Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Engineering Properties– Santa Rosa County, Florida												
Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1—Albany loamy sand, 0 to 5 percent slopes												
Albany	0-5	*Loamy sand	SM	A-2	0	0	100	100	75-90	12-23	0-7	NP
	5-47	*Loamy sand, Sand	SM	A-2	0	0	100	100	75-90	12-23	0-7	NP
	47-52	*Sandy loam	SM	A-2	0	0	100	100	75-92	22-30	0-14	NP
	52-80	*Sandy loam, Sandy clay loam, fine sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	97-100	95-100	70-100	20-50	0-40	NP-17
3—Bibb-Kinston association												
Bibb	0-17	*Silt loam	CL-ML, ML	A-4	0	0-5	95-100	90-100	60-90	30-60	0-25	NP-7
	17-42	*Silt loam, Loam, sandy loam	ML, CL-ML, SM, SC-SM	A-4	0	0-5	95-100	90-100	60-90	30-60	0-25	NP-7
	42-65	*Fine sand, Sand, loamy fine sand	SP-SM, SP	A-2, A-3	0	0-10	90-100	90-100	50-100	1-12	0-14	NP
Kinston	0-9	*Silt loam	CL, CL-ML, ML	A-4	0	0	100	98-100	85-97	65-97	17-34	4-10
	9-18	*Silt loam	CL, CL-ML, ML	A-4	0	0	100	98-100	85-97	65-97	17-34	4-10
	18-50	*Sandy clay loam, Loam, clay loam	CL	A-4, A-6	0	0	100	95-100	75-95	60-95	20-40	8-22
	50-65	*Sand, Loamy sand, fine sand	SM	A-2-4	0	0	100	100	75-90	12-23	0-7	NP

Engineering Properties– Santa Rosa County, Florida												
Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
5—Bonifay loamy sand, 0 to 5 percent slopes												
Bonifay	0-4	*Loamy sand	SM	A-2-4	0	0	98-100	98-100	70-95	13-20	0-14	NP
	4-47	*Loamy sand	SM	A-2-4	0	0	98-100	98-100	70-95	13-20	0-14	NP
	47-63	*Sandy loam, Sandy clay loam	SC, SC-SM, SM	A-2-4, A-4	0	0	95-100	90-100	70-95	30-50	0-30	NP-10
7—Dorovan-Pamlico association												
Dorovan	0-63	*Muck	PT	A-8	0	0	100	100	100	100	—	—
Pamlico	0-37	*Muck	PT	A-8	0	0	100	100	100	100	—	—
	37-60	*Sand, Loamy sand, sandy loam	SP-SM, SM	A-3, A-2	0	0	100	100	70-95	5-20	0-15	NP-4
8—Dothan fine sandy loam, 0 to 2 percent slopes												
Dothan	0-9	*Fine sandy loam	SC-SM, SM	A-4, A-2	0	0	95-100	92-100	75-90	20-40	0-25	NP-5
	9-13	*Fine sandy loam, Sandy loam, sandy clay loam	SC-SM, SM	A-2, A-4	0	0	95-100	92-100	75-90	20-40	0-25	NP-5
	13-43	*Sandy clay loam	SC, SC-SM, SM	A-4, A-6, A-2	0	0	95-100	92-100	68-90	23-45	0-40	NP-15
	43-63	*Sandy clay, Sandy clay loam	SM, SC, SC-SM	A-2, A-4, A-6, A-7	0	0	95-100	92-100	70-95	30-50	25-45	4-18

Engineering Properties– Santa Rosa County, Florida												
Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
9—Dothan fine sandy loam, 2 to 5 percent slopes												
Dothan	0-6	*Fine sandy loam	SC-SM, SM	A-4, A-2	0	0	95-100	92-100	75-90	20-40	0-25	NP-5
	6-14	*Fine sandy loam, Sandy loam, sandy clay loam	SM, SC-SM	A-2, A-4	0	0	95-100	92-100	75-90	20-40	0-25	NP-5
	14-49	*Sandy clay loam	SC, SC-SM, SM	A-4, A-6, A-2	0	0	95-100	92-100	68-90	23-45	0-40	NP-15
	49-66	*Sandy clay, Sandy clay loam	SC, SC-SM, SM	A-7, A-2, A-4, A-6	0	0	95-100	92-100	70-95	30-50	25-45	4-18
10—Dothan fine sandy loam, 5 to 8 percent slopes												
Dothan	0-5	*Fine sandy loam	SC-SM, SM	A-4, A-2	0	0	95-100	92-100	75-90	20-40	0-25	NP-5
	5-9	*Fine sandy loam, Sandy loam, sandy clay loam	SC-SM, SM	A-2, A-4	0	0	95-100	92-100	75-90	20-40	0-25	NP-5
	9-43	*Sandy clay loam	SC-SM, SM, SC	A-4, A-6, A-2	0	0	95-100	92-100	68-90	23-45	0-40	NP-15
	43-63	*Sandy clay, Sandy clay loam	SC-SM, SM, SC	A-7, A-2, A-4, A-6	0	0	95-100	92-100	70-95	30-50	25-45	4-18

Engineering Properties– Santa Rosa County, Florida												
Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
19—Kalmia loamy fine sand, 2 to 5 percent slopes												
Kalmia	0-4	*Loamy fine sand	SC-SM, SM	A-2	0	0	100	95-100	50-75	15-40	0-25	NP-7
	4-8	*Loamy fine sand, Loamy sand	SM, SC-SM	A-2	0	0	100	95-100	50-75	15-40	0-25	NP-7
	8-39	*Sandy clay loam, Fine sandy loam, sandy loam	SC, SC-SM	A-2, A-4, A-6	0	0	100	95-100	70-90	30-49	20-35	4-15
	39-65	*Loamy sand, Sand, fine sand	SP-SM, SM, SP	A-3, A-2	0	0	100	95-100	50-70	4-25	0-14	NP
21—Lakeland sand, 0 to 5 percent slopes												
Lakeland	0-4	*Sand	SP-SM	A-2-4, A-3	0	0	90-100	90-100	60-100	5-12	0-14	NP
	4-83	*Sand, Fine sand	SP, SP-SM	A-2-4, A-3	0	0	90-100	90-100	50-100	1-12	0-14	NP
22—Lakeland sand, 5 to 12 percent slopes												
Lakeland	0-3	*Sand	SP-SM	A-2-4, A-3	0	0	90-100	90-100	60-100	5-12	0-14	NP
	3-80	*Sand, Fine sand	SP, SP-SM	A-2-4, A-3	0	0	90-100	90-100	50-100	1-12	0-14	NP

Engineering Properties– Santa Rosa County, Florida												
Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
25—Lucy loamy sand, 0 to 5 percent slopes												
Lucy	0-10	*Loamy sand	SP-SM, SM	A-2	0	0	98-100	95-100	50-87	10-30	0-14	NP
	10-26	*Loamy sand	SM, SP-SM	A-2	0	0	98-100	95-100	50-87	10-30	0-14	NP
	26-34	*Sandy loam, Sandy clay loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	97-100	95-100	55-95	15-50	10-30	NP-15
	34-80	*Sandy clay loam, Clay loam, sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	100	95-100	60-95	20-50	10-30	NP-15
27—Lynchburg fine sandy loam												
Lynchburg	0-4	*Fine sandy loam	SM, CL-ML, ML, SC-SM	A-2, A-4	0	0	92-100	90-100	75-100	25-65	0-30	NP-7
	4-17	*Loam, Fine sandy loam, sandy loam	SC-SM, SM, CL-ML, ML	A-2, A-4	0	0	92-100	90-100	75-100	25-55	0-30	NP-7
	17-80	*Sandy clay loam, Sandy loam, clay loam, loam	SC-SM, CL, CL-ML, SC	A-6, A-2, A-4	0	0	92-100	90-100	70-100	25-67	15-40	4-18
34—Pactolus loamy sand, 0 to 5 percent slopes												
Pactolus	0-8	*Loamy sand	SM	A-2	0	0	100	90-100	51-95	13-30	0-14	NP
	8-80	*Sand, Loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	51-95	5-30	0-14	NP
36—Pits												
Pits	—	—	—	—	—	—	—	—	—	—	—	—

Engineering Properties– Santa Rosa County, Florida												
Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
37—Rains fine sandy loam												
Rains	0-5	*Fine sandy loam	ML, SC, SM, CL	A-2, A-4	0	0	100	95-100	50-85	25-56	0-35	NP-10
	5-9	*Fine sandy loam, Sandy loam	CL, ML, SC, SM	A-2, A-4	0	0	100	95-100	50-85	25-56	0-35	NP-10
	9-28	*Sandy clay loam, Clay loam	CL-ML, SC, SC-SM, CL	A-6, A-2, A-4	0	0	100	98-100	65-98	30-70	18-40	4-18
	28-63	*Sandy clay loam, Clay loam	CL-ML, SC, SC-SM, CL	A-7, A-4, A-6	0	0	98-100	98-100	65-98	36-72	18-45	4-22
40—Rutlege loamy sand												
Rutlege	0-12	*Loamy sand	SM, SP-SM	A-2, A-3	0	0	95-100	95-100	50-80	5-35	0-25	NP
	12-21	*Loamy sand	SM, SP-SM	A-2, A-3	0	0	95-100	95-100	50-80	5-35	0-25	NP
	21-61	*Sand, Loamy sand	SM, SP, SP-SM	A-3, A-2	0	0	95-100	95-100	50-80	2-25	0-20	NP
44—Troup loamy sand, 0 to 5 percent slopes												
Troup	0-3	*Loamy sand	SP-SM, SM	A-2	0	0	100	100	50-75	10-30	0-14	NP
	3-55	*Loamy sand, Sand	SM, SP-SM	A-2	0	0	100	100	50-75	10-30	0-14	NP
	55-80	*Sandy loam, Sandy clay loam	CL-ML, SC, SC-SM, CL	A-4, A-2	0	0	95-100	95-100	70-90	24-55	19-30	4-10

Water Features– Santa Rosa County, Florida										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
1—Albany loamy sand, 0 to 5 percent slopes										
Albany	A/D	Negligible	January	1.0-2.5	>6.0	—	—	None	Brief	Rare
	A/D	Negligible	February	1.0-2.5	>6.0	—	—	None	Brief	Rare
	A/D	Negligible	March	1.0-2.5	>6.0	—	—	None	Brief	Rare
	A/D	Negligible	December	1.0-2.5	>6.0	—	—	None	Brief	Rare
3—Bibb-Kinston association										
Bibb	B/D	Very high	January	0.5-1.5	>6.0	—	—	None	Long	Frequent
	B/D	Very high	February	0.5-1.5	>6.0	—	—	None	Long	Frequent
	B/D	Very high	March	0.5-1.5	>6.0	—	—	None	Long	Frequent
	B/D	Very high	April	0.5-1.5	>6.0	—	—	None	Long	Frequent
	B/D	Very high	May	0.5-1.5	>6.0	—	—	None	Long	Frequent
	B/D	Very high	December	0.5-1.5	>6.0	—	—	None	Long	Frequent
Kinston	B/D	High	January	0.0-1.0	>6.0	—	—	None	Long	Frequent
	B/D	High	February	0.0-1.0	>6.0	—	—	None	Long	Frequent
	B/D	High	March	0.0-1.0	>6.0	—	—	None	Long	Frequent
	B/D	High	April	0.0-1.0	>6.0	—	—	None	Long	Frequent
	B/D	High	May	0.0-1.0	>6.0	—	—	None	Long	Frequent
	B/D	High	November	0.0-1.0	>6.0	—	—	None	—	—
	B/D	High	December	0.0-1.0	>6.0	—	—	None	Long	Frequent
5—Bonifay loamy sand, 0 to 5 percent slopes										
Bonifay	A	Negligible	January	4.0-5.0	4.0-6.0	—	—	None	—	None
	A	Negligible	February	4.0-5.0	4.0-6.0	—	—	None	—	None

Water Features– Santa Rosa County, Florida										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
8—Dothan fine sandy loam, 0 to 2 percent slopes										
Dothan	B	Low	January	3.0-5.0	3.5-6.0	—	—	None	—	None
	B	Low	February	3.0-5.0	3.5-6.0	—	—	None	—	None
	B	Low	March	3.0-5.0	3.5-6.0	—	—	None	—	None
	B	Low	April	3.0-5.0	3.5-6.0	—	—	None	—	None
9—Dothan fine sandy loam, 2 to 5 percent slopes										
Dothan	B	Low	January	3.0-5.0	3.5-6.0	—	—	None	—	None
	B	Low	February	3.0-5.0	3.5-6.0	—	—	None	—	None
	B	Low	March	3.0-5.0	3.5-6.0	—	—	None	—	None
	B	Low	April	3.0-5.0	3.5-6.0	—	—	None	—	None
10—Dothan fine sandy loam, 5 to 8 percent slopes										
Dothan	B	Medium	January	3.0-5.0	3.5-6.0	—	—	None	—	None
	B	Medium	February	3.0-5.0	3.5-6.0	—	—	None	—	None
	B	Medium	March	3.0-5.0	3.5-6.0	—	—	None	—	None
	B	Medium	April	3.0-5.0	3.5-6.0	—	—	None	—	None
14—Fuquay loamy sand, 0 to 5 percent slopes										
Fuquay	B	Very low	January	4.0-6.0	5.0-6.0	—	—	None	—	None
	B	Very low	February	4.0-6.0	5.0-6.0	—	—	None	—	None
	B	Very low	March	4.0-6.0	5.0-6.0	—	—	None	—	None

Water Features– Santa Rosa County, Florida										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
18—Johns fine sandy loam										
Johns	C	Very high	January	1.5-3.0	>6.0	—	—	None	Brief	Rare
	C	Very high	February	1.5-3.0	>6.0	—	—	None	Brief	Rare
	C	Very high	March	1.5-3.0	>6.0	—	—	None	Brief	Rare
	C	Very high	April	1.5-3.0	>6.0	—	—	None	Brief	Rare
	C	Very high	December	1.5-3.0	>6.0	—	—	None	Brief	Rare
19—Kalmia loamy fine sand, 2 to 5 percent slopes										
Kalmia	B	Low	January	—	—	—	—	None	Brief	Rare
	B	Low	February	—	—	—	—	None	Brief	Rare
	B	Low	March	—	—	—	—	None	Brief	Rare
	B	Low	December	—	—	—	—	None	Brief	Rare
21—Lakeland sand, 0 to 5 percent slopes										
Lakeland	A	Negligible	Jan-Dec	—	—	—	—	None	—	—
22—Lakeland sand, 5 to 12 percent slopes										
Lakeland	A	Very low	Jan-Dec	—	—	—	—	None	—	—
25—Lucy loamy sand, 0 to 5 percent slopes										
Lucy	B	Very low	Jan-Dec	—	—	—	—	None	—	—

