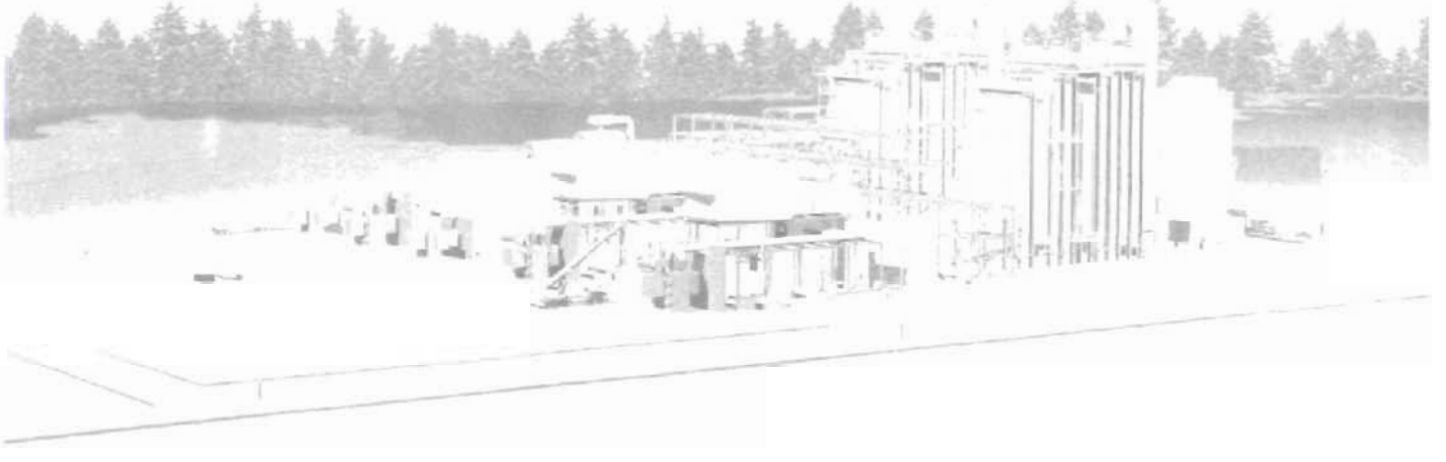
GULF POWER

SMITH UNIT 3

Site Certification Application



Sufficiency Responses September 1999

GULF POWER

A SOUTHERN COMPANY

ECT

Environmental Consulting & Technology, Inc.

HOPPING GREEN SAMS & SMITH
PROFESSIONAL ASSOCIATION
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GULF POWER
A SOUTHERN COMPANY

September 7, 1999

Hamilton S. Oven, Administrator
Office of Siting Coordination
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2600

RE: Gulf Power Company;
Lansing Smith Unit 3;
Responses to Agency Sufficiency Comments
DOAH Case No. 99-2641EPP; Application No. PA99-40

Dear Mr. Oven:

Gulf Power Company (Gulf) hereby submits its responses to the comments on the sufficiency of the application for site certification for the Gulf Power Company, Lansing Smith Unit 3 Project. Gulf has provided responses to the comments sent by the Department of Environmental Protection on August 6, 1999. Copies of these responses are being provided directly to recipients or reviewers of the Site Certification Application. We are available to discuss any of these responses with agency personnel in order to facilitate their review.

This response contains a completed Joint Application for Works in the Waters of Florida, which addresses the wetland-related questions raised in your sufficiency request. This Application comprises Appendix 10.2.4 of the Site Certification Application and should be incorporated in the copies of the Application previously distributed.

Please contact me should you have any questions concerning these responses.

Sincerely,

Jim Vick by R. Cotten

James O. Vick
Manager of
Environmental Affairs

cc: Scott Goorland, Esq.
All Parties of Record in PA99-40
Recipients of Site Certification Application PA99-40

AIR SUFFICIENCY RESPONSES

GULF POWER COMPANY
SMITH UNIT 3
SUFFICIENCY RESPONSES

AIR

FDEP AIR #1

Confirm that potential NO_x emissions are highest at 95°F with duct burners, evaporative cooling and steam augmentation when compared to other temperature values (but the identical operating mode) analyzed in this application. If this is not the case, indicate the lowest permit temperature at which applicant seeks to utilize all three operational enhancements simultaneously. Also, please confirm that steam power augmentation along with duct burner firing (without evaporative cooling) is not an operating mode applicant seeks to be permitted. (This was not one of the listed operating scenarios.)

RESPONSE

The highest potential nitrogen oxide (NO_x) emissions scenario is operations at 95 degrees Fahrenheit (°F) with duct burners, evaporative cooling and steam augmentation compared to other temperature ranges. Steam power augmentation along with duct burner firing (without evaporative cooling) is not an operating mode to be permitted. The absolute minimum temperature at which steam augmentation can be implemented is approximately 60 to 65°F. This temperature and operational mode, however, is not a realistic likelihood from a Gulf Power dispatch scenario because normal operation with steam augmentation will always be preceded by maximum duct burner capacity and higher ambient temperatures. Gulf Power believes steam augmentation will take place at temperatures greater than 80°F 95 percent of its operational time. Gulf Power estimates that, at lower temperatures, there will be no emissions greater than those outlined at the 95°F operating scenario (i.e., NO_x emissions at 113.3 pounds per hour [lb/hr]).

FDEP AIR #2

Review and complete the chart (below) in order to clarify the Department's understanding of the selected pollutant emission rates at 100% output (2 CT/HRSG) and 95°F. Provide the same information on separate charts for 0°F, 65°F and the temperature value identified in the previous question. Emissions are shown as "ppmvd/ lbs per hr" except for SO2 which is lbs/hr only and based upon 2 grains S/100CF.

Operating Mode	*Hrs/yr*	*NO_x*	*CO*	*VOC*	*SO_2*	*PM_{10}*
Standard at 95°F		*9/*	*13/116.6*	*3/14*		
Standard plus Duct Burners (95°F)		*10.1/*	*16/157.4*	*4/20*		

Operating Mode	*Hrs/yr*	*NO_x*	*CO*	*VOC*	*SO_2*	*PM_{10}*
Standard plus D.B. and Evaporative Cooling (95°F)	*8760*	*10.6/*	*16/157.4*	*4/20*		*/41.8*
Standard plus D.B. Evaporative Cooling and Steam Aug. (95°F)	*1000*	*13.6/226.6*	*23/233.2*	*5.8/33.7*	*24.8*	*/42.9*

RESPONSE

Operating Scenarios at 95°F:

Operating Mode	**Hrs/yr (maximum)**	**NO_x (ppmvd/lb/hr)**	**CO (ppmvd/lb/hr)**	**VOC (ppmvd/lb/hr)**	**SO_2 (lb/hr)**	**PM_{10} (lb/hr)**
Standard* at 95°F	8,760	9/61/6	11.9/49/5	2.4/5.7	10.1	19.8
Standard* plus duct burners (95°F)	8,760	10.6/80.6	15.8/73.3	3.6/9.6	11.9	21.0
Standard plus steam augmentation (95°F)	1,000	9.0/86.9	11.2/49.5	2.53/5.0	10.6	19.8
Standard plus duct burners and steam augmentation (95°F)	1,000	13.6/113.3	22.9/116.6	5.8/16.8	12.4	21.5

*For the purposes of the table at 95°F, *standard* is defined as 100-percent load with evaporative cooling. (All parts per million dry volume [ppmvd] concentrations are corrected to 15 percent oxygen; sulfur dioxide [SO_2] and particulate matter nominally 10 microns or less [PM_{10}] are lb/hr only.)

Operating Scenarios at 65°F:

Operating Mode	**Hrs/yr (maximum)**	**NO_x (ppmvd/lb/hr)**	**CO (ppmvd/lb/hr)**	**VOC (ppmvd/lb/hr)**	**SO_2 (lb/hr)**	**PM_{10} (lb/hr)**
Standard† at 65°F	8,760	9/64.9	11.9/52.8	2.5/6.2	10.6	19.8
Standard† plus duct burners (65°F)	8,760	10.4/82.9	15.5/75.4	3.5/9.8	11.9	20.9
Standard plus steam augmentation (65°F)		NA	NA	NA	NA	NA
Standard plus duct burners and steam augmentation (65°F)		NA	NA	NA	NA	NA

†For the purposes of the table at 65°F, *standard* is defined as 100-percent load with evaporative cooling. (All ppmvd concentrations are corrected to 15 percent oxygen; SO_2 and PM_{10} are lb/hr only.)

Operating Scenarios at 0°F:

Operating Mode	Hrs/yr (maximum)	NO_x (ppmvd/lb/hr)	CO (ppmvd/lb/hr)	VOC (ppmvd/lb/hr)	SO_2 (lb/hr)	PM_{10} (lb/hr)
Standard† at 0°F	8,760	9/70.4	12.1/58.3	2.5/6.6	11.6	19.8
Standard† plus duct burners (0°F)	8,760	10.1/78.7	15.0/78.7	3.4/10.2	12.7	20.8
Standard plus steam augmentation (0°F)		NA	NA	NA	NA	NA
Standard plus duct burners and steam augmentation (0°F)		NA	NA	NA	NA	NA

†For the purposes of the table at 0°F, *standard* is defined as 100-percent load with *no* evaporative cooling. (All ppmvd concentrations are corrected to 15 percent oxygen; SO_2 and PM_{10} are lb/hr only.)

Additional operating scenarios at various loads and temperatures can be found in Attachment A (i.e., Table C-1, C-2). This information is also located in the Site Certification Application (SCA) in Appendix 10.2.7 (Volume 4).

FDEP AIR #3
Confirm that Gulf Power is seeking a permit to allow for the simultaneous use of duct burners and evaporative cooling for up to 8760 hours per year.

RESPONSE

Yes, Gulf Power is seeking such a permit.

FDEP AIR #4
Describe all contemporaneous emission increases and decreases for Units 1 and 2 as well as the existing combustion turbine.

RESPONSE

There have been no creditable contemporaneous emission increases or decreases for Plant Smith with the exception of NO_x emissions on Smith Unit 1 as part of Gulf's commitment to offset NO_x emissions of the new Smith 3 combined-cycle unit.

FDEP AIR #5

Confirm that Units 1 and 2 share a smokestack. Provide annual utilization projections of Units 1 and 2 as well as the existing combustion turbine as a result of this project, including operating hours, outage factors, capacity factors, fuel usage and type, heat inputs per fuel type and annual emissions through year 2008.

RESPONSE

Smith Units 1 and 2 share a common smokestack. Attached as Attachment B is projected information on Gulf's 10-year site plan. Based on Gulf Power's proprietary analysis, there will be no increase in operating hours, outage factors, fuel usage or heat inputs for Units 1, 2, or the CT due to this project. Potential NO_x emissions will remain less than the Prevention of Significant Deterioration (PSD) trigger level discussed in the following. Future projected emissions show an actual decrease in emissions for Plant Smith.

FDEP AIR #6

Provide NO_x emissions (tons) for calendar year 1997 from Unit 1. Additionally, provide 2 year averages for NO_x emissions as follows and indicate the source of the data:

Period	*NO_x Emission Rate (avg. tpy)*		*NO_x Emission Rate (avg. lb/10^6 Btu*	
	Unit 1	*Unit 2*	*Unit 1*	*Unit 2*
6/97-5/99				
1997-1998				
1996-1997				
1995-1996				
1994-1995				
1993-1994				

RESPONSE

Plant Smith Unit 1 emitted 3,298 tons of NO_x in 1997. (Please note that Smith Unit 1 had a 37-day outage in 1997, thus 1997 is not representative year for baseline calculations.) In a preliminary project meeting (January 27, 1999) with the Florida Department of Environmental Protection (FDEP), Clair Fancy proposed an average of 1996+1998 continuous emission monitoring (CEM) data as an acceptable baseline period for Smith Unit 1 in

the emissions offset plan. This proposal and method was included in the original SCA. However, in recent discussions with FDEP, Gulf Power was asked to consider including Smith Unit 2 in the emissions offset plan to address the issue of load shifting. Gulf Power evaluated this proposal and has agreed to include Unit 2 in the Smith NO_x emissions offset plan. Thus, a reconsideration of the baseline proposal was reinitiated with Mike Halpin and Clair Fancy (FDEP) on August 26, 1999. Based on the information provided in the following, Gulf Power recommends a new NO_x emissions baseline be established using the average of CEM data for 1995 and 1996. Other averaging options are considered non-representative of normal plant operations due to abnormal unit outage periods or contain data generated by less accurate non-CEM methods. This approach is consistent with the U.S. Environmental Protection Agency's (EPA's) presumption that any 2 consecutive years within the 5 years prior to a proposed change is representative of normal source operations for a utility (Chapter 56, *Federal Register* [F.R.], Part 27636 [June 14, 1991]; 57 F.R. 32324 [July 21,1992]).

Period	NO_x Emissions (average tpy)*				NO_x Emission Rate (lb/MBTU)		
	Unit 1	Unit 2	Total	Method	Unit 1	Unit 2	Method
6/97 to 5/99†	3017	2517	5534	CEMS	0.561	0.402	CEMS
1997 to 1998†	3359	2395	5754	CEMS	0.582	0.412	CEMS
1996 to 1997†	3533	2707	6240	CEMS	0.613	0.425	CEMS
1995 to 1996**	3881	2785	6666	CEMS	0.625	0.411	CEMS
1994 to 1995‡	3344	3316	6661	AP-42	0.606	0.609	AP-42
1993 to 1994‡	3148	3458	6606	AP-42	0.619	0.617	AP-42

*Data based on CEMS.
†Data contains unit outages (Not considered representative).
**Method agreed by Mike Halpin on August 26, 1999.
‡Data based on AOR AP-42 Factors (CEMS not available).

FDEP AIR #7
Based upon Department records, Unit 1 emitted 3750.2 tons of NO_x in 1996 and 3423 tons of NO_x in 1998. Describe the source(s) of the values used in the NO_x netting analysis, which are approximately 20 tons higher cumulatively.

RESPONSE

Yes, this observation is correct. Gulf Power, after preliminary discussions with Al Linero and Clair Fancy, changed the baseline method of calculation to a more accurate method, so annual compliance of the emissions offset could be better determined. The revised method of calculation uses the actual NO_x emission rate determined by CEM in lieu of

the standard AP-42 default value used historically in Gulf Power's annual operating report for coal fired boilers. The change is a more accurate method of monitoring future actual emissions, and thus should be utilized for past actuals. The revised method multiplies the annual average CEM emission rate by the annual heat input determined by fuel sampling and analysis to calculate actual NO_x tons/year.

FDEP AIR #8
Provide information relative to the proposed Unit 1 Low NO_x burner installation. The Department is interested in vendor guarantees with respect to all pollutants for which PSD applies to Unit 3 (including NO_x and opacity), as well as potential heat input changes, boiler surface area changes and other operating characteristics.

RESPONSE

There were no vendor guarantees included in the purchase of the low-NO_x burner tip technology for Smith Unit 1. Nevertheless, Gulf Power has a great deal of experience in the technology for Smith Unit 1 at similar units within Gulf Power. For example, Plant Crist Unit 4 reduced NO_x emissions approximately 25 percent using the same technology. NO_x emissions on Smith Unit 1 should also be significantly reduced by use of this technology. There is no expected increase in opacity, nor are there any planned changes to heat input rates, boiler surface area, or other operating practices associated with this project. The project should be exempt from PSD review since NO_x emissions are not increasing and because this is a pollution control project being added at an existing electric utility boiler (Rule 62-212.400[2][a], Florida Administrative Code [F.A.C.]). Additional information regarding potential changes in emissions are summarized in Attachment C.

FDEP AIR #9
Indicate whether Unit 1 or 2 is included in a Phase II averaging plan and what alternative contemporaneous limits exist if higher than 0.40 lb/MMBtu NO_x. Additionally, indicate whether any emission reductions at this facility are being planned or contemplated, and for what purpose.

RESPONSE

The Phase II alternative contemporaneous emission limits (ACEL) established in the NO_x averaging plan for Smith Units 1 and 2 is 0.62 pounds per million British thermal unit

(lb/MMBtu) and 0.44 lb/MMBtu, respectively. No other emission reductions are planned for Plant Smith other than those needed for the Smith Unit 3 NO_x offset.

FDEP AIR #10

According to Section 6.7 the applicant is planning to fence the entire perimeter of the plant site. There are state owned waters within the plant boundaries to which the general public can not be prevented access. This would preclude fencing of the entire perimeter. Gulf should redo the significant impact modeling using appropriate fenceline receptors. Also, this project may impact previously modeled SO_2 violations at the site discovered in association with the ongoing Title V permit application. Please do an SO_2 AAQS modeling analysis which includes all SO_2 emitting sources at the facility in order to show that this project will have a zero impact at any receptor and time in which a violation of the SO_2 AAQS has been previously predicted.

RESPONSE

Discussions are continuing with FDEP and EPA to resolve the Title V modeling issues at Plant Smith. Issues regarding fenceline receptors have been settled. Gulf Power has operated ambient air monitors at Plant Smith for more than 20 years to monitor and report ambient air quality for SO_2, NO_x, and PM_{10}. No violations of ambient air quality standards have ever been recorded. Gulf Power will continue to monitor air quality at Plant Smith. The new SO_2 limit of Plant Smith Units 1 and 2 will contain an adequate margin of compliance for all sources located at the facility. All sources will be included in the revised Title V model for Plant Smith. This issue will be resolved over the next several months and will not affect issuance of a construction permit for Smith 3.

FDEP AIR #11

Comment on the applicability of natural gas use on Units 1, 2 or the combustion turbine.

RESPONSE

Gulf Power currently has no plans to operate Unit 1 or 2 or the existing combustion turbine on natural gas.

FDEP AIR #12

Confirm the value shown on Table 5.6.1-2, which indicates that the PM_{10} (24-hour average) significant impact level will be exceeded.

RESPONSE

As indicated in Table 5.6.1-2 of the SCA, the maximum Smith Unit 3 24-hour PM_{10} impact exceeds the PSD significant impact level. The impact is primarily due to PM_{10} emissions from the mechanical draft, salt water cooling tower. As described in Section 7.3 on Page 98 of the PSD permit application (Tab 10.2.7 of the SCA), estimated PM_{10} emissions from the cooling tower were based on conservative AP-42 procedures. Multisource, interactive air quality dispersion modeling demonstrates that impacts from all PM/PM_{10} emission sources, plus background, will be below the ambient air quality standard (AAQS) and PSD Class II increments (reference Tables 7-13 through 7-16 of the PSD permit application). The cooling water for the proposed combined-cycle produces some salt mist. These particulate emissions will be controlled using high efficiency drift eliminators achieving a drift loss rate of no more than 0.001 percent of the cooling tower recirculating water flow. This technology is equivalent to other projects with best available control technology (BACT) limitations approved in Florida.

Table C-1. Plant Smith Unit 3
CTG Operating Scenarios

Case	Ambient Temperature (°F)	Load (%)	CTG-1	CTG-2	Evaporative Cooling	Steam Power Augmentation	Duct Burner Firing
1	0	100	X	X			
2	0	100	X	X			X
3	0	75	X	X			
4	0	50	X	X			
5	65	100	X	X	X		
6	65	100	X	X	X		X
7	65	75	X	X			
8	65	50	X	X			
9	95	100	X	X	X		
10	95	100	X	X	X	X	
11	95	100	X	X	X	X	X
12	95	100	X	X	X		X
13	95	75	X	X			
14	95	50	X	X			

Sources: ECT, 1999.
Gulf Power, 1999.

ATTACHMENT A

Table C-2. Plant Smith Unit 3
CTG/HRSG Hourly Emission Rates (Per CTG/HRSG)
Criteria Air Pollutants and Sulfuric Acid Mist

Temp. (°F)	Case	Load (%)	PM_{10}[1] (lb/hr)	PM_{10}[1] (g/sec)	SO_2[2] (lb/hr)	SO_2[2] (g/sec)	H_2SO_4[3] (lb/hr)	H_2SO_4[3] (g/sec)	Lead[4] (lb/hr)	Lead[4] (g/sec)
0	1	100	19.8	2.495	11.6	1.461	1.33	0.168	0.00077	0.00010
	2	100	20.8	2.620	12.7	1.600	1.46	0.184	0.00084	0.00011
	3	75	19.8	2.495	9.3	1.175	1.07	0.135	0.00062	0.00008
	4	50	19.8	2.495	7.4	0.936	0.85	0.108	0.00049	0.00006
65	5	100	19.8	2.495	10.6	1.341	1.22	0.154	0.00070	0.00009
	6	100	20.9	2.633	11.9	1.495	1.36	0.172	0.00078	0.00010
	7	75	19.8	2.495	8.6	1.089	0.99	0.125	0.00057	0.00007
	8	50	19.8	2.496	6.9	0.873	0.80	0.100	0.00046	0.00006
95	9	100	19.8	2.495	10.1	1.267	1.15	0.146	0.00066	0.00008
	10	100	19.8	2.495	10.6	1.338	1.22	0.154	0.00070	0.00009
	11	100	21.5	2.703	12.4	1.566	1.43	0.180	0.00082	0.00010
	12	100	21.0	2.647	11.9	1.501	1.37	0.172	0.00079	0.00010
	13	75	19.8	2.495	8.2	1.035	0.94	0.119	0.00054	0.00007
	14	50	19.8	2.496	6.6	0.830	0.76	0.095	0.00043	0.00005
		Maximums	21.5	2.703	12.7	1.600	1.46	0.184	0.00084	0.00011

Temp. (°F)	Case	Load (%)	NO_x (ppmvd)[5]	NO_x (lb/hr)	NO_x (g/sec)	CO (ppmvd)[5]	CO (lb/hr)	CO (g/sec)	VOC (ppmvd)[5]	VOC (lb/hr)	VOC (g/sec)
0	1	100	9.0	70.4	8.870	12.1	58.3	7.346	2.50	6.6	0.832
	2	100	10.1	78.7	9.910	15.0	78.7	9.910	3.40	10.2	1.289
	3	75	9.0	56.1	7.069	12.1	46.2	5.821	2.50	5.2	0.660
	4	50	9.0	44.0	5.544	12.6	37.4	4.712	2.89	4.4	0.550
65	5	100	9.0	64.9	8.177	11.9	52.8	6.653	2.50	6.2	0.776
	6	100	10.4	82.9	10.460	15.5	75.4	9.494	3.50	9.8	1.234
	7	75	9.0	51.7	6.514	12.2	42.9	5.405	2.55	5.2	0.651
	8	50	9.0	41.8	5.267	12.8	35.2	4.435	2.65	4.4	0.549
95	9	100	9.0	61.6	7.762	11.9	49.5	6.237	2.40	5.7	0.721
	10	100	9.0	86.9	10.949	11.2	49.5	6.237	2.53	5.0	0.632
	11	100	13.6	113.3	14.276	22.9	116.6	14.692	5.80	16.8	2.121
	12	100	10.6	80.6	10.159	15.8	73.3	9.231	3.60	9.6	1.206
	13	75	9.0	49.5	6.237	12.3	40.7	5.128	2.60	4.2	0.529
	14	50	9.0	39.6	4.990	13.0	34.1	4.297	2.73	5.0	0.632
		Maximums	13.6	113.3	14.276	22.9	116.6	14.692	5.80	16.8	2.121

[1] Excludes sulfuric acid mist.
[2] Based on natural gas sulfur content of 2.0 gr/100 ft^3.
[3] Based on 7.5% conversion of SO_2 to H_2SO_4.
[4] Based on EPA Electric Utility HAP emission factor of 3.70 x 10^{-1} lb/10^{12} Btu and natural gas heat content of 1,020 Btu/ft^3.
[5] Corrected to 15% O_2.

Sources: ECT, 1999.
GE, 1999.
Gulf Power, 1999.

ATTACHMENT A
(Page 2)

Utility: Gulf Power Company

Schedule 5
Fuel Requirements

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Fuel Requirements		Units	Actual 1997	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
(1)	Nuclear		Trillion BTU	None	None	None	None	None	None	None	None	None	None	None	None
(2)	Coal		1000 TON	5,000	5,540	6,060	5,633	5,405	5,244	4,945	4,736	4,979	5,000	5,051	5,244
(3)	Residual	Total	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(4)		Steam	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(5)		CC	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(6)		CT	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(7)		Diesel	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(8)	Distillate	Total	1000 BBL	30	64	18	16	17	16	20	19	20	19	20	24
(9)		Steam	1000 BBL	23	16	16	16	16	17	19	18	19	18	20	24
(10)		CC	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(11)		CT	1000 BBL	7	46	2	2	1	1	1	1	1	1	0	0
(12)		Diesel	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(13)	Natural Gas	Total	1000 MCF	955	2,783	1,511	1,492	883	18,229	29,186	30,046	29,746	27,609	35,360	37,847
(14)		Steam	1000 MCF	955	2,783	1,511	1,492	883	626	863	997	805	788	0	0
(15)		CC	1000 MCF	None	None	None	None	None	17,403	28,323	29,049	28,941	27,021	35,360	37,847
(16)		CT	1000 MCF	None	None	None	None	None	None	None	None	None	None	None	None
(17)	Other		Trillion BTU	None	None	None	None	None	None	None	None	None	None	None	None

ATTACHMENT B

Attachment B

ATTACHMENT B
(Page 2)

Utility: Gulf Power Company

Schedule 6.2
Energy Sources

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Energy Sources		Units	Actual 1997	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
(1)	Annual Firm Interchange		%	(6.54)	(16.83)	(28.53)	(17.92)	(11.45)	(27.90)	(33.70)	(28.21)	(29.73)	(25.47)	(33.09)	(36.53)
(2)	Nuclear		%	None	None	None	None	None	None	None	None	None	None	None	None
(3)	Coal		%	105.08	112.70	125.65	115.15	109.13	103.30	95.70	89.82	92.77	91.77	91.13	92.76
(4)	Residual	Total	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(5)		Steam	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(6)		CC	%	None	None	None	None	None	None	None	None	None	None	None	None
(7)		CT	%	None	None	None	None	None	None	None	None	None	None	None	None
(8)		Diesel	%	None	None	None	None	None	None	None	None	None	None	None	None
(9)	Distillate	Total	%	0.03	0.18	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
(10)		Steam	%	None	None	None	None	None	None	None	None	None	None	None	None
(11)		CC	%	None	None	None	None	None	None	None	None	None	None	None	None
(12)		CT	%	0.03	0.18	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
(13)		Diesel	%	None	None	None	None	None	None	None	None	None	None	None	None
(14)	Natural Gas	Total	%	0.45	2.33	1.89	1.81	1.41	23.70	37.13	37.52	36.62	33.70	41.96	43.77
(15)		Steam	%	0.45	1.65	0.93	0.88	0.51	0.46	0.48	0.55	0.42	0.41	0.00	0.00
(16)		CC	%	None	None	None	None	None	None	35.78	36.10	35.35	32.45	41.15	42.96
(17)		CT	%	None	None	0.96	0.93	0.91	0.89	0.87	0.87	0.85	0.83	0.82	0.81
(18)	NUGs		%	0.99	1.42	0.99	0.94	0.91	0.88	0.86	0.86	0.33	0.00	0.00	0.00
(19)	Net Energy for Load		%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Southern Company Services, Inc.
Post Office Box 2641
Birmingham, Alabama 35291-8195
Tel 205.257.1000

ATTACHMENT C

SOUTHERN COMPANY
Energy to Serve Your World℠

CO, VOC, and Particulate Implications for Low NOx Firing at Lansing Smith Unit 1

Introduction

The modification of burners for Lansing Smith's Unit 1 to achieve reduced NOx emissions may affect the emissions of other criteria pollutants, namely carbon monoxide (CO), volatile organic carbons (VOC), and particulates. Since low NOx firing usually is achieved by moderating the normal combustion process, emissions of CO and VOC's, which are both products of incomplete combustion, can increase with the installation of low NOx burners. Accumulated experience is used to estimate the potential emission impacts of these burners, not only for CO and VOC's, but for particulates as well.

Lansing Smith Unit 1 Firing System

The low NOx firing system at Lansing Smith Unit 1 is ABB CE's P2 firing system. This is a standard offering by ABB for smaller tangentially-fired boilers. This arrangement, offered as a retrofit to the conventional, higher NOx original burner system, consists of new burner tips, concentric firing system (CFS) nozzle tips, and conversion of the top air compartments to vaned close-coupled overfire air (VCCOFA) nozzles. These are described in more detail by ABB CE [1]. The burner tip causes the flame to stay attached to the nozzle and limits the mixing of the air and burning coal near the nozzle exit. The concentric air nozzles direct the secondary air into the furnace at a wider angle than the coal (as viewed from the top), which also delays mixing of the air into the centrally-rotating fireball. These first two changes do help lower NOx, but most of the NOx reduction is achieved through the installation of the VCCOFA nozzles. In the burner retrofit, the top air nozzle is removed and replaced with the VCCOFA nozzles. These nozzles point the air up at a fixed angle, and have reduced drag to air flow to increase the amount of air going through the nozzles. The VCCOFA is an invention that adds overfire air capability without windbox, duct, or pressure part modifications.

The P2 firing system is a relatively modest low NOx firing system which also has a moderate performance. In the first installation at Duke Energy's Cliffside Unit 3, the NOx was reduced about 47% with an increase in LOI from 10.3 to 13.4% [1]. Pat Jennings of ABB CE stated in a telephone conversation on August 24, 1999, that CO levels did not increase for this installation, and VOC's were not measured.

Carbon Monoxide (CO)

Carbon monoxide emissions result from the incomplete combustion of any fuel, including coal. As overfire air is diverted from the main combustion zone, the NOx emissions are decreased by the reduced stoichiometry of the main flame. This lowered oxygen concentration in the main flame zone also increases the amount of CO formed in the flame zone. The overfire air system then adds the oxygen necessary to complete the combustion of the coal char and any residual CO. The key to achieving lower NOx without increasing CO emissions is to ensure good mixing of the overfire air, which will then destroy any CO. Several studies have reported the changes in CO emissions from the installation of low NOx burners. The U.S. DOE Clean Coal Project at Lansing Smith Unit 2 indicated that as the level of staging increased, the amount of CO emissions increased, at the same level of excess oxygen [2]. The baseline CO levels were measured at 20 ppm, and the CO emissions for LNCFS Level I were reported as 10ppm for 3.5% excess oxygen. The P2 system at Smith Unit 2 closely resembles LNCFS Level I, so that it is expected that the CO levels will be nearly the same for the baseline and P2 system.

Therefore, for the mild degree of overfire air staging of the P2 system, these published results, along with the assertions by the burner vendor, lead to an expectation that the CO levels will be nearly the same or lower for the low NOx firing system as the baseline.

Volatile Organic Compounds (VOC)

VOC's, like CO, are products of incomplete combustion of coal. There is not a lot of testing that has been published regarding changes in VOC emissions from the installation of low NOx burners. It is normal to use the CO emissions as a clue as to the emissions of VOC's. Therefore, if the CO emissions increase, one would expect the VOC emissions to also increase. The actual behavior of the combustion system as to whether CO increases before VOC emissions start to increase is not well known. However, in the Clean Coal Project at Lansing Smith Unit 2 [3], volatile organic compounds were measured using the volatile organic sampling train (VOST) in the duct leading to the stack for the most severe low NOx system, the LNCFS Level III. In this report, all but one of the 19 identified compounds in the volatile organic sampling train (VOST) were lower in the low NOx firing test than in the baseline testing, with 10 of the 19 compounds below the detection limit in the low NOx testing. (Even though the authors speculate that the baseline testing may have been contaminated, the results show that most of the standard compounds were not detected in the low NOx firing case.) These results seem to indicate that CO emissions rise before VOC emissions start to increase.

As further evidence of minimal impact from these burner changes, EPRI's Emission Factor Handbook [4] makes no distinction between uncontrolled and low NOx firing for coal-fired boilers when estimating hazardous organic emissions (such as benzene, phenol, benzo(a)pyrene, toluene, xylenes) for Toxic Release Inventory reporting purposes.

In summary, the efficiency of combustion, as measured by CO levels, should limit any emissions of VOC's to background levels, consistent with the baseline emissions.

Particulate Emissions

There is little published experience relating to particulate emissions changes due to low NOx burner retrofits, presumably because of the limited impact. As compared to the baseline combustion system, the process of low NOx coal combustion does not appear to change the nature of the fly ash produced, with respect to particle size and ash resistivity. Therefore, the behavior of the individual ash particles in the ESP should be unchanged. However, there have been some observed changes in the loading of ash and increases in the amount of unburned carbon in the fly ash are expected. In some retrofit cases, the low NOx firing system installation has led to lower temperatures in the radiant furnace, which, in turn, have decreased the amount of ash captured as slag. The increased particle load to an ESP might lead to an increase in the emissions of particulates. However, this effect, to my knowledge, has only been seen in wall-fired boilers with hot, tight radiant furnaces. Lansing Smith Unit 1 is a tangentially-fired furnace, which generally have lower heat release rates. Therefore, it is not expected that Plant Smith Unit 1 will have any noticeable increase in the fly ash/bottom ash split that would lead to increased ESP inlet ash loadings.

For almost any change to a low NOx firing system, an increase in the amount of unburned carbon in the fly ash is expected. Ordinarily, this does not present a problem for the electrostatic precipitator. On some low NOx installations, marginal ESP's have struggled with the unburned char particles. Carbon is easily collected by the ESP, but, since it is electrically conductive, it tends to lose its charge when it reaches the collection plate. The carbon can then be reentrained in the flue gas, since there is no electrostatic force holding it to the collection plate. If the ESP is too small, the carbon can escape and be emitted as particulate.

Lansing Smith Unit 1 has a hot-side ESP in series with the original cold-side ESP. The hot-side ESP is fairly large with a specific collection area (SCA) of 350 ft^2/1000 acfm. The original cold-side ESP contributes only marginally to the particulate removal. Given that the low NOx burner P2 tips are not a severe staging case, it is expected that the unburned carbon will only increase by 20 to 30% over the baseline level by the installation of these burners. Therefore, the fairly large hot-side ESP will be able to capture the increased unburned carbon particles and thus prevent them from being emitted as particulate. Additionally, the unburned carbon can normally be controlled through adding enough excess air and ensuring proper fuel size through pulverizer optimization. With the fly ash loading, size, and resistivity basically unchanged by the low NOx combustion process, the fly ash collection should be unchanged by the low NOx installation.

Conclusions

CO emissions were unchanged in ABB's initial demo of the P2 burner system, and other testing indicates that the CO emission levels do not increase for the mild staging that is characteristic of the P2 system. CO emissions can be controlled through the use of adequate excess air, which also prevents high unburned carbon in ash and ash slagging and fouling problems.

VOC emissions seem to lag behind CO emissions at some background level, so that efficient combustion as indicated by low levels of CO should ensure control of VOC emissions to the same levels as the baseline case.

The low NOx process does not change the fly ash size or resistivity, so fly ash collection should be unaffected. Fly ash loading can change with low NOx firing, but is normally only seen in tight, hot wall-fired boilers. Since Smith Unit 1 is tangentially-fired, the impact of conversion to low NOx combustion is expected to be negligible. Any impact by excess unburned carbon in the fly ash is expected to be collected in the hot and cold side electrostatic precipitator installed on Smith Unit 1.

References

1. M. Hager, G. Camody, R. D. Lewis, C. Q. Maney, D. P. Towle, "Cost-Effective NOx Reduction for Tangentially Fired Boilers," ABB CE Services Publication TIS 8653.
2. R. R. Hardman, L. L. Smith, and S. Tavoulareas, "Results from the ICCT T-Fired Demonstration Project Including the Effect of Coal Fineness on NOx Emissions and Unburned Carbon Levels," presented at the EPRI/EPA 1993 Joint Symposium on Stationary Combustion NOx Control, Miami Beach, Florida, May 1993.
3. E. B. Dismukes, **Measurement of Chemical Emissions Under the Influence of Low NOx Combustion Modifications**, Final Report to Southern Company Service, Inc., Contract C-91-000017, October 1993.
4. **Emissions Factors Handbook: Guidelines for Estimating Trace Substance Emissions from Fossil Fuel Steam Plant**, EPRI, Palo Alto, CA, TR-105611, November 1995.

Larry S. Monroe, Ph.D.
Principal Research Engineer
Research and Environmental Affairs
Southern Company Services, Inc.

August 24, 1999

Professional Engineer Statement:

I, the undersigned, hereby certify that:

I have reviewed the information contained in Gulf Power Company's responses to the Department's sufficiency questions on Power Plant Siting Application PA99-40/PSD-FL-269 (Smith Unit 3) regarding the Smith unit 1 ABB C-E Services P2 Low-NO_x Burner Tip Technology. To the best of my knowledge, the information provided by Gulf Power is an accurate discussion of the emissions that would be expected to result from the operation of the low-NO_x Burner Tip Technology on Smith Unit 1. The information provided by Gulf Power, in my professional opinion, provides reasonable assurance that the ABB C-E Services P2 Low-NO_x Burner Tip Technology will significantly decrease Smith Unit 1 nitrogen oxides (NO_x) emission rates and also provides reasonable assurance that Smith Unit 1 collateral pollutant emissions of carbon monoxide (CO), volatile organic compounds (VOCs), and particulate matter (PM) will remain essentially unchanged from baseline conditions.

REGISTERED ENGINEER THOMAS W. DAVIS STATE OF FLORIDA

Signature (seal)

9/3/99
Date

Thomas W. Davis, P.E.
Environmental Consulting & Technology, Inc.
3701 Northwest 98th Street
Gainesville, FL 32606

WETLAND IMPACTS AND MITIGATION SUFFICIENCY RESPONSES

WETLAND IMPACTS AND MITIGATION

FDEP WETLAND #1
Provide an alternative site analysis to minimize or avoid wetland impacts, to include minimizing construction laydown area.

RESPONSE

An alternative site analysis was provided in Gulf Power's Site Certification Application (SCA) as Section 8.0. To minimize wetland impacts from the construction laydown area, Gulf adjusted their laydown area requirements from the normal 20 acres preferred for a project this size to 14 acres. By doing so, Gulf assumes the risk of scheduling *in time* vendor deliveries to the site (i.e., reducing storage requirements at the site). No further reduction to the laydown area size is feasible.

FDEP WETLAND #2
Provide scaled, clear acetate overlays of the proposed impact areas which can be placed over aerial photographs for further study.

RESPONSE

Acetate overlays of proposed impact areas are not practical with the requirement the SCA and subsequent submittals be easily reproducible. However, proposed impact areas of the project are described and depicted in the SCA Section 4.4 and Gulf's Joint Application for Works in the Waters of Florida (attached in this submittal).

FDEP WETLAND #3
Provide scaled plan/cross-sectional view drawings which show the project layout in relation to wetland areas. Full size and 8 ½" x 11" drawings should be provided.

RESPONSE

Please see the Joint Application attached.

FDEP WETLAND #4
Provide a mitigation proposal which adequately addresses the proposed loss of approximately 15 acres of wetlands.

RESPONSE

Please see the Joint Application attached.

FDEP WETLAND #5
Provide details regarding thermal discharge changes and ground water impacts from increased usage.

RESPONSE

Thermal discharge changes were discussed in the SCA Section 5.1, as well as the modified Industrial Wastewater Permit Application included in the SCA Appendix 10.2.5. Ground water impacts were addressed in the SCA Section 5.3.2 and the Ground Water Modeling Study included as Appendix 10.5 (Attachment 10.5-G).

FDEP WETLAND #6
Provide storm water treatment pond details, calculations, locations, etc., including details of the proposed boat ramp in the dredged barge canal.

