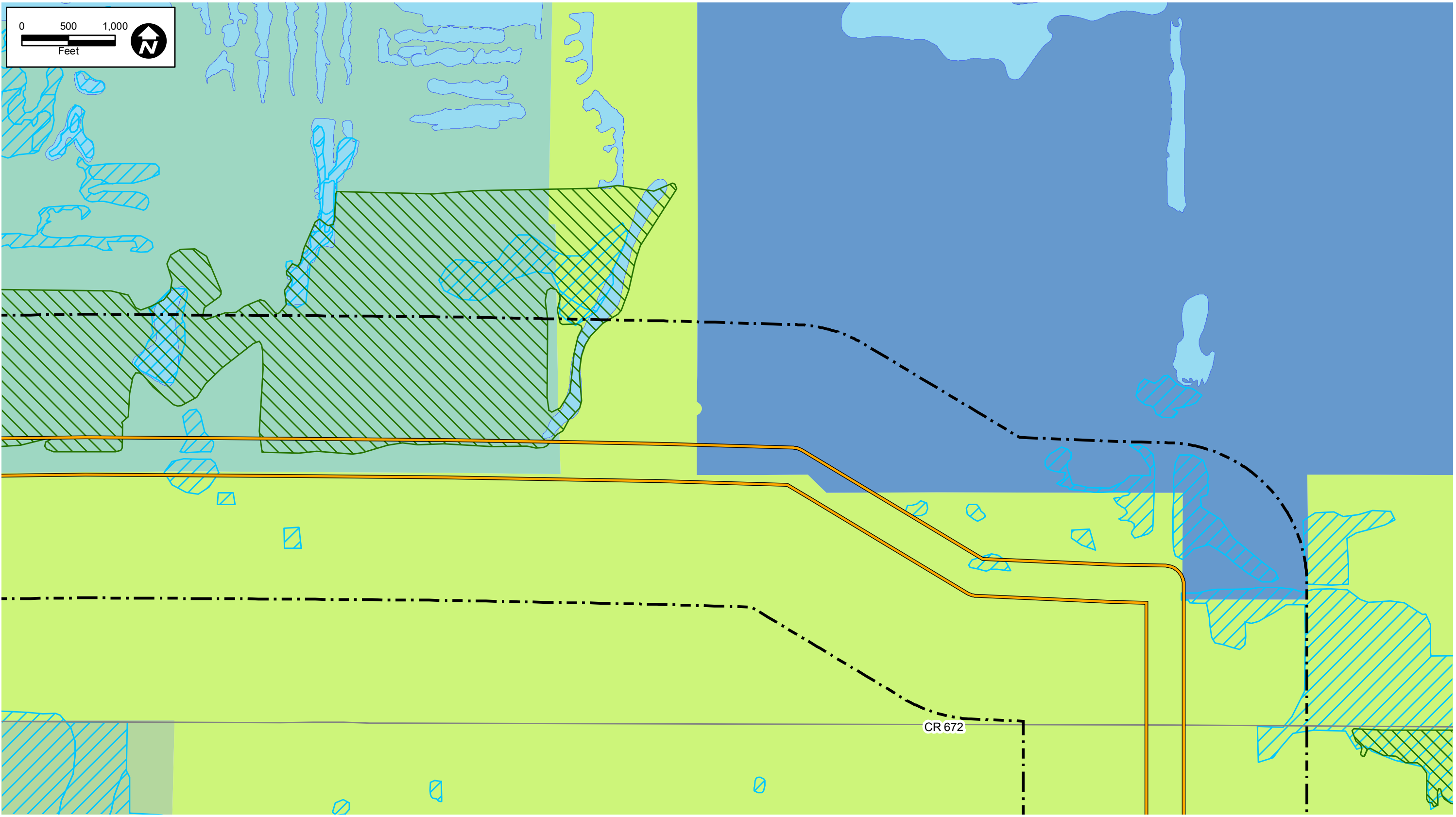


FIGURE 9.1.0-2. (SHEET 8 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

Legend

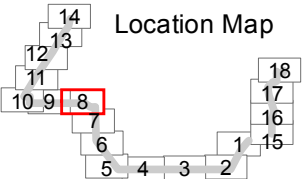
- Major Roads
- Polk-Fishhawk Preferred Corridor
- 0.25 Mile Area Around Corridors

Hillsborough County Future Land Use

- Agricultural
- Agricultural/Rural
- Natural Preservation

- Public/Quasi-Public
- Open Water
- Significant Wildlife Habitat Overlay

- Hillsborough County Wetlands Overlay



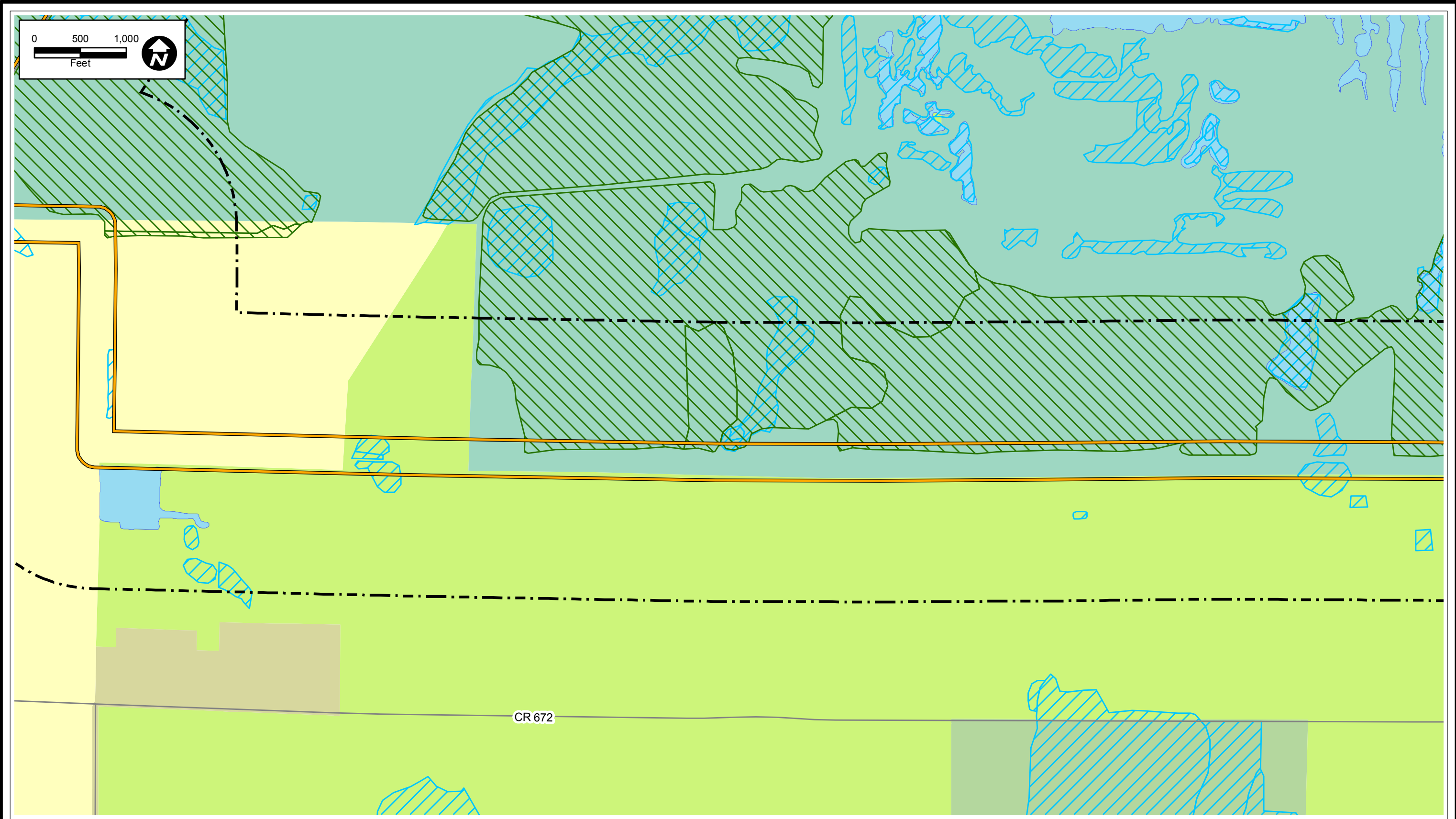


FIGURE 9.1.0-2. (SHEET 9 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

Legend

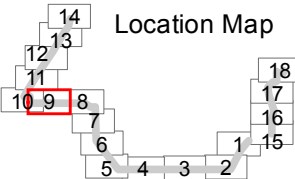
- Major Roads
- Polk-Fishhawk Preferred Corridor
- 0.25 Mile Area Around Corridors

Hillsborough County Future Land Use

- Agricultural
- Agricultural/Rural
- Natural Preservation

- Residential -1
- Residential Planned -2
- Open Water
- Significant Wildlife Habitat Overlay

- Hillsborough County Wetlands Overlay



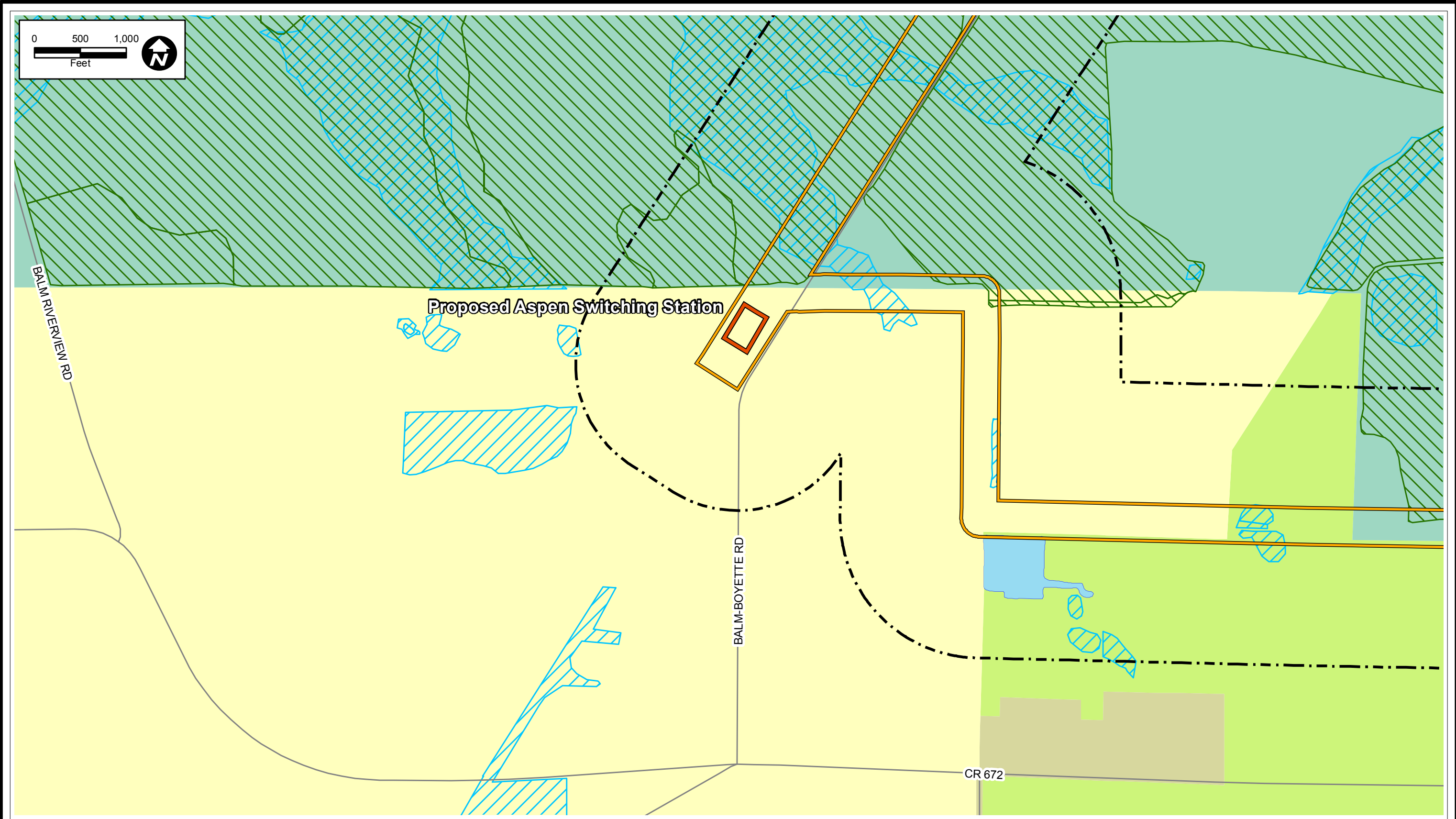


FIGURE 9.1.0-2. (SHEET 10 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

Legend

- Major Roads
- Polk-Fishhawk Preferred Corridor
- 0.25 Mile Area Around Corridors

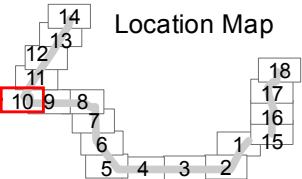
Proposed Tampa Electric Switching Station

Hillsborough County Future Land Use

- Agricultural/Rural
- Natural Preservation
- Residential -1

Residential Planned -2

- Open Water



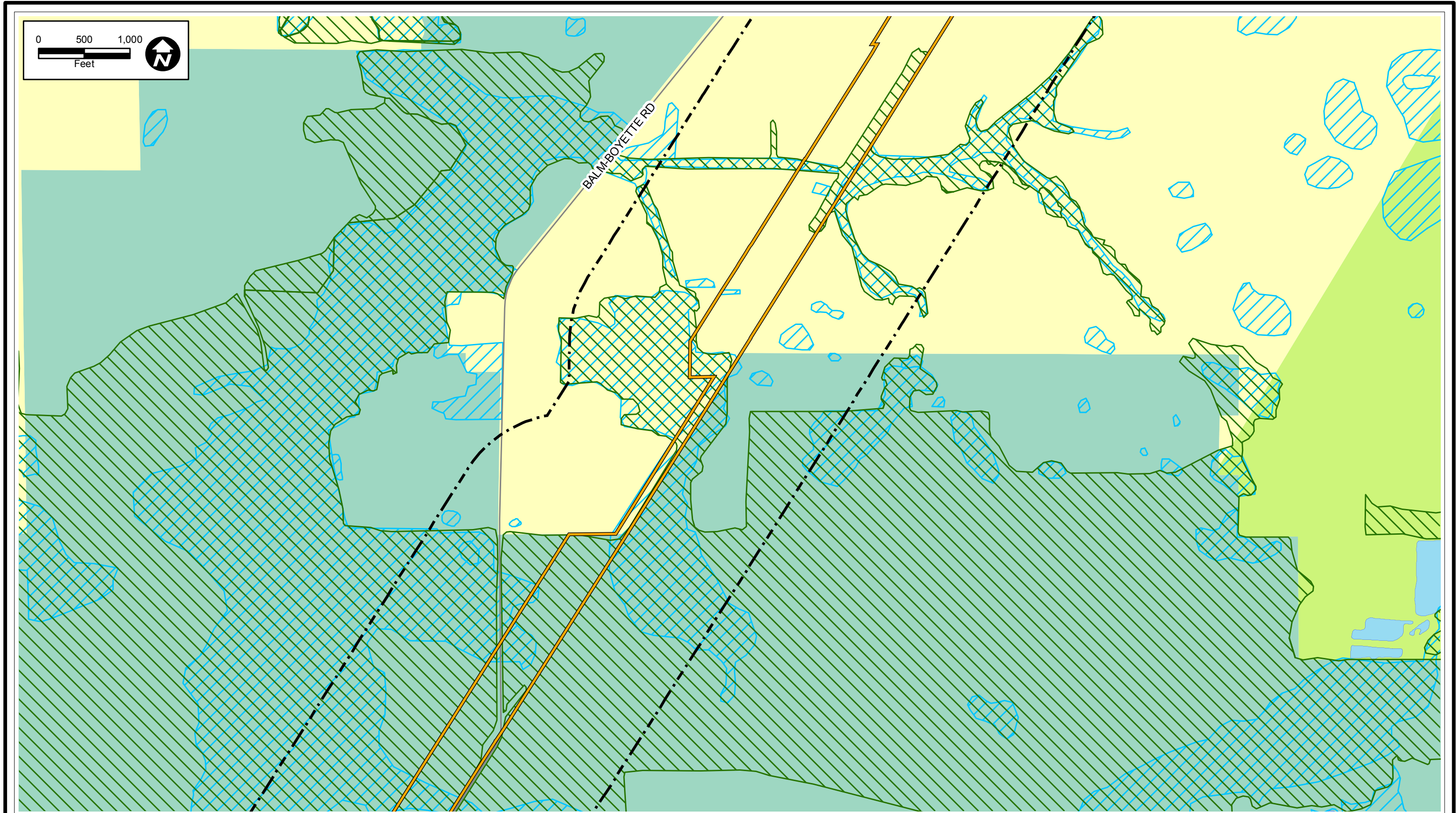


FIGURE 9.1.0-2. (SHEET 11 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

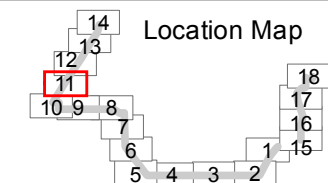
Legend

- Major Roads
- Polk-Fishhawk Preferred Corridor
- 0.25 Mile Area Around Corridors

Hillsborough County Future Land Use

- Agricultural/Rural
- Natural Preservation
- Residential Planned -2

- Open Water
- Significant Wildlife Habitat Overlay
- Hillsborough County Wetlands Overlay