Water Features– Santa Rosa County, Florida										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
27—Lynchburg fine sandy loam										
Lynchburg	B/D	Very low	January	0.5-1.5	>6.0	—	—	None	—	None
	B/D	Very low	February	0.5-1.5	>6.0	—	—	None	—	None
	B/D	Very low	March	0.5-1.5	>6.0	—	—	None	—	None
	B/D	Very low	April	0.5-1.5	>6.0	—	—	None	—	None
	B/D	Very low	December	0.5-1.5	>6.0	—	—	None	—	None
34—Pactolus loamy sand, 0 to 5 percent slopes										
Pactolus	A	Negligible	January	1.5-3.0	>6.0	—	—	None	—	None
	A	Negligible	February	1.5-3.0	>6.0	—	—	None	—	None
	A	Negligible	March	1.5-3.0	>6.0	—	—	None	—	None
	A	Negligible	April	1.5-3.0	>6.0	—	—	None	—	None
	A	Negligible	December	1.5-3.0	>6.0	—	—	None	—	None
36—Pits										
Pits	—	—	Jan-Dec	—	—	—	—	None	—	—
37—Rains fine sandy loam										
Rains	B/D	Very high	January	0.0-1.0	>6.0	—	—	None	Brief	Occasional
	B/D	Very high	February	0.0-1.0	>6.0	—	—	None	Brief	Occasional
	B/D	Very high	March	0.0-1.0	>6.0	—	—	None	Brief	Occasional
	B/D	Very high	April	0.0-1.0	>6.0	—	—	None	Brief	Occasional
	B/D	Very high	August	—	—	—	—	None	Brief	Rare
	B/D	Very high	September	—	—	—	—	None	Brief	Rare
	B/D	Very high	November	0.0-1.0	>6.0	—	—	None	Brief	Occasional
	B/D	Very high	December	0.0-1.0	>6.0	—	—	None	Brief	Occasional

Water Features– Santa Rosa County, Florida										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
40—Rutlege loamy sand										
Rutlege	A/D	Negligible	January	0.0-0.5	>6.0	0.0-1.0	Long	Frequent	Brief	Frequent
	A/D	Negligible	February	0.0-0.5	>6.0	0.0-1.0	Long	Frequent	Brief	Frequent
	A/D	Negligible	March	0.0-0.5	>6.0	0.0-1.0	Long	Frequent	Brief	Frequent
	A/D	Negligible	April	0.0-0.5	>6.0	0.0-1.0	Long	Frequent	Brief	Frequent
	A/D	Negligible	December	0.0-0.5	>6.0	0.0-1.0	Long	Frequent	Brief	Frequent
44—Troup loamy sand, 0 to 5 percent slopes										
Troup	A	Negligible	Jan-Dec	—	—	—	—	None	—	—
45—Troup loamy sand, 5 to 8 percent slopes										
Troup	A	Very low	Jan-Dec	—	—	—	—	None	—	—
46—Troup loamy sand, 8 to 12 percent slopes										
Troup	A	Low	Jan-Dec	—	—	—	—	None	—	—
47—Troup-Orangeburg-Cowarts complex, 5 to 12 percent slopes										
Troup	A	Very low	Jan-Dec	—	—	—	—	None	—	—
Orangeburg	B	Medium	Jan-Dec	—	—	—	—	None	—	—
Cowarts	C	High	Jan-Dec	—	—	—	—	None	—	—
99—Water										
Water	—	—	Jan-Dec	—	—	—	—	None	—	—

Physical Soil Properties– Santa Rosa County, Florida														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
1—Albany loamy sand, 0 to 5 percent slopes														
Albany	0-5	-85-	0- 9- 30	1- 6- 10	1.40-1.55	42.00-141.00	0.02-0.04	0.0-2.9	1.0-4.0	.10	.10	5	2	134
	5-47	-85-	0- 9- 30	1- 6- 10	1.40-1.55	42.00-141.00	0.02-0.04	0.0-2.9	0.1-0.5	.10	.10			
	47-52	-79-	0- 8- 50	7-13- 20	1.50-1.70	14.00-42.00	0.08-0.10	0.0-2.9	0.0-0.3	.20	.20			
	52-80	-75-	0- 7- 50	13-18- 35	1.55-1.65	4.00-14.00	0.10-0.16	0.0-2.9	0.0-0.3	.24	.24			
3—Bibb-Kinston association														
Bibb	0-17	-33-	50-54- 90	5-13- 18	1.40-1.65	4.00-14.00	0.15-0.20	0.0-2.9	1.0-3.0	.20	.20	5	5	56
	17-42	-33-	40-54- 90	5-13- 18	1.40-1.65	4.00-14.00	0.15-0.20	0.0-2.9	0.0-1.0	.37	.37			
	42-65	-92-	0- 4- 15	1- 4- 6	1.50-1.60	42.00-141.00	0.02-0.08	0.0-2.9	0.0-0.5	.10	.10			
Kinston	0-9	-30-	50-54- 90	5-16- 27	1.30-1.50	4.00-14.00	0.14-0.20	0.0-2.9	2.0-5.0	.37	.37	5	5	56
	9-18	-30-	50-54- 90	5-16- 27	1.30-1.50	4.00-14.00	0.14-0.20	0.0-2.9	2.0-5.0	.37	.37			
	18-50	-48-	0-26- 35	18-27- 35	1.30-1.50	4.00-14.00	0.14-0.18	0.0-2.9	0.0-3.0	.32	.32			
	50-65	-90-	0- 5- 30	1- 5- 10	1.40-1.55	42.00-141.00	0.02-0.04	0.0-2.9	1.0-2.0	.10	.10			
5—Bonifay loamy sand, 0 to 5 percent slopes														
Bonifay	0-4	-85-	0- 7- 30	5- 8- 10	1.50-1.60	42.00-141.00	0.05-0.10	0.0-2.9	1.0-3.0	.10	.10	5	2	134
	4-47	-85-	0- 7- 30	5- 8- 10	1.50-1.60	42.00-141.00	0.05-0.10	0.0-2.9	0.1-0.5	.10	.10			
	47-63	-79-	0- 5- 50	12-17- 30	1.60-1.70	4.00-14.00	0.10-0.15	0.0-2.9	0.0-0.3	.24	.24			

Physical Soil Properties– Santa Rosa County, Florida														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
7—Dorovan-Pamlico association														
Dorovan	0-63	- 0-	- 0-	0- 0- 0	0.25-0.40	4.00-14.00	0.20-0.25	—	20.0-80.0			2	8	0
Pamlico	0-37	- 0-	- 0-	0- 0- 0	0.20-0.65	4.00-42.00	0.24-0.40	—	20.0-60.0			2	8	0
	37-60	-89-	0- 5- 28	4- 6- 15	1.60-1.75	42.00-141.00	0.10-0.20	0.0-2.9	0.0-4.0	.10	.10			
8—Dothan fine sandy loam, 0 to 2 percent slopes														
Dothan	0-9	-74-	0-16- 50	10-10- 18	1.30-1.70	14.00-42.00	0.08-0.13	0.0-2.9	1.0-3.0	.24	.24	4	3	86
	9-13	-71-	0-14- 50	10-15- 22	1.30-1.70	14.00-42.00	0.08-0.13	0.0-2.9	0.2-0.7	.24	.24			
	13-43	-67-	0-13- 28	20-20- 35	1.40-1.60	4.00-14.00	0.12-0.16	0.0-2.9	0.2-0.5	.28	.28			
	43-63	-56-	0- 8- 20	20-36- 45	1.45-1.70	1.40-4.00	0.08-0.12	0.0-2.9	0.1-0.3	.28	.28			
9—Dothan fine sandy loam, 2 to 5 percent slopes														
Dothan	0-6	-74-	0-16- 50	10-10- 18	1.30-1.70	14.00-42.00	0.08-0.13	0.0-2.9	1.0-3.0	.24	.24	4	3	86
	6-14	-71-	0-14- 50	10-15- 22	1.30-1.70	14.00-42.00	0.08-0.13	0.0-2.9	0.2-0.7	.24	.24			
	14-49	-67-	0-13- 28	20-20- 35	1.40-1.60	4.00-14.00	0.12-0.16	0.0-2.9	0.2-0.5	.28	.28			
	49-66	-56-	0- 8- 20	20-36- 45	1.45-1.70	1.40-4.00	0.08-0.12	0.0-2.9	0.1-0.3	.28	.28			

Physical Soil Properties– Santa Rosa County, Florida														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
19—Kalmia loamy fine sand, 2 to 5 percent slopes														
Kalmia	0-4	-85-	0- 7- 30	4- 8- 12	1.60-1.75	14.00-42.00	0.06-0.10	0.0-2.9	1.0-3.0	.15	.15	4	2	134
	4-8	-85-	0- 7- 30	4- 8- 12	1.60-1.75	14.00-42.00	0.06-0.10	0.0-2.9	0.5-2.0	.15	.15			
	8-39	-56-	0-18- 28	18-27- 35	1.40-1.60	4.00-14.00	0.12-0.16	0.0-2.9	0.1-0.5	.24	.24			
	39-65	-85-	0- 9- 30	2- 6- 10	1.60-1.75	42.00-141.00	0.03-0.06	0.0-2.9	0.1-0.2	.10	.10			
21—Lakeland sand, 0 to 5 percent slopes														
Lakeland	0-4	-93-	0- 3- 10	2- 4- 8	1.35-1.65	141.00-353.00	0.05-0.09	0.0-2.9	0.5-2.0	.10	.10	5	1	180
	4-83	-93-	0- 4- 10	1- 3- 6	1.50-1.60	141.00-353.00	0.02-0.08	0.0-2.9	0.0-0.5	.10	.10			
22—Lakeland sand, 5 to 12 percent slopes														
Lakeland	0-3	-93-	0- 3- 10	2- 4- 8	1.35-1.65	141.00-353.00	0.05-0.09	0.0-2.9	0.5-2.0	.10	.10	5	1	180
	3-80	-93-	0- 4- 10	1- 3- 6	1.50-1.60	141.00-353.00	0.02-0.08	0.0-2.9	0.0-0.5	.10	.10			
25—Lucy loamy sand, 0 to 5 percent slopes														
Lucy	0-10	-85-	0- 8- 30	1- 7- 12	1.30-1.70	42.00-141.00	0.08-0.12	0.0-2.9	1.0-2.5	.10	.10	5	2	134
	10-26	-85-	0- 8- 30	1- 7- 12	1.30-1.70	42.00-141.00	0.08-0.12	0.0-2.9	0.3-1.0	.10	.10			
	26-34	-79-	0-10- 50	10-11- 25	1.40-1.60	14.00-42.00	0.10-0.12	0.0-2.9	0.2-0.3	.24	.24			
	34-80	-72-	0- 5- 28	18-23- 30	1.40-1.60	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.4	.28	.28			

Physical Soil Properties– Santa Rosa County, Florida														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
27—Lynchburg fine sandy loam														
Lynchburg	0-4	-53-	0-37- 50	5-11- 20	1.30-1.60	14.00-42.00	0.09-0.13	0.0-2.9	0.5-5.0	.10	.10	4	3	86
	4-17	-50-	28-32- 50	5-18- 20	1.30-1.60	14.00-42.00	0.09-0.13	0.0-2.9	0.3-1.0	.10	.10			
	17-80	-47-	0-26- 35	18-28- 35	1.30-1.50	4.00-14.00	0.12-0.16	0.0-2.9	0.0-0.5	.20	.20			
34—Pactolus loamy sand, 0 to 5 percent slopes														
Pactolus	0-8	-85-	0- 8- 25	2- 7- 12	1.60-1.75	42.00-141.00	0.05-0.10	0.0-2.9	0.5-4.5	.10	.10	5	2	134
	8-80	-92-	0- 4- 25	2- 4- 12	1.60-1.75	42.00-141.00	0.03-0.07	0.0-2.9	0.1-0.3	.10	.10			
36—Pits														
Pits	—	—	—	—	—	—	—	—	—				8	0
37—Rains fine sandy loam														
Rains	0-5	-66-	0-22- 50	5-12- 20	1.30-1.60	14.00-42.00	0.08-0.12	0.0-2.9	2.0-6.0	.24	.24	5	8	0
	5-9	-67-	0-20- 50	5-13- 20	1.30-1.60	14.00-42.00	0.08-0.12	0.0-2.9	1.0-3.0	.24	.24			
	9-28	-56-	0-18- 28	18-27- 35	1.30-1.50	4.00-14.00	0.12-0.16	0.0-2.9	0.5-1.0	.24	.24			
	28-63	-54-	0-17- 28	18-29- 35	1.30-1.50	4.00-14.00	0.12-0.16	0.0-2.9	0.5-1.0	.28	.28			
40—Rutlege loamy sand														
Rutlege	0-12	-85-	0- 9- 30	2- 6- 10	1.30-1.50	42.00-141.00	0.10-0.15	0.0-2.9	2.0-6.0	.17	.17	5	8	0
	12-21	-85-	0- 9- 30	2- 6- 10	1.30-1.50	42.00-141.00	0.10-0.15	0.0-2.9	1.0-2.0	.17	.17			
	21-61	-89-	0- 5- 15	2- 6- 10	1.50-1.70	42.00-141.00	0.04-0.08	0.0-2.9	0.1-0.5	.17	.17			