RESPONSE

Storm water pond details were addressed in the SCA Section 3.8, the Storm Water Management Plan (Appendix 10.2.2), and in the Joint Application attached to this submittal. There will be no boat ramp constructed at the dredged intake canal.

FDEP WETLAND #7
Describe locations and anticipated impact dimensions for proposed natural gas lines.

RESPONSE

Gulf is not proposing to route, permit, build, own, or operate the necessary gas pipeline for this project. Florida Gas Transmission (FGT) will be permitting and building the pipeline. They have provided Gulf preliminary route information described in the SCA

Section 6.0. FGT will be submitting all necessary permit applications within the coming months.

FDEP WETLAND #8
Provide separate Phase I & II wetland impacts, to include anticipated time table for completion of each phase.

RESPONSE

There will be no Phase I or II construction impacts. All site clearing, filling, and, therefore, impacts to onsite wetlands will occur during the first 6 months of the construction schedule (anticipated to begin August 1, 2000). The remainder of the construction schedule is described in the SCA Section 4.6.

FDEP WETLAND #9
Provide an archeological and an endangered species analysis.

RESPONSE

The archaeological analysis was provided in the SCA (Sections 2.2.6, 4.8, and 5.10). The endangered species analysis was provided in the SCA (Sections 2.3.6 and 4.4). Endangered species information is also included in the Joint Application attached to this submittal.

FDEP WETLAND #10
Provide a copy of the U.S. Army Corps of Engineer Wetland Rapid Assessment Program (WRAP) for the site.

RESPONSE

Please see the Joint Application included in this submittal.

FDEP WETLAND #11
Provide a copy of the surveyed Department Binding Wetland Delineation.

RESPONSE

As of September 2, 1999, the Florida Department of Environmental Protection (FDEP) Binding Wetland Delineation was approved but has not been issued, according to Ms. Ashley O'Neil, FDEP. It will be forwarded as soon as it is received.

GROUND WATER AND WASTE SUFFICIENCY RESPONSES

GROUNDWATER AND WASTE

FDEP GROUND WATER AND WASTE #1

The SCA mentions the use of fly ash as foundation material for the project. It does not describe the use in very much detail; it does not provide specific information about the chemical composition of the fly ash. The SCA does not have enough information to prove the assertion made in the Executive Summary of the SCA that the fly ash is a benign material (page ES-10). On page 5-14, Gulf Power states "Use of fly ash with clean fill as a base for the power plant will not affect ground water from any leachings of constituents." Not enough information is given in the SCA to prove this statement.

RESPONSE

Gulf Power has previously submitted (to FDEP's solid waste program) additional information addressing the requests in these two multipart questions concerning the use of fly ash as a foundation material. A copy of this information has also been transmitted separately to the FDEP's Siting Coordination Office. A copy of that transmittal letter is included with this response. Gulf Power incorporates herein that separate submittal to FDEP as its response to these questions. Copies of Gulf's submittal are available upon request, as indicated in the attached August 12, 1999, letter to Hamilton S. Oven of FDEP.

FDEP GROUND WATER AND WASTE #2

*Gulf Power has been discussing the use of the fly ash as a foundation material with both the Northwest District Office and the Bureau of Solid and Hazardous Waste. On June 3, 1999, the following additional information was requested:**

A. CHEMICAL CHARACTERIZATION Total analyses for the eight RCRA metals from two samples of Plant Smith fly ash were provided. However, due to the volume of coal ash proposed for use in this project, additional samples are needed to characterize the metals and radionuclides (specifically, radium 226 and 228) content of the ash. A minimum of fourteen randomly selected composite samples of the ash which will be used in the project must be collected and subjected to total analysis for the eight RCRA metals, nickel, sodium, vanadium, aluminum, copper, iron, manganese, zinc and radionuclides. Due to the nature of the combustion process, chemical characterization for organic compounds shall not be required. Analytical detection levels for all analyses must be as low as practical. A site plan showing the locations where the samples were collected and a description of the sampling locations and collection method should be provided with the analytical results.

B. *LEACHING POTENTIAL TO GROUND AND SURFACE WATERS Toxicity Characteristic Leaching Procedure (TCLP), EPA Method 1311, and Synthetic Precipitation Leaching Procedure (SPLP), EPA Method 1312, analyses for the eight RCRA metals from two samples of Plant Smith fly ash were provided. Due to the nature of the coal ash use, the Department believes additional SPLP testing is required. Aliquots of the fourteen composite samples collected above must be prepared using the SPLP method with each of the extracts analyzed for the eight RCRA metals, nickel, sodium, vanadium, aluminum, copper, iron, manganese, zinc and radionuclides. All analytical detection levels must be as low as practical. In the case of parameters having comparable water standards and criteria, the analytical detection levels used to analyze those parameters must be as close as possible to the Department's ground water and surface water standards and criteria.*

C. *QUALITY ASSURANCE Please provide assurance that all samples required in this letter will be collected and analyzed by laboratories which have a Department-approved Comprehensive Quality Assurance Plan in accordance with the requirements of Chapter 62-160, Florida Administrative Code, and that the Plan authorizes them to conduct this work.*

D. *HUMAN HEALTH RISK The total analyses for the eight RCRA metals from the two samples of Plant Smith fly ash showed the arsenic and barium concentrations in the ash may pose an unacceptable human health risk if the ash were used in a manner that allows direct human contact. The conceptual drawing for this use also showed a soil cover over the ash with a thickness of 18 inches. In order to have reasonable assurance that the use of this coal ash fill at Plant Smith will not pose an unacceptable human health risk the Department believes the following should be provided:*

(1) The final soil cover should have a minimum thickness of 24 inches, and
(2) Institutional controls such as deed restrictions or security measures should be documented to ensure that access at the site will be restricted and the cover will be maintained.

E. *GROUND WATER MONITORING The Department believes available ground water monitoring data from Plant Smith for the ash storage pond and the ash landfill are strong support for the proposed use of ash at this facility. In order to evaluate this information and to obtain additional information for Unit 3, please provide the following:*

(1) A table summarizing all the actual water quality results during the past five years for monitoring wells LB-1, 9-3A, 9-9, 9-7, 9-12A, M-5 and LC-1;
(2) A narrative summary of the research documenting that the radionuclide levels in the ground water at Plant Smith are not the result of coal ash disposal in the pond or landfill;
(3) A site plan showing the locations of the monitoring wells and ash disposal areas;

(4) *A description of the site hydrogeology including hydraulic conductivity test results, thickness and extent of any confining units;*

(5) *A description of the screened intervals for the monitoring wells, what water bearing zones are being monitored, and ground water flow directions for the site (including ground water contour maps) for the surficial and Floridan aquifers and any water bearing zones of the Intracoastal Formation; and*

(6) *A proposed ground water monitoring plan for the Unit 3 site. The parameters to be monitored should include both the metals identified in Section A. above and radionuclides. The frequency of ground water sampling can be the same as is currently used in the existing Department permit for the facility, Permit No. FL0002267. The characterization of the ground water should include pre-construction samples for the same parameters that will be included in routine monitoring.*

F. *PROJECT DESIGN DETAILS The conceptual design submitted for this project is not sufficient for the Department to make a determination on the proposal. In addition, the Department is very concerned about the installation of approximately 1,000 pilings through the coal ash fill to the underlying limestone for foundation support of the facility. To help in the evaluation of this proposal, please provide the following additional information:*

(1) *A detailed site plan showing the location of the proposed project, location of the fill areas and Unit 3, and cross sections of the fill areas;*

(2) *A description of the hydrogeology and ground water flow directions at the Unit 3 location and an explanation of the differences, if any, between this information and the existing facility;*

(3) *A detailed description of the planned construction procedures, including a construction sequence for installing the pilings, and why the construction and presence of pilings through the coal ash fill will not act as a conduit to the Floridan aquifer and pose an unacceptable risk to ground water;*

(4) *Evaluate and comment on the feasibility of using coal ash as fill at Unit 3 except in areas where the support pilings will be installed;*

(5) *If dewatering of the site is anticipated prior to filling, describe how this water will be managed to not create adverse impacts to ground water or surface water; and*

(6) *Please identify the expected seasonal high water table elevation in the area proposed for Unit 3, and if the coal ash will be used as fill below this elevation, describe what effects, if any, the permanent placement of the ash in the water table will have upon its structural strength or its potential to leach metals.*

**Some of this information has been informally presented to the members of the Department staff but has not been submitted to the Siting Coordination Office. Official submission of the material dated July 16, 1999, may satisfy this request.*

RESPONSE

Please read previous response.

One Energy Place
Pensacola, Florida 32520

850.444.6111

GULF POWER
A SOUTHERN COMPANY

August 12, 1999

Mr. Hamilton S. Oven, P.E., Administrator
Siting Coordination Office
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee FL 32399-2400

Re: Gulf Power Company, Lansing Smith Unit 3, Power Plant Siting Application

Dear Buck:

Attached for official filing with your office is a document entitled Proposal For Fly Ash Utilization Plant Smith Unit 3. This document is being forwarded to you in response to the memorandum from Mr. Tom Lubozynski, FDEP Northwest District, to you dated July 30, 1999. For your convenience, copies of all previous correspondence between Gulf Power and the Department pertaining to this issue have been attached hereto.

Mr. Lubozynski indicated in his memo to you that the June 3, 1999 correspondence from Richard Tedder should be treated as a Sufficiency Request from the Department. The substance of this memo was contained in the Department's August 6, 1999 Notice of Insufficiency on this Project. Accordingly, Gulf Power submits our enclosed response dated July 16, 1999 to Mr. Tedder's correspondence as the Sufficiency Response to that letter, pursuant to Section 403.5067(1)(a), F.S., and Rule 62-17.081, FAC. Gulf Power will submit its responses to other sufficiency requests in the future, addressing the Department's Notice of Insufficiency on the site certification application.

Gulf Power looks forward to continuing to work with the Department to demonstrate the suitability of using ash as part of the fill material for the proposed Unit 3 site. That use will substantially reduce the amount of fill material that would otherwise be required from an off-site source. We look forward to the Department's response to this information submittal.

This information response is quite lengthy, and copies have been provided only to you and the Department's staff at this time. Copies of this submittal will be supplied to other agencies or interested parties upon their request.

Hopefully the information contained herein is sufficient for the Department to make a final determination on the reuse of this material as an alternative backfill at the Smith project. If another meeting between Gulf and the Department would be beneficial in continued discussions pertaining to our proposal, we would be available at your convenience.

In the meantime, if you have any questions or need additional information, please contact me at 850-444-6551.

Cordially,

Jim Vick, Manager
Environmental Affairs

ms

Cc: Mr. Tom Lubozynski, FDEP Northwest District
Mr. Bill Hinkley, FDEP Tallahasee
Mr.Bill Preston, Hopping Green Sams & Smith
Mr. Richard Tedder, FDEP Tallahassee
Mr. J. A. Tucker, Gulf Power Company
Parties to Certification Application PA 99-40

JOINT APPLICATION FOR WORKS IN THE WATERS OF FLORIDA

Form #: 62-312.900(1)
Form Title: Joint Application for Works in the Waters of Florida
Effective Date: October 30, 1991

Joint Application for Works in the Waters of Florida

Department of the Army (Corps)/Florida Department of Environmental Protection (DEP)/ Water Management District (WMD)

Corps Application Number (official use only)	DEP Application Number (official use only)

Type or Print Legibly

1. Applicant's Name and Address

Name Vick, James O., Manager of Environmental Affairs, Gulf Power Company
Last Name, First Name (if individual); Corporate Name; Name of Govt. Agency
Street One Energy Place

City Pensacola State: Florida Zip: 32520-0328

Telephone (Day) (850) 444-6311 (Night) N/A

2. Name, Address, Zip Code, Telephone Number and Title of Applicant's Authorized Agent

Name Simpson, Philip W., Project Manager
Last Name, First Name

Corporate Name; Name of Govt. Agency Environmental Consulting & Technology, Inc.
Street 3701 Northwest 98th Street
City Gainesville State Florida Zip 32606
Telephone (Day) (352) 332-0444 (Night) N/A

3. Name of Waterway at Work Site: Alligator Bayou is the closest waterway to work site.

4. Street, Road or Other Location of Work Southern terminus of County Road 2300
Incorporated City or Town Lynn Haven
Section 36 Township - 2 South Range 15 West
Section N/A Township - N/A Range N/A
Section N/A Township - N/A Range N/A
County(ies) Bay

Coordinates in Center of Project: Federal Projects Only: x y
Latitude 30° 16′ 15" West Longitude 85° 42′ 05" North
Lot N/A Block N/A Subd N/A Plat Bk N/A Pg N/A

Directions to Locale Site: Go along State Road 77 to County Road 2300 and then head south.

5. Names, Addresses, and Zip Codes of Adjacent Property Owners Whose Property Also Adjoins the Water (Excluding Applicant). Show Numbers or Names of These Owners on Plan Views. If More Than Six (6) Owners Adjoin the Project, You May Be Required to Publish a Public Notice for the DEP.

1. St. Joe Paper Company
Post Office Box 908
Port St. Joe, Florida 32457

2.

3.

4.

5.

6.

6. Proposed Use (Check one or more as applicable) Private: Single Family ☐ Multi-Family ☐ Public ☐ Commercial ☐ New Work ☐ Alteration of Existing Works ☐ Maintenance ☐ Other ☒ (Explain): Regulated electric utility.

7. Desired Permit Duration (see Fee Schedule): 5 Yr. ☒ 10 Yr ☐ Other (Specify)

8. General Permit or Exemption Requested:

DEP General Permit FAC Rule 17-312. N/A DEP Exemption FAC Rule 17-312. N/A Section 403 F.S. N/A

9. Total Extent of Work in Jurisdictional Open Waters or Wetlands: (Use additional sheets and provide complete breakdown of each category if more space is needed.

a. Within Corps Jurisdiction:
Fill: 666,468 Sq. Ft. 15.3 Acres 136,463.5 Cu. Yds
Excavation: 2,101.7 Sq. Ft. 0.5 Acres 233.5 Cu. Yds.

b. Within DEP Jurisdiction:
Fill: 662,112 Sq. Ft. 15.2 Acres 135,605.5 Cu. Yds
Excavation: 2,101.7 Sq. Ft. 0.5 Acres 233.5 Cu. Yds.

Excavation Waterward of MHW N/A cu. yds (information needed for DEP)

c. DEP Jurisdictional Area Severed (Area Landward of Fill Structures which will be Severed):
N/A Sq. Ft. N/A Acres

d. DEP Jurisdictional Area Created (New Excavation from Uplands, Exclusive of Mitigation):
86,139.9 Sq. Ft. 2 Acres

e. Docks, Piers, and Over Water Structures: N/A
Total Number of Slips: Total Number of Mooring Pilings:
Length Width Height above MHW
Length Width Height above MHW
Number of Finger Piers Length Width Height
Number of Finger Piers Length Width Height
Total area of structure over waters & wetlands sq. ft.
Use of structure

Will the docking facility provide:	No	Yes	Number
Live-aboard Slips	☐	☐	
Fueling Facilities	☐	☐	
Sewage Pump-out Facilities	☐	☐	
Other Supplies or Services Required for Boating (Excluding refreshments, bait and tackle)	☐	☐	

f. Seawall length: N/A ft. Seawall material: N/A
Riprap revetment length: N/A ft. Slope H: V Toe width
Riprap at toe of seawall length N/A ft. Slope H: V Toe width
Size of riprap: N/A

Type of riprap or seawall material: N/A

g. Other (See item 10).

10. Description of Work (be specific; use additional sheets as necessary).

Gulf Power Company has to construct a new 574 megawatt electric power generating unit to be known as Smith Unit 3. A more detailed description of the proposed project is provided in Attachment A. Copies of the Gulf Power Site Certification Application (SCA) submitted to FDEP on June 7, 1999 are also available upon request.

11. Turbidity, Erosion, and Sedimentation Controls Proposed:

Prior to the initiation of construction activities, silt fencing or straw bales will be placed along the outside edge of the construction area boundaries. Silt fencing and straw bales will be used to control transport of sediment. Sod and/or matting will be used to stabilize disturbed areas and ditch bottoms/side slopes to limit erosion potential. Finished slopes will be gradual in order to limit velocities which may promote erosion.

12. Date Activity is Proposed to Commence August 1, 2000 to be Completed June 1, 2002
Total Time Required to Construct 22 months

13. Previous Applications for this Project have been: N/A DEP No. Corps no.
A. Denied (date)

B. issued (date)

C Other (please explain)

Differentiate between existing work and proposed work on the drawings.

14. Certification. Application is hereby made for a permit or permits to authorize the activities described herein.

A. I Certify That: (Please check appropriate space)

1. I am the record owner ☒; lessee ☐, or the record easement holder ☐of the property on which the proposed project is to be undertaken, as described in the attached legal document.

2. I am not ☐the record owner, lessee or record easement holder of the property on which the proposed project is to be undertaken, as described in the attached legal document, but I will have, before undertaking the proposed work the requisite property interest. (Please explain what the interest will be and how it will be acquired.)

Attach legal description of property or copy of deed to the property on which project is to occur (must be provided).

See Attachment G

B. I understand I may have to provide any additional information/data that may be necessary to provide reasonable assurance or evidence that the proposed project will comply with the applicable State Water Quality Standards or other environmental standards both before construction and after the project is completed.

C In addition, I agree to provide entry to the project site for inspectors with proper identification or documents as required by law from the environmental agencies for the purpose of inspecting the site. Further, I agree to provide entry to the project site for such inspectors to monitor permitted work, if a permit is granted.

D. This is a Joint Application and is not a Joint Permit. I hereby acknowledge the obligation and responsibility for obtaining all of the required state federal or local permits before commencement of construction. I also understand that before commencement of this proposed project, I must be granted separate permits or authorizations from the U.S. Corps of Engineers, the U.S. Coast Guard, the Department of Environmental Protection and the Delegated Water Management District (where applicable), as necessary.

E. I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete and accurate, I further certify that I possess the authority to undertake the proposed activities or am acting as the duly authorized agent of the applicant. I understand that knowingly making any false statement or representation in this application is a violation of Section 403.161, ES. and Chapter 837, FS.

Mr. James O. Vick — Typed/Printed Name of Applicant or Agent

James O Vick — Signature of Applicant or Agent

8/27/99 — Date

Manager of Environmental Affairs, Gulf Power Company
(Corporate Title if applicable)

AN AGENT MAY SIGN ABOVE IF APPLICANT COMPLETES THE FOLLOWING:

I hereby designate and authorize the agent listed above to act on *my* behalf as my agent in the processing of this permit application and to furnish on request, supplemental information in support of the application.

N/A

Typed/Printed Name of Applicant

Signature of Applicant

Date

(Corporate Title if applicable)

15. For your Information: Section 370.034, Florida Statutes, requires that all dredge and fill equipment owned, used, leased, rented or operated in the state shall be registered with the Department of Natural Resources. Before selecting your contractor or equipment you may wish to determine if this requirement has been met. For further information, contact the Chief of the Bureau of Saltwater Licenses and Permits, Department of Natural Resources, 3900 Commonwealth Blvd, Tallahassee- Florida 32399. Telephone No. (904) 487-3122. This Is not a requirement for a permit from the Department of Environmental Regulation.

18 U.S.C. Section 1001 provides that, Whoever, in any manner within the jurisdiction of any department or agency of The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

16. Please submit this completed form, with attached drawings and the complete DEP processing fee to the appropriate DEP or Delegated WMD office with jurisdiction over the project site.

See Attachment A for detailed project information, including drawings.

Full-size plan and cross-section view drawings are provided in Attachment H.

ATTACHMENTS FOR THE JOINT APPLICATION FOR WORKS IN THE WATERS OF FLORIDA

Attachment A - Detailed Project Information Package

Attachment B - Aerial Photograph with Wetland Delineations

Attachment C - Supplemental Storm Water Calculations

Attachment D - Wetland Rapid Assessment Procedure Data Sheets for Existing Wetlands Prior to Development

Attachment E - Wetland Rapid Assessment Procedure Data Sheets for Post Development Wetlands

Attachment F - Wetland Rapid Assessment Procedure Data Sheets for Mitigation Site Wetlands

Attachment G - Legal Description and Deed

Attachment H - Full Size Plan and Cross Section View Drawings

ATTACHMENT A

DETAILED
PROJECT INFORMATION PACKAGE

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1.0 INTRODUCTION

Gulf Power Company (Gulf) plans to construct, own, and operate a new electric power generating unit in Bay County, Florida. The Smith Unit 3 Project (Smith Unit 3 or the Project) will be capable of producing up to 574 megawatts (MW) of electricity using state-of-the-art technology and clean, natural gas fuel.

Gulf, which is a wholly-owned subsidiary of Southern Company, serves approximately 350,000 customers in northwest Florida. Gulf has determined that in order to continue providing reliable, cost-effective service to its customers, it must add at least 427 MW of new generating resources to its system by the summer of 2002. The most cost-effective means to meet this need is construction of Smith Unit 3 at Gulf's existing Lansing Smith Electric Generating Plant north of Panama City, Florida.

On March 15, 1999, Gulf filed a petition with the Florida Public Service Commission (FPSC) to demonstrate that the Project is needed to meet the growing demand for power in the Florida panhandle. The need petition shows that the Project will be a reliable, cost-effective, and environmentally friendly power generation resource in Florida. The FPSC approved the need for the Project on June 7, 1999.

2.0 SITE AND VICINITY CHARACTERISTICS

The proposed site for the Project is located at Gulf's existing Lansing Smith Plant in central Bay County, northwest of Panama City (Township 2S, Range 15 West, Section 36). The site is owned by Gulf, as is all the surrounding property to the site.

Figures 1 and 2 show the location of the Project within the State of Florida and within Bay County, respectively. Figure 3 shows the location of the proposed 50.1-acre site relative to the existing Smith Plant. The site is located at the end of County Road (CR) 2300 which connects to State Road (SR) 77. An aerial photograph of the site area (1 inch [in] = 1,000 feet [ft] scale) is provided in Figure 4. A larger scale aerial photograph of the site (1 in = 100 ft) is provided in Attachment B.

The site is currently in silvicultural operation (i.e., planted pines). The existing Smith Plant is an industrial land use, but otherwise the surrounding vicinity is rural and undeveloped. No residential development is found within a 2-mile radius.

2.1 WETLAND JURISDICTIONAL DETERMINATION

The jurisdictional waters of both the State of Florida and United States were delineated in the field by a botanist and soils scientist on April 7 through 9, 1999.

Wetlands on the proposed 50.1-acre power generating site were delineated in the field using accepted, standard state and federal wetland delineation methodologies (e.g., the Florida Department of Environmental Protection [FDEP] regulations, Sections 62-301 and 62-340 and the Routine Onsite Determination Methods as described in the U.S. Army Corps of Engineers [USACE] 1987 Wetlands Delineation Manual with the most current vegetative index, respectively).

Standard USACE Routine Wetland Delineation Forms were completed within representative habitats at both upland and wetland locations (i.e., on either side of the identified wetland line). The soil survey for Bay County was used in the soil taxonomy information

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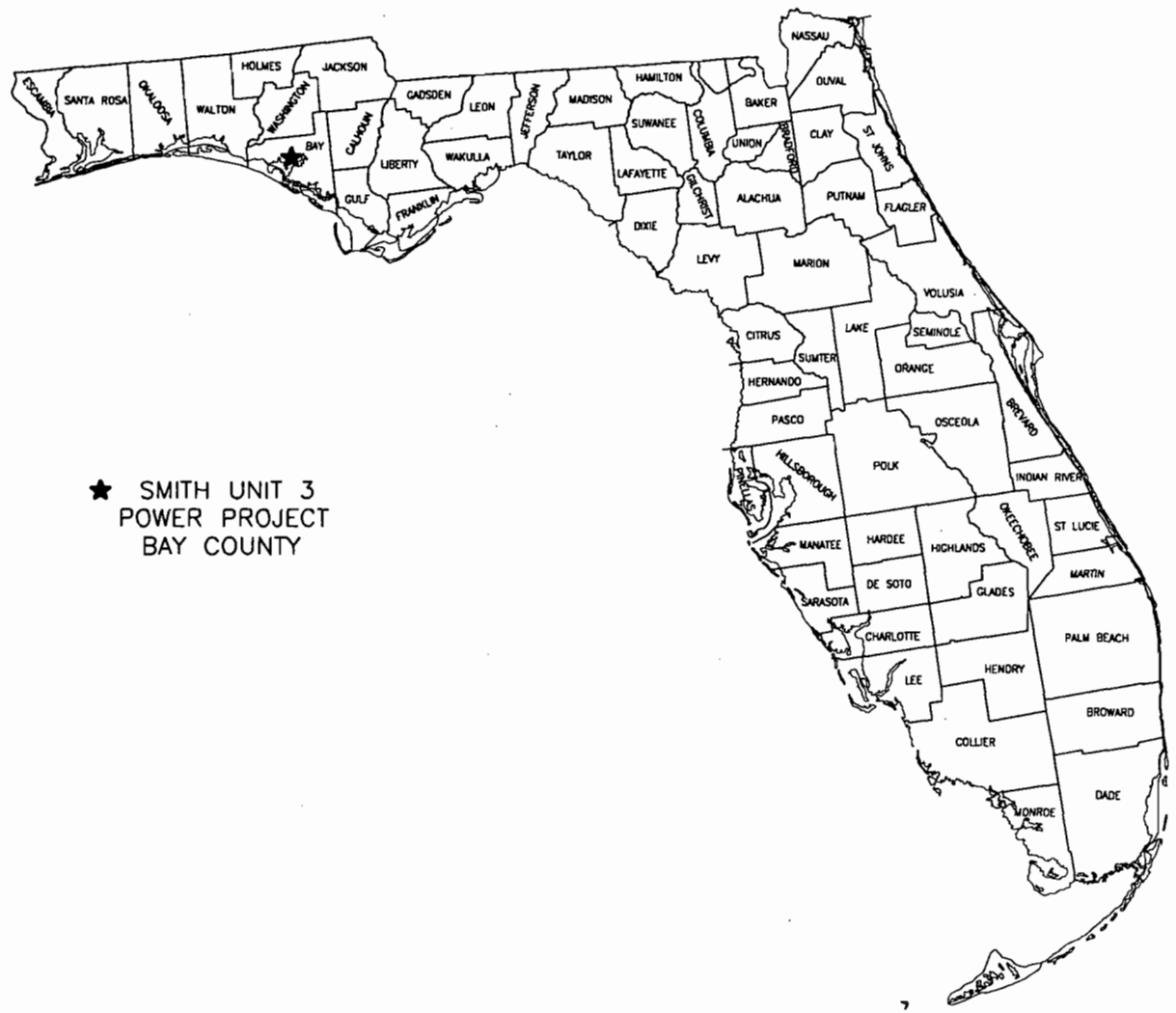

FIGURE 1

SITE VICINITY MAP

Source: ECT, 1999.

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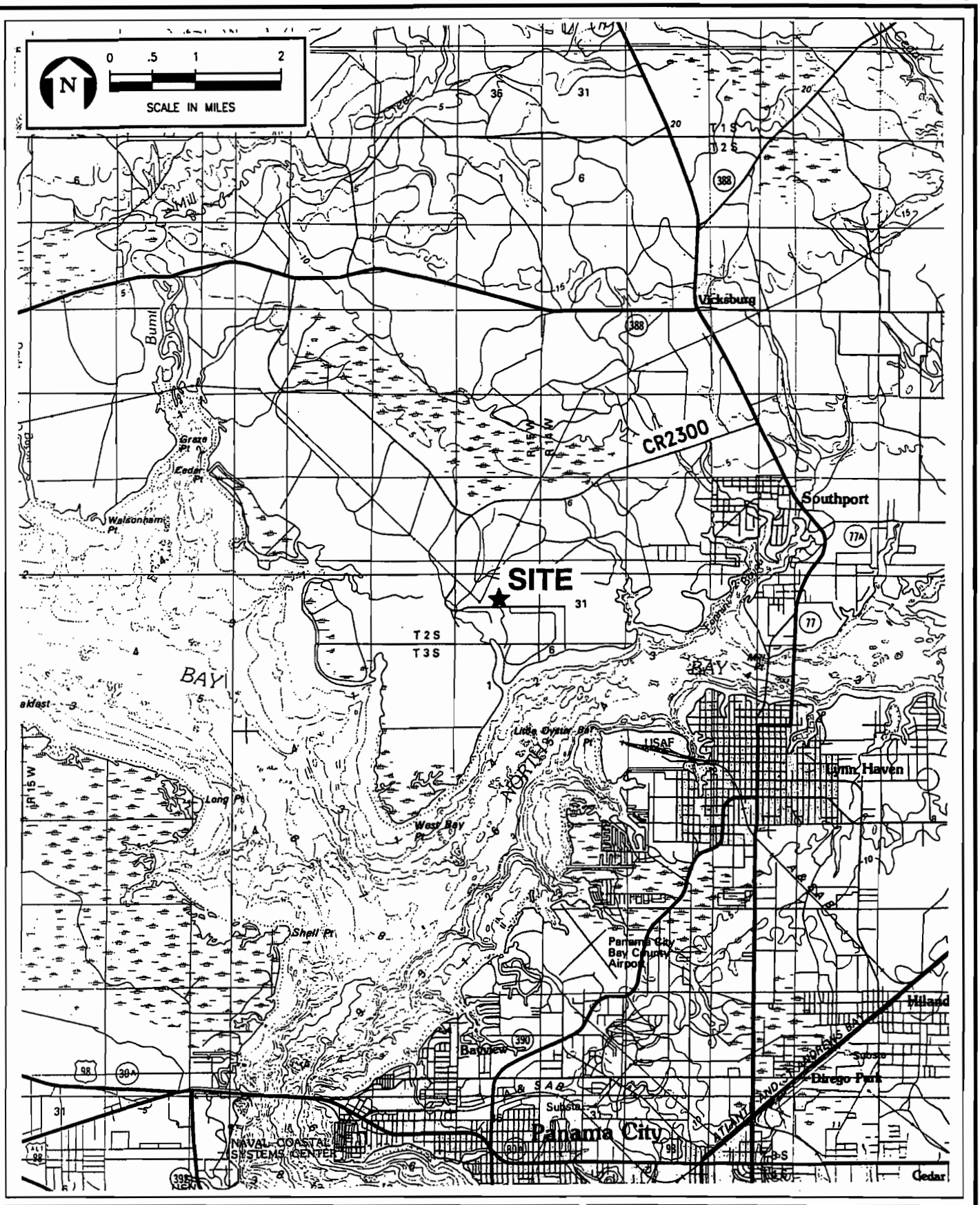

FIGURE 2

SITE LOCATION MAP

Source: SCS, 1998

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Environmental Consulting & Technology, Inc.

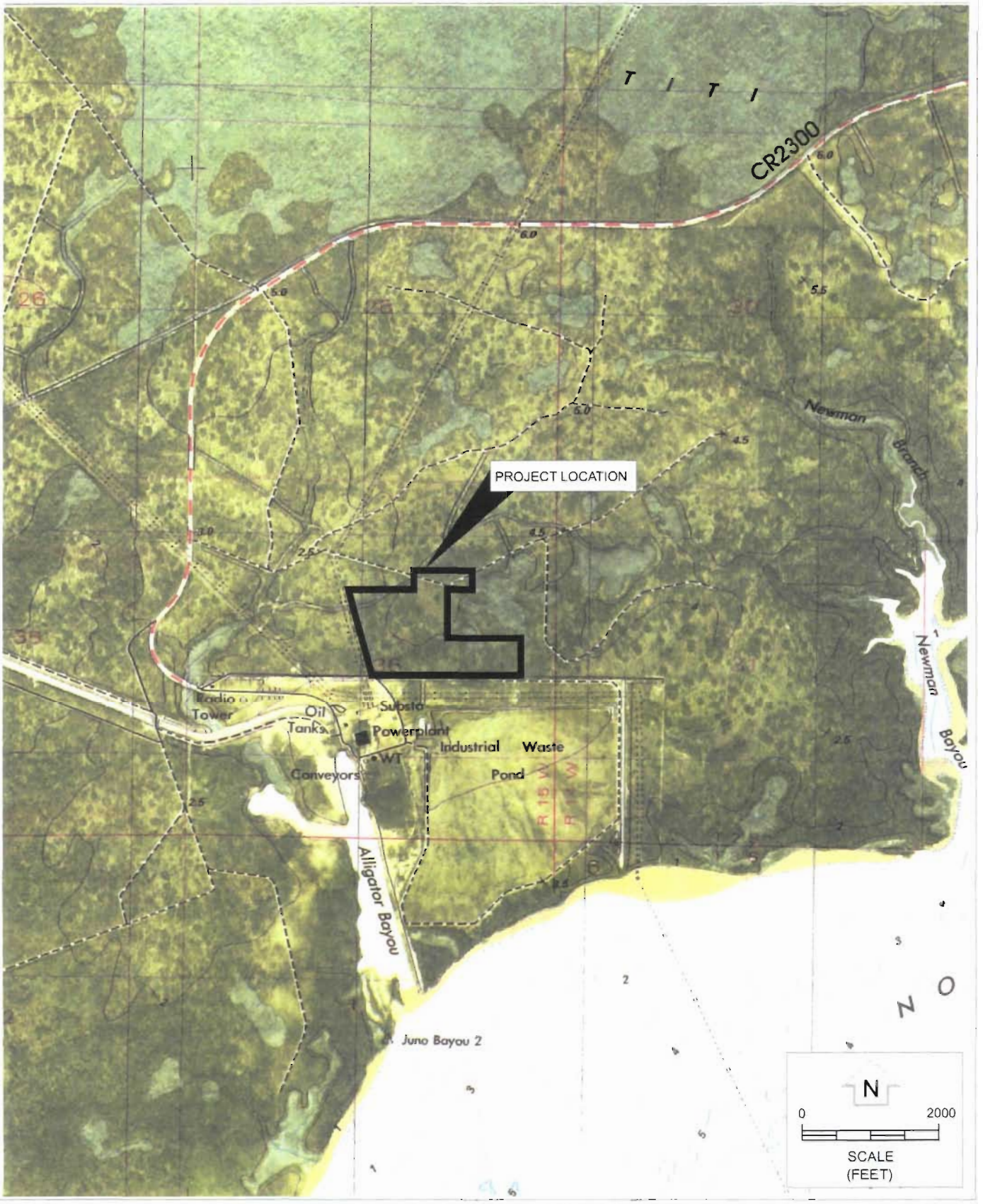

FIGURE 3

TOPOGRAPHIC MAP

Sources: USGS topo map of Southport, Fl., 1992; ECT, 1999.

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Environmental Consulting & Technology, Inc.

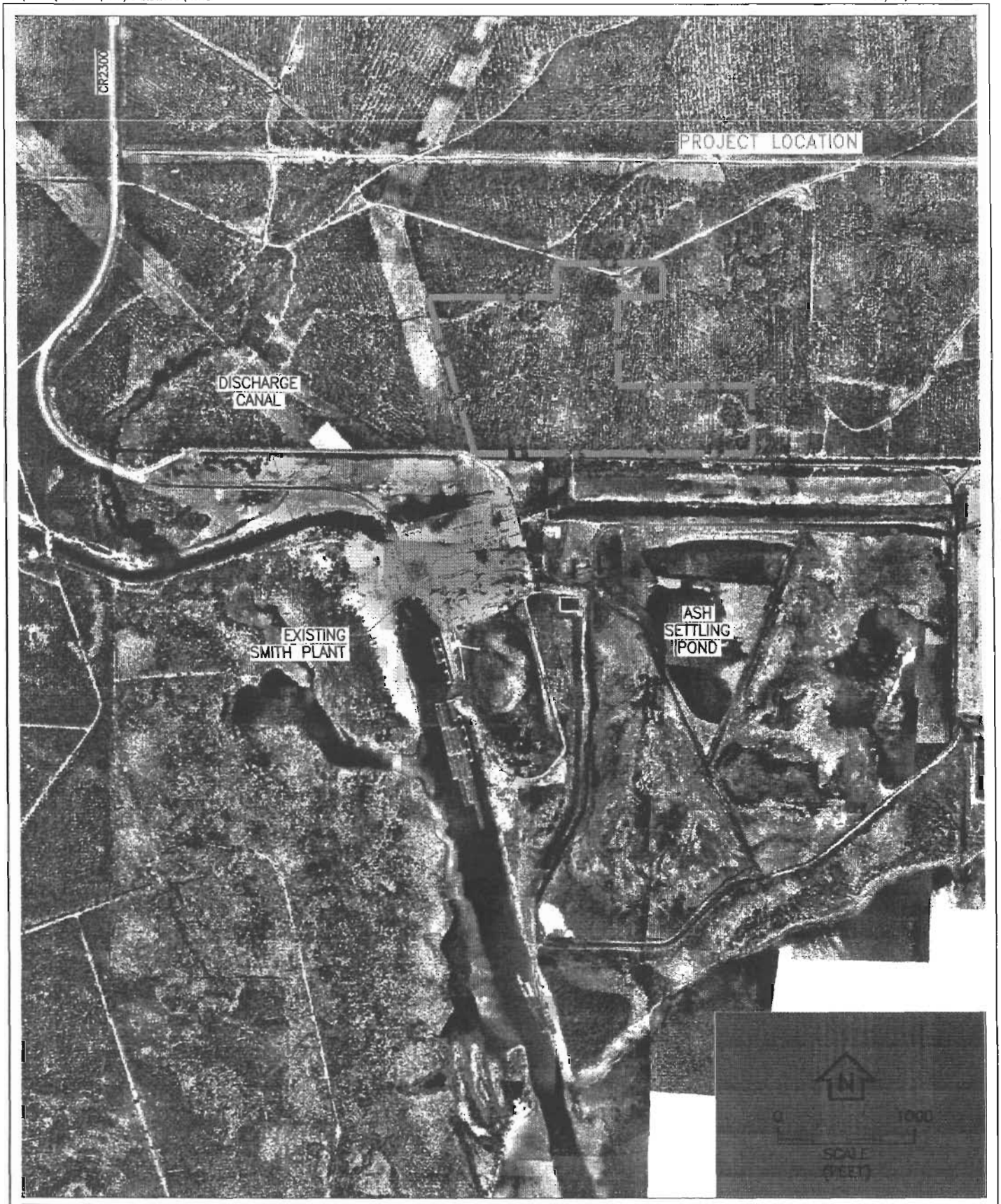

FIGURE 4

AERIAL PHOTOGRAPH OF SITE LOCATION

Source: Gulf Power, 1999.

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Environmental Consulting & Technology, Inc.

presented on the site data forms together with empirical data gathered in the field (i.e., soil borings).

Following the collection of onsite data, orange and black striped surveyor's flags were tied at strategic locations along the identified wetland boundaries. Each flag was numbered in consecutive order by segment.

After the wetland ecologists flagged each point, a trained technician recorded each point's position using a Trimble® Pathfinder Pro-XR differential global positioning system (DGPS) backpack unit and a Trimble® TDC-1 Asset Surveyor data logger.

A letter request for a wetland jurisdictional determination from the Panama City offices of FDEP and USACE was submitted on April 21, 1999 that included the referenced data forms, a DGPS mapping of wetland lines, and other pertinent site field data.

After an initial review by the FDEP and USACE on April 21, 1999, it was decided that a formal determination needed to be conducted by the FDEP Tallahassee office. Therefore, a petition for the formal determination of the landward extent of wetlands and surface waters of the site was submitted to the FDEP Division of Environmental Resource Permitting in Tallahassee, Florida on April 28, 1999.