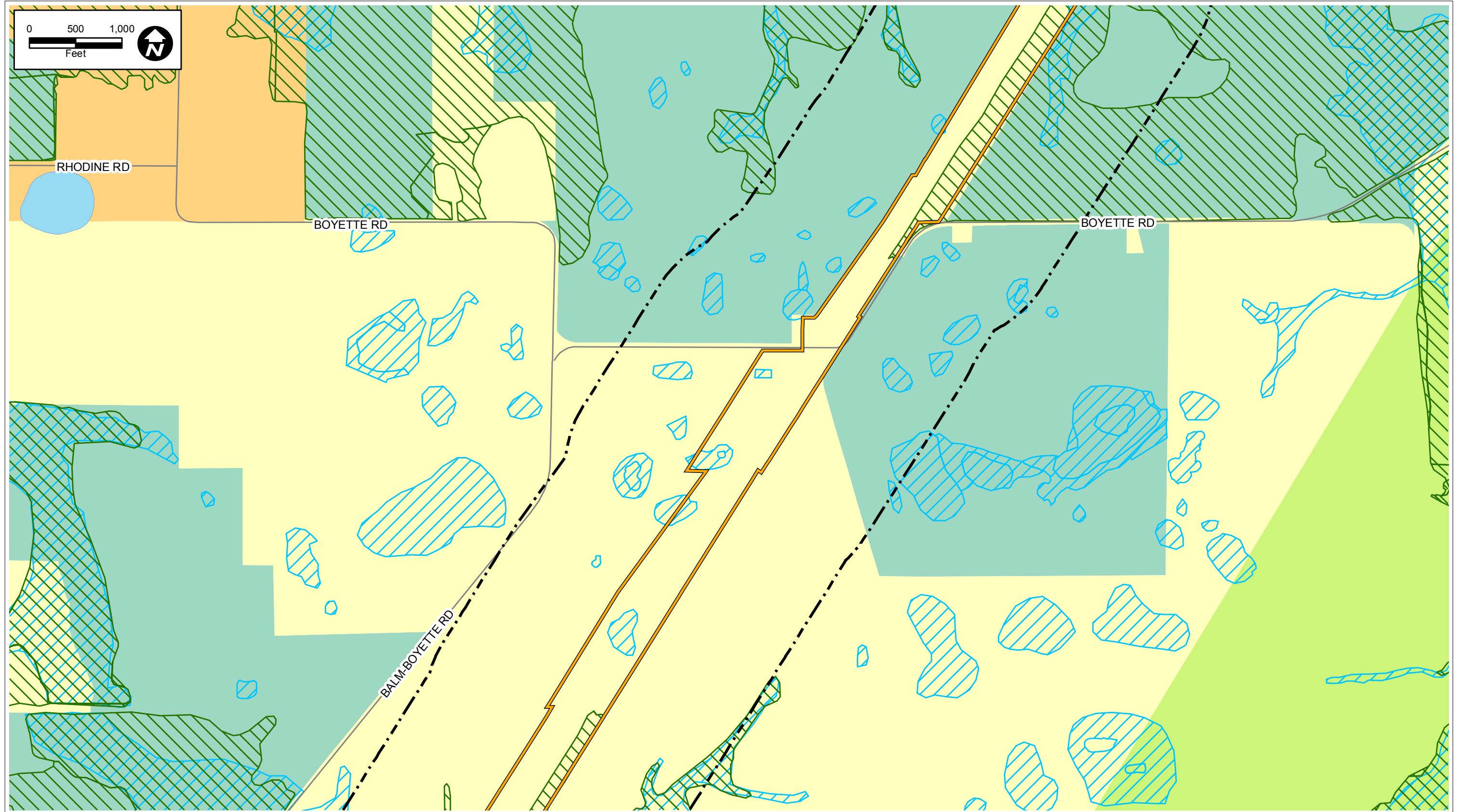


FIGURE 9.1.0-2. (SHEET 12 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

Legend

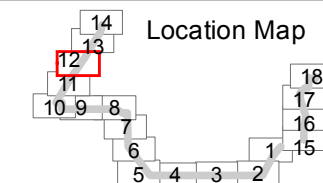
- Major Roads
- Polk-Fishhawk Preferred Corridor
- 0.25 Mile Area Around Corridors

Hillsborough County Future Land Use

- Agricultural/Rural
- Natural Preservation
- Residential -4

- Residential Planned -2
- Open Water
- Significant Wildlife Habitat Overlay

- Hillsborough County Wetlands Overlay



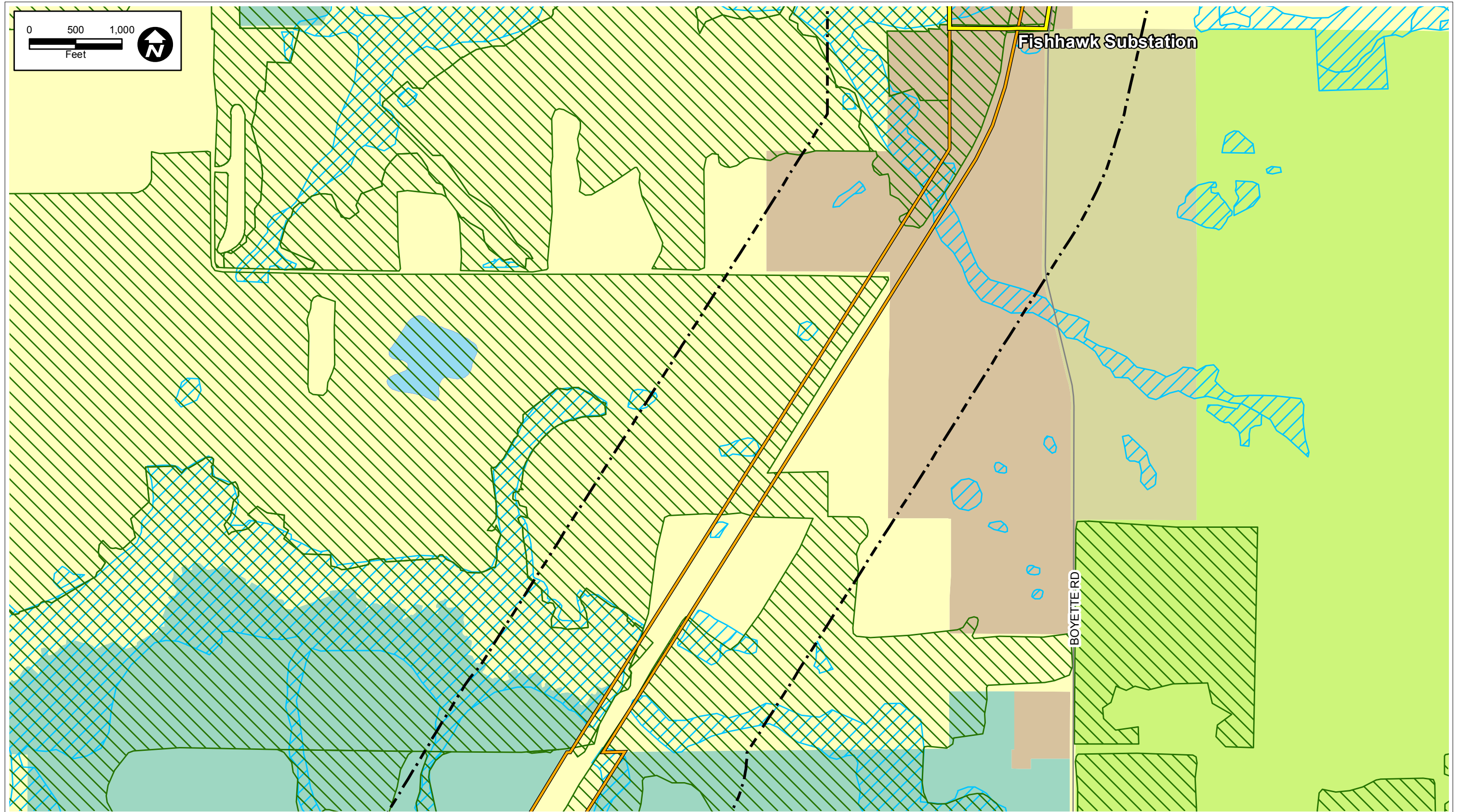


FIGURE 9.1.0-2. (SHEET 13 of 18)
FUTURE LAND USE MAP

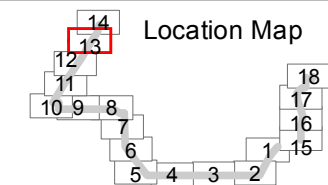
Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

- Legend**
- Major Roads
 - ▭ Existing Tampa Electric Substation
 - ▭ Polk-Fishhawk Preferred Corridor
 - · - · 0.25 Mile Area Around Corridors

Hillsborough County Future Land Use

- ▭ Agricultural/Rural
- ▭ Natural Preservation
- ▭ Residential -1

- ▭ Residential -2
- ▭ Residential Planned -2
- ▭ Open Water



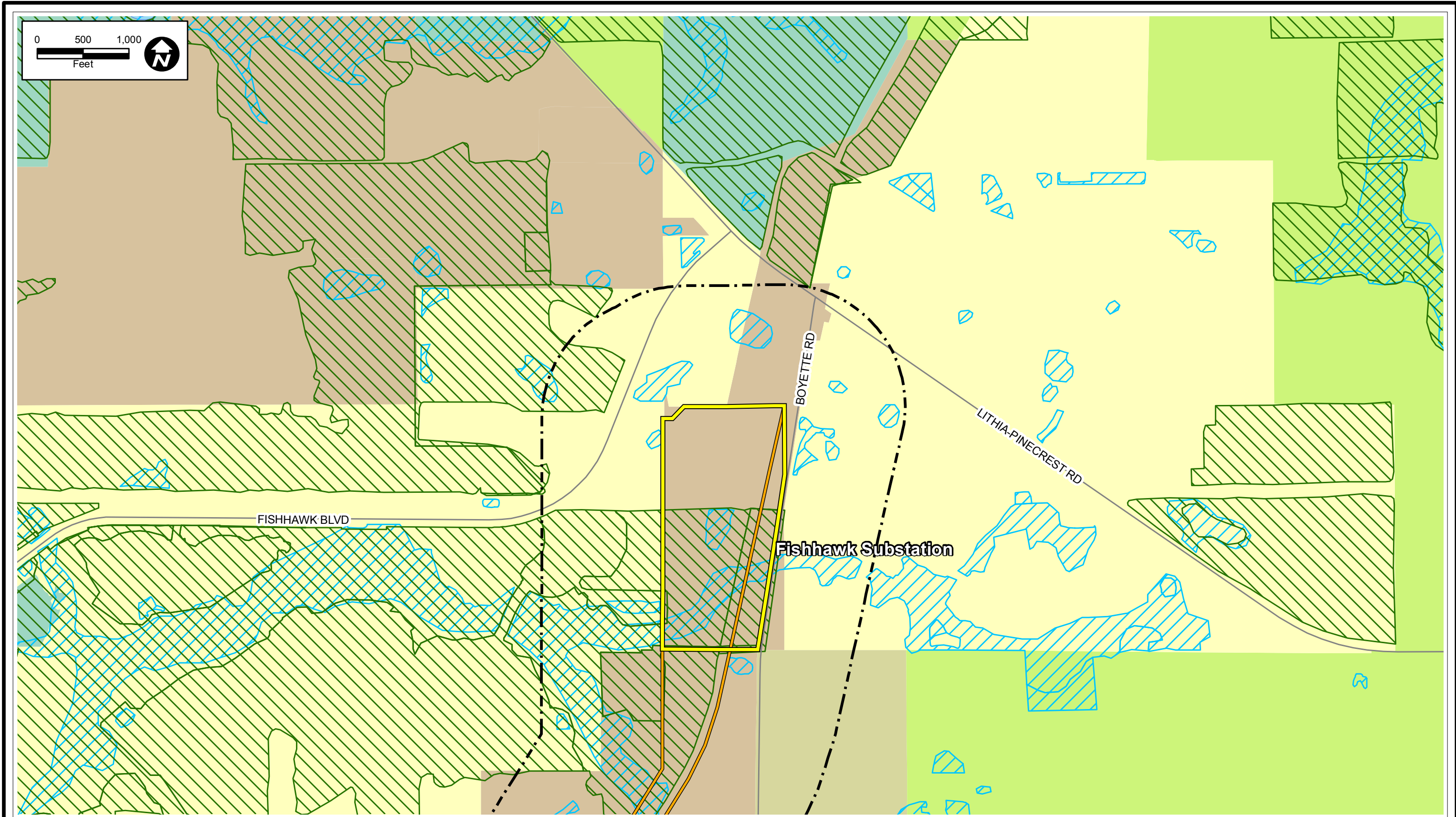


FIGURE 9.1.0-2. (SHEET 14 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

Legend

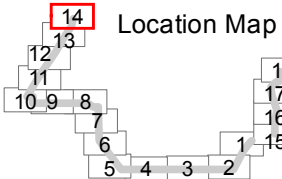
- Major Roads
- Polk-Fishhawk Preferred Corridor
- 0.25 Mile Area Around Corridors

Existing Tampa Electric Substation

Hillsborough County Future Land Use

- Agricultural/Rural
- Natural Preservation
- Residential -1

- Residential -2
- Residential Planned -2



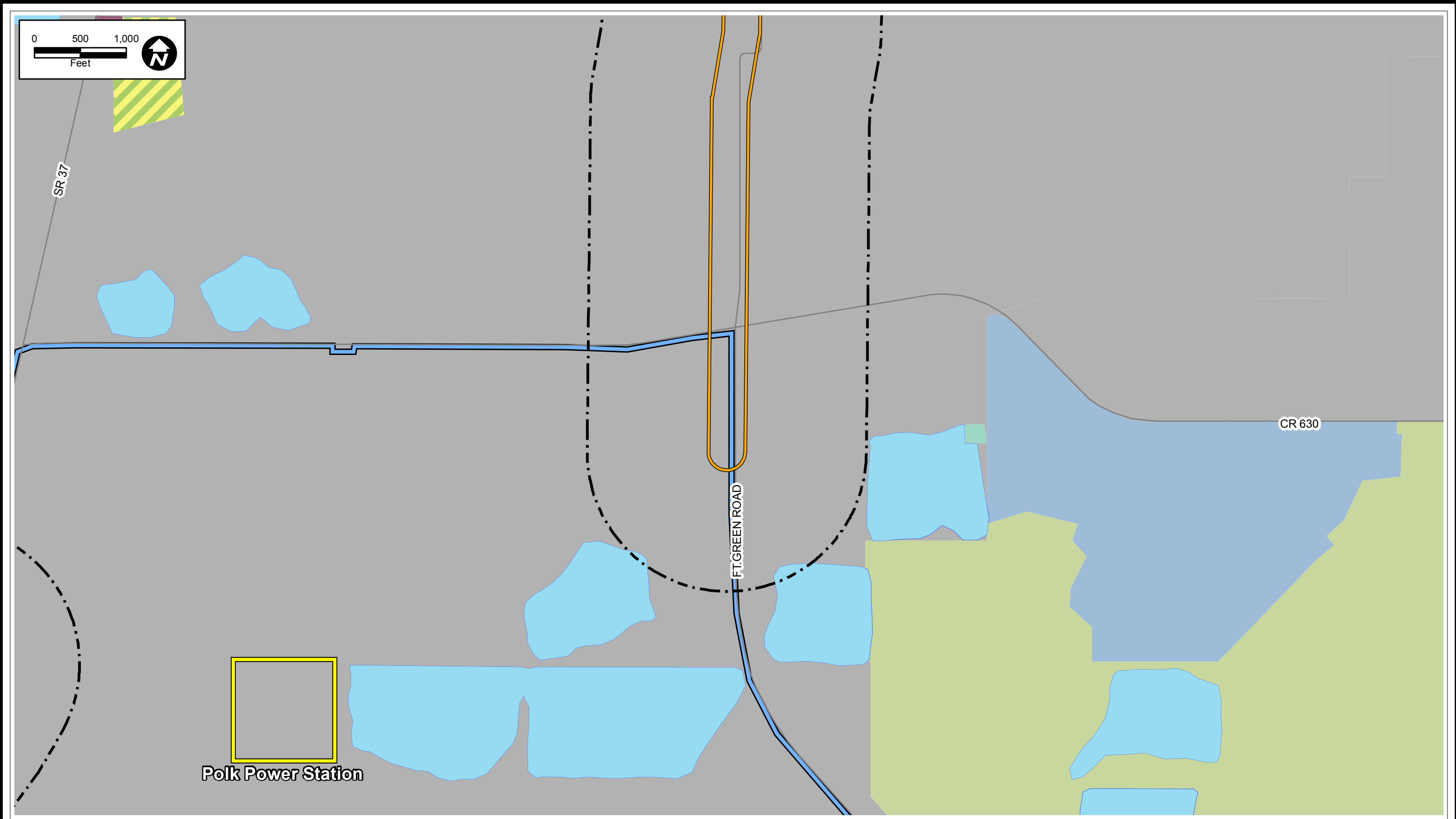


FIGURE 9.1.0-2. (SHEET 15 of 18)
FUTURE LAND USE MAP

Legend

Major Roads

Polk-Pebbledale Preferred Corridor

0.25 Mile Area Around Corridors

Existing Tampa Electric Substation

Polk Power Station Boundary

Location Map

TAMPA ELECTRIC

9-155

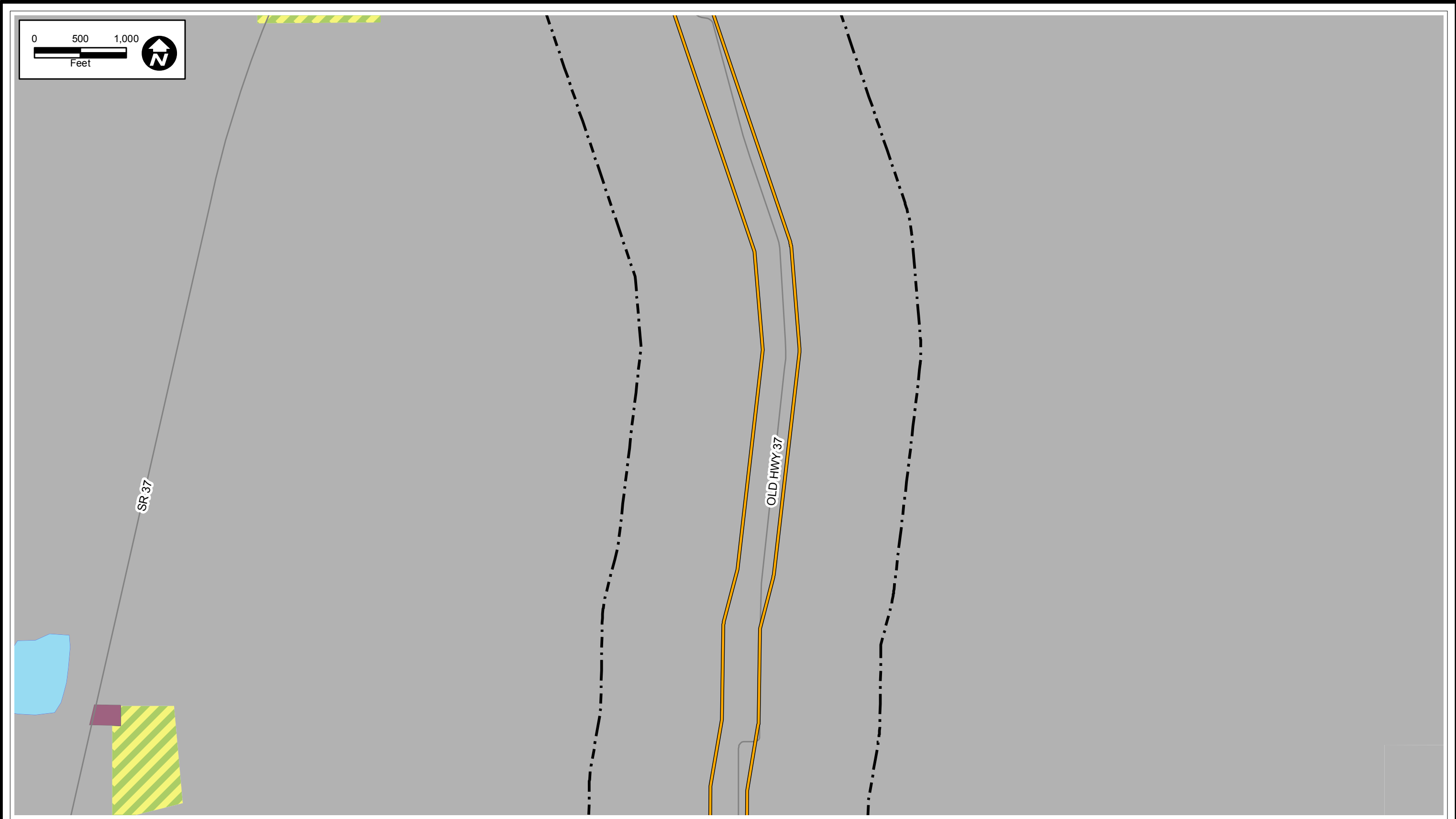


FIGURE 9.1.0-2. (SHEET 16 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

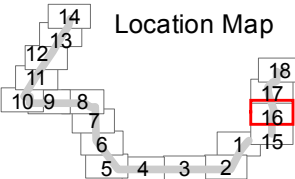
Legend

- Major Roads
- Polk-Pebbledale Preferred Corridor
- 0.25 Mile Area Around Corridors