Physical Soil Properties– Santa Rosa County, Florida														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
44—Troup loamy sand, 0 to 5 percent slopes														
Troup	0-3	-85-	0- 8- 30	2- 7- 12	1.30-1.70	42.00-141.00	0.08-0.12	0.0-2.9	1.0-3.0	.10	.10	5	2	134
	3-55	-85-	0- 8- 30	2- 7- 12	1.30-1.70	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.10	.10			
	55-80	-79-	0- 2- 50	15-19- 30	1.40-1.60	4.00-14.00	0.10-0.13	0.0-2.9	0.1-0.2	.20	.20			
45—Troup loamy sand, 5 to 8 percent slopes														
Troup	0-4	-85-	0- 8- 30	2- 7- 12	1.30-1.70	42.00-141.00	0.08-0.12	0.0-2.9	1.0-3.0	.10	.10	5	2	134
	4-60	-85-	0- 8- 30	2- 7- 12	1.30-1.70	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.10	.10			
	60-80	-57-	0-25- 28	15-18- 35	1.40-1.60	4.00-14.00	0.10-0.13	0.0-2.9	0.1-0.2	.20	.20			
46—Troup loamy sand, 8 to 12 percent slopes														
Troup	0-3	-85-	0- 8- 30	2- 7- 12	1.30-1.70	42.00-141.00	0.08-0.12	0.0-2.9	1.0-3.0	.10	.10	5	2	134
	3-68	-85-	0- 8- 30	2- 7- 12	1.30-1.70	42.00-141.00	0.08-0.12	0.0-2.9	0.5-1.0	.10	.10			
	68-80	-57-	0-25- 28	15-18- 35	1.40-1.60	4.00-14.00	0.10-0.13	0.0-2.9	0.1-0.2	.20	.20			

APPENDIX D
GRAIN-SIZE CORRELATIONS

STRATUM A

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-5-1 **DEPTH:** 9.0 - 9.5 (FEET)

SOIL DESCRIPTION: BROWN FINE SAND / STRATUM A
SP-SM A-3

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	95
40	0.425	69
60	0.250	35
100	0.150	17
200	0.075	5

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.110 mm

D_{50} = 0.31 mm

D_{60} = 0.36 mm

K = 0.0170 (cm/sec)

24.1 (in/hr)

C_u = 3.3

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

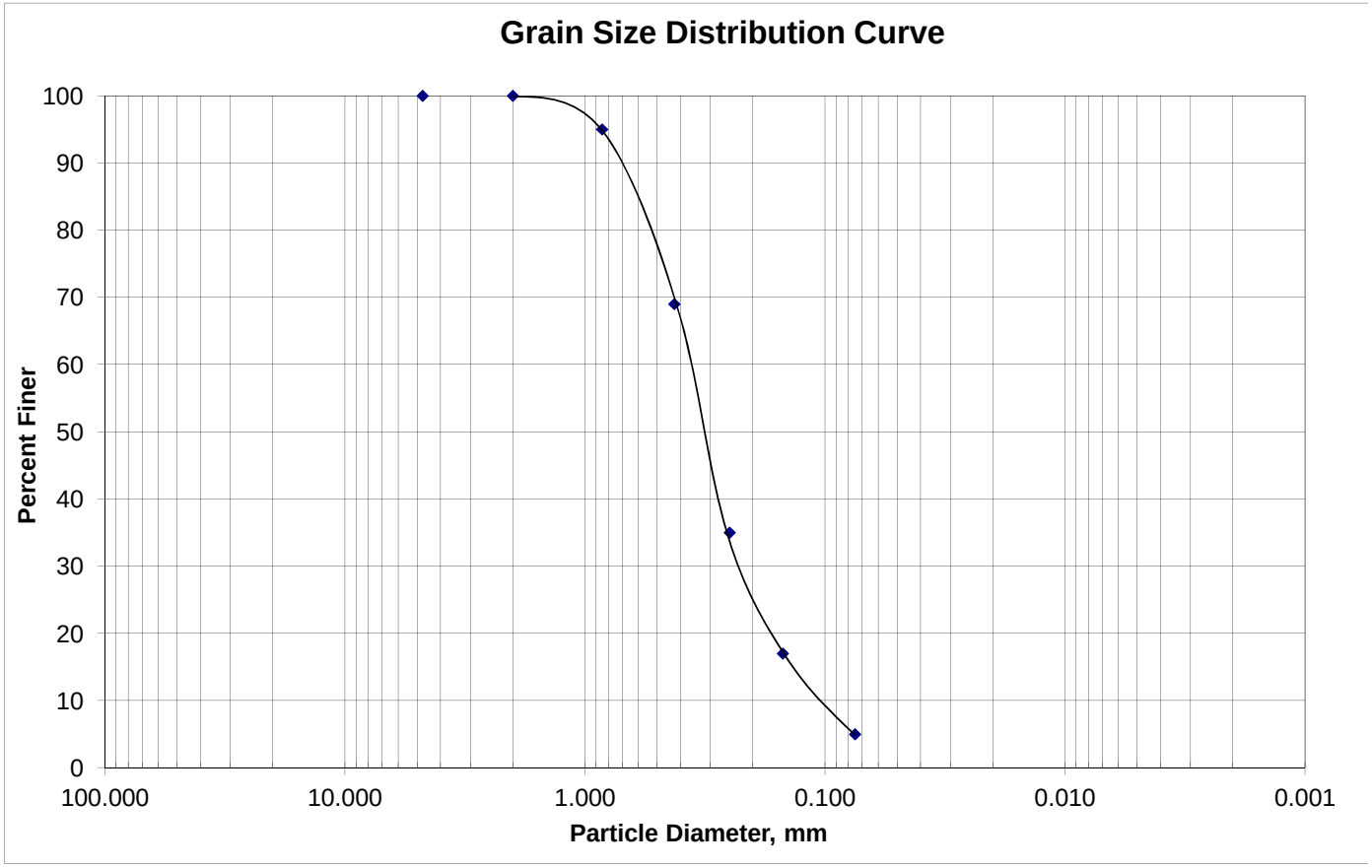
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-5-1 **DEPTH:** 9.0 - 9.5 (FEET)

SOIL DESCRIPTION: BROWN FINE SAND / STRATUM A
SP-SM A-3

GRAPHICAL REPRESENTATION OF TEST RESULTS



MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-9-6 **DEPTH:** 14.0 - 14.5 (FEET)

SOIL DESCRIPTION: BROWN FINE SAND / STRATUM A
SP-SM A-3

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	98
40	0.425	72
60	0.250	26
100	0.150	8
200	0.075	5

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.170 mm

D_{50} = 0.33 mm

D_{60} = 0.37 mm

K = 0.0380 (cm/sec)

53.9 (in/hr)

C_u = 2.2

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

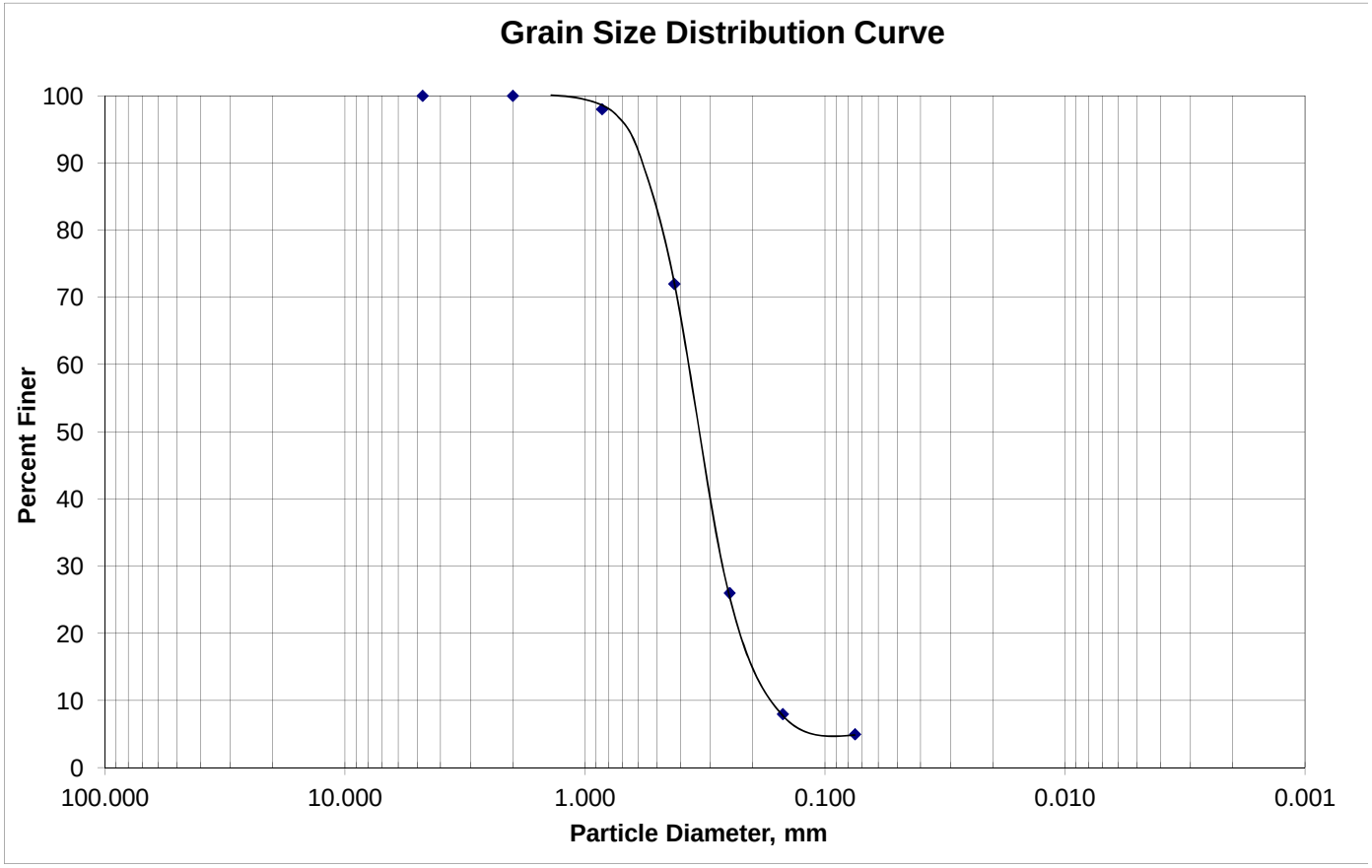
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-9-6 **DEPTH:** 14.0 - 14.5 (FEET)

SOIL DESCRIPTION: BROWN FINE SAND / STRATUM A
SP-SM A-3

GRAPHICAL REPRESENTATION OF TEST RESULTS



STRATUM B

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-1-1 **DEPTH:** 1.0 - 1.5 (FEET)

SOIL DESCRIPTION: BROWN SILTY FINE SAND / STRATUM B
SM A-2-4

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	95
40	0.425	65
60	0.250	37
100	0.150	22
200	0.075	15

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.030 mm

D_{50} = 0.32 mm

D_{60} = 0.39 mm

K = 0.0080 (cm/sec)

11.3 (in/hr)

C_u = 13.0

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

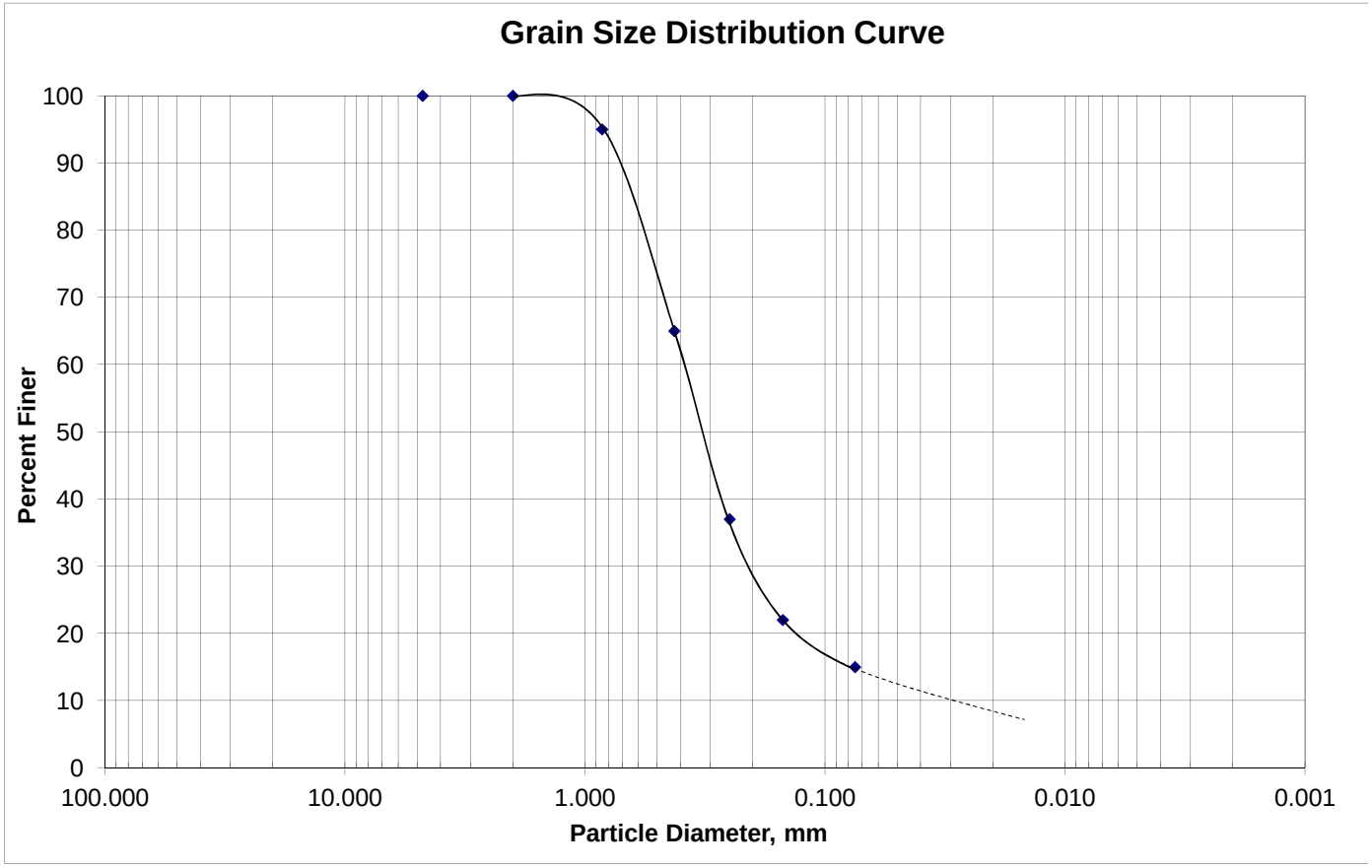
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-1-1 **DEPTH:** 1.0 - 1.5 (FEET)

