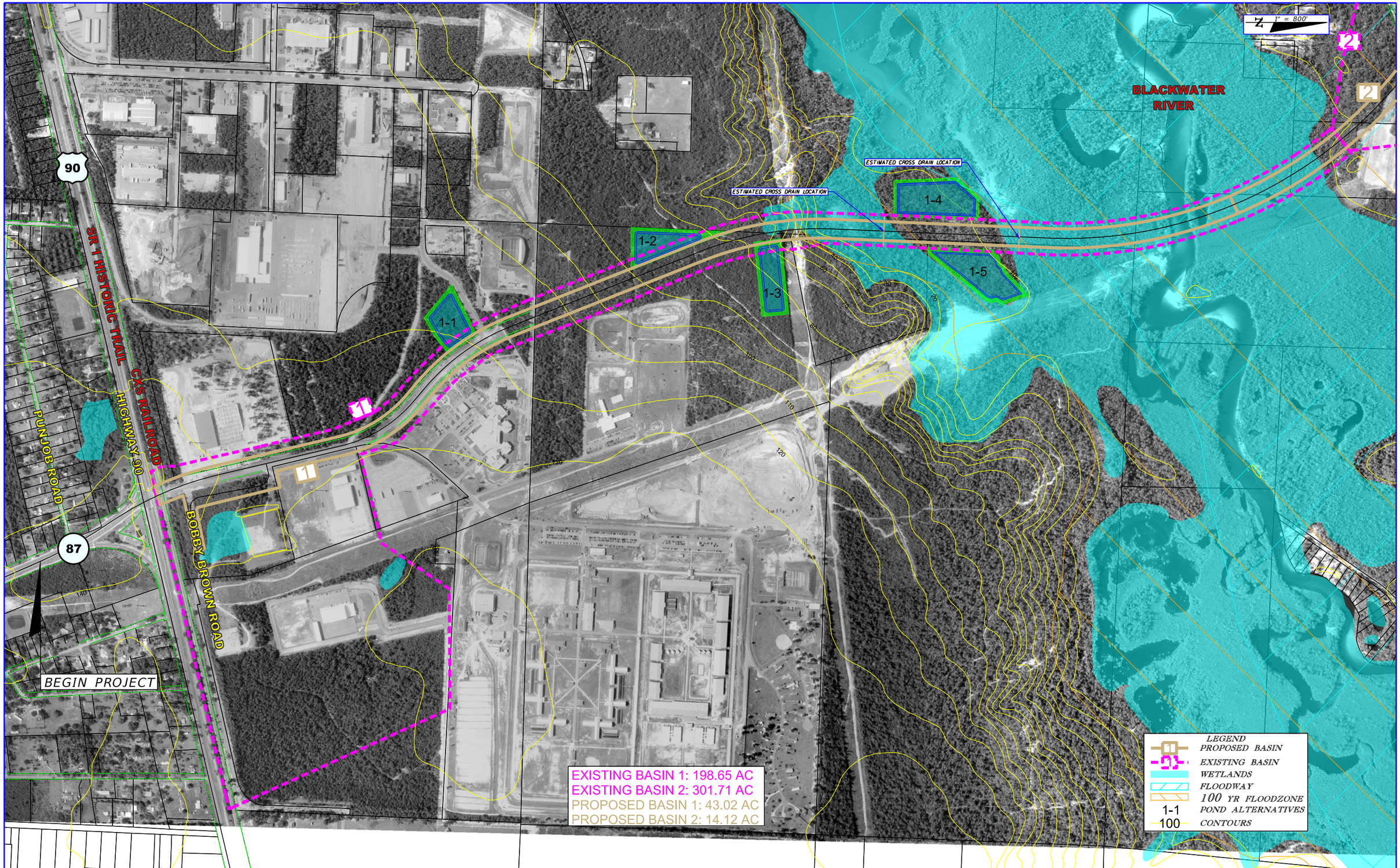
APPENDIX A - Drainage Maps



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

METRIC ENGINEERING, INC.
2616 JENKS AVENUE
PANAMA CITY, FLORIDA 32405
CERTIFICATE OF AUTHORIZATION 00002294

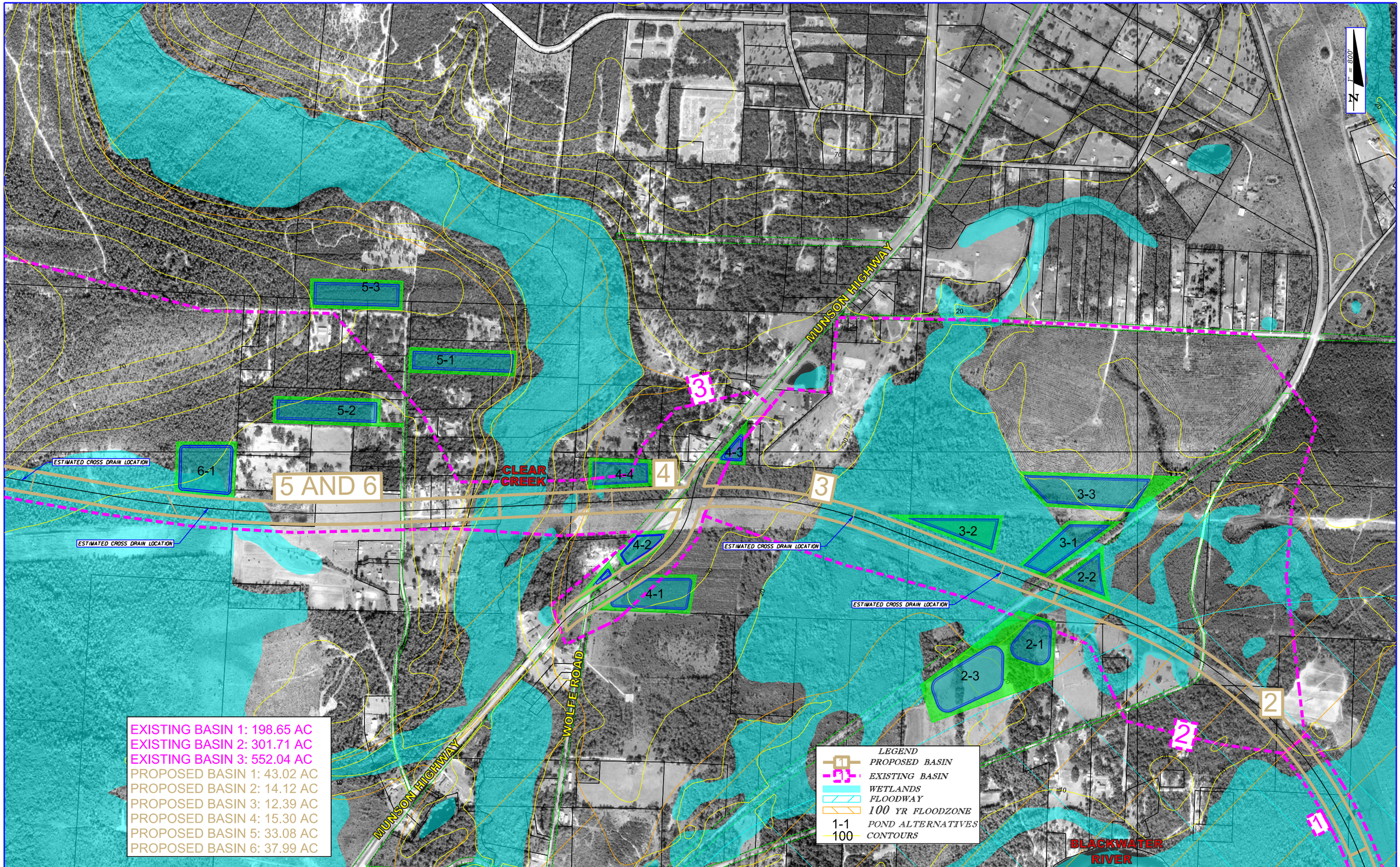
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 87	SANTA ROSA	416748-3-22-01, ETC.

DRAINAGE BASIN MAP

SHEET NO. 1

NMauntler 4/2/2014 12:44:05 PM F:\E\projects\41674832202\drainage\Pond_Siting\DrainageMap_1.DGN



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2616 JENKS AVENUE
PANAMA CITY, FLORIDA 32405
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 87	SANTA ROSA	416748-3-22-01, ETC.

DRAINAGE BASIN MAP

SHEET NO. 2

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

METRIC ENGINEERING, INC.
2616 JENKS AVENUE
PANAMA CITY, FLORIDA 32405
CERTIFICATE OF AUTHORIZATION 00002294

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 87	SANTA ROSA	416748-3-22-01, ETC.

DRAINAGE BASIN MAP

SHEET NO. 3

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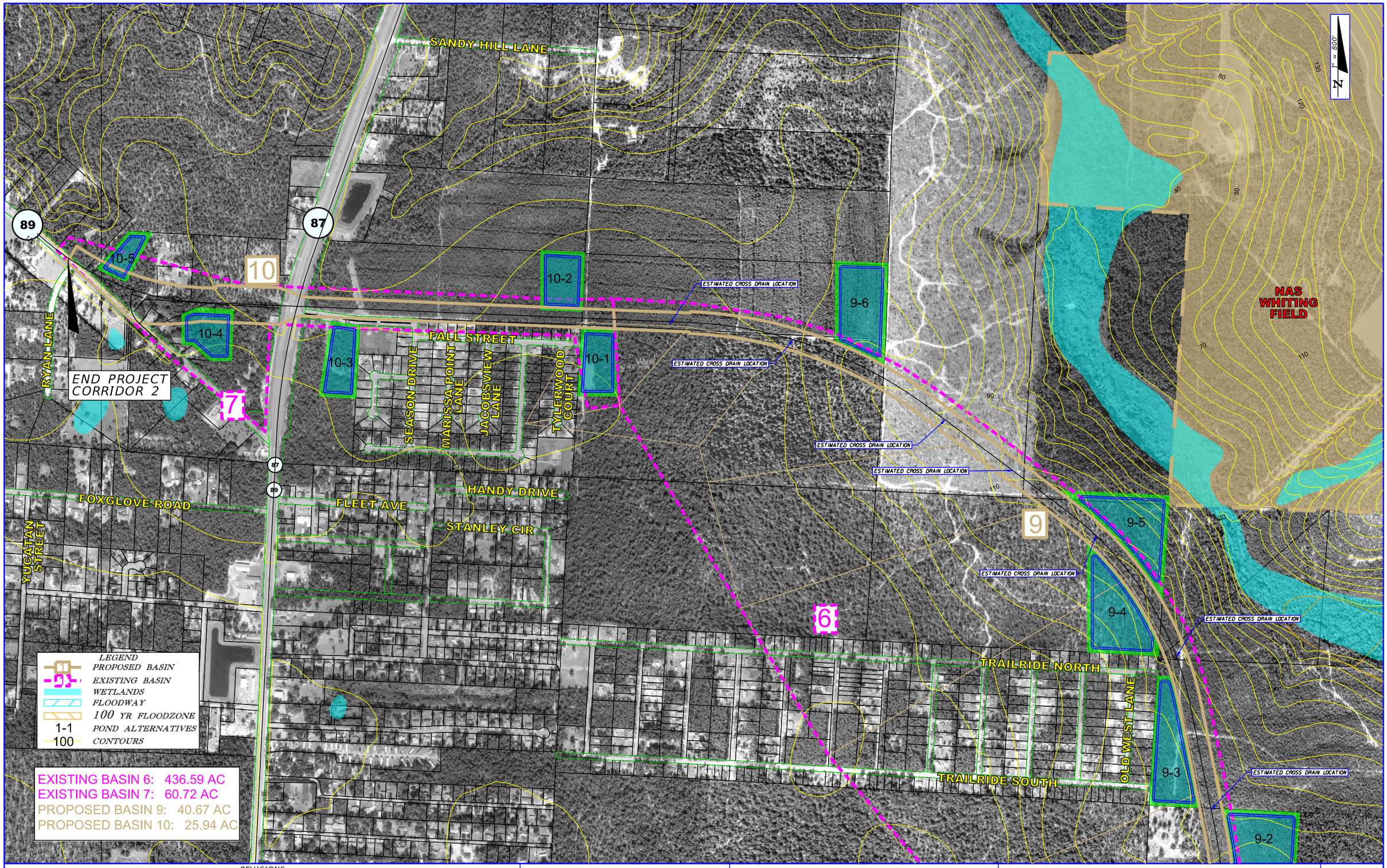

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

METRIC ENGINEERING, INC.
2616 JENKS AVENUE
PANAMA CITY, FLORIDA 32405
CERTIFICATE OF AUTHORIZATION 00002294

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 87	SANTA ROSA	416748-3-22-01, ETC.

DRAINAGE BASIN MAP

SHEET NO. 4

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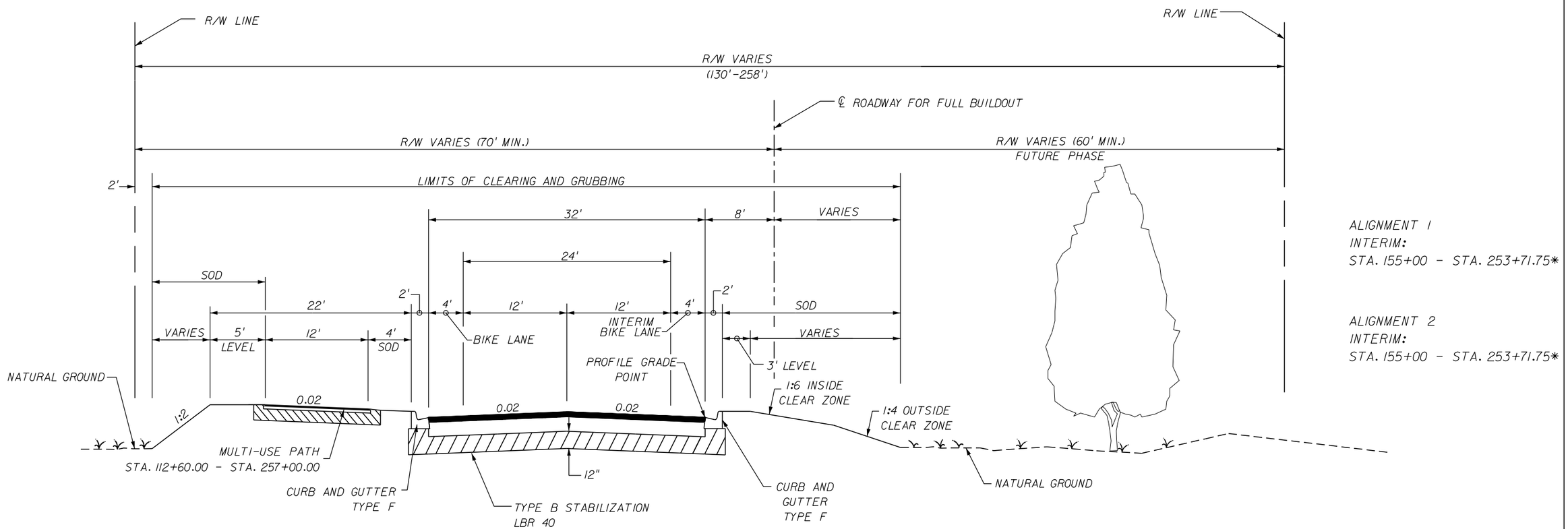
APPENDIX B - Proposed Typical Sections

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	416748-3-22-01 AND 416748-3-22-02	FEDERAL AID PROJECT NO.	SFTI 296 R AND SI29 348 R	COUNTY NAME	SANTA ROSA
SECTION NO.	58040	ROAD DESIGNATION	SR 87 CONNECTOR	LIMITS/MILEPOST	ALIGNMENT 1 - STA 100+00 - STA 455+15 ALIGNMENT 2 - STA 100+00 - STA 505+49
PROJECT DESCRIPTION	SR 87 CONNECTOR FROM SR 10 (US 90) TO SR 87 NORTH				

PROPOSED INTERIM URBAN ROADWAY TYPICAL SECTION



DESIGN SPEED = 45 MPH
CLEAR ZONE = 24'

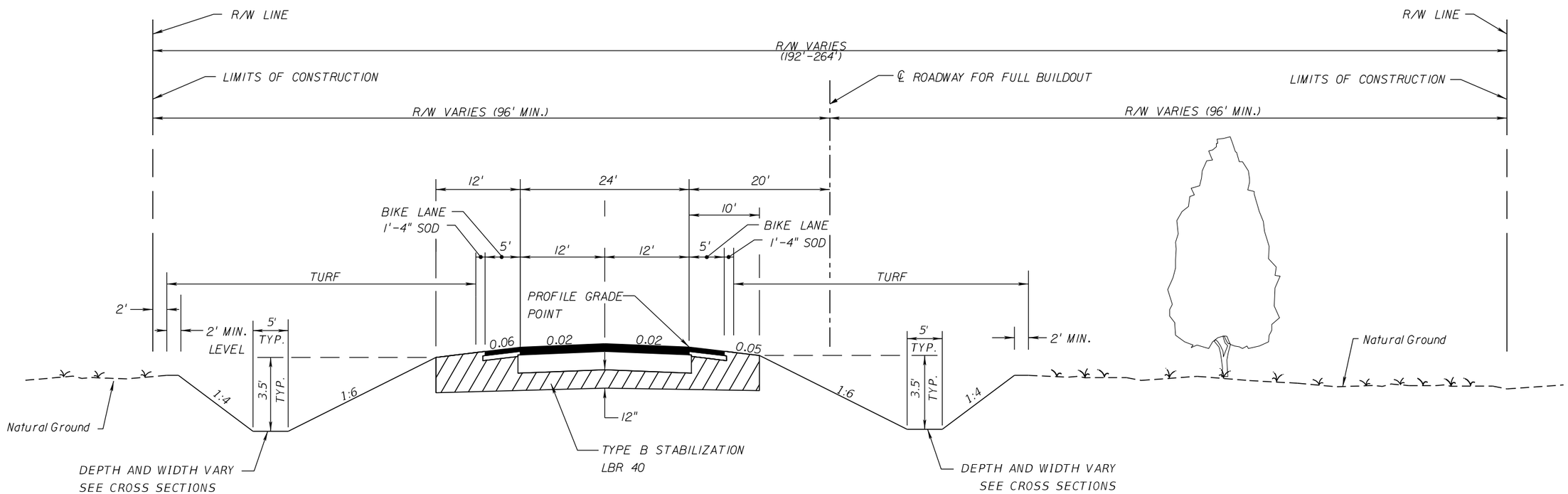
*INCLUDES BLACKWATER RIVER BRIDGE

APPROVED BY JESSICA BLOOMFIELD, P.E.	FDOT CONCURRENCE	FHWA CONCURRENCE
Engineer Of Record — DATE	JOHN S. GOLDEN, P.E. FDOT District Design Engineer — DATE	FHWA Transportation Engineer — DATE

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	416748-3-22-01 AND 416748-3-22-02	FEDERAL AID PROJECT NO.	SFTI 296 R AND SI29 348 R	COUNTY NAME	SANTA ROSA
SECTION NO.	58040	ROAD DESIGNATION	SR 87 CONNECTOR	LIMITS/MILEPOST	ALIGNMENT 1 - STA 100+00 - STA 455+15 ALIGNMENT 2 - STA 100+00 - STA 505+49
PROJECT DESCRIPTION	SR 87 CONNECTOR FROM SR 10 (US 90) TO SR 87 NORTH				

PROPOSED INTERIM RURAL ROADWAY TYPICAL SECTION



DESIGN SPEED = 65 MPH
CLEAR ZONE = 36'

ALIGNMENT 1
BUILDOUT:
STA. 253+71.75 - STA. 441+89*

ALIGNMENT 2
BUILDOUT:
STA. 253+71.75 - STA. 480+00*

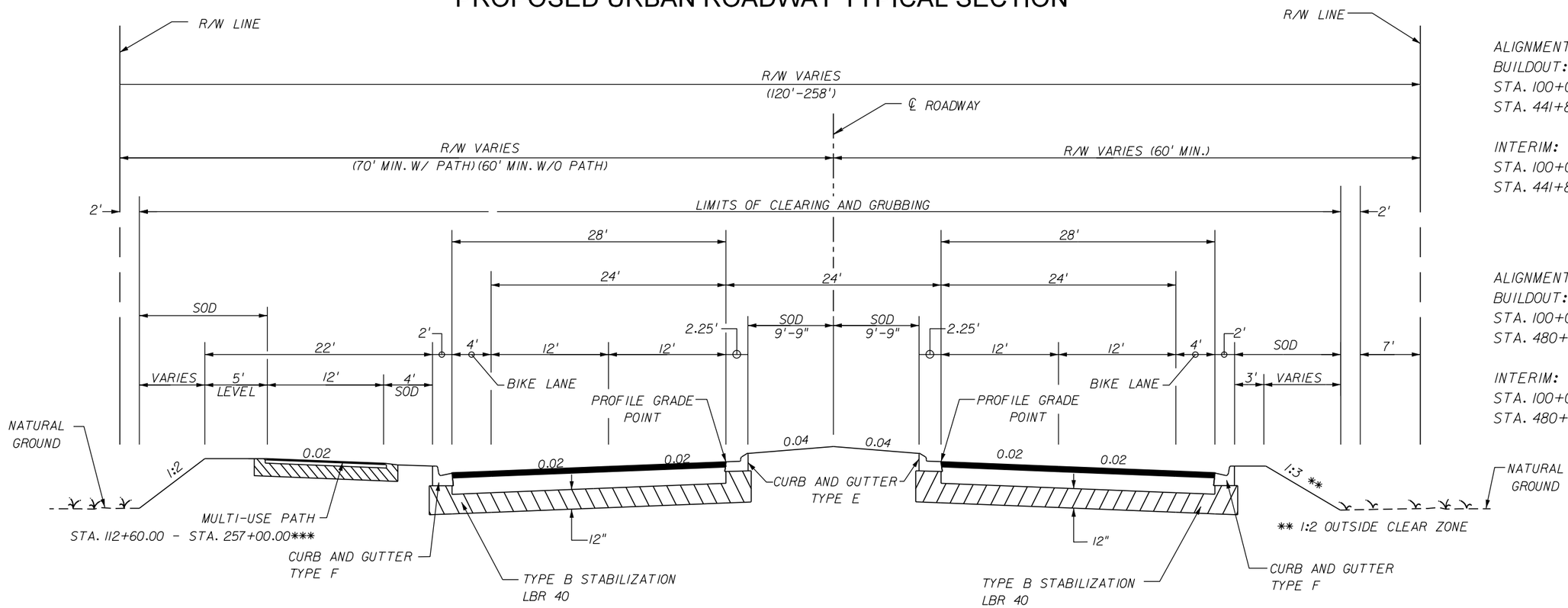
*INCLUDES CLEAR CREEK BRIDGE

APPROVED BY JESSICA BLOOMFIELD, P.E.	FDOT CONCURRENCE	FHWA CONCURRENCE
Engineer Of Record — DATE	JOHN S. GOLDEN, P.E. FDOT District Design Engineer — DATE	FHWA Transportation Engineer — DATE