Polk County Future Land Use

- Agricultural / Rural Residential
- Commercial Enclave

- Open Water
- Phosphate Mining



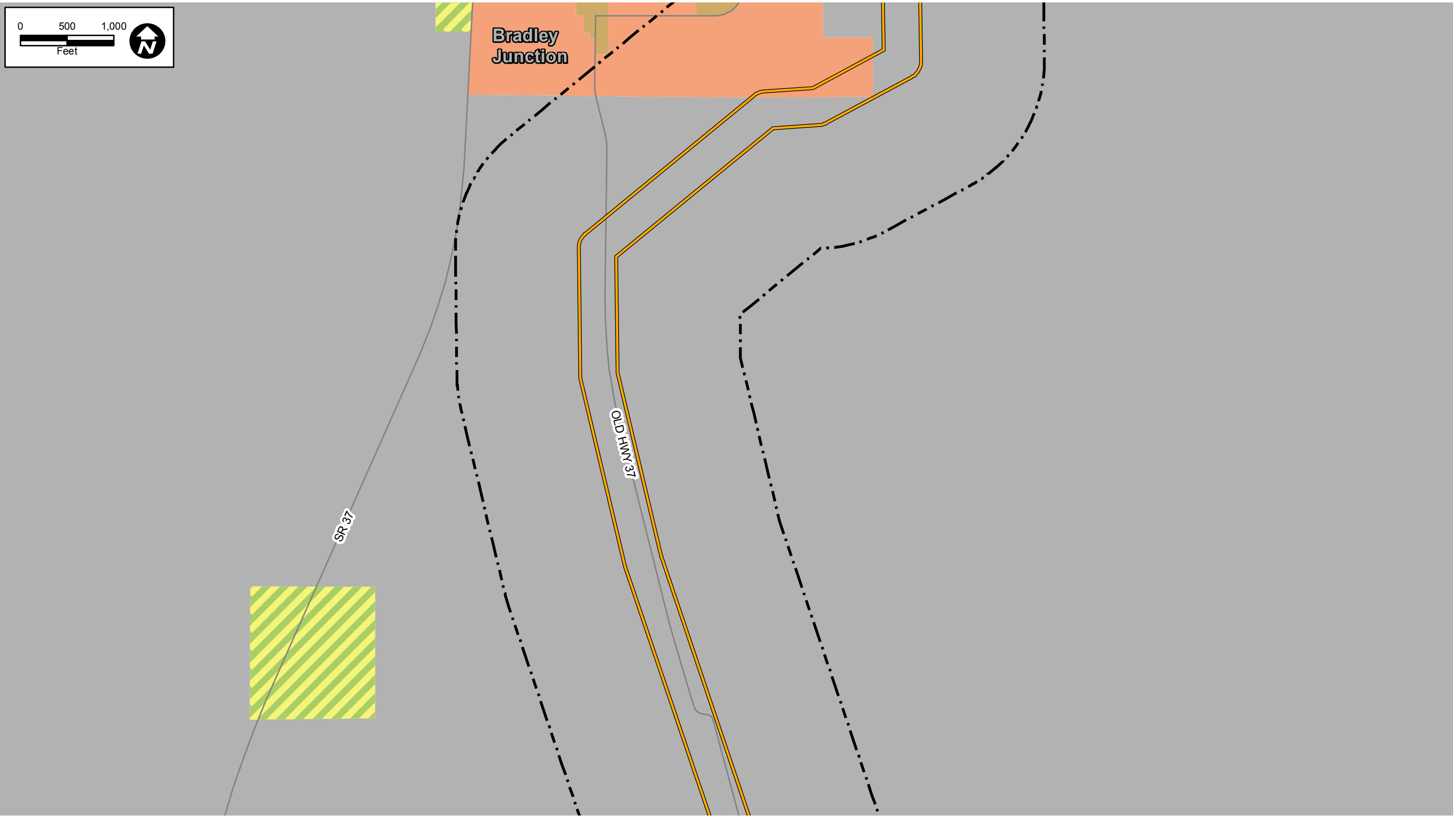
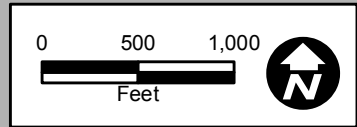


FIGURE 9.1.0-2. (SHEET 17 of 18)
FUTURE LAND USE MAP

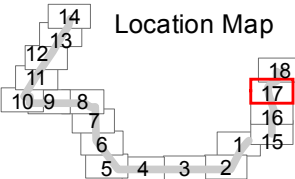
Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

Legend

- Major Roads
- Polk-Pebbledale Preferred Corridor
- 0.25 Mile Area Around Corridors

Polk County Future Land Use

- Agricultural / Rural Residential
- Phosphate Mining
- Rural Cluster Center (Non-Residential)
- Rural Cluster Center (Residential)



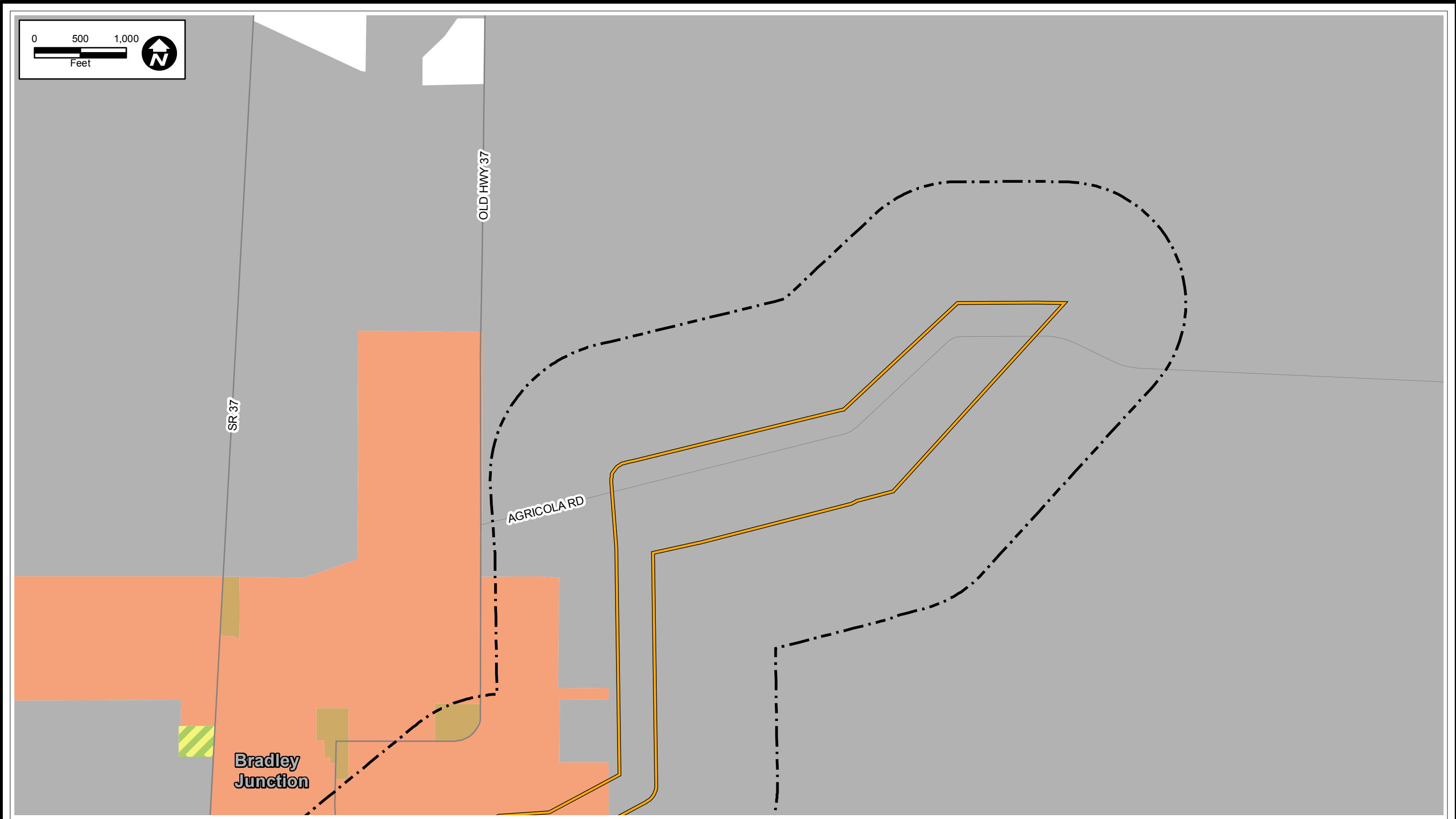


FIGURE 9.1.0-2. (SHEET 18 of 18)
FUTURE LAND USE MAP

Sources: Federal Railroad Administration, 2011; FDOT, 2011; Hillsborough County, 2012; Polk County, 2012; TECO, 2012; ECT, 2012.

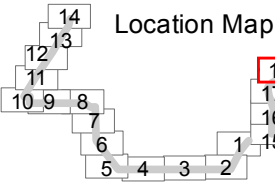
Legend

- Local Roads
- Major Roads
- Polk-Pebbledale Preferred Corridor

- 0.25 Mile Area Around Corridors

Polk County Future Land Use

- Agricultural / Rural Residential
- Phosphate Mining
- Rural Cluster Center (Non-Residential)
- Rural Cluster Center (Residential)



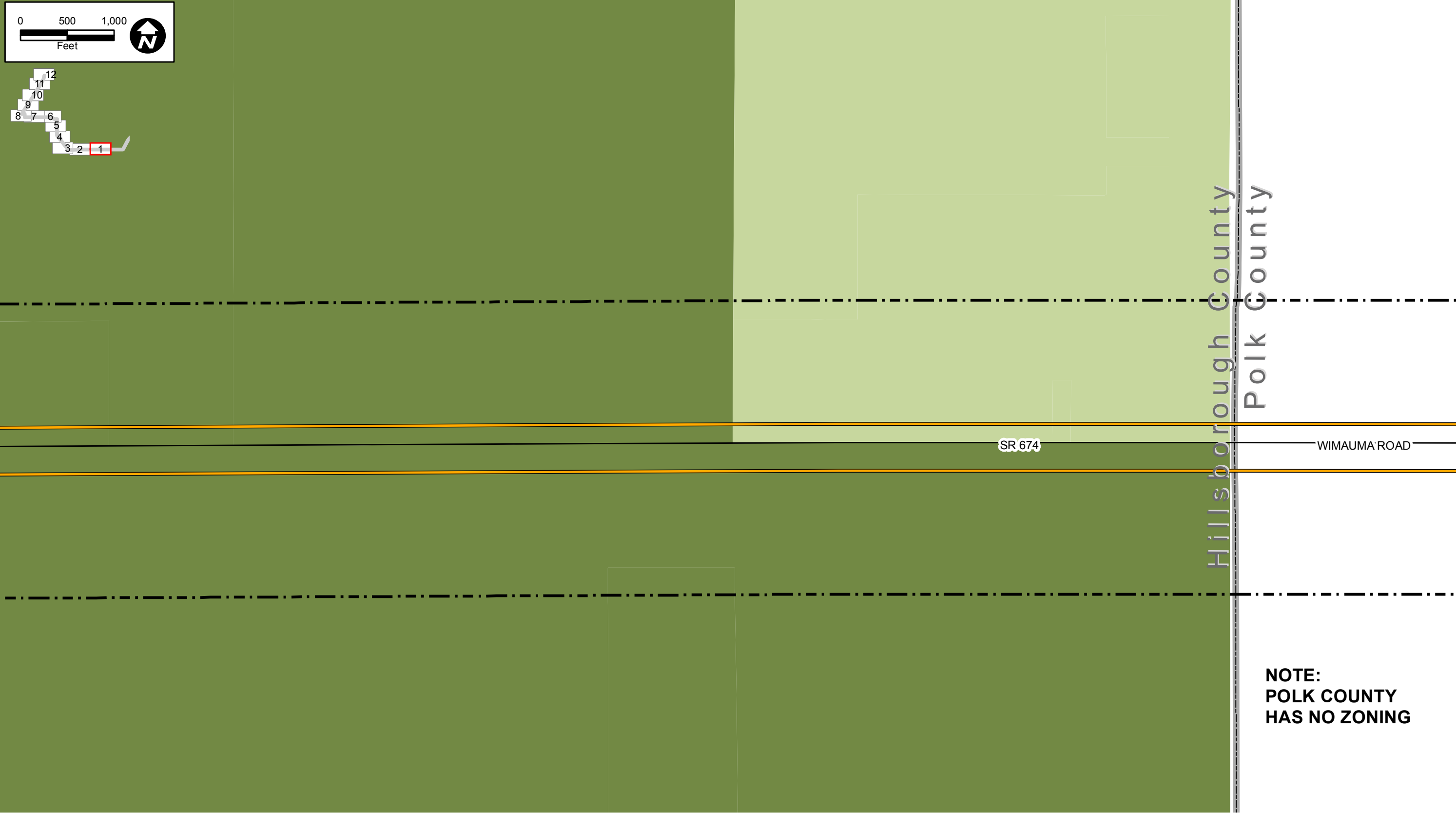


FIGURE 9.1.0-3. (SHEET 1 of 12)

ZONING MAP

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.

Legend

0.25 Mile Area Around Corridor

Polk-Fishhawk Preferred Corridor

Local Roads

Major Roads

Hillsborough County Zoning

Agricultural - Mining

Agricultural - Rural

TECO

TAMPA ELECTRIC



FIGURE 9.1.0-3. (SHEET 2 of 12)
ZONING MAP

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.

Legend

0.25 Mile Area Around Corridor

Polk-Fishhawk Preferred Corridor

Local Roads

Major Roads

Hillsborough County Zoning

Agricultural - Mining

Agricultural - Rural



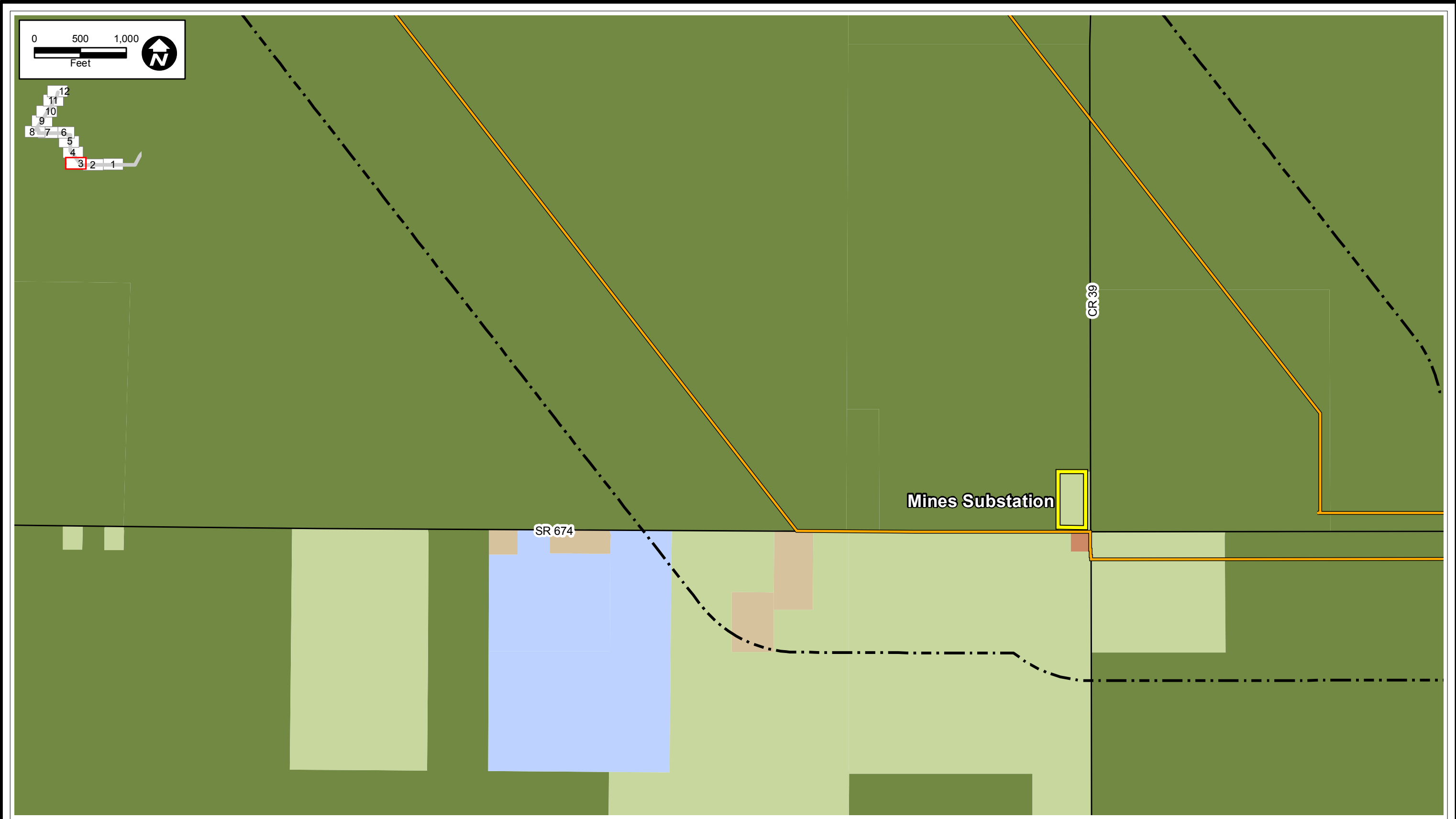


FIGURE 9.1.0-3. (SHEET 3 of 12)
ZONING MAP

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.