SOIL DESCRIPTION: BROWN SILTY FINE SAND / STRATUM B
SM A-2-4

GRAPHICAL REPRESENTATION OF TEST RESULTS



MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-5-3 **DEPTH:** 1.0 - 1.5 (FEET)

SOIL DESCRIPTION: BROWN SILTY FINE SAND / STRATUM B
SM A-2-4

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	94
40	0.425	70
60	0.250	37
100	0.150	22
200	0.075	13

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.041 mm

D_{50} = 0.31 mm

D_{60} = 0.36 mm

K = 0.0150 (cm/sec)

21.3 (in/hr)

C_u = 8.8

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

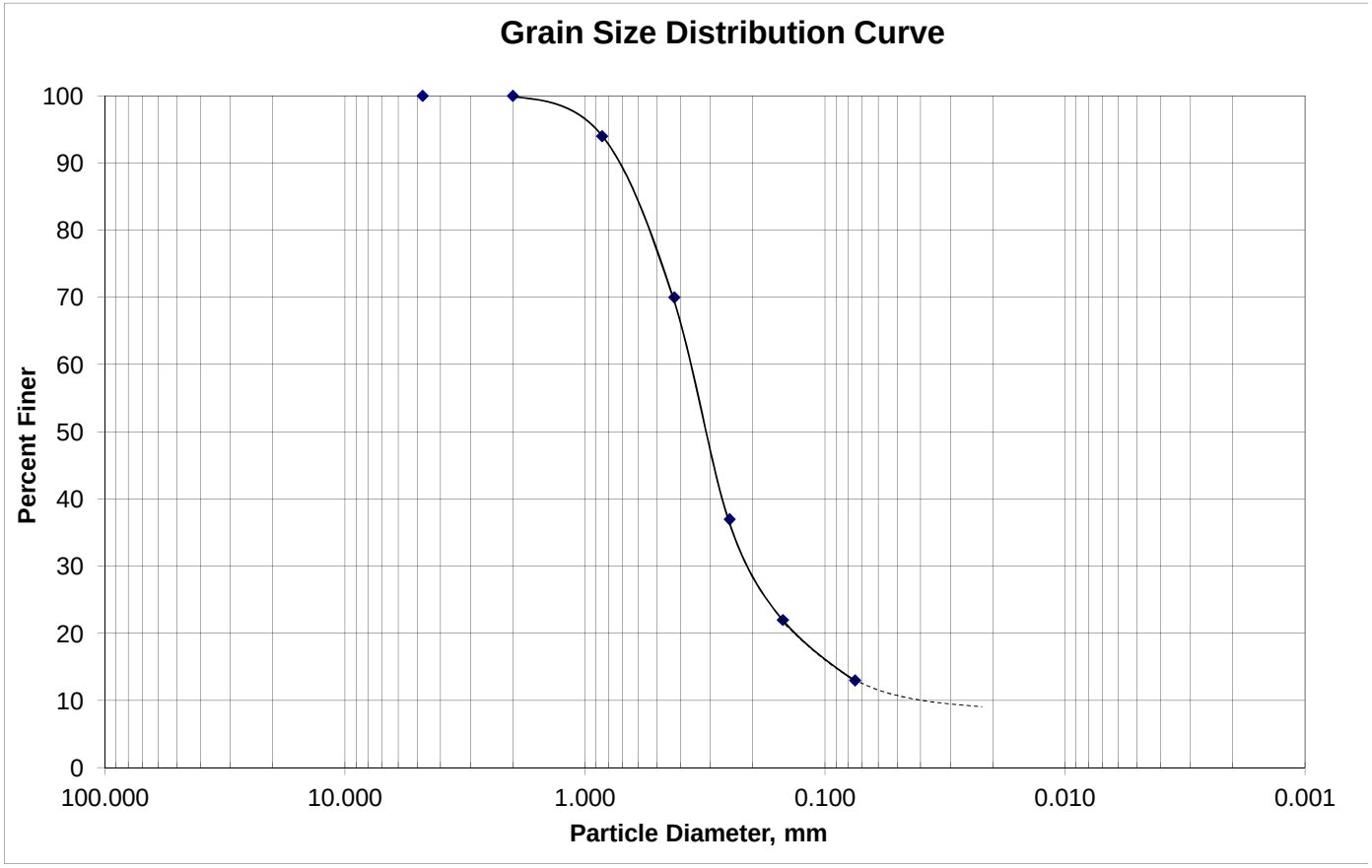
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-5-3 **DEPTH:** 1.0 - 1.5 (FEET)

SOIL DESCRIPTION: BROWN SILTY FINE SAND / STRATUM B
SM A-2-4

GRAPHICAL REPRESENTATION OF TEST RESULTS



MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-10-4 **DEPTH:** 1.0 - 1.5 (FEET)

SOIL DESCRIPTION: BROWN SILTY FINE SAND / STRATUM B
SM A-2-4

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	99
40	0.425	79
60	0.250	43
100	0.150	22
200	0.075	12

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.059 mm

D_{50} = 0.29 mm

D_{60} = 0.32 mm

K = 0.0420 (cm/sec)

59.5 (in/hr)

C_u = 5.4

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

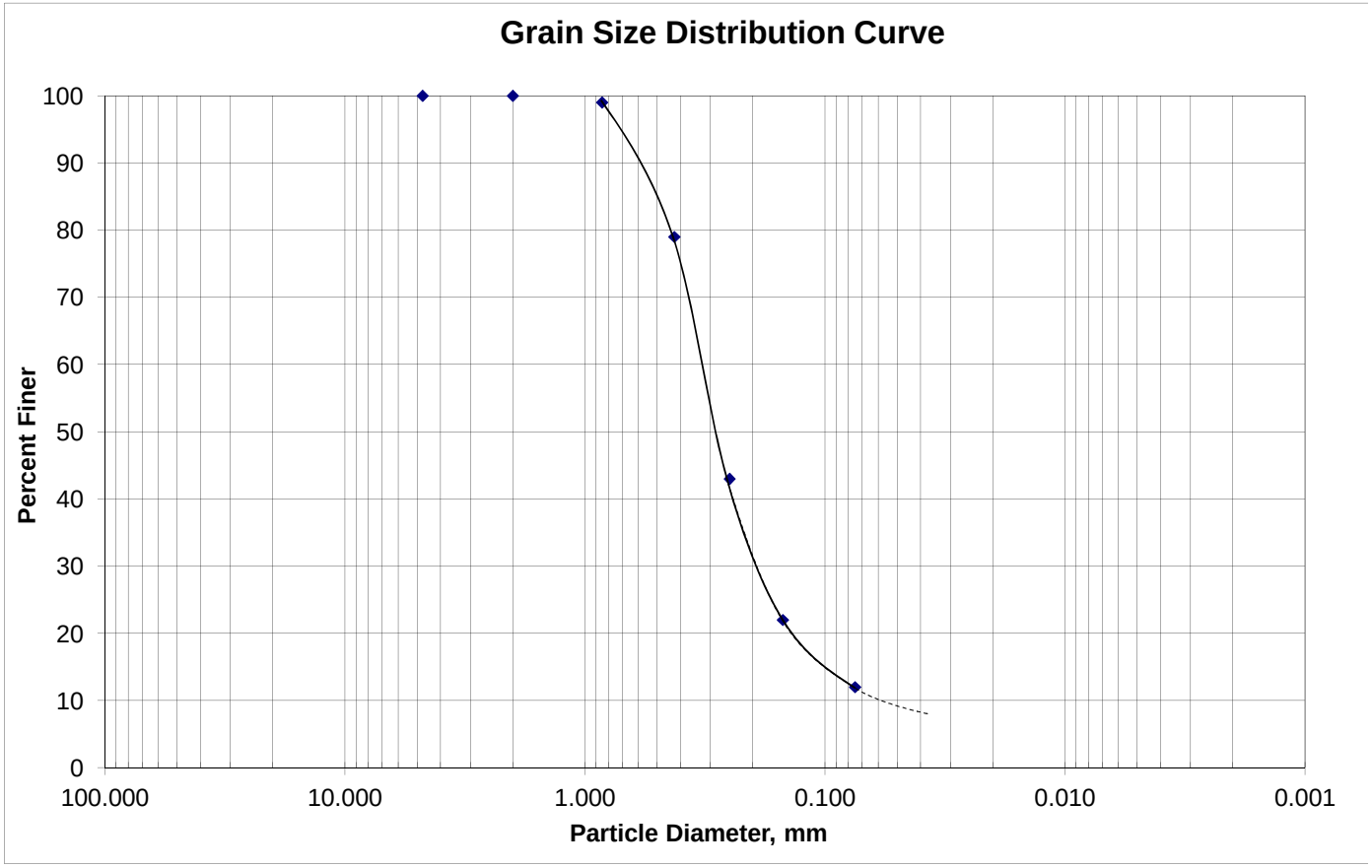
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-10-4 **DEPTH:** 1.0 - 1.5 (FEET)

SOIL DESCRIPTION: BROWN SILTY FINE SAND / STRATUM B
SM A-2-4

GRAPHICAL REPRESENTATION OF TEST RESULTS



STRATUM C

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-1-2 **DEPTH:** 5.0 - 5.5 (FEET)

SOIL DESCRIPTION: BROWN SILTY FINE SAND / STRATUM C
SM A-2-4

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	97
40	0.425	82
60	0.250	58
100	0.150	41
200	0.075	26

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.031 mm

D_{50} = 0.20 mm

D_{60} = 0.26 mm

K = 0.0030 (cm/sec)

4.3 (in/hr)

C_u = 8.4

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

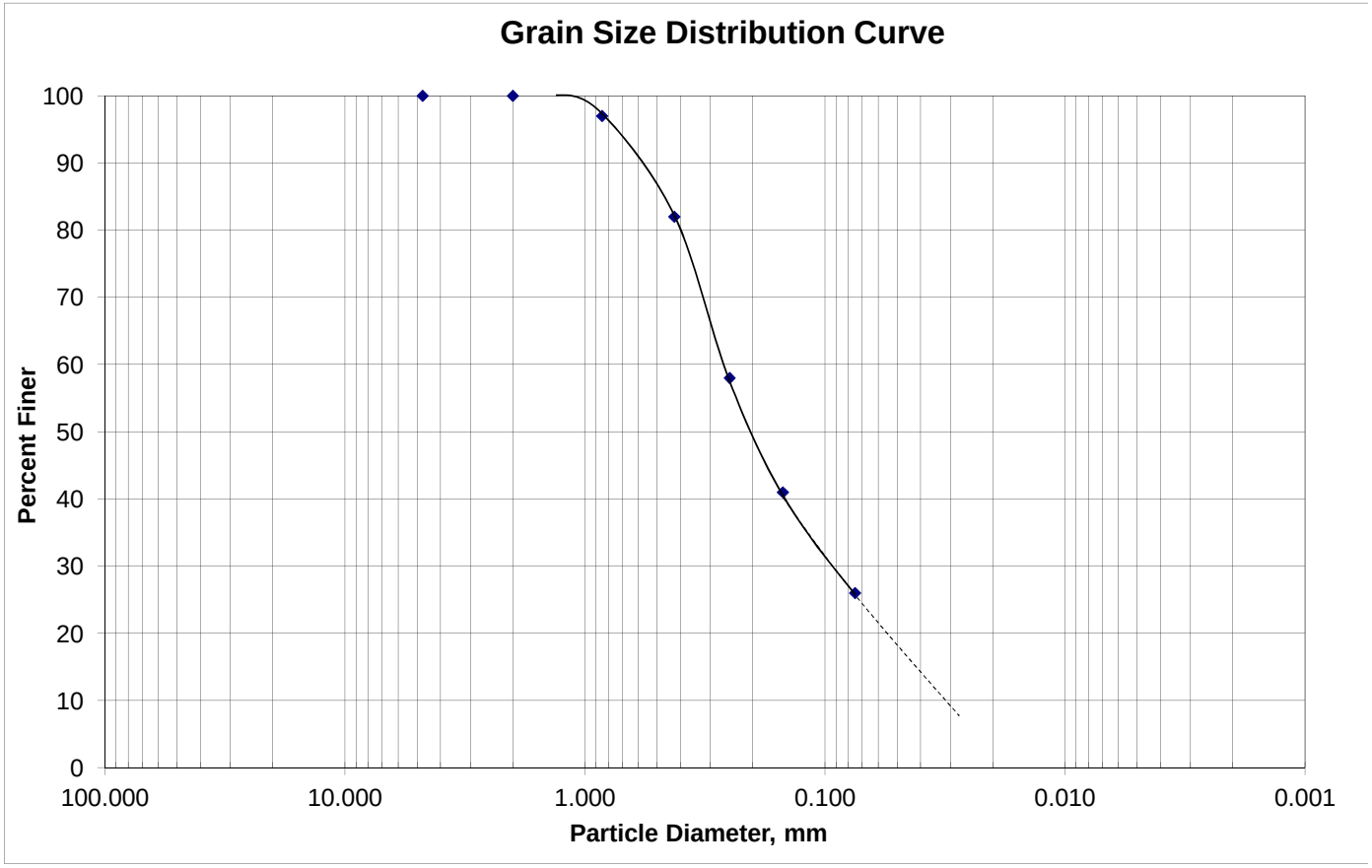
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-1-2 **DEPTH:** 5.0 - 5.5 (FEET)

SOIL DESCRIPTION: BROWN SILTY FINE SAND / STRATUM C
SM A-2-4

GRAPHICAL REPRESENTATION OF TEST RESULTS



MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-4-4 **DEPTH:** 1.0 - 1.5 (FEET)

SOIL DESCRIPTION: BROWN SILTY FINE SAND / STRATUM C
SM A-2-4

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	98
40	0.425	83
60	0.250	58
100	0.150	37
200	0.075	20

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.041 mm

D_{50} = 0.21 mm

D_{60} = 0.26 mm

K = 0.0070 (cm/sec)