On May 18, 1999, the USACE and FDEP reviewed the wetland lines at the site. Except for a few minor changes, the line as originally established was acceptable pending the submittal of certified surveys for verifications of accuracy. The completed surveys of the FDEP and USACE wetland jurisdictional lines for the Smith Unit 3 project site were submitted on July 19, 1999 (FDEP File No. FD-3-0155338-1 and USACE File No. 199901926[JF-DG]). The applicant will publish a *Notice of Proposed Formal Determination of the Landward Extent of Wetlands and Other Surface Waters* in the legal advertisement section of a newspaper of general circulation in the area affected within 30 days of receipt of the notice from FDEP. The surveyed wetland lines are provided on drawings in this permit application. An aerial photograph of the project site with the joint

FDEP/USACE wetland jurisdictional determinations depicted is provided in Attachment B.

2.2 ECOLOGICAL CONDITIONS

About 95 percent of the site is vegetated. Wetlands cover approximately 50 percent of the site, but most of these are wet pine plantations. Cypress-titi swamp, which also occurs, represents the higher quality wetlands found onsite.

No unique habitats are found onsite. No listed species of wildlife were observed onsite and none are likely to depend on the site's resources for their habitat needs. Four listed plant species were found onsite, one of which, the Panhandle spiderlily, is endangered.

Existing stresses to wetlands and uplands at the site include the presence of the existing Lansing-Smith units with associated facilities, logging practices and prescribed burning. Ecologists conducted surveys of the proposed generating unit site in March, April and May 1999 in order to characterize existing ecological conditions. The following narratives provide descriptions of the existing flora and fauna with a specific section addressing threatened and endangered species.

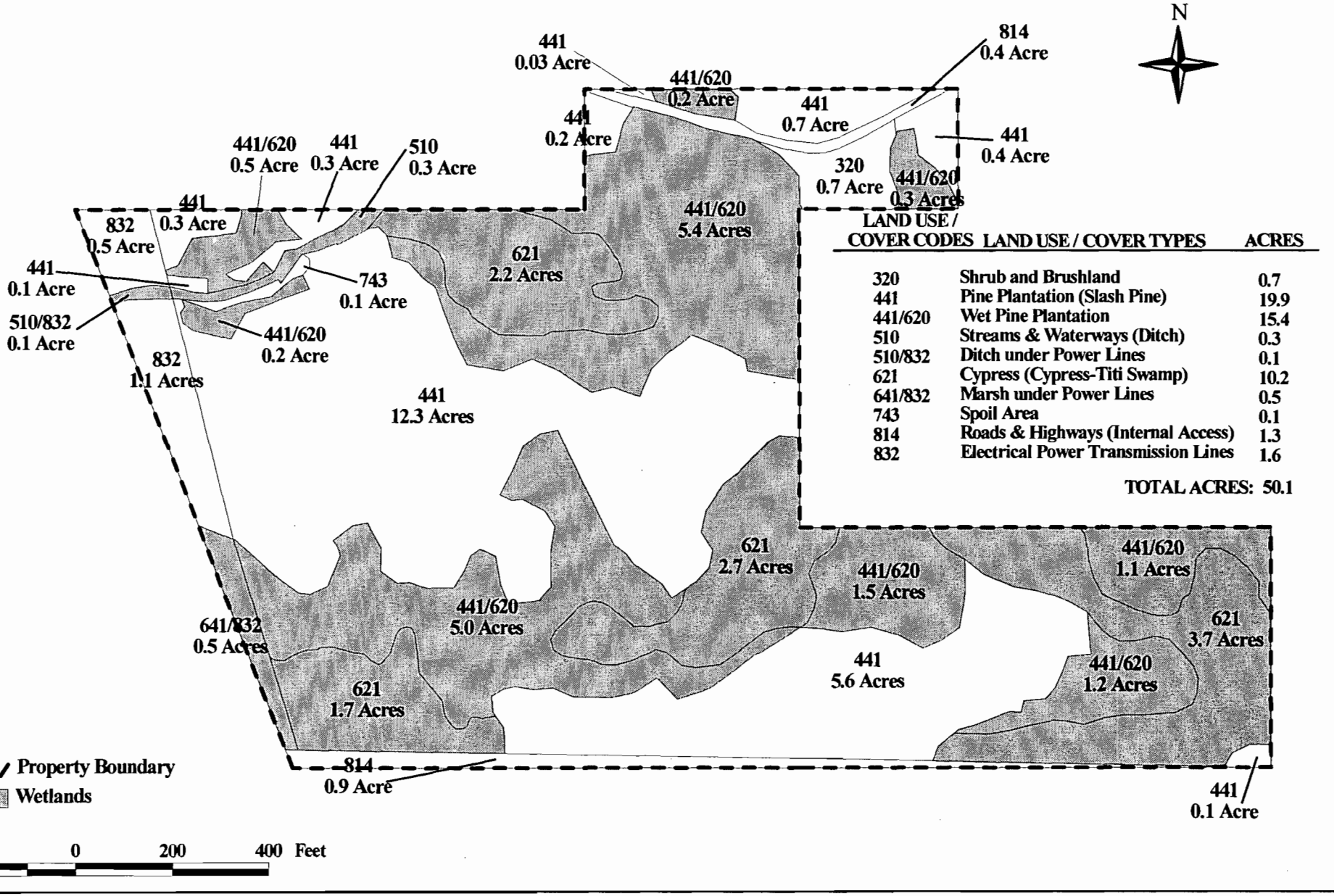
2.2.1 EXISTING CONDITIONS

2.2.1.1 Flora

The existing land use and vegetation types occurring on this site together with areal coverages are depicted in Figure 5. The wetland limits depicted on Figure 5 are based upon the wetland jurisdictional lines established by FDEP for the project site. The following descriptions of plant community/association types and land uses are based upon qualitative vegetation field surveys conducted in March, April, and May 1999.

Shrub and Brushland—320

Approximately 0.7 acre (1.4 percent) of the site contains shrub and brushland. The only area of the shrub and brushland vegetation type occurs at the northern portion of the site along the southern edge of the existing roadway. This area was created by clearing and



LAND USE / COVER CODES | LAND USE / COVER TYPES | ACRES

320	Shrub and Brushland	0.7
441	Pine Plantation (Slash Pine)	19.9
441/620	Wet Pine Plantation	15.4
510	Streams & Waterways (Ditch)	0.3
510/832	Ditch under Power Lines	0.1
621	Cypress (Cypress-Titi Swamp)	10.2
641/832	Marsh under Power Lines	0.5
743	Spoil Area	0.1
814	Roads & Highways (Internal Access)	1.3
832	Electrical Power Transmission Lines	1.6

TOTAL ACRES: 50.1

FIGURE 5

LAND USE / COVER MAP

Source: ECT, 1999

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allowing the regrowth of vegetation. Currently, the area is vegetated by the same species as occur in the adjacent dry pine plantation, except for the planted pines.

Pine Plantation (Slash Pine)—441

Approximately 35.3 acres (70.4 percent) of the site contains slash pine plantation. The original natural pinelands in the area were cleared of the existing vegetation and have been planted with slash pine, harvested, and then replanted over the years. These silvicultural activities have significantly altered the vegetation composition/distribution of the pine stand over time. Currently, the pine plantation on the site is characterized by a dense canopy of even-aged slash pines approximately 20 years old. The site was recently burned. The controlled fire did not damage the planted pines, but much of the understory vegetation was consumed by the burn. Consequently, the understory layers were open and sparsely vegetated in places. The pine plantation on the site consists of both dry and wet communities. Dry pine plantation comprises 19.9 acres or 39.7 percent of the site. The dry pine plantations are characterized by the presence of bracken fern in the ground layer. Other nonwoody components of the ground layer include broomsedge, wiregrass, shoe buttons, blackberry, meadow beauty, slender goldenrod, and dichanthelium grasses. The shrub layer contains gallberry, saw palmetto, wax myrtle, fetterbush, staggerbush, winged sumac, beautyberry, and deerberry. The subcanopy contains widely spaced individuals of southern magnolia, titi, live oak, and water oak.

Approximately 15.4 acres or 30.7 percent of the site contains wet pine plantation. Wet pine plantation is situated along the landward edge of the natural drainage features on the site. Wet pine plantation has a subcanopy of swamp bay, sweet bay, titi, myrtle-leaf holly, laurel oak, and water oak. The shrub layer contains wax myrtle, sweet pepperbush, fetterbush, and sandweed. The herb layer is characterized by the presence of red root, broomsedge, pipewort, sedges, yellow-eyed grass, grassy arrowhead, netted chain fern, Virginia chain fern, royal fern, yellow colic-root, and trumpets. Vines also occur throughout the pine plantation and consist mostly of scuppernong, catbrier, bamboo-vine, wild sarsaparilla and poison ivy. The wet pine plantation areas are marginal wetlands of relatively low to moderate habitat quality.

Streams and Waterways (Ditches)—510

Ditches occur along the roadsides and as upland cut connections to the natural drainage features on the site. The ditched connections to the swamps on the site had standing water during the site surveys in the spring of 1999. The ditches are all small with the largest being approximately 10 ft in width and about 3 ft deep. The ditches support the growth of herbs along the shallow reaches of the ditch bottom, such as lance-leaf primrose willow, mermaids'-weed, red-top panicum, velvet grass, netted chain fern, pickerelweed, and grassy arrowhead. Shrubs, such as sweet pepperbush, fetterbush, titi, and black titi also occur along the ditch edges. The drainage ditches that partially cross the transmission line right-of-way and the site are about 0.4 acre in size or 0.8 percent of the site.

Cypress (Cypress-Titi Swamp)—621

This forested wetland community occurs on 10.2 acres (20.3 percent) of the site and forms the natural drainage patterns on the property. This swampland is dominated by pond cypress in the canopy. The dense subcanopy/shrub strata are vegetated by black titi, sweet bay, fetterbush, myrtle-leaf holly, titi, highbush blueberry, wax myrtle, large gallberry, and sweet pepperbush. The ground layer is rather depauperate consisting mostly of royal fern, netted chain fern, and Virginia chain fern. Cypress-titi swamp is a forested wetland of relatively moderate to high quality.

Marsh—641

A portion of the transmission line right-of-way that occurs along the southwestern corner of the site contains a marshy area. The marsh was probably created when cypress-titi swamp and/or wet pineland was cleared for construction of the power lines. This marsh area is periodically maintained in a slow growing, primarily herbaceous stage of growth. This marshy area is approximately 0.5 acre in size or 1 percent of the site. Herbaceous plants of the marsh include trumpets, red root, red-top panicum, grassy arrowhead, royal fern, lance-leaf primrose willow, pipewort, shore rush, and mermaid's-weed. Several root sprouts of woody species were also observed and include sweet bay, titi, and gallberry. This marsh habitat is of relatively low quality.

Spoil Areas—743

Spoil taken from the excavation of the ditches on the site was deposited in piles along the sides of the ditches. These spoil piles have become vegetated by plants primarily associated with the pine plantations. The largest spoil area occurs at the northwestern corner of the site (0.1 acre or 0.2 percent).

Roads and Highways (Internal Access Roads)—814

A roadway forms the southern site boundary and another roadway also crosses the most northern portion of the site. These roadways are unvegetated and occupy 1.3 acres (2.6 percent of the site).

Electrical Transmission Lines—832

A portion of an existing electrical transmission line right-of-way forms the western property boundary. The southern portion of the existing right-of-way consists of marsh (0.5 acre or 1 percent of the site). Another smaller area is crossed by a ditch (0.1 acre or 0.2 percent of the site). The remainder is upland, which occupies about 1.6 acres (3.2 percent) of the site. The upland portion of the right-of-way is maintained in an herbaceous stage of growth for safety and access reasons. The herbs and woody root sprouts in the upland areas are plants associated with the adjacent pine plantations.

2.2.1.2 Fauna

Presence and likelihood of onsite terrestrial vertebrates were assessed during site visits by terrestrial ecologists on March 8 through 9 and on April 7 through 8, 1999. Table 1 presents a list of wildlife species observed during the site surveys.

Birds

The approximately 50.1-acre Smith Unit 3 Project site consists of low slash pine plantation with wetland forest systems across the site. Approximately half of the site is considered uplands and half is considered wetlands. All of the property has been the subject of silvicultural activities for many years. Therefore, wildlife diversity is not especially high and contains those species normally expected in pine flatwoods habitats.

Table 1. Wildlife Species Observed Onsite March 8-9 and April 7-8, 1999

Common Name	Scientific Name
Amphibians	
Southern toad	*Bufo terrestris*
Pinewoods tree frog	*Hyla femoralis*
Cricket frog	*Acris gryllus*
Southern chorus frog	*Pseudacris nigrita*
Reptiles	
Florida box turtle	*Terrapene carolina bauri*
Dusky pygmy rattlesnake	*Sistrurus miliarius barbouri*
Birds	
Eastern brown pelican*	*Pelecanus occidentalis*
Southern bald eagle*	*Haliaeetus l. leucocephalus*
Red shouldered hawk	*Buteo lineatus*
American kestrel	*Falco sparverius*
Killdeer	*Charadrius vociferous*
Mourning dove	*Zenaida macroura*
Red-bellied woodpecker	*Melanerpes carolinus*
Pileated woodpecker	*Dryocopus pileatus*
Eastern phoebe	*Sayornis phoebe*
Great crested flycatcher	*Myiarchus crinitus*
Bluejay	*Cyanocitta cristata*
American crow	*Corvus brachyrhynchos*
Purple martin*	*Progne subis*
Carolina chickadee	*Parus carolinensis*
Tufted titmouse	*Parus bicolor*
Carolina wren	*Thryothorus ludovicianus*
American robin	*Turdus migratorius*
Gray catbird	*Dumetella carolinensis*
Northern mockingbird	*Mimus polyglottos*
Pine warbler	*Dendroica pinus*
Palm warbler	*Dendroica palmarum*
Common yellowthroat	*Geothlypis trichas*
Northern cardinal	*Cardinalis cardinalis*
Eastern towhee	*Pipilo erythrophthalmus*
Red-winged blackbird	*Agelaius phoeniceus*
Common grackle	*Quiscalus quiscala*
Mammals	
Opossum	*Didelphis virginiana*
Raccoon	*Procyon lotor*
Bobcat	*Felis rufus*
Eastern gray squirrel	*Sciurus carolinensis*
White-tailed deer	*Odocoileus virginianus*

*Species observed offsite near the existing Lansing Smith plant.

Source: ECT, 1999.

Lack of shrub wetlands or extensive marsh habitats onsite exclude the use of the site by wading bird species.

Shorebirds and other water-loving birds (e.g., eagles, ospreys) are present offsite to the south along St. Andrew Bay. Although such species may fly over the site, the habitats onsite do not represent valuable habitats for foraging or nesting for these species. No nests of these species were observed onsite. Common bird species present onsite include bluejays, cardinals, pine and palm warblers, chickadees, titmice, wrens, catbirds, mockingbirds, red-bellied woodpeckers, and red-shouldered hawks.

No listed bird species were observed onsite, although the listed brown pelican and bald eagle were observed offsite along the Lansing Smith Plant intake canal and near St. Andrew Bay.

Mammals

Common species of mammals are present onsite and evidence was found of five species: raccoon, opossum, bobcat, gray squirrel, and white-tailed deer.

Reptiles and Amphibians

The low wet habitats onsite support various amphibians and reptiles. Commonly heard amphibians included the pinewoods treefrog, cricket frog, and chorus frog. Reptiles observed included the Florida box turtle and dusky pygmy rattlesnake. Surveyors onsite reported seeing an eastern diamondback rattlesnake. The site is generally too low and wet to support the gopher tortoise or its commensals.

2.2.2 THREATENED AND ENDANGERED SPECIES

2.2.2.1 Flora

Potentially occurring listed plant species for the Project site are shown in Table 2. This list was derived from a review of the existing literature and the most recent databases of the U.S. Fish and Wildlife Service (USFWS), Florida Natural Areas Inventory (FNAI), and Florida Game and Fresh Water Fish Commission (FGFWFC). Listed plant species searches of the site were conducted in March through May 1999.

Table 2. Protected Plant Species Known to Occur in Bay County and Potential for Occurrence in the Project Area

Scientific Name Common Name	Designated Status USFWS	 State	Habitat	Likelihood of Occurrence
Andropogon arctatus Pine-woods bluestem	—	T	Flatwoods	Not likely; marginal habitat
Asclepias viridula Southern milkweed	—	T	Wet pinelands, flatwoods	Suitable habitat, species not observed on Project site
Aster spinulosus Pine-woods aster	—	E	Moist to dry pineland and swamps	Suitable habitat, species not observed on Project site
Baptisia megacarpa Apalachicola wild indigo	—	E	Woodlands, ravines, near streams	Not likely; suitable habitat lacking
Calamintha dentata Toothed savory	—	T	Sandhills, dry bluffs	No suitable habitat present
Calamovilfa curtissii Curtiss' sandgrass	—	T	Pineland, wet prairie, marsh	Suitable habitat, species not observed on Project site
Calycanthus floridus Sweet shrub	—	E	Slope and bottomland forest	Not likely; marginal habitat
Carex baltzellii Baltzell's sedge	—	T	Hammocks, bluffs	No suitable habitat present
Chrysopsis godfreyi Godfrey's golden aster	—	E	Dunes and scrub	No suitable habitat present
Cornus alternifolia Alternate-leaved dogwood	—	E	Rich woods, near streams	No suitable habitat present
Drosera filiformis Thread-leaf sundew	—	E	Edges of lakes	No suitable habitat present
Drosera intermedia Spoon-leaved sundew	—	T	Seepage slopes, wet flatwoods, marshes, sinkholes, ditches	Suitable habitat, species not observed on the Project site
Epidendron conopseum Green-fly orchid	—	C	Cypress and hardwood swamps, moist hammocks	Suitable habitat, species not observed on Project site
Eriocaulon nigrobracteatum Dark-headed hatpins	—	E	Seepage bogs	No suitable habitat present

Table 2. Protected Plant Species Known to Occur in Bay County and Potential for Occurrence in the Project Area

Scientific Name Common Name	Designated Status USFWS	 State	Habitat	Likelihood of Occurrence
Euphorbia telephioides Telephus spurge	T	E	Wet flatwoods	Suitable habitat, species not observed on Project site
Gentiana pennelliana Wiregrass gentian	—	E	Wet flatwoods, pine plantations, roadside ditches	High likelihood of occurrence
Habenaria nivea Snowy orchid	—	T	Bogs, wet pine savannas and flatwoods, wet prairies	No suitable habitat present
Hedeoma graveolens Mock pennyroyal	—	E	Sandhills, wet flatwoods, pond margins	High likelihood of occurrence
Hymenocallis henryae Panhandle spiderlily	—	E	Cypress, pine flatwoods, pine plantations	Present
Hypericum lissophloeus Smooth-barked St. John's wort	—	E	Pond margins, sinks	No suitable habitat present
Illicium floridanum Florida anise	—	T	Wooded ravines, steep heads, floodplain forest	No suitable habitat present
Kalmia latifolia Mountain laurel	—	T	Slope forest, river banks, creek swamps	No suitable habitat present
Lachnocaulon digynum Bog button	—	T	Wet acid sands, bogs, pond margins	No suitable habitat present
Lilium catesbaei Southern red lily	—	T	Wet flatwoods, bogs	No suitable habitat present
Lupinus westianus Gulf Coast lupine	—	T	Coastal dunes, disturbed open sandy areas	No suitable habitat present
Lycopodiella cernua Nodding club-moss	—	C	Wet depressions, ditches, moist areas	Suitable habitat, species not observed on Project site
Lythrum curtissii Curtiss' loosestrife	—	E	Swampy woods, seepages	No suitable habitat present

Table 2. Protected Plant Species Known to Occur in Bay County and Potential for Occurrence in the Project Area

Scientific Name Common Name	Designated Status USFWS	 State	Habitat	Likelihood of Occurrence
Macbridea alba White birds-in-a-nest	T	E	Wet pine flatwoods and savannahs	Suitable habitat, species not observed on Project site
Macranthera flammea Hummingbird flower	—	E	Bogs, acid swamps, creek banks	No suitable habitat present
Magnolia macrophylla Bigleaf magnolia	—	E	Bluffs, hammocks, bayheads	No suitable habitat present
Magnolia pyramidata Pyramid magnolia	—	E	Forest bluffs	No suitable habitat present
Osmunda cinnamomea Cinnamon fern	—	C	Swamps and wetland	Present
Osmunda regalis Royal fern	—	C	Swamps and wetlands	Present
Oxypolis filiformis sub. *greenmanii* Giant water-dropwort	—	E	Acid swamps, shallow water of cypress ponds and flatwoods depressions, roadside ditches	Suitable habitat, species not observed on the Project site
Paronychia chartacea Crystal lake nailwort	T	E	Shores of karst lake, scrub	No suitable habitat present
Physostegia godfreyi Apalachicola dragon-head	—	T	Bogs, pine flatwoods, savannas, ditches	Suitable habitat, species not observed on the Project site
Pinckneya bracteata Hairy fever tree	—	T	Bays, seepage swamps, hillside bogs	No suitable habitat present
Pinguicula ionantha Violet-flowered butterwort	T	E	Flatwoods, bogs, shallow water	High likelihood of occurrence
Pinguicula lutea Yellow butterwort	—	T	Bays, seepage swamps, hillside bogs	No suitable habitat present
Pinguicula planifolia Chapman's butterwort	—	T	Bogs, swamps, margins of peaty ponds, ditches and canals	No suitable habitat present

Table 2. Protected Plant Species Known to Occur in Bay County and Potential for Occurrence in the Project Area

Scientific Name Common Name	Designated Status USFWS	 State	Habitat	Likelihood of Occurrence
Pinguicula primuliflora Primrose-flowered butterwort	—	E	Shallow water, swamps, boggy banks, and seepage heads of streams	No suitable habitat present
Pityopsis flexuosa Bent golden aster	—	E	Sandy oak and pine woods	No suitable habitat present
Platanthera ciliaris Yellow fringed orchid	—	T	Bogs, swamps, marshes, pine savannas, flatwoods, floodplain forests, forest slopes	Suitable habitat, species not observed on Project site
Platanthera integra Yellow fringeless orchid	—	E	Swampy meadows, boggy depressions in wet woods	No suitable habitat present
Pogonia divaricata Rosebud orchid	—	T	Low pinelands and savannas, pitcher plant bogs, swamps, steep banks	Suitable habitat, species not observed on the Project site
Polygonella macrophylla Large-leaved jointweed	—	T	Sand pine-oak scrub	No suitable habitat present
Rhexia parviflora Small-flowered meadowbeauty	—	E	Margins of open cypress swamps	Suitable habitat, species not observed on the Project site
Rhexia salicifolia Panhandle meadowbeauty	—	T	Pond margins, coastal swales	No suitable habitat present
Rhynchospora crinipes Hairy-peduncled beakrush	—	E	Roadsides, ditches, pond borders	Suitable habitat, species not observed on the Project site
Rhynchospora stenophylla Narrow-leaved beakrush	—	T	Bogs, flatwoods	Suitable habitat, species not observed on the Project site
Rudbeckia nitida St. John's Susan	—	E	Moist flatwoods, prairies, roadside ditches	Suitable habitat, species not observed on the Project site
Sarracenia leucophylla White-top pitcherplant	—	E	Bogs, creek swamps, wet prairies	Suitable habitat, species not observed on the Project site

Table 2. Protected Plant Species Known to Occur in Bay County and Potential for Occurrence in the Project Area

Scientific Name Common Name	Designated Status USFWS	 State	Habitat	Likelihood of Occurrence
Sarracenia psittacina Parrot pitcher plant	—	T	Flatwoods, bogs	Suitable habitat, species not observed on the Project site
Sarracenia purpurea Decumbent pitcher plant	—	T	Bogs, swamps, savannas, flatwoods	Suitable habitat, species not observed on the Project site
Sarracenia rubra Sweet pitcherplant	—	T	Bogs, wet pinelands, seepage slopes	Not likely; marginal habitat
Scutellaria floridana Florida skullcap	E	E	Wet flatwoods, grassy openings	Not likely; marginal habitat
Silene virginica Virginia campion	—	E	Rich or dry woods	No suitable habitat present
Spiranthes laciniata Lace-lip	—	T	Swamps, marshes, flatwoods	Not likely; marginal habitat
Stewartia malacodendron Silky camellia	—	E	Bluffs, steepheads, bayheads	No suitable habitat present
Verbesina chapmanii Chapman's crownbeard	—	T	Wet flatwoods, seepage slopes	Present
Xyris isoetifolia Quillwort yellow-eyed grass	—	E	Bogs, acid pond margins	No suitable habitat present
Xyris longisepala Karst pond xyris	—	E	Margins of sandhill ponds	No suitable habitat present
Xyris scabrifolia Harper's yellow-eyed grass	—	T	Bog, seepage slope, wet prairie	Suitable habitat, species not observed on the Project site

Notes: USFWS = U.S. Fish and Wildlife Service.
State = Florida Department of Agriculture and Consumer Services.
E = Endangered.
T = Threatened.
C = Commercially exploited.

Source: ECT, 1999.

Four listed plant species were found on the site: royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), Panhandle spiderlily (*Hymenocallis henryrae*), and Chapman's crownbeard (*Verbesina chapmanii*). Royal fern and cinnamon fern occur within all of the wetlands on the site. These ferns are very common within the state of Florida. They are listed as commercially exploited species by the Florida Department of Agriculture and Consumer Services (FDACS) and it is illegal to remove them from a site without a property owner's permission. Panhandle spiderlily is a state-listed endangered species. This endemic spiderlily is a perennial herb with green and white flowers that are usually borne two per stem. It occurs in cypress depressions in flatwoods, margins of pine flatwoods, and the scrubby borders to pine plantations in Bay, Gulf, Liberty, and Walton Counties. It blooms from May through June. Several individuals of this rare spiderlily were present throughout the wet pine plantation and marsh on and immediately adjacent to the site.

Chapman's crownbeard (*Verbesina chapmanii*) is a perennial herb in the daisy family with opposite leaves and solitary yellowish-orange flowers. This composite inhabits wet flatwoods and seepage slopes within Bay, Franklin, Gulf, Liberty, Wakulla, and Washington Counties. It blooms May through August. This state-listed threatened species that is currently under federal consideration for listing has been found on the site along the existing transmission corridor.

Three other listed plant species have a high likelihood for occurrence on the site due to the presence of suitable habitat on the site and records for these species within the Project vicinity. Wiregrass gentian (*Gentiana pennelliana*) is a small herb with linear-spatulate leaves and solitary white flowers spotted with blue-green on the inside of the corolla. It occurs in wet flatwoods, slash pine plantations, and roadside ditches in Bay, Calhoun, Franklin, Gadsden, Gulf, Leon, Liberty, Wakulla, and Walton Counties. It blooms from October through February. This state-listed endangered species has been found just outside a 5-mile radius of the site. Potential habitat does exist on the site for wiregrass gentian; however, no populations of this species were observed on the Project site in March, April, or May 1999.

The Panhandle butterwort (*Pinguicula ionantha*) is a perennial herb with flat basal rosettes of bright green, gladular leaves and light violet to white flowers. This carnivorous plant occurs in flatwoods, bogs, and shallow water areas in Bay, Franklin, Gulf, Liberty, and Wakulla Counties. It blooms from February through April. This species, which is federally-listed as threatened and state-listed as endangered, has been found within a 5-mile radius of the site and could potentially occur on the property. However, Panhandle butterwort was not observed during the site surveys in March, April, or May 1999.

Mock pennyroyal (*Hedeoma [Stachydeoma] graveolens*) is an herbaceous to woody mint with white flowers having a lower lip with a distinctive mottled purple band and purple lobes. This species, which is being considered for federal listing, inhabits sandhills, wet flatwoods, and pond margins in Bay, Calhoun, Franklin, Leon, and Liberty Counties. It blooms from May through October. Populations of mock pennyroyal have been found at or just outside a 5-mile radius of the power plant site. Although potential habitat exists on the site, no individuals of mock pennyroyal were discovered during site searches in the spring of 1999.

Twenty-one other listed plant species were determined as potentially occurring on the site due to the availability of suitable habitat. None of these species were observed during the searches conducted on the property.

2.2.2.2 Fauna

Table 3 presents potentially occurring state or federally listed wildlife species on the site. The list was developed from the FNAI matrix, FGFWFC, and USFWS records as well as personal observations by Gulf employees or its consultants.

As previously mentioned, the only potentially occurring listed species actually observed were the Southern bald eagle and brown pelican. The eagle was observed flying offsite to the south of the site. This threatened species is not known to nest in the site vicinity. The nearest known nests are found approximately 5 miles to the east along North Bay (Pers.

Table 3. State or Federally Listed Wildlife Species Potentially Occurring Onsite

Common Name Scientific Name	Status USFWS	 FGFWFC	Likelihood of Occurrence
Amphibians			
Gopher frog *Rana capito*	—	SSC	Suitable habitat is marginal. Not likely to occur onsite.
Reptiles			
American alligator *Alligator mississippiensis*	T (S/A)	SSC	Marginal habitat exists onsite. Likelihood of occurrence is low.
Eastern indigo snake *Drymarchon corais couperi*	T	T	Suitable habitat is present; species not observed onsite.
Gopher tortoise *Gopherus polyphemus*	—	SSC	Suitable habitat is marginal due to wetness. Likelihood of occurrence is low.
Alligator snapping turtle *Macroclemys temminckii*	—	SSC	Suitable habitat is lacking. Not likely to occur onsite.
Florida pine snake *Pituophis melanoleucus mugitus*	—	SSC	Xeric habitats lacking; not likely to occur onsite.
Birds			
Little blue heron *Egretta caerula*	—	SSC	Suitable habitat is marginal. Likelihood of occurring onsite is low.
Snowy egret *Egretta thula*	—	SSC	Suitable habitat is marginal. Likelihood of occurring onsite is low.
Tricolored heron *Egretta tricolor*	—	SSC	Suitable habitat is marginal. Likelihood of occurring onsite is low.
White ibis *Eudocimus albus*	—	SSC	Suitable habitat is marginal. Likelihood of occurring onsite is low.
Arctic peregrine falcon *Falco peregrinus tundruis*	E (S/A)	E	Migratory species may forage over coastal areas near the site. Suitable habitat onsite is lacking.
Southeastern kestrel *Falco sparverius paulus*	—	T	Suitable habitat onsite is lacking. Corridor next to site may provide suitable foraging habitat.
Bald eagle *Haliaeetus l. lueocephalus*	T	T	Nesting habitat is lacking. Birds are present (foraging) just south of site along bay.
Woodstork *Mycteria americana*	E	E	Suitable habitat is marginal. Likelihood of occurrence onsite is

Table 3. State or Federally Listed Wildlife Species Potentially Occurring Onsite

Common Name Scientific Name	Status USFWS	 FGFWFC	Likelihood of Occurrence
			low.
Brown pelican *Pelecanus occidentalis*	—	SSC	Suitable habitat onsite is lacking. Birds use open water areas of bay and discharge canal to the south.
Red-cockaded woodpecker *Picoides borealis*	E	T	Nesting habitat is absent due to logging. Foraging habitat is present onsite. No known colonies within 5 miles.
Least tern *Sterna antillarum*	—	T	No known nesting within 5 miles of site. Habitat is lacking onsite.
Mammals			
Florida black bear *Ursus americanus floridanus*	—	T	Habitat is present although more suitable black bear habitat is several miles northwest of the site according to FGFWFC (1999).

Status:
E = endangered.
T = threatened.
SSC = species of special concern.
T (S/A) = threatened due to similarity of appearance.
E (S/A) = endangered due to similarity of appearance.
USFWS = U.S. Fish and Wildlife Service (1999).
FGFWFC = Florida Game and Fresh Water Fish Commission (1999).

Sources: FGFWFC, 1999; USFWS, 1999; FNAI, 1999; and ECT, 1999.

communication from FGFWFC, 1999). Certainly, the eagles forage along the bay near the existing Lansing Smith Plant, but the proposed Project site does not represent suitable habitat for foraging or nesting for this species.

The brown pelican, now listed as a species of special concern (SSC) by FGFWFC was observed along the existing Lansing Smith Plant's discharge canal southwest of the Project site. No significant habitats for this bird are present on the Project site.

No wading birds were observed onsite and the site does not contain any suitable nesting habitats for these species. Foraging would most likely be limited to the marshy area under the existing powerline right-of-way. The FGFWFC (Pers. communication, 1999) does not show any known wading bird colony sites within 6 miles of the Project site.

The nearest designated Critical Habitat is along the Gulf of Mexico on Shell Island and Crooked Island which has been designated Critical Habitat for the Choctawhatchee beach mouse (*Peronyscus polionotus allophrys*). This mouse is federally and state endangered. However, this habitat area is well over 15 miles from the Project site.

FNAI records indicate two other listed species occurring within 5 miles of the Project site. These are the red-cockaded woodpecker (*Picoides borealis*) and the Eastern indigo snake (*Drymarchon corais couperi*). The red-cockaded woodpecker has been reported 5 miles from the site to the northwest. There is no suitable habitat onsite due to past logging practices. The Eastern indigo snake has been reported approximately 4 miles away to the northeast. Habitat is suitable onsite for this species although none were observed during 4 days of wildlife surveys.

2.3 SOILS

The U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey for Bay County, depicts three mapping units covering the study site (see Figure 6). The majority of the site is mapped as Pottsburg sand (30), which is a "poorly drained, nearly level soil in the flatwoods with a water table within 10 inches of the surface for 3 to 6 months in most years." "Low-lying areas may be ponded for 2 to

FIGURE 6

SOILS MAP

Sources: Bay County Soil Survey, USGS 1984; ECT, 1999.

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6 months in rainy seasons." According to the Hydric Soils of Florida Handbook (1995, 2nd Edition), the Pottsburg map unit for Bay County is made up of 70 percent hydric soils and 30 percent nonhydric soils. This map unit has such an intermingling of soils with nonhydric and hydric characteristics over short distances, there is no way the different soils can be accurately depicted at the scale of the soil map. In addition, small wetlands within this soil map unit are often depicted with a "wet spot" symbol. For this study site, the three wet spot symbols represent a few of the cypress-titi wetlands.

The two minor soil mapping units cover a much smaller percentage of the study area. Rutlege sand (29) is a "very poorly drained, nearly level soil in slightly depressed areas with a water table at or near the surface for 4 to 6 months annually." "Many depressional areas are frequently flooded." This hydric soil and associated hydric soil inclusions are primarily found within the cypress-titi wetlands on the site. This includes the mapped area in the Soil Survey, within the designated wet spot areas, and other cypress-titi areas of the site.

The remaining soil mapping unit is Leon sand (13), which is a "poorly drained, nearly level soil in the flatwoods with a water table within 10 inches of the surface for 1 month to 4 months and within 10 to 40 inches for more than 9 months in most years." The Hydric Soils of Florida Handbook states that the Leon soil map unit is made up of 75 percent nonhydric soils and 25 percent hydric soils. The Soil Survey states that the major difference between the Leon and Pottsburg series include the depth at which the spodic (Bh) horizon occurs. The spodic horizon occurs within 30 inches and below 50 inches of the surface grade for the Leon and Pottsburg series, respectively. Even though these series have their own mapping units, they are considered normal inclusions within each other's mapping unit, which was very apparent from the soil borings taken at the site.

The most common hydric soil characteristics located on the study site included muck, mucky texture, dark surface, organic accretions, polychromatic matrix, and distinct and prominent mottles. Areas within the cypress-titi systems generally have muck and mucky texture hydric soil characteristics. The perimeter of these wetlands and low-lying planted pine areas have the dark surface and organic accretion hydric characteristics. The

most common hydric characteristics required for determining the delineation between hydric and nonhydric soils on this particular site included the dark surface, polychromatic matrix, and mottling. Since the site has been used for silviculture, it was important to accurately determine the presence and depth of characteristics used for evaluating whether the soil is hydric or nonhydric. Since the existing and previous pine stands on the site are over 10 years old, the least disturbed area for evaluating the soil characteristics included the 2-foot-wide flat areas between the furrows in the pine stands (Hydric Soils of Florida Handbook, page 63, hydric soil determinations in man-altered soils). This flat area is where the previous pine stands have been cut and represent the oldest disturbed soil within the pine stands. Being the oldest disturbed soils, hydric characteristics have developed within these flat areas over the 20 years. Due to past soil disturbance, borings were conducted within proximity of the majority of each wetland delineation flag location within the planted pines. Extensive borings were conducted within the planted pines where the ground vegetation had minimal cover of species normally found within nonhydric soils, such as saw palmetto and bracken fern. Since poorly drained, flatwood soils like Pottsburg and Leon soils can have hydric soil characteristics, it was important to determine whether these characteristics occurred within 6 inches of the surface grade for delineating hydric soil boundaries.

The results of the site review found that the soil map within the Soil Survey is as accurate as to be expected with the scale limitations. For the study area, the percentages of hydric soil characteristics within the Pottsburg soil is not quite as high as potentially occurs according to the map unit percentages within the Hydric Soils of Florida Handbook. Inclusions of nonhydric phases of Leon sand and other spodosols occur in many areas within the Pottsburg map unit. However, hydric phases of both Pottsburg and Leon occur within the transitional wetlands found within the planted pines, particularly the wetlands within the northern portion of the site. The percentage of Rutlege sand and inclusions of mucky and mucky textured hydric soils are more extensive than depicted in the Soil Survey, particularly within the southeastern portion of the site. Hydric soil characteristics were not found within the upland or nonwetland areas located outside of the wetland limits established for the site.

2.4 FLOOD ZONES

The Project site is located in flood zone C, an area of minimal flooding (see Figure 7). Construction of the Project with the attendant drainage plan should not increase flooding potential on the site nor subject adjacent properties to increased flooding.

2.5 SURFACE WATER

There are numerous fresh water wetlands intermixed with the pine plantations at and in the immediate vicinity of the. No natural lakes, ponds, streams, or rivers are found on the site. Most of these wetlands drain to the southwest or west, eventually to West Bay. No wetlands or surface waters at the site are either in an aquatic preserve or Outstanding Florida Water.

The marine environment of St. Andrew Bay is the major surface water feature in the site vicinity. This system has been well studied by Gulf and others. Currently, the Lansing Smith Plant uses surface water from North Bay for once-through cooling at Units 1 and 2. The cooling water is ultimately discharged through a nearly 2-mile-long canal to West Bay, where the thermal mixing zone occurs. The current discharge meets all applicable water quality standards for the Bay which is a Class II water.

2.5.1 FRESH WATER ENVIRONMENT

The site is located on the northern end of a peninsula between North and West Bays of St. Andrew Bay in Panama City, Florida. Four hydrologic subbasins surround the proposed site as shown in Figure 8. Surface water runoff generally flows from the northeast to southwest, discharging to the existing cooling water outflow canal of the existing power plant. Warren Bayou, which is located at the end of the outfall canal, has special seasonal harvest restrictions from the National Marine Fisheries Commission, and is a Class II surface water.