Legend

- | | | |
|------------------------------------|-----------------------------------|------------------------------|
| 0.25 Mile Area Around Corridor | Major Roads | Agricultural - Single-Family |
| Existing Tampa Electric Substation | Hillsborough County Zoning | Commercial - General |
| Polk-Fishhawk Preferred Corridor | Agricultural - Mining | Planned Development |
| Local Roads | Agricultural - Rural | |



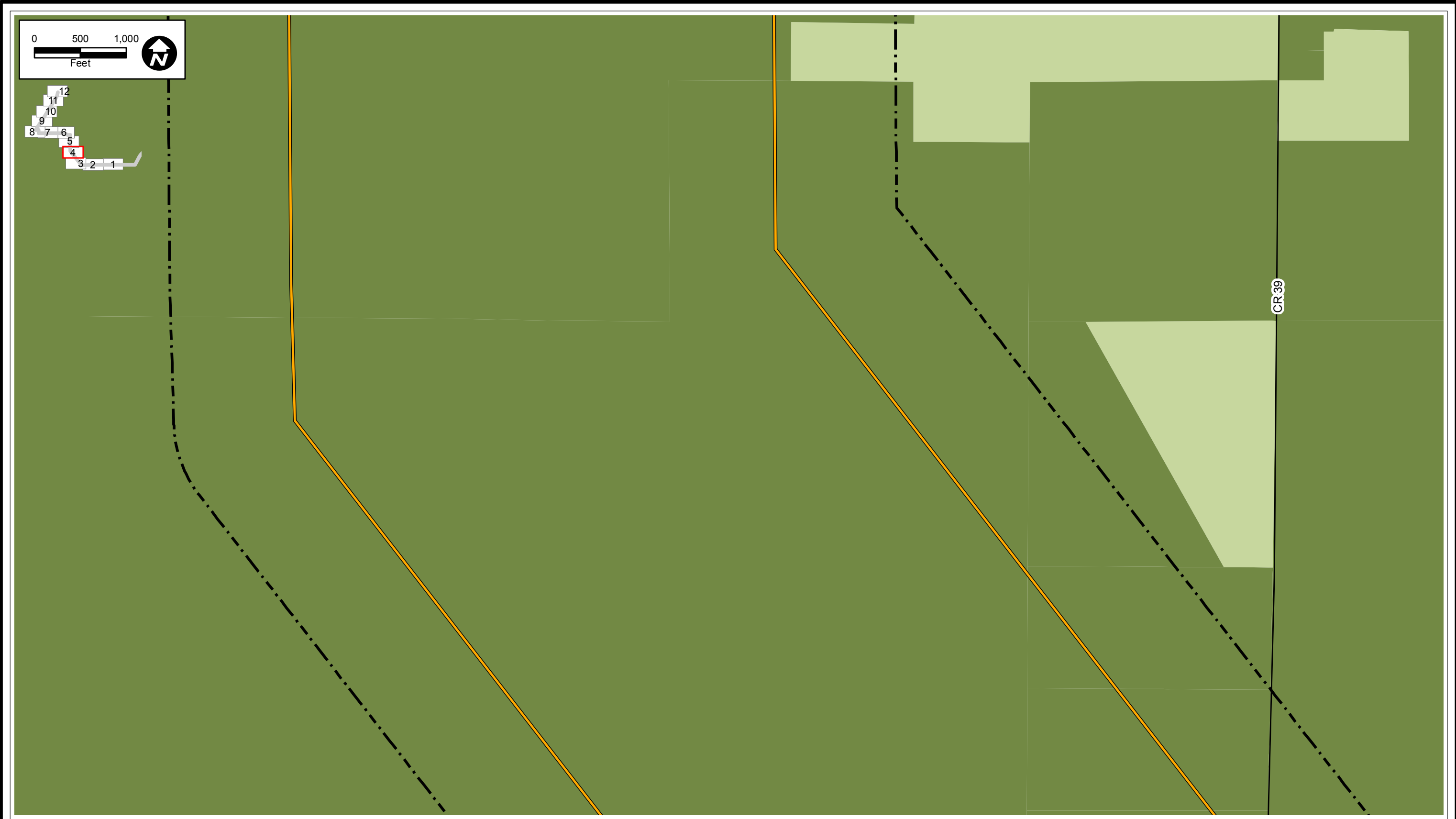


FIGURE 9.1.0-3. (SHEET 4 of 12)
ZONING MAP

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.

Legend
- - - 0.25 Mile Area Around Corridor
 Polk-Fishhawk Preferred Corridor
- - - Local Roads

Hillsborough County Zoning
 Agricultural - Mining
 Agricultural - Rural



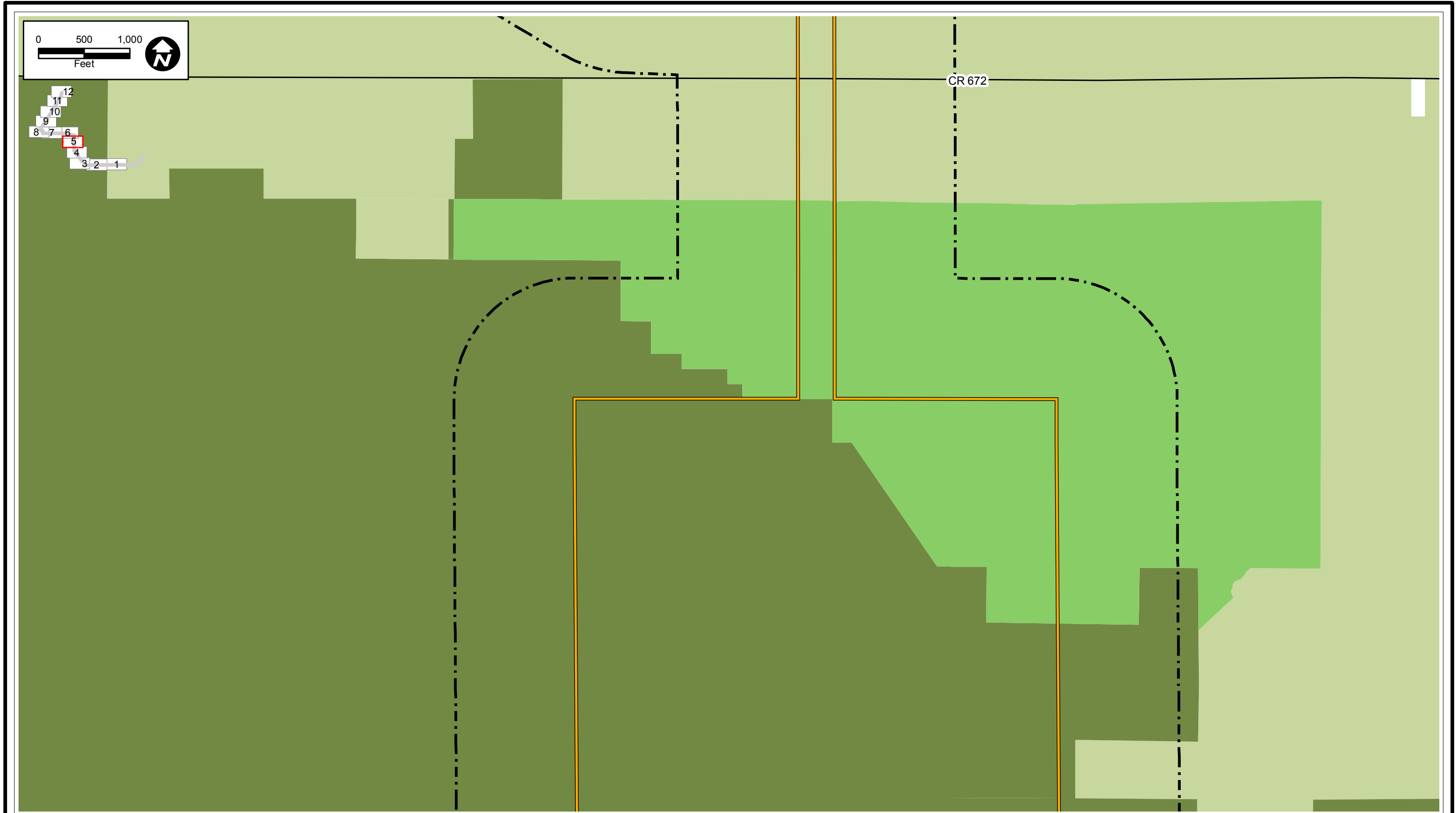


FIGURE 9.1.0-3. (SHEET 5 of 12)
ZONING MAP

Legend

- 0.25 Mile Area Around Corridor
- Polk-Fishhawk Preferred Corridor
- Local Roads

Major Roads

Hillsborough County Zoning

- Agricultural - Mining
- Agricultural - Rural

Agriculture

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.



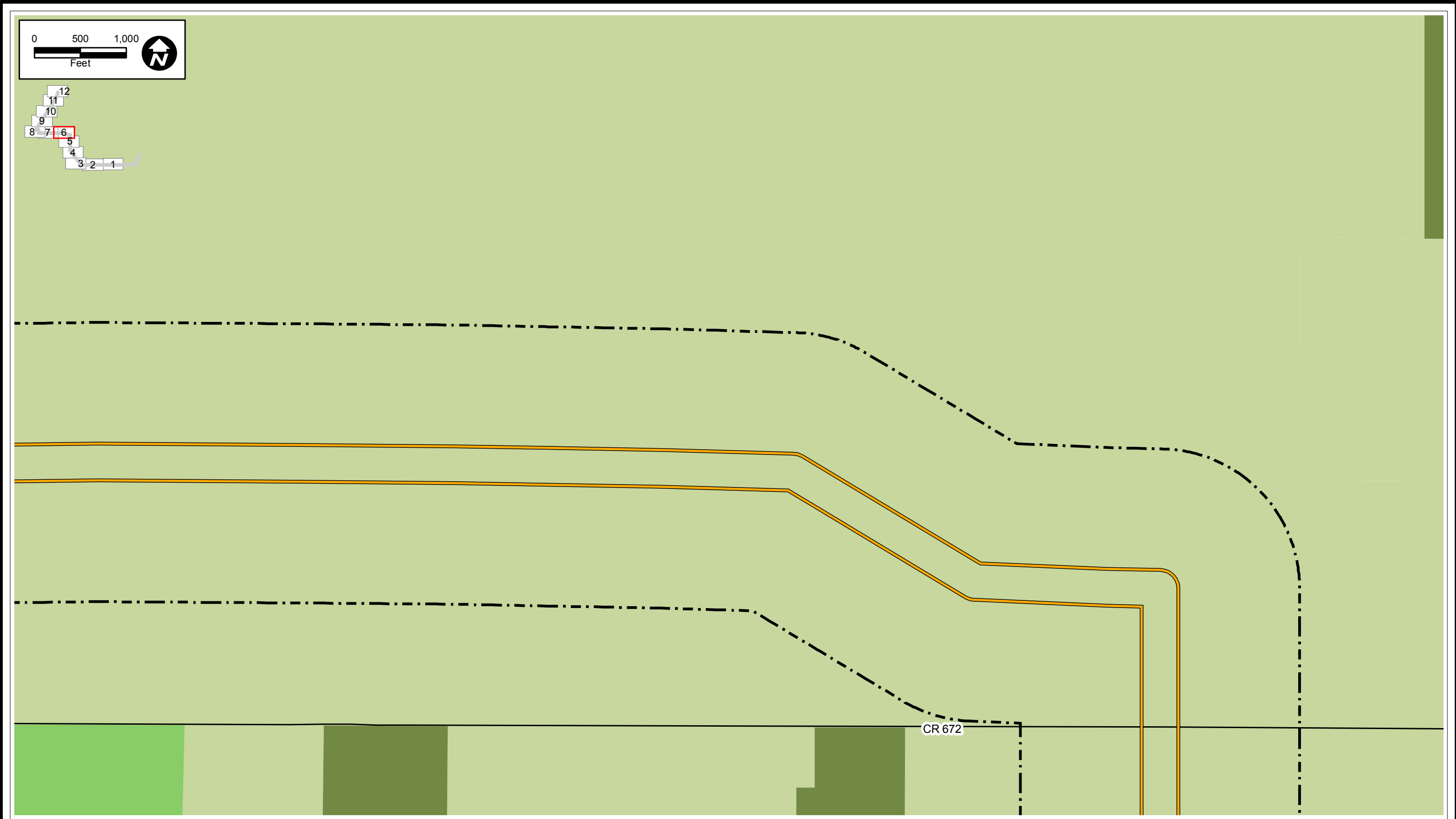


FIGURE 9.1.0-3. (SHEET 6 of 12)
ZONING MAP

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.

Legend

- 0.25 Mile Area Around Corridor
- Polk-Fishhawk Preferred Corridor
- Local Roads

Hillsborough County Zoning

- Agricultural - Mining
- Agricultural - Rural

Agriculture

Major Roads



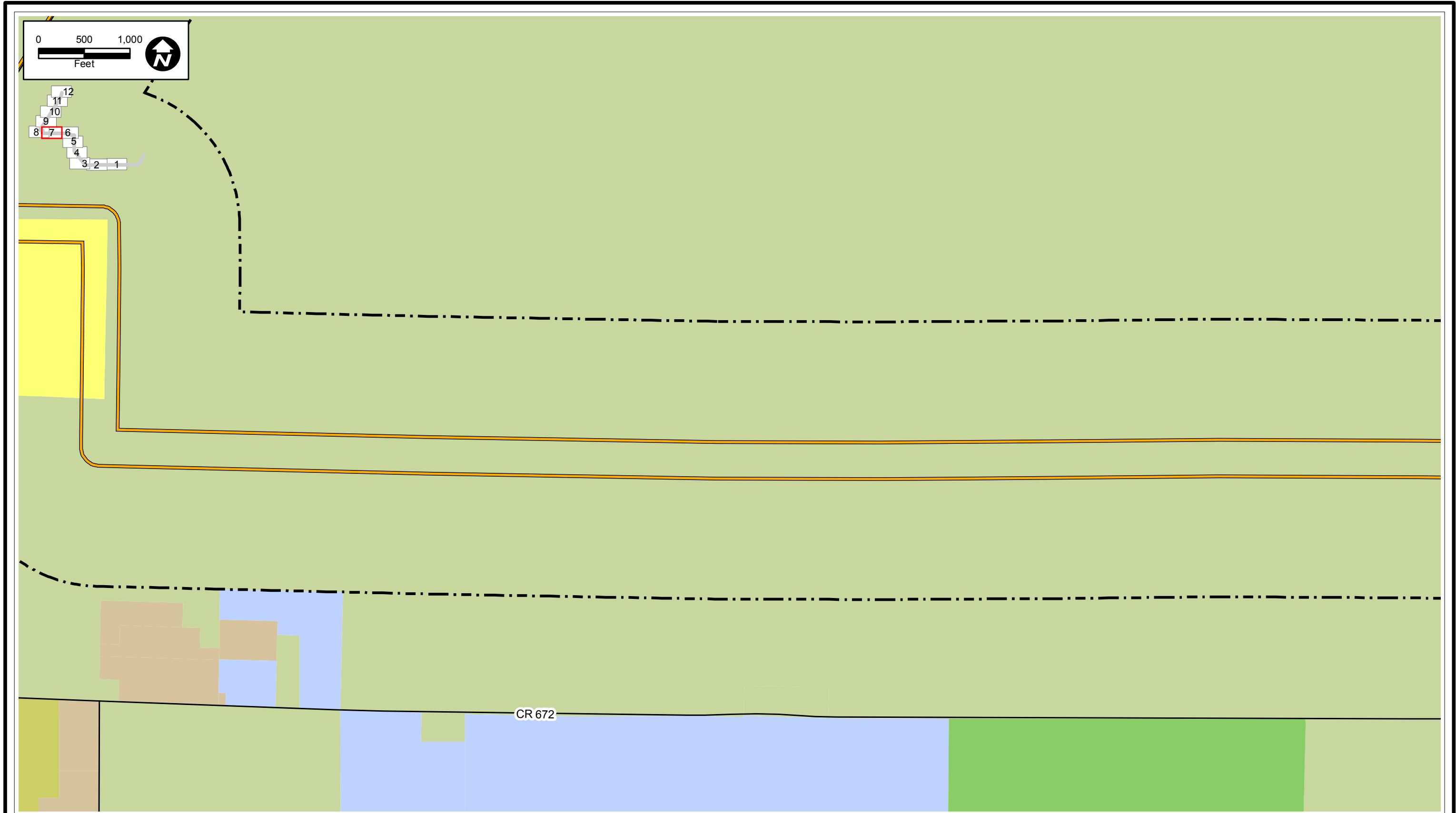


FIGURE 9.1.0-3. (SHEET 7 of 12)
ZONING MAP

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.