9.9 (in/hr)

C_u = 6.3

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

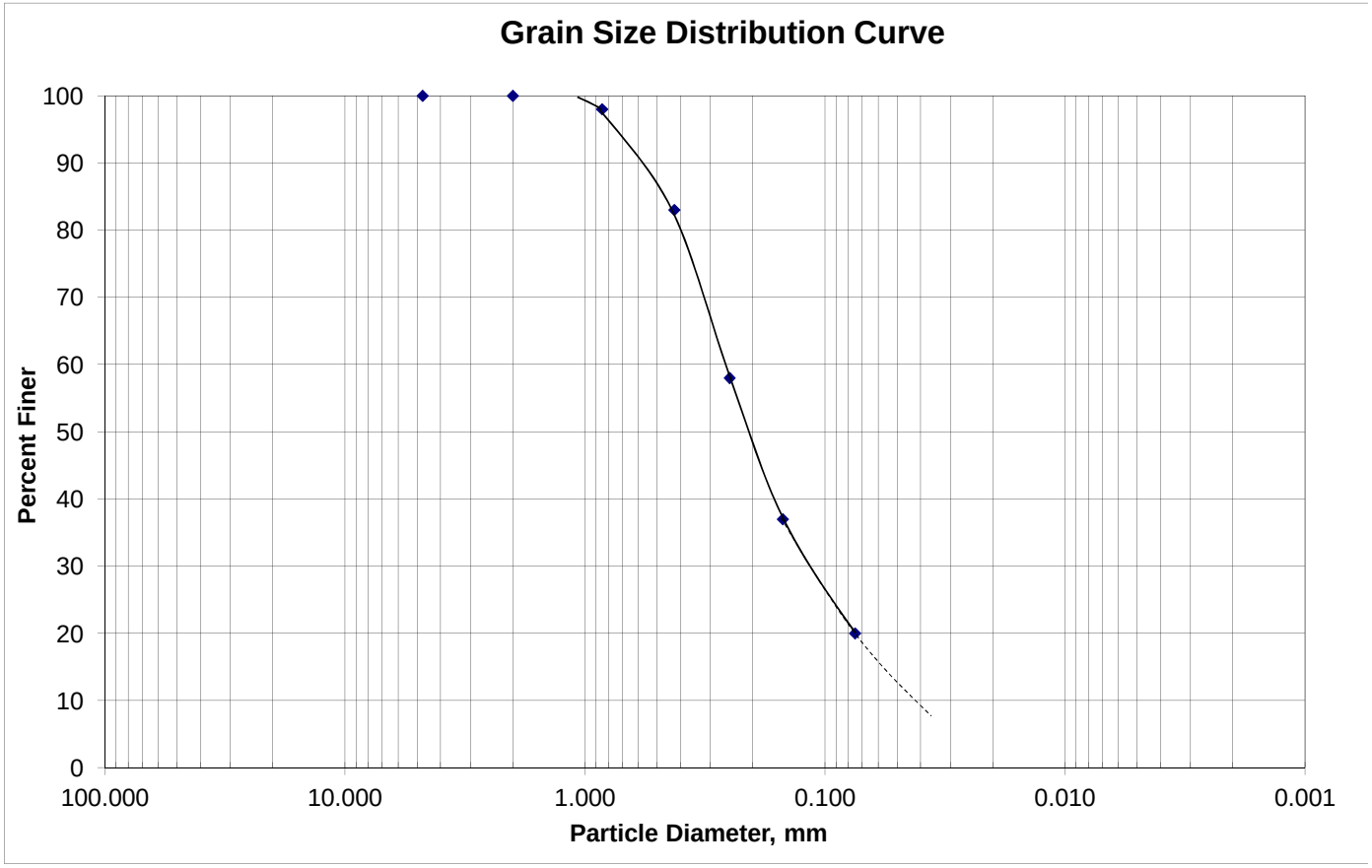
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-4-4 **DEPTH:** 1.0 - 1.5 (FEET)

SOIL DESCRIPTION: BROWN SILTY FINE SAND / STRATUM C
SM A-2-4

GRAPHICAL REPRESENTATION OF TEST RESULTS



MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-8-3 **DEPTH:** 15.0 - 15.5 (FEET)

SOIL DESCRIPTION: ORANGE SILTY FINE SAND / STRATUM C
SM A-2-4

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	96
40	0.425	76
60	0.250	48
100	0.150	33
200	0.075	24

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.017 mm

D_{50} = 0.26 mm

D_{60} = 0.31 mm

K = 0.0015 (cm/sec)

2.1 (in/hr)

C_u = 18.2

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

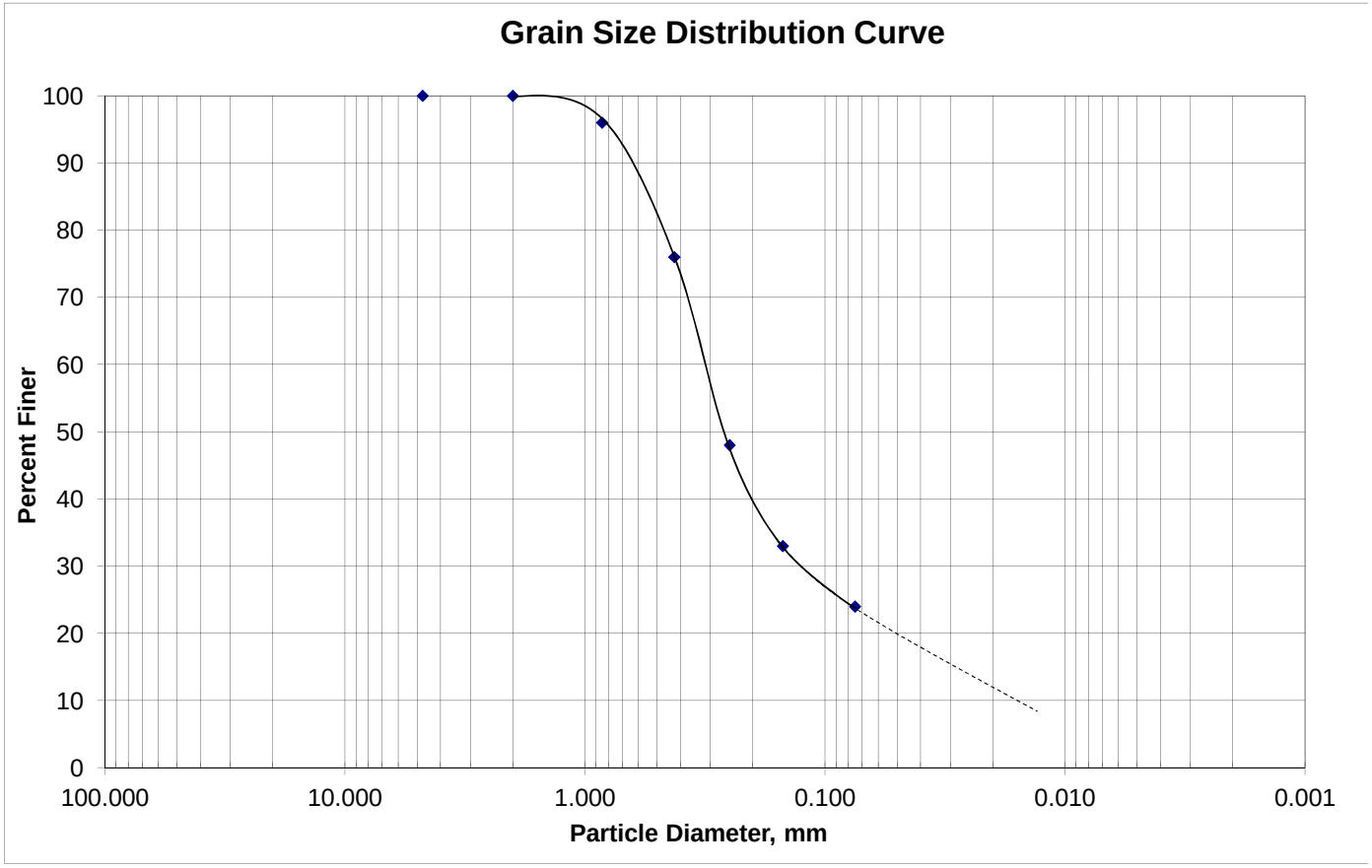
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-8-3 **DEPTH:** 15.0 - 15.5 (FEET)

SOIL DESCRIPTION: ORANGE SILTY FINE SAND / STRATUM C
SM A-2-4

GRAPHICAL REPRESENTATION OF TEST RESULTS



STRATUM D

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-5-2 **DEPTH:** 13.0 - 13.5 (FEET)

SOIL DESCRIPTION: BROWN CLAYEY FINE SAND / STRATUM D
SC A-2-6

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	98
40	0.425	86
60	0.250	63
100	0.150	47
200	0.075	32

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.023 mm

D_{50} = 0.17 mm

D_{60} = 0.23 mm

K = 0.0003 (cm/sec)

0.4 (in/hr)

C_u = 10.0

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

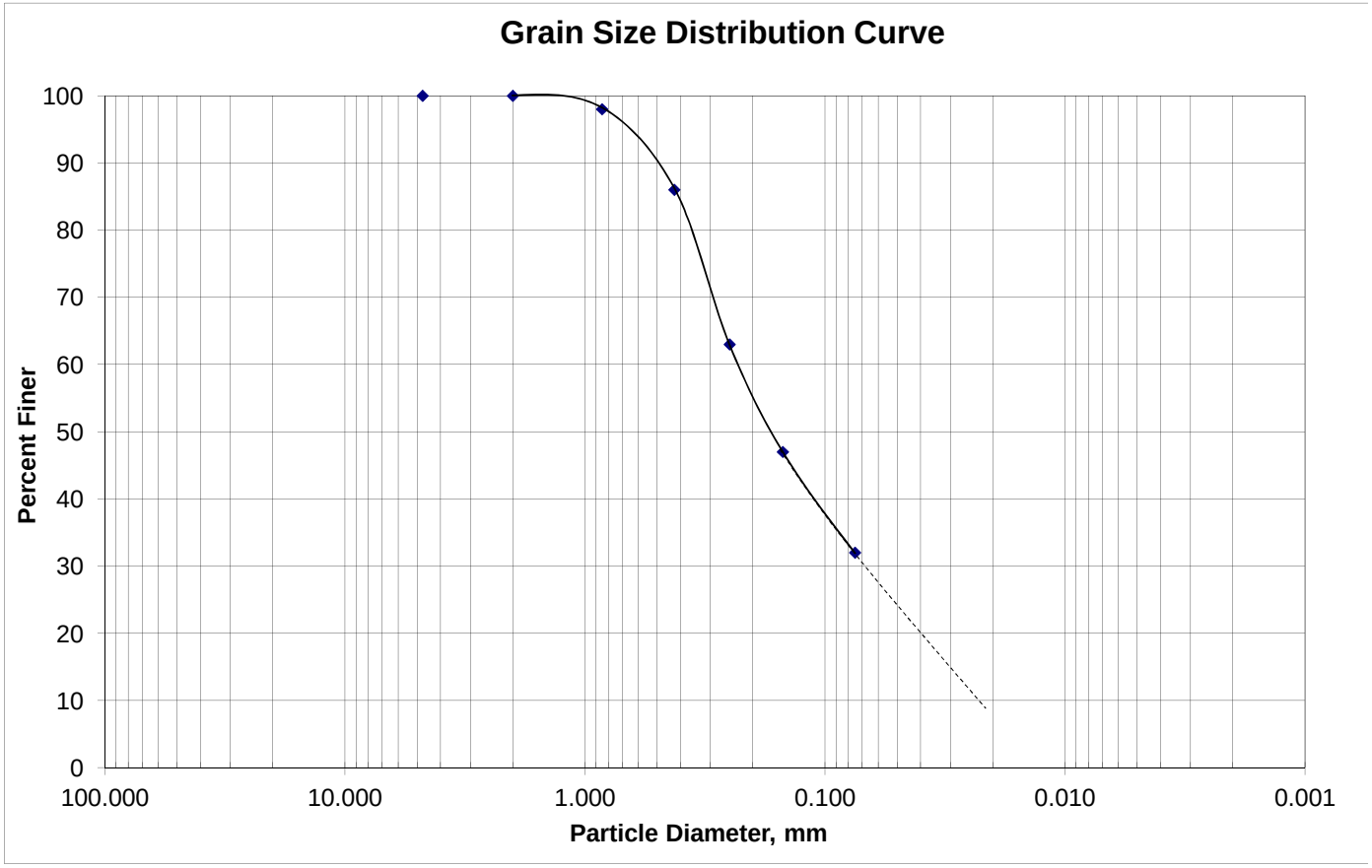
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-5-2 **DEPTH:** 13.0 - 13.5 (FEET)

SOIL DESCRIPTION: BROWN CLAYEY FINE SAND / STRATUM D
SC A-2-6

GRAPHICAL REPRESENTATION OF TEST RESULTS



MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-10-3 **DEPTH:** 8.0 - 8.5 (FEET)

SOIL DESCRIPTION: ORANGE CLAYEY FINE SAND / STRATUM D
SC A-2-6

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	95
40	0.425	74
60	0.250	50
100	0.150	36
200	0.075	29

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.006 mm

D_{50} = 0.25 mm

D_{60} = 0.31 mm

K = 0.0004 (cm/sec)

0.6 (in/hr)