Surface waters in the area of the site consist of depressional features typically less than 12 inches in depth. These Class III surface water wetlands slowly convey runoff to the outfall canal. Stream sizes are of small width (less than 20 ft) with ephemeral flow habits. The floodplains of the streams are wide (greater than 10 times the channel width), with

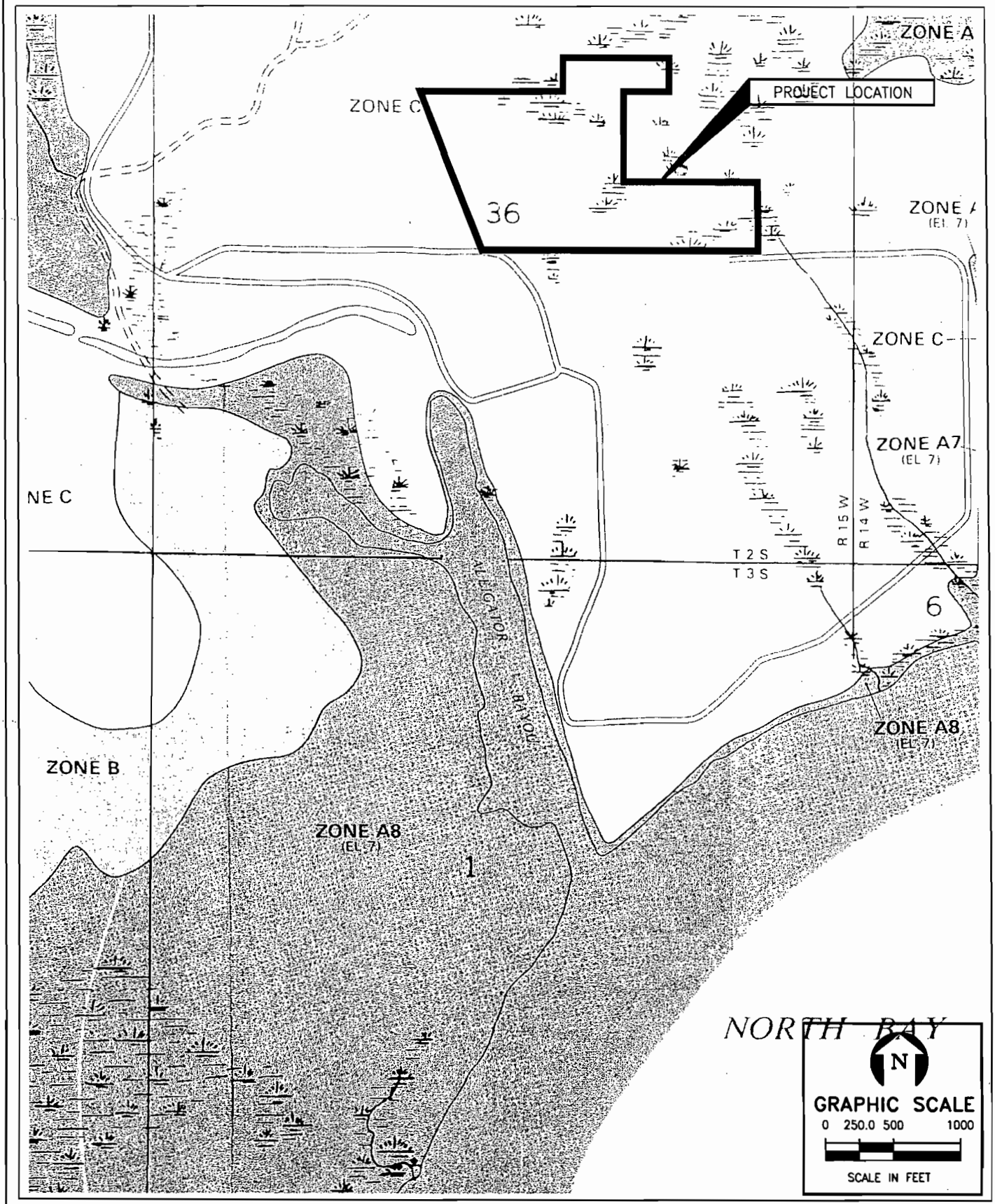

FIGURE 7

FLOODPLAINS MAP

Sources: Federal Emergency Management Agency; ECT, 1999.

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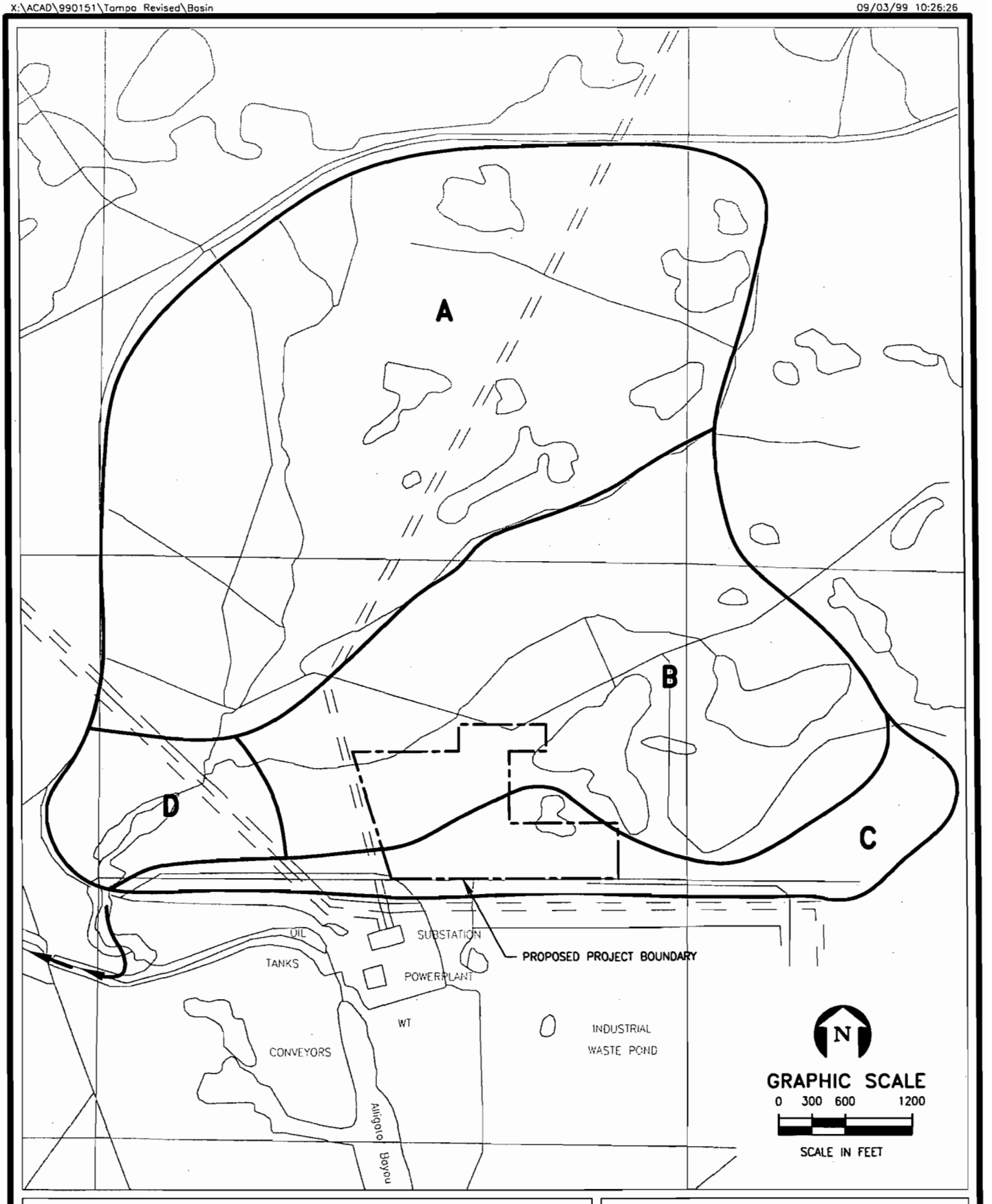

FIGURE 8

HYDROLOGIC BASINS MAP

Source: US Geodata, 1997; ECT, 1999.

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no apparent levees. Stream channels are not incised and are non-alluvial in nature. Tree coverage is greater than 90 percent along the banks of the streams. Sinuosity of the channels is generally straight, aided by the ditching as part of the silvicultural activities. Slopes in the vicinity of the site are mild (less than 0.1 percent). It has been estimated that the seasonal high water elevation for the site ranges from 8.6 to 9.0 ft NGVD. Normal pool which has been established in the drainage ditch on the property is at about the 6.9 ft elevation NGVD.

Flow rates for the subbasins are summarized in Table 4. Flows are generally low due to the mild slopes and significant depressional storage available at the site.

2.5.2 MARINE ENVIRONMENT

Gulf's existing Smith Plant uses water from North Bay of the St. Andrew Bay estuary system for its cooling water source and discharges into West Bay of the same estuary as shown in Figure 9. The proposed Smith Unit 3 Project will use the existing cooling system water as a cooling water source and discharge to the existing canal. Therefore, the baseline marine environment is described in this section. The St. Andrew Bay estuarine system is located in northwest Florida and encompasses an area of approximately 243 square kilometers (km^2) or 60,045 acres (Soil Conservation Service [SCS], 1998). Most of the bay's drainage basin is located in Bay County and totals approximately 2,683 km^2 or 1,036 square miles of flatwood forests, sinks and lakes, sand hills, and coastal beach sand dunes.

West Bay, which receives the existing once-through cooling water, covers an area of approximately 7,627 hectares (ha) (18,846 acres) or 31 percent of the total surface area of the St. Andrew Bay system. West Bay has a mean depth of approximately 2.1 meters (6.9 ft) and receives approximately 7 percent of the total basin stream flow from Crooked Creek and Burnt Mill Creek. Major bayous draining into West Bay include Harrison Bayou, Botheration Bayou, Doyle Bayou, Warren Bayou, and Johnson Bayou. West Bay is considered a positive estuary in that drainage inflow exceeds evaporation. This results in a net inflow of saline water along the bottom towards the head of the estuary and a net outflow of less dense (fresher) water along the surface toward the Gulf of Mexico. The

Table 4. Summary of Hydrologic Conditions

Basin	Hydrologic Soil Group	CN	TC (min)	Area (acres)	Runoff (cfs) 1-year	5-year	10-year	25-year	100 year
A	D	77	700	507.8	55	112	142	173	234
B	D	77	463	300.1	45	92	117	142	193
C	D	77	277	91.5	21	42	54	65	88
D	D	77	163	4.7	19	38	48	59	80

Note: CN = basin average curve number.
TC = time of concentration.

Runoff estimations were calculated using the Soil Conservation Services's Unit Hydrograph Methodology. Rainfall estimates for the site were taken from Soil Conservation Service's (1961) TP-40 for the 24-hour duration. The results reflect the site conditions for relatively long times of concentration due to the flat slopes and rills established during silvicultural activities at the site.

Source: Soil Conservation Service, 1961.

FIGURE 9
WEST BAY AND NORTH BAY OF ST. ANDREW ESTUARY SHOWING THE PLANT LOCATION AND INTAKE AND DISCHARGE CANALS

Source: SCS, 1998

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heavier, more saline waters from St. Andrew Bay are driven into the lowest layers of West Bay creating strong vertical density gradients due to differences in salinity concentration. This phenomenon occurs in West Bay even though this bay does not directly receive large volumes of fresh water. However, fresh water that North Bay receives from Deer Point Lake tends to be directed into West Bay by strong tidal currents in St. Andrew Bay. This results in large vertical differences in salinity concentrations in West Bay waters (SCS, 1998).

The cooling water discharge from the Lansing Smith Plant travels approximately 3,200 meters (3,501 yards) from the plant in a manmade canal and discharges into Warren Bayou and ultimately into West Bay, as shown in Figure 9. West Bay has very little commercial or residential development along its shores. Salt marsh and low swampy areas form most of the bay shorelines. A major alteration of the shoreline has occurred on both sides of Warren Bayou where Marifarms, Inc., constructed extensive dikes to create large ponds during the 1970s for shrimp farming. After Marifarms, Inc., ceased operations, the dikes were breached during the mid-1980s to allow the former marsh to become re-established. Salt marsh, dominated principally by black needlerush *(Juncus roemerianus)* and smooth cordgrass *(Spartina alterniflora),* forms most of the bay shoreline. Seagrass beds comprised of turtle grass *(Thalassia testudinum),* shoal grass *(Halodule wrightii),* and widgeon grass *(Ruppia sp.)* extend in the direction of the bay from shoreline mudflats to approximately the 2.0-meter (6.56 ft) depth contour (SCS, 1998).

Tides in West Bay are predominantly diurnal (i.e., one high and one low water level per day). The average difference in height between mean high water and mean low water is approximately 0.5 meter. Mean tide level is approximately 0.2 meter (0.66 ft) above the mean sea level (msl) of 0.0 meter. Extreme low water occurs at approximately -0.6 meter (1.97 ft) msl. Daily tide cycles for West Bay are predicted from the Pensacola, Florida, tidal reference station for a subordinate tidal station located near the mouth of West Bay Creek (Intercoastal Waterway). High water levels in West Bay occur 18 minutes after high water levels at Pensacola and are slightly higher (<0.1 meter, or 0.33 ft). Low water levels in West Bay occur approximately 83 minutes later than in Pensacola. Low water

level height predictions for West Bay are lower (<0.1 meter, or 0.33 ft) than in Pensacola (SCS, 1998).

West Bay has several distinct hydrological zones that are defined by tidal fluctuations. The salt marsh that lies along most of the shoreline is inundated at high tide and partially or wholly exposed during low tide periods. The marsh acts as a natural filter for the fresh water inputs flowing through them. Biologically, they provide food and habitat for marine organisms, and they are important nursery areas for a variety of fin and shellfish. The mud flats lying along the shore are a transition zone between marsh and marine pelagic ecosystems. Silt, plant, and animal detritus tend to settle out in this zone leaving an organic, anaerobic layer. The mud flats are normally exposed during low tides, and water depths at high tide vary between 0.2 to 0.5 meter (0.66 to 1.64 ft). The 0.3 to 0.9-meter (0.98 to 2.95 ft) depth contour area extending seaward from the mudflats consists of the intertidal zone (frequently exposed at low tide) and the infratidal zone (exposed at extreme low tides). In some areas of the bay, this zone may extend up to 1,234 meters (1,350 yards) from shore. In the area around Warren Bayou, the surface area between the 0.3 and 0.9-meter (0.98 and 2.95 ft) depth contour is the most extensive shallow water zone. At extreme low water (-0.6 meter, or 1.97 ft below msl) most of this area can be left exposed, but during normal low tides, the depth contour area greater than 0.3 meter (0.98 ft) is always covered with water. The 1.2- to 1.8-meter depth contour marks the beginning of the pelagic or open water zone. This zone is always covered with water. The 1.8-meter depth contour line is the transition zone between the shallow water and deeper bay water. The deep-water zones include the 2.1- to 3.7-meter (6.89 to 12.14 ft) depth contour, 4- to 5.5-meter (13.12 to 18.05 ft) depth contour, and greater than 5.8-meter (19.02 ft) depth contour (SCS, 1998).

North Bay (Figure 9), the source of the Lansing Smith Plant's cooling water, covers an area of approximately 3,569 ha (8,819 acres) or 15 percent of the total surface area of the St. Andrew Bay system. Average depth of the bay is approximately 3 meters (9.8 ft) at 0.0 msl tide. Deer Point Lake, to the northeast of the plant, is the major fresh water input into North Bay. Bear Creek and Econfina Creek are the major tributaries to Deer Point

Lake. These two streams contribute approximately 60 percent of the total basin stream flow to the St. Andrew Bay system.

Tidal characteristics in North Bay are similar to those of West Bay. Mean tide level (0.2 meter, or 0.66 ft) diurnal range in tide level (0.5 meter, or 1.64 ft), and extreme low water (-0.6 meter, or 1.97 ft-msl) are the same in North Bay as in West Bay.

The phase of the tide for North Bay differs from West Bay and is predicted from the Pensacola, Florida, tidal reference station to the Lynn Haven subordinate station. High water level in North Bay occurs approximately 6 minutes earlier than in Pensacola and 24 minutes earlier than in West Bay. Low water level in North Bay occurs approximately 20 minutes later than in Pensacola and 63 minutes earlier than in West Bay. Water level height predictions for North Bay and West Bay are similar—that is, high water level predictions are higher (<0.1 meter, or 0.33 ft) and low water level predictions are lower (<0.1 meter, or 0.33 ft) than in Pensacola (SCS, 1998).

3.0 ENVIRONMENTAL CONSIDERATIONS

3.1 CONSTRUCTION IMPACTS AND TECHNIQUES

Figure 10 illustrates the plot plan of the Smith Unit 3 power plant facility. The area to be utilized for the construction of Smith Unit 3 is approximately 32.7 acres of the 50.1-acre Project site. The remainder of the property will remain as planted pine, subject to harvesting, or as undisturbed wetlands. The 32.7-acre area includes the power block, the construction laydown area, the new switchyard, ancillary facilities, the gas metering station, and the storm water ponds. Approximately 28 of the total acres will be filled to overcome the limitations of the native soils, to provide a stable base for the proposed development, and to minimize the likelihood of flooding. The proposed elevation of Smith Unit 3 will be similar to that of the existing adjacent Lansing Smith plant site. The existing elevation of the Project site is approximately 5 to 8 ft-msl. The proposed elevation is approximately 10 ft-msl. The remaining 4± acres proposed for development are for the construction of storm water treatment and storage ponds.

3.1.1 GENERAL CONSTRUCTION IMPACTS

The general site preparation and construction activities associated with the overall development of the Project site include the following:

- Construction of temporary storm water basins/ditches.
- Sequential dewatering of low areas of the site.
- Clearing/grubbing of all uncleared portions of the construction area and laydown area.
- Stabilizing, grading, filling, and contouring the area for power plant facilities.
- Construction of permanent storm water management basins.
- Performing ground work as necessary for construction of facility footings; foundations; and underground utilities, including electrical, water, wastewater, and other piping systems.
- Power plant facilities construction.
- Earthmoving, grading, recontouring, and landscaping.

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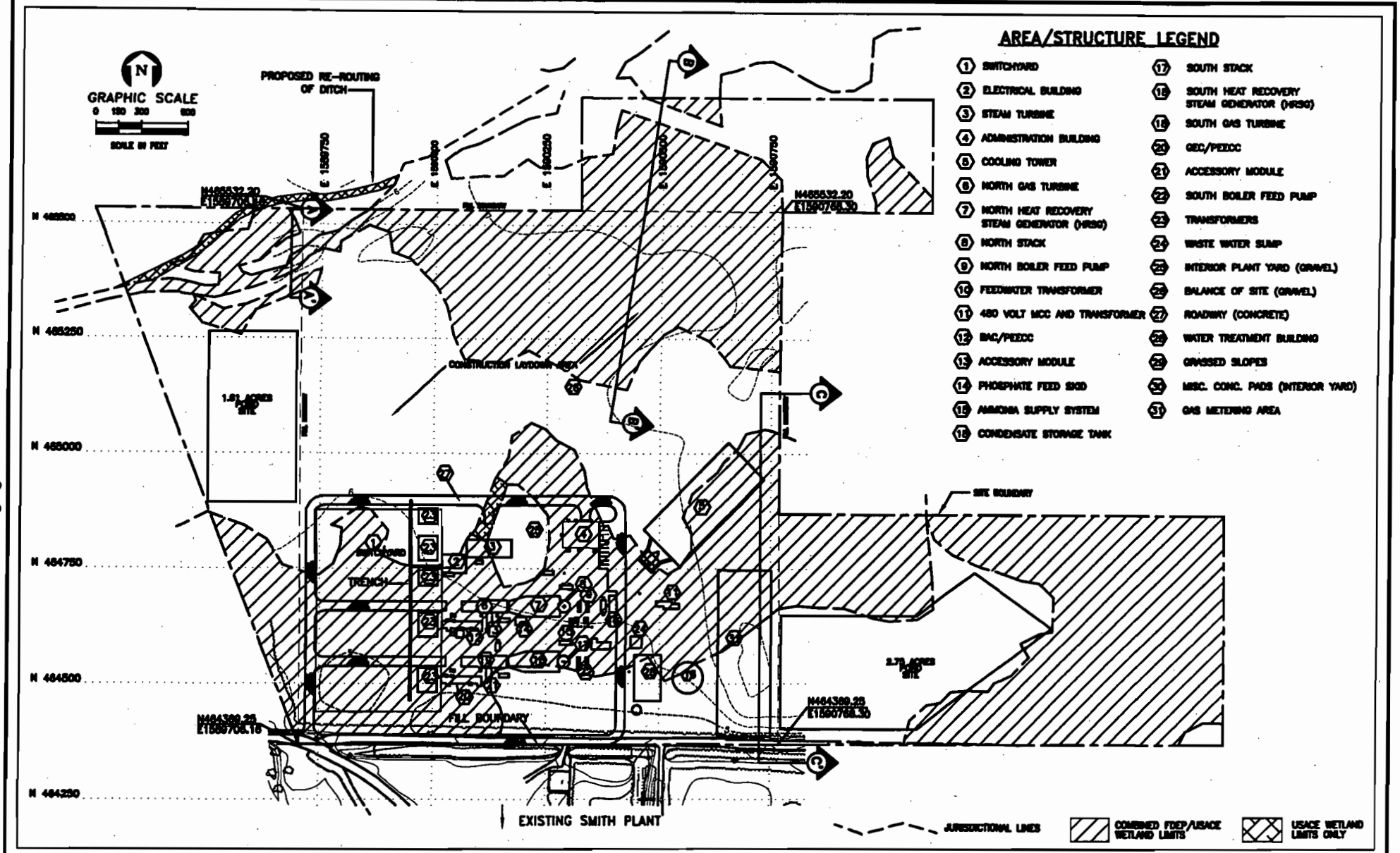

FIGURE 10

PLOT PLAN

Sources: Gulf Power, 1999; ECT, 1999.

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Site preparation will consist of clearing and grubbing, followed by grading and leveling. Approximately 32.7 acres of the 50.1-acre site will require clearing. Vegetative debris from site clearing will be disposed in accordance with local requirements. Topsoil that is suitable for reuse will be stockpiled for landscaping and in establishing vegetation after construction has been completed. During early site preparation activities, temporary storm water management structures and soil erosion and sedimentation control devices (e.g., ditches, retention basin, berms, siltation fencing, and/or hay bales) will be used to minimize runoff during the construction phase. Site preparation and construction activities will not require any explosives. Suitable clean fill material will be imported to the site from one or two local Bay County borrow pits.

In addition to fill material used from outside sources, Gulf has proposed the use of fly ash generated by Smith Units 1 and 2 as a fill material. Fly ash is an industrial coal-combustion by-product generated at the existing coal-fired units. The fly ash is currently stored in the ash pond, but can be dewatered and used for fill material. The U.S. Environmental Protection Agency (EPA), in its March 8, 1999, report to Congress, recognizes coal combustion by-products as generally benign substances possessing low risk as an environmental contaminant and encourages the utilization of coal combustion by-products. FDEP is reviewing the composition of Smith's fly ash and supporting documentation and is expected to ultimately approve its use pending the results of additional testing. The use of fly ash as a fill substitute will reduce the outside fill requirements by as much as 235,000 cubic yards and could eliminate up to 11,000 truckloads of fill hauling (22,000 trips on local roadways). The following subsections provide additional details on general construction impacts.

3.1.2 USE OF EXPLOSIVES

The Project will not use explosives for any portion of the construction work.

3.1.3 LAYDOWN AREAS

Laydown areas for storage of construction materials and plant equipment components will be required for construction of the Project. Approximately 14 acres of land will be

needed for storage and staging of materials and equipment. The area north of the Smith Unit 3 power block will be used as onsite laydown and storage.

Laydown areas will be cleared of existing vegetation, graded for proper drainage, and a course of gravel base material applied (if necessary). Wood timbers will be used, as appropriate, to help keep plant equipment components and materials stored safely off the ground. After construction is complete, wood timbers in the laydown area will be removed and the surface areas will be graded for drainage and planted with grass for erosion control.

3.1.4 TEMPORARY AND PERMANENT PLANT ROADS

An existing unpaved road originating from CR 2300 provides access to the Project site. This plant access road will be improved and maintained during the construction phase of the Project. Road improvements during the construction phase include grading the existing surface and applying base course and gravel materials to the graded surface to accommodate construction traffic.

After construction of the power plant is complete, final improvements will be made to the site access road to convert it into a permanent plant road. The permanent plant road will be designed to handle the heaviest expected load during the life of the plant. Runoff collected from the road will be directed to the onsite collection system and routed to the storm water treatment ponds for treatment and storage.

3.1.5 RAILROADS

There are no railroads within or proximate to the Project site. Heavy plant equipment components, including the combustion turbine generators (CTGs), heat recovery steam generators (HRSGs), transformers, condenser, and boiler feed water pumps, will be shipped to the site via barge. The equipment will be offloaded at the Lansing Smith plant via the existing intake canal from Alligator Bayou. Heavy haul trailers will be used to deliver the equipment to the site.

3.1.6 BRIDGES

There are no overhead bridges within or proximate to the Project site. Most of the heavy plant equipment will arrive by barge to the existing Lansing Smith site.

3.1.7 SERVICE LINES

The Smith Unit 3 CTGs will operate on natural gas. Florida Gas Transmission (FGT) will design, furnish, install, and maintain an underground pipeline (and gas metering station) that will supply natural gas to the site on a continuous basis.

Pipelines for well water, sanitary sewer, and potable water will be installed, as necessary, to provide these services to the Smith Unit 3 as interconnections with existing facilities of the Lansing Smith plant.

3.1.8 DISPOSAL OF TRASH AND OTHER CONSTRUCTION WASTES

No significant impacts from construction wastes are anticipated. During construction, the craft and management labor force will utilize portable chemical toilets. A qualified and licensed contractor will furnish the toilets, along with routine maintenance and service. Sanitary wastes generated during construction will be removed from the site, transported, and properly disposed by the contractor in an approved disposal and treatment facility. All portable toilets will be removed from the plant site upon completion of the construction phase of the Project.

The Project will attempt to minimize the amount of construction waste generated and will seek to segregate and recycle as much waste material as possible. As mentioned earlier, Gulf proposes reuse of fly ash from Smith Units 1 and 2 for fill material. Certain construction wastes, such as scrap steel, aluminum, copper, lumber, paper, and cardboard, etc., may be segregated for recycling, providing there is sufficient interest from local recycling firms. An authorized and licensed waste handling contractor will remove all other construction waste materials from the site for proper disposal at the Bay County Steelfield landfill.

3.1.9 CLEARING, SITE PREPARATION, AND EARTHWORK

The Project area will be cleared of all vegetation and organic matter. Rough grading, excavation, and backfill activities will be performed to prepare the site for underground utilities, concrete foundations, and surface drainage. Backfill materials will be imported to the site from Bay County borrow pits for constructing concrete foundations, to raise the existing site elevation to overcome native soil limitations, to provide a stable base, and to approximately match the elevation of the existing Lansing Smith plant site.

After construction of the new Project is essentially complete, any remaining areas that do not have an impervious surface will be revegetated with native grasses and plant life.

3.1.10 IMPACT OF CONSTRUCTION ACTIVITIES ON EXISTING TERRAIN

The existing terrain is relatively flat with an average of less than 0.5 percent slope. The majority of site runoff drains to the west. As previously stated, the Project site will be cleared, graded, and contoured to ensure adequate drainage, and to raise the existing site elevation to approximately that of the existing Lansing Smith plant site.

A storm water gravity flow collection system and detention ponds will be constructed to attenuate the required volume of runoff collected from the Project site. A series of swales, ditches, and basins will collect surface storm water and transport it to the detention ponds. The postdevelopment drainage pattern for the site will very closely match the predevelopment drainage pattern. The storm water detention ponds will discharge to existing wetlands located west of the Smith Unit 3 site.

Construction activities will involve equipment, such as dozers, scrapers, graders, loaders, haul trucks, compactors, dewatering pumps, cranes, welding machines, air compressors, concrete pumps, cranes, forklifts, etc. Fugitive dust and internal combustion engine emissions and noise will be generated during the construction phase of the Project.

3.1.11 ROADS

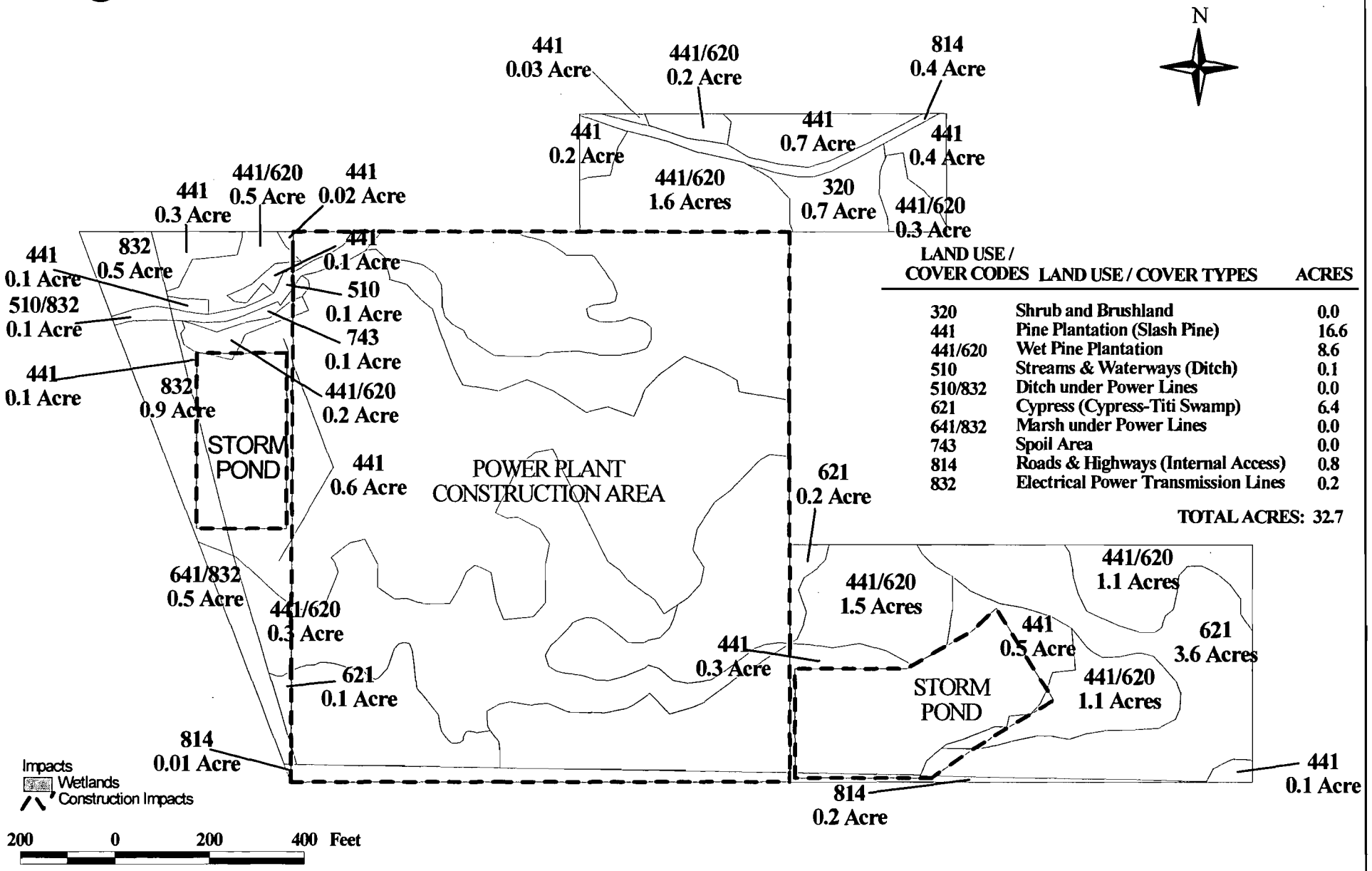
Access for the construction activities will be provided by an existing access road from CR 2300. CR 2300 connects to SR 77 in a "T" intersection. No new roads are proposed for construction as a result of this Project.

3.2 ECOLOGICAL IMPACTS

3.2.1 TERRESTRIAL SYSTEMS

Figure 10 depicts the surveyed boundaries of wetlands claimed by both the FDEP and USACE. The power plant and associated onsite facilities such as parking lots, maintenance building, offices, storm water retention and sedimentation ponds, switchyard, gas metering station, water treatment facilities, cooling towers, and construction laydown areas will occupy approximately 32.7 acres of land. Of this, approximately 16.7 acres are upland communities and 15.2 acres are FDEP wetlands (i.e., 6.4 acres of cypress-titi swamp, 0.2 acre of ditch, and 8.6 acres of wet pine plantation). The remaining 0.8-acre consists of internal access roadway. For federal review, there are 16.6 acres of uplands and 15.3 acres of USACE wetlands (i.e., 6.4 acres of cypress-titi swamp, 0.2 acre of ditch, and 8.7 acres of wet pine plantation). Figure 11 shows the areas impacted and the locations and extent of the remaining land use and vegetation types occurring within the Project area to be developed. To compensate for the loss of wetlands resulting from construction of the proposed Project, a mitigation plan has been proposed for agency approval (see Section 5.2).

Approximately 0.7 acre of shrub and brush; 3.4 acres of upland slash pine plantation; 6.8 acres of wet pine plantation; 0.2 acre of ditch, 3.8 acres of cypress-titi swamp; 0.5 acre of marsh; 0.1 acre of spoil; 0.5 acre of road; and 1.4 acres of ruderal, maintained upland habitat under the power lines will be left intact. The plant communities/wildlife habitats to be left intact on the site and other undisturbed uplands and wetlands in the Project vicinity have the potential to be indirectly affected. These secondary effects could include a temporary lowering of ground water levels, increased sedimentation, increased surface runoff, erosion, fugitive dust, and damage due to heavy equipment movement.



LAND USE / COVER CODES	LAND USE / COVER TYPES	ACRES
320	Shrub and Brushland	0.0
441	Pine Plantation (Slash Pine)	16.6
441/620	Wet Pine Plantation	8.6
510	Streams & Waterways (Ditch)	0.1
510/832	Ditch under Power Lines	0.0
621	Cypress (Cypress-Titi Swamp)	6.4
641/832	Marsh under Power Lines	0.0
743	Spoil Area	0.0
814	Roads & Highways (Internal Access)	0.8
832	Electrical Power Transmission Lines	0.2

TOTAL ACRES: 32.7

FIGURE 11

LAND USE / COVER CONSTRUCTION IMPACTS

Source: ECT, 1999

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However, the utilization of Best Management Practices (BMPs) during construction should ensure minimal or no secondary impacts to offsite plant communities.

All of the plant species considered to be of local and/or regional importance by USFWS, FNAI, and FGFWFC (FDACS) were reviewed for actual presence or likelihood of occurrence on the site based upon range and habitat suitability. Of the 63 plant species reviewed which are known to occur in Bay County (Table 2), 27 species were determined as possibly occurring on the site due to the availability of suitable habitat. Of these, four were observed on the site. These are royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), Chapman's crownbeard (*Verbesina chapmanii*), and panhandle spiderlily (*Hymenocallis henryae*). Royal fern and cinnamon fern are listed by the State due to the potential for commercial exploitation rather than any endangerment; they are common and found throughout Florida. Royal ferns and cinnamon ferns were observed to be occasional within the wetlands situated within areas of proposed power plant construction. Since royal ferns and cinnamon ferns are common throughout the region, no significant impacts to regional populations will be associated with power plant development. Only a very small portion of the existing transmission line right-of-way (0.2 acre) is scheduled for development of a storm water pond. Chapman's crownbeard was observed growing throughout the open, maintained grassy areas underneath the transmission lines. No significant impacts to regional populations of Chapman's crownbeard should be associated with the proposed activities. Panhandle spiderlilies are extremely rare and only occur within a few counties in the Florida Panhandle. Currently, this state-listed endangered species is a candidate for federal listing. Several individuals of this rare spiderlily are located within the wetlands to be developed on the site. These spiderlilies should transplant easily. Therefore, to mitigate for any potential impacts to regional populations, all of the spiderlilies growing within the areas of construction will be relocated into similar wetland habitats on Gulf's property that will not be disturbed by the proposed development activities.

Construction impacts to wildlife resources at the Project site may occur in the form of direct impacts (displacement, mortality) in the proposed construction area or indirect impacts (noise, human presence) in preserved onsite and surrounding natural habitats. In

the area to be cleared for construction, mobile fauna will be displaced. Less motile or fossorial species may be lost during clearing and earth-moving activities. No impacts to listed species of wildlife are anticipated as a result of the proposed action.

The most conspicuous faunal elements are birds. It is unlikely that the clearing of about 32.7 acres of natural habitat will impact regional bird populations due to their mobility and abundance of similar, adjacent habitat. Also, many of the bird species observed are adaptable to human-induced habitat changes. Reptiles and amphibians are more likely to be affected by construction. To decrease the risk of mortality of these less motile animals, the site will be directionally cleared to provide opportunity for these animals to retreat to the offsite pine flatwoods to the west, north, and east of the construction site.

3.2.2 AQUATIC SYSTEMS

3.2.2.1 Aquatic Systems – Fresh Water

There are no natural open water aquatic systems (ponds, lakes, or streams) on the site. The only aquatic resources potentially impacted by this Project are manmade ditches located onsite. Ditches on the site consist of roadside ditches and the drainage ditch connection to the natural forested wetlands on the property. The latter of these ditches will be rerouted around the construction area to maintain pre-construction flows.

There is a possibility of offsite secondary impacts to the downstream reaches of the drainage features onsite. Land clearing and construction activities could cause increased turbidity and siltation due to eroded materials being transported by surface runoff. By using BMPs during construction (e.g., silt fencing and/or hay bales), potential increases in turbidity and sedimentation in downstream reaches will be minimized. With these controls in place, aquatic species will not be significantly impacted by construction activities.

3.2.2.2 Aquatic Systems—Marine

The construction impacts to the marine aquatic ecology will be limited to the offloading of equipment from barges via the existing discharge canal near the plant. The use of the intake canal for delivery of construction supplies via barge should have minimal effect on

the aquatic ecology because the canal is already being used to barge coal to the facility. No additional construction in the intake canal is required.

The construction impacts on the aquatic ecology in the discharge canal will be limited to increased turbidity due to installation of the cooling tower intake and discharge structures. Approved construction techniques will be used and the extent of the turbidity will be minimized by using silt screens as practical. Impacts are expected to be temporary with no long-term effects.

3.3 IMPACT OF SURFACE WATER BODIES AND USES

3.3.1 FRESH WATER SYSTEMS

Portions of the plant will be located on existing wetland systems. Natural drainage patterns through the wetland systems are from the east to the southwest. Two locations are impacted where flows move through the existing site. The wetland system on the southern portion of the site currently discharges to a ditch located on the south side of the site boundary through an 18-inch culvert. To accommodate offsite areas draining to this area, two 18-inch culverts will be installed just east of the site to allow flows to continue discharging to the same ditch. Pre-existing flow which currently moves through the ditch on the northwest corner of the site will be re-routed around the proposed plant site. The re-routing will allow for the same capacity of flow to discharge through the redirected channel.

Adjacent wetland systems will be protected with sediment and erosion control systems. Silt fencing, hay bales, sediment sumps, vegetative covers, and other methods will be used to minimize impacts during construction.

Wetland systems adjacent to the site will not be used by the Project for any specific purpose other than as a buffer. The undisturbed wetlands will remain viable through the maintenance of site hydrology.

3.3.2 MARINE WATERS

The construction impacts on the marine water quality will be limited to construction activities in the existing plant's discharge tunnel. No additional dredging of the intake canal is needed to accommodate the supply barges. The canal is currently used to barge coal to the facility.

Water quality impacts in the discharge canal during construction will be limited to activities during construction of the cooling tower blowdown discharge structure and the new intake structure for cooling tower makeup water. Both these pipes will be installed within the existing Smith cooling water discharge housing. The impacts are expected to be limited to minor increases in turbidity during construction. Approved construction techniques will be used and the extent of the turbidity will be minimized by using silt screens as practical. The impacts are expected to be temporary with no long-term effects.