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	416748-3-22-01 AND 416748-3-22-02	FEDERAL AID PROJECT NO.	SFTI 296 R AND SI29 348 R	COUNTY NAME	SANTA ROSA
SECTION NO.	58040	ROAD DESIGNATION	SR 87 CONNECTOR	LIMITS/MILEPOST	ALIGNMENT 1 - STA 100+00 - STA 455+15 ALIGNMENT 2 - STA 100+00 - STA 505+49
PROJECT DESCRIPTION	SR 87 CONNECTOR FROM SR 10 (US 90) TO SR 87 NORTH				

PROPOSED URBAN ROADWAY TYPICAL SECTION



ALIGNMENT 1
BUILDOUT:
STA. 100+00 - STA. 253+71.75*
STA. 441+89 - STA. 455+15

INTERIM:
STA. 100+00 - STA. 155+00
STA. 441+89 - STA. 455+15

ALIGNMENT 2
BUILDOUT:
STA. 100+00 - STA. 253+71.75*
STA. 480+00 - STA. 505+64

INTERIM:
STA. 100+00 - STA. 155+00
STA. 480+00 - STA. 505+64

***FOR AREAS WITHOUT THE MULTI-USE PATH, THE LEFT SIDE WILL MIRROR THE RIGHT SIDE

DESIGN SPEED = 45 MPH
CLEAR ZONE = 24'

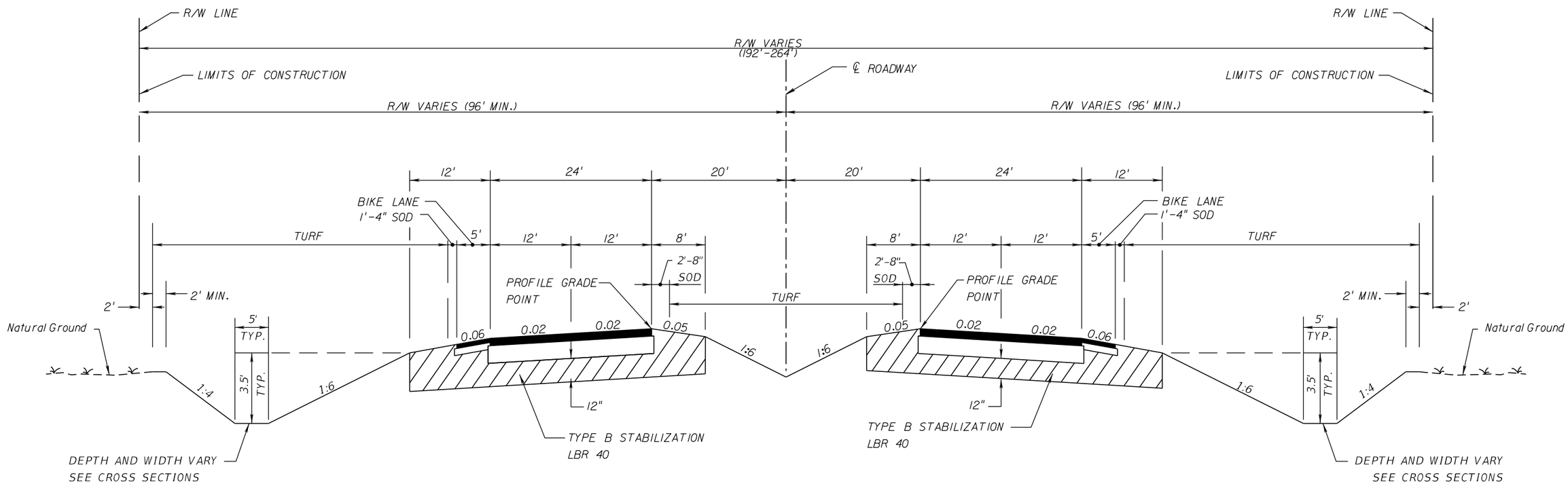
*INCLUDES BLACKWATER RIVER BRIDGE

APPROVED BY JESSICA BLOOMFIELD, P.E.	FDOT CONCURRENCE	FHWA CONCURRENCE
Engineer Of Record — DATE	JOHN S. GOLDEN, P.E. FDOT District Design Engineer — DATE	FHWA Transportation Engineer — DATE

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	416748-3-22-01 AND 416748-3-22-02	FEDERAL AID PROJECT NO.	SFTI 296 R AND S129 348 R	COUNTY NAME	SANTA ROSA
SECTION NO.	58040	ROAD DESIGNATION	SR 87 CONNECTOR	LIMITS/MILEPOST	ALIGNMENT 1 - STA 100+00 - STA 455+15 ALIGNMENT 2 - STA 100+00 - STA 505+49
PROJECT DESCRIPTION	SR 87 CONNECTOR FROM SR 10 (US 90) TO SR 87 NORTH				

PROPOSED RURAL ROADWAY TYPICAL SECTION



ALIGNMENT 1
BUILDOUT:
STA. 253+71.75 - STA. 441+89*

ALIGNMENT 2
BUILDOUT:
STA. 253+71.75 - STA. 480+00*

*INCLUDES CLEAR CREEK BRIDGE

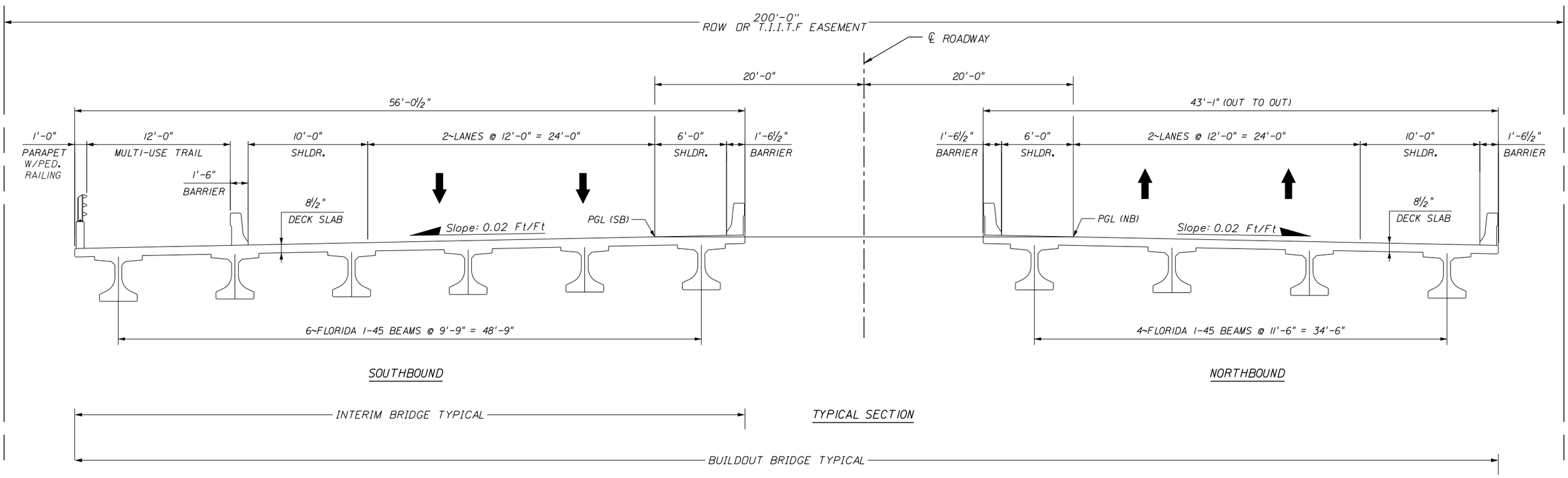
DESIGN SPEED = 65 MPH
CLEAR ZONE = 36'

APPROVED BY JESSICA BLOOMFIELD, P.E.	FDOT CONCURRENCE	FHWA CONCURRENCE
Engineer Of Record — DATE	JOHN S. GOLDEN, P.E. FDOT District Design Engineer — DATE	FHWA Transportation Engineer — DATE

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	416748-3-22-01 AND 416748-3-22-02	FEDERAL AID PROJECT NO.	SFTI 296 R AND SI29 348 R	COUNTY NAME	SANTA ROSA
SECTION NO.	58040	ROAD DESIGNATION	SR 87 CONNECTOR	LIMITS/MILEPOST	ALIGNMENT 1 - STA 100+00 - STA 455+15 ALIGNMENT 2 - STA 100+00 - STA 505+49
PROJECT DESCRIPTION	SR 87 CONNECTOR FROM SR 10 (US 90) TO SR 87 NORTH				

PROPOSED BRIDGE TYPICAL SECTION - BLACKWATER RIVER BRIDGE - INTERIM AND BUILDOUT



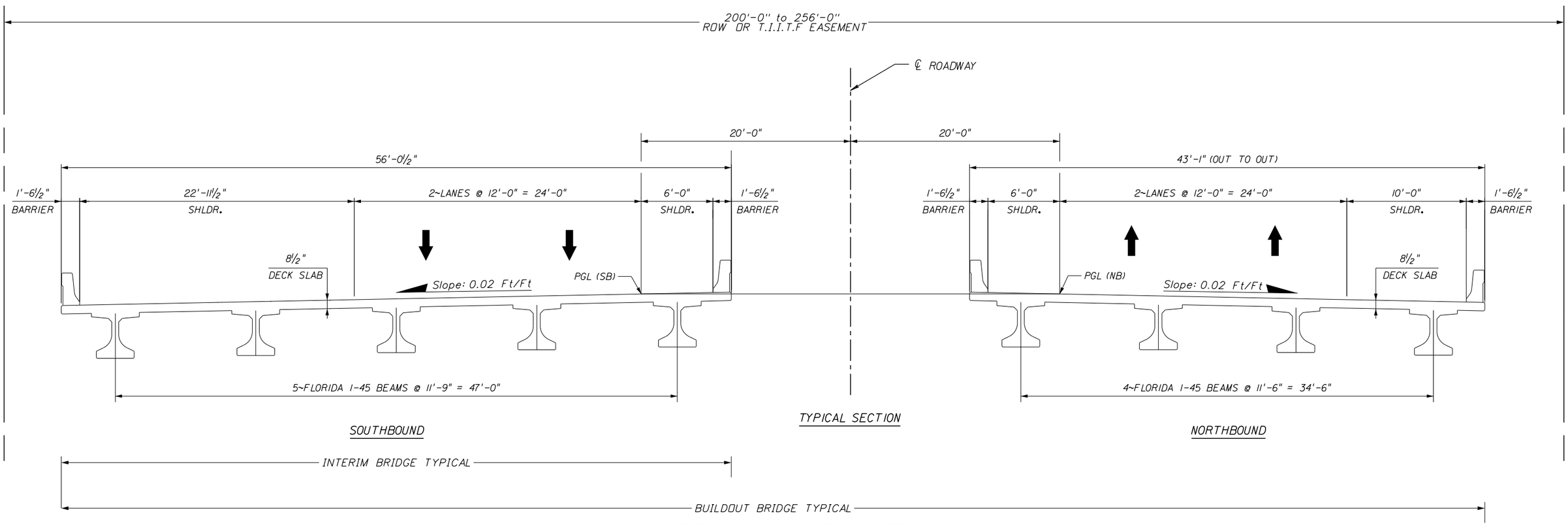
ALIGNMENTS 1 AND 2
BUILDOUT AND INTERIM:
STA. 198+00 - STA. 253+71.75 (BLACKWATER RIVER BRIDGE)

APPROVED BY JESSICA BLOOMFIELD, P.E.	FDOT CONCURRENCE	FHWA CONCURRENCE
Engineer Of Record — DATE	JOHN S. GOLDEN, P.E. FDOT District Design Engineer — DATE	FHWA Transportation Engineer — DATE

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	416748-3-22-01 AND 416748-3-22-02	FEDERAL AID PROJECT NO.	SFTI 296 R AND SI29 348 R	COUNTY NAME	SANTA ROSA
SECTION NO.	58040	ROAD DESIGNATION	SR 87 CONNECTOR	LIMITS/MILEPOST	ALIGNMENT 1 - STA 100+00 - STA 455+15 ALIGNMENT 2 - STA 100+00 - STA 505+49
PROJECT DESCRIPTION	SR 87 CONNECTOR FROM SR 10 (US 90) TO SR 87 NORTH				

PROPOSED BRIDGE TYPICAL SECTION - CLEAR CREEK BRIDGE - INTERIM AND BUILDOUT



ALIGNMENTS 1 AND 2 BUILDOUT AND INTERIM:
STA. 300+25 - STA. 302+05 (CLEAR CREEK BRIDGE)

APPROVED BY	JESSICA BLOOMFIELD, P.E.	FDOT CONCURRENCE		FHWA CONCURRENCE	
Engineer Of Record	DATE	JOHN S. GOLDEN, P.E. FDOT District Design Engineer	DATE	FHWA Transportation Engineer	DATE

APPENDIX C - Calculations

Basin Information

Basin #	Drainage Area (ft^2)	Size (ac)	Pre-Dev Impervious (ft^2)	Pre-Dev Imp (ac)	Pre-Dev Pervious (ft^2)	Pre-Dev Pervious (ac)	Post-Dev Impervious (ft^2)	Post-Dev Imp (ac)	Post-Dev Pervious (ft^2)	Post-Dev Pervious (ac)	Post-Dev Required Treatment Volume (ac-ft)*	Post-Dev Treatment Volume (cf)
1	1,873,801	43.02	200,076	4.59	1,673,725	38.42	890,334	20.44	983,467	22.58	5.38	234,225
2	615,137	14.12	10,400	0.24	604,737	13.88	374,736	8.60	240,401	5.52	1.77	76,883
3	539,517	12.39	11,200	0.26	528,317	12.13	301,920	6.93	237,597	5.45	1.55	67,440
4	666,356	15.30	23,357	0.54	642,999	14.76	237,442	5.45	428,914	9.85	1.91	83,295
5	1,440,952	33.08	12,815	0.29	1,428,137	32.79	679,914	15.61	761,038	17.47	4.13	180,119
6	1,654,770	37.99	12,815	0.29	1,641,955	37.69	777,540	17.85	877,230	20.14	4.75	206,846
7a	490,000	11.25	1,000	0.02	489,000	11.23	227,469	5.22	262,531	6.03	1.41	61,250
7b	588,199	13.50	1,000	0.02	587,199	13.48	273,280	6.27	314,919	7.23	1.69	73,525
8	489,268	11.23	50,776	1.17	438,492	10.07	239,833	5.51	249,435	5.73	1.40	61,159
9	1,771,695	40.67	2,000	0.05	1,769,695	40.63	855,000	19.63	916,695	21.04	5.08	221,462
10	1,129,748	25.94	56,465	1.30	1,073,283	24.64	345,205	7.92	784,543	18.01	3.24	141,219

*Treatment volume was taken as 1.5" over the basin area, due to discharge to Outstanding Florida Waters (which provides an additional 50% treatment). Note: Not all Basins discharge to OFW

Attenuation Volumes - Pre Development

Using NRCS equation to calculate the volume

Basin #	Drainage Area (ft^2)	Pre-Dev Impervious (ft^2)	Pre-Dev Pervious (ft^2)	Pre-Dev CN Imp	Pre-Dev CN Pervious	Pre-Dev Avg CN	S (in) *	P (in) **	Q_R(in)***	Vol (ft^3)	Vol (ac-ft)
1	1,873,801	200,076	1,673,725	98	59	63	5.84	12.72	7.67	1,198,433	27.51
2	615,137	10,400	604,737	98	80	80	2.51	12.72	10.14	519,685	11.93
3	539,517	11,200	528,317	98	81	81	2.36	12.72	10.27	461,707	10.60
4	666,356	23,357	642,999	98	58	60	6.75	12.72	7.14	396,283	9.10
5	1,440,952	12,815	1,428,137	98	67	67	4.88	12.72	8.30	996,405	22.87
6	1,654,770	12,815	1,641,955	98	61	61	6.39	12.72	7.34	1,012,391	23.24
7a	490,000	1,000	489,000	98	50	50	9.81	12.72	5.63	229,755	5.27
7b	588,199	1,000	587,199	98	50	50	9.82	12.72	5.62	275,665	6.33
8	489,268	50,776	438,492	98	51	56	7.88	12.72	6.53	266,137	6.11
9	1,771,695	2,000	1,769,695	98	45	45	12.19	12.72	4.70	694,438	15.94
10	1,129,748	56,465	1,073,283	98	45	48	10.99	12.72	5.15	484,641	11.13

*S = Maximum retention or soil storage , S = 1000/CN - 10

** P = Rainfall depth from the 100yr - 24 hr storm event

*** Q_R = Runoff Depth, $Q_R = (P-0.2S)^2/(P+0.8S)$

Vol = Q_R * Drainage Area

Attenuation Volumes - Post Development

Using NRCS equation to calculate the volume

Basin #	Drainage Area (ft^2)	Post-Dev Impervious (ft^2)	Post-Dev Pervious (ft^2)	Post-Dev CN Imp	Post-Dev CN Pervious	Post-Dev Avg CN	S (in) *	P (in) **	Q_R(in)***	Vol (ft^3)	Vol (ac-ft)
1	1,873,801	890,334	983,467	98	59	78	2.90	12.72	9.80	1,530,405	35.13
2	615,137	374,736	240,401	98	80	91	1.01	12.72	11.58	593,774	13.63
3	539,517	301,920	237,597	98	81	90	1.07	12.72	11.52	517,827	11.89
4	666,356	237,442	428,914	98	58	72	3.80	12.72	9.08	503,979	11.57
5	1,440,952	679,914	761,038	98	67	82	2.26	12.72	10.36	1,244,430	28.57
6	1,654,770	777,540	877,230	98	61	78	2.78	12.72	9.90	1,365,177	31.34
7a	490,000	227,469	262,531	98	50	72	3.80	12.72	9.08	370,749	8.51
7b	588,199	273,280	314,919	98	50	73	3.79	12.72	9.08	445,180	10.22
8	489,268	239,833	249,435	98	51	74	3.50	12.72	9.31	379,512	8.71
9	1,771,695	855,000	916,695	98	45	71	4.17	12.72	8.80	1,299,219	29.83
10	1,129,748	345,205	784,543	98	45	61	6.34	12.72	7.37	693,894	15.93

*S = Maximum retention or soil storage , S = 1000/CN - 10

** P = Rainfall depth from the 100yr - 24 hr storm event

*** Q_R = Runoff Depth, $Q_R = (P-0.2S)^2/(P+0.8S)$

Volume Difference

Basin #	Pre-Dev Volume (ft^3)	Post-Dev Volume (ft^3)	Attenuation Required (ft^3)	Attenuation Required (ac-ft)
1	1,198,433	1,530,405	331,972	7.62
2	519,685	593,774	74,089	1.70
3	461,707	517,827	56,120	1.29
4	396,283	503,979	107,695	2.47
5	996,405	1,244,430	248,025	5.69
6	1,012,391	1,365,177	352,786	8.10
7a	229,755	370,749	140,995	3.24
7b	275,665	445,180	169,514	3.89
8	266,137	379,512	113,375	2.60
9	694,438	1,299,219	604,781	13.88
10	484,641	693,894	209,253	4.80

The attenuation required was calculated by subtracting the pre-development volumes from the post-development volumes

Pond Options

Pond #	Contributing Basin(s)	Lot Size (ft^2)*	Lot Size (ac)	Pond Top (ft^2)**	Pond Top (ac)	Pond Bottom (ft^2)	Pond Bottom (ac)	Storage Volume (cf)***	Wetland/Floodplain	Soil Group****	Est. Normal Seasonal High GroundWater	Type of Pond	Parcel Numbers	Owner Names	Comments
1-1	1	147,152	3.38	102,989	2.36	79,094	1.82	354,206	-	44	> 15.5	Dry	322N270000001000000	SANTA ROSA COUNTY	
1-2	1	172,540	3.96	106,830	2.45	77,259	1.77	355,948	-	44	> 15.5	Dry	292N270000001010000	SANTA ROSA COUNTY	
1-3	1	156,339	3.59	105,743	2.43	77,139	1.77	353,920	-	44	> 15.5	Dry	292N270000001010000	SANTA ROSA COUNTY	
1-4	1	247,396	5.68	187,964	4.32	155,595	3.57	332,494	Floodplain	3, 21	0.5 - 6.0	Wet	302N270000001000000	SANTA ROSA COUNTY	Floodplain Compensation Needed
1-5	1	263,257	6.04	196,288	4.51	159,171	3.65	342,831	Floodplain	21, 34	1.5 - 6.0	Wet	292N270000001000000	SANTA ROSA COUNTY	Floodplain Compensation Needed
2-1	2	322,944	7.41	108,308	2.49	87,435	2.01	188,559	Floodplain	34, 40	0.5 - 3	Wet	192N270000001000000, 192N270000004000000	ELLIOT HENRY J JR, MRS PAT BROWN	Floodplain Compensation Needed
2-2	2	111,296	2.56	69,220	1.59	48,869	1.12	110,902	Wetland/Floodplain	34, 40	0.5 - 3	Wet	192N270000001000000	ELLIOT HENRY J JR	Floodplain Compensation Needed
2-3	2 &3	367,774	8.44	232,052	5.33	198,619	4.56	419,300	Floodplain	21, 34	1.5 - 6.0	Wet	192N270000004000000	MRS. PAT BROWN	Floodplain Compensation Needed
3-1	3	187,497	4.30	127,540	2.93	96,415	2.21	213,176	Wetland	34, 40	0.5 - 3	Wet	192N270000001000000	ELLIOT HENRY J JR	
3-2	3	170,919	3.92	107,599	2.47	76,679	1.76	173,382	Wetland	40	0.0-0.5	Wet	192N270000001000000, 242N280000013000000	ELLIOT HENRY J JR, LONG HENRY	
3-3	3	350,037	8.04	237,982	5.46	194,136	4.46	417,190	-	34	3.0	Wet	192N270000001000000	ELLIOT HENRY J JR	
4-1	4	220,635	5.07	158,136	3.63	125,413	2.88	272,242	-	1, 5, 14	5.0	Wet	242N280000013000000	LONG HENRY L & AGNES	
4-2	4	124,977	2.87	63,718	1.46	45,961	1.06	103,315	-	5	5.0	Wet	242N280000013000000	LONG HENRY L & AGNES	And in old Munson Highway ROW
4-3	4	57,693	1.32	28,012	0.64	15,294	0.35	38,642	-	1	5.0	Wet	242N280000011000000	ADAMS ALBERT	
4-4	4	153,671	3.53	94,738	2.17	72,171	1.66	228,125	Wetland	1, 5, 21	3.0	Wet	242N280000014000000	FINDLEY CASSIE KELLEY	
5-1	5 or 6	206,856	4.75	140,639	3.23	100,419	2.31	465,524	-	21, 22	> 15.5	Dry	242N280000015010000	PETERSON JAMES M	
5-2	5 or 6	228,154	5.24	154,827	3.55	114,106	2.62	521,064	-	21	10.0	Dry	242N280000020010000	DANIELS VIRGINIA	
5-3	5 or 6	209,480	4.81	148,902	3.42	112,506	2.58	507,746	-	21, 44	> 15.5	Dry	132N280000001000000	MARAY ENTERPRISES LLC	
6-1	5 or 6	254,639	5.85	197,572	4.54	163,532	3.75	708,080	Wetland	21, 34	7.0	Dry	232N280000002000000	ROLLO WILLIAM R	
6-2	5 or 6	287,468	6.60	214,518	4.92	171,805	3.94	754,802	-	21, 22	9.0	Dry	232N280000002000000	ROLLO WILLIAM R	
6-3	5 or 6	276,256	6.34	203,663	4.68	161,043	3.70	711,624	-	21, 44	> 15.5	Dry	232N280000002000000	ROLLO WILLIAM R	
7-1	7a	132,963	3.05	92,760	2.13	69,968	1.61	315,826	-	21, 44	>15.5	Dry	222N280000003000000	BAXLEY TIMOTHY	
7-2	7a	117,438	2.70	79,577	1.83	58,339	1.34	266,828	-	44	> 15.5	Dry	222N280000001000000	SPARR DOYLE ALAN	
7-3	7b	134,146	3.08	93,531	2.15	70,283	1.61	317,838	-	44	8.0	Dry	222N280000002000000	GULF COAST COMMUNITY BANK	
7-4	7b	133,545	3.07	92,994	2.13	69,961	1.61	316,186	-	5, 9, 44	6.0	Dry	222N280000002010000	GULF COAST COMMUNITY BANK	
8-1	8	123,834	2.84	75,444	1.73	47,185	1.08	233,442	-	5, 21	6.0	Dry	212N280000001070000	MANNING CHARLES E	
8-2	8	106,702	2.45	68,743	1.58	47,441	1.09	223,334	Wetland	5, 37, 44	6.0	Dry	212N280000004000000	GREEN PAUL R	
8-3	8	111,399	2.56	74,293	1.71	53,556	1.23	246,890	-	44	> 15.5	Dry	212N280000004000000	GREEN PAUL R	
9-1	9	374,458	8.60	303,411	6.97	260,055	5.97	1,109,078	-	21	12.0	Dry	142N280000002000000, 142N280000003000000	MARAY ENTERPRISES LLC, CANTNER MICKEY FAYE	
9-2	9	374,624	8.60	304,201	6.98	261,323	6.00	1,113,376	-	21	> 6.0	Dry	142N280000003030000	JARRATT JIMMIE NELL	
9-3	9	375,475	8.62	285,381	6.55	232,145	5.33	1,013,428	-	21	8.0	Dry	142N280000002000000	MARAY ENTERPRISES LLC	
9-4	9	384,732	8.83	303,781	6.97	254,766	5.85	1,096,850	-	21	> 6.0	Dry	152N280000003010000	SANTA ROSA COUNTY	
9-5	9	370,297	8.50	296,690	6.81	251,804	5.78	1,056,702	-	21, 22	14.0	Dry	152N280000003010000	SANTA ROSA COUNTY	
9-6	9	370,297	8.50	296,690	6.81	251,804	5.78	1,078,498	-	21, 44	>15.5	Dry	102N280000006010000, 102N280000006020000	SKIVANS CREEK LLC	
10-1	10	199,943	4.59	147,719	3.39	116,907	2.68	516,416	-	44	> 15.5	Dry	102N280000006010000	SKIVANS CREEK LLC	
10-2	10	197,810	4.54	147,421	3.38	117,830	2.71	518,154	-	44	> 6.0	Dry	092N280000009020000	SKIVANS CREEK LLC	
10-3	10	196,036	4.50	142,185	3.26	110,291	2.53	491,680	-	21, 44	6.0	Dry	092N280000009010000	SKIVAN'S CREEK LLC	
10-4	10	176,968	4.06	130,107	2.99	102,694	2.36	454,148	-	44	> 15.5	Dry	092N280000007000000, 092N280000003020000, 092N280000002010000	DEWRELL J LADON, JONES LAMAR	
10-5	10	109,783	2.52	70,161	1.61	48,068	1.10	227,068	-	44	7.0	Dry	092N280000001420000	DEWRELL J LADON	