C_u = 50.0

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

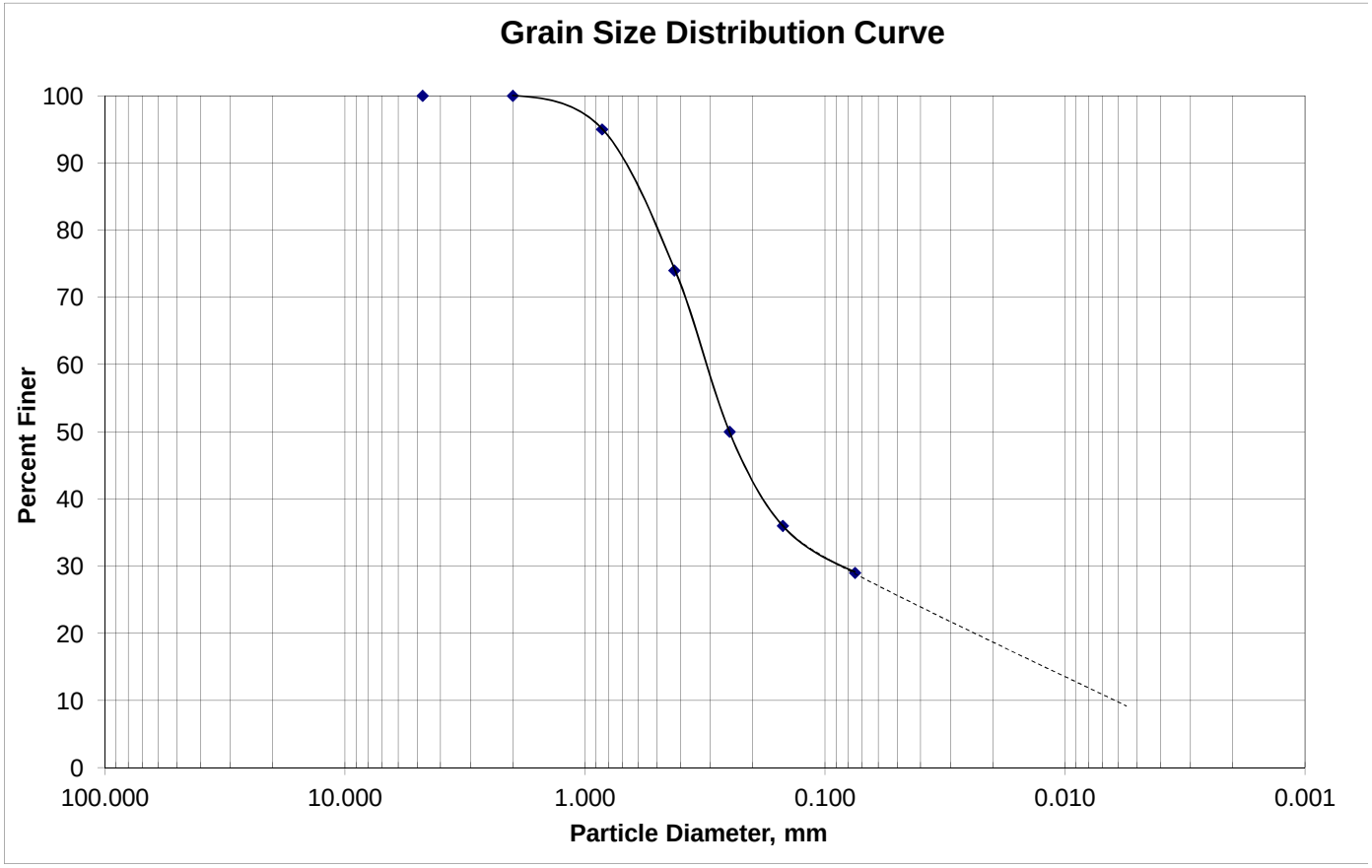
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-10-3 **DEPTH:** 8.0 - 8.5 (FEET)

SOIL DESCRIPTION: ORANGE CLAYEY FINE SAND / STRATUM D
SC A-2-6

GRAPHICAL REPRESENTATION OF TEST RESULTS



STRATUM E

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-3-2 **DEPTH:** 10.0 - 10.5 (FEET)

SOIL DESCRIPTION: GRAY CLAYEY SAND / STRATUM E
SC A-6

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	98
40	0.425	88
60	0.250	70
100	0.150	57
200	0.075	44

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.012 mm

D_{50} = 0.11 mm

D_{60} = 0.18 mm

K = 0.0001 (cm/sec)

0.1 (in/hr)

C_u = 15.0

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

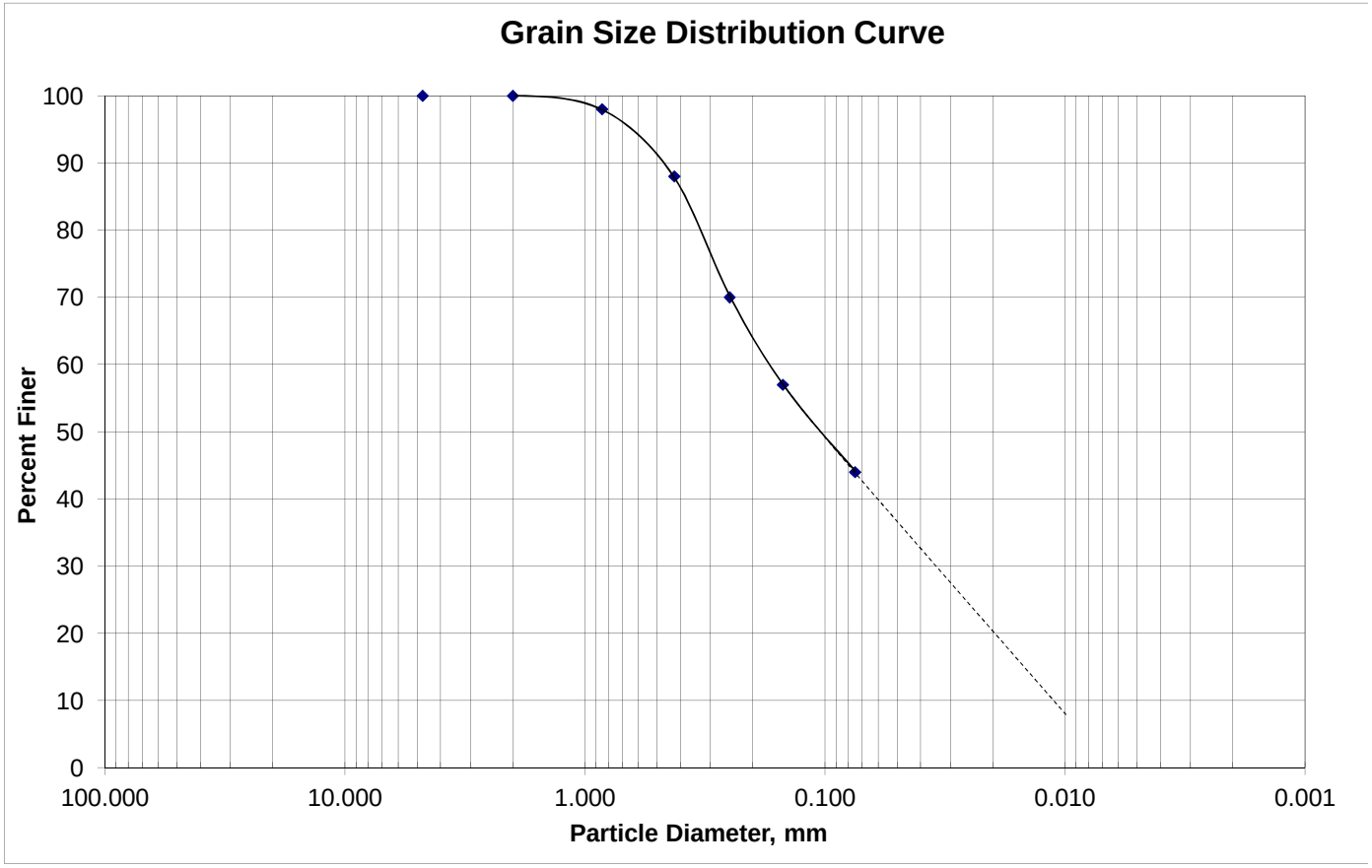
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-3-2 **DEPTH:** 10.0 - 10.5 (FEET)

SOIL DESCRIPTION: GRAY CLAYEY SAND / STRATUM E
SC A-6

GRAPHICAL REPRESENTATION OF TEST RESULTS



MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

TEST INFORMATION:

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

BORING NO.: MP-7-4 **DEPTH:** 15.0 - 15.5 (FEET)

SOIL DESCRIPTION: BROWN AND GRAY CLAYEY SAND / STRATUM E
SC A-6

TEST RESULTS:

Sieve No.	Diameter (Millimeters)	Percent Passing (%)
4	4.750	100
10	2.000	100
20	0.850	97
40	0.425	88
60	0.250	74
100	0.150	50
200	0.075	37

NOTE: THE FOLLOWING VALUES ARE ESTIMATED FROM THE GRAIN-SIZE DATA

D_{10} = 0.008 mm

D_{50} = 0.15 mm

D_{60} = 0.18 mm

K = 0.0002 (cm/sec)

0.2 (in/hr)

C_u = 23.7

Where:
K = Estimated Permeability
Cu = Coefficient Of Uniformity

MECHANICAL GRAIN-SIZE ANALYSIS
(ASTM D1140-54)

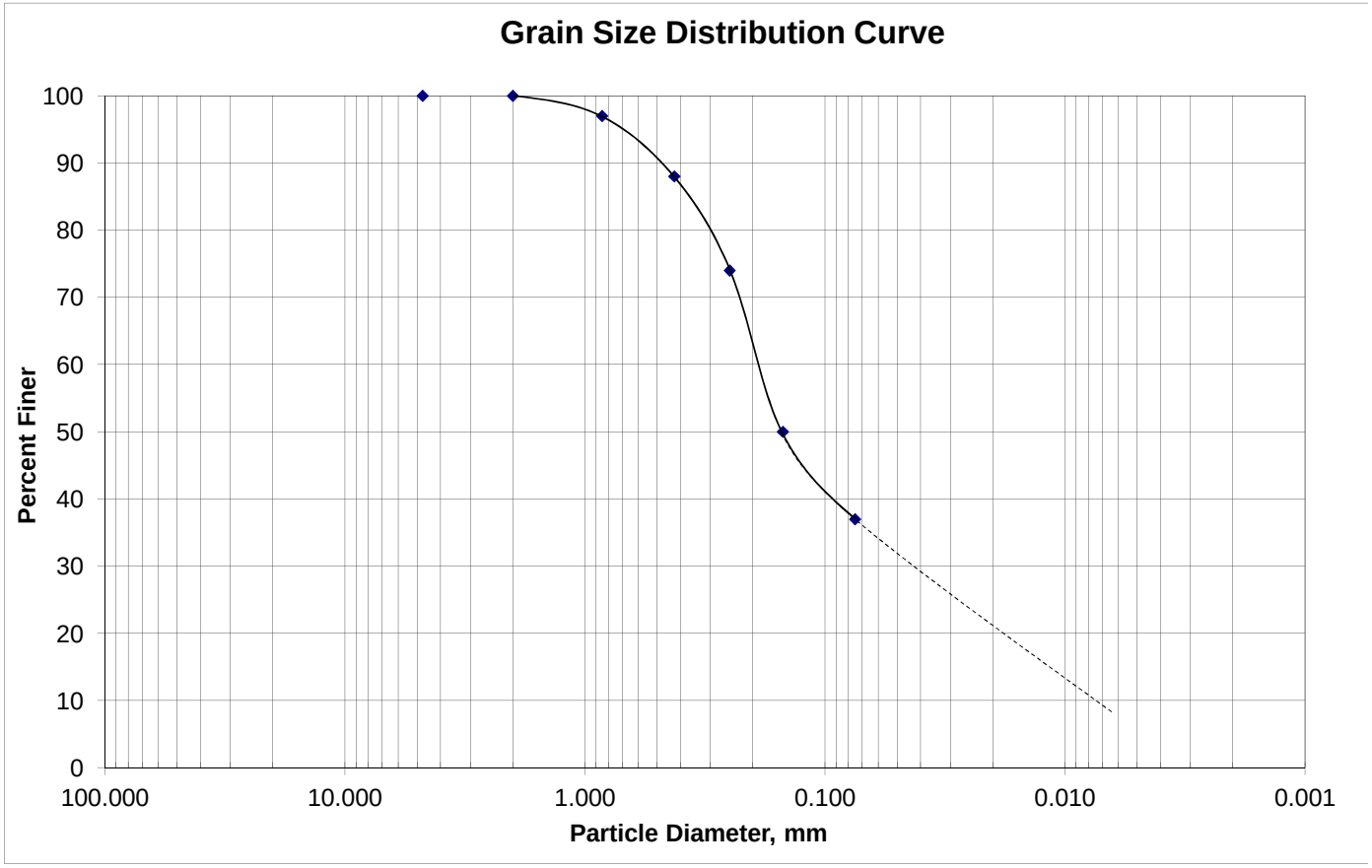
TEST INFORMATION

PROJECT NO.: 28-09-09-03 **DATE:** 11/30/2011

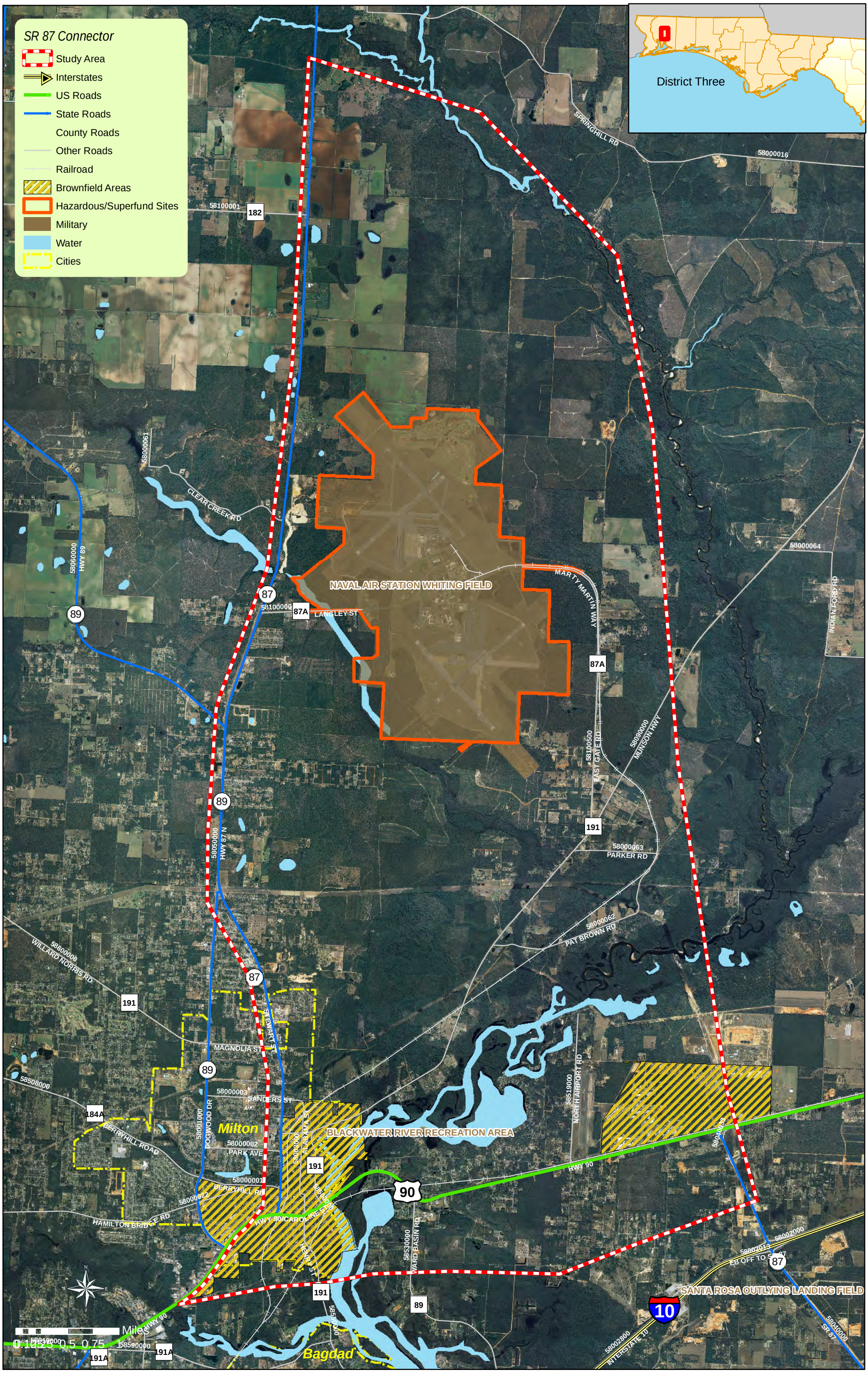
BORING NO.: MP-7-4 **DEPTH:** 15.0 - 15.5 (FEET)