3.4 ALTERNATIVES ANALYSIS

Gulf Power endeavored to minimize or mitigate environmental impacts due to construction of the Smith Unit 3 Project early on in the site selection process. Site selection was dictated, in large part, by the environmental suitability of various options. As part of its self-build option, Gulf evaluated four options:

- Participation in Mississippi Power Company's (MPCo's) Daniel Combined Cycle (CC) Project.
- Construction of combustion turbine generators at Smith Plant.
- Construction of a CC unit at Smith Plant.
- Participation in a cogeneration project in the Pensacola area.

The evaluation process, which began in the fall of 1997, was completed in April 1998. In the final analysis, the evaluation considered options that were comparable in size to a 2-on-1, F-Class CC technology (~500 MW), and included all incremental costs associated with the installation of each alternative.

The process of selecting a site for the new generation was driven by two factors: (1) the need to be in Panama City and surrounding areas, and (2) the objective of locating close

to existing power plant-related infrastructure. The results of the evaluation showed that the Smith CC unit, with the construction of a new gas pipeline, was the lowest cost alternative. Although energy savings was a major factor in the evaluation process, the primary factor that eliminated many of the options was the cost and potential environmental impacts of the transmission improvements required to support new generation at any location outside of the Panama City area. Regarding existing infrastructure, the most logical site in the Panama City area was Gulf Power's existing Lansing Smith Electric Generating Facility. This site required almost no additional transmission line work, additional surface water withdrawals, or wastewater provisions. Additionally, the site is well buffered from other land uses, residences, and area developments. Therefore, the other three options described previously were dropped from further consideration, and Gulf elected to build a CC unit at the existing Smith Electrical Generating Plant site.

Gulf owns 600+ acres surrounding the site for Lansing Smith Units 1 and 2. The 600+ acres of land holdings at the Smith Electrical Generating Plant site were investigated initially by reviewing the data sources available from various governmental entities such as FDEP, USFWS, and SCS. Figure 12 provides a land use/cover mapping of Gulf's land holdings at the plant sites. The majority of the available land for power plant siting occurs to the north of the existing power plant facilities (i.e., land located west and east of the existing facilities is not adequate for the construction of a 50-acre power plant site). This area mostly contains pine plantation with forested wetlands scattered throughout. To get a better "picture" of the extent of wetlands on the site, a National Wetlands Inventory (NWI) map of the land holdings was produced (see Figure 13). The NWI map indicates that wetlands are much more extensive in the siting area than shown on the land use/cover map. A mapping of the soil types for the same area also indicates that the siting area at the very least supports soils that are all either wholly or partly hydric (see Figure 14). To further the investigation of potential power plant sites on the property, two experienced biologists with expertise in soil science, wetlands ecology, and/or botany conducted a field survey of the land holdings in an effort to more accurately map the existing site features. The results of the survey are provided in Figure 15.

NOTE: LANDS LOCATED OUTSIDE OF GULF POWER PROPERTY BOUNDARIES ARE OWNED BY ST. JOE PAPER COMPANY

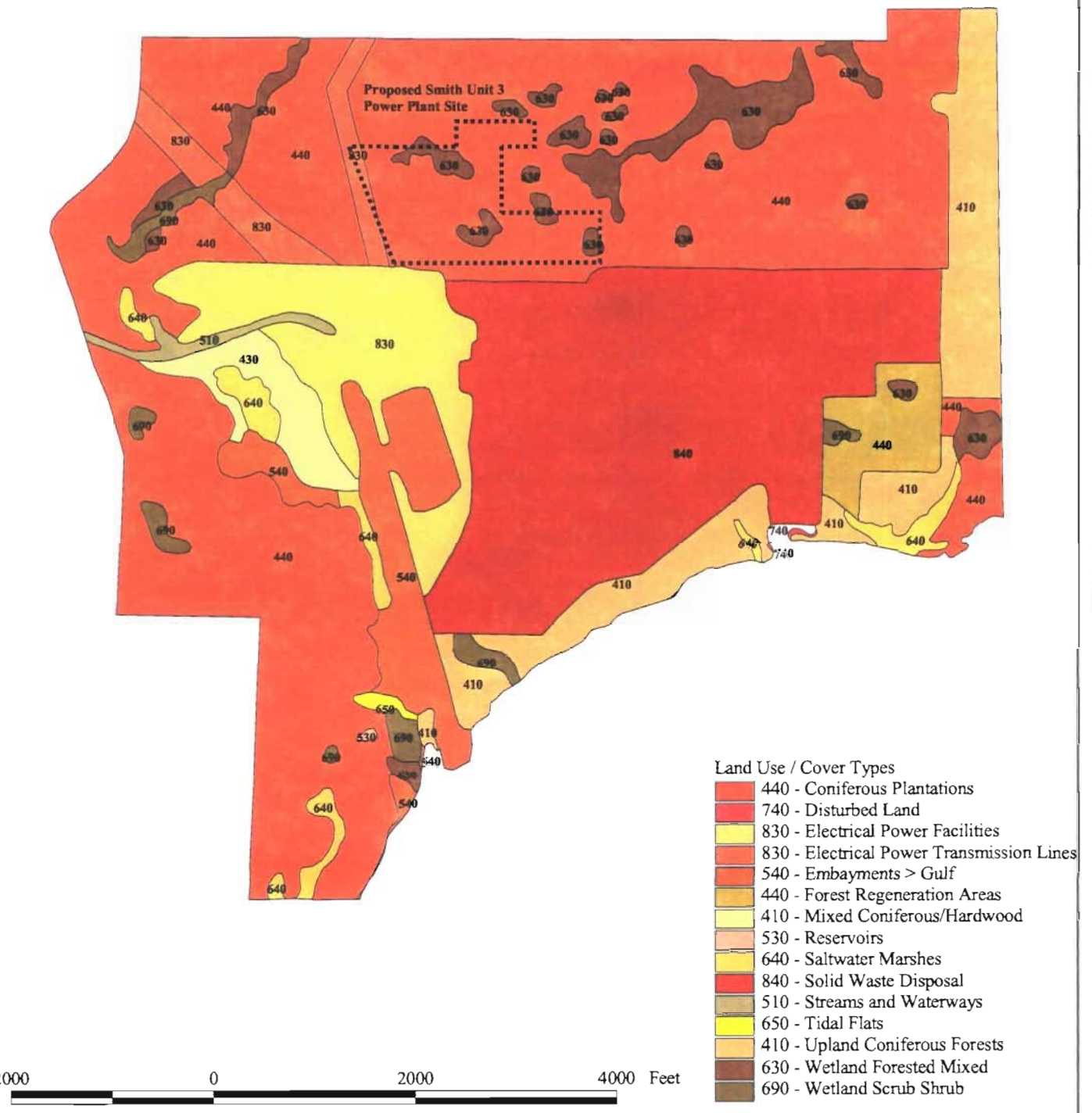

FIGURE 12

LAND USE / COVER MAP OF THE GULF POWER COMPANY LAND HOLDINGS AT THE SMITH ELECTRICAL GENERATING PLANT

Source: FDEP, 1999

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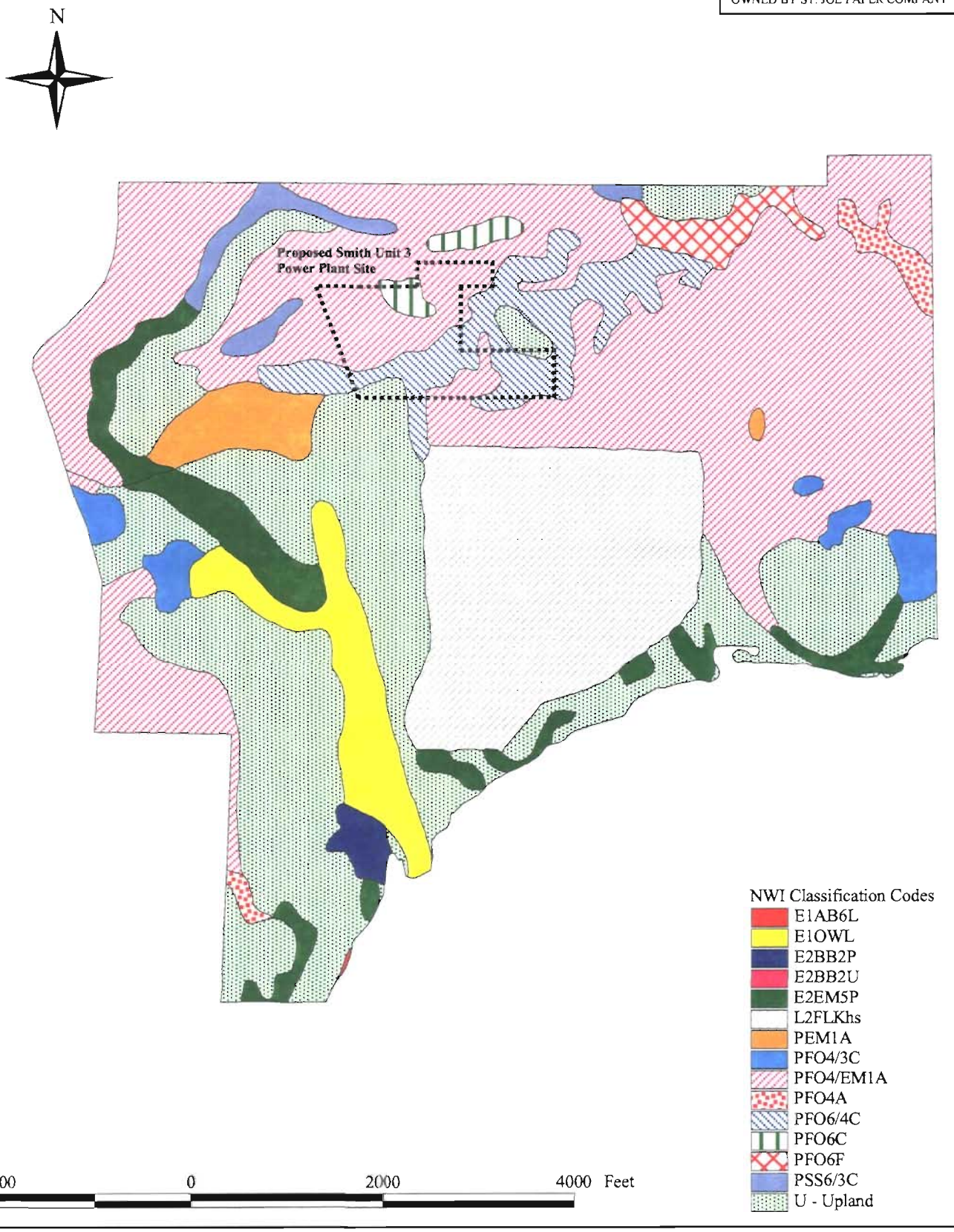

FIGURE 13

NATIONAL WETLAND INVENTORY MAP OF THE GULF POWER COMPANY LAND HOLDINGS AT THE SMITH ELECTRICAL GENERATING PLANT

SOURCE: U.S. FISH AND WILDLIFE SERVICE, 1999

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NOTE: LANDS LOCATED OUTSIDE OF GULF POWER PROPERTY BOUNDARIES ARE OWNED BY ST. JOE PAPER COMPANY

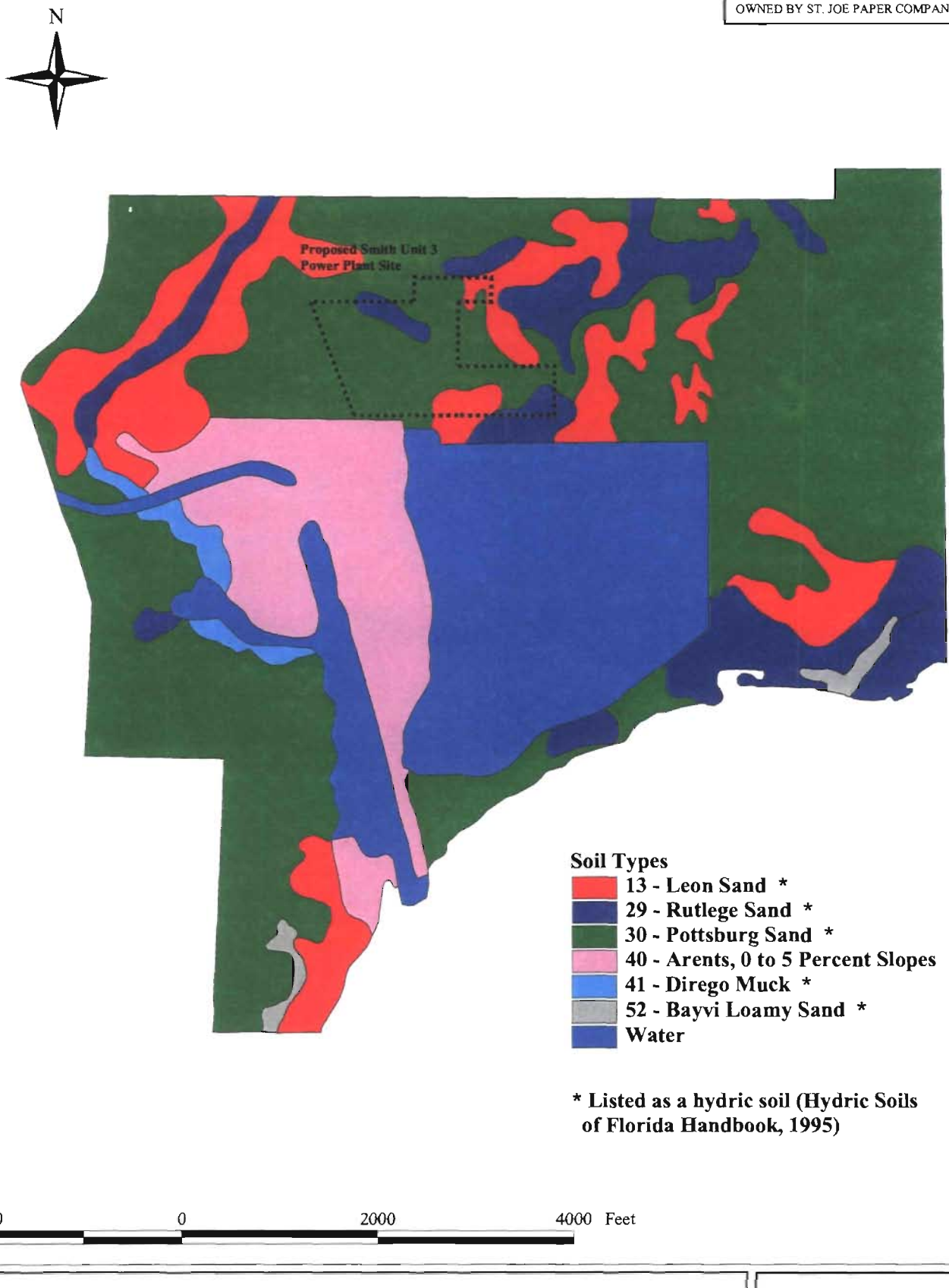

FIGURE 14

SOILS MAP OF THE GULF POWER COMPANY LAND HOLDINGS AT THE SMITH ELECTRICAL GENERATING PLANT

SOURCE: SOIL CONSERVATION SERVICE, 1984

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NOTE: LANDS LOCATED OUTSIDE OF GULF POWER PROPERTY BOUNDARIES ARE OWNED BY ST. JOE PAPER COMPANY

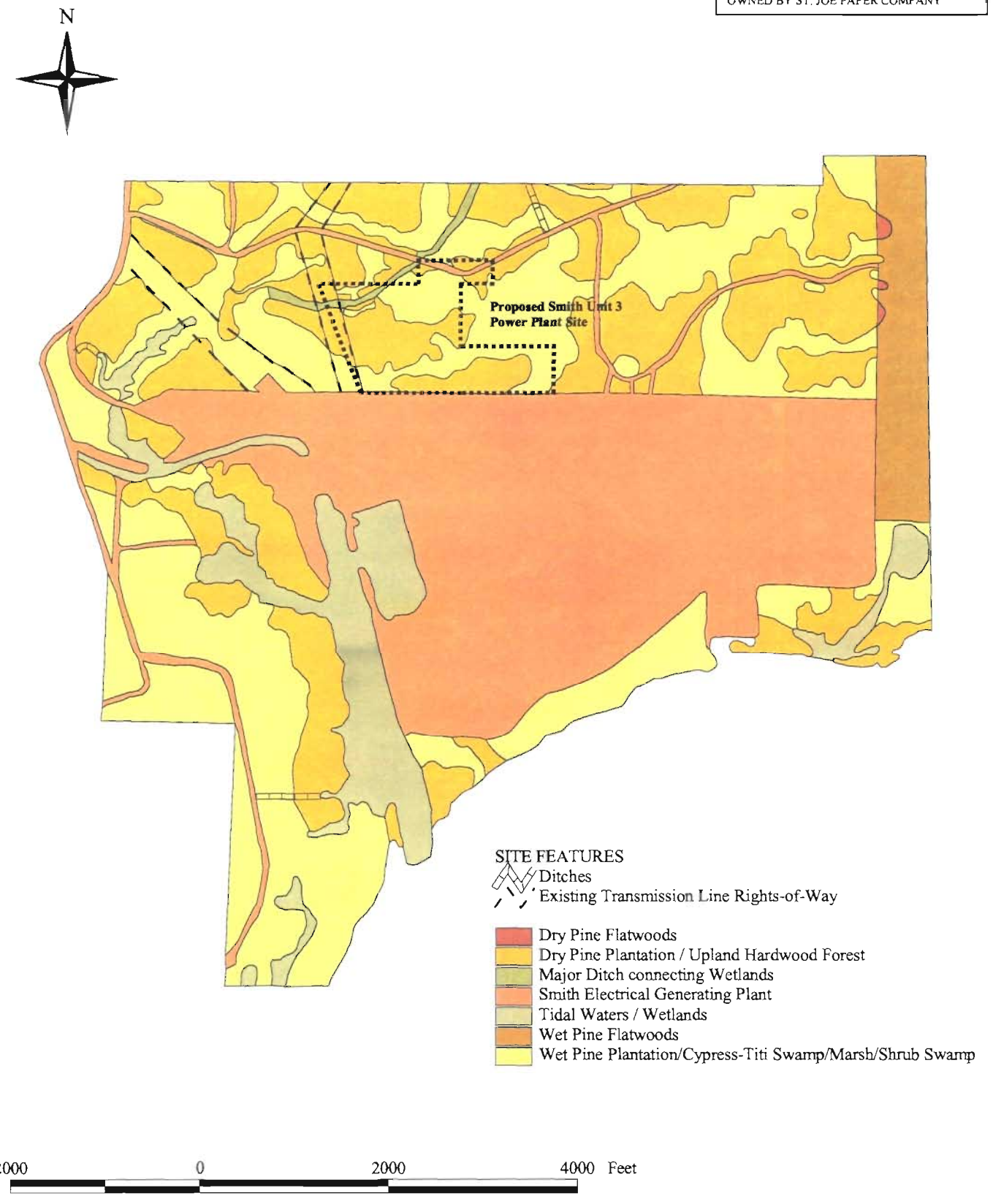

FIGURE 15

EXISTING SITE FEATURES OF THE GULF POWER LAND HOLDINGS AT THE SMITH ELECTRICAL GENERATING PLANT

SOURCE: ECT, 1999

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Environmental Consulting & Technology, Inc.

Figure 15 indicates that the area to the north of the existing power plant facilities is a mosaic of upland and wetland habitats. Using the approximately 50.1-acre proposed Smith Unit 3 power plant site polygon as a template, it initially appears that siting the new power facilities further to the east might result in a reduction of wetland impacts. However, the current location for the Smith Unit 3 Project best utilizes existing infrastructure at the existing Smith Plant and thereby avoids additional environmental impacts that would be associated with extending/expanding linear and other related plant facilities over to a site located further away. This is manifested in the following ways:

- The chosen site is sufficiently close to the existing discharge canal which will serve as the cooling water makeup and discharge source for Unit 3. A new intake and discharge pipe will connect the canal to Unit 3 by traversing already developed power plant property. No new cooling water intake canal or discharge canal will be required, and no environmental impacts from the interconnection will occur. Any other location on the property would most likely require a longer connection to the discharge canal and would potentially impact additional wetlands.
- The chosen site is immediately adjacent to an existing 230-kilovolt transmission line which will allow interconnection to the existing electric grid. Therefore, no new transmission corridors including associated access roads, will be required which would impact wetlands.
- The chosen site is immediately adjacent to developed plant property where interconnections (potable water, sanitary, and other wastewater systems) will be made with the existing Smith Plant. Therefore, no new corridors for any of these facilities will be required which would impact additional wetlands.
- The proposed FGT pipeline will be routed, in part, to the Unit 3 site via the existing electric transmission line corridor. Utilization of the existing transmission corridor to the Unit 3 property will minimize impacts to forested wetlands associated with the proposed pipeline development.
- The proximity of the proposed site to the existing developed plant property also means that no new access roads or construction vehicle parking will be required, which again minimizes potential wetland impacts.

- The proposed site is well buffered from potential future development around Gulf's property, especially to the east where residential development is proposed near Newman Bayou.

From a strictly environmental standpoint, the chosen site, compared to other locations on Gulf's property, represents a viable choice for the following reasons:

- Although the 600-acre Gulf property contains some areas with more upland habitats, the general site composition is a roughly 50-50 mix of wetlands/uplands. Placing the proposed site further from its designated location will trade off wetland impacts of the Unit 3 site with wetland impacts from the numerous additional linear facility interconnections to utilize another area of the site (discussed previously).
- The current site is in one of the most disturbed locations of the siting area (i.e., the site is bordered on the west by an existing transmission line corridor, on the south by the existing Smith Units 1 and 2 and on the north by a drainage ditch and access road).
- The location of Unit 3 adjacent to the Smith Plant means the forested wetlands and other wildlife habitats on Gulf's property will not be fragmented as they would if the Unit 3 site were removed from the developed area surrounding Smith Units 1 and 2.

Finally, it should be noted that normally a 2x1 CC plant would require a 20-acre construction laydown and storage area. To minimize the impacts to wetlands on the Smith Unit 3 site, Gulf Power reduced the typical 20-acre requirement for construction laydown and storage down to 14 acres. This reduction in overall acreage was accomplished by having a portion of the vendor deliveries made directly to the building site (i.e., bypassing the laydown area by going directly from truck to foundation). Gulf is assuming some risks in attempting to schedule "just in time" vendor deliveries to the site. The reduction in acreage associated within the "just in time" vendor deliveries was determined to be the maximum allowable for the proper construction of the Smith Unit 3 plant.

4.0 DRAINAGE INFORMATION

This section describes the drainage systems that will be used to control runoff and potential impacts of erosion on the project site and surrounding property. The storm water management plan (SWMP) is provided in Section 5.1.

4.1 DESIGN CONCEPTS

The site drainage facilities for the new Smith Unit 3 plant will be constructed and operated to control storm water runoff on the site during construction and operation of the plant. The system is designed using FDEP and Bay County criteria for control of quality and quantity of runoff. Offsite drainage will be diverted around the site to existing conveyance systems. The onsite drainage system will be independent systems consisting of swales, channels, pipes, and culverts arranged and sized to intercept runoff from the various pervious and impervious surfaces. The runoff will be conveyed to two wet detention ponds. Discharge from both storm water ponds will be to adjacent wetland systems.

The onsite wet detention ponds are sized to control runoff rates from the 24-year, 24-hour storm event. Interior drainage collection systems are sized for the 100-year, 24-hour storm event.

4.2 SITE LAYOUT AND IMPERVIOUS AREAS

As shown on the site plan (Figure 10), approximately 10.33 acres of the site is impervious surface, inclusive of the normal pool wet area of the ponds. The remaining 22.37 acres of the site will be pervious surfaces of grass or landscaping. Roads and parking will make up 2.01 acres of impervious area, with the remainder attributed to buildings, equipment, and foundations.

4.3 SURFACE RECEIVING WATERS

Discharge from the wet detention ponds will be to adjacent wetlands following natural drainage patterns. The pond in the southeastern portion of the site will discharge to

existing wetlands that drain through an 18-inch culvert to a ditch along the south side of the site. The northwestern pond will discharge to a channelized wetland system to the west.

4.4 GROUND RECEIVING WATERS

Infiltration of storm water both on- and offsite will be minimal since ground water levels are typically at or near ground elevations.

4.5 DIVERSION OF OFFSITE DRAINAGE

The proposed grades onsite will minimally impede existing drainage patterns. To allow flow to continue along current drainage patterns, a ditch will be constructed along the northwest corner of the site, diverting flows around the site and back to the existing flow channel. Drainage areas to the east of the site will continue to flow south into improved culverts along the access road. The culverts will continue to outfall to the existing drainage ditch along the south side of the road.

4.6 EROSION CONTROL MEASURES

Prior to the initiation of construction activities, silt fencing or straw bales will be placed along the outside edge of the site boundary. Silt fencing and straw bales will be utilized to control transport of sediment from the site. Ditch bottoms and side slopes will be stabilized to protect against erosion using grassing or matting as needed. Disturbed areas will be minimized to limit erosion potential. Finished slopes will be gradual in order to limit velocities which may promote erosion.

4.7 RUNOFF CONTROL

The proposed drainage collection system will utilize swales, culverts, and sloped surfaces to convey runoff to the wet detention ponds. Swales will have a maximum of 3:1 horizontal to vertical side slopes. Longitudinal slopes are minimized in order to limit velocities. Culverts are designed to withstand heavy equipment loading and accommodate preexisting flow conditions. The onsite collection system will route runoff

to the storm water ponds in such a manner as to limit ponding onsite to the maximum extent possible.

4.8 LOCATION OF DISCHARGE POINTS FOR STORM RUNOFF

Runoff from the site will be conveyed to the storm water detention ponds and outfall to adjacent wetland systems.

4.9 STORM WATER DETENTION PONDS

The storm water detention ponds will be constructed during the initial phase of construction to provide control of storm water runoff and sedimentation during site work. The ponds will be located in upland areas adjacent to wetlands which normally receive runoff. Berms will contain the runoff, since the normal water levels are considered to be at the existing ground surface. The northwest and southeast ponds have normal pool elevations of 6.4 and 6.9 ft-National Geodetic Vertical Datum (NGVD), respectively.

The littoral shelves of the ponds will be planted with bare root, native wetland vegetation, such as pickerelweed and/or arrowhead, on 3-ft centers. Planted littoral shelves will cover at least 35 percent of the normal pool elevation (i.e., a total of approximately 0.63 acre). The permanent pool volume will be controlled by a minimum residence time of 14 days during the wet season (June to October).

The 1-inch treatment volume will be controlled by orifices located in the outfall structures. Treatment storage is from 6.4 to 7.7 ft in the northwest pond, and 6.9 and 8.15 ft in the southeast pond. A 1.75-inch orifice will control the treatment volume in the northwest pond, such that no more than the first half of the volume is discharged within the first 60 hours following the storm. A minimum elevation of 7.08 ft will be maintained at hour 84 (24-hour duration storm plus 60 hours). Similarly, a 2.5-inch orifice will control the discharge in the southeast pond to a minimum of 7.6 ft.

Weirs will be located above the required treatment volume for both ponds. These weirs are used to attenuate flows at the predevelopment rates of 58 and 128 cubic feet per

second (cfs). These rates are high due to the significant wet areas associated with the predevelopment condition. The post-development discharges from both ponds are less than the allowable rates. Discharge rates of 46 and 68 cfs result in high water levels of 8.54 and 8.98 ft for the northwest and southeast ponds, respectively.

During construction, the ponds will serve as sedimentation basins to prevent silt and debris from being transported to downstream wetlands. The detention basins will be constructed to allow removal of accumulated sediments via 10-ft access berms around the top of both ponds.

5.0 PLANS

5.1 STORM WATER MANAGEMENT PLAN/DREDGE AND FILL ACTIVITIES

5.1.1 DESIGN CRITERIA

Storm water control measures used on the new plant are designed to comply with requirements of local, state, and federal regulations. Storm water runoff calculations, runoff volumes, peak discharges, and control structures were determined or designed using methods described in Chapter 62-25, Florida Administrative Code, and Section 7.03.00 of the Bay County regulations.

5.1.1.1 Site Grading/Filling of Wetlands

The site will be filled and graded to provide a finished surface for construction of structures and associated facilities, including roadways, parking areas, construction laydown areas, storm water detention basins, and conveyances. The grading will provide adequate drainage for all buildings, structures, and working areas.

Site drainage will be accomplished by gravity flow, utilizing a surface drainage system consisting of mild surface slopes, drainage ditches, swales, and culverts. First floor elevations will be above the 100-year flood elevation of 7 ft-NGVD. The site will generally be graded to elevations of 10 ft-NGVD or higher. Figure 16 shows the site grading plan with cross section locations. Figure 17 shows the profile sections of the site according to the site grading. More detailed cross sections of fill areas along representative wetland types are provided in Figures 18 through 20.

5.1.1.2 Roads and Parking Areas

A roadway system will provide access to various portions of the site. It includes permanent, paved roads or driveways with minimum 20-ft-wide paved surfaces. During construction, roadways will be surfaced with aggregate.

Parking will be provided adjacent to the administration building in addition to the existing lots in the Smith Plant site.

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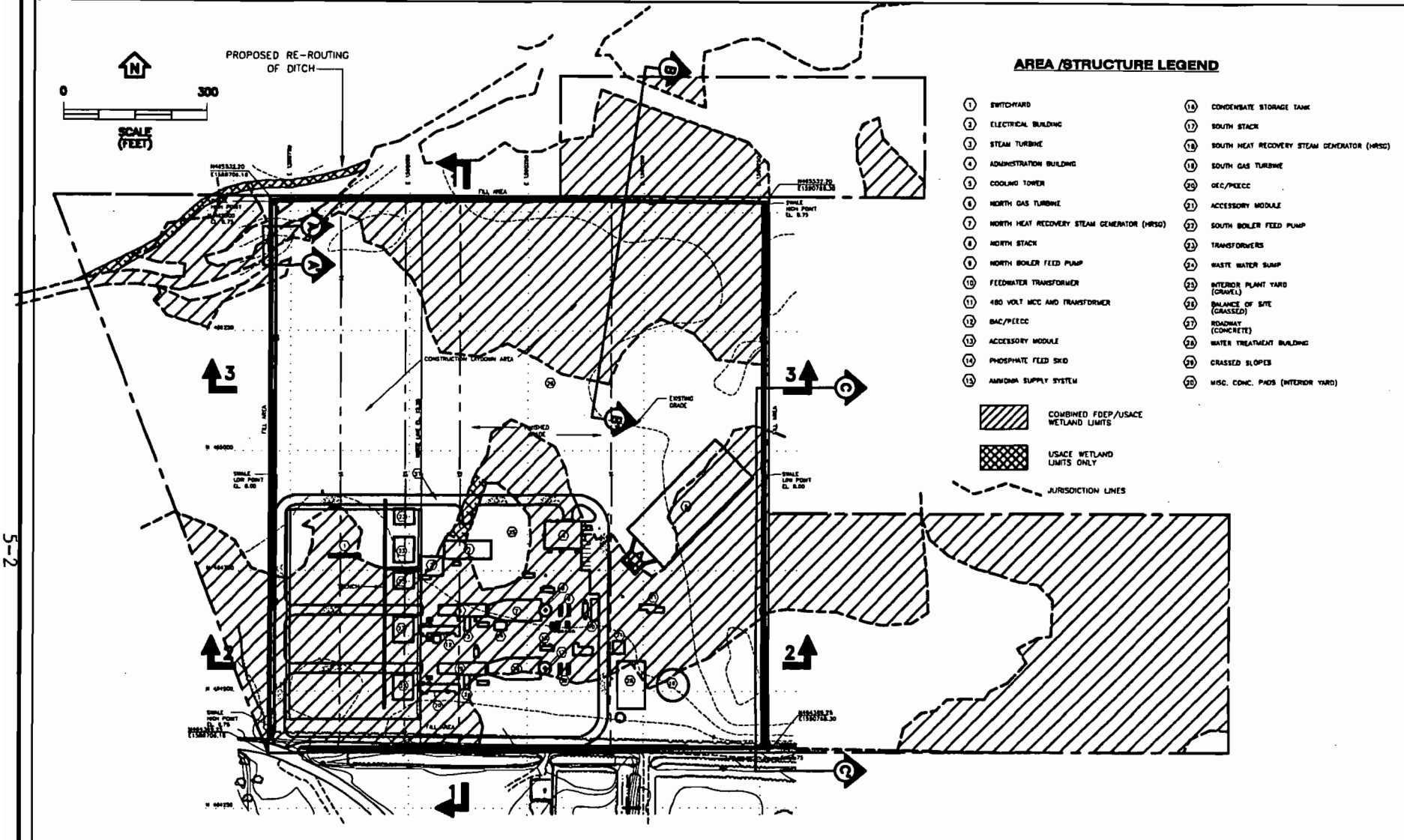

5-2

FIGURE 16

PLOT PLAN AND GRADING PLAN WITH CROSS SECTION LOCATIONS

Sources: SCS, 1999; ECT, 1999.

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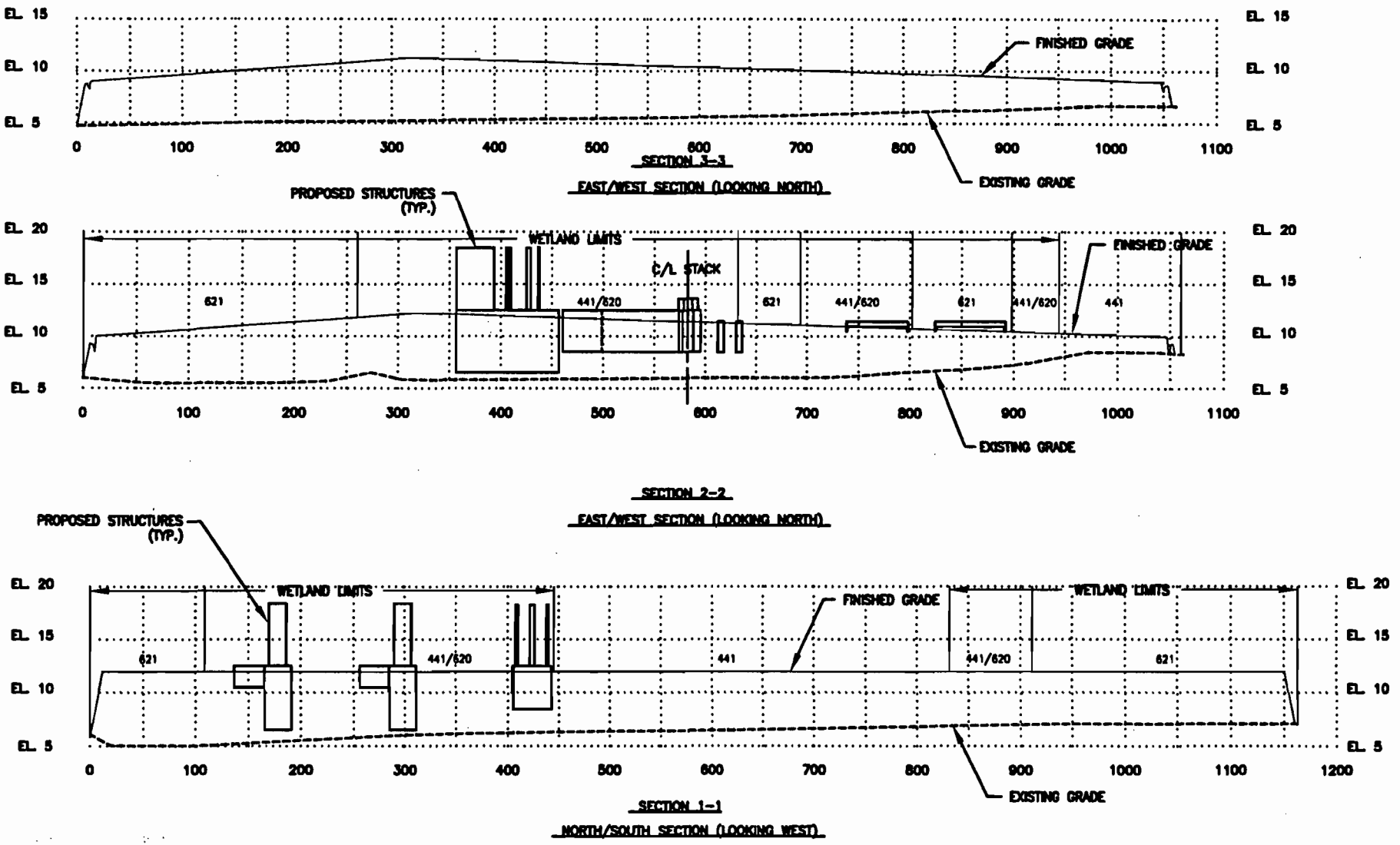

FIGURE 17

GRADING PLAN PROFILES

Source: SCS, 1999.