*All ponds were assumed to have 30 foot buffer from the top of pond to the parcel lines. Except for 3-2 which is a swale option.
**All pond sizes include 1 foot of freeboard.
***Volume is not including the 1 foot of freeboard
****Soil Groups by number:

1	Albany Loamy Sand; 0-5% slopes	Somewhat poorly drained
5	Bonifay Loamy Sand; 0-5% slopes	Well drained
8	Dothan Fine Sandy Loam; 0-2% slopes	Well drained
9	Dothan Fine Sandy Loam; 2-5% slopes	Well drained
14	Fuquay Loamy Sand, 0-5% slopes	Well drained
19	Kalmia Loamy Fine Sand; 2-5% slopes	Well drained
21	Lakeland Sand; 0-5% slopes	Excessively drained
22	Lakeland Sand; 2-5% slopes	Excessively drained
27	Lynchberg Fine Sandy Loam	Somewhat poorly drained
34	Pactolus Loamy Sand; 0-5% slopes	Moderately well drained
37	Rains Fine Sandy Loam	Poorly drained
44	Troup Loamy Sand; 0-5% slopes	Somewhat excessively drained

Permanent Pool Volume (Wet Ponds Only)

Pond	Drainage Area (sf)	Drainage Area (ac)	C	R	RT	WS	CF	PPV (ac-ft)	PPV (cf)	PPV + 50%	Pond Bottom (sf)	Pond Bottom (ac)	PP Depth Needed
1-4	997,715	22.90	0.58	28	14	122	12	3.53	153963	5.30	155,595	3.57	1.48
1-5	1,013,576	23.27	0.58	28	14	122	12	3.59	156410	5.39	159,171	3.65	1.47
2-1	938,081	21.54	0.64	28	14	122	12	3.68	160090	5.51	87,435	2.01	2.75
2-2	726,433	16.68	0.64	28	14	122	12	2.85	123971	4.27	48,869	1.12	3.81
2-3	1,522,428	34.95	0.62	28	14	122	12	5.79	252259	8.69	198,619	4.56	1.91
3-1	539,520	12.39	0.60	28	14	122	12	1.98	86343	2.97	96,415	2.21	1.34
3-2	710,436	16.31	0.60	28	14	122	12	2.61	113696	3.92	76,679	1.76	2.22
3-3	1,504,691	34.54	0.60	28	14	122	12	5.53	240806	8.29	194,136	4.46	1.86
4-1	886,991	20.36	0.54	28	14	122	12	2.93	127620	4.39	125,413	2.88	1.53
4-3	666,360	15.30	0.54	28	14	122	12	2.20	95875	3.30	15,294	0.35	9.40
4-4	820,027	18.83	0.54	28	14	122	12	2.71	117985	4.06	72,171	1.66	2.45

PPV = (DA * C * R * RT)/(WS*CF)

C = Runoff Coefficient
R = Wet season rainfall depth (in)
RT = Residence time (days)
WS = Length of wet season (days)
CF = Conversion factor

METRIC ENGINEERING, INC.
ENGINEERS, PLANNERS, SURVEYORS

JOB # _____ SHEET # 1 OF _____
PROJECT NAME: SR 87
SUBJECT: Headloss
CALCULATED BY: NM DATE: 8/12
CHECKED BY: _____ DATE: _____

Basin 2 - station 214+40 → 250+75
Distance from sag on bridge to
Pond 21 1581'
Pond 2-2 2103'
Pond 2-3 2315'
Pond 3-3 3204'

Area (both bridge spans) =
3635' · (40+40) = 290,800 sf = 6.8 Ac
↑ only travel lane and shoulders

$Q = ciA$ $c = 0.95$ (all pavement)
$i = 6$ in/hr (IDF curve → 3yr 10min)

$Q = 0.95 \cdot 6 \text{ in/hr} \cdot 6.8 \text{ Ac} = 38.78 \text{ cfs}$

$A = Q/V$ $V = 4$ fps (min 2.5 fps max 6 fps per Drainage Manual)

$A = \frac{38.78 \text{ cfs}}{4 \text{ fps}} = 9.695 \text{ ft}^2$

$\pi r^2 = 9.695 \text{ ft}^2$
$r^2 = 3.09 \text{ ft}^2$
$r = 1.757$ ft
$D = 3.51$ ft
$D = 42.16''$
$D \Rightarrow 48''$ pipe going to pond

Head Loss = pipe flowing full Chapter 5 - Storm drain handbook

$$HL = \frac{4.61 \cdot n^2 \cdot L \cdot Q^2}{D^{5.33}}$$

METRIC ENGINEERING, INC.
ENGINEERS, PLANNERS, SURVEYORS

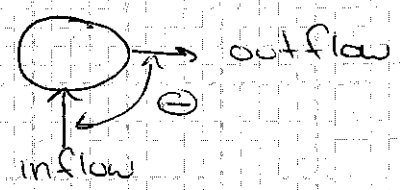
JOB # _____ SHEET # 2 OF _____
PROJECT NAME: SR 87
SUBJECT: Headloss
CALCULATED BY: NM DATE: 8/12
CHECKED BY: _____ DATE: _____

Minor losses - Chapter 5 - Storm Drain handbook

$$HL = K \cdot \frac{V_o^2}{2g}$$

per FHWA a K factor of 1 for inflow/outflow angle of 90° (worst case)

assumed manhole every 300'
some may be 90° connects so
will use a K of 1 in calcs



PGL at Sag - 30.77
Low member at sag - 30.77 - 7.4' = 23.37'
Existing ground - 14' elev

Difference 23.37 - 14 = 9.37' can be loss

HL = total + minor

$$9.37' = \frac{4.61 \cdot n^2 \cdot L \cdot Q^2}{D^{5.33}} + \left(K \frac{V_o^2}{2g}\right) \cdot \left(\frac{L}{300}\right)$$

$$9.37' = \frac{4.61 \cdot 0.012^2 \cdot L \cdot 38.78 cfs^2}{4ft^{5.33}} + \left(1 \cdot \frac{4 fps^2}{2 \cdot 32.2 ft/s^2}\right) \cdot \left(\frac{L}{300}\right)$$

$$9.37' = \frac{0.998\ L}{1618} + (0.248)\left(\frac{L}{300}\right)$$

$$9.37' = 0.00144 \cdot L$$

$$6491 ft = L$$

=> can go 6,491 feet before the headloss equals the change from the bridge to the existing ground

METRIC ENGINEERING, INC.
ENGINEERS, PLANNERS, SURVEYORS

JOB # _____ SHEET # 3 OF _____
PROJECT NAME: SR87
SUBJECT: Headloss
CALCULATED BY: NM DATE: 8/12
CHECKED BY: _____ DATE: _____

Basin 3 - station 250+53 → 283+64
Distance to Pond 3-3 (only pond in Basin 3 off of row)
2300' from low to pond

Low spot - STA 265+60

Area = 12.39 Ac (total basin) imp - 6.93 pervious - 5.46

$$C = \frac{(0.95 \cdot 6.93) + (0.2 \cdot 5.46)}{12.39} = 0.62$$

$Q = C\,i\,A$ $\quad i = 6\ in/hr$ (3yr 10min)
$= 0.62 \cdot 6\ in/hr \cdot 12.39$
$= 46.09\ cfs$

$v = 4\ fps$ avg

$A = Q/v = 46.09\ cfs / 4\ fps = 11.52\ ft^2$
$\pi r^2 = 11.52\ ft^2$
$r^2 = 3.67\ ft^2$
$r = 1.92\ ft$
$D = 3.83\ ft$
$D = 45.96''$
$D \Rightarrow 48''$

high points	W	283+64	33.31'	pgL	28.31' inv
	E	250+53	38.21'	pgL	33.21' inv
low		265+60	19.22'	pgL	14.22 inv

△ west → low 28.31' - 14.22' = 14.09'
△ east → low 33.21' - 14.22' = 18.99'

* assume 14 ft as max headloss available

METRIC ENGINEERING, INC.
ENGINEERS, PLANNERS, SURVEYORS

JOB # _____ SHEET # 4 OF ____

PROJECT NAME: SR 87

SUBJECT: Headloss

CALCULATED BY: NM DATE: 8/12

CHECKED BY: _____ DATE: _____

H_L = total + minor losses

$$14' = \frac{4.61 \cdot n^2 \cdot L \cdot Q^2}{D^{5.33}} + \left(k \frac{V_0^2}{2g}\right) \cdot \left(\frac{L}{300}\right)$$

$$14' = \frac{4.61 \cdot 0.012^2 \cdot L \cdot 46.09^2 \, cfs}{4^{5.33}} + \left(1 \cdot \frac{4^2 \, cfs}{2 \cdot 32.2 \, ft/s^2}\right) \cdot \left(\frac{L}{300}\right)$$

$$14' = \frac{1.41 \, L}{1618} + \frac{0.248 \, L}{300}$$

$$14' = 0.0017 \, L$$

$$8244' = L$$

=> can go 8,244 ft before the headloss equals the Δ from the high point in the basin to the low point.

H_L from high to low in roadway -

west → low = 5.51'

east → low = 2.82'

low → pond = 3.9'

=> all less than lowest change in grade from high pt to low

METRIC ENGINEERING, INC.
ENGINEERS, PLANNERS, SURVEYORS

JOB # _____ SHEET # 5 OF _____
PROJECT NAME: SR 87
SUBJECT: Headloss
CALCULATED BY: NM DATE: 8/12
CHECKED BY: _____ DATE: _____

Basin 5 Station 301+45 → 375+00

Distance from low on row to Ponds
Pond 5-1 1300'
Pond 5-2 900'
Pond 5-3 1800'

High point west = 375+00 130' elev 123.5 inv
east = 301+45 34.24 elev 29.74 inv
low point = 319+78 25.77 elev 21.27/19.27 inv
Δ west → low 123.5' - 19.27' = 104.23'
Δ east → low 29.74' - 21.27' = 8.47'
Δ low → Pond 5-3, 0.003 · 1800 = 5.4'

H_L = total + minor

$$8.47' = \frac{4.61 \cdot n^2 \cdot L \cdot Q^2}{D^{5.33}} + \left(K \frac{V_o^2}{2g}\right)\left(\frac{L}{300}\right)$$

Q all basins = 0.62 · 6 in/hr · 33.08 Ac = 123.06 cfs

Q east → low = 0.62 · 6 · 8.27 Ac = 30.76 cfs

Q west → low = 0.62 · 6 · 24.81 Ac = 92.29 cfs

H_L from low to Pond 5-3 (out 1800', D = 78") = 1.61'

H_L from east to low (out 1833', D = 42") = 2.97'

H_L from west to low (out 5555', D = 66") = 8.15'

⇒ H_L for each segment is less than change in grade due to road elevation and pipe slope

Chapter 5 - Pipe Hydraulics

The Drainage Manual states that friction losses shall be considered in the computation of the design hydraulic gradient for all storm drain systems. Energy losses associated with pollution control structures (weirs and baffles) and utility conflict structures shall also be considered where present in a system. When the hydraulic calculations consider only the above, the elevation of the hydraulic gradient shall be at least 1 foot below the theoretical gutter elevation. This is equivalent to 13.5" (1.13') below the edge of pavement for sections with Type E or F curb and gutter. For gutter inlets (Indexes 220 & 221), ditch bottom inlets (Indexes 230 through 235), and barrier wall inlets (Index 218) the 1 foot of clearance is applied to the grate elevation. For barrier wall inlets (Indexes 217 & 219) the 1 foot of clearance is applied to the theoretical grade point.

If all minor energy losses are calculated, it is acceptable for the hydraulic grade line to reach the theoretical gutter elevation. Minor losses include all the losses at inlets, manholes, and junctions, due to expansion, contraction, and changes in flow direction. Minor losses also include exit losses at the outlet of the system.

5.1 Pressure Flow

Under pressure flow conditions the pipe section flows full throughout. Friction losses are calculated using Manning's equation with the flow area equal to the full cross sectional area of the pipe.

$$\text{Head loss [in feet]} = \frac{29n^2LV^2}{R^{1.33}2g} = \frac{4.61n^2LQ^2}{D^{5.33}}$$

Where:
- n = roughness coefficient (Refer to the Drainage Manual)
- L = pipe length (feet)
- V = velocity (fps)
- Q = flow rate in (cfs)
- R = hydraulic radius (feet) = Area / wetted perimeter
- D = pipe diameter (feet)
- g = gravitational constant = 32.2 ft/s^2

5.7 Minor Losses

Minor losses are all the losses that are not due to friction. Generally these are energy losses due to changes or disturbances in the flow path. They include such things as entrance, exit, bend and junction losses. The losses are calculated from the equation

$$\text{Head loss [in feet]} = K\frac{V_o^2}{2g}$$

Where: K = loss factor (or coefficient)
V_o = flow velocity in the outlet pipe of the junction box. (ft/s)
g = gravitational constant = 32.2 ft/s^2

FHWA has printed the latest information on computing minor losses in HEC-22. FHWA continues to do research on minor losses. A report titled "Junction Loss Experiments: Laboratory Report" summarizes work that has been done more recently than the information published in HEC-22. The report and HEC-22 are available from the Internet at:

http://www.fhwa.dot.gov/engineering/hydraulics/library_listing.cfm.

The Drainage Manual does not require that minor losses be calculated if the hydraulic gradient is kept 1.0' below the theoretical gutter elevation (1.13' below the edge of pavement for sections with Type E or F curb and gutter). Nevertheless, it is important to calculate minor losses in high velocity situations and in long systems. As the velocity approaches 8 feet per second, the velocity head ($V^2/2g$) approaches one foot (64/64.4). The standard one foot of HGL clearance would be used up where the total loss coefficient, k = 1.0. For long systems the 1.0 foot of clearance could be used up by numerous small individual junction losses. For example, 10 junctions with 0.1' minor loss each.

APPENDIX D - Geotechnical Investigations

USDA Soil Survey Preliminary Stormwater Investigation

This report was prepared at an earlier stage of the Pond Siting process. The pond locations have been adjusted since this report was completed. The following table outlines the ponds that are listed in this Pond Siting Report and which soil boring name is applicable to the final pond name.

Final Pond Name	EGS Soil Boring Name	Final Pond Name	EGS Soil Boring Name
1-1	MP 1-1	6-3	MP 6-3
1-2	MP 1-2	7-1	MP 7-1
1-3	MP 1-3	7-2	MP 7-2
1-4	NA	7-3	MP 7-3
1-5	NA	7-4	MP 7-4
2-1	NA	8-1	NA
2-2	NA	8-2	MP 8-2
2-3	NA	8-3	MP 8-3
3-1	NA	9-1	MP 9-1
3-2	NA	9-2	NA
3-3	MP 3-3	9-3	MP 9-3
4-1	MP 4-1	9-4	NA
4-2	MP 4-2	9-5	MP 9-5
4-3	MP 4-3	9-6	MP 9-6
4-4	MP 4-4	10-1	MP 10-1
5-1	MP 5-1	10-2	NA
5-2	MP 5-2	10-3	MP 10-3
5-3	MP 5-3	10-4	MP 10-4
6-1	MP 6-1	10-5	MP 10-5
6-2	MP 6-2		

PRELIMINARY
STORMWATER INVESTIGATION

SR 87 CONNECTOR PD&E STUDY
POND SITING
SANTA ROSA COUNTY, FLORIDA
FPID: 416748-3-22-01

Prepared For:

METRIC ENGINEERING, INC.
615 CRESCENT EXECUTIVE COURT
SUITE #524
LAKE MARY, FLORIDA 32746

Prepared By:

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.
3154 ELIZA ROAD
TALLAHASSEE, FLORIDA 32308
(850) 386-1253

December 2011
28-09-09-03

EGS

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

December 20, 2011

EGS File: 28-09-09-03

Metric Engineering, Inc.
615 Crescent Executive Court
Suite 524
Lake Mary, Florida 32746

ATTN: John Flora, R.A., AICP
Transportation Planning/ PD&E Manager

SUBJECT: **Preliminary Stormwater Investigation** – Pond Siting Report
SR 87 Connector PD&E Study
Santa Rosa County, Florida
FPID: 416748-3-22-01

Environmental and Geotechnical Specialists, Inc. (**EGS**) has completed the **Preliminary** Stormwater Investigation for the State Road 87 Connector PD&E Study, Pond Siting Report, as authorized by **Metric Engineering, Inc.** (**METRIC**) and the Florida Department of Transportation (**FDOT**).

This Letter Report includes a summary of the subsurface investigation conducted for this project, evaluation of field and laboratory test data, preliminary measured groundwater and estimated "normal" seasonal groundwater values, preliminary soil permeability estimates, and design considerations.

PROJECT AREA AND CONDITIONS

The project site is located along the two (2) proposed alignments of the State Road 87 connector, approximately four (4) miles northeast of Milton, in central Santa Rosa County, Florida. A Project Location Map has been provided as **Figure 1**.

Based upon a review of the plans provided by **METRIC**, the proposed roadway segment will be a four (4) lane divided highway approximately eight (8) miles long, with nine (9) potential Stormwater Ponds, and between three (3) and six (6) pond site options for each pond. Based on the electronic plans provided to **EGS**, the size of the ponds range from approximately one-half (0.5) acre to eight and one-half (8.5) acres.

A copy of the United States Geological Survey (**USGS**) Topographic Map of the project area has been provided as **Figures 2** and **3**. As can be seen in these figures, the general topography consists of rolling hills with some creek crossings and one major river crossing. Groundwater and surface water runoff likely drain to the southwest and follow the natural flow of Blackwater River.

The general existing site conditions near the proposed ponds are shown on aerial photographs of the proposed pond locations included as **Figures 4A** through **4J**. As can be seen in these figures, the project area is moderately wooded and primarily consists of mature pines, with some residences nearby. Based on a visual observation, there are existing water bodies near the proposed "footprint" of ponds one (1), three (3), four (4) and five (5). These water bodies consist primarily of low lying wooded swamp and creeks, and are strong indicators of the permanent groundwater elevation.

SUBSURFACE INVESTIGATION

The subsurface investigation outlined in this Letter Report was conducted in November 2011 with Josh Jenkins, E.I., serving as Staff Engineer, and Derwood Sheppard, P.E., serving as Project Geotechnical Engineer.

EGS installed a total of 30 soil borings, ranging in depth from 10.5 feet to 15.5 feet at the locations provided to **EGS** by **METRIC**. The Stormwater Pond Soil Borings have a prefix of **MP**, and are labeled according to the pond and site option number (as provided by **METRIC**) in which they were installed (i.e. **MP-1-1** was installed in Pond 1, Site Option 1). The locations of the soil borings are shown in **Figures 4A** through **4J**, with detailed location data provided in **TABLE 1**.

GENERAL SUBSURFACE CONDITIONS

Soils – Detailed Soil Boring Logs and Soil Classification Data Sheets have been provided in **APPENDICES A** and **B**, respectively. In addition, a copy of the Preliminary Report of Tests has been provided as **TABLE 2**.

As can be seen in the **APPENDICES**, the soils encountered consist of the following:

- Fine Sand (**SP-SM/A-3 / STRATUM A**)
- Silty Fine Sand (**SM/A-2-4 / STRATA B** and **C**)
- Clayey Fine Sand (**SC/A-2-6 / STRATUM D**)
- Clayey Sand (**SC/A-6 / STRATUM E**)
- Plastic Clay (**CL** or **CH/A-7-6 / STRATUM F**)

To aid in the preliminary design for the Pond Siting Study, **EGS** has provided Generalized Soil Profiles for each pond as **Figures 5A** through **5I**.

Groundwater – Groundwater was encountered in Soil Borings **MP-3-2**, **MP-3-3**, **MP-4-4**, and **MP-6-1** at depths ranging between 7.0 feet and 11.0 feet. To facilitate use of the groundwater data, **TABLE 1** has been provided which contains a summary of the depths to groundwater, "measured" after 24-hours, and the estimated depths to "normal" seasonal high groundwater.