Legend

- 0.25 Mile Area Around Corridor
- Polk-Fishhawk Preferred Corridor
- Local Roads

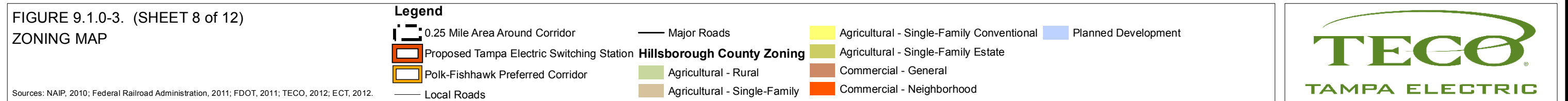
Major Roads

Hillsborough County Zoning

- Agricultural - Rural
- Agricultural - Single-Family

- Agricultural - Single-Family Conventional
- Agricultural - Single-Family Estate
- Agriculture
- Planned Development





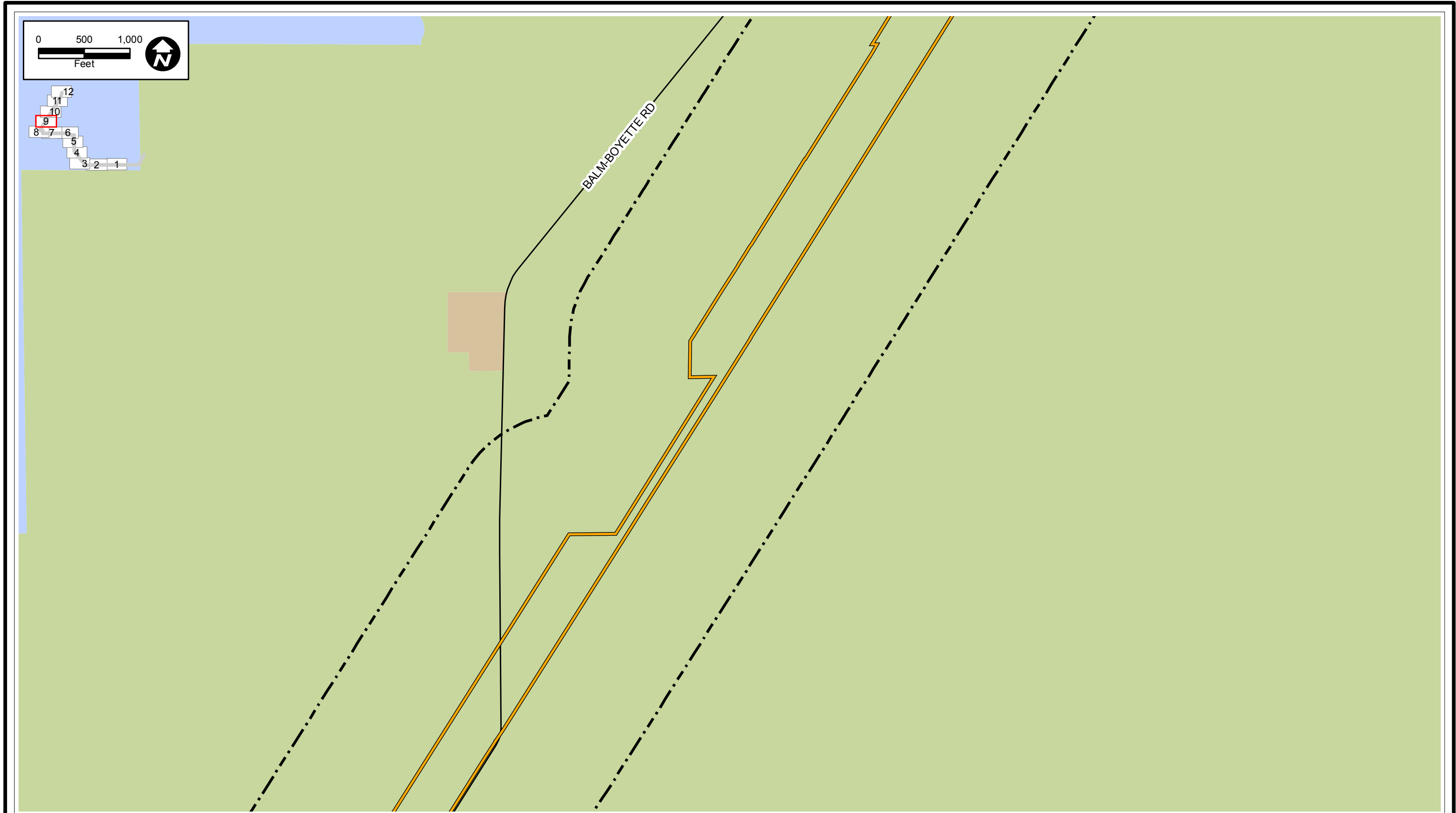


FIGURE 9.1.0-3. (SHEET 9 of 12)
ZONING MAP

Legend

- 0.25 Mile Area Around Corridor
- Polk-Fishhawk Preferred Corridor
- Local Roads

Major Roads

Hillsborough County Zoning

- Agricultural - Rural
- Agricultural - Single-Family

Planned Development

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.



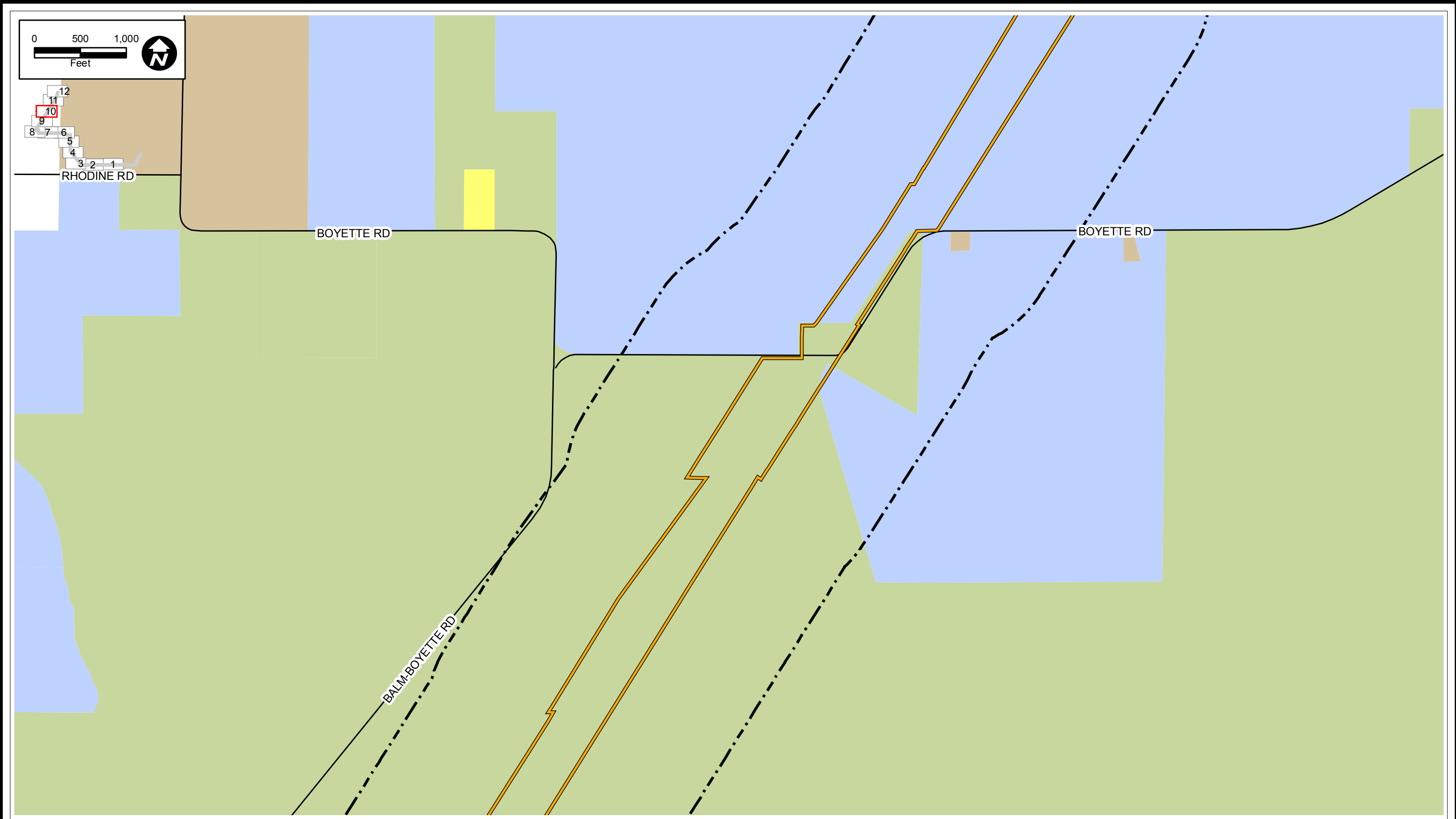


FIGURE 9.1.0-3. (SHEET 10 of 12)
ZONING MAP

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.

Legend

- 0.25 Mile Area Around Corridor
- Polk-Fishhawk Preferred Corridor
- Local Roads

Hillsborough County Zoning

- Agricultural - Rural
- Agricultural - Single-Family

- Major Roads
- Agricultural - Single-Family Conventional
- Planned Development



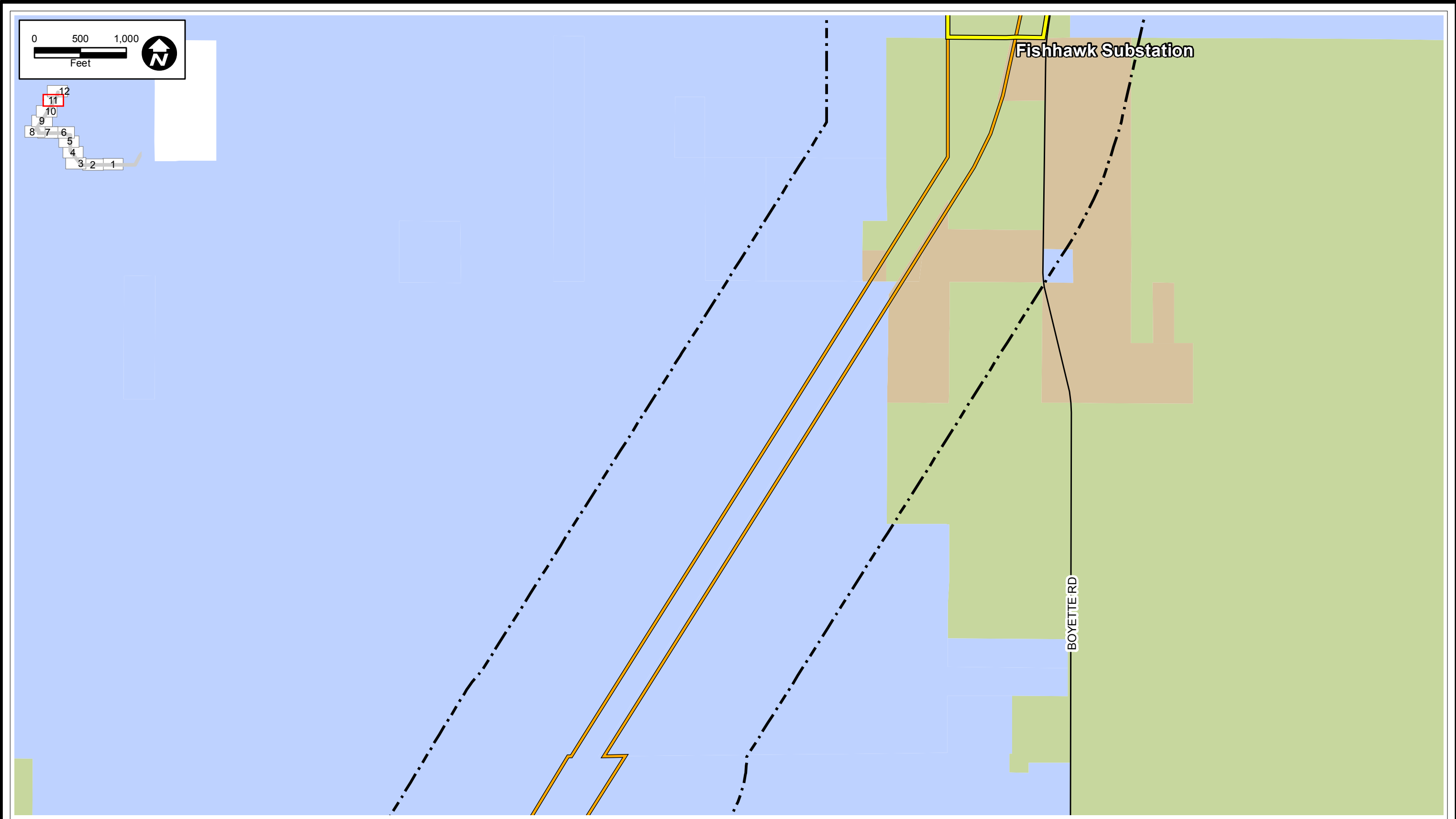


FIGURE 9.1.0-3. (SHEET 11 of 12)
ZONING MAP

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.

Legend

- 0.25 Mile Area Around Corridor
- Existing Tampa Electric Substation
- Polk-Fishhawk Preferred Corridor
- Local Roads

Major Roads

Hillsborough County Zoning

- Agricultural - Rural
- Agricultural - Single-Family

Planned Development



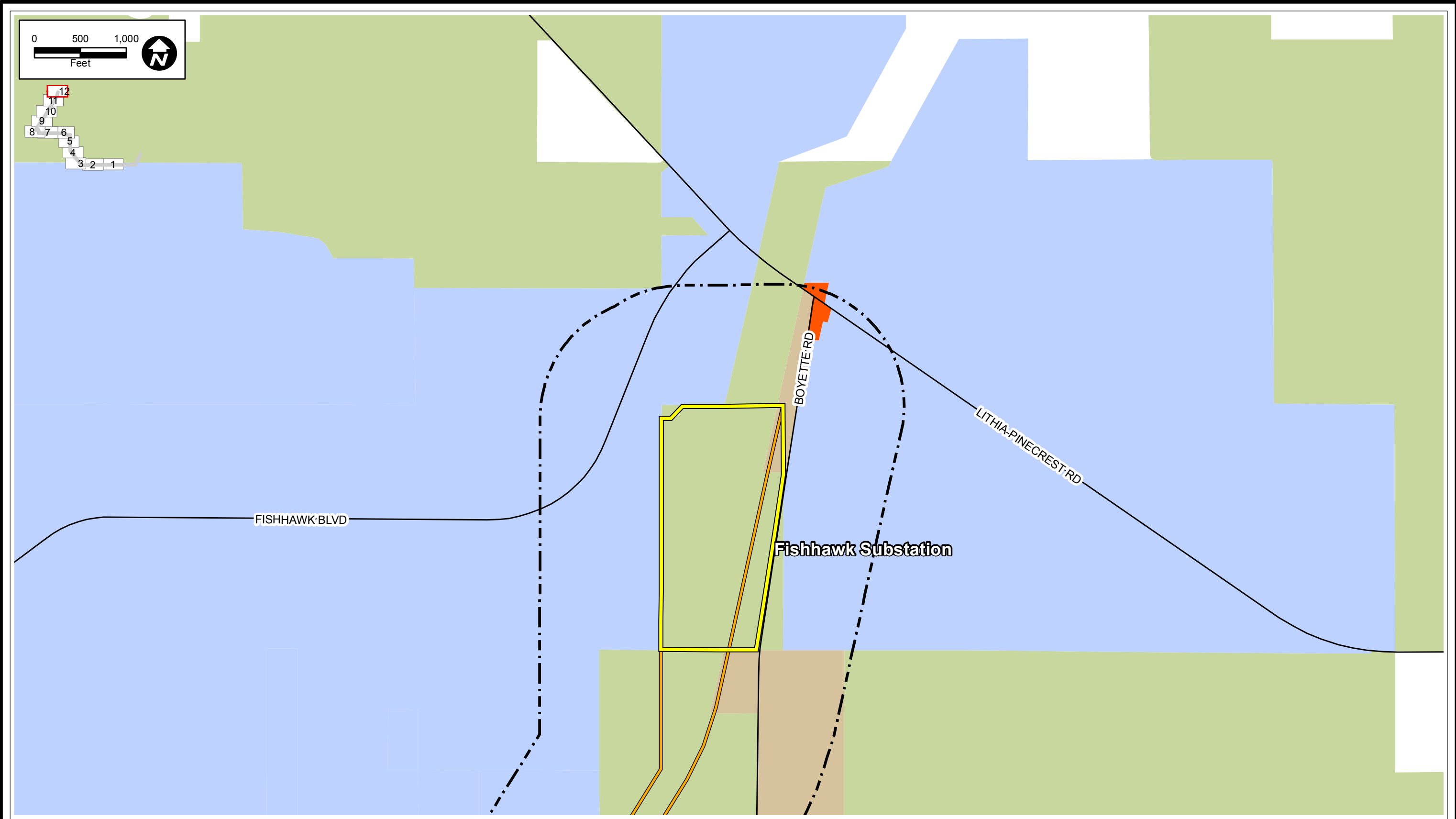


FIGURE 9.1.0-3. (SHEET 12 of 12)
ZONING MAP

Sources: NAIP, 2010; Federal Railroad Administration, 2011; FDOT, 2011; TECO, 2012; ECT, 2012.