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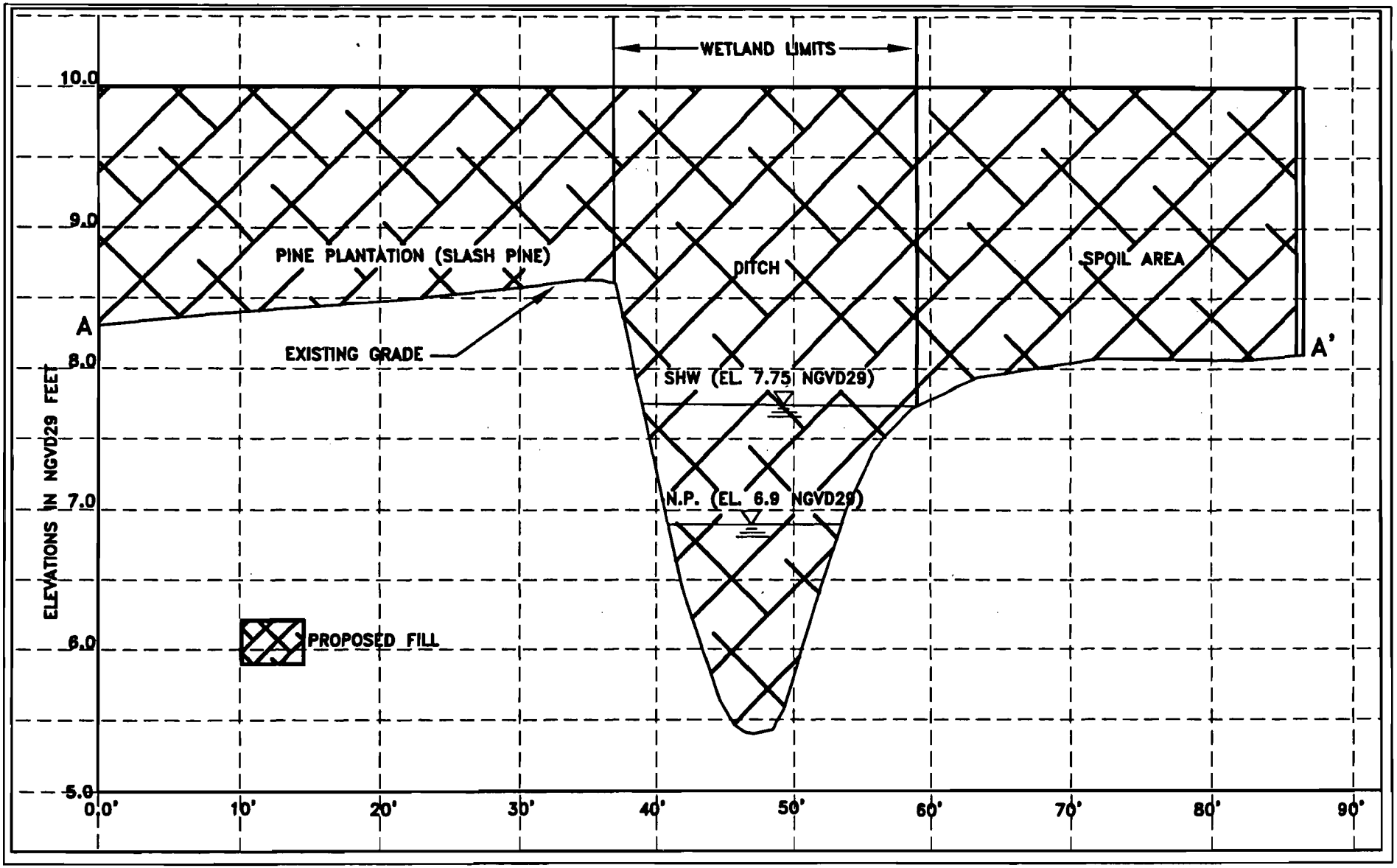

FIGURE 18

CROSS SECTION A–A'

Source: Spot Elev. provided by Northwest Engineering, 1999

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 1'

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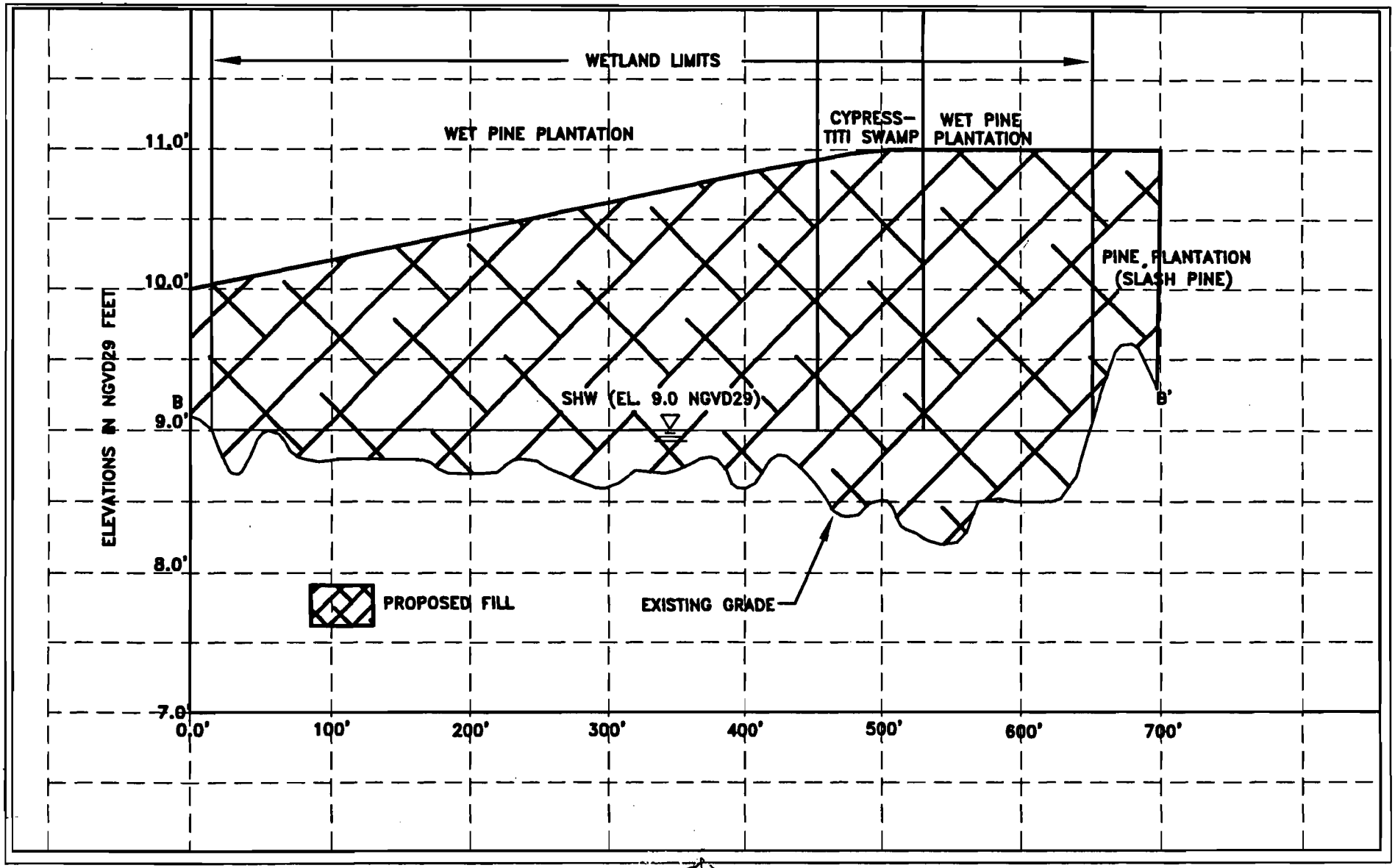

FIGURE 19

CROSS SECTION B–B'

Source: Spot Elev. provided by Northwest Engineering

HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 1'

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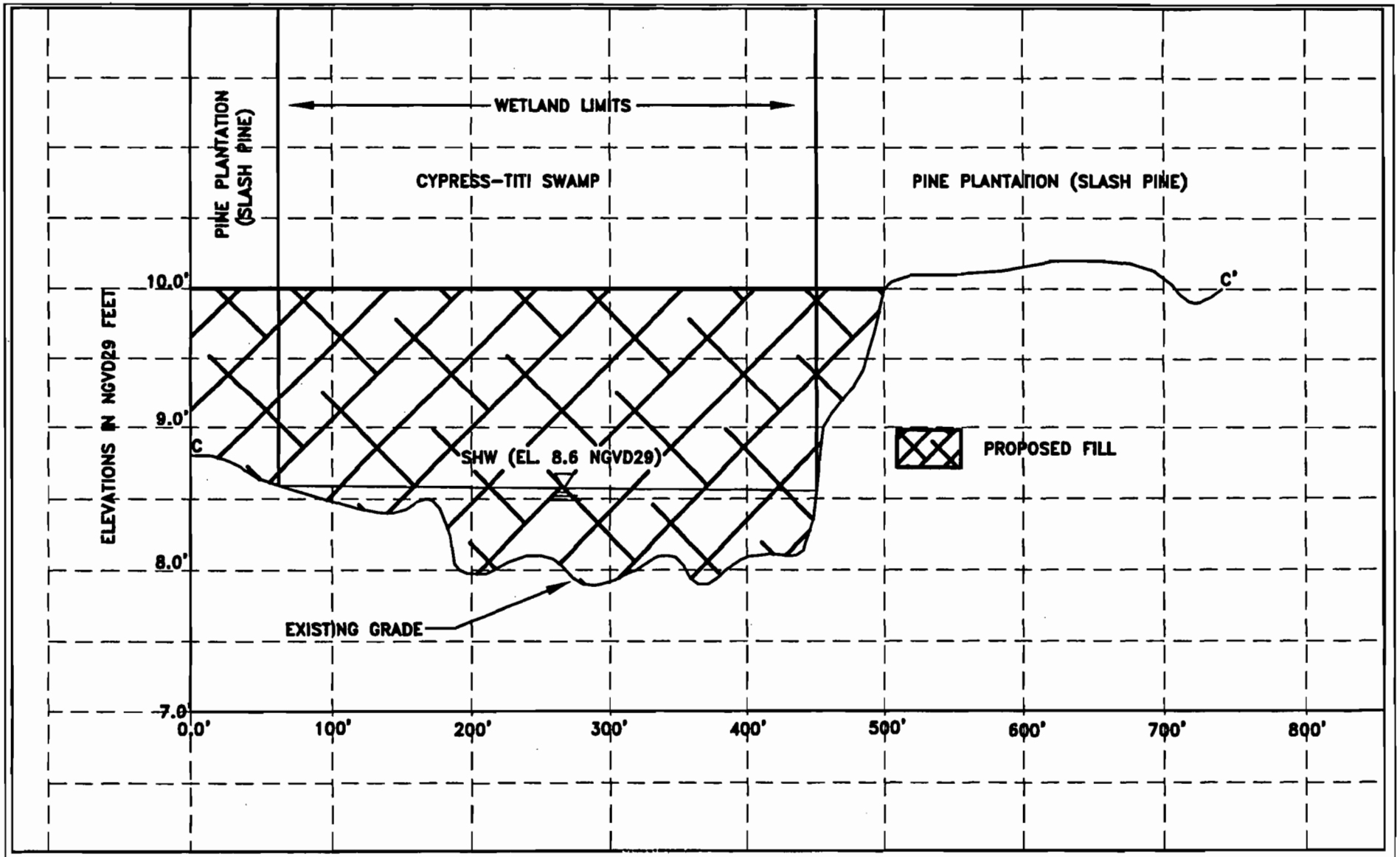

FIGURE 20

CROSS SECTION C–C'

Source: Spot Elev. provided by Northwest Engineering, 1999

HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 1'

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Approximately 87,680 square feet (ft^2) of impervious surface will be used for roads and parking. These surfaces will be sloped to collect and drain storm water to one of the two wet detention ponds.

5.1.1.3 Other Pervious and Impervious Areas

As calculated from the site layout plan, approximately 10.33 acres of the site will be impervious surface, inclusive of the normal pool wet area of the ponds. These surfaces include transformers, concrete pads, buildings, and associated facilities. Pervious areas that will be part of the improved area (approximately 22.37 acres) will either be grassed or landscaped.

5.1.1.4 Drainage Ditches and Swales

Collection systems which will convey runoff to the wet detention ponds are designed for the 100-year, 24-hour capacity. Side slopes will be a maximum of 3 horizontal to 1 vertical, and longitudinal slopes of 0.3 percent or greater. Since the site will be elevated with well drained fill material, ditch elevations will be above water table elevations. Ditches and swales will be grassed and included in the plant's normal maintenance program.

5.1.1.5 Culverts

Drainage culverts will be installed at road crossings and embankments. Culverts will be either reinforced concrete or high-density polyethylene pipe or equivalent. Culverts within the collection system for the wet detention ponds will be designed for the 100-year, 24-hour storm capacity for a headwater elevation below the roadway base course. All culverts will be designed to support American Association of State Highway and Transportation Officials (AASHTO) HS20 and construction equipment traffic loads.

5.1.1.6 Detention Basin

Two wet detention basins will be constructed to provide water quality treatment and attenuation of site storm water runoff. A 1.25-acre pond (as measured at the normal pool elevation) will be located in the southeast section of the site, collecting runoff from

approximately 22.56 acres. Another 0.56-acre pond will be located in the northwest section of the site, collecting runoff from approximately 10.14 acres of site area. The locations and configurations of the detention ponds are shown in Figure 21.

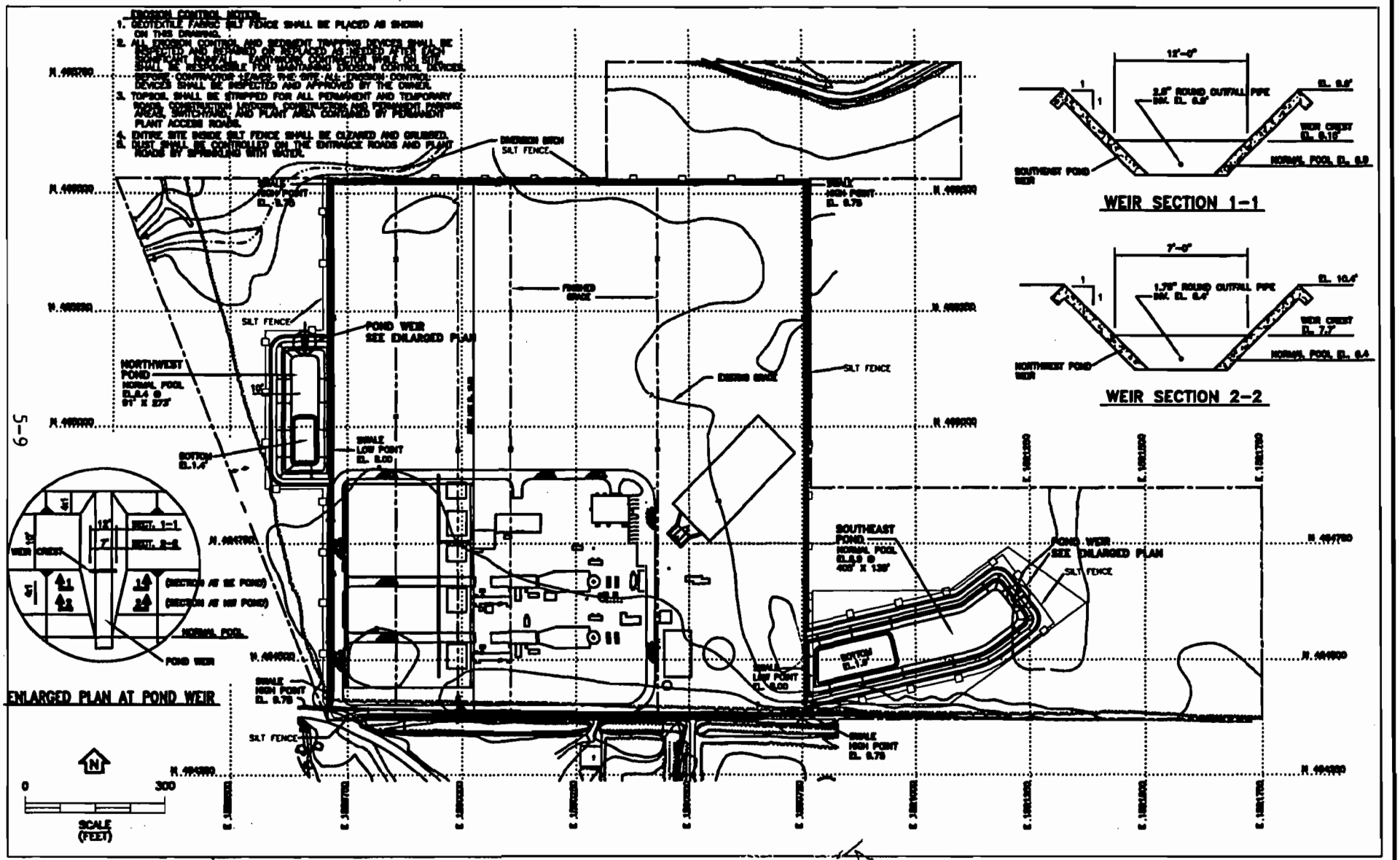
The detention basins will be excavated to have a permanent pool volume in excess of the 14-day residence time during the wet season (June through October) to assure adequate sedimentation and water quality treatment of storm water runoff. Under normal conditions, the permanent pool elevations of the ponds will be 6.4 and 6.9 ft-NGVD for the northwest and southeast ponds, respectively. A small orifice in the outlet structure of the ponds will be used as a bleed down device to recover detention and water quality treatment volume. The bleed down device will recover 50 percent of the detention volume within the first 60 hours following the rainfall event. The bleed down orifice at the southeast pond will be 2.5 inches in diameter with an invert elevation of 6.9 ft-NGVD. The bleed down orifice at the northwest pond will be 1.75 inches in diameter with an invert elevation of 6.4 ft-NGVD.

For the 25-year, 24-hour storm, the ponds will attenuate the peak flows to below the predevelopment rates through the outlet control structures. Discharges will be directed to the existing wetland systems adjacent to the site. The following table summarizes the predevelopment and postdevelopment runoff calculations:

Parameters	Predevelopment	Postdevelopment
Northwest pond peak flow	58 cfs	46 cfs
Southeast pond peak flow	128 cfs	68 cfs
Northwest pond peak water level	—	8.54 ft-NGVD
Southeast pond peak water level	—	8.98 ft-NGVD

Note: cfs = cubic feet per second.

The storm water detention ponds will serve as sedimentation basins during construction. The detention ponds will be constructed to allow suspended solids or loose sediments to be settled to the bottom. They will be maintained for proper operation following construction.



5-9

FIGURE 21

MASTER DRAINAGE PLAN

Sources: SCS, 1999; ECT, 1999.

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Supporting calculations for the wet detention systems are located in Section 5.1.3 and Attachment C.

5.1.1.7 Diversion of Offsite Drainage/Excavation of Wetlands

There is an existing small, intermittent drainage that cuts through the northwestern corner of the construction site. The proposed grading plan will potentially impede the existing drainage pattern in this area. To provide conveyance of the storm water drainage previously carried by this system, a diversion ditch will be excavated around the northwestern corner of the construction site. The diversion ditch, shown in Figure 21, will be of similar width and depth as the existing channel, in order to minimize the alteration of discharge hydrograph. Figure 22 is a typical cross section drawing of the new diversion ditch. It is estimated that the new diversion ditch will require the excavation of 233.5 cubic yards of wet pine plantation wetlands located to the north of the site boundary. The diversion ditch will be excavated using a backhoe or grade-all. All excavated native soil material will be used onsite for landscaping purposes.

5.1.1.8 Erosion Control

During construction, site erosion will be controlled by maintaining finished surface slopes to less than 1 percent. Silt fencing and straw bale barriers will be used to prevent sedimentation along the perimeter of the site. Surfaces will be vegetated to prevent sediment loss and ditches will be stabilized, as necessary. These generalized measures are shown on Figure 21.

5.1.2 STORM WATER MANAGEMENT PLAN CONTROL MEASURES AND PRACTICES

The SWMP for the Smith Unit 3 Project is shown in Figure 21, including site layout, general arrangement of equipment and facilities, arrangement and locations of storm water runoff control structures, locations of storm water runoff outfall structures, and offsite storm water runoff receiving areas. Control practices for storm water during both construction and operational periods are described below.

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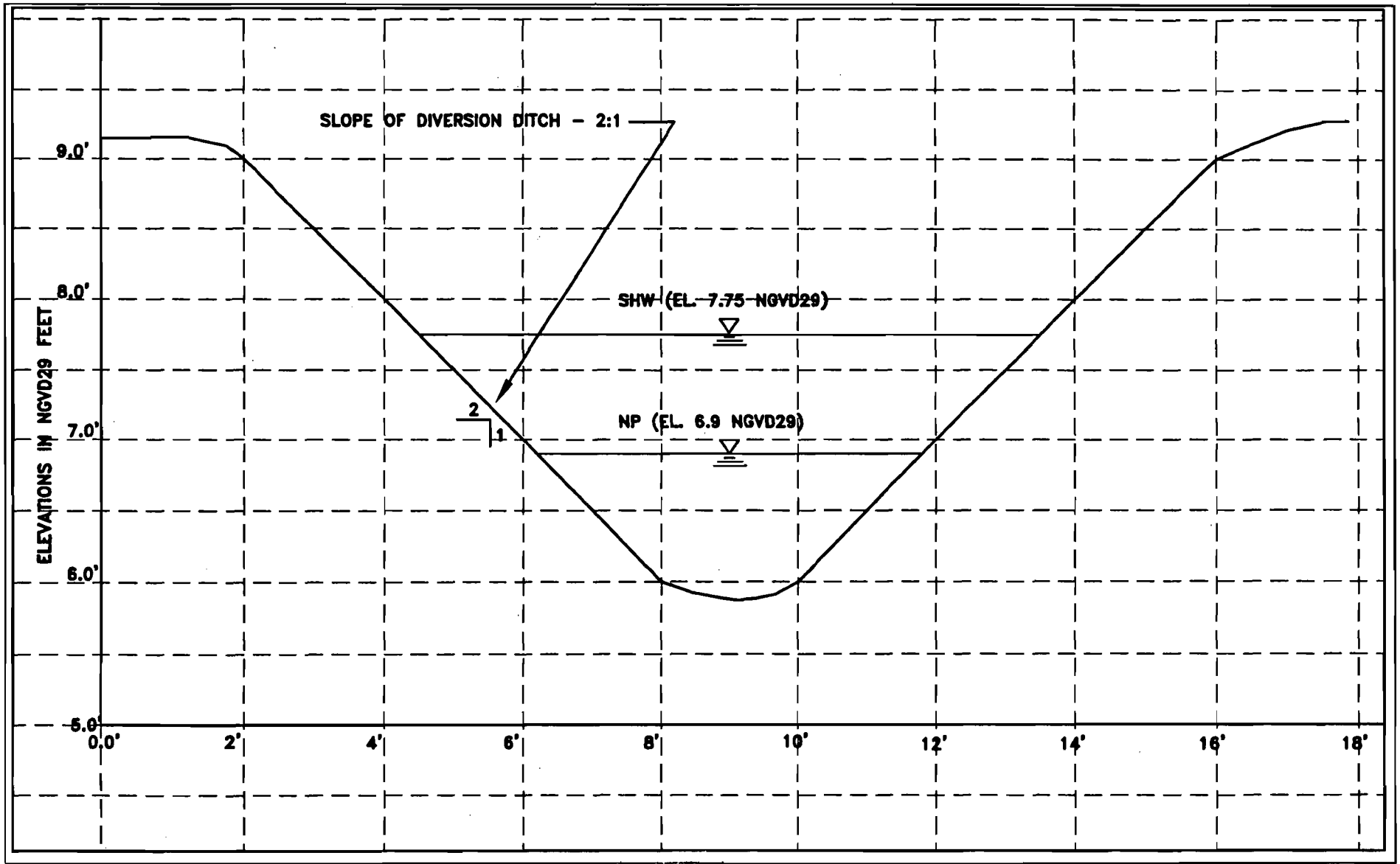

FIGURE 22

TYPICAL CROSS SECTION OF DIVERSION DITCH

Source: ECT, 1999

HORIZONTAL SCALE: 1" = 2'
VERTICAL SCALE: 1" = 1'

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5.1.2.1 Construction Phase Storm Water Control Measures and Practices

During construction of the Smith Unit 3, a combination of silt fencing, straw bale sediment barriers, and the storm water detention basins will be used to control erosion on the site and to reduce the potential for transport of eroded sediment offsite. All grading will be accomplished in phases, with each graded area seeded and mulched after construction of the Smith Unit 3 Project is complete.

A portion of the storm water detention basins will be constructed in the initial phase of site preparation to serve as sedimentation basins. Subsequently, the drainage ditch system will be constructed to convey storm water to the detention/sedimentation basins to remove suspended solids from runoff.

Movement of sediment off graded areas will initially be controlled by the use of silt fences that will provide continuous silt barriers on the downgradient sides of all actively graded areas. Interception of runoff by drainage ditches established early in the construction phase will allow removal of sediment by straw bale fences, with subsequent conveyance of runoff to the storm water detention basins.

To isolate runoff from materials storage areas, appropriate containment such as earth berms will be provided. Runoff from these areas will be treated by onsite wastewater treatment facilities.

Site dewatering flows during construction are expected to be minimal, and they will be routed through the drainage ditch system to the detention basins for treatment before offsite discharge. A silt fence/straw bale barrier will be used for initial removal of sediment from dewatering flows as they enter the drainage ditch system to minimize sedimentation impacts on detention basin storage volume during construction. Available capacity of the detention pond will be monitored during dewatering activity to assure that adequate capacity remains available to provide detention for the 25-year, 24-hour design storm event.

Sediment collected in ditches, secondary detention/sedimentation basins, and the primary detention basin will be monitored and removed periodically as needed to maintain ditch and basin capacity. Sediment removed from these facilities will be disposed onsite for landscaping applications.

5.1.2.2 Operating Phase Storm Water Control Measures and Practices

The Smith Unit 3 drainage ditch system will be constructed to intercept all onsite runoff from the developed site area under design storm conditions and convey it to the storm water detention basins. The detention basins will be sized to retain and treat the runoff volume that results from 1.0 inch of runoff from the site area. In addition, the basin will be sized to serve as a detention basin to control the rate of runoff from a 25-year, 24-hour storm event in accordance with design requirements of Bay County. Storm water runoff will be drained by gravity to the wet detention basins.

5.1.3 SMITH UNIT 3 PLANT STORM WATER CALCULATIONS

5.1.3.1 Pond Sizing/Treatment Volumes

Southeast Pond: Treatment required for 1 inch of runoff from the contributing area

$$Area_{SE} = \left(\frac{742.14' \times 1{,}162.95'}{43{,}560 \frac{ft^2}{ac}} \right) + 2.75\ acres = 22.56\ acres$$

Note: 2.75 acres allowed for the pond site.

$$Volume_{SE} = 22.56\ acres \times \frac{43{,}560\ ft^2}{acre} \times 1''\ runoff \times \frac{1'}{12''}$$

$$Volume_{SE} = 81{,}893\ ft^3$$

Treatment volume may be stored in 1.5-ft depth above the normal pool. Therefore, minimum pond size required at the normal pool is:

$$Area_{SE} = \frac{81{,}893\ ft^3}{1.5'\ max.\ depth} = 54{,}595\ ft^2\ or\ 1.25\ acres$$

Maintaining a 3:1 length to width ratio will make the pond the following dimensions at the normal pool:

$x = width$

$Area = 3\,(x)\,(x) = 3x^2$

$54{,}595 = 3x^2$

$x = 135\ feet$

$length = 405\ feet$

See (A) of Figure 23.

Northwest Pond:

$$Area_{NW} = \left(\frac{320' \times 1{,}162.95'}{43{,}560\ \frac{ft^2}{ac}} \right) + 1.60\ acres = 10.14\ acres$$

Note: 1.60 acres allowed for the northeast pond site.

$$Volume_{NW} = 10.14\ acres \times \frac{43{,}560\ ft^2}{acre} \times 1''\ runoff \times \frac{1'}{12''}$$

$$Volume_{NW} = 36{,}808\ ft^3$$

$$Area_{NW\ @\ normal\ pool} = \frac{36{,}808\ ft^3}{1.5'\ max.\ depth} = 24{,}539\ ft^2\ or\ 0.56\ acres$$

$Area = 3\,(width)^2 = 24{,}539\ ft^2$

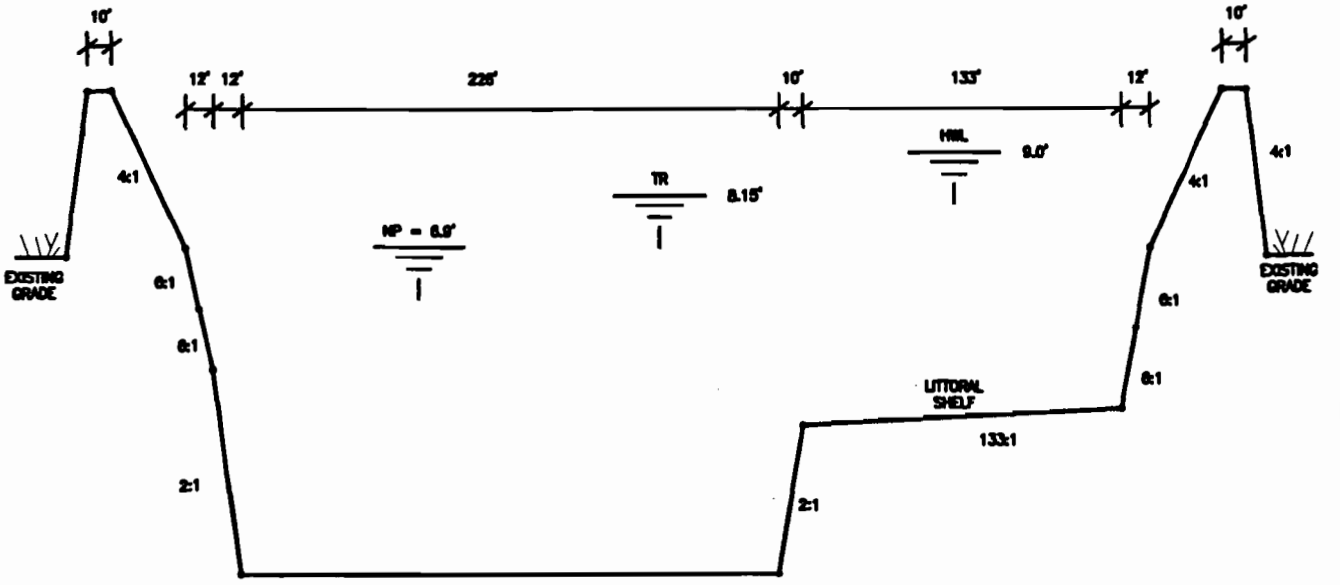
$width = 91\ feet$

$length = 273\ feet$

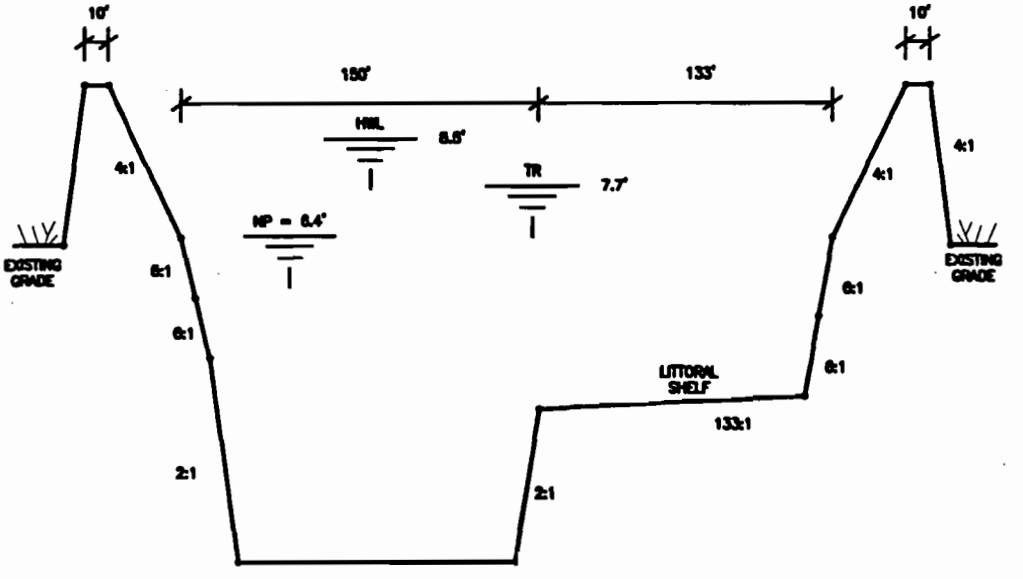
See (B) of Figure 23.

5.1.3.2 Normal Water Level Determination

Seven monitoring wells were installed to measure the surficial aquifer system. Fluctuations were observed through measurements of the well. Normal pool elevations



(A) SOUTHEAST POND



(B) NORTHWEST POND

FIGURE 23

TYPICAL POND SECTIONS

Source: ECT, 1999.

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for the ponds are estimated to be approximately 0.4 feet below the ground surface for the pond locations. This would result in normal pool elevations of 6.4 ft (northwest pond) and 6.9 ft (southeast pond).

Permanent Pool Volumes:

Method I: 3.83 percent of annual average runoff.

Rainfall = 65.81 inches (Source: NCDC, 19991).

$$Runoff = \frac{(P - 0.2[S])^2}{(P + 0.8[S])}$$

$$S = \frac{1{,}000}{CN} - 10$$

P = rainfall (inches).
S = Potential max retention (inches).
CN = curve number.

CN Estimation:

Pervious surface—grass cover, imported fill	CN = 61
Impervious—concrete, building, gravel, road	CN = 98

Southeast Pond:

	Area (ac)	CN	A × CN
Pond at NP	1.25	100	125.00
Impervious	4.80	98	470.40
Pervious	16.51	61	1,007.11
	22.56		1,602.51

$$CN = \frac{1{,}602.51}{22.56} = 71$$

$$S = \frac{1{,}000}{71} - 10 = 4.1$$

1 National Climatic Data Center (NCDC). 1999. Meteorological data on Apalachicola and Pensacola, Florida. Online. www.epa.gov.

Northwest Pond:

	Area (ac)	CN	A × CN
Pond at NP	0.56	100	56.00
Impervious	3.72	98	364.56
Pervious	5.86	61	357.46
	10.14		778.02

$$CN = \frac{778.02}{10.14} = 78$$

$$S = \frac{1{,}000}{78} - 10 = 2.8$$

$$Runoff_{SE} = \frac{(65.81 - 0.2[4.1])^2}{(65.81 + 0.8[4.1])} = 61.1''$$

$$PPV_{SE} = (0.0383)(61.1'')(3{,}630) = 8{,}495\ ft^3$$

$$Runoff_{NW} = \frac{(65.81 - 0.2[2.8])^2}{(65.81 + 0.8[2.8])} = 62.6''$$

$$PPV_{SE} = (0.0383)(62.6'')(3{,}630) = 8{,}703\ ft^3$$

Method II = (2" [impervious area] + 0.5" [pervious area]) (3,680)

PPV_{SE} = (2" [6.05 acres] + 0.5" [16.51]) (3,630) = 73,889 ft^3

PPV_{NW} = (2" [4.28 acres] + 0.5" [5.86 acres]) (3,680) = 41,709 ft^3

Method III = 14-day residence time (wet season June to October)

$$PPV = \frac{(DA)(C)(R)(RT)}{(WS)(CF)}$$

DA = *drainage area.*
WS = *wet season.*
R = *wet season rainfall* (32.64").
RT = *residence time* (14 *days*).
$CF = \left(\frac{12\ inches}{1\ ft}\right)$
C = 0.95 *impervious*; 0.15 *pervious.*

$$PPV_{SE} = \frac{(6.05)(0.95)(32.64'')(14)}{(153)(12)} + \frac{(16.51)(0.15)(32.64'')(14)}{(153)(12)}$$

$$PPV_{SE} = 1.43 + 0.62 = 2.05\ acre - foot \rightarrow 89{,}298\ ft^3$$

$$PPV_{NW} = \frac{(4.28)(0.95)(32.64")(14)}{(153)(12)} + \frac{(5.86)(0.15)(32.64")(14)}{(153)(12)}$$

$$PPV_{SE} = 1.01 + 0.22 = 1.23\ acre - foot \rightarrow 53{,}614\ ft^3$$

Therefore, use:

PPV_{SE} = 89,298 ft^3 or 2.05 ac-ft

PPV_{NW} = 53,614 ft^3 or 1.23 ac-ft

5.2 MITIGATION PLAN

Wetland rapid assessment procedures (WRAPs) were utilized on this Project to assist in the regulatory evaluation of mitigation. The application of WRAPs for this project was specifically discussed with USACE staff. WRAPs were created by the South Florida Water Management District (SFWMD) to assess the functional attributes of natural wetlands and mitigation sites. The WRAP is based upon the USFWS habitat evaluation procedures and SFWMD Save Our Rivers evaluation matrix. It also incorporates and utilizes the USFWS habitat suitability index. The WRAP matrix establishes a numerical ranking for individual ecological and anthropogenic factors (variables). The numerical output for the variables can be used to evaluate the current wetland condition. The six factors or functions evaluated for each wetland type onsite include:

- Wildlife utilization.
- Wetland overstory/shrub canopy (not applicable for marshes or ditches).
- Wetland vegetative ground cover.
- Adjacent upland support/wetland buffer.
- Field indicators of wetland hydrology.
- Water quality input and treatment systems.

Each wetland was provided a score (i.e., 0 to 3 in ½ point increments) for each of the six functional attributes. The variable scores were totaled and then divided by the total of the maximum scores for the variables rated to calculate the final WRAP scores for each wetland type. The WRAP sheets used to evaluate each wetland type on the site prior to development are provided in Attachment D. All of the wetlands on the site were surveyed

for the WRAP analyses. Due to the homogeneous nature of the wetlands on the site, WRAP scores are provided for each representative wetland type on the property.

The WRAP scores for the cypress-titi swamp, ditch, wet pine plantation, and marsh existing onsite prior to development are 0.78, 0.70, 0.67, and 0.59, respectively. Approximately 6.4 acres of cypress-titi swamp, 0.2 acre of ditch, and 8.7 acres of wet pine plantation are proposed to be filled for the development of the new power plant facilities. An additional 0.05 acre of wet pine plantation located off of the site proper is proposed to be excavated for the construction of a diversion ditch. The total potential loss of wetland functional value associated with development at the site can be calculated using the following formulae:

WRAP Score of Wetland Prior to Development x Acreage of Wetland Prior to Development = Current Wetland Functional Value

Therefore,

0.78 (cypress-titi swamp) x 10.2 =	*7.956*
0.70 (ditch) x 0.4 =	*0.280*
0.67 (wet pine plantation) x 15.5 =	*10.385*
0.59 (marsh) x 0.5 =	*0.295*
Total	*18.916*

To determine the loss in the functional value of wetlands from site development, WRAPs must also be performed on the wetlands remaining after development. WRAP scores for cypress-titi swamp, ditch, wet pine plantation, and marsh remaining after development are 0.69, 0.60, 0.54, and 0.51, respectively (Attachment E).