USDA Soil Survey – As part of this investigation, **EGS** reviewed the United States Department of Agriculture's (**USDA**) Soil Survey for Santa Rosa County, Florida. The soils reported in the **USDA** Soil Survey consist primarily of **Bonifay Loamy Sand**, **Lakeland Sand**, and **Troup Loamy Sand**. As is apparent from **Figures C-1** through **C-7,** which have been included to illustrate the various **USDA** soil types that are likely to be encountered within the proposed pond limits, each of these soil types were encountered frequently during this investigation.

<u>It should be noted that the **USDA** Soil Survey is used as an approximation of likely soils within the proposed pond limits. Slight variations in soil properties will occur when comparing data from the **USDA** Soil Survey and data obtained in the field</u>.

To correlate the properties summarized in the **USDA** Soil Survey, **EGS** has provided **TABLE 3**, which includes the stormwater pond number, **USDA** material reference number, material descriptions, reported soil classifications, and reported depths to seasonal high groundwater. Copies of selected **TABLES** from the **USDA** Soil Survey and **Figures C-1** through **C-7** have been provided in **APPENDIX C**.

PRELIMINARY DESIGN CONSIDERATIONS

Soil Permeability Values – To aid in the preliminary design of the **PONDS**, **EGS** has developed preliminary soil permeability values for each **STRATUM** encountered. The soil permeability estimates were developed using a combination of the values recommended in the **USDA** Soil Survey for Santa Rosa County, Florida and the correlations based on grain-size distribution curves for each **STRATUM**. The Soil Permeability Estimates are summarized in **TABLE 4**, with copies of the grain-size correlation analyses provided in **APPENDIX D**.

EGS cautions that the permeability values shown in **TABLE 4** are for **preliminary use only**, and must be verified by actual field infiltration test results. Additionally, the values shown are not infiltration rates because there has been no factor of safety applied nor do the valves given account for effects of groundwater mounding.

CLOSURE

The data and results presented in this **Preliminary** Stormwater Investigation Report are intended for the use of **Metric Engineering, Inc**. and the **Florida Department of Transportation** for the preliminary design of the stormwater ponds associated with the SR 87 Connector PD&E Study, as described herein. This report is not intended for any other use and will likely not be applicable. The data and recommendations presented in this Report are based on the soil borings made at the specific locations and depths noted. Subsurface conditions at other locations may vary significantly from those presented herein. Should data become available which is different from the data presented herein, Environmental and Geotechnical Specialists, Inc. requests the opportunity to review the data and make any modifications to the design recommendations which may be appropriate.

If you have any questions concerning the information contained in this Report, please do not hesitate to call me at (850) 386-1253.

Sincerely,

Environmental and Geotechnical Specialists, Inc.
Florida Certificate of Engineering Authorization No. 6222

12/20/11

Derwood C. Sheppard, P.E.
Geotechnical Engineer II
FL P.E. Number 69228

TABLES

TABLE 1
PRELIMINARY SOIL BORING AND GROUNDWATER DATA
STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

BORING NUMBER	DEPTH OF SOIL BORING (FEET)	NORTHING [2]	EASTING [2] (FEET)	GROUND SURFACE ELEVATIONS [3] (FEET)	MEASURED GROUNDWATER [4]		ESTIMATED "NORMAL" SEASONAL HIGH GROUNDWATER	
					DEPTH [1] (FEET)	ELEVATION [3] (FEET)	DEPTH [1] (FEET)	ELEVATION [3] (FEET)
STORMWATER POND 1								
MP-1-1	15.5	605645.3	1189538.9	N/A	> 15.5	N/A	> 15.5	N/A
MP-1-2	15.5	607181.6	1188811.2	N/A	> 15.5	N/A	> 15.5	N/A
MP-1-3	15.5	608469.1	1189421.5	N/A	> 15.5	N/A	> 15.5	N/A
STORMWATER POND 3								
MP-3-1	15.5	616085.7	1188056.6	N/A	> 15.5	N/A	6.0	N/A
MP-3-2	15.5	615889.5	1186971.6	N/A	8.8	N/A	3.0	N/A
MP-3-3	15.5	616680.1	1187311.9	N/A	10.8	N/A	6.0	N/A
STORMWATER POND 4								
MP-4-1	15.5	614967.4	1182412.9	N/A	> 15.5	N/A	5.0	N/A
MP-4-2	15.5	615347.0	1181996.7	N/A	> 15.5	N/A	5.0	N/A
MP-4-3	15.5	616224.6	1182875.8	N/A	> 15.5	N/A	5.0	N/A
MP-4-4	10.5	616007.6	1181849.0	N/A	7.0	N/A	3.0	N/A
STORMWATER POND 5								
MP-5-1	15.5	617055.1	1180466.2	N/A	> 15.5	N/A	> 15.5	N/A
MP-5-2	15.5	616621.2	1179123.0	N/A	> 15.5	N/A	10.0	N/A
MP-5-3	15.5	617701.5	1179470.1	N/A	> 15.5	N/A	> 15.5	N/A
STORMWATER POND 6								
MP-6-1	15.5	616187.7	1178115.6	N/A	9.7	N/A	7.0	N/A
MP-6-2	15.5	615890.3	1175352.0	N/A	> 15.5	N/A	9.0	N/A
MP-6-3	15.5	616576.6	1174706.0	N/A	> 15.5	N/A	> 15.5	N/A

NOTES:
1. DEPTHS ARE BELOW EXISTING GROUND SURFACE.
2. STATE PLANE COORDINATES ARE APPROXIMATE BASED ON ELECTRONIC DRAWINGS PROVIDED BY **METRIC**, **INC**.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.
4. BASED ON 24-HOUR MEASURED GROUNDWATER VALUES ENCOUNTERED IN THE FIELD.

TABLE 1 CONTINUED
PRELIMINARY SOIL BORING AND GROUNDWATER DATA
PHASE I STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

BORING NUMBER	DEPTH OF SOIL BORING (FEET)	NORTHING [2]	EASTING [2] (FEET)	GROUND SURFACE ELEVATIONS [3] (FEET)	MEASURED GROUNDWATER [4]		ESTIMATED "NORMAL" SEASONAL HIGH GROUNDWATER	
					DEPTH [1] (FEET)	ELEVATION (FEET)	DEPTH [1] (FEET)	ELEVATION (FEET)
STORMWATER POND 7								
MP-7-1	15.5	616846.7	1173281.7	N/A	> 15.5	N/A	> 15.5	N/A
MP-7-2	15.5	616231.0	1172400.1	N/A	> 15.5	N/A	> 15.5	N/A
MP-7-3	15.5	615976.9	1170605.9	N/A	> 15.5	N/A	8.0	N/A
MP-7-4	15.5	616073.6	1169263.0	N/A	> 15.5	N/A	6.0	N/A
STORMWATER POND 8								
MP-8-2	15.5	616348.8	1166611.4	N/A	> 15.5	N/A	6.0	N/A
MP-8-3	15.5	617221.0	1164974.6	N/A	> 15.5	N/A	> 15.5	N/A
STORMWATER POND 9								
MP-9-1	15.5	619138.6	1174684.0	N/A	> 15.5	N/A	12.0	N/A
MP-9-3	15.5	620939.1	1173816.3	N/A	> 15.5	N/A	8.0	N/A
MP-9-5	15.5	622863.3	1173532.6	N/A	> 15.5	N/A	14.0	N/A
MP-9-6	15.5	624883.5	1171005.9	N/A	> 15.5	N/A	> 15.5	N/A
STORMWATER POND 10								
MP-10-1	15.5	624506.0	1168715.5	N/A	> 15.5	N/A	> 15.5	N/A
MP-10-3	15.5	624537.2	1166391.2	N/A	> 15.5	N/A	6.0	N/A
MP-10-4	15.5	624713.2	1165350.4	N/A	> 15.5	N/A	> 15.5	N/A
MP-10-5	15.5	625414.9	1164503.2	N/A	> 15.5	N/A	7.0	N/A

NOTES:
1. DEPTHS ARE BELOW EXISTING GROUND SURFACE.
2. STATE PLANE COORDINATES ARE APPROXIMATE BASED ON ELECTRONIC DRAWINGS PROVIDED BY **METRIC**, **INC**.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.
4. BASED ON 24-HOUR MEASURED GROUNDWATER VALUES ENCOUNTERED IN THE FIELD.

TABLE 2
PRELIMINARY REPORT OF TESTS
STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

REPORT OF MATERIAL TESTS

STRATUM LETTER	GRAIN-SIZE (PERCENT PASSING)								ATTERBERG LIMITS			CLASSIFICATION		DESCRIPTION	
	NUMBER OF TESTS	4	10	20	40	60	100	200	NUMBER OF TESTS	LIQUID LIMIT	PLASTICITY INDEX	UNIFIED	AASHTO	COLOR	MATERIAL
A	8	100	100	84 - 100	53 - 98	26 - 90	8 - 23	5 - 9	- -	- -	- -	SP-SM	A-3	BROWN AND ORANGE	FINE SAND
B	70	100	99 - 100	82 - 100	56 - 96	31 - 76	17 - 44	12 - 19	- -	- -	- -	SM	A-2-4	BROWN, ORANGE, GRAY	SILTY FINE SAND
C	17	100	100	95 - 100	76 - 97	48 - 74	32 - 46	20 - 31	- -	- -	- -	SM	A-2-4	BROWN, ORANGE, GRAY	SILTY FINE SAND
D	20	100	100	89 - 100	56 - 97	40 - 88	27 - 55	20 - 32	12	20 - 30	12 - 15	SC	A-2-6	BROWN, ORANGE, GRAY	CLAYEY FINE SAND
E	9	100	100	97 - 100	78 - 97	59 - 87	50 - 66	37 - 47	7	21 - 36	12 - 19	SC	A-6	BROWN, ORANGE, GRAY	CLAYEY SAND
F	6	100	100	97 - 100	85 - 99	70 - 98	65 - 96	62 - 95	6	42 - 72	20 - 44	CL/CH	A-7-6	BROWN AND GRAY	PLASTIC CLAY

NOTE: - - MEANS PARAMETERS NOT APPROPRIATE

RELATIVE DENSITY OR CONSISTENCY OF MATERIALS

GRANULAR MATERIALS RELATIVE DENSITY	SPT (BLOWS/12 IN.)	SILTS AND CLAYS CONSISTENCY	SPT (BLOWS/12 IN.)
VERY LOOSE	LESS THAN 3	VERY SOFT	LESS THAN 1
LOOSE	3 - 8	SOFT	1 - 3
MEDIUM DENSE	8 - 24	FIRM	3 - 6
DENSE	24 - 40	STIFF	6 - 12
VERY DENSE	GREATER THAN 40	VERY STIFF	12 - 24
		HARD	GREATER THAN 24

TABLE 3
USDA SOIL SURVEY DATA
STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

STORMWATER POND OPTION NUMBER	MATERIAL REFERENCE NUMBER	MATERIAL NAME	DEPTH (INCHES)	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION		DEPTH TO SEASONAL HIGH GROUNDWATER (FEET)
					UNIFIED	AASHTO	
STORMWATER POND 1							
1, 2, 3	44	TROUP LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 3	LOAMY SAND	SP-SM, SM	A-2	- -
			3 - 55	LOAMY SAND, SAND	SM, SP-SM	A-2	
			55 - 80	SANDY LOAM, SANDY CLAY LOAM	CL-ML, SC, SC-SM,CL	A-4, A-2	
STORMWATER POND 3							
1, 2, 3	5	BONIFAY LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 47	LOAMY SAND	SM	A-2-4	4.0 - 5.0
			47 - 63	SANDY LOAM, SANDY CLAY LOAM	SC, SC-SM, SM	A-2-4, A-4	
1, 2	19	KALMIA LOAMY FINE SAND, 2 TO 5 PERCENT SLOPES	0 - 4	LOAMY FINE SAND	SC-SM, SM	A-2	- -
			4 - 8	LOAMY FINE SAND, LOAMY SAND	SM, SC-SM	A-2	
			8 - 39	SANDY CLAY LOAM, FINE SANDY LOAM, SANDY LOAM	SC, SC-SM	A-2, A-4, A-6	
			39 - 65	LOAMY SAND, SAND, FINE SAND	SP-SM, SM, SP	A-3, A-2	
1	21	LAKELAND SAND; 0 TO 5 PERCENT SLOPES	0 - 4	SAND	SP-SM	A-2-4, A-3	- -
			4 - 83	SAND, FINE SAND	SP, SP-SM	A-2-4, A-3	
1	27	LYNCHBURG FINE SANDY LOAM	0 - 4	FINE SANDY LOAM	SM, CL-ML, ML, SC-SM	A-2, A-4	0.5 - 1.5
			4 - 17	LOAM, FINE SANDY LOAM, SANDY LOAM	SC-SM, SM, CL-ML, ML	A-2, A-4	
			17 - 80	SANDY CLAY LOAM, SANDY LOAM, CLAY LOAM, LOAM	SC-SM, CL, CL-ML, SC	A-6, A-2, A-4	
1, 2, 3	34	PACTOLUS LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 8	LOAMY SAND	SM	A-2	1.5 - 3.0
			8 - 80	SAND, LOAMY SAND, LOAMY FINE SAND	SM, SP-SM	A-2, A-3	
STORMWATER POND 4							
1, 3, 4	1	ALBANY LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 5	LOAMY SAND	SM	A-2	1.0 - 2.5
			5 - 47	LOAMY SAND, SAND	SM	A-2	
			47 - 52	SANDY LOAM	SM	A-2	
			52 - 80	SANDY LOAM, SANDY CLAY LOAM, FINE SAND LOAM	SC, SC-SM, SM	A-2, A-4, A-6	

NOTES: 1. BASED ON THE USDA SOIL SURVEY REPORT FOR SANTA ROSA COUNTY, FLORIDA.
2. SEE APPENDIX C FOR DETAILED USDA SOIL SURVEY INFORMATION.
3. - - MEANS VALUE NOT AVAILABLE IN USDA SOIL SURVEY REPORT.

TABLE 3 CONTINUED
USDA SOIL SURVEY DATA
STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

STORMWATER POND OPTION NUMBER	MATERIAL REFERENCE NUMBER	MATERIAL NAME	DEPTH (INCHES)	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION		DEPTH TO SEASONAL HIGH GROUNDWATER (FEET)
					UNIFIED	AASHTO	
STORMWATER POND 4 CONTINUED							
1, 2	5	BONIFAY LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 47	LOAMY SAND	SM	A-2-4	4.0 - 5.0
			47 - 63	SANDY LOAM, SANDY CLAY LOAM	SC, SC-SM, SM	A-2-4, A-4	
4	21	LAKELAND SAND; 0 TO 5 PERCENT SLOPES	0 - 4	SAND	SP-SM	A-2-4, A-3	- -
			4 - 83	SAND, FINE SAND	SP, SP-SM	A-2-4, A-3	
4	34	PACTOLUS LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 8	LOAMY SAND	SM	A-2	1.5 - 3.0
			8 - 80	SAND, LOAMY SAND, LOAMY FINE SAND	SM, SP-SM	A-2, A-3	
STORMWATER POND 5							
1, 2, 3	21	LAKELAND SAND; 0 TO 5 PERCENT SLOPES	0 - 4	SAND	SP-SM	A-2-4, A-3	- -
			4 - 83	SAND, FINE SAND	SP, SP-SM	A-2-4, A-3	
STORMWATER POND 6							
1, 2, 3	21	LAKELAND SAND; 0 TO 5 PERCENT SLOPES	0 - 4	SAND	SP-SM	A-2-4, A-3	- -
			4 - 83	SAND, FINE SAND	SP, SP-SM	A-2-4, A-3	
2	22	LAKELAND SAND; 5 TO 12 PERCENT SLOPES	0 - 3	SAND	SP-SM	A-2-4, A-3	- -
			3 - 80	SAND, FINE SAND	SP, SP-SM	A-2-4, A-3	
1	34	PACTOLUS LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 8	LOAMY SAND	SM	A-2	1.5 - 3.0
			8 - 80	SAND, LOAMY SAND, LOAMY FINE SAND	SM, SP-SM	A-2, A-3	
3	44	TROUP LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 3	LOAMY SAND	SP-SM, SM	A-2	- -
			3 - 55	LOAMY SAND, SAND	SM, SP-SM	A-2	
			55 - 80	SANDY LOAM, SANDY CLAY LOAM	CL-ML, SC, SC-SM, CL	A-4, A-2	
STORMWATER POND 7							
4	5	BONIFAY LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 47	LOAMY SAND	SM	A-2-4	4.0 - 5.0
			47 - 63	SANDY LOAM, SANDY CLAY LOAM	SC, SC-SM, SM	A-2-4, A-4	

NOTES: 1. BASED ON THE USDA SOIL SURVEY REPORT FOR SANTA ROSA COUNTY, FLORIDA.

2. SEE APPENDIX C FOR DETAILED USDA SOIL SURVEY INFORMATION.

3. - - MEANS VALUE NOT AVAILABLE IN USDA SOIL SURVEY REPORT.

TABLE 3 CONTINUED
USDA SOIL SURVEY DATA
STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

STORMWATER POND OPTION NUMBER	MATERIAL REFERENCE NUMBER	MATERIAL NAME	DEPTH (INCHES)	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION		DEPTH TO SEASONAL HIGH GROUNDWATER (FEET)
					UNIFIED	AASHTO	
STORMWATER POND 7 CONTINUED							
4	9	DOTHAN FINE SANDY LOAM; 2 TO 5 PERCENT SLOPES	0 - 6	FINE SANDY LOAM	SC-SM, SM	A-4, A-2	3.0 - 5.0
			6 - 14	FINE SANDY LOAM, SANDY LOAM, SANDY CLAY LOAM	SM, SC-SM	A-2, A-4	
			14 - 49	SANDY CLAY LOAM	SC, SC-SM, SM	A-4, A-6, A-2	
			49 - 66	SANDY CLAY, SANDY CLAY LOAM	SC, SC-SM, SM	A-7, A-2, A-4, A-6	
1	21	LAKELAND SAND; 0 TO 5 PERCENT SLOPES	0 - 4	SAND	SP-SM	A-2-4, A-3	- -
			4 - 83	SAND, FINE SAND	SP, SP-SM	A-2-4, A-3	
1, 2, 3, 4	44	TROUP LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 3	LOAMY SAND	SP-SM, SM	A-2	- -
			3 - 55	LOAMY SAND, SAND	SM, SP-SM	A-2	
			55 - 80	SANDY LOAM, SANDY CLAY LOAM	CL-ML, SC, SC-SM, CL	A-4, A-2	
STORMWATER POND 8							
1	5	BONIFAY LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 47	LOAMY SAND	SM	A-2-4	4.0 - 5.0
			47 - 63	SANDY LOAM, SANDY CLAY LOAM	SC, SC-SM, SM	A-2-4, A-4	
1	21	LAKELAND SAND; 0 TO 5 PERCENT SLOPES	0 - 4	SAND	SP-SM	A-2-4, A-3	- -
			4 - 83	SAND, FINE SAND	SP, SP-SM	A-2-4, A-3	
2	37	RAINS FINE SANDY LOAM	0 - 5	FINE SANDY LOAM	ML, SC, SM, CL	A-2, A-4	0.0 -1.0
			5 - 9	FINE SANDY LOAM, SANDY LOAM	CL, ML, SC, SM	A-2, A-4	
			9 - 28	SANDY CLAY LOAM, CLAY LOAM	CL-ML, SC, SC-SM, CL	A-6, A-2, A-4	
			28 - 63	SANDY CLAY LOAM, CLAY LOAM	CL-ML, SC, SC-SM, CL	A-7, A-4, A-6	
2, 3	44	TROUP LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 3	LOAMY SAND	SP-SM, SM	A-2	- -
			3 - 55	LOAMY SAND, SAND	SM, SP-SM	A-2	
			55 - 80	SANDY LOAM, SANDY CLAY LOAM	CL-ML, SC, SC-SM, CL	A-4, A-2	

NOTES: 1. BASED ON THE USDA SOIL SURVEY REPORT FOR SANTA ROSA COUNTY, FLORIDA.

2. SEE APPENDIX C FOR DETAILED USDA SOIL SURVEY INFORMATION.

3. - - MEANS VALUE NOT AVAILABLE IN USDA SOIL SURVEY REPORT.

TABLE 3 CONTINUED
USDA SOIL SURVEY DATA
STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

STORMWATER POND OPTION NUMBER	MATERIAL REFERENCE NUMBER	MATERIAL NAME	DEPTH (INCHES)	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION		DEPTH TO SEASONAL HIGH GROUNDWATER (FEET)
					UNIFIED	AASHTO	
STORMWATER POND 9							
1, 2, 3, 4, 5, 6	21	LAKELAND SAND; 0 TO 5 PERCENT SLOPES	0 - 4	SAND	SP-SM	A-2-4, A-3	- -
			4 - 83	SAND, FINE SAND	SP, SP-SM	A-2-4, A-3	
5	22	LAKELAND SAND; 5 TO 12 PERCENT SLOPES	0 - 3	SAND	SP-SM	A-2-4, A-3	- -
			3 - 80	SAND, FINE SAND	SP, SP-SM	A-2-4, A-3	
6	44	TROUP LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 3	LOAMY SAND	SP-SM, SM	A-2	- -
			3 - 55	LOAMY SAND, SAND	SM, SP-SM	A-2	
			55 - 80	SANDY LOAM, SANDY CLAY LOAM	CL-ML, SC, SC-SM, CL	A-4, A-2	
STORMWATER POND 10							
3, 5	5	BONIFAY LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 47	LOAMY SAND	SM	A-2-4	4.0 - 5.0
			47 - 63	SANDY LOAM, SANDY CLAY LOAM	SC, SC-SM, SM	A-2-4, A-4	
3, 4, 5	21	LAKELAND SAND; 0 TO 5 PERCENT SLOPES	0 - 4	SAND	SP-SM	A-2-4, A-3	- -
			4 - 83	SAND, FINE SAND	SP, SP-SM	A-2-4, A-3	
1, 2, 3	44	TROUP LOAMY SAND; 0 TO 5 PERCENT SLOPES	0 - 3	LOAMY SAND	SP-SM, SM	A-2	- -
			3 - 55	LOAMY SAND, SAND	SM, SP-SM	A-2	
			55 - 80	SANDY LOAM, SANDY CLAY LOAM	CL-ML, SC, SC-SM, CL	A-4, A-2	

NOTES: 1. BASED ON THE USDA SOIL SURVEY REPORT FOR SANTA ROSA COUNTY, FLORIDA.

2. SEE APPENDIX C FOR DETAILED USDA SOIL SURVEY INFORMATION.

3. - - MEANS VALUE NOT AVAILABLE IN USDA SOIL SURVEY REPORT.