Legend
[Dashed Line] 0.25 Mile Area Around Corridor
[Yellow Rectangle] Existing Tampa Electric Substation
[Orange Rectangle] Polk-Fishhawk Preferred Corridor
[Thin Line] Local Roads

Hillsborough County Zoning
[Light Green] Agricultural - Rural
[Tan] Agricultural - Single-Family

[Thick Line] Major Roads
[Orange] Commercial - Neighborhood
[Light Blue] Planned Development



FLUCFCS	Description	FLUCFCS	Description
1100	RESIDENTIAL LOW DENSITY < 2 DWELLING UNITS	3300	MIXED RANGELAND
1200	RESIDENTIAL MED DENSITY 2->5 DWELLING UNIT	4100	UPLAND CONIFEROUS FOREST
1300	RESIDENTIAL HIGH DENSITY	4110	PINE FLATWOODS
1400	COMMERCIAL AND SERVICES	4200	UPLAND HARDWOOD FORESTS
1500	INDUSTRIAL	4340	HARDWOOD CONIFER MIXED
1600	EXTRACTIVE	4400	TREE PLANTATIONS
1650	RECLAIMED LAND	5200	LAKES
1700	INSTITUTIONAL	5300	RESERVOIRS
1800	RECREATIONAL	6150	STREAM AND LAKE SWAMPS (BOTTOMLAND)
1900	OPEN LAND	6210	CYPRESS
2100	CROPLAND AND PASTURELAND	6300	WETLAND FORESTED MIXED
2140	ROW CROPS	6410	FRESHWATER MARSHES
2200	TREE CROPS	6430	WET PRAIRIES
2400	NURSERIES AND VINEYARDS	6440	EMERGENT AQUATIC VEGETATION
2500	SPECIALTY FARMS	6530	INTERMITTENT PONDS
2550	TROPICAL FISH FARMS	7400	DISTURBED LAND
2600	OTHER OPEN LANDS <RURAL>	8100	TRANSPORTATION
3200	SHRUB AND BRUSHLAND	8300	UTILITIES

FIGURE 9.1.0-4. (KEY SHEET)
LAND COVER / VEGETATION

Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.



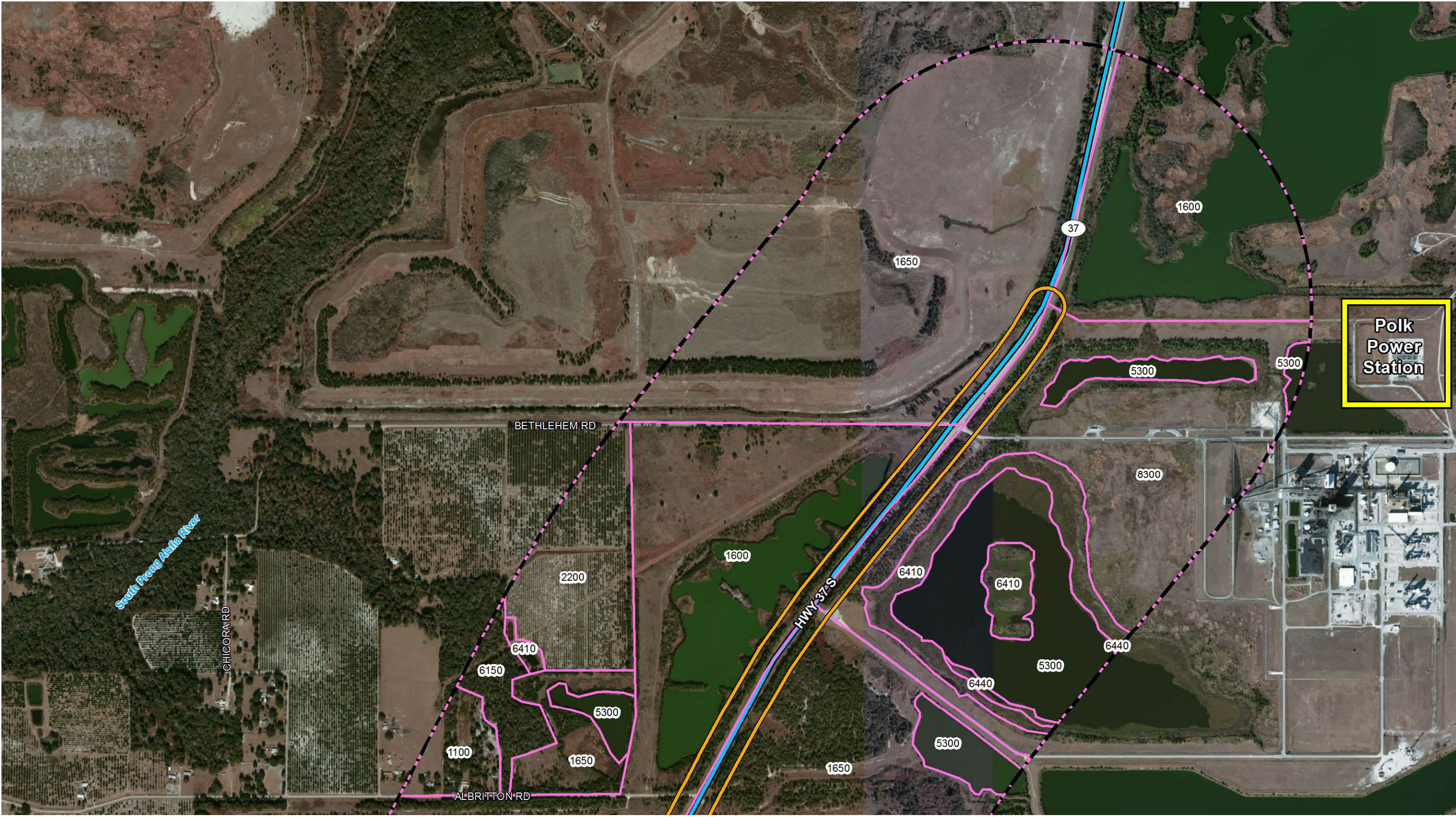
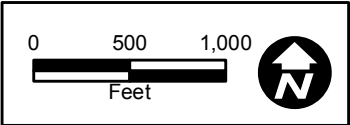


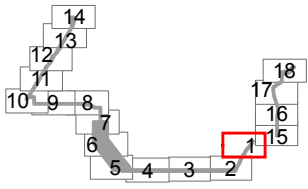
FIGURE 9.1.0-4. (SHEET 1 of 18)
LAND COVER / VEGETATION

Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.



Legend

- | | | |
|----------------------------------|---|--------------------------------|
| T & E Locations | Existing Tampa Electric Substation | Polk Power Station Boundary |
| Polk-Fishhawk Preferred Corridor | Proposed Tampa Electric Switching Station | County Boundary |
| SWFWMD LANDCOVER | | .50 Mile Area Around Corridors |



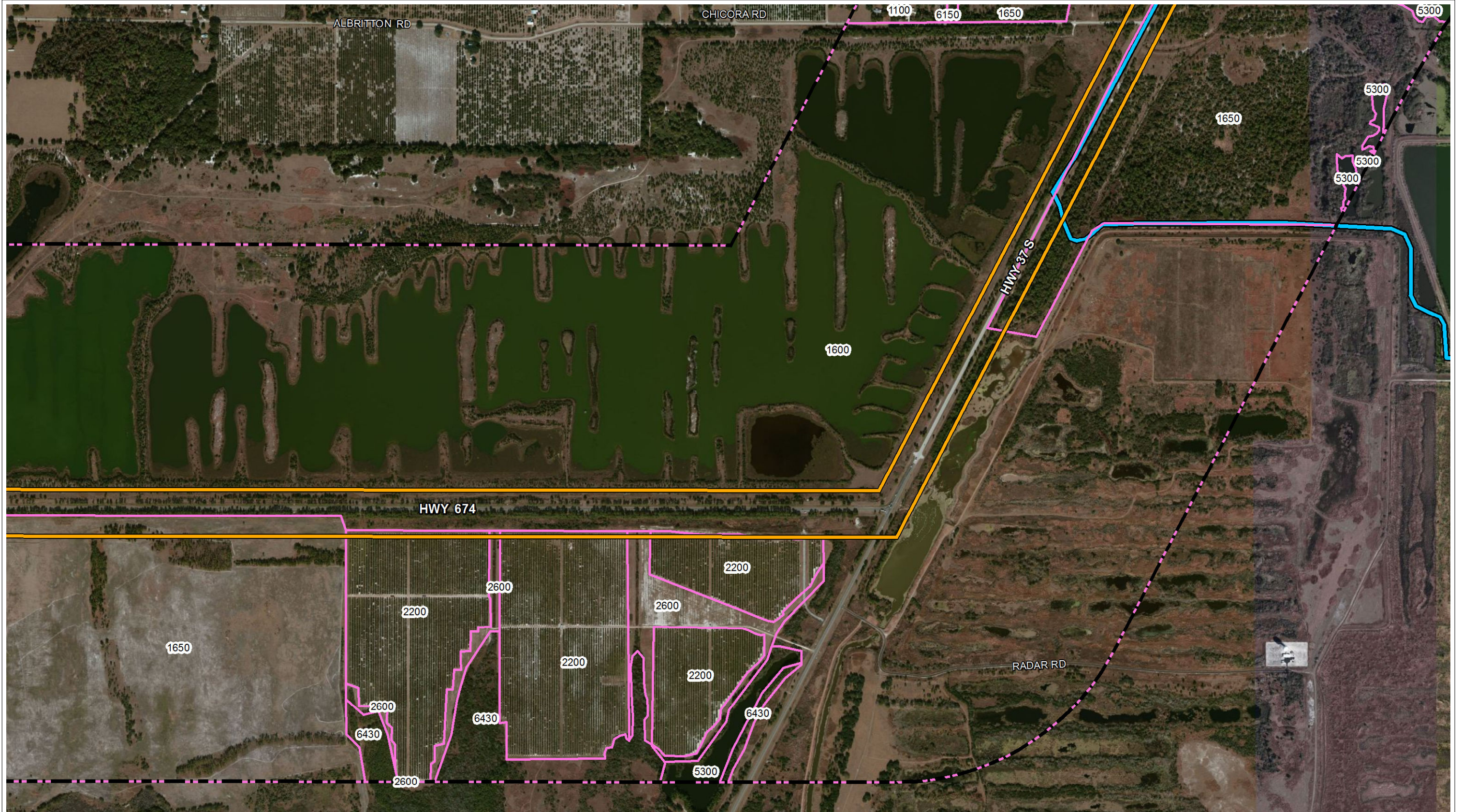
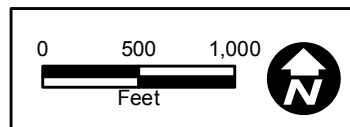


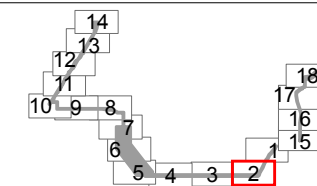
FIGURE 9.1.0-4. (SHEET 2 of 18)
LAND COVER / VEGETATION

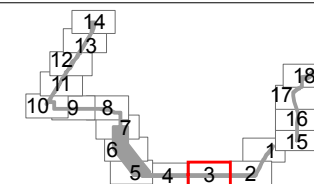
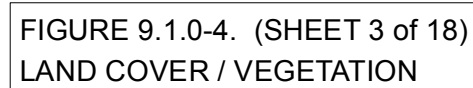


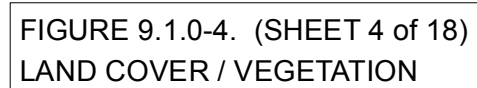
Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

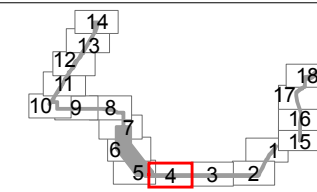
- T & E Locations
- Polk-Fishhawk Preferred Corridor
- SWFWMD LANDCOVER
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary
- .50 Mile Area Around Corridors







-  T & E Locations
 Polk-Fishhawk Preferred Corridor
 SWFWMD LANDCOVER
 Existing Tampa Electric Substation
 Proposed Tampa Electric Switching Station
 Polk Power Station Boundary
 County Boundary
 .50 Mile Area Around Corridors



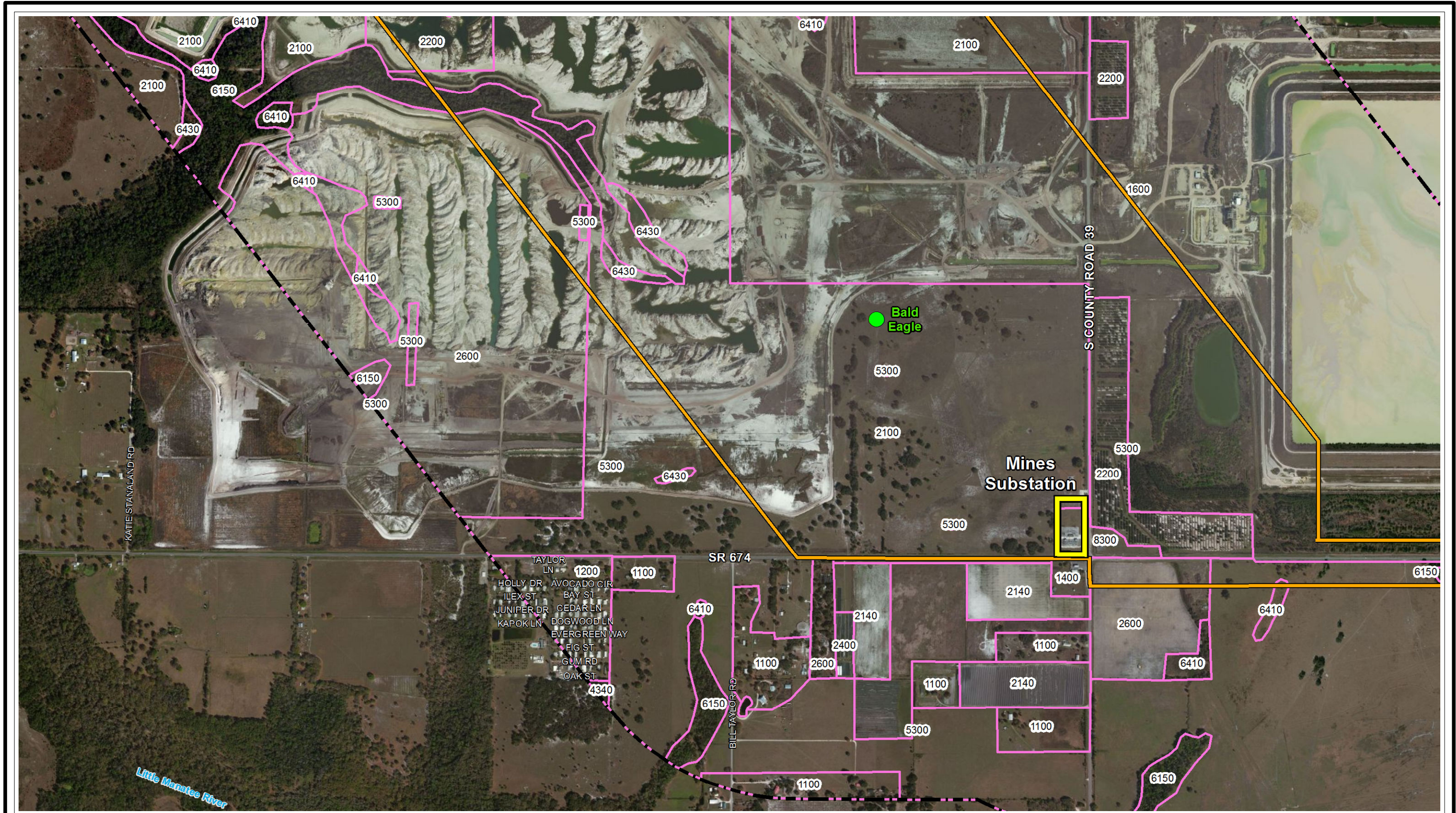
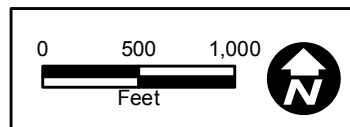
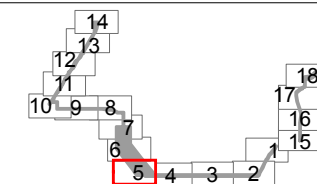


FIGURE 9.1.0-4. (SHEET 5 of 18)
LAND COVER / VEGETATION



Legend

- T & E Locations
- Polk-Fishhawk Preferred Corridor
- SWFWMD LANDCOVER
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary
- .50 Mile Area Around Corridors



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.



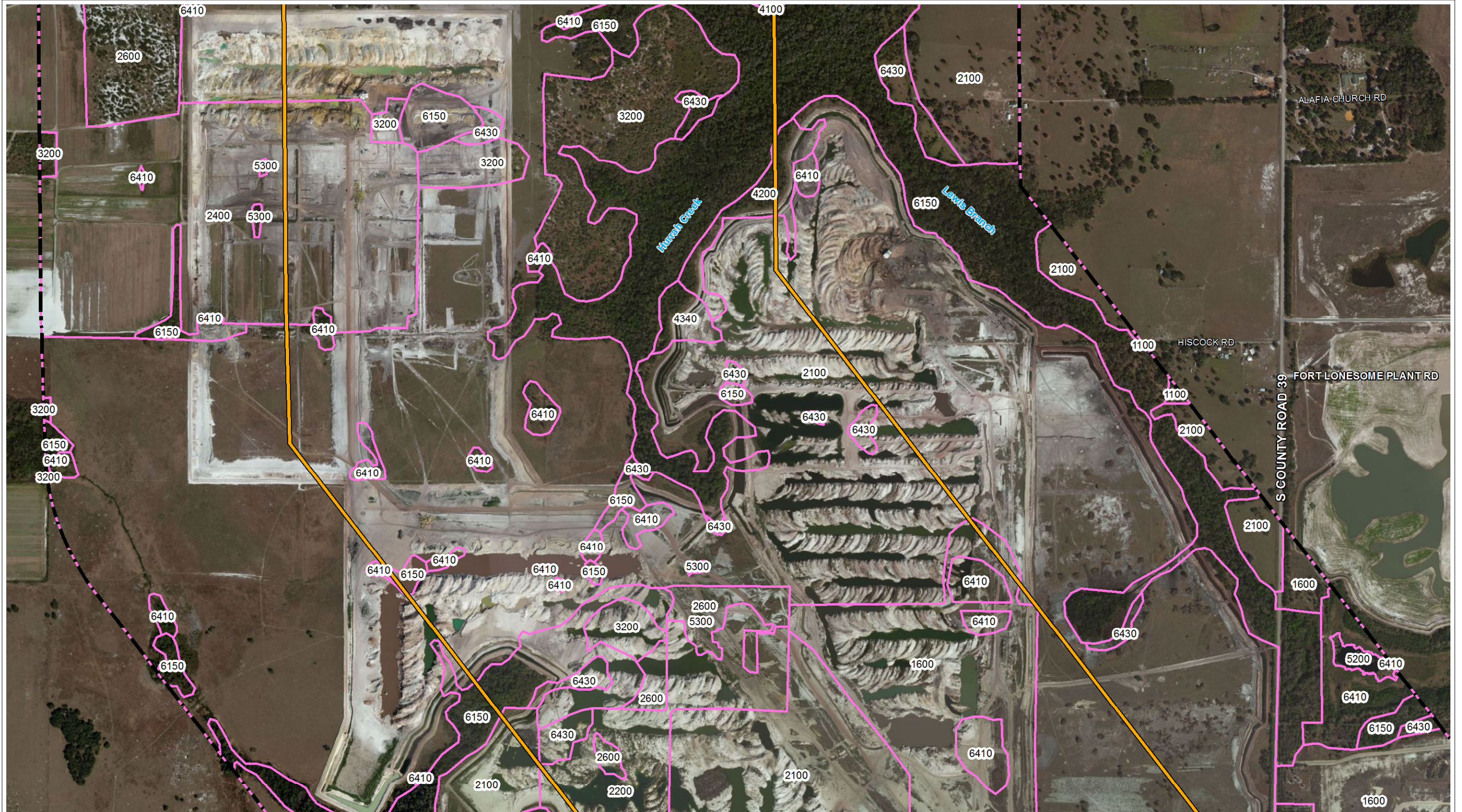
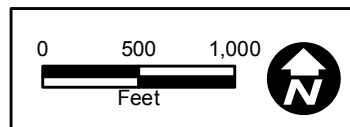
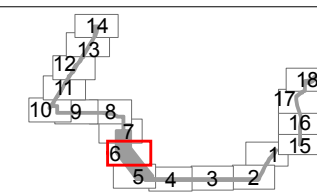


FIGURE 9.1.0-4. (SHEET 6 of 18)
LAND COVER / VEGETATION



Legend

- T & E Locations
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- SWFWMD LANDCOVER
- Polk Power Station Boundary
- County Boundary
- .50 Mile Area Around Corridors



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.