To determine the functional values of wetlands remaining after development, the following formulae can be used:

WRAP Score of Wetland Remaining After Development x Acreage of Wetland Remaining After Development = Post Development Wetland Functional Value

Therefore:

0.69 (cypress-titi swamp) x 3.8 =	*2.622*
0.60 (ditch) x 0.2 =	*0.12*
0.54 (wet pine plantation) x 6.8 =	*3.672*
0.51 (marsh) x 0.5 =	*0.255*
Total	*6.669*

The loss of wetland functional values as a result of site development can be determined by subtracting the functional value of wetlands remaining after development from the functional value of wetlands before development:

$$18.916 - 6.669 = 12.247$$

The 0.05 acre of excavation in wet pine plantation for the diversion ditch was also included in the assessment for total loss of wetland functional value:

$$0.67 \text{ (wet pine plantation)} \times 0.05 = 0.034$$

$$12.247 + 0.034 = 12.281$$

To provide compensation for the loss of wetland functions and values on the site, Gulf met with USFWS, NMFS, USACE, FDEP, NWFWMD, and the Bay County Environmental Study Team (BEST) to discuss a possible offsite mitigation solution that would satisfy both state and federal permitting / permit review agencies and provide for the best ecological benefit / balance for the region. Based upon agency discussions and field reviews of several possible mitigation sites in the West Bay area, a 135-acre area located along the southeastern corner of Jacksons Titi Swamp was selected (Figure 24). The proposed mitigation site is situated approximately 1 mile directly north of the proposed Smith Unit 3 site. The mitigation site is bordered by wet pine plantation on the east and south and Jacksons Titi Swamp on the west and north. An existing transmission line corridor at the southeastern corner of the mitigation site provides site access. The proposed mitigation site is characterized by 88 acres of wet pine plantation and 47 acres of cypress-titi swamp (Figure 25). The wet pine plantation area has 5-year old planted slash pines dominating the overstory layer. Sweet bays were also present sporadically as recruited species at the plantation site. Other plant species observed included St. Johns wort, red root and pitcher plants. Small stands of cypress were also observed within the wet pine plantation at the site. The cypress-titi swamp on the mitigation site is part of the

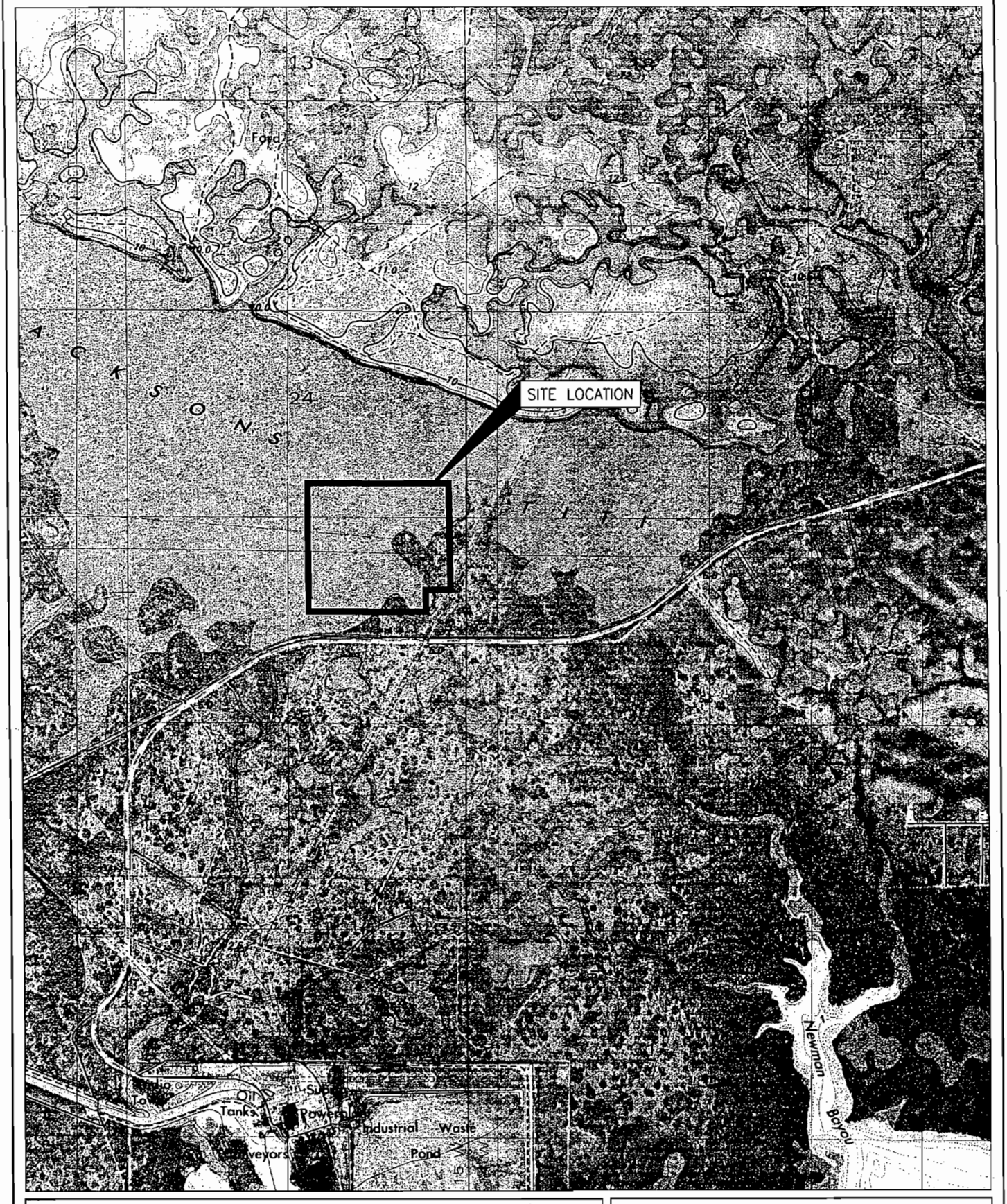

FIGURE 24

TOPOGRAPHIC MAP OF THE PROPOSED MITIGATION SITE

Source: USGS Quad Map of Southport, FL

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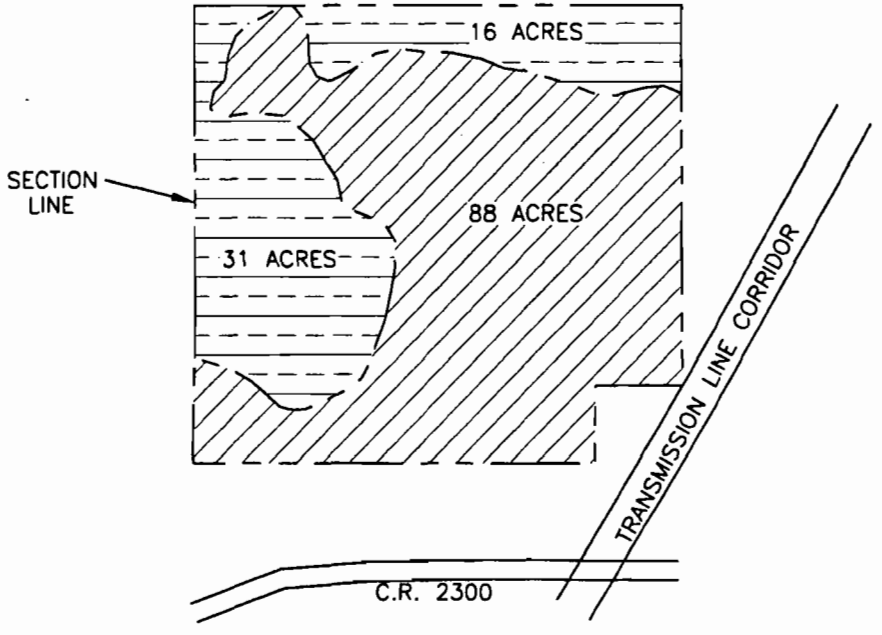

LEGEND

WET PINE PLANTATION (88 ACRES)

CYPRESS-TITI SWAMP (47 ACRES)

N

0 1000

SCALE (FEET)

NOTE: MITIGATION SITE BOUNDARIES ARE APPROXIMATE.

FIGURE 25.
VEGETATION MAP OF THE PROPOSED MITIGATION SITE

Source: ECT, 1999.

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more expansive Jacksons Titi Swamp system. The portion of Jacksons Titi Swamp onsite consists of relatively undisturbed forested wetlands. During site visits in August 1999, there was about 8 inches of standing water across the entire proposed mitigation site. The mitigation site drains into the same drainage as the Smith Unit 3 project site. It is proposed that Gulf acquire the subject property and enhance the existing wet pine plantation by:

- Removing the existing slash pine trees.
- Planting a diverse mixture of native wetland hardwood and cypress trees.

After release of the mitigation site, Gulf is looking at the possibility of transferring ownership over to the NWFWMD or some other conservation organization to preserve both the 47 acres of existing, undisturbed cypress-titi swamp and 88 acres of newly enhanced wetlands in perpetuity.

To determine the gain in wetland functional value associated with the proposed mitigation, the WRAP score for the existing wet pine plantation proposed for mitigation must be subtracted from the same wetland after mitigation (i.e. mixed cypress hardwood swamp):

WRAP Score of Mitigated Wetland - WRAP Score of Existing Wetland Before Mitigation

Therefore:

$$0.83 - 0.69 = 0.14$$

To determine how much acreage of wetland enhancement must be conducted to balance the wetland loss to wetland gain ratio, the total gain in wetland functional value must equal the total loss in wetland functional value associated with project impacts (i.e., 12.281).

Therefore:

$$12.281 \div 0.14 = 87.7 \text{ acres}$$

For the USACE, the 88 acres of wetland enhancement for the 15.3 acres of filling in wetlands and the 0.05 acre of excavation in wetlands works out to a 5.7:1 mitigation ratio. For the FDEP, the 88 acres of wetland enhancement for the 15.2 acres of filling in wetlands and the 0.05 acre of excavation in wetlands is a 5.8:1 mitigation ratio. Therefore, rounded off the mitigation ratio proposed for wetland impacts associated with the project activities is 6:1.

The original fill roads constructed along portions of the wet pine plantation at the mitigation site have become eroded over the years and water now sheet flows across the roadways at several locations. The removal of the road system should not significantly improve the hydrology of the wetland and, therefore, was not proposed as a mitigation measure. In order to enhance the existing wet pine plantation sufficiently to achieve the mitigated wetland condition described in the WRAP sheet, Gulf would propose to remove all of the existing planted pines unless the current landowner wishes to do so. Since a natural recruitment of wetland hardwoods is presently occurring, the existing topography (i.e. $\leq$5.0 ft elevation) does not need to be regraded to lower elevations for wetland trees to thrive. After the planted pines are removed, wetland hardwoods and cypress will be planted.

Hardwoods and cypress will be planted on approximately 10-foot centers to achieve a maximum coverage of 400 trees per acre at the end of the monitoring period. It is anticipated that 3-gallon size native wetland tree species will be planted randomly throughout the mitigation site. Tree species selected for planting shall include, but will not be limited to, bald cypress, sweet bay, swamp tupelo, pop ash, swamp red bay, dahoon holly, red maple, and/or Florida elm. All plant material will be nursery-grown from stock acquired in the region. After the planted trees reach the desired success rates for height, cover, and survivability (i.e., the mitigation site is released), Gulf is looking at the possibility of turning the mitigation site over to the NWFWMD or some other conservation organization for management of the property as conservation lands.

A soils survey and NWI map of the proposed mitigation site are provided in Figures 26 and 27, respectively. The NWI map indicates that a small area of the mitigation site is

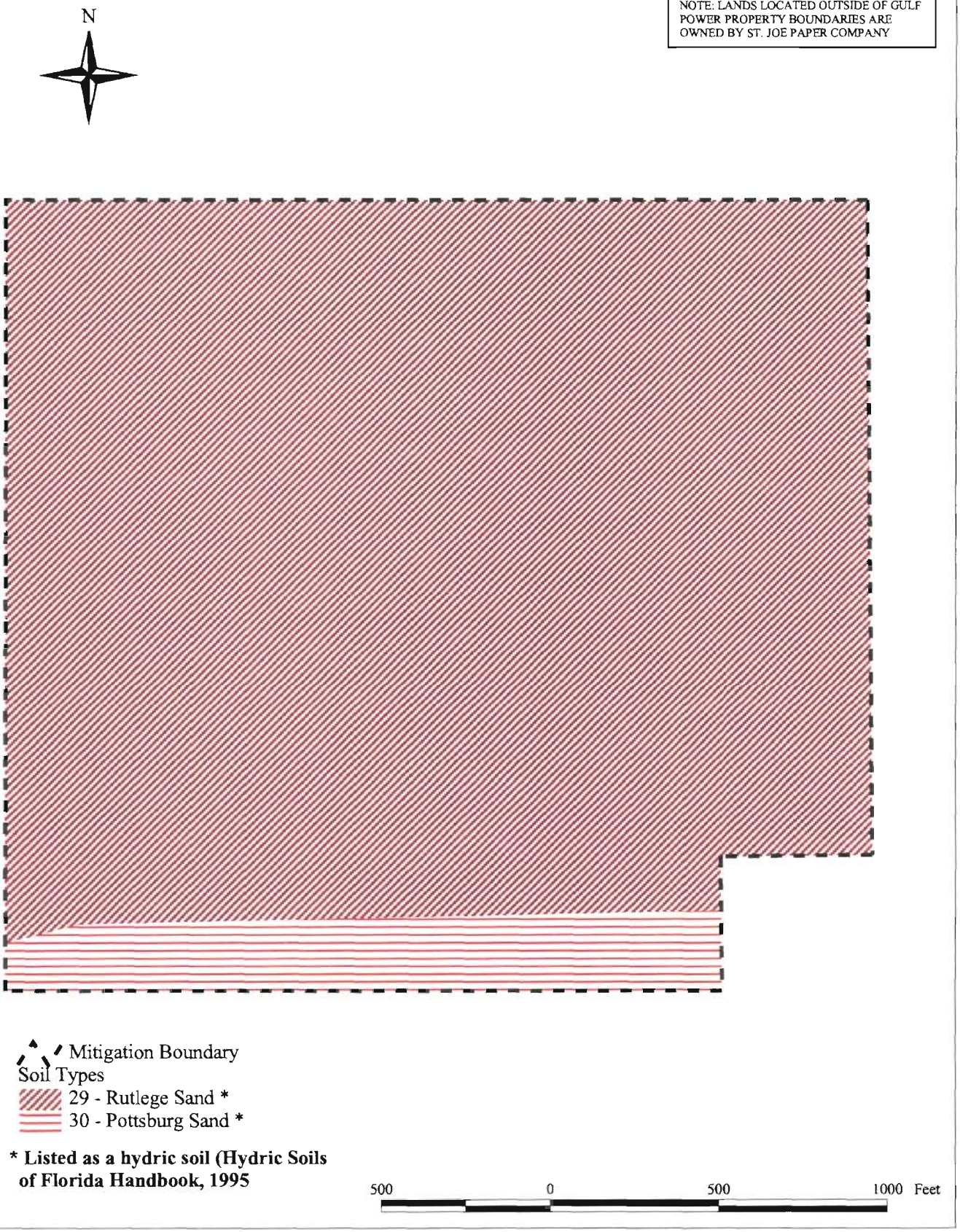


FIGURE 26

SOILS MAP OF THE PROPOSED MITIGATION SITE

SOURCE: SOIL CONSERVATION SERVICE, 1984

ECT
Environmental Consulting & Technology, inc.

NOTE: LANDS LOCATED OUTSIDE OF GULF POWER PROPERTY BOUNDARIES ARE OWNED BY ST. JOE PAPER COMPANY

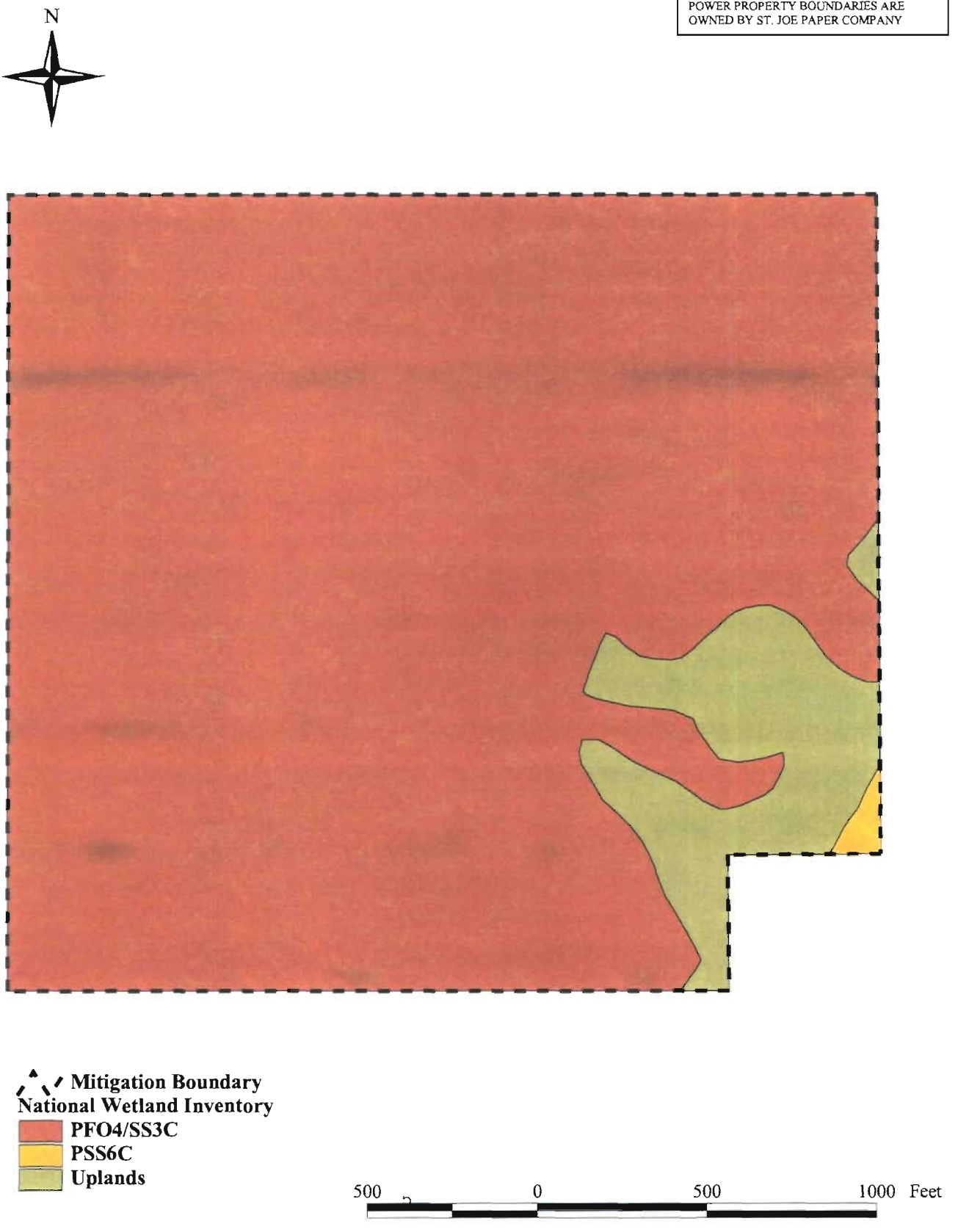


FIGURE 27

NATIONAL WETLANDS INVENTORY MAP
OF THE PROPOSED MITIGATION SITE

SOURCE: US Fish and Wildlife Service, 1999

ECT
Environmental Consulting & Technology, Inc.

uplands. However, this area was very similar in terms of vegetation and hydrology to the other areas of wet pine plantation on the mitigation site. The soils map indicates that the entire site supports hydric soils. Based upon the site inspection and soils data, the entire proposed mitigation site is considered to be wetlands. Therefore, a wetland jurisdictional determination should not be required for the mitigation site.

A legal property boundary of the mitigation site will be provided as soon as surveys are completed.

Therefore, in summary, Gulf proposes to preserve/enhance 88 acres of forested wetlands and preserve 47 acres of natural, relatively undisturbed cypress-titi swamp as mitigation for the potential impacts to wetlands associated with project development at the Smith Unit 3 site. The 135 acres of mitigation proposed for this project is appropriate and practicable compensation for the unavoidable losses to wetlands at the site of the proposed action.

6.0 CONSTRUCTION SCHEDULE

The Smith Unit 3 Project will be located on a 50.1-acre site with development occurring on 32.7 acres of that total. Construction activities will include clearing, grading, development of storm water ponds, power plant construction, final grading, and landscaping. The proposed activity is scheduled to commence on August 1, 2000 and be completed by June 1, 2002 (approximately 22 months). The first six months of the schedule will consist of site preparation activities such as clearing, filling, grading and development of storm water ponds. The remainder of the time will be associated with the actual construction of the plant facilities.

7.0 OPERATIONS AND MAINTENANCE AND LEGAL DOCUMENTATION

Overall, the Project will be a highly efficient and environmentally clean method of producing electrical power. Two positive benefits will be produced at the existing Lansing Smith Generating Facility. First, the reuse of cooling water discharge will mean no additional surface water requirements for once-through cooling will be needed. With the use of the cooling tower, the net impact of operation of Smith Unit 3 will be no increase in the temperature of the existing discharge and a reduction in the discharge volume. Consequently, the heat rejection rate will be reduced by 1.3 percent which will slightly reduce the thermal impacts on the receiving waters of West Bay.

A second major benefit of Smith Unit 3 operations will be a net reduction in NO_x emissions from Lansing Smith due to installation of low-NO_x burner technology and a burner management system on Smith Unit 1. This results in a significant increase in electrical generating capacity with no increase in NO_x emissions.

The best available control technology and Prevention of Significant Deterioration (PSD) review required for Smith Unit 3 will ensure emissions of air-borne pollutants will be minimized. The Project will not cause or contribute to any violation of ambient air quality standards or PSD increments. Secondary air impacts will be negligible. Types and concentrations of air pollutants will not adversely affect soil or vegetation.

The limited use of ground water for process water needs at the Lansing Smith site including Smith Unit 3 will not adversely affect the surficial aquifer or Floridan aquifer at the site. No impacts to existing water supplies or water wells are expected.

During operations, the SWMP and BMPs will protect adjacent areas from any storm water runoff impacts. Solid wastes generated will be disposed offsite by licensed contractors.

No significant ecological effects are anticipated from plant operation. The plant will not affect regional plant and wildlife populations.

Noise impacts will be minimal and confined to the near-plant limits. Noise levels are calculated to be well below Bay County standards.

Gulf will be responsible for operating and maintaining the Smith Unit 3 power plant.

The legal description and deed of the project site are provided in Attachment G.

8.0 WATER USE

Gulf has completed/submitted an application for a modification to the existing consumptive use permit number S850073-System, for surface water (North Bay) and ground water (Floridan aquifer) at Plant Lansing Smith. This document includes extensive ground water modeling utilizing two models entitled MODFLOW and SHARP.

The current permitted amount that is allowed to be withdrawn from the Floridan Aquifer is 0.7 million gallons per day (MGD). Gulf is currently proposing to increase consumptive uses of ground water to a total of 1.2 MGD. This consumptive rate will not adversely affect adjacent well operators and will not cause a significant impact to the Floridan aquifer.

Well no. 4, which is currently included in Gulf's existing permit, is scheduled to be installed in October 1999. The proposed location of the new well is approximately 8,000 ft north of the existing plant site. The installation and operation of this well will help Gulf meet the future demand for power in northwest Florida.

In reference to surface water withdrawals, the permit application includes no increase for the next 5 years. The new combined cycle generating unit will utilize once-through cooling water already covered under Gulf's existing consumptive use permit. This is one of the conservation measures undertaken by Gulf. In addition, Gulf currently re-circulates water from the existing onsite ash pond to reduce consumptive usage of ground water.

ATTACHMENT B

AERIAL PHOTOGRAPH WITH WETLAND DELINEATIONS

ATTACHMENT C

SUPPLEMENTAL
STORM WATER CALCULATIONS

Existing conditions

********** Basin Summary - PRE **********

***

Basin Name:	NW	SE
Group Name:	BASE	BASE
Node Name:	NWPOND	SEPOND
Hydrograph Type:	UH	UH
Unit Hydrograph:	UH256	UH256
Peaking Factor:	256.00	256.00
Spec Time Inc (min):	1.33	1.33
Comp Time Inc (min):	1.33	1.33
Rainfall File:	SCSIII	SCSIII
Rainfall Amount (in):	11.00	11.00
Storm Duration (hr):	24.00	24.00
Status:	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00
Lag Time (hr):	0.00	0.00
Area (acres):	10.14	22.56
Vol of Unit Hyd (in):	1.00	1.00
Curve Number:	77.00	77.00
DCIA (%):	0.00	0.00
Time Max (hrs):	12.27	12.27
Flow Max (cfs):	57.70	128.37
Runoff Volume (in):	8.08	8.08
Runoff Volume (cf):	297382	661631

□□ Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.11) [1]

Stormwater analysis of the two wet detention ponds

********** Node Maximum Conditions - 25YR
****

□(Time units - hours)

Node Name	Group Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
NWPOND	BASE	12.37	8.54	10.00	0.0126	33110.94	12.33	49.84	12.37	46.27
OUTFALL	BASE	0.00	6.00	0.00	0.0000	0.00	12.48	109.62	0.00	0.00
SEPOND	BASE	12.56	8.98	10.00	0.0176	66303.85	12.42	77.09	12.56	68.12

□□ Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.11) [1]

Stormwater analysis of the two wet detention ponds

********** Link Maximum Conditions - 25YR
****

□(Time units - hours)

Link Name	Group Name	Max Time Flow	Max Flow (cfs)	Max Delta Q (cfs)	Max Time U/S Stage	Max US Stage (ft)	Max Time D/S Stage	Max DS Stage (ft)
O-NW	BASE	12.37	0.12	0.00	12.37	8.54	0.00	6.00
O-SE	BASE	12.56	0.24	0.00	12.56	8.98	0.00	6.00
W-NW	BASE	12.37	46.15	0.83	12.37	8.54	0.00	6.00
W-SE	BASE	12.56	67.89	1.49	12.56	8.98	0.00	6.00

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.11) [4]

GP Smith Plant

********** Input Report **********

-------Class: Weir----------

Name: W-SE From Node: SEPOND
Group: BASE To Node: OUTFALL
Count: 1

Type: Horiz Flow: Both Geometry: Rectangular

Span(in): 144
Rise(in): 36
Invert(ft): 8.15
Control Elev(ft): 8.15
TABLE
Bottom Clip(in): 0
Top Clip(in): 0
Weir Discharge Coef: 3
Orifice Discharge Coef: 0.6

-------Class: Simulation----------

C:\ICPR2\GP\25YR
Execution: Both
Header: Stormwater analysis of the two wet detention ponds

-------HYDRAULICS----------HYDROLOGY----------

Max Delta Z (ft): 1
Delta Z Factor: 0.01 Override Defaults: No
Time Step Optimizer: 0
Drop Structure Optimizer: 0
Sim Start Time(hrs): 0
Sim End Time(hrs): 100
Min Calc Time(sec): 30
Max Calc Time(sec): 300

To Hour:	PInc(min):	To Hour:	PInc(min):
9	15	9	15
22	5	30	5
200	15	50	30

-------GROUP SELECTIONS----------

+BASE [05/24/99]

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.11) [3]

GP Smith Plant

********** Input Report **********

-------Class: Weir-------

Name: O-SE From Node: SEPOND
Group: BASE To Node: OUTFALL
Count: 1

Type: Horiz Flow: Both Geometry: Circular

Span(in): 2.5
Rise(in): 2.5
Invert(ft): 6.9
Control Elev(ft): 6.9
TABLE
Bottom Clip(in): 0
Top Clip(in): 0
Weir Discharge Coef: 3
Orifice Discharge Coef: 0.6

-------Class: Weir-------

Name: W-NW From Node: NWPOND
Group: BASE To Node: OUTFALL
Count: 1

Type: Horiz Flow: Both Geometry: Rectangular

Span(in): 84
Rise(in): 36
Invert(ft): 7.7
Control Elev(ft): 7.7
TABLE
Bottom Clip(in): 0
Top Clip(in): 0
Weir Discharge Coef: 3
Orifice Discharge Coef: 0.6

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.11) [2]

GP Smith Plant

********** Input Report **********

-------Class: Basin-------

Basin: SE Node: SEPOND Status: On Site Type: SCS Unit Hydr
Group: BASE
Unit Hydrograph: UH256 Peak Factor: 256
Rainfall File: SCSIII Storm Duration(hrs): 24
Rainfall Amount(in): 11
Area(ac): 22.56 Concentration Time(min): 26
Curve #: 71 Lag Time(hrs): 0
DCIA(%): 0

-------Class: Weir-------

Name: O-NW From Node: NWPOND
Group: BASE To Node: OUTFALL
Count: 1

Type: Horiz Flow: Both Geometry: Circular

Span(in): 1.75
Rise(in): 1.75
Invert(ft): 6.4
Control Elev(ft): 6.4
TABLE
Bottom Clip(in): 0
Top Clip(in): 0
Weir Discharge Coef: 3
Orifice Discharge Coef: 0.6

□□ Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.11) [1]

GP Smith Plant

********** Input Report **********
———Class: Node———
Name: NWPOND Base Flow(cfs): 0 Init Stage(ft): 6.4
Group: BASE Length(ft): 0 Warn Stage(ft): 10
Comment:

Stage(ft)	Area(ac)
4.4	0.383
6.4	0.5703
7.4	0.6739
10.4	0.9009

———Class: Node———
Name: OUTFALL Base Flow(cfs): 0 Init Stage(ft): 6
Group: BASE Length(ft): 0 Warn Stage(ft): 0
Comment:

Time(hrs)	Stage(ft)
0	6
200	6

———Class: Node———
Name: SEPOND Base Flow(cfs): 0 Init Stage(ft): 6.9
Group: BASE Length(ft): 0 Warn Stage(ft): 10
Comment:

Stage(ft)	Area(ac)
4.9	0.9709
6.9	1.2552
7.9	1.4072
9.9	1.6203
10.9	1.7312

———Class: Basin———
Basin: NW Node: NWPOND Status: On Site Type: SCS Unit Hydr
Group: BASE
Unit Hydrograph: UH256 Peak Factor: 256
Rainfall File: SCSIII Storm Duration(hrs): 24
Rainfall Amount(in): 11
Area(ac): 10.14 Concentration Time(min): 15
Curve #: 78 Lag Time(hrs): 0
DCIA(%): 0

Stormwater analysis of the two wet detention ponds

********** Node Time Series by Time - 25YR **********

				<----------Inflow---------->			Link	
Node Name	Stage (ft)	Surface Ar.(ac)	Base Q (cfs)	Onsite Q (cfs)	Offsite Q (cfs)	Bndry Q (cfs)	Link Q (cfs)	Outflow
*** Group: BASE	Time 83.647: 3 days 11 hours 38 minutes 49 seconds							
NWPOND	7.14	0.65	0.00	0.00	0.00	0.00	0.00	0.07
OUTFALL	6.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00
SEPOND	7.62	1.36	0.00	0.00	0.00	0.00	0.00	0.14
*** Group: BASE	Time 83.897: 3 days 11 hours 53 minutes 49 seconds							
NWPOND	7.13	0.65	0.00	0.00	0.00	0.00	0.00	0.07
OUTFALL	6.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00
SEPOND	7.62	1.36	0.00	0.00	0.00	0.00	0.00	0.14
*** Group: BASE	Time 84.147: 3 days 12 hours 8 minutes 49 seconds							
NWPOND	7.13	0.65	0.00	0.00	0.00	0.00	0.00	0.07
OUTFALL	6.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00
SEPOND	7.62	1.36	0.00	0.00	0.00	0.00	0.00	0.14
*** Group: BASE	Time 84.397: 3 days 12 hours 23 minutes 49 seconds							
NWPOND	7.13	0.65	0.00	0.00	0.00	0.00	0.00	0.07
OUTFALL	6.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00
SEPOND	7.61	1.36	0.00	0.00	0.00	0.00	0.00	0.14
*** Group: BASE	Time 84.647: 3 days 12 hours 38 minutes 49 seconds							
NWPOND	7.13	0.65	0.00	0.00	0.00	0.00	0.00	0.07
OUTFALL	6.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00
SEPOND	7.61	1.36	0.00	0.00	0.00	0.00	0.00	0.14
*** Group: BASE	Time 84.897: 3 days 12 hours 53 minutes 49 seconds							
NWPOND	7.13	0.65	0.00	0.00	0.00	0.00	0.00	0.07
OUTFALL	6.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00
SEPOND	7.61	1.36	0.00	0.00	0.00	0.00	0.00	0.14
*** Group: BASE	Time 85.147: 3 days 13 hours 8 minutes 49 seconds							
NWPOND	7.12	0.65	0.00	0.00	0.00	0.00	0.00	0.07
OUTFALL	6.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00
SEPOND	7.61	1.36	0.00	0.00	0.00	0.00	0.00	0.14
*** Group: BASE	Time 85.397: 3 days 13 hours 23 minutes 49 seconds							
NWPOND	7.12	0.65	0.00	0.00	0.00	0.00	0.00	0.07
OUTFALL	6.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00
SEPOND	7.60	1.36	0.00	0.00	0.00	0.00	0.00	0.14

ATTACHMENT D

WETLAND RAPID ASSESSMENT PROCEDURE DATA SHEETS FOR EXISTING WETLANDS PRIOR TO DEVELOPMENT

WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)
FIELD DATA SHEET

Permit Number	Project	Date	Evaluator	Wetland Type
199901926(IP-DH)	Smith Unit 3	4/9/99	Arcuri, Brown	Wet Pine Plantation

Land Use	Wildlife Utilization (WU)	Wetland Canopy (O/S)	WL Groundcover (GC)
Pine Plantation	2.0	1.5	1.5

Habitat Support/Buffer	Field Hydrology (HYD)	WQ Input and Treatment (WQ)
2.5	1.5	3.0

WRAP Score
0.67

COMMENTS

WU-Used by birds, raccoons, armadillo, snakes, and deer. No habitat for aquatic invertebrates or fish. Ephemeral amphibian habitat. Adequate cover, but minimal food sources due to planted pine.

O/S- Dominated by slash pines in canopy. Titi, myrtle holly, wax myrtle, and gallberry dominant in subcanopy/shrub layer. Good overstory and shrub cover, but minimal diversity.

GC-Red root, red-top panicum, broomsedge, blackberry, St. John's wort, and poison ivy in ground cover. Minimal cover due to silviculture activity. Moderate diversity, but dominated by opportunistic red root.

BUFFER-Good habitat greater than 300 feet, but value decreased due to timber operations and minimal native habitat.

HYD-Hydrology only slightly adequate to maintain transitional wetland system; succession to more upland species.

WQ-Land Use (Natural Undeveloped Areas) + Pretreatment (Natural Undeveloped Areas)

$$\frac{3+3}{2} = 3.0$$

WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)
FIELD DATA SHEET

Permit Number	Project	Date	Evaluator	Wetland Type
199901926(IP-DH)	Smith Unit 3	4/9/99	Arcuri, Brown	Marsh

Land Use	Wildlife Utilization (WU)	Wetland Canopy (O/S)	WL Groundcover (GC)
Transmission Corridor	1.5	N/A	1.5

Habitat Support/Buffer	Field Hydrology (HYD)	WQ Input and Treatment (WQ)
1.5	2.0	2.3

WRAP Score
0.59

COMMENTS

WU-Good foraging opportunities for small mammals and habitat for aquatic invertebrates and amphibians; but very little structural diversity since the marsh is maintained under large power lines.

O/S-N/A

GC-Red root, red-top panicum, grassy arrowhead, pipewort, shore rush, and mermaid's weed dominate; scattered pitcher plants. Good diversity, but maintained under power line.

BUFFER-Good pine plantation habitat east and west, but north is maintained transmission line corridor and south is the power plant facility.

HYD-Adequate to maintain existing habitat, but limited due to water impoundment from a raised roadway that acts like a levee.

WQ-

Natural Undeveloped Areas	+	Rangeland	+	Roadway		
(0.50 x 3)	+	(0.25 x 2.5)	+	(0.25 x 1)	=	2.38 LU total
(0.75 x 3)	+		+	(0.25 x 0)	=	2.25 PU total

$$\frac{2.38 + 2.25}{2} = 2.32$$

WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)
FIELD DATA SHEET

Permit Number	Project	Date	Evaluator	Wetland Type
199901926(1P-DH)	Smith Unit 3	4/9/99	Arcuri, Brown	Cypress-Titi Swamp

Land Use	Wildlife Utilization (WU)	Wetland Canopy (O/S)	WL Groundcover (GC)
Forested Wetland	2.5	2.5	1.5

Habitat Support/Buffer	Field Hydrology (HYD)	WQ Input and Treatment (WQ)
2.5	2.0	3.0

WRAP Score
0.78

COMMENTS

WU-Good cover and water source for majority of the year; used by aquatic invertebrates and amphibians, adequate adjacent upland food sources.

O/S-Pond cypress, black titi, titi, and fetterbush are dominant; very good dense cover, but minimized by lack of diversity.

GC-Royal fern, netted chainfern, and lance-leaf primrose willow; minimal ground cover and diversity due to canopy shading and variable water levels.

BUFFER-Good pine plantations buffers with food sources and contiguous wetlands offsite.

HYD-Adequate to maintain habitat conditions, but drainage ditch impacts hydroperiod fluctuations.

WQ-Land Use (Natural Undeveloped Areas) + Pretreatment (Natural Undeveloped Areas)

$$\frac{3+3}{2} = 3.0$$

WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)
FIELD DATA SHEET

Permit Number	Project	Date	Evaluator	Wetland Type
199901926(IP-DH)	Smith Unit 3	4/9/99	Arcuri, Brown	Ditch

Land Use	Wildlife Utilization (WU)	Wetland Canopy (O/S)	WL Groundcover (GC)
Ditch	2.0	N/A	1.0

Habitat Support/Buffer	Field Hydrology (HYD)	WQ Input and Treatment (WQ)
2.5	2.0	3.0

WRAP Score
0.70

COMMENTS

WU-Permanent water source for wildlife use; provides habitat for aquatic invertebrates, amphibians, and fishes.

O/S-Not applicable, but top-of-bank has some pond cypress, slash pine, sweet bay, and wax myrtle.

GC-Very minimal (less than 10 percent) cover due to steep banks and periodic deep flowing water; some lance-leaf primrose willow, netted chain fern and royal fern along side slopes.

BUFFER-Good pine plantation habitat north and south of the ditch; crosses along edge of cypress-titi system.

HYD-Adequate to maintain existing ditch habitat.

WQ-Land Use (Natural Undeveloped Areas) + Pretreatment (Natural Undeveloped Areas)

$$\frac{3+3}{2} = 3.0$$

ATTACHMENT E

WETLAND RAPID ASSESSMENT PROCEDURE
DATA SHEETS FOR POST DEVELOPMENT WETLANDS

WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)
FIELD DATA SHEET

Permit Number	Project	Date	Evaluator	Wetland Type
199901926(1P-DH)	Smith Unit 3	7/14/99	Arcuri	Wet Pine Plantation

Land Use	Wildlife Utilization (WU)	Wetland Canopy (O/S)	WL Groundcover (GC)
Pine Plantation	1.5	1.5	1.5

Habitat Support/Buffer	Field Hydrology (HYD)	WQ Input and Treatment (WQ)
2.0	1.5	1.8

WRAP Score
0.54

COMMENTS

WU-Used by birds, raccoons, armadillo, snakes, and deer. No habitat for aquatic invertebrates, or fish. Minimal amphibian habitat. Adequate cover, but minimal food sources due to planted pine. Adjacent development limits quality of wildlife habitat.

O/S-Dominated by slash pines in canopy. Titi, myrtle holly, wax myrtle, and gallberry dominant in subcanopy / shrub layer. Good overstory and shrub cover, but minimal diversity.

GC-Red root, red-top panicum, broomsedge, blackberry, St. John's wort, and poison ivy in ground cover. Minimal cover due to siliculture activity. Moderate diversity, but dominated by opportunistic red root.

BUFFER-Good habitat greater than 300 feet, but minimized due to timber operations and minimal native habitat. Portion of buffer has development, which limits habitat support.

HYD-Hydrology only slightly adequate to maintain transitional wetland system; succession to more upland species.

WQ-

Natural Undeveloped Areas	+	Development		
(0.5 x 3)	+	(0.5 x 1)	=	2.0 LU total
(0.5 x 3)	+	(0.5 x 0)	=	1.5 PU total

$$\frac{2+1.5}{2}=1.75$$

WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)
FIELD DATA SHEET

Permit Number	Project	Date	Evaluator	Wetland Type
199901926(IP-DH)	Smith Unit 3	7/14/99	Arcuri	Marsh

Land Use	Wildlife Utilization (WU)	Wetland Canopy (O/S)	WL Groundcover (GC)
Transmission Corridor	1.5	N/A	1.5

Habitat Support/Buffer	Field Hydrology (HYD)	WQ Input and Treatment (WQ)
1.0	2.0	1.7

WRAP Score
0.51

COMMENTS

WU-Good foraging opportunities for small mammals and habitat for aquatic invertebrates and amphibians; but very little structural diversity since the marsh is maintained under large power lines.

O/S-N/A

GC-Red root, red-top panicum, grassy arrowhead, pipewort, shore rush, and mermaid's weed dominate; scattered pitcher plants. Good diversity, but maintained under power line.

BUFFER-Good pine plantation habitat to the west, maintained transmission line corridor to the north and power plant facilities to the south and east.

HYD-Adequate to maintain existing habitat, but limited due to water impoundment from a raised roadway that acts like a levee.