SOIL DESCRIPTION: BROWN AND GRAY CLAYEY SAND / STRATUM E
SC A-6

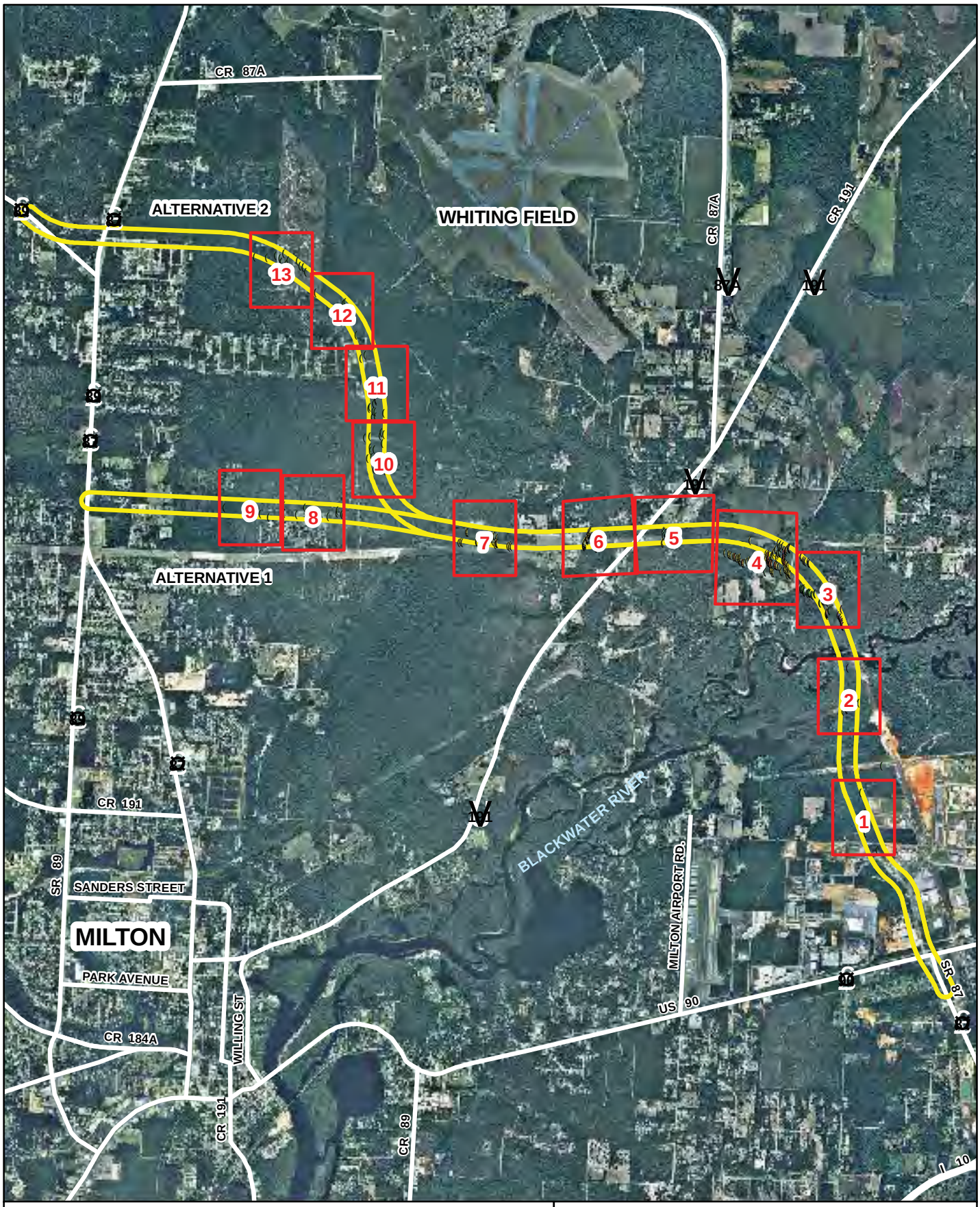
GRAPHICAL REPRESENTATION OF TEST RESULTS



APPENDIX E - Hazardous Waste Locations


SR 87 Connector
Study Area
Interstates
US Roads
State Roads
County Roads
Other Roads
Railroad
Brownfield Areas
Hazardous/Superfund Sites
Military
Water
Cities
District Three
NAVAL AIR STATION WHITING FIELD
BLACKWATER RIVER RECREATION AREA
SANTA ROSA OUTLYING LANDING FIELD
Milton
Bagdad
SPRINGHILL RD
CLEAR CREEK RD
LANGLEY ST
MARTY MARTIN WAY
EAST GATE RD
MUNSON HWY
PARKER RD
PAT BROWN RD
INDIAN FORD RD
WILLARD NORRIS RD
MAGNOLIA ST
STEWART ST
SANDERS ST
DOGWOOD DR
PARK AVE
BERRYHILL ROAD
HAMILTON BRIDGE RD
HWY 90/CAROLINE ST
ALABAMA ST
HENRY ST
WARD BASIN RD
NORTH AIRPORT RD
HWY 90
EB OFF TO SR 87
INTERSTATE 10
SR 87
HWY 89
HWY 87 N
182
191
191A
184A
87A
87
89
90
10
Miles
0 0.125 0.5 0.75 1

APPENDIX F - Endangered Species Areas



Legend:

- Map Key Sheets
- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: active
- Gopherus polyphemus: inactive
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

1:48,000
2010 True Color Aerials

0 0.5 1 2 Miles

Figure 4.1 T&E Species Map Key
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

TWS 11/1/2011
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.1 T&E Species Map 1
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.2 T&E Species Map 2
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.3 T&E Species Map 3
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.4 T&E Species Map 4
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.5 T&E Species Map 5
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.6 T&E Species Map 6
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.7 T&E Species Map 7
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.8 T&E Species Map 8
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.9 T&E Species Map 9
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.10 T&E Species Map 10
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.11 T&E Species Map 11
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

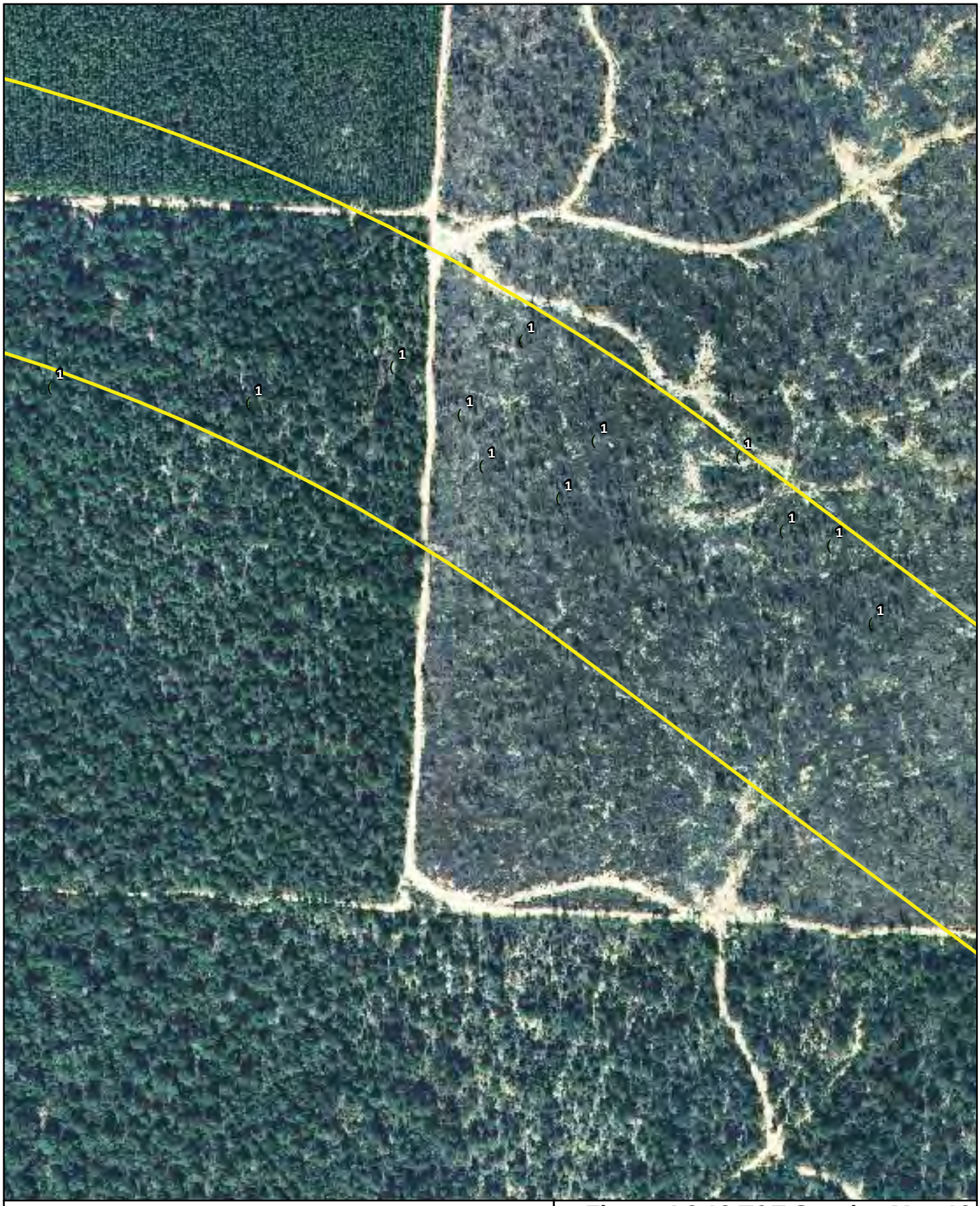
1:3,000

2010 True Color Aerials

Figure 4.2.12 T&E Species Map 12
SR 87 PD&E Study
FDOT

Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143



Legend:

- Alignments
- Andropogon arcuatus
- Baptisia calycosa
- Calamovilfa curtissii
- Cleistes bifaria
- Drosera intermedia
- Gopherus polyphemus: PO
- Gopherus polyphemus: A
- Lilium iridollae
- Pinguicula primuliflora
- Platanthera ciliaris
- Rhexia parviflora
- Sarracenia leucophylla
- Sarracenia psittacina
- Sarracenia rosea

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.