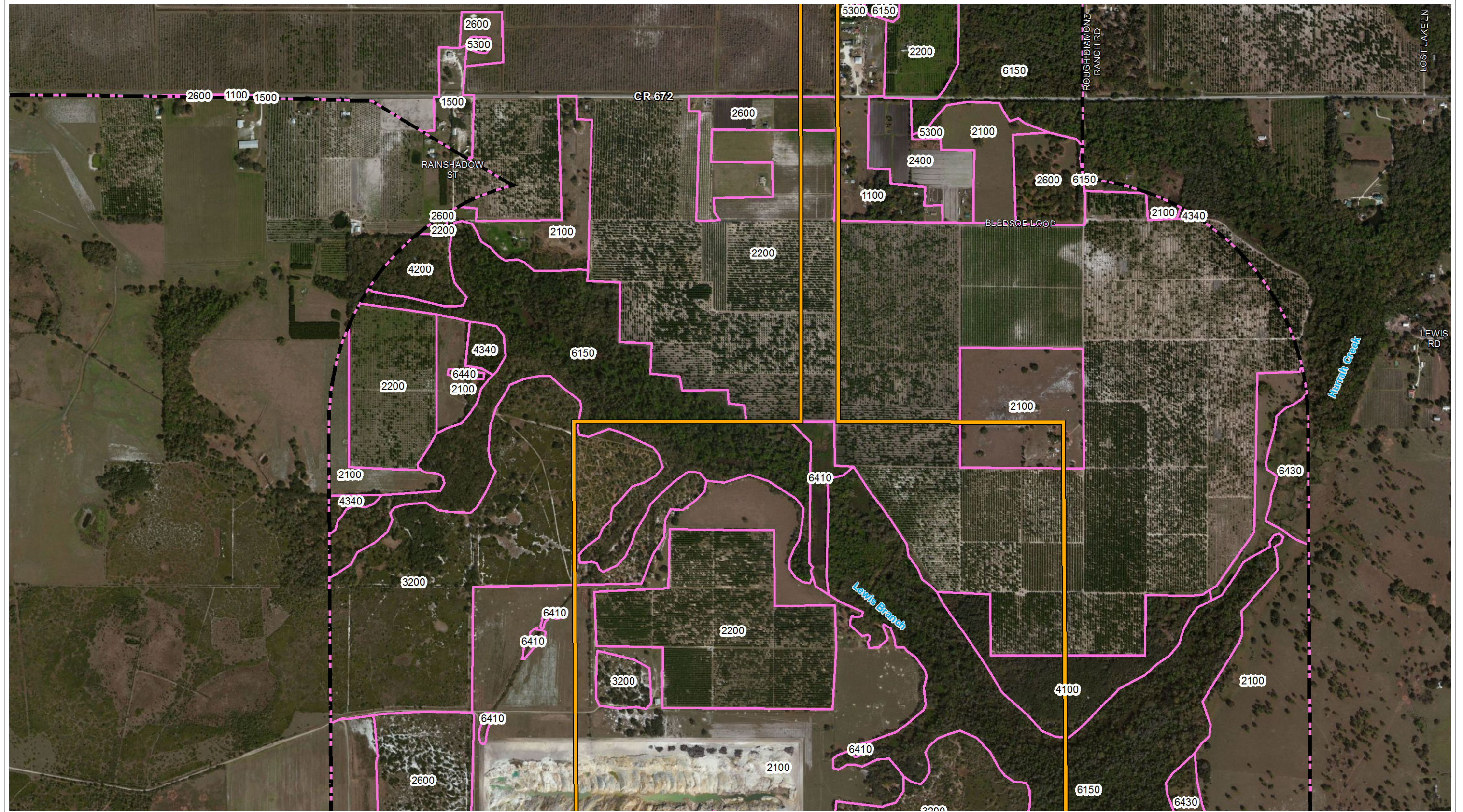
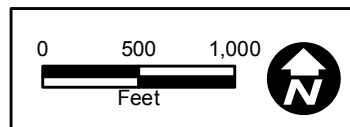
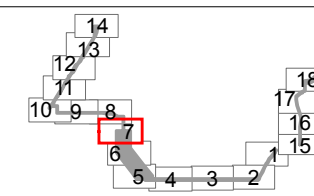


FIGURE 9.1.0-4. (SHEET 7 of 18)
LAND COVER / VEGETATION



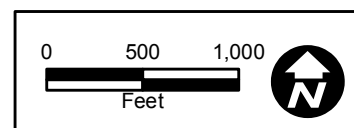
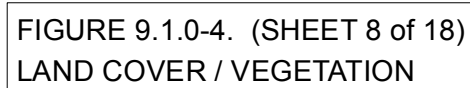
Legend

- T & E Locations
- Polk-Fishhawk Preferred Corridor
- SWFWMD LANDCOVER
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary
- .50 Mile Area Around Corridors



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

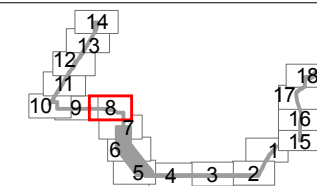


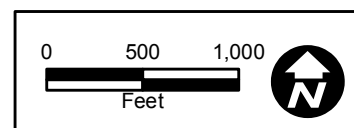
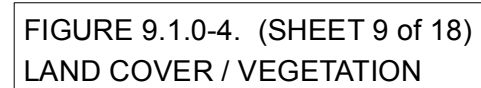


Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

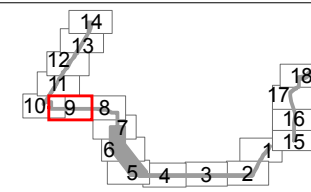
-  T & E Locations
 Polk-Fishhawk Preferred Corridor
 SWFWMD LANDCOVER
 Existing Tampa Electric Substation
 Proposed Tampa Electric Switching Station
 Polk Power Station Boundary
 County Boundary
 .50 Mile Area Around Corridors





Legend

-  T & E Locations
 Polk-Fishhawk Preferred Corridor
 SWFWMD LANDCOVER
 Existing Tampa Electric Substation
 Proposed Tampa Electric Switching Station
 Polk Power Station Boundary
 County Boundary
 .50 Mile Area Around Corridors



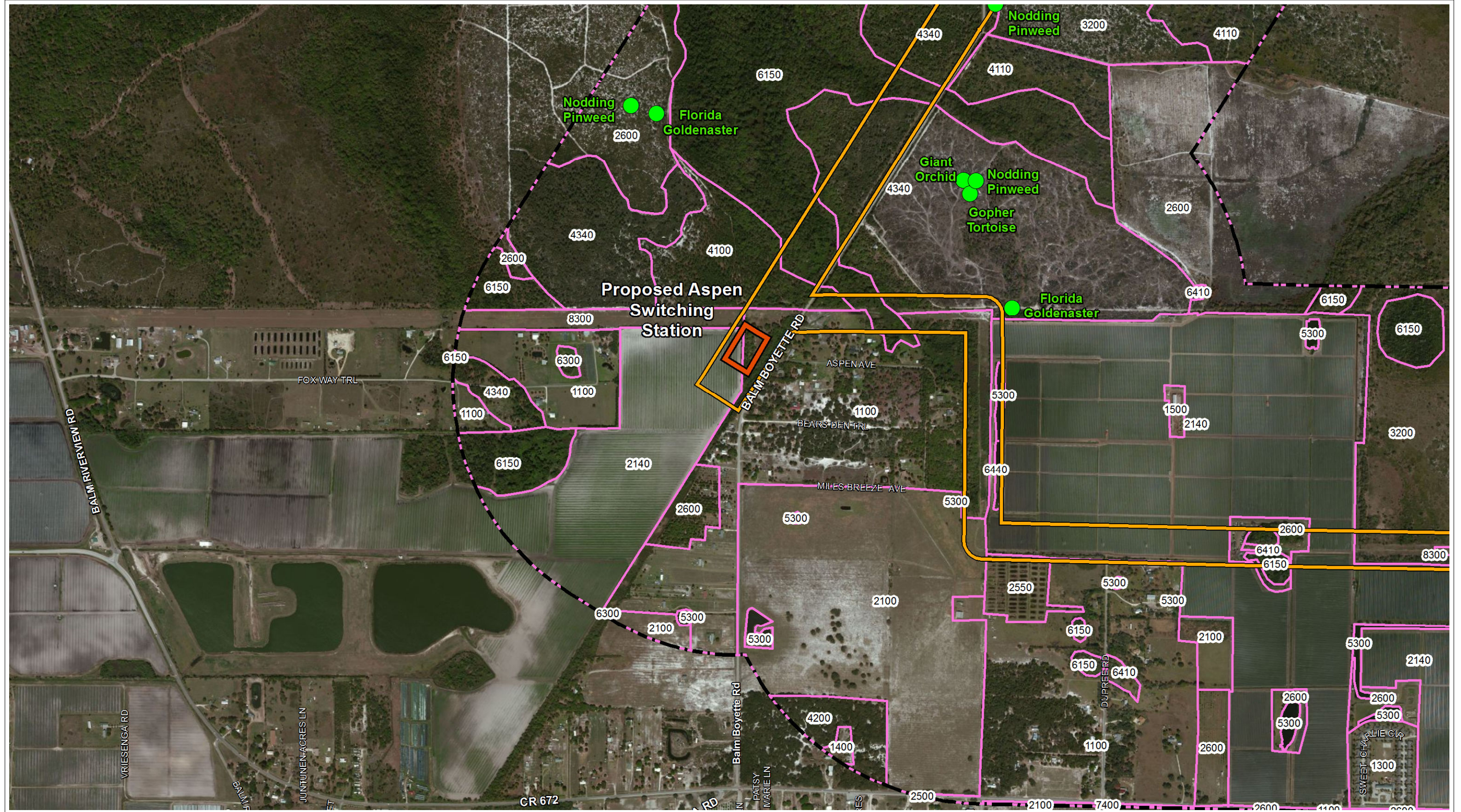
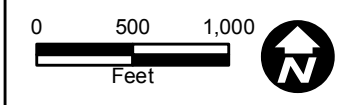
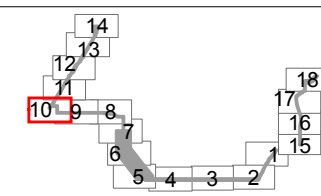


FIGURE 9.1.0-4. (SHEET 10 of 18)
LAND COVER / VEGETATION



Legend

- T & E Locations
- Existing Tampa Electric Substation
- Polk-Fishhawk Preferred Corridor
- SWFWMD LANDCOVER
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary
- .50 Mile Area Around Corridors



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

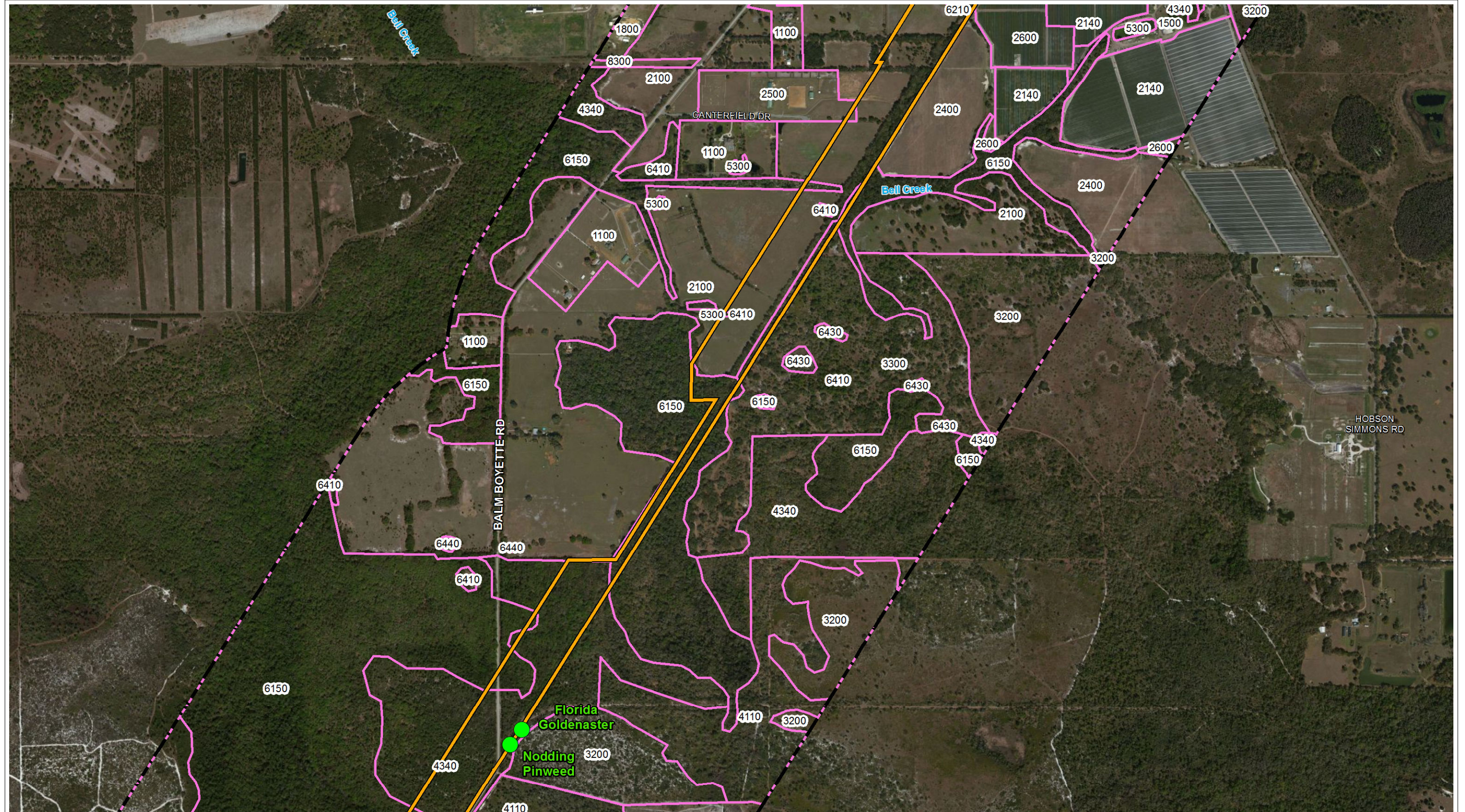
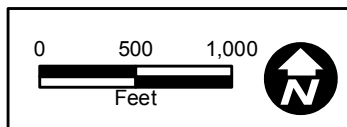
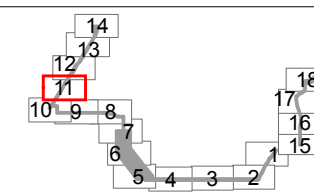


FIGURE 9.1.0-4. (SHEET 11 of 18)
LAND COVER / VEGETATION



Legend

- T & E Locations
- Polk-Fishhawk Preferred Corridor
- SWFWMD LANDCOVER
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary
- .50 Mile Area Around Corridors



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.