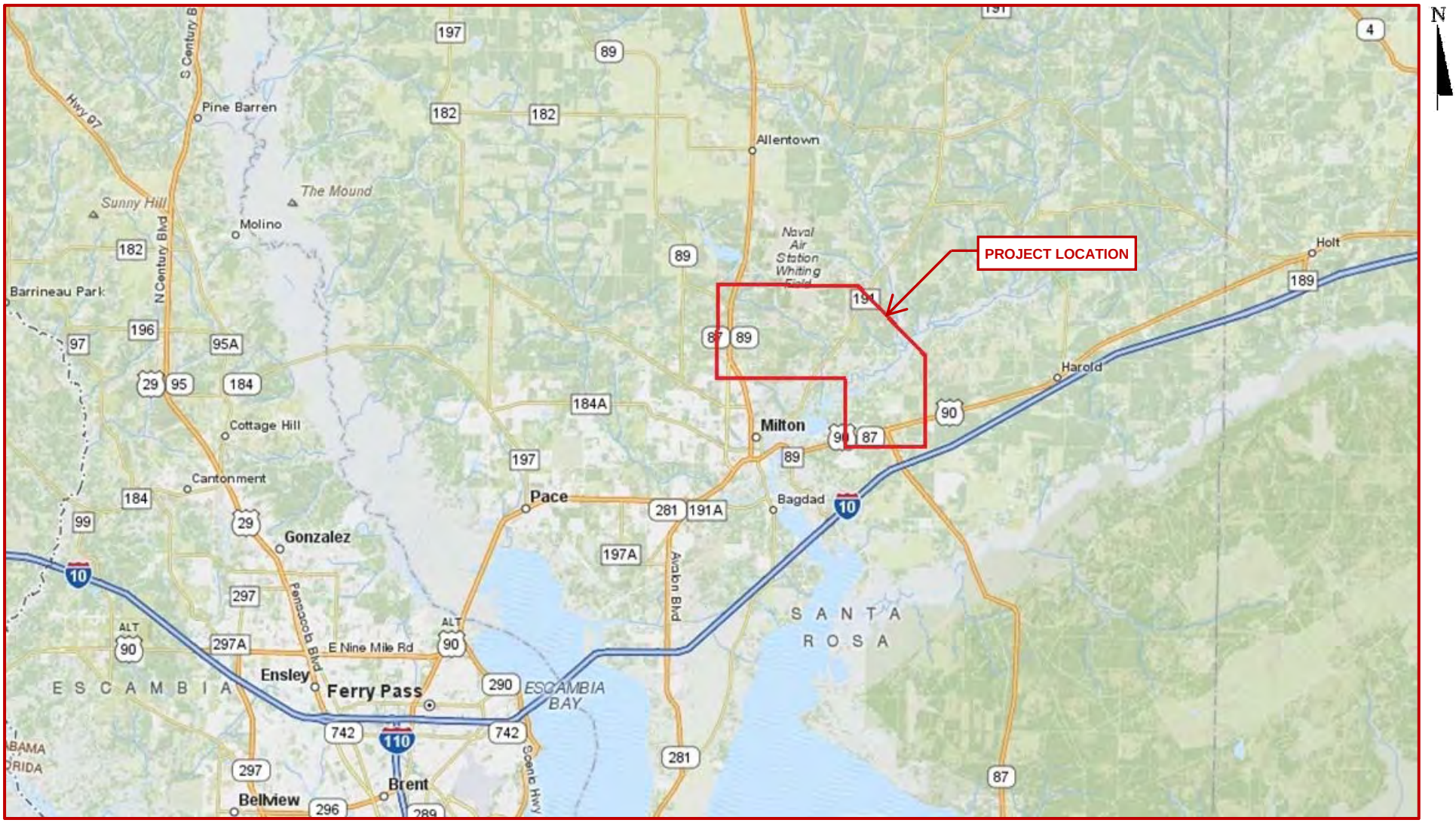
TABLE 4
PRELIMINARY SOIL PERMEABILITY ESTIMATES
STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

STRATUM LETTER	CLASSIFICATION			SOIL PERMEABILITY VALUES		
	UNIFIED	AASHTO	USDA TEXTURAL	USDA SOIL SURVEY ESTIMATE [1] (IN/HR)	LABORATORY GRAIN-SIZE ESTIMATE [2] (IN/HR)	PRELIMINARY PERMEABILITY VALUE [3] (IN/HR)
A	SP-SM	A-3	SAND	20.0 - 50.0	24.1 - 53.9	**20.0**
B	SM	A-2-4	LOAMY SAND	6.0 - 20.0	11.3 - 59.5	**7.0**
C	SM	A-2-4	SANDY LOAM	2.0 - 6.0	2.1 - 9.9	**2.0**
D	SC	A-2-6	SANDY LOAM TO SANDY CLAY LOAM	0.6 - 2.0	0.4 - 0.6	**0.5**
E	SC	A-6	SANDY CLAY LOAM TO SANDY CLAY	0.2 - 0.6	0.1 - 0.2	**0.1**
F	CL-CH	A-7-6	SANDY CLAY TO CLAY	0.06 - 0.2	- -	**< 0.01**

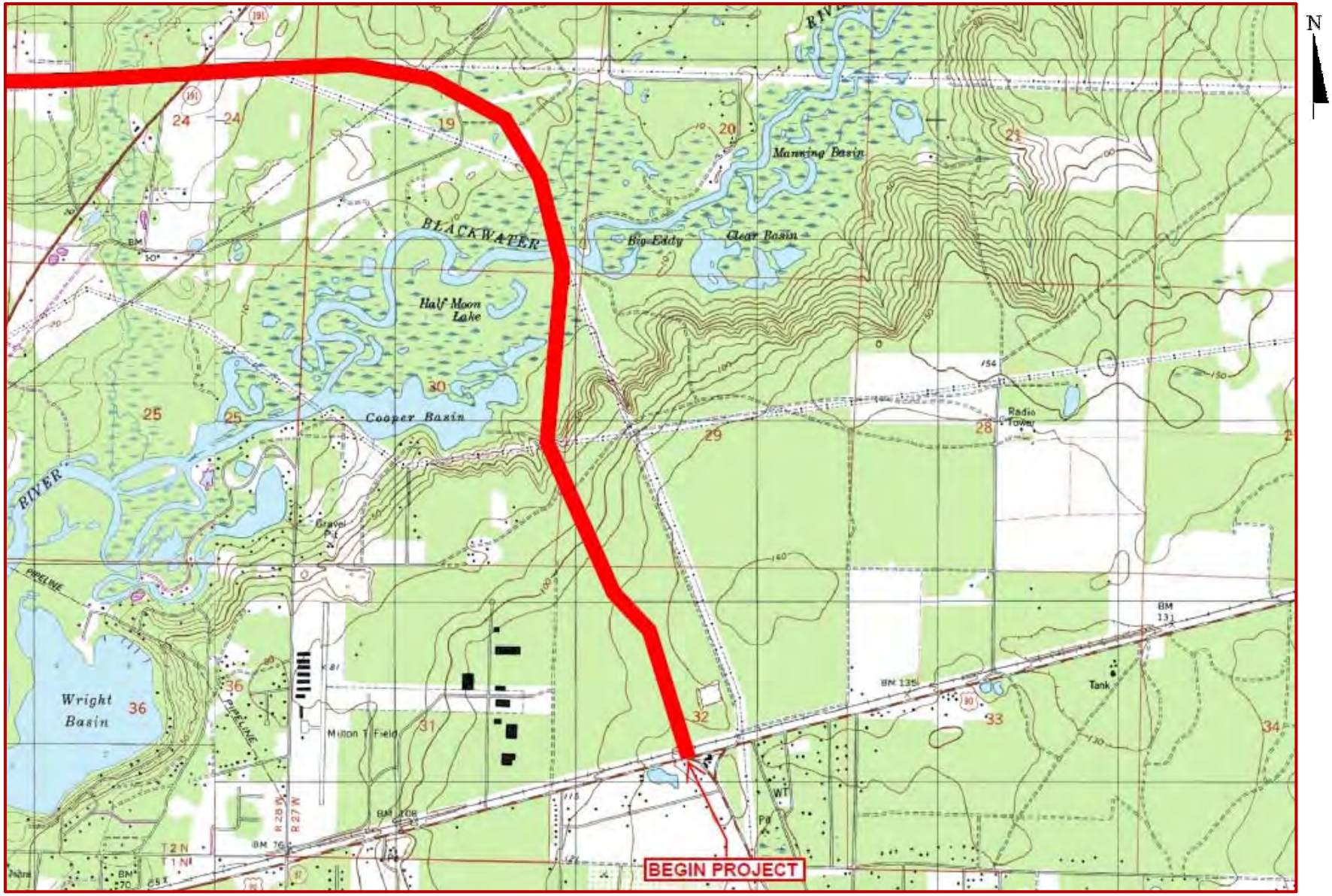
NOTES: 1. REPORTED IN USDA SOIL SURVEY FOR SANTA ROSA COUNTY, FLORIDA
2. ESTIMATED FROM GRAIN-SIZE CORRELATION CURVES
3. PRELIMINARY PERMEABILITY VALUES SHOWN ARE NOT INFILTRATION VALUES SINCE THEY DO NOT INCLUDE THE EFFECTS OF GROUNDWATER MOUNDING, CLOGGING WITH FINES, OR FACTOR OF SAFETY

- - GRAIN-SIZE ESTIMATIONS ARE NOT APPLICABLE DUE TO THE HIGH CLAY CONTENT

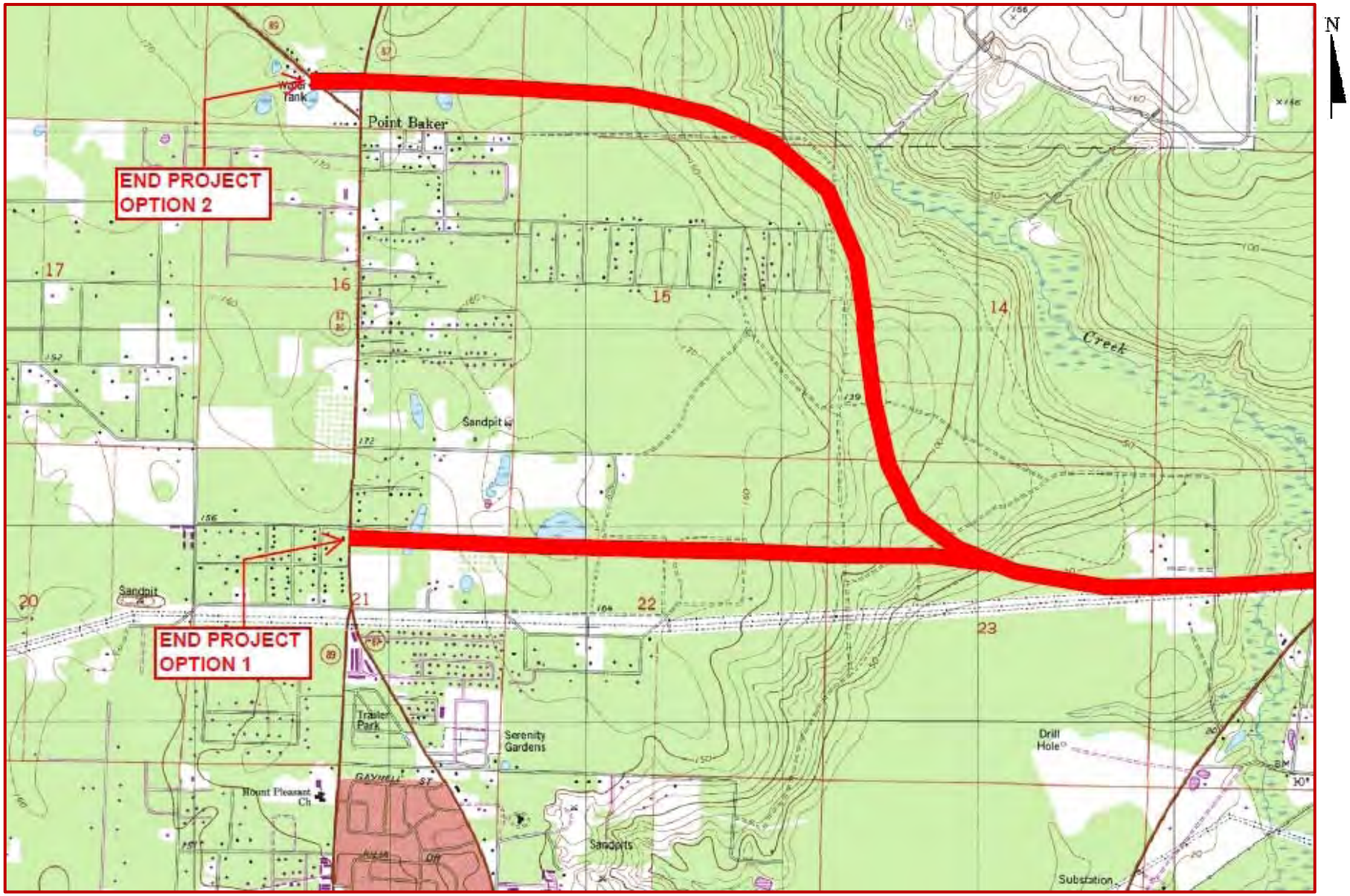
FIGURES



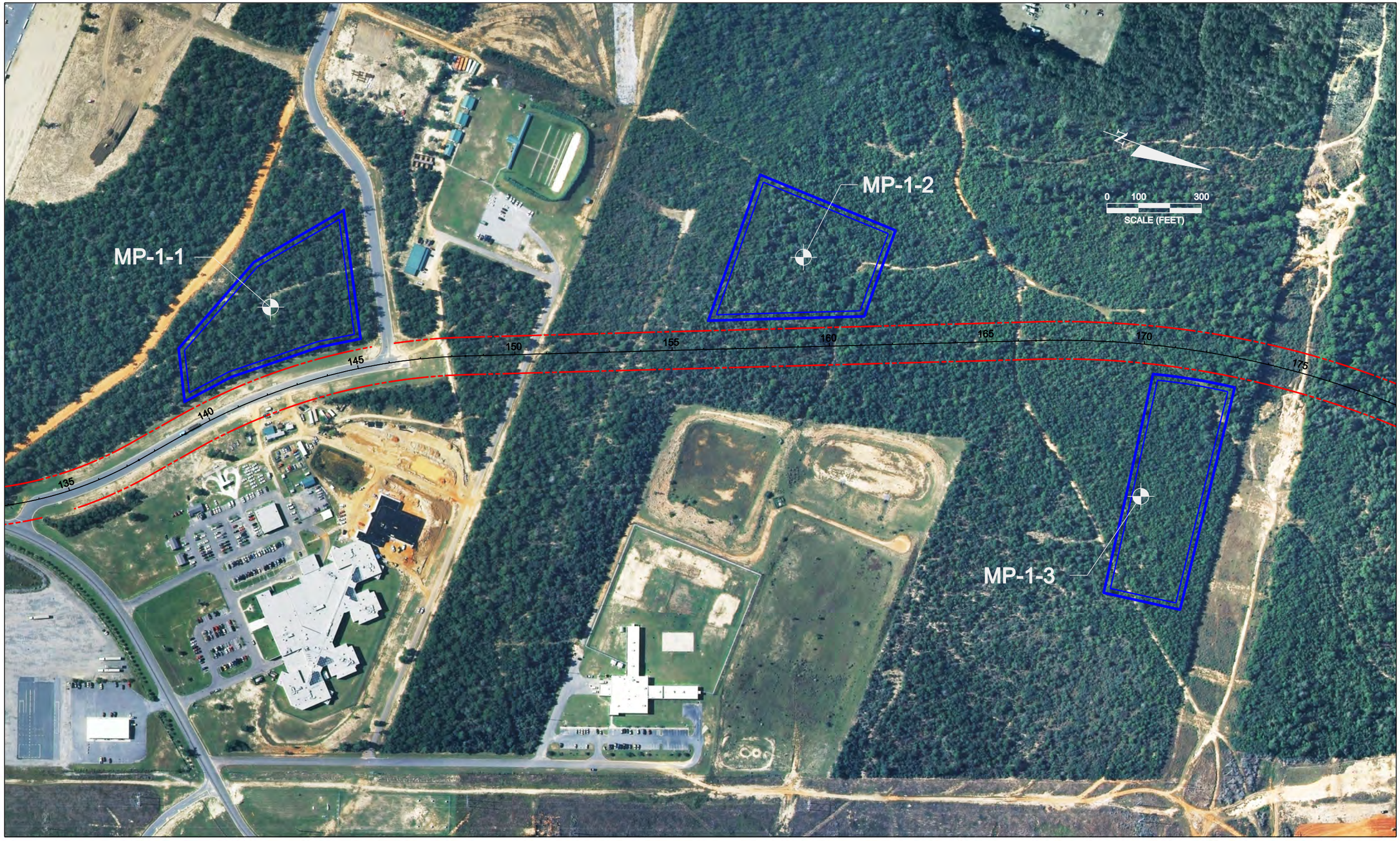
DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office #: (850) 386-1253 Fax #: (850) 385-8050	TITLE: PROJECT LOCATION MAP PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE:		DATE: DECEMBER 2011 / FIGURE NO.: 1



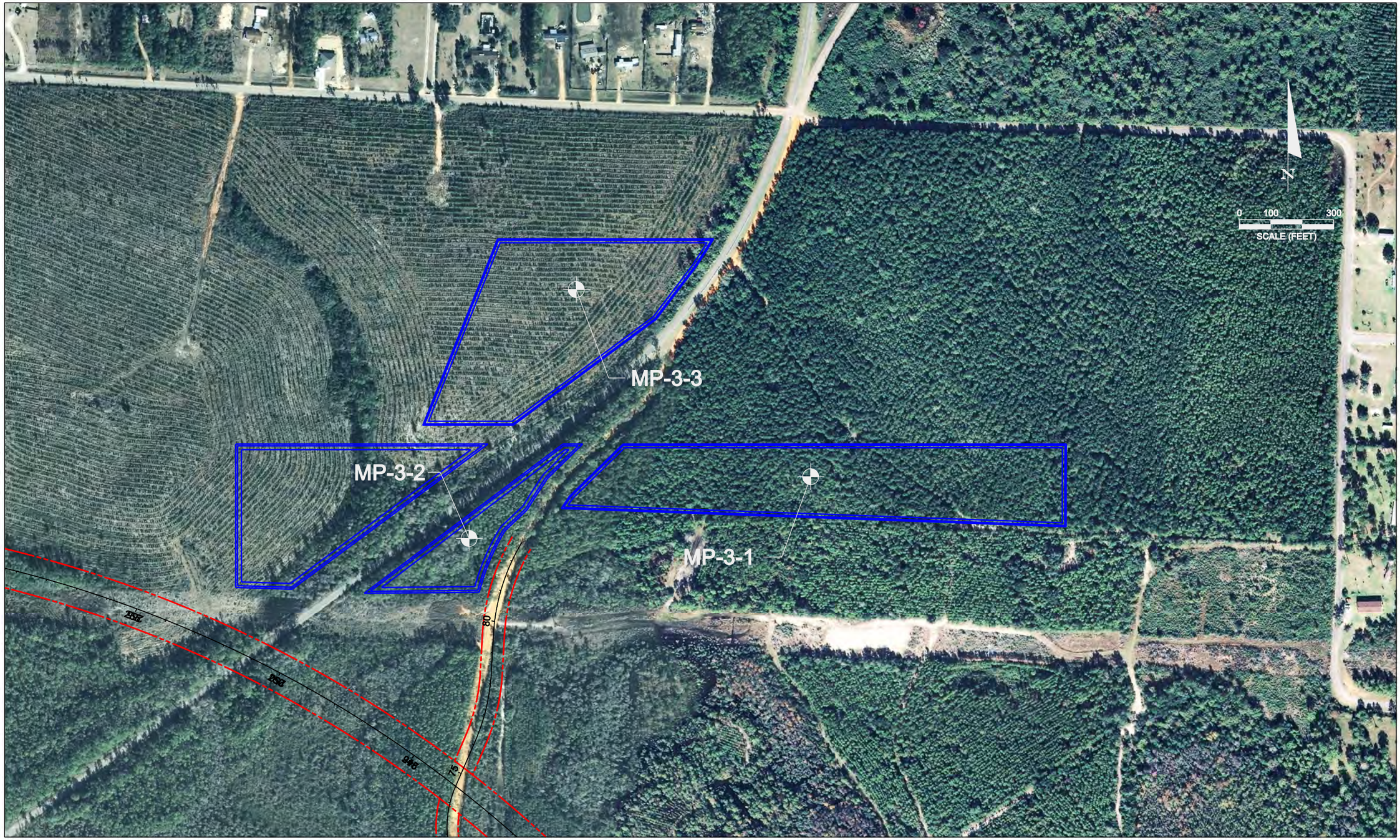
DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office #: (850) 386-1253 Fax #: (850) 385-8050	TITLE: USGS TOPOGRAPHIC MAP (1 OF 2) PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA	
ENGINEER: D. SHEPPARD, P.E.				
CLIENT: METRIC ENGINEERING, INC.				
PROJ. NO.: 28-09-09-03	SCALE:		DATE: DECEMBER 2011	FIGURE NO.: 2



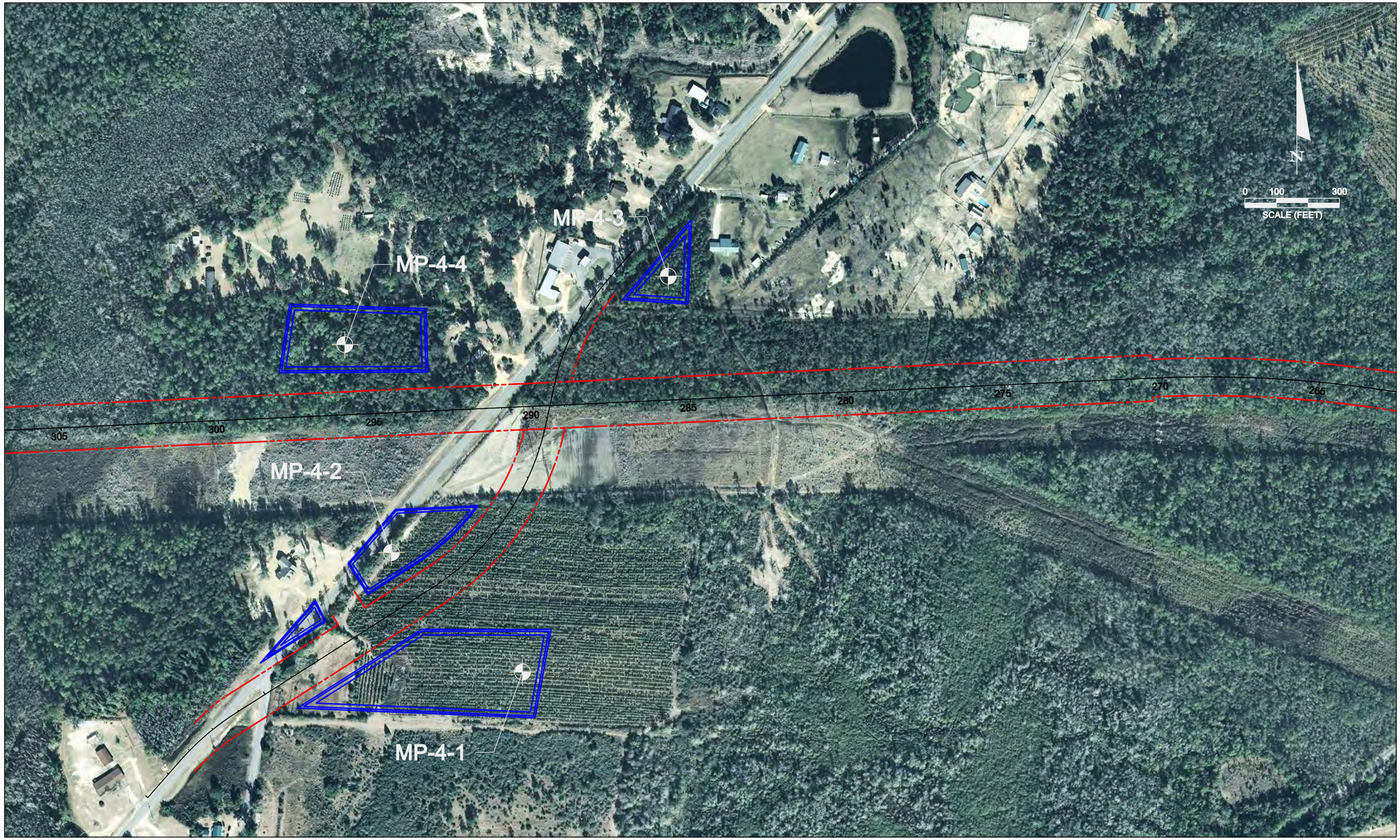
DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office #: (850) 386-1253 Fax #: (850) 385-8050	TITLE: USGS TOPOGRAPHIC MAP (2 OF 2) PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METIRC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE:		DATE: DECEMBER 2011 / FIGURE NO.: 3