WQ-

Natural Undeveloped Areas	+	Rangeland	+	Roadway		
(0.25 x 3)	+	(0.25 x 2.5)	+	(0.50 x 1)	=	1.88 LU total
(0.50 x 3)	+		+	(0.50 x 0)	=	1.50 PU total

$$\frac{1.88 + 1.50}{2} = 1.69$$

WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)
FIELD DATA SHEET

Permit Number	Project	Date	Evaluator	Wetland Type
199901926(IP-DH)	Smith Unit 3	7/14/99	Arcuri	Cypress-Titi Swamp

Land Use	Wildlife Utilization (WU)	Wetland Canopy (O/S)	WL Groundcover (GC)
Forested Wetland	2.0	2.5	1.5

Habitat Support/Buffer	Field Hydrology (HYD)	WQ Input and Treatment (WQ)
2.0	2.0	2.5

WRAP Score
0.69

COMMENTS

WU-Good cover and water source for majority of the year; used by aquatic invertebrates and amphibians, adequate adjacent upland food sources but development adjacent to wetland deters overall quality of habitat.

O/S-Pond cypress, black titi, titi, and fetterbush are dominant; very good dense cover, but minimized by lack of diversity.

GC-Royal fern, netted chainfern, and lance-leaf primrose willow; minimal ground cover and diversity due to canopy shading and variable water levels.

BUFFER-Good pine plantations buffers with food sources and contiguous wetlands offsite but adjacent development limits habitat support.

HYD-Adequate to maintain existing habitat conditions, but drainage ditch impacts hydroperiod fluctuations.

WQ-

Natural Undeveloped Areas	+	Development		
(0.80 x 3)	+	(0.20 x 1)	=	2.6 LU total
(0.80 x 3)	+	(0.20 x 0)	=	2.4 PU total

$$\frac{2.6+2.4}{2}=2.5$$

WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)
FIELD DATA SHEET

Permit Number	Project	Date	Evaluator	Wetland Type
199901926(IP-DH)	Smith Unit 3	7/14/99	Arcuri	Ditch

Land Use	Wildlife Utilization (WU)	Wetland Canopy (O/S)	WL Groundcover (GC)
Ditch	1.5	N/A	1.0

Habitat Support/Buffer	Field Hydrology (HYD)	WQ Input and Treatment (WQ)
2.0	2.0	2.5

WRAP Score
0.60

COMMENTS

WU-Permanent water source for wildlife use; provides habitat for aquatic invertebrates, amphibians, and fishes but adjacent development detracts from overall wildlife habitat quality.

O/S-Not applicable, but top-of-bank has some pond cypress, slash pine, sweet bay, and wax myrtle.

GC-Very minimal (less than 10 percent) cover due to steep banks and periodic deep flowing water; some lance-leaf primrose willow, netted chain fern and royal fern along side slopes.

BUFFER-Good pine plantation habitat north and south of the ditch; crosses along edge of cypress-titi system. Adjacent development limits habitat support.

HYD-Adequate to maintain existing ditch habitat.

WQ-

Natural Undeveloped Areas	+	Development		
(0.80 x 3)	+	(0.20 x 1)	=	2.6 LU total
(0.80 x 3)	+	(0.20 x 0)	=	2.4 PU total

$$\frac{2.6+2.4}{2}=2.5$$

ATTACHMENT F

WETLAND RAPID ASSESSMENT PROCEDURE
DATA SHEETS FOR WETLANDS
AT MITIGATION SITE

WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)
FIELD DATA SHEET

Permit Number	Project	Date	Evaluator	Wetland Type
199901926(IP-DH)	Smith Unit 3	8/12/99	Simpson/Arcuri	Wet Pine Plantation

Land Use	Wildlife Utilization (WU)	Wetland Canopy (O/S)	WL Groundcover (GC)
Pine Plantation	2.0	1.5	1.5

Habitat Support/Buffer	Field Hydrology (HYD)	WQ Input and Treatment (WQ)
2.5	2.0	3.0

WRAP Score
0.69

COMMENTS

WU-Used by aquatic macroinvertebrates, amphibians, reptiles and small / medium size mammals. Adequate cover, but minimal food sources due to planted pines.

O/S-Dominated by young slash pines in canopy. Minimal diversity of overstory / shrub cover.

GC-Red root and St. John's wort in ground cover. Minimal cover due to silviculture activities. Moderate diversity, but dominated by opportunistic red root.

BUFFER-Good habitat greater than 300 feet, but value decreased somewhat due to adjacent timber operations and presence of transmission line corridor.

HYD-Hydrology adequate to maintain wetland system.

WQ- Land Use (Natural Undeveloped Areas) + Pretreatment (Natural Undeveloped Areas)

$$\frac{3 + 3}{2} = 3.0$$

WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)
FIELD DATA SHEET

Permit Number	Project	Date	Evaluator	Wetland Type
199901926(IP-DH)	Smith Unit 3	8/12/99	Simpson/Arcuri	Mixed Cypress Hardwood Swamp

Land Use	Wildlife Utilization (WU)	Wetland Canopy (O/S)	WL Groundcover (GC)
Conservation	2.5	2.5	2.5

Habitat Support/Buffer	Field Hydrology (HYD)	WQ Input and Treatment (WQ)
2.5	2.0	3.0

WRAP Score
0.83

COMMENTS

WU-Used by aquatic macroinvertebrates, amphibians, reptiles and small / medium sized mammals. Good diversity of species and structure in cover.

O/S-Dominated by a diverse mixture of aquatic hardwoods and cypress.

GC-Diverse herbaceous ground cover commonly associated with mixed hardwood - cypress swamp.

BUFFER-Good habitat, greater than 300 feet, but value decreased somewhat due to adjacent timber operations and presence of transmission line corridor.

HYD-Hydrology adequate to maintain wetland system.

WQ- Land Use (Natural Undeveloped Areas) + Pretreatment (Natural Undeveloped Areas)

$$\frac{3 + 3}{2} = 3.0$$

ATTACHMENT G

LEGAL DESCRIPTION AND DEED

LEGAL DESCRIPTION:

BEGINNING AT THE SOUTH WEST CORNER AT THE COORDINATES OF N 464,369.25; E 1,589.706.16 BASED UPON FLORIDA NORTH ZONE STATE PLANE, NAD83 ZONE 903 DATUM. FROM SAID POINT OF BEGINNING IN A NORTHWESTERLY DIRECTION FOR A DISTANCE OF APPROXIMATELY 1,247 FEET; THEN EAST FOR A DISTANCE OF APPROXIMATELY 1,062 FEET; THEN NORTH FOR A DISTANCE OF APPROXIMATELY 250 FEET; THEN EAST FOR A DISTANCE OF APPROXIMATELY 784 FEET; THEN SOUTH FOR A DISTANCE OF APPROXIMATELY 250 FEET; THEN WEST FOR A DISTANCE OF APPROXIMATELY 334 FEET; THEN SOUTH FOR A DISTANCE OF APPROXIMATELY 660 FEET; THEN EAST FOR A DISCANCE OF APPROXIMATELY 980 FEET; THEN SOUTH FOR A DISTANCE OF APPROXIMATELY 500 FEET; THEN WEST FOR A DISTANCE OF APPROXIMATELY 2,052 FEET BACK TO SAID POINT OF BEGINNING. ENCOMPASSING 50 ACRES MORE OR LESS.

THIS SPECIAL WARRANTY DEED IS BEING RE-RECORDED TO REFLECT A SCRIVENER'S ERROR IN THE LEGAL DESCRIPTION.

This Instrument Prepared by:
JAMES S. CAMPBELL
Beggs & Lane
Post Office Box 12950
Pensacola, Florida 32576
(904) 432-2451
Florida Bar No.: 623539

FILE# 91-15678
BAY COUNTY, FLORIDA

** OFFICIAL RECORDS **
BK 1315 PG 1877

Deed Doc. Tax Pd. $ 5236.00
Mtg. Doc. Tax Pd. $ —
Intangible Tax Pd. $ —
Harold Bazzul, Clerk, Bay County
By: _____ D.C.

SPECIAL WARRANTY DEED

STATE OF FLORIDA
COUNTY OF BAY

FILE# 91-14172
BAY COUNTY, FLORIDA

KNOW ALL MEN BY THESE PRESENTS, that ST. JOSEPH LAND AND DEVELOPMENT COMPANY, a Florida corporation, Grantor, for and in consideration of the sum of Ten and 00/100 Dollars ($10.00) and other good and valuable considerations, the receipt whereof is hereby acknowledged, does hereby bargain, sell, convey and grant unto GULF POWER COMPANY, a Maine corporation, whose address is Post Office Box 1151, Pensacola, Florida 32520, its successors and assigns, forever, the following described real property located in Bay County, Florida, to-wit:

SEE EXHIBIT "A" ATTACHED HERETO AND INCORPORATED HEREIN BY THIS REFERENCE.

Subject to zoning restrictions, prohibitions and other requirements imposed by governmental authorities, all easements, encumbrances and restrictions of record or on the Plat, if there is a recorded Plat, affecting the above-described property; easements and mineral reservations of record affecting the property, if any, which are not hereby reimposed, any liens for ad valorem real property taxes for the year 1991 and subsequent years; and any other matters arising subsequent to the date hereof.

TOGETHER with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining, to have and to hold, the same in fee simple forever.

And Grantor covenants that it is lawfully seized of said land in fee simple; that it has good right and lawful authority to sell and convey said land; and that the premises are free of any lien or encumbrances made by Grantor, except as set forth above, and that Grantor will warrant and defend the same against all persons lawfully claiming the same, by through or under the Grantor only.

IN WITNESS WHEREOF, this instrument has been executed by St. Joseph Land and Development Company, this 22nd day of April, 1991.

WITNESSES:

Cindy P. Ward

_____

ST. JOSEPH LAND AND DEVELOPMENT COMPANY, a Florida corporation

BY: Robert E. Dedley (SEAL)
Vice-President

ATTEST:

BY: Lillie M. Land
Asst. SECRETARY

STATE OF FLORIDA
COUNTY OF ~~ESCAMBIA~~ Gulf

The foregoing instrument was acknowledged before me this 22nd day of April, 1991, by Robert E. Dedley, as Vice President, and attested to by Lillie M. Land, as Asst. Secretary of St. Joseph Land and Development Company, a Florida corporation, on behalf of the corporation.

Cindy P. Ward
NOTARY PUBLIC
My Commission Expires: _____

NOTARY PUBLIC, STATE OF FLORIDA
MY COMMISSION EXPIRES: SEPT. 24, 1994
BONDED THRU NOTARY PUBLIC UNDERWRITERS

EXHIBIT "A"

DESCRIPTION OF PARCEL ONE: Commence at the northeast corner of the southeast quarter of Section 35, Township 2 South, Range 15 West, Bay County, Florida. Thence South 00° 24' 00" West along the east line of said southeast quarter for 1191.46 feet to the southerly line of the parcel described in Official Records Book 44, page 260 of the public records of Bay County, Florida for the Point of Beginning. Thence North 67° 46' 00" West for 381.43 feet to the easterly side of a road; thence South 19° 24' 12" East along said easterly side of the road for 1045.09 feet to said east line of the southeast quarter; thence North 00° 24' 00" East for 841.43 feet to the Point of Beginning.

DESCRIPTION OF PARCEL TWO: Commence at the northeast corner of the southeast quarter of Section 35, Township 2 South, Range 15 West, Bay County, Florida. Thence South 00° 24' 00" West along the east line of said southeast quarter for 211.32 feet to the southerly right of way line of State Road No. S-391 for the Point of Beginning. Thence continue South 00° 24' 00" West for 549.22 feet to the northerly line of the parcel described in Official Records Book 44, page 260 of the public records of Bay County, Florida. Thence North 67° 46' 00" West along said northerly line for 572.65 feet to the easterly side of a road; thence North 19° 43' 11" West along said easterly side of the road for 865.49 feet to the P.C. of a non-tangent curve in said easterly side of the road concave to the east and having a radius of 205.95 feet; thence northerly along said curve for an arc distance of 268.80 feet, said arc having a chord of 250.12 feet bearing North 20° 01' 56" East; thence North 45° 46' 37" East along said easterly side of the road for 276.20 feet to the westerly right of way line of State Road No. S-391 which is a curve concave to the northeast and having a radius of 653.78 feet; thence southeasterly along said curving right of way line for an arc distance of 1005.21 feet, said arc having a chord of 909.08 feet bearing South 23° 23' 09" East; thence South 67° 26' 00" East along the southerly right of way line of said State Road No. S-391 for 196.54 feet to the Point of Beginning.

DESCRIPTION OF PARCEL THREE: Begin at the northeast corner of the southeast quarter of Section 35, Township 2 South, Range 15 West, Bay County, Florida. Thence South 00° 24' 00" West along said east line for 103.34 feet to the northerly right of way line of State Road No. S-391; thence North 67° 26' 00" West along said northerly right of way line for 155.80 feet to the P.C. of a curve in said right of way line concave to the east and having a radius of 553.78 feet; thence northwesterly, northerly and easterly along said curving right of way line for an arc distance of 1102.32 feet, said arc having a chord of 929.13 feet bearing North 10° 24' 30" West to the P.C. of a curve in said right of way line concave to the west and having a radius of 1196.23 feet; thence northeasterly along said curving right of way line for an arc distance of 579.22 feet, said arc having a chord of 573.58 feet bearing North 32° 44' 42" East to the southwesterly line of the parcel described in Official Records Book 542, page 447 of the public records of Bay County, Florida. Thence South 44° 58' 56" East along said southwesterly line for 16.35 feet to the east line of the northeast quarter of said Section 35; thence South 00° 24' 00" West for 1341.19 feet to the Point of Beginning.

EXHIBIT "A" CONTINUED

ALSO: The south half of the north half of Section 36, Township 2 South, Range 15 West, Bay County, Florida. Less and Except that portion lying within the area described in Official Records Book 44, page 262, Official Records Book 245, page 697, Official Records Book 245, page 702, and Official Records Book 542, page 447, and Official Records Book 539 page 208.

ALSO: The south 909.14 feet of the north half of the north half of Section 36, Township 2 South, Range 15 West, Bay County, Florida. Less and except that portion lying within the areas described in Official Records Book 44, page 262 and Official Records Book 245, page 702, Also less and except that portion lying within the right of way of State Road S-391. Official Records Book 245, Page 697, and Official Record Book 542, Page 447 of the Public Records of Bay Co., FL.

ALSO: The south half of the northwest quarter of Section 31, Township 2 South, Range 14 West, Bay County, Florida.

ALSO: The south 909.14 feet of the north half of the northwest quarter of Section 31, Township 2 South, Range 14 West, Bay County, Florida.

ALSO: The west 660.00 feet of the southwest quarter of the southeast quarter of Section 31, Township 2 South, Range 14 West, Bay County, Florida.

ALSO: The northeast quarter of the northwest quarter of Section 6, Township 3 South, Range 14 West, Bay County, Florida.

ALSO: The west 660.00 feet of the northwest quarter of the northeast quarter of Section 6, Township 3 South, Range 14 West, Bay County, Florida.

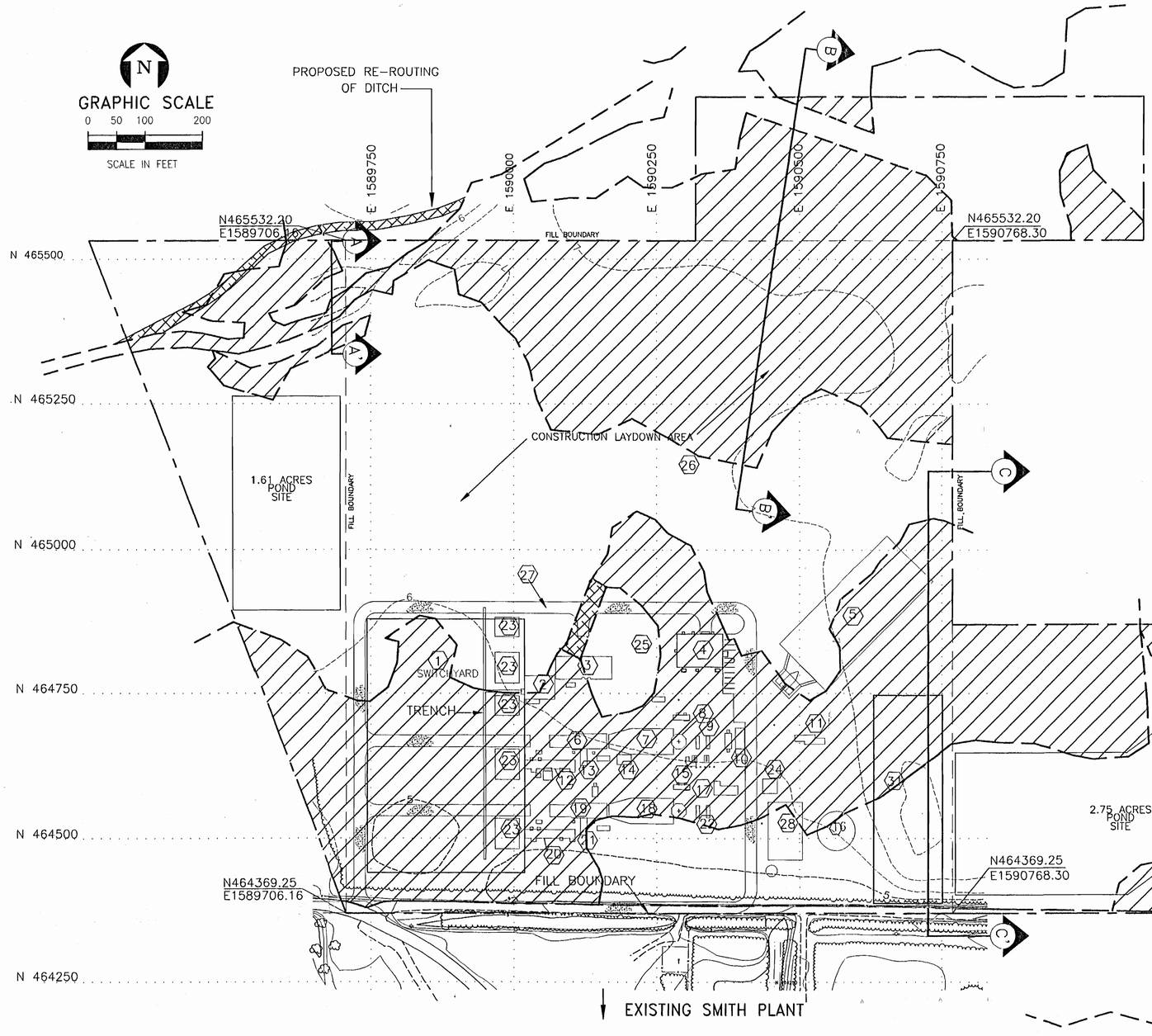
RCD: APR 24 1991 @ 10:52 AM
HAROLD BAZZEL, CLERK

RCD: MAY 6 1991 @ 8:52 AM
HAROLD BAZZEL, CLERK

APPENDIX H

FULL SIZE PLAN AND CROSS SECTION VIEW DRAWINGS

0050014 (1)



AREA/STRUCTURE LEGEND

1. SWITCHYARD
2. ELECTRICAL BUILDING
3. STEAM TURBINE
4. ADMINISTRATION BUILDING
5. COOLING TOWER
6. NORTH GAS TURBINE
7. NORTH HEAT RECOVERY STEAM GENERATOR (HRSG)
8. NORTH STACK
9. NORTH BOILER FEED PUMP
10. FEEDWATER TRANSFORMER
11. 480 VOLT MCC AND TRANSFORMER
12. BAC/PEECC
13. ACCESSORY MODULE
14. PHOSPHATE FEED SKID
15. AMMONIA SUPPLY SYSTEM
16. CONDENSATE STORAGE TANK
17. SOUTH STACK
18. SOUTH HEAT RECOVERY STEAM GENERATOR (HRSG)
19. SOUTH GAS TURBINE
20. GEC/PEECC
21. ACCESSORY MODULE
22. SOUTH BOILER FEED PUMP
23. TRANSFORMERS
24. WASTE WATER SUMP
25. INTERIOR PLANT YARD (GRAVEL)
26. BALANCE OF SITE (GRAVEL)
27. ROADWAY (CONCRETE)
28. WATER TREATMENT BUILDING
29. GRASSED SLOPES
30. MISC. CONC. PADS (INTERIOR YARD)
31. GAS METERING AREA

JURISDICTIONAL LINES

COMBINED FDEP/USACE WETLAND LIMITS

USACE WETLAND LIMITS ONLY

D/G Cavity

NO.	REVISION	DATE

PLOT PLAN

SCALE: GF	APPROVED BY:	DRAWN BY:
DATE: 8/27/99		CHECKED BY:

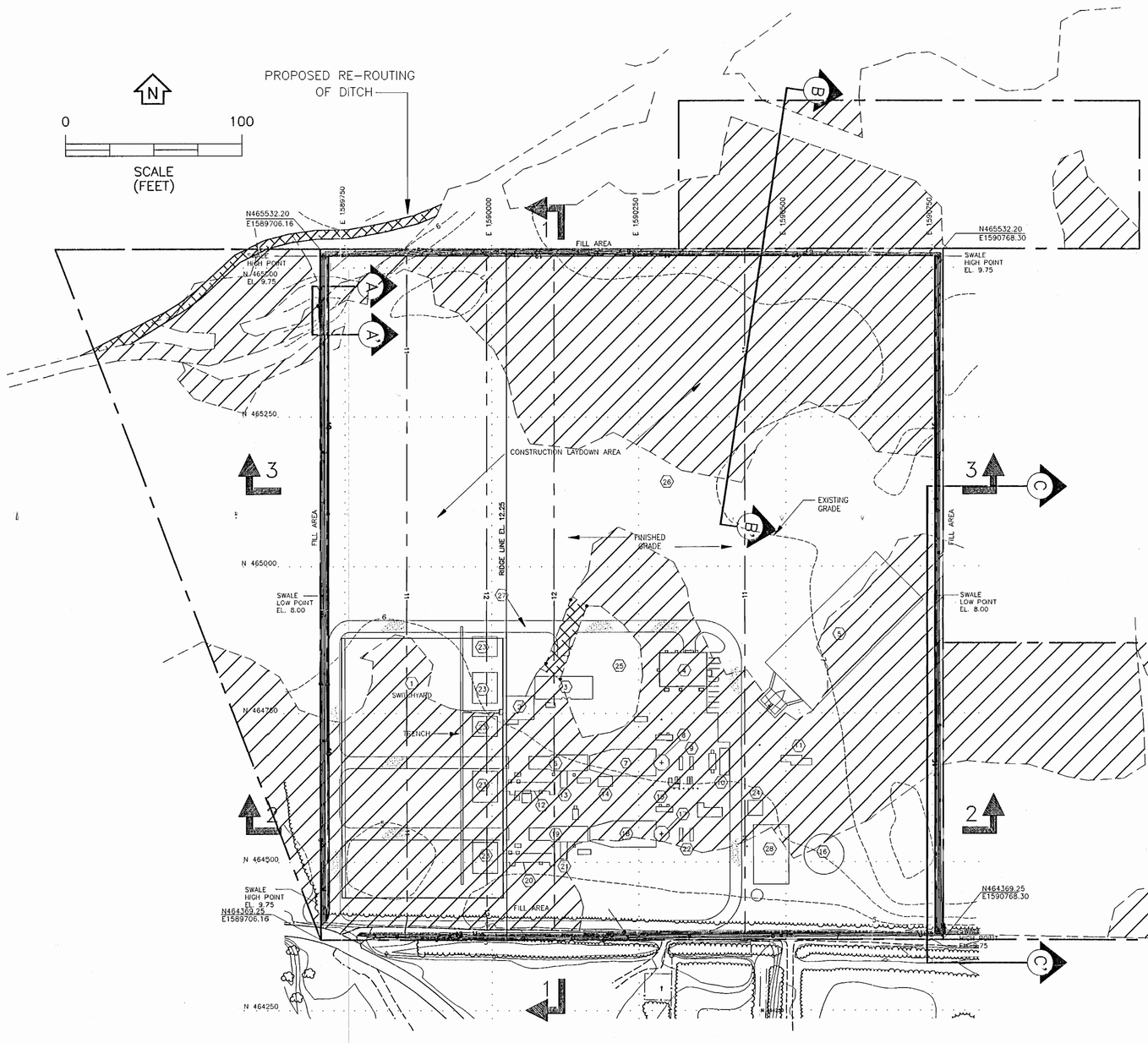
ECT Environmental Consulting & Technology, Inc. PROJECT NO: 990151

GULF POWER COMPANY DRAWING NUMBER

P:\projects\990151\gpx.dwg

date

2



AREA /STRUCTURE LEGEND

1. SWITCHYARD
2. ELECTRICAL BUILDING
3. STEAM TURBINE
4. ADMINISTRATION BUILDING
5. COOLING TOWER
6. NORTH GAS TURBINE
7. NORTH HEAT RECOVERY STEAM GENERATOR (HRSG)
8. NORTH STACK
9. NORTH BOILER FEED PUMP
10. FEEDWATER TRANSFORMER
11. 480 VOLT MCC AND TRANSFORMER
12. BAC/PEECC
13. ACCESSORY MODULE
14. PHOSPHATE FEED SKID
15. AMMONIA SUPPLY SYSTEM
16. CONDENSATE STORAGE TANK
17. SOUTH STACK
18. SOUTH HEAT RECOVERY STEAM GENERATOR (HRSG)
19. SOUTH GAS TURBINE
20. GEC/PEECC
21. ACCESSORY MODULE
22. SOUTH BOILER FEED PUMP
23. TRANSFORMERS
24. WASTE WATER SUMP
25. INTERIOR PLANT YARD (GRAVEL)
26. BALANCE OF SITE (GRASSED)
27. ROADWAY (CONCRETE)
28. WATER TREATMENT BUILDING
29. GRASSED SLOPES
30. MISC. CONC. PADS (INTERIOR YARD)

COMBINED FDEP/USACE WETLAND LIMITS

USACE WETLAND LIMITS ONLY

JURISDICTION LINES

NO.	REVISION	DATE

PLOT PLAN AND GRADING PLAN WITH CROSS SECTIONS

SCALE: 1" = 100' | APPROVED BY: | DRAWN BY:

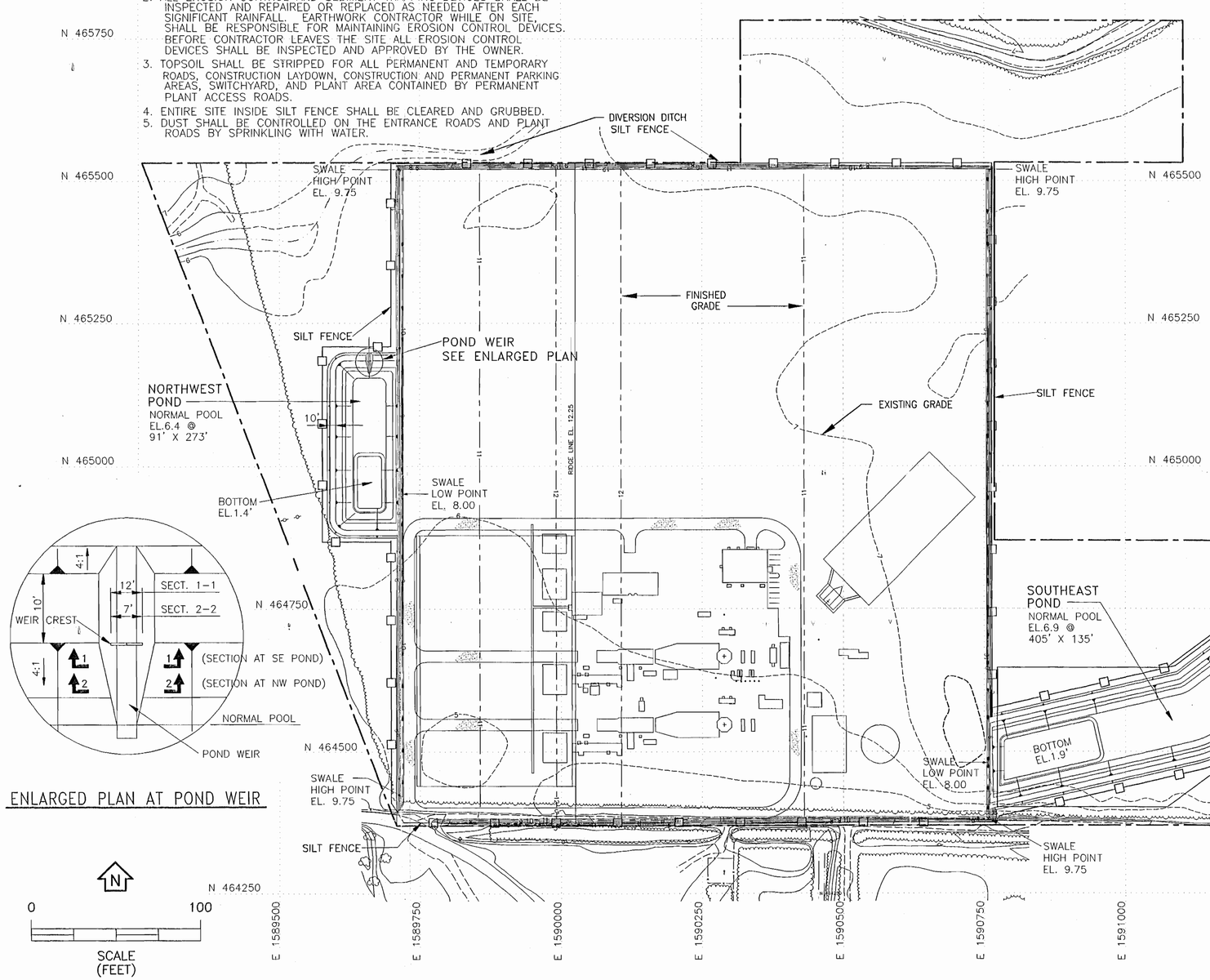
DATE: 8/27/99 | CHECKED BY: check

ECT Environmental Consulting & Technology, Inc. PROJECT NO: 990151

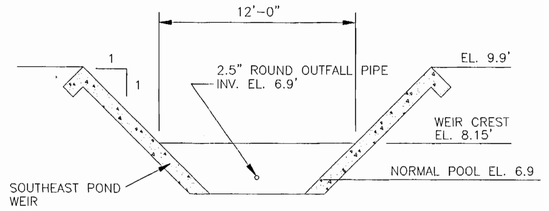
GULF POWER COMPANY | DRAWING NUMBER

EROSION CONTROL NOTES:

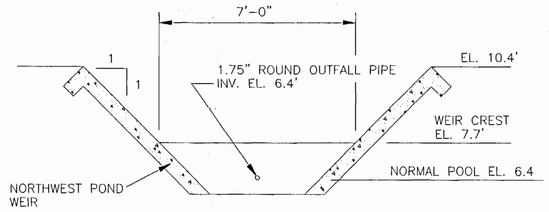
1. GEOTEXTILE FABRIC SILT FENCE SHALL BE PLACED AS SHOWN ON THIS DRAWING.
2. ALL EROSION CONTROL AND SEDIMENT TRAPPING DEVICES SHALL BE INSPECTED AND REPAIRED OR REPLACED AS NEEDED AFTER EACH SIGNIFICANT RAINFALL. EARTHWORK CONTRACTOR WHILE ON SITE, SHALL BE RESPONSIBLE FOR MAINTAINING EROSION CONTROL DEVICES. BEFORE CONTRACTOR LEAVES THE SITE ALL EROSION CONTROL DEVICES SHALL BE INSPECTED AND APPROVED BY THE OWNER.
3. TOPSOIL SHALL BE STRIPPED FOR ALL PERMANENT AND TEMPORARY ROADS, CONSTRUCTION LAYDOWN, CONSTRUCTION AND PERMANENT PARKING AREAS, SWITCHYARD, AND PLANT AREA CONTAINED BY PERMANENT PLANT ACCESS ROADS.
4. ENTIRE SITE INSIDE SILT FENCE SHALL BE CLEARED AND GRUBBED.
5. DUST SHALL BE CONTROLLED ON THE ENTRANCE ROADS AND PLANT ROADS BY SPRINKLING WITH WATER.



ENLARGED PLAN AT POND WEIR



WEIR SECTION 1-1



WEIR SECTION 2-2

NO.	REVISION	DATE

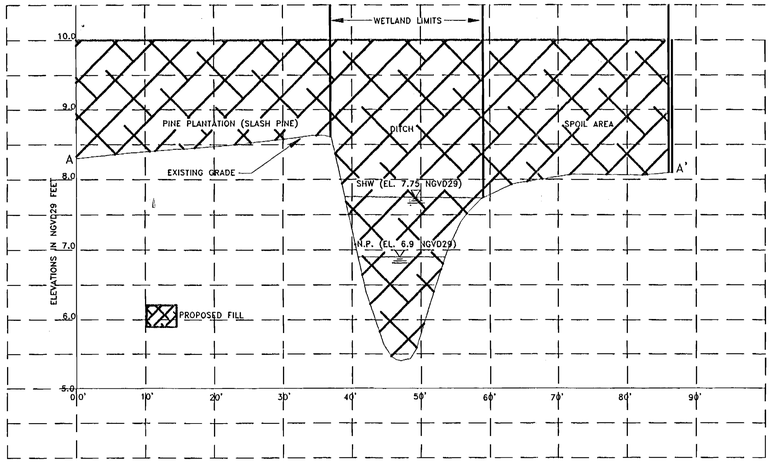
MASTER DRAINAGE PLAN

SCALE: 1" = 100'	APPROVED BY:	DRAWN BY:
DATE: 8/27/99		CHECKED BY:

ECT Environmental Consulting & Technology, Inc. PROJECT NO: 990151

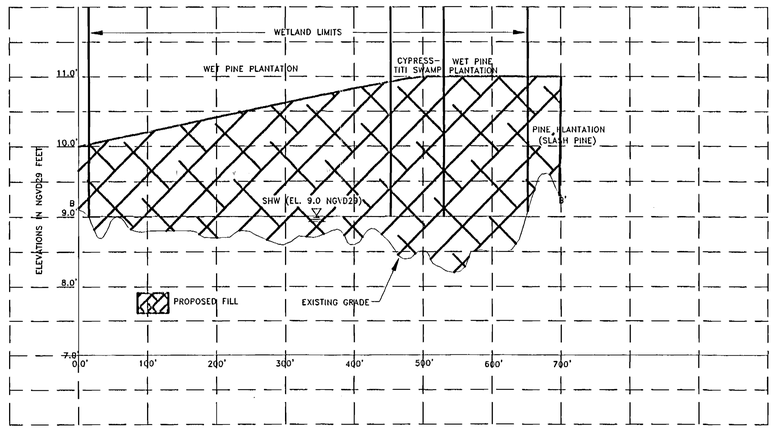
GULF POWER COMPANY

DRAWING NUMBER



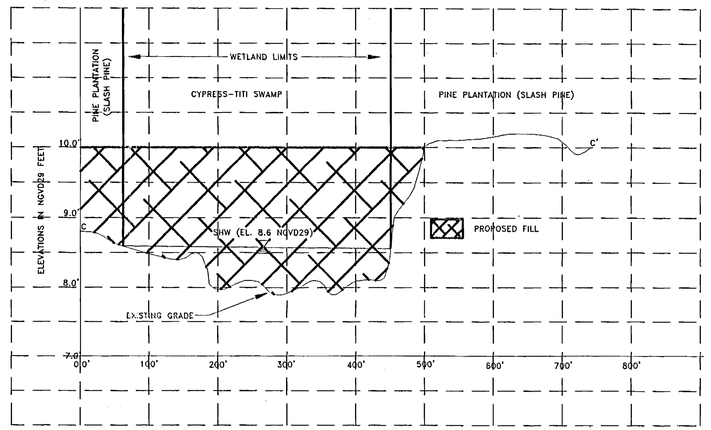
CROSS SECTION A-A'

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



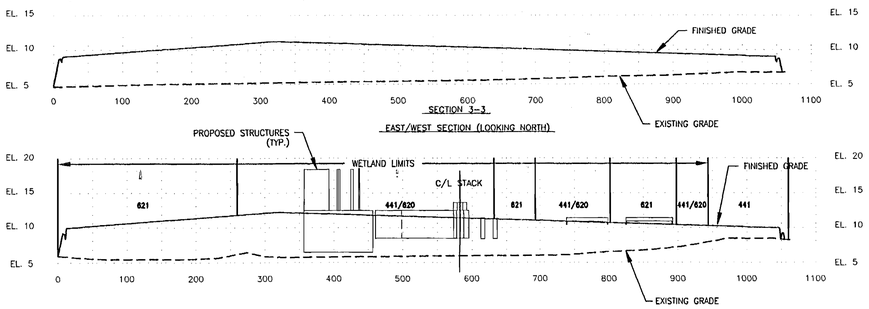
CROSS SECTION B-B'

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'



CROSS SECTION C-C'

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=1'

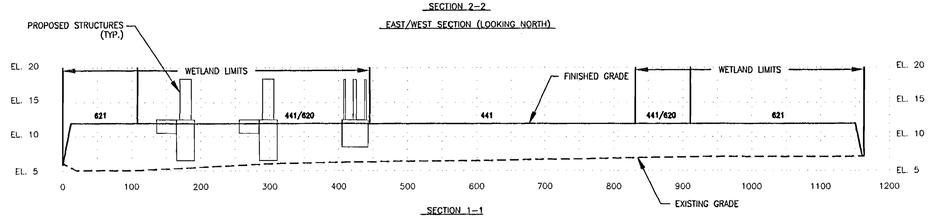


SECTION 3-3

EAST/WEST SECTION (LOOKING NORTH)

SECTION 2-2

EAST/WEST SECTION (LOOKING NORTH)

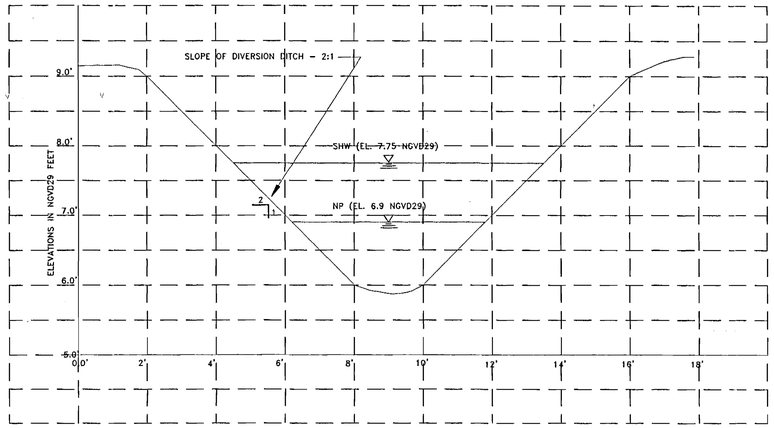


SECTION 1-1

NORTH/SOUTH SECTION (LOOKING WEST)

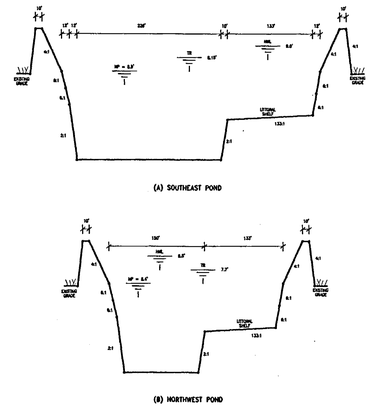
GRADING PLAN PROFILE

HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=15'



TYPICAL CROSS SECTION OF DIVERSION DITCH

HORIZONTAL SCALE: 1"=2'
VERTICAL SCALE: 1"=1'



TYPICAL POND SECTIONS

N.T.S.

D.L.G. Wirth

NO.	REVISION	DATE

CROSS SECTION DETAILS

SCALE: VARIES	APPROVED BY:	DRAWN BY:
DATE: 8/27/99		CHECKED BY:

ECT — Environmental Consulting & Technology, Inc. — PROJECT NO: 990151

GULF POWER — DRAWING NUMBER