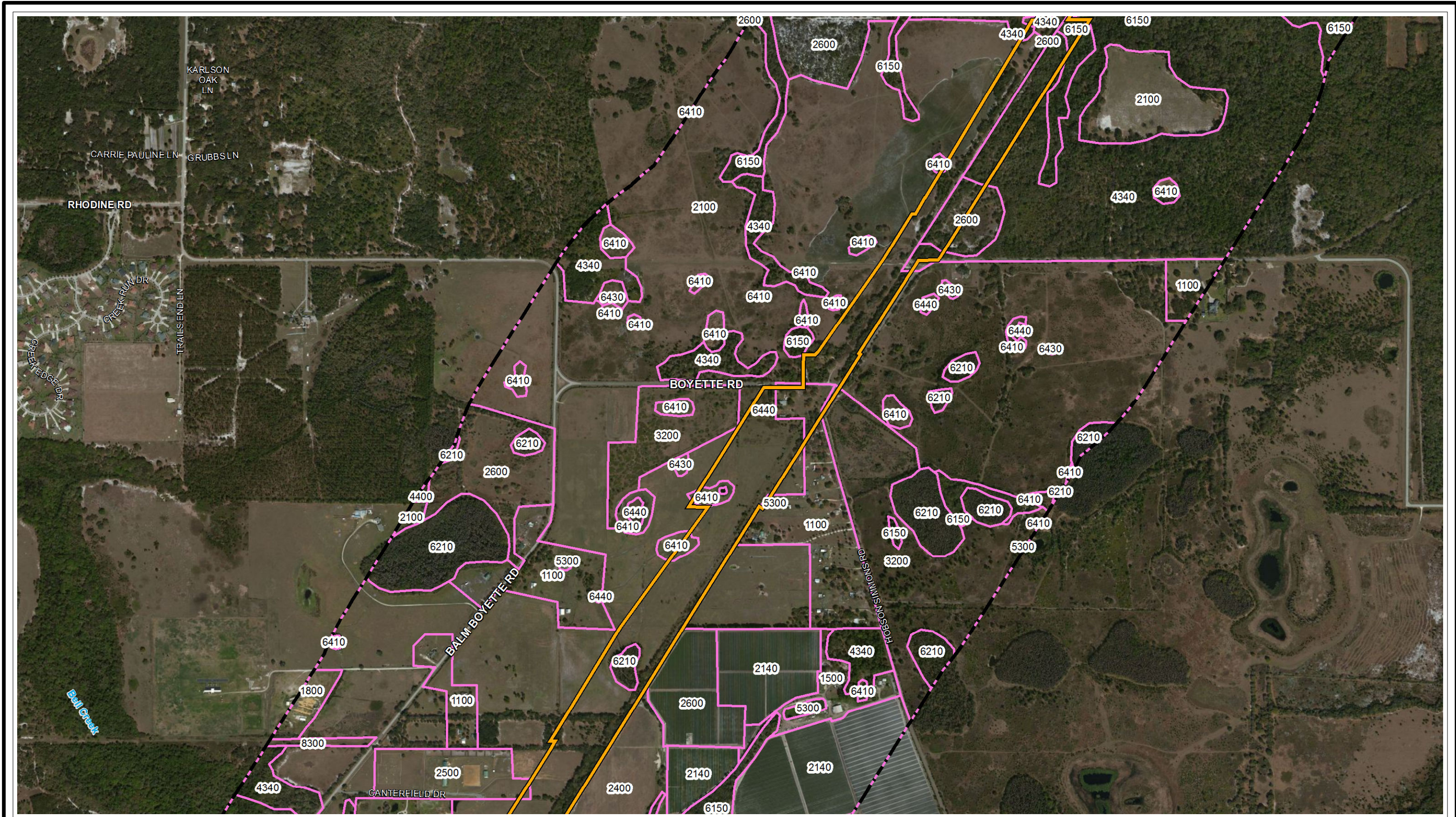
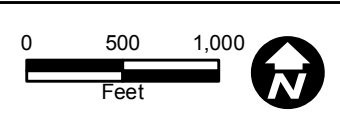
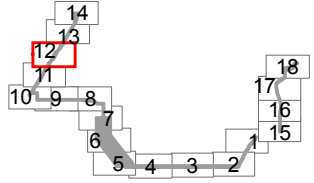


FIGURE 9.1.0-4. (SHEET 12 of 18)
LAND COVER / VEGETATION



- Legend**
- T & E Locations
 - Polk-Fishhawk Preferred Corridor
 - SWFWMD LANDCOVER
 - Existing Tampa Electric Substation
 - Proposed Tampa Electric Switching Station
 - Polk Power Station Boundary
 - County Boundary
 - .50 Mile Area Around Corridors



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

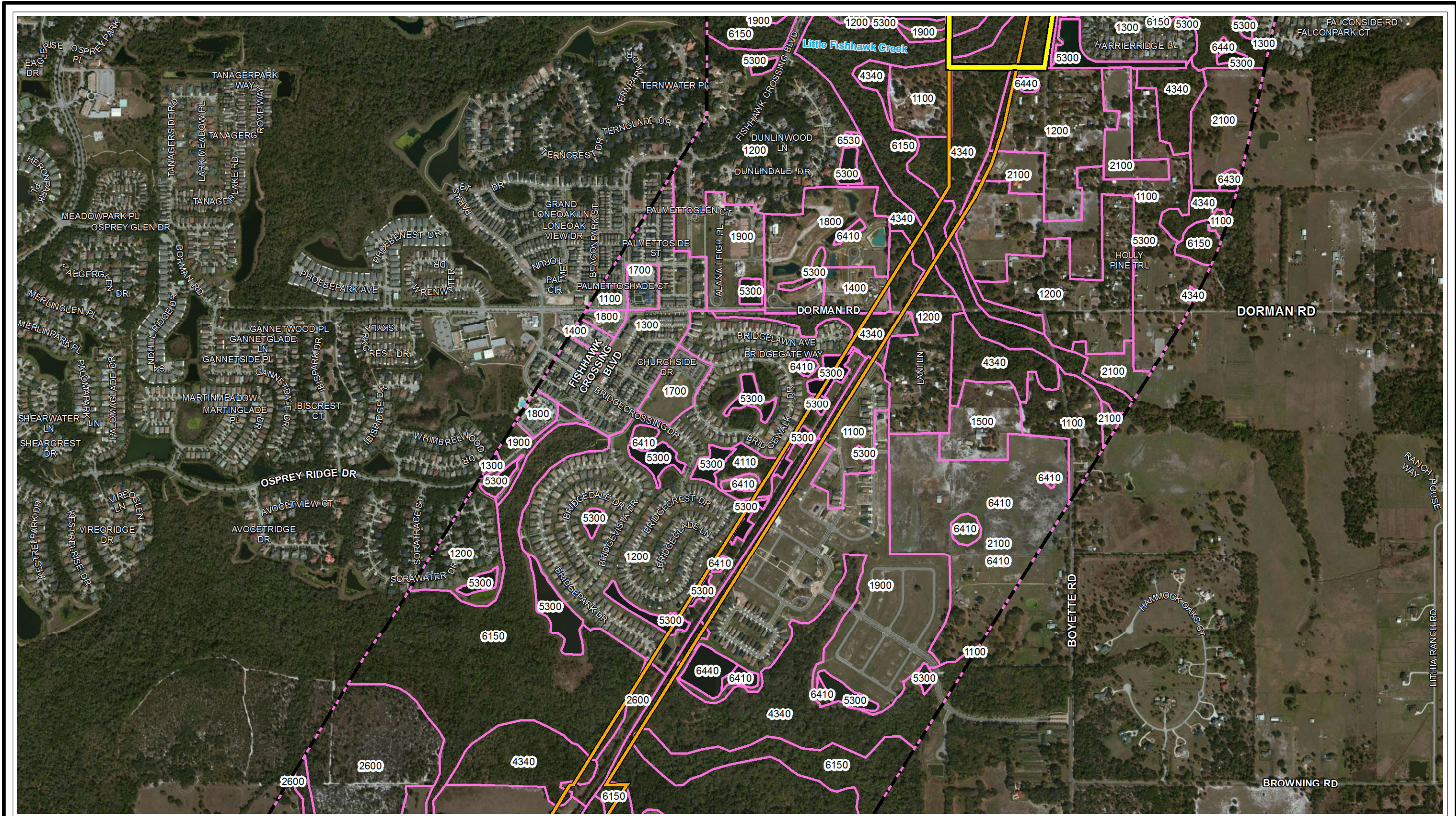
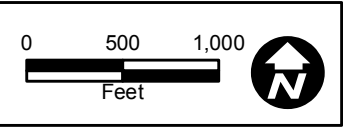
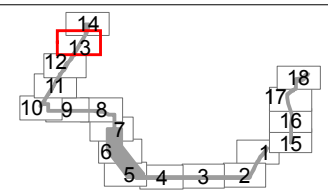


FIGURE 9.1.0-4. (SHEET 13 of 18)
LAND COVER / VEGETATION



Legend

- T & E Locations
- Existing Tampa Electric Substation
- Polk Power Station Boundary
- Proposed Tampa Electric Switching Station
- County Boundary
- .50 Mile Area Around Corridors
- SWFWMD LANDCOVER



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

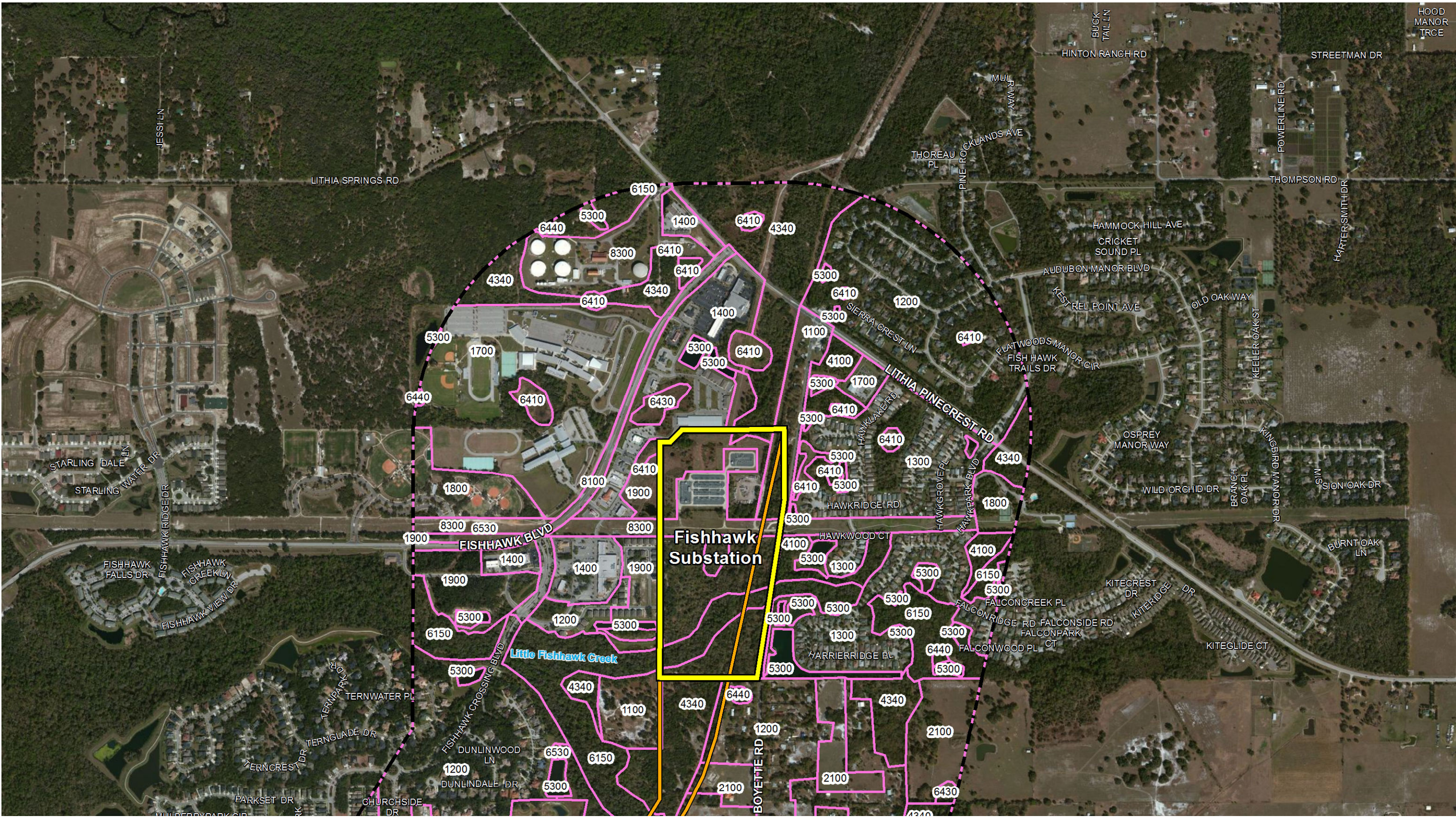


FIGURE 9.1.0-4. (SHEET 14 of 18)
LAND COVER / VEGETATION



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

- T & E Locations
- Existing Tampa Electric Substation
- Polk-Fishhawk Preferred Corridor
- SWFWMD LANDCOVER
- Polk Power Station Boundary
- County Boundary
- .50 Mile Area Around Corridors
- Proposed Tampa Electric Switching Station

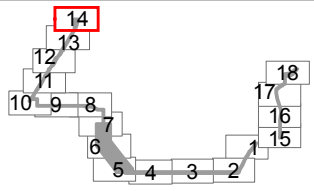
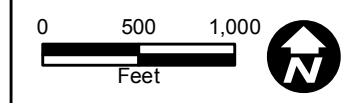




FIGURE 9.1.0-4. (SHEET 15 of 18)
LAND COVER / VEGETATION



Legend

-  T & E Locations
 Polk-Pebbledale Preferred Corridor
 SWFWMD LANDCOVER
 Existing Tampa Electric Substation
 Proposed Tampa Electric Switching Station
 Polk Power Station Boundary
 County Boundary
 50 Mile Area Around Corridors

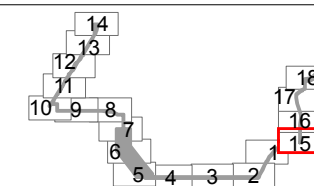
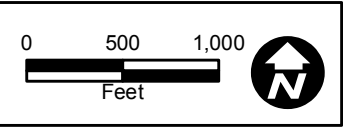




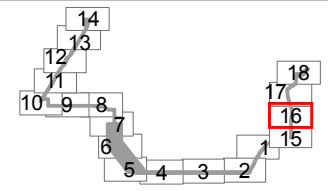
FIGURE 9.1.0-4. (SHEET 16 of 18)
LAND COVER / VEGETATION



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.

Legend

- | | | |
|------------------------------------|---|-----------------------------|
| T & E Locations | Existing Tampa Electric Substation | Polk Power Station Boundary |
| Polk-Pebbledale Preferred Corridor | Proposed Tampa Electric Switching Station | County Boundary |
| SWFWMD LANDCOVER | .50 Mile Area Around Corridors | |



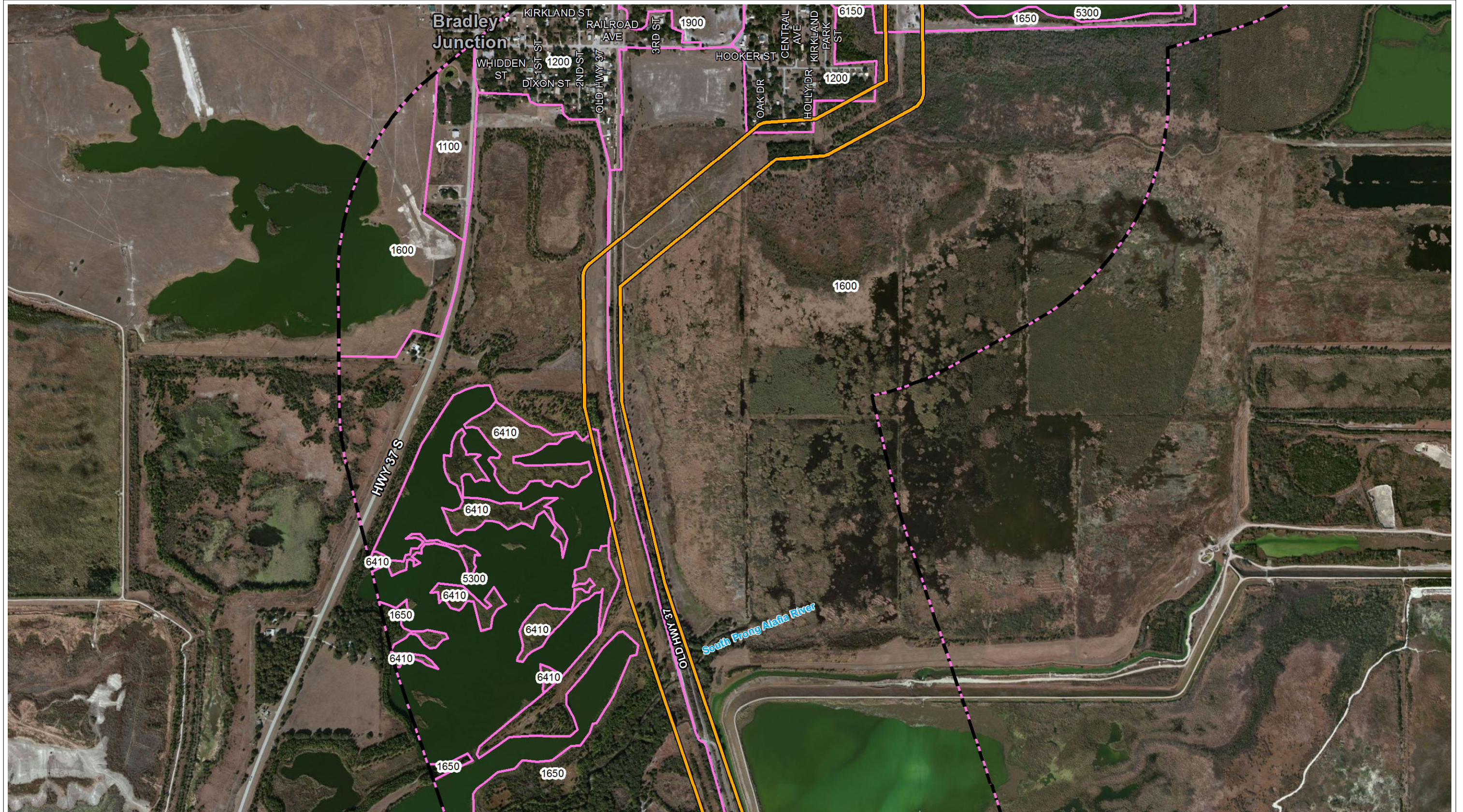
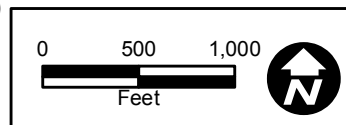
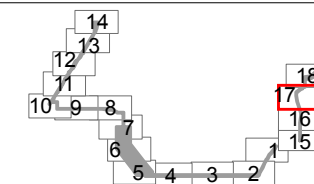


FIGURE 9.1.0-4. (SHEET 17 of 18)
LAND COVER / VEGETATION



Legend

- T & E Locations
- Polk-Pebbledale Preferred Corridor
- SWFWMD LANDCOVER
- Existing Tampa Electric Substation
- Proposed Tampa Electric Switching Station
- Polk Power Station Boundary
- County Boundary
- .50 Mile Area Around Corridors



Sources: SWFWMD, 2009; Bing, 2012; FNAI, 2012; TECO, 2012; ECT, 2012.





-  T & E Locations
 Polk-Pebbledale Preferred Corridor
 SWFWMD LANDCOVER
 Existing Tampa Electric Substation
 Proposed Tampa Electric Switching Station
 Polk Power Station Boundary
 County Boundary
 50 Mile Area Around Corridors