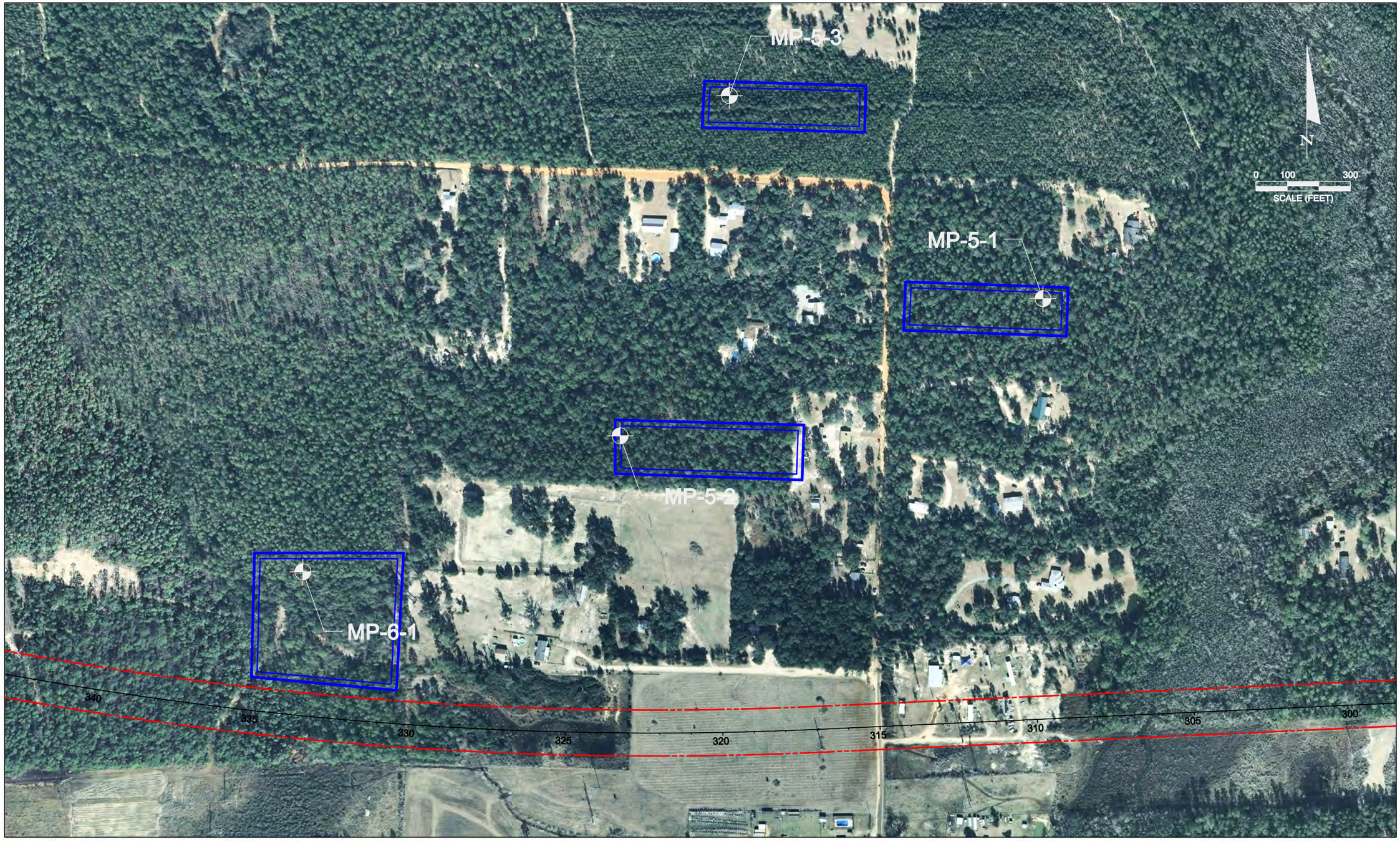
DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Forida 32308 Office: (850) 386-1253 Fax: (850) 385-8050	SOIL BORING LOCATION MAP - POND 1 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 300'		DATE: DECEMBER 2011 / FIGURE NO.: 4A



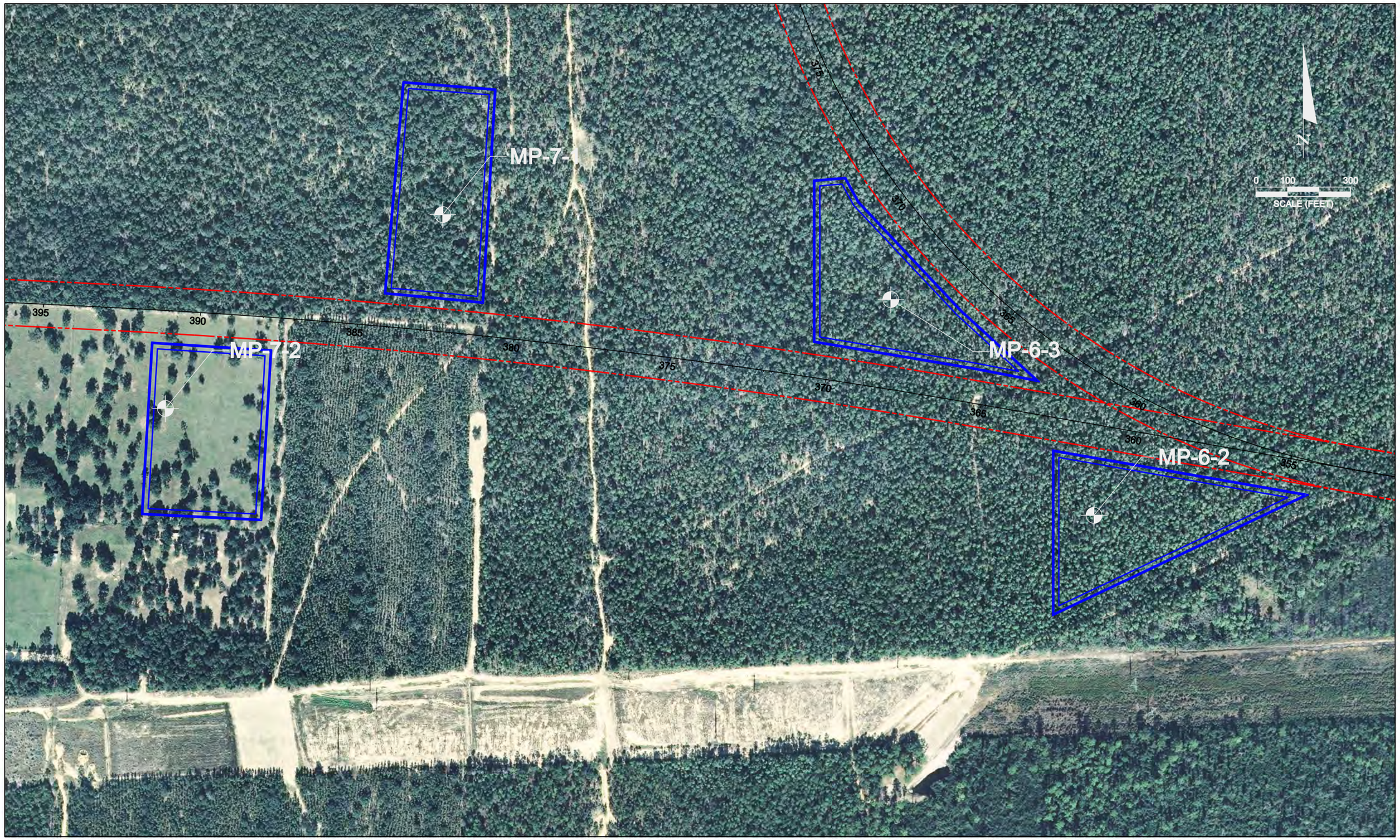
DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Forida 32308 Office: (850) 386-1253 Fax: (850) 385-8050	SOIL BORING LOCATION MAP - POND 3 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 300'		DATE: DECEMBER 2011 / FIGURE NO.: 4B



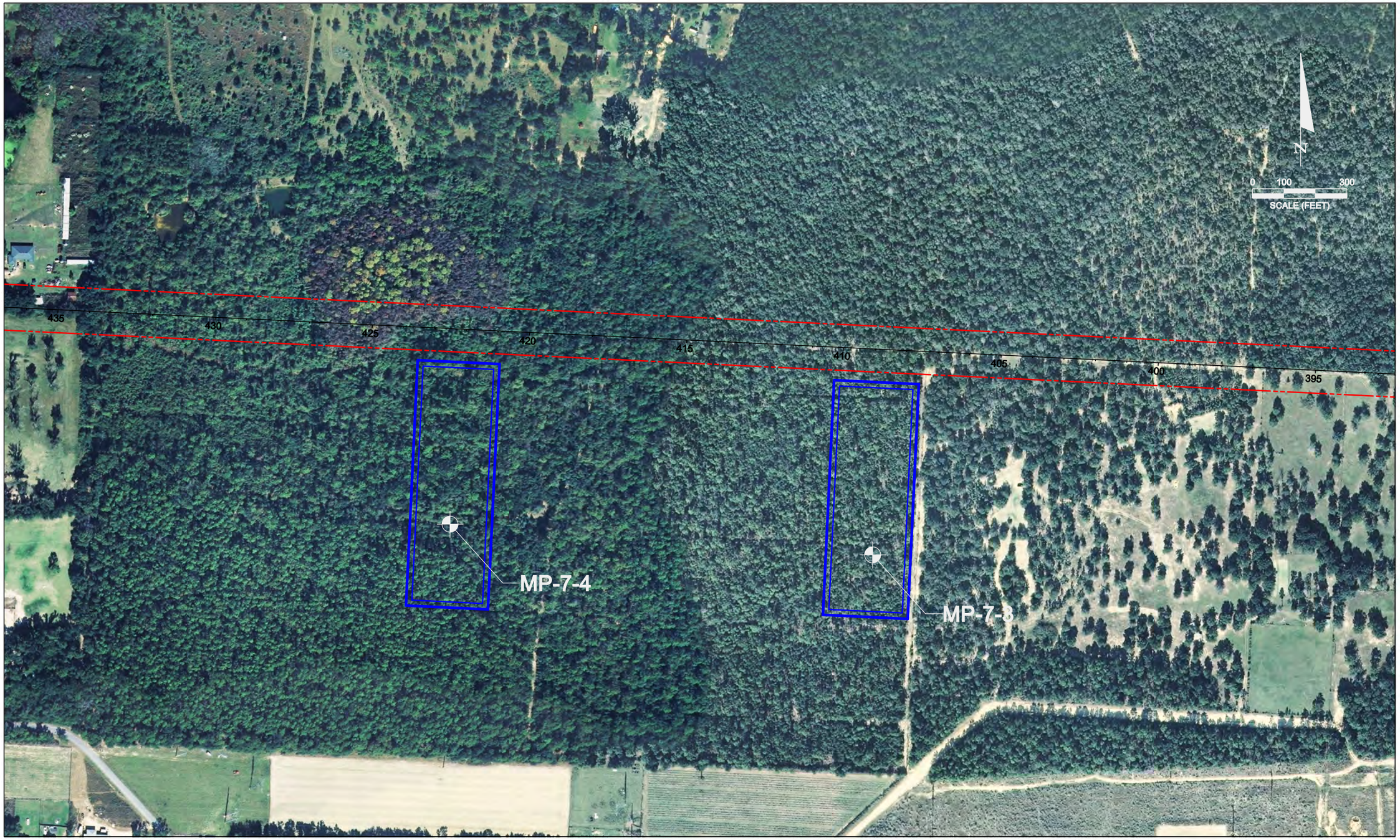
DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Forida 32308 Office: (850) 386-1253 Fax: (850) 385-8050	SOIL BORING LOCATION MAP - POND 4 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 300'		DATE: DECEMBER 2011 / FIGURE NO.: 4C



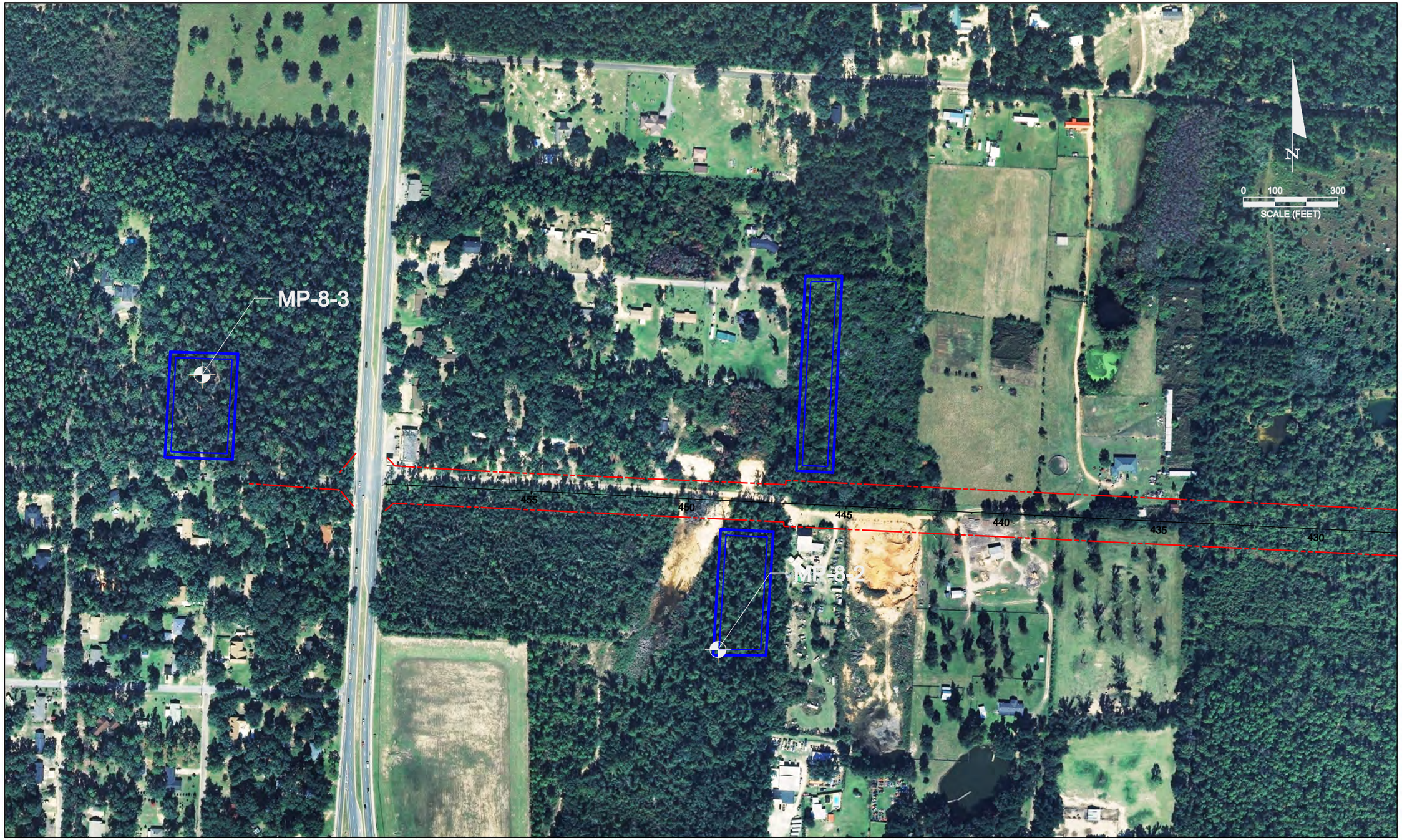
DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Forida 32308 Office: (850) 386-1253 Fax: (850) 385-8050	SOIL BORING LOCATION MAP - PONDS 5&6 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 300'		DATE: DECEMBER 2011 / FIGURE NO.: 4D



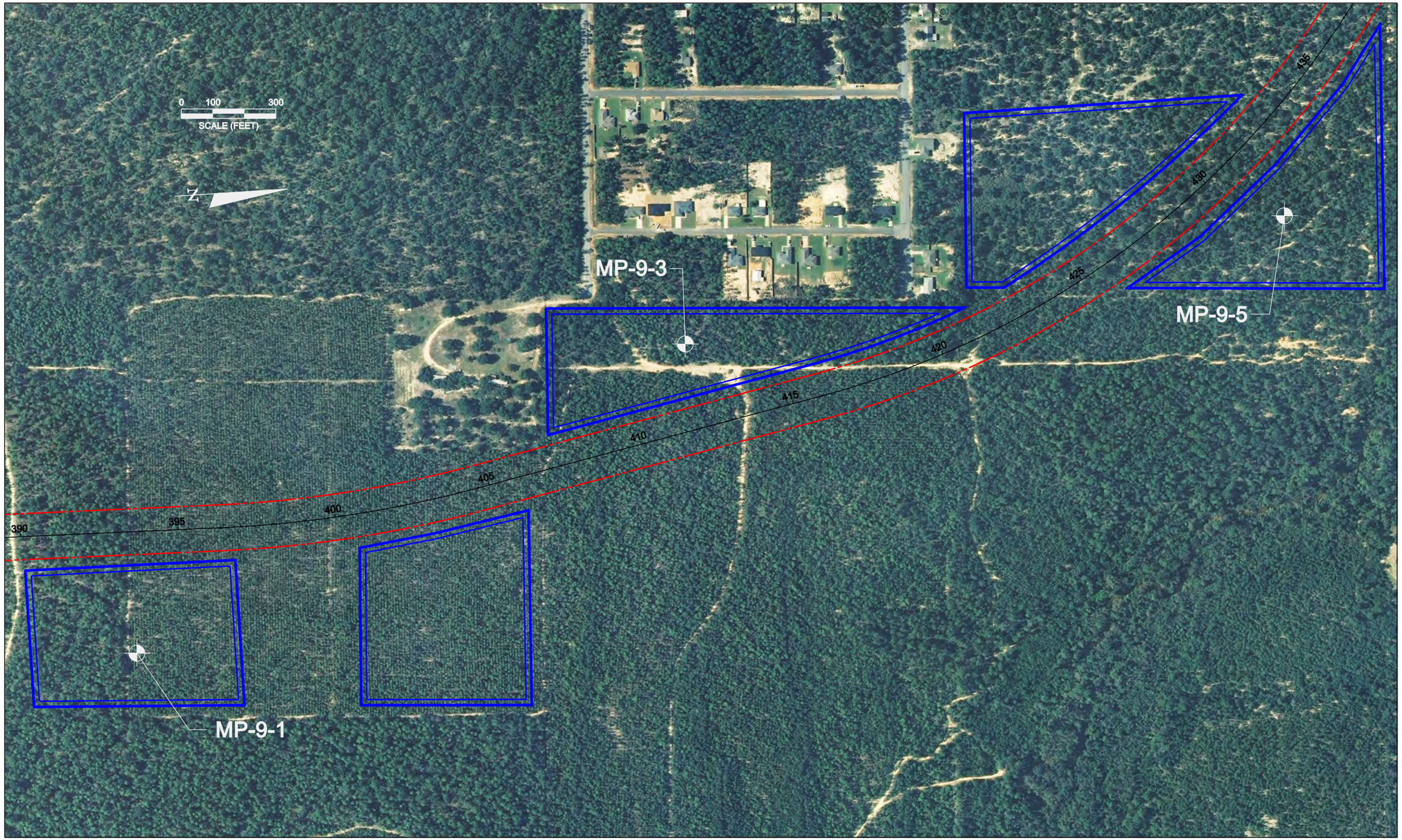
DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Forida 32308 Office: (850) 386-1253 Fax: (850) 385-8050	SOIL BORING LOCATION MAP - PONDS 6&7 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 300'		DATE: DECEMBER 2011 / FIGURE NO.: 4E



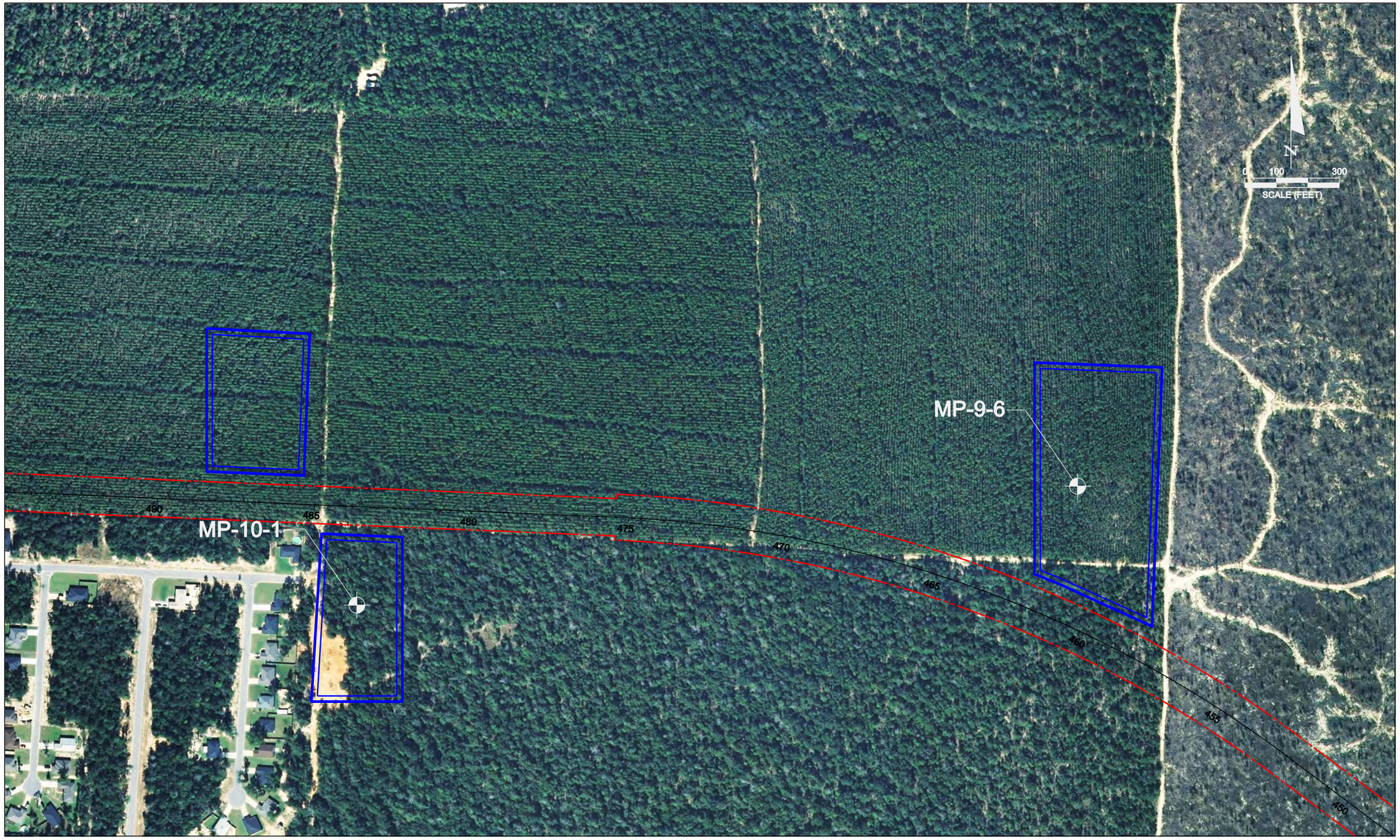
DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Forida 32308 Office: (850) 386-1253 Fax: (850) 385-8050	SOIL BORING LOCATION MAP - POND 7 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 300'		DATE: DECEMBER 2011 / FIGURE NO.: 4F



DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Forida 32308 Office: (850) 386-1253 Fax: (850) 385-8050	SOIL BORING LOCATION MAP - POND 8 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 300'		DATE: DECEMBER 2011 / FIGURE NO.: 4G



DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Forida 32308 Office: (850) 386-1253 Fax: (850) 385-8050	SOIL BORING LOCATION MAP - POND 9 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 300'		DATE: DECEMBER 2011 / FIGURE NO.: 4H

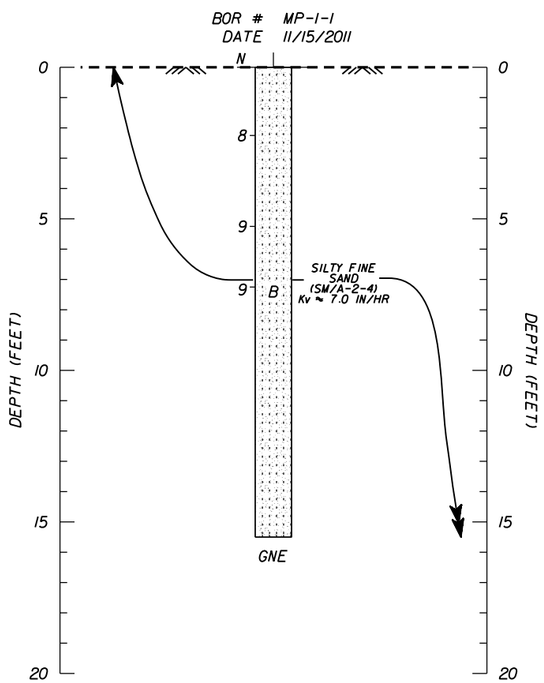


DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Forida 32308 Office: (850) 386-1253 Fax: (850) 385-8050	SOIL BORING LOCATION MAP - PONDS 9&10 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 300'		DATE: DECEMBER 2011 / FIGURE NO.: 4I

DRAWN: A. ROMANELLI, E.I.	CHECKED: M. HAYDEN, P.E.	**EGS** Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Forida 32308 Office: (850) 386-1253 Fax: (850) 385-8050	SOIL BORING LOCATION MAP - POND 10 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 300'		DATE: DECEMBER 2011 / FIGURE NO.: 4J

POND 1

OPTION 1



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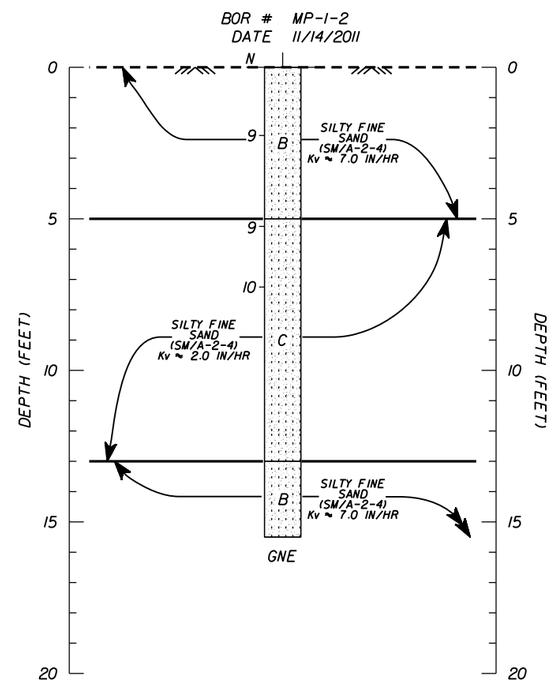
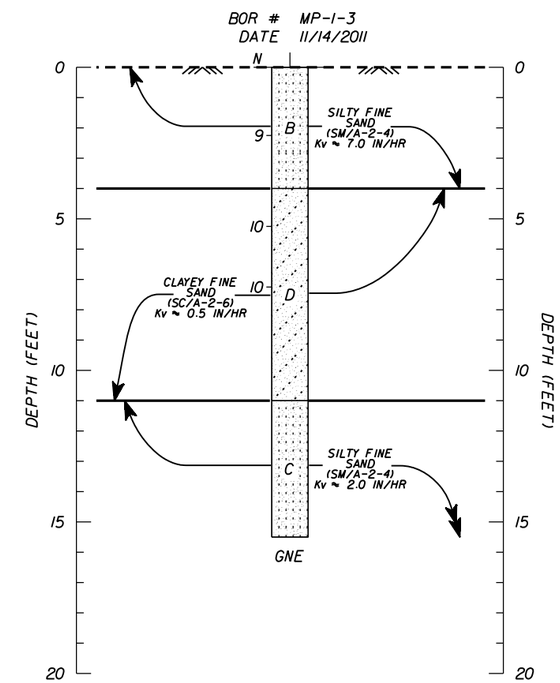


OPTION 3



NOTES

1. SEE CLASSIFICATION DATA SHEETS AND TABLE 2 FOR MATERIAL PROPERTIES.
2. NUMBERS TO RIGHT OF BORING INDICATE STANDARD PENETRATION TEST (SPT) N-VALUES FOR 12 INCH PENETRATION.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.

LEGEND

▼	MEASURED 24-HOUR WATER LEVEL
..▽...	ESTIMATED SEASONAL HIGH GROUNDWATER
GNE	GROUNDWATER NOT ENCOUNTERED
Kv	PRELIMINARY VERTICAL PERMEABILITY (INCHES PER HOUR)

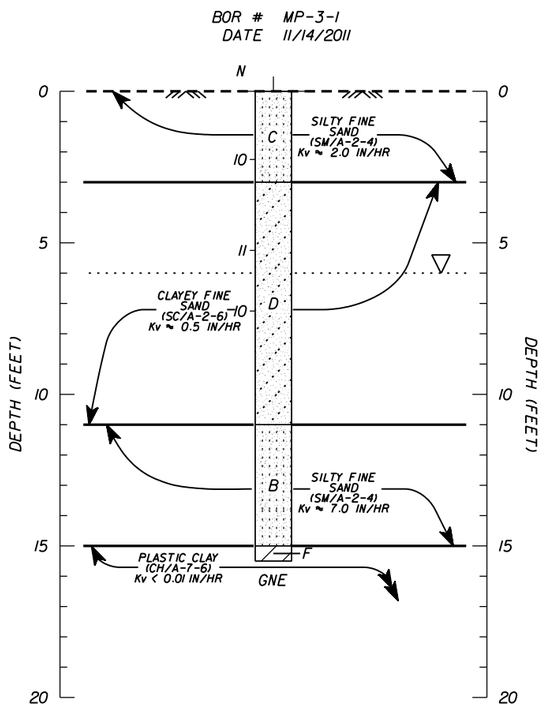
DRAWN: J. JENKINS, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office : (850) 386-1253 Fax : (850) 385-8050
ENGINEER: D. SHEPPARD, P.E.		
CLIENT: METRIC ENGINEERING, INC.		
PROJ. NO.: 28-09-09-03	SCALE: 1" = 5'	

"GENERALIZED" SOIL PROFILES - POND 1
PRELIMINARY STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

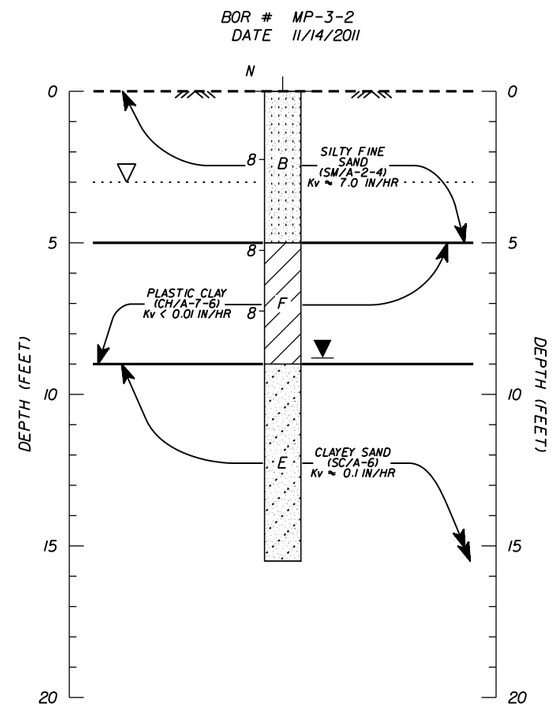
DATE: DECEMBER 2011 | FIGURE NO.: 5A

POND 3

OPTION 1



OPTION 2



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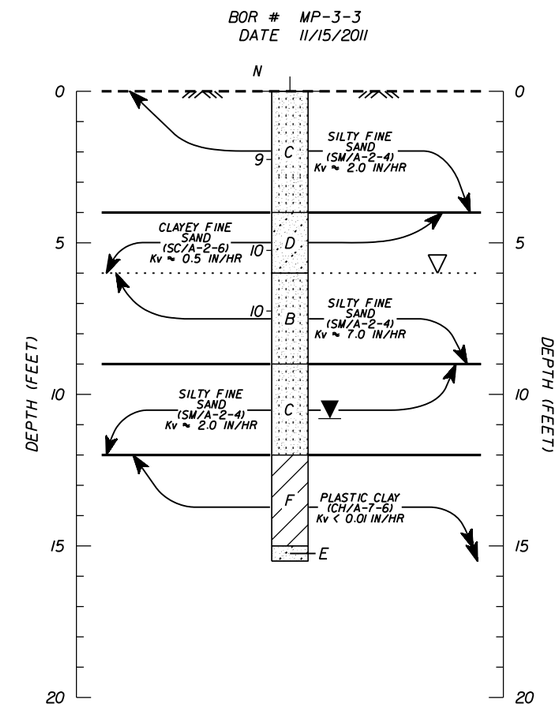


NOTES

1. SEE CLASSIFICATION DATA SHEETS AND TABLE 2 FOR MATERIAL PROPERTIES.
2. NUMBERS TO RIGHT OF BORING INDICATE STANDARD PENETRATION TEST (SPT) N-VALUES FOR 12 INCH PENETRATION.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.

LEGEND

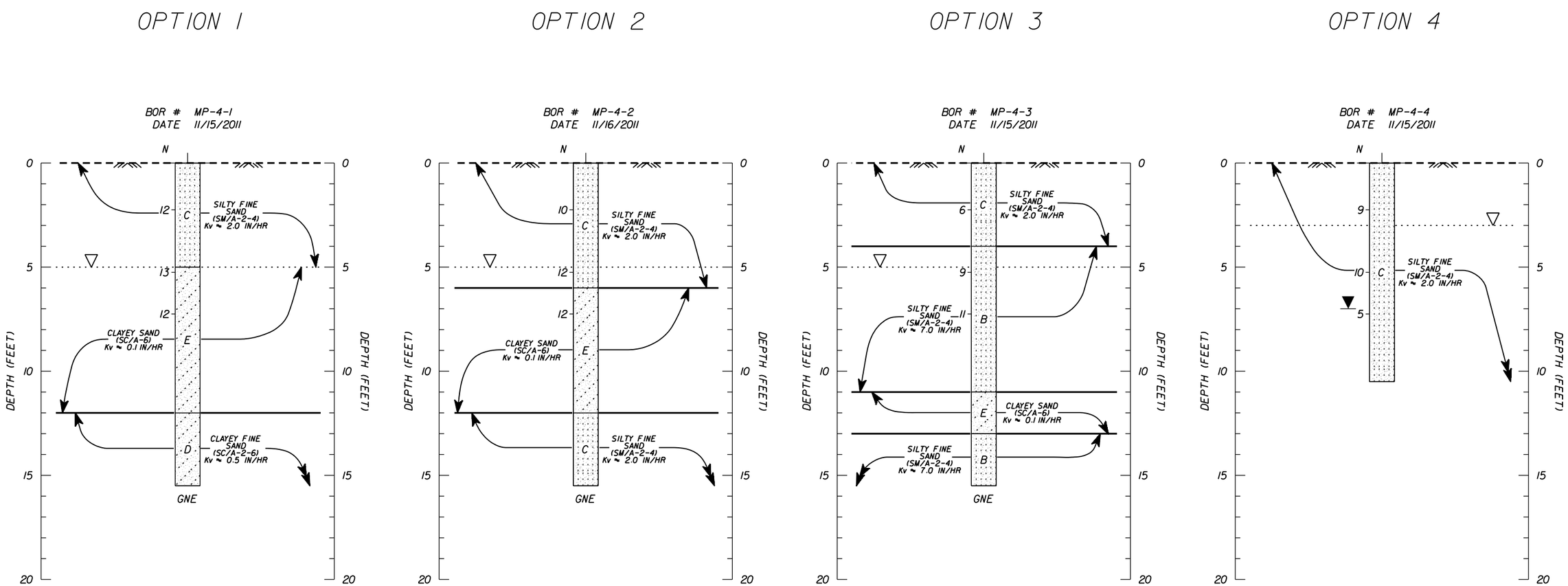
▼	MEASURED 24-HOUR WATER LEVEL
..∇...	ESTIMATED SEASONAL HIGH GROUNDWATER
GNE	GROUNDWATER NOT ENCOUNTERED
Kv	PRELIMINARY VERTICAL PERMEABILITY (INCHES PER HOUR)

DRAWN: J. JENKINS, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office : (850) 386-1253 Fax : (850) 385-8050
ENGINEER: D. SHEPPARD, P.E.		
CLIENT: METRIC ENGINEERING, INC.		
PROJ. NO.: 28-09-09-03	SCALE: 1" = 5'	

"GENERALIZED" SOIL PROFILES - POND 3
PRELIMINARY STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

DATE: DECEMBER 2011 | FIGURE NO.: 5B

POND 4



NOTES

1. SEE CLASSIFICATION DATA SHEETS AND TABLE 2 FOR MATERIAL PROPERTIES.
2. NUMBERS TO RIGHT OF BORING INDICATE STANDARD PENETRATION TEST (SPT) N-VALUES FOR 12 INCH PENETRATION.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.

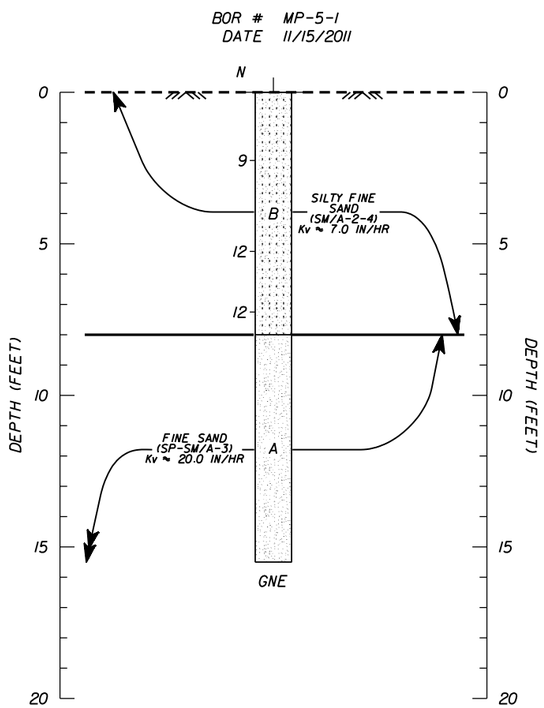
LEGEND

▼	MEASURED 24-HOUR WATER LEVEL
..▽...	ESTIMATED SEASONAL HIGH GROUNDWATER
GNE	GROUNDWATER NOT ENCOUNTERED
Kv	PRELIMINARY VERTICAL PERMEABILITY (INCHES PER HOUR)

DRAWN: J. JENKINS, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office : (850) 386-1253 Fax : (850) 385-8050	"GENERALIZED" SOIL PROFILES - POND 4 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 5'		DATE: DECEMBER 2011 / FIGURE NO.: 5C

POND 5

OPTION 1



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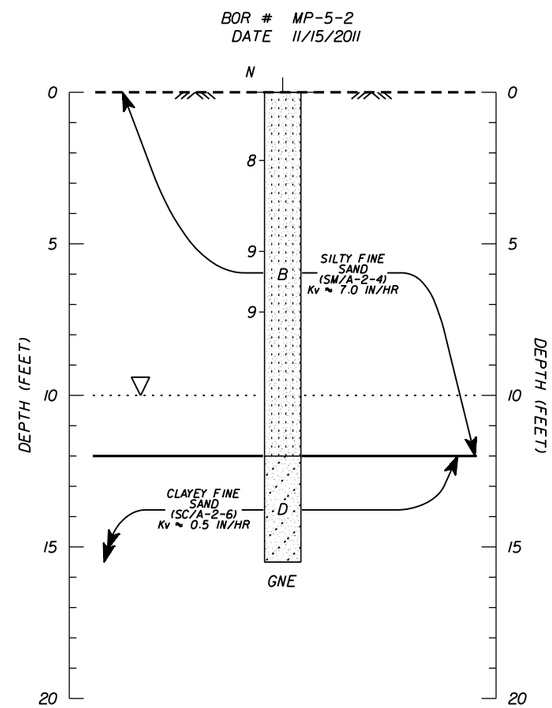
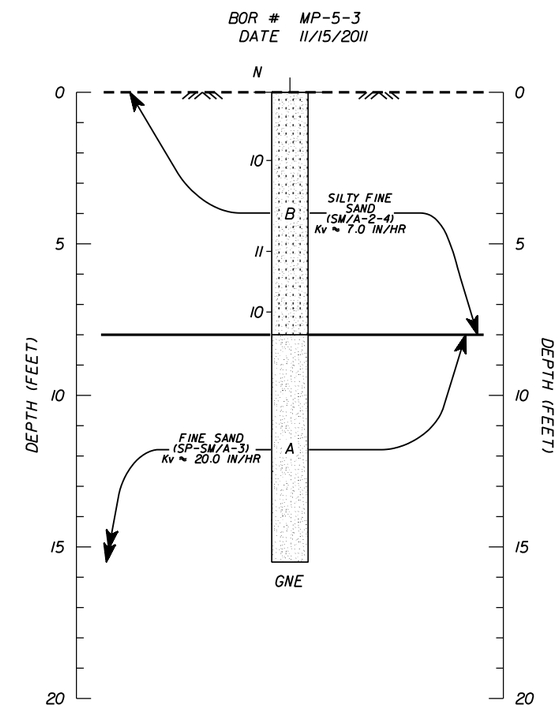


OPTION 3



NOTES

1. SEE CLASSIFICATION DATA SHEETS AND TABLE 2 FOR MATERIAL PROPERTIES.
2. NUMBERS TO RIGHT OF BORING INDICATE STANDARD PENETRATION TEST (SPT) N-VALUES FOR 12 INCH PENETRATION.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.