0 200 400 800 Feet

1:3,000

2010 True Color Aerials

Figure 4.2.13 T&E Species Map 13
SR 87 PD&E Study
FDOT

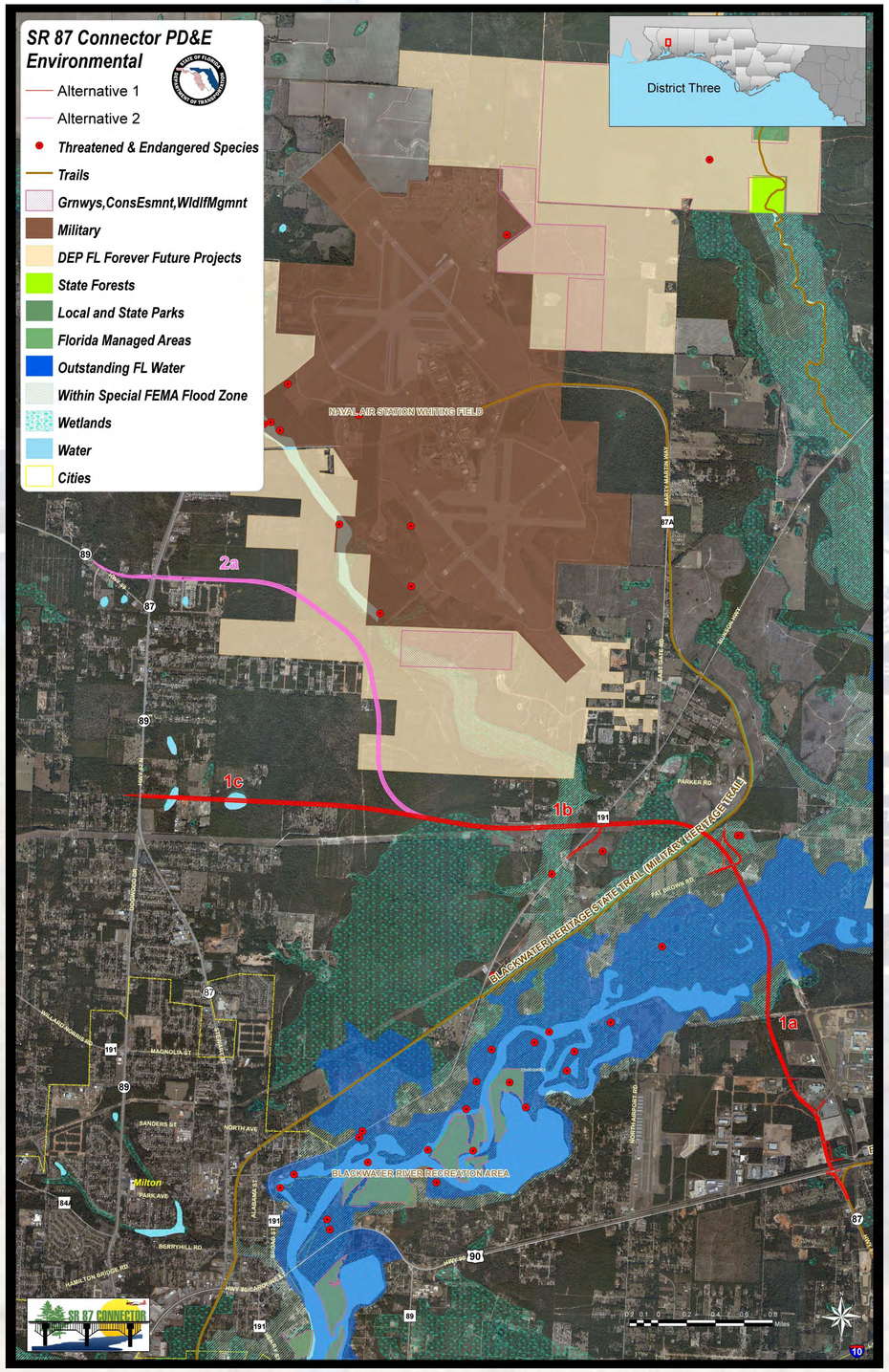
Ecological Resource Consultants, Inc.

dv 3.12.12
ERC# 09-143

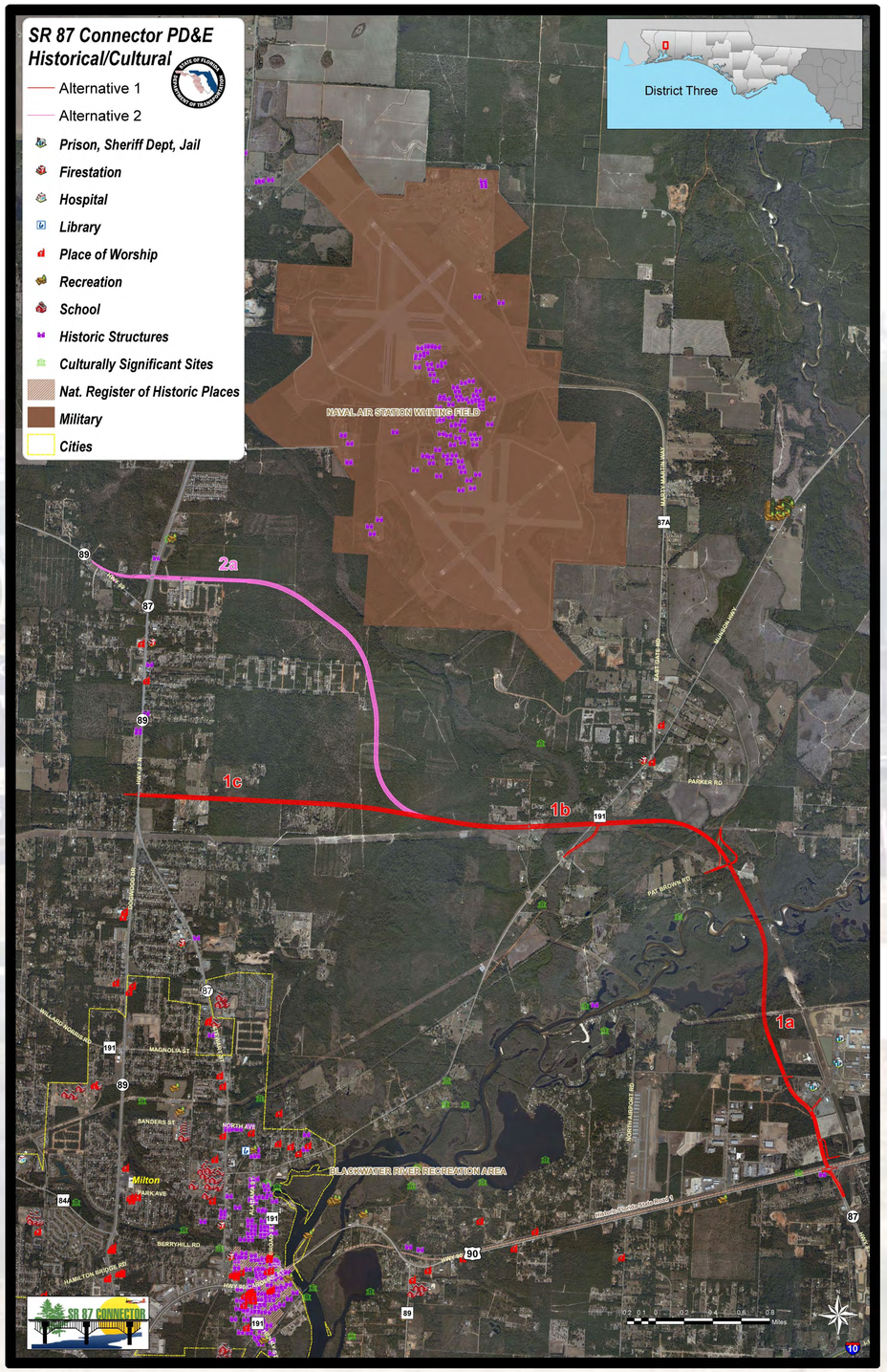
APPENDIX G - Cultural Resources

Environmental, Historical and Cultural Concerns

Environmental



Historical and Cultural



APPENDIX H - Utilities

PRELIMINARY UTILITY CONFLICT MATRIX

SR 87 CONNECTOR IN SANTA ROSA COUNTY

Utility Owner	Representative Contact Information	Type/Size of Utility and Location	Potential Conflict Notes*	Notes/Discussion*	Cost Estimate
AT&T Communications	Steve Hamer	6 - 1.9 inch HDPE Ducts on north side of US 90	1,2	Runs under existing East Milton Road, did not specify if duct is between US 90 and SR 1 or SR 1 and CSX Railroad. May need adjustment due to new strain pole/ mast arm.	$150,000 per mile. Approximately 0.1 miles * $150,000 **= $15,000**
AT&T Florida			1,2		
City of Milton	Joe Cook	4" H.P. Gas and 8" FM along East Milton Rd 10" Gravity Sewer perpendicular near shooting range 6" WM and 10" FM on Munson Hwy 6" WM on Winston Brown 2" HP Gas on SR 87N/ SR 89N	1,2	Gas and FM will be impacted due to widening along East Milton Rd. 10" gravity sewer, 6" WM, 10" FM and 6" WM all are perpendicular to alignment, may be affected. Utilities on Munson Hwy may need to be relocated onto new row if old is abandoned. Gas on SR 87N may be affected due to widening on Oakland drive west of SR 87N.	No potential adjustment cost provided
CSX Railroad	Hal Gibson 904.359.1048	Railroad along northside of US 90	1, 2	Coordinate to replace railroad track section at US 90 and SR 87 S.	No potential adjustment cost provided
East Milton Water System, Inc.	Dink Helms 850.623.8750	12" Water along east side of East Milton Road 12" Water along west side of SR 87S 10" Water along West side of Judicial Blvd 10" Water along south side of Opportunity Drive	1,2	12" water and 10" water along East Milton Rd and Judicial Blvd will be affected due to widening. Opportunity Drive may be affected due to widening.	No potential adjustment cost provided
Gulf Power Distribution	Chad Swails 850.429.2446	East Milton Road, Judicial Drive, Munson Highway, Oakland Drive east of SR 89N, Season Drive (buried), SR 87N (to residences), SR 89N (to residences)	1,2	East Milton Road and Judicial Drive approximately 20 poles impacted Munson Hwy- if keep in existing row no impacts, if moved to match alignment impacts Oakland Drive East approximately 20 poles impacted SR 87N four poles impacted SR 89N 6 poles impacted	Costs $10k - $25k per pole, higher price is if communications are on poles **Corridor 1 - $1,325,000** **Corridor 2 - $1,075,000**
Gulf Power Transmission	Tracy Judson 850.444.6085	2- 115kV lines in east/west easement north of prison 1- 115kV and 1- 230kV in easement crossing Blackwater River 1- 230 kV in easement north of Salamander Habitat 46kV on west side of Munson Highway	1,2	1 structure to be adjusted in easement north of prison ($100-150k) 2 structures (1- 115kV, 1-230kV) adjusted at Pat Brown ($100-150k per structure) 1 structure (230kV) adjusted at easement triangle ($100-150k) 7500' of 115kV adjusted ($350/400k per mile not including row) 3000' of 230kV adjusted ($600/700 per mile not including row) 1 structure (230kV) adjusted at Munson Hwy ($100-150k) 1 structure (46kV) adjusted at Munson Hwy ($50k)	$150,000 2 * $150,000 = $300,000 $150,000 7500' * $400,000/mile = $568,182 3000' * $700,000/mile = $397,727 $150,000 $50,000 **= $1,765,909**
Level 3 Communications	Kelli Whitehead 720.888.4988	96 fiber, 2 - 1.5" Orange and 1-1.5" Black with Orange stripe HDPE along north side of US 90 between SR 1 and US 90	1,2	Bored under East Milton Road, widening may not affect. 10" Steel pipe for 895'.	**$15,000-20,000**
Mediacom	Eddie Arnold 850.934.2560	Cable TV, buried & overhead, located throughout residential areas	1,2		
Okaloosa Gas	Essa Rhebi	8" and 12" Steel transmission pipe lines along north side of US 90	1,2	Runs under existing East Milton Road, did not specify if between US 90 and SR 1 or SR 1 and CSX Railroad. May need adjustment	No potential adjustment cost provided
Point Baker Water System, Inc.	Tony Mathis 850.623.4545	Oakland Drive (east of SR 87N) - 2" WM and service laterals approximately 3.5' deep SR 87N - 8" WM (east side), 6" WM (west side) approximately 7' deep Harvest Point - 6" WM on south side SR 89N - 6" WM on south side	1,2	Water mains on Oakland Drive and Harvest Point may be affected. Those on SR 87N and SR 89N should not be affected.	**Oakland Drive - $41,280** **Harvest Point - $42,600**
Qwest	Jerry NeSmith 918.640.5964	Along CSX Railroad, 1 1/4" Green, 1 1/4" Blue, 1 1/4" Black, and 2" Orange HDPE	1,2	Directional bored under East Milton Road approximately 70' from west to 80' from east side	No potential adjustment cost provided
Southern Light, LLC	DJ McAuley	No facilities within project limits			
Sprint Nextel	Steve Thompson 678.852.2726	Fiber Optic along CSX Railroad, 40' south of C/L of railroad, 36' north of SR 1	1,2	See asbuilts, may need adjustments	No potential adjustment cost provided
Verizon (MCI)	Charles Brunick 850.265.3652	12ct Fiber Optic in the median of US 90	1,2	Project will not affect fiber located in median ($100,000 to adjust)	No adjustment needed

*Notes: 1. Designate locations of all utilities on plans
2. Coordinate with Utility Owner for Relocation Plans. Locate and protect where possible to avoid relocations.

APPENDIX I - Right-Of-Way Estimate Table

Right-Of-Way Estimate Table

Recommended Ponds	Direct Labor Costs	Land	Damages	Administrative Settlements	Litigation Awards	Owner Appraisal Fees	Defendant Attorney Fees	Other Condemnation Costs	Appraisal Fees	Court Reporter and Witness Fees	Attorney Fees (Outside counsel)	Total
1-3	$10,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,000	$16,000
1-5	$10,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,000	$16,000
2-1	$10,000	$114,000	$0	$35,100	$35,100	$12,500	$10,000	$17,560	$5,000	$11,700	$6,000	$256,960
2-3	$10,000	$129,000	$0	$40,000	$40,000	$12,500	$10,000	$20,000	$5,000	$13,330	$6,000	$285,830
3-2	$10,000	$44,000	$10,000	$16,200	$16,200	$12,500	$10,800	$8,100	$5,000	$5,400	$6,000	$144,200
3-3	$10,000	$42,984	$10,000	$16,200	$16,200	$12,500	$10,800	$8,100	$5,000	$5,575	$6,000	$143,359
4-4	$10,000	$54,000	$0	$16,725	$16,725	$12,500	$10,200	$8,780	$5,000	$5,575	$6,000	$145,505
5-1	$10,000	$73,454	$35,911	$32,809	$32,809	$12,500	$21,873	$16,405	$5,000	$10,936	$6,000	$257,697
6-1	$10,000	$31,000	$0	$9,300	$9,300	$8,750	$6,200	$4,650	$3,500	$3,100	$6,000	$91,800
7-1	$10,000	$16,182	$0	$4,855	$4,855	$4,291	$3,236	$2,427	$3,500	$1,618	$6,000	$56,963
7-4	$10,000	$43,724	$0	$13,117	$13,117	$4,070	$8,745	$6,559	$3,500	$4,372	$6,000	$113,205
8-2	$10,000	$38,000	$0	$11,400	$11,400	$8,750	$7,600	$5,700	$3,500	$3,800	$6,000	$106,150
9-3	$10,000	$45,000	$0	$13,500	$13,500	$12,500	$9,000	$6,750	$5,000	$4,500	$6,000	$125,750
9-5	$10,000	$0	$0	$0	$0	$8,750	$0	$0	$3,500	$0	$6,000	$28,250
10-2	$10,000	$91,000	$10,000	$30,300	$30,300	$8,750	$20,200	$15,150	$3,500	$10,100	$6,000	$235,300