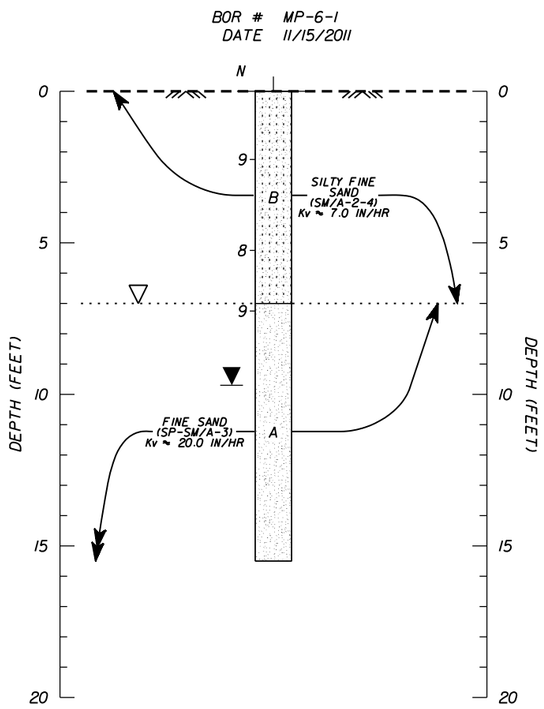
LEGEND

▼	MEASURED 24-HOUR WATER LEVEL
..▽...	ESTIMATED SEASONAL HIGH GROUNDWATER
GNE	GROUNDWATER NOT ENCOUNTERED
Kv	PRELIMINARY VERTICAL PERMEABILITY (INCHES PER HOUR)

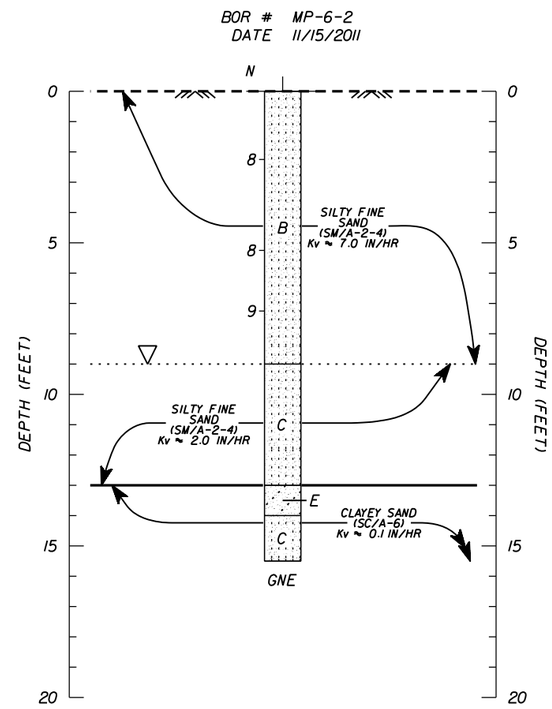
DRAWN: J. JENKINS, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office : (850) 386-1253 Fax : (850) 385-8050	"GENERALIZED" SOIL PROFILES - POND 5 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 5'		DATE: DECEMBER 2011 / FIGURE NO.: 5D

POND 6

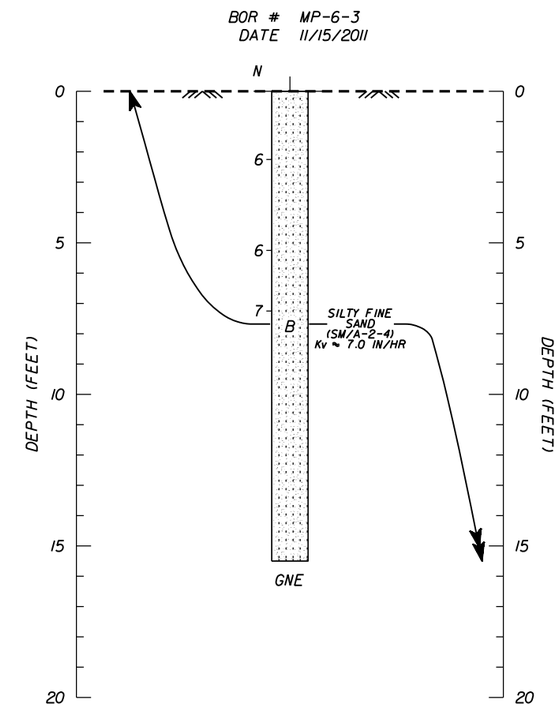
OPTION 1



OPTION 2



OPTION 3



NOTES

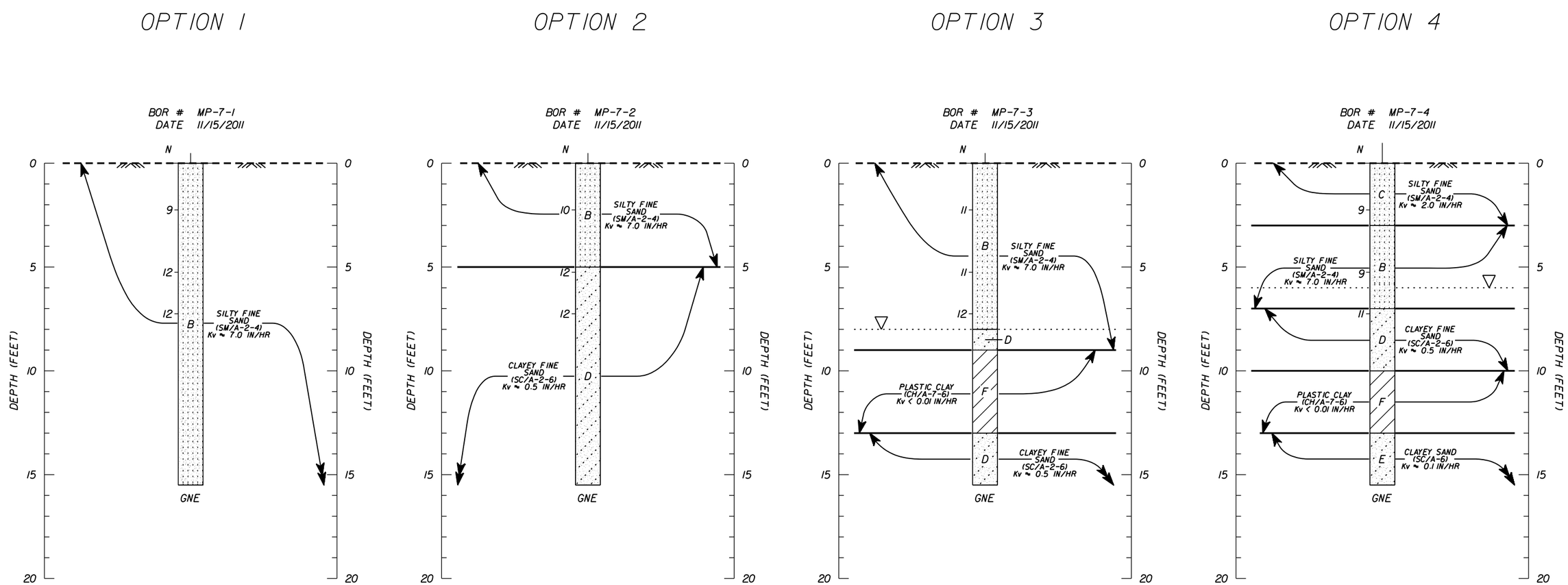
1. SEE CLASSIFICATION DATA SHEETS AND TABLE 2 FOR MATERIAL PROPERTIES.
2. NUMBERS TO RIGHT OF BORING INDICATE STANDARD PENETRATION TEST (SPT) N-VALUES FOR 12 INCH PENETRATION.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.

LEGEND

▼	MEASURED 24-HOUR WATER LEVEL
..▽...	ESTIMATED SEASONAL HIGH GROUNDWATER
GNE	GROUNDWATER NOT ENCOUNTERED
Kv	PRELIMINARY VERTICAL PERMEABILITY (INCHES PER HOUR)

DRAWN: J. JENKINS, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office : (850) 386-1253 Fax : (850) 385-8050	"GENERALIZED" SOIL PROFILES - POND 6 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 5'		DATE: DECEMBER 2011 / FIGURE NO.: 5E

POND 7



NOTES

1. SEE CLASSIFICATION DATA SHEETS AND TABLE 2 FOR MATERIAL PROPERTIES.
2. NUMBERS TO RIGHT OF BORING INDICATE STANDARD PENETRATION TEST (SPT) N-VALUES FOR 12 INCH PENETRATION.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.

LEGEND

▼	MEASURED 24-HOUR WATER LEVEL
..▽...	ESTIMATED SEASONAL HIGH GROUNDWATER
GNE	GROUNDWATER NOT ENCOUNTERED
Kv	PRELIMINARY VERTICAL PERMEABILITY (INCHES PER HOUR)

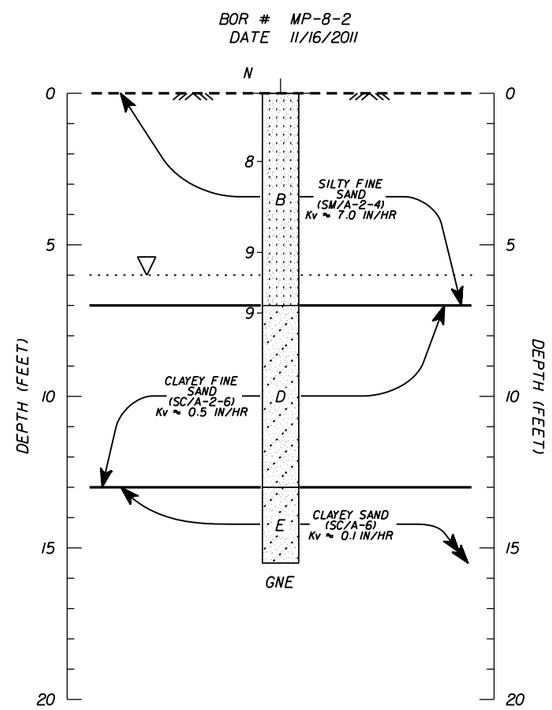
DRAWN: J. JENKINS, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office : (850) 386-1253 Fax : (850) 385-8050
ENGINEER: D. SHEPPARD, P.E.		
CLIENT: METRIC ENGINEERING, INC.		
PROJ. NO.: 28-09-09-03	SCALE: 1" = 5'	

"GENERALIZED" SOIL PROFILES - POND 7
PRELIMINARY STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

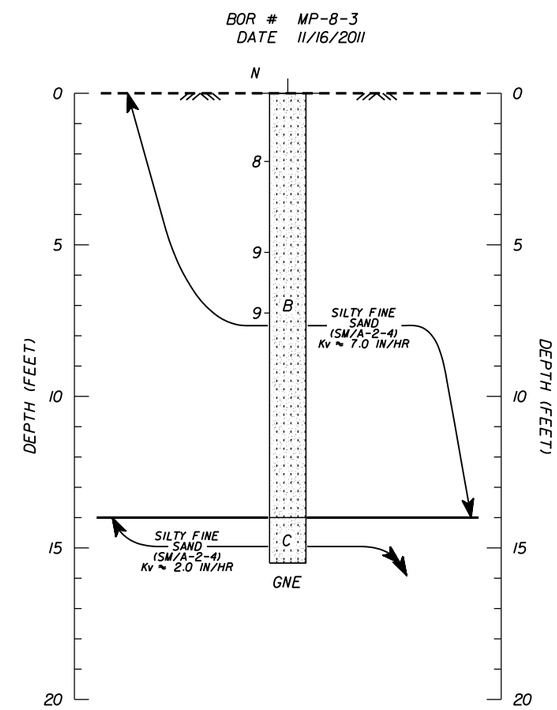
DATE: DECEMBER 2011 | FIGURE NO.: 5F

POND 8

OPTION 2



OPTION 3



NOTES

1. SEE CLASSIFICATION DATA SHEETS AND TABLE 2 FOR MATERIAL PROPERTIES.
2. NUMBERS TO RIGHT OF BORING INDICATE STANDARD PENETRATION TEST (SPT) N-VALUES FOR 12 INCH PENETRATION.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.

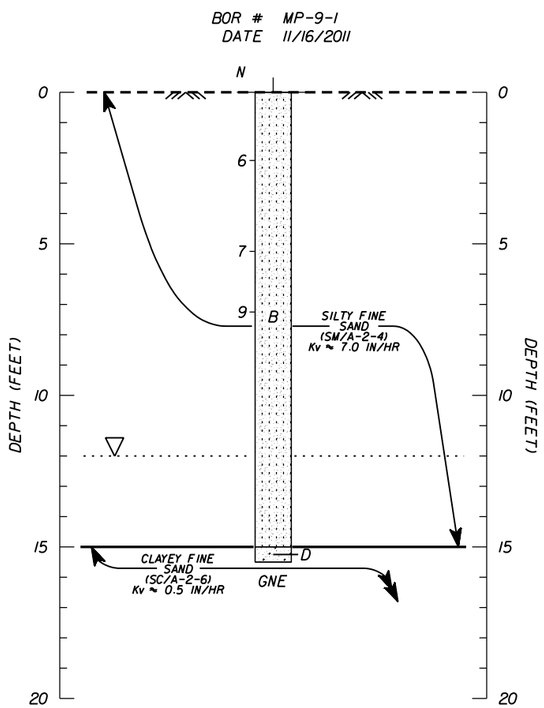
LEGEND

▼	MEASURED 24-HOUR WATER LEVEL
..▽...	ESTIMATED SEASONAL HIGH GROUNDWATER
GNE	GROUNDWATER NOT ENCOUNTERED
Kv	PRELIMINARY VERTICAL PERMEABILITY (INCHES PER HOUR)

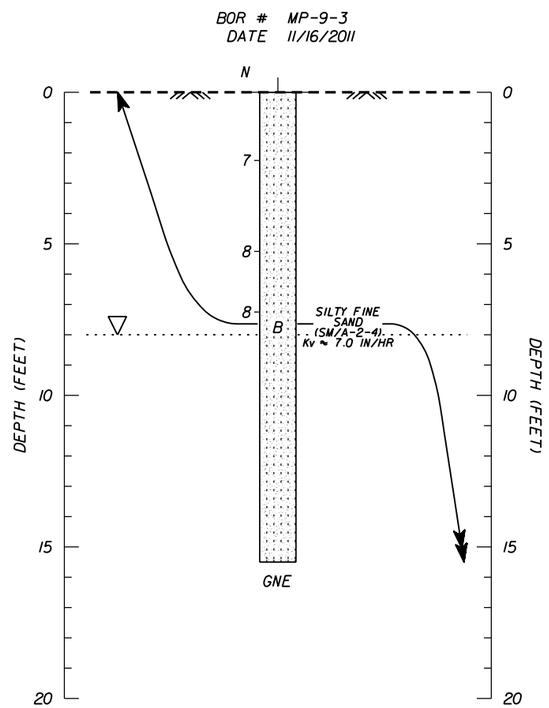
DRAWN: J. JENKINS, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office : (850) 386-1253 Fax : (850) 385-8050	"GENERALIZED" SOIL PROFILES - POND 8 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 5'		DATE: DECEMBER 2011 / FIGURE NO.: 5G

POND 9

OPTION 1



OPTION 3



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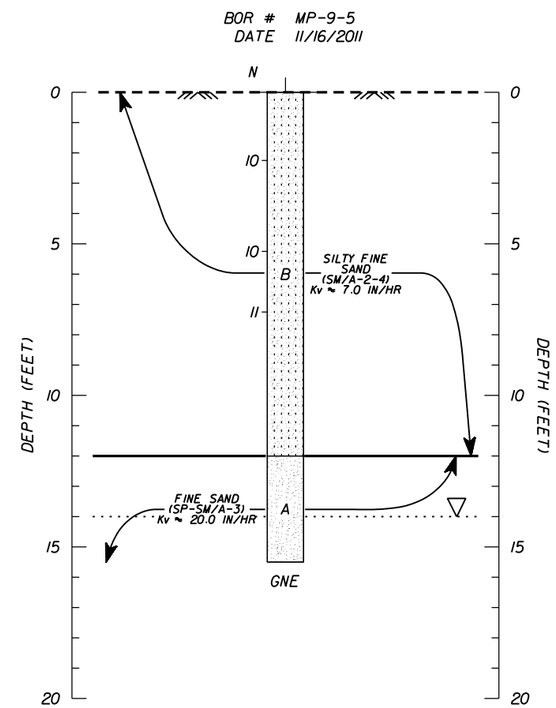

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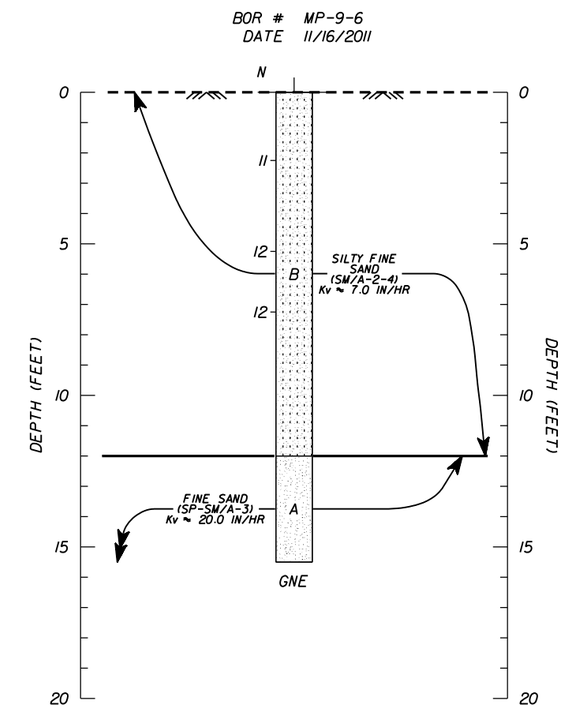


NOTES

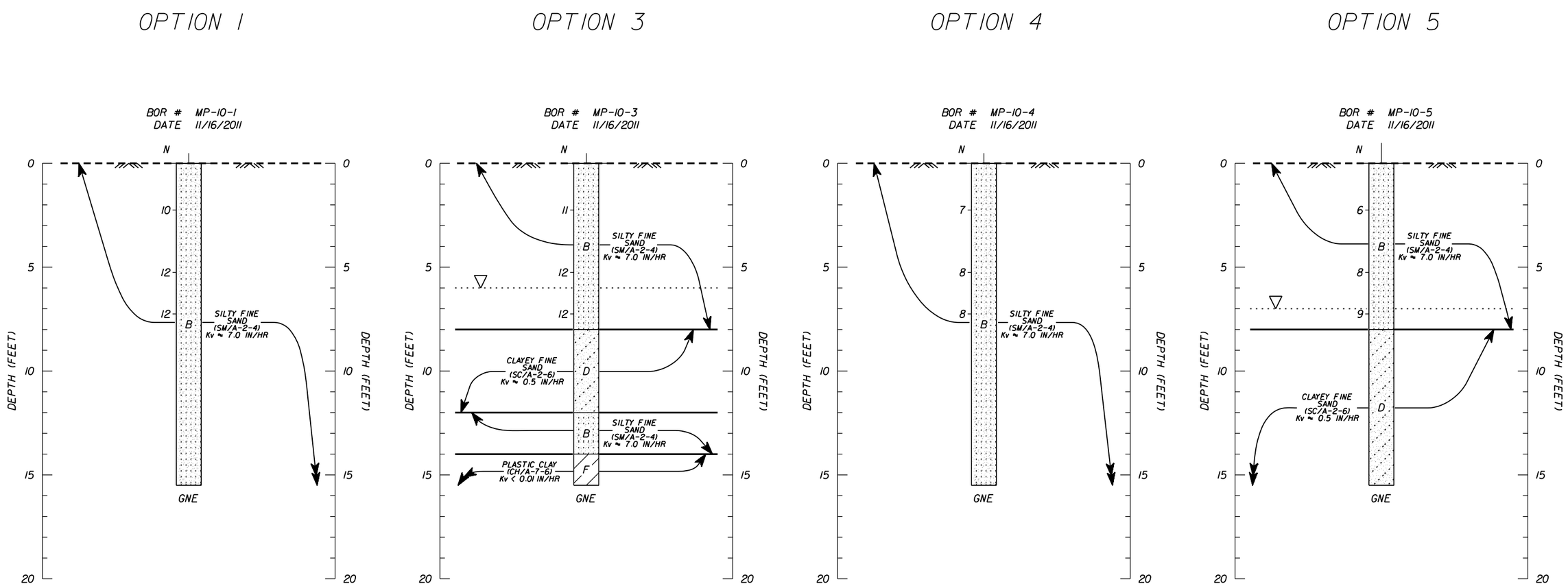
1. SEE CLASSIFICATION DATA SHEETS AND TABLE 2 FOR MATERIAL PROPERTIES.
2. NUMBERS TO RIGHT OF BORING INDICATE STANDARD PENETRATION TEST (SPT) N-VALUES FOR 12 INCH PENETRATION.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.

LEGEND

▼	MEASURED 24-HOUR WATER LEVEL
..▽...	ESTIMATED SEASONAL HIGH GROUNDWATER
GNE	GROUNDWATER NOT ENCOUNTERED
Kv	PRELIMINARY VERTICAL PERMEABILITY (INCHES PER HOUR)

DRAWN: J. JENKINS, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office : (850) 386-1253 Fax : (850) 385-8050	"GENERALIZED" SOIL PROFILES - POND 9 PRELIMINARY STORMWATER INVESTIGATION SR 87 CONNECTOR PD&E STUDY SANTA ROSA COUNTY, FLORIDA
ENGINEER: D. SHEPPARD, P.E.			
CLIENT: METRIC ENGINEERING, INC.			
PROJ. NO.: 28-09-09-03	SCALE: 1" = 5'		DATE: DECEMBER 2011 / FIGURE NO.: 5H

POND 10



NOTES

1. SEE CLASSIFICATION DATA SHEETS AND TABLE 2 FOR MATERIAL PROPERTIES.
2. NUMBERS TO RIGHT OF BORING INDICATE STANDARD PENETRATION TEST (SPT) N-VALUES FOR 12 INCH PENETRATION.
3. ELEVATIONS NOT AVAILABLE AT THE TIME OF THIS PRELIMINARY INVESTIGATION.

LEGEND

▼	MEASURED 24-HOUR WATER LEVEL
..▽...	ESTIMATED SEASONAL HIGH GROUNDWATER
GNE	GROUNDWATER NOT ENCOUNTERED
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DRAWN: J. JENKINS, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental & Geotechnical Specialists, Inc. 3154 Eliza Road Tallahassee, Florida 32308 Office : (850) 386-1253 Fax : (850) 385-8050
ENGINEER: D. SHEPPARD, P.E.		
CLIENT: METRIC ENGINEERING, INC.		
PROJ. NO.: 28-09-09-03	SCALE: 1" = 5'	

"GENERALIZED" SOIL PROFILES - POND 10
PRELIMINARY STORMWATER INVESTIGATION
SR 87 CONNECTOR PD&E STUDY
SANTA ROSA COUNTY, FLORIDA

DATE: DECEMBER 2011 | FIGURE NO.: 5I

APPENDIX A

SOIL BORING LOGS

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 605645.3
PROJECT NO.: 28-09-09-03	**EASTING:** 1189538.9
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-1-1	**DATE:** 11/15/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=15	3, 3, 3, 3, 3, 4	8, 9
1.5	3							
3	6			ORANGE SILTY FINE SAND		-200%=19	6, 8, 5, 5, 6, 7, 6, 8, 8, 7	9
4.5	9					-200%=15		
6	12							
	15					-200%=19		
	18							
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 605645.3
PROJECT NO.: 28-09-09-03	**EASTING:** 1189538.9
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-1-1	**DATE:** 11/15/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=15	3, 3, 3, 3, 3	8
1.5	3						4	9
	6			ORANGE SILTY FINE SAND		-200%=19	6, 8, 5	9
3	9					-200%=15	5, 6, 7	
	12						6, 8, 8	
4.5	15					-200%=19	7	
6	18							
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 607181.6
PROJECT NO.: 28-09-09-03	**EASTING:** 1188811.2
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-1-2	**DATE:** 11/14/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=19	2, 3, 3, 2, 2	9
1.5	3					-200%=26	6, 8, 6, 4, 5	9, 10
3	6			ORANGE SILTY FINE SAND		-200%=20	5, 4, 5, 5	
4.5	9					-200%=12	5, 3	
6	12							
	15							
	18							
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 608469.1
PROJECT NO.: 28-09-09-03	**EASTING:** 1189421.5
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-1-3	**DATE:** 11/14/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** C NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=19	6, 4, 5, 6	9
1.5	6			ORANGE CLAYEY FINE SAND	SC A-2-6	-200%=22	10, 8, 8, 7, 8	10, 10
3	9					-200%=22	8, 8	
4.5	12			ORANGE SILTY FINE SAND	SM A-2-4	-200%=20	9, 7, 8, 6, 5	
6	18							
	21							

Wc (%) scale: 10, 20, 30, 40, 60

N-Value scale: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT:	SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:**	CPI
CLIENT:	METRIC ENGINEERING, INC.	**NORTHING:**	616085.7
PROJECT NO.:	28-09-09-03	**EASTING:**	1188056.6
PROJECT LOCATION:	SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):**	N/A
BORING NO.:	MP-3-1	**DATE:**	11/14/2011
DRILLER:	W. DUNLAP	**FLUID LOSS:**	N/A
DEPTH TO WATER - INITIAL:	GNE	**24 HR:** GNE	**CAVING>** C NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=24	5, 4, 5	10
1.5	3			BROWN CLAYEY FINE SAND	SC A-2-6	-200%=26 LL=27 PI=12; -200%=20	12, 12, 10, 11, 12, 12, 14, 14	11, 10
3	6							
4.5	9							
6	12			BROWN SILTY FINE SAND	SM A-2-4	-200%=13	13, 14, 13, 15	
	15			BROWN HIGHLY PLASTIC CLAY	CH A-7-6	-200%=62 LL=63 PI=35	28	
	18							
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS		**HAMMER TYPE:** CPI	
CLIENT: METRIC ENGINEERING, INC.		**NORTHING:** 615889.5	
PROJECT NO.: 28-09-09-03		**EASTING:** 1186971.6	
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA		**ELEVATION (FEET):** N/A	
BORING NO.: MP-3-2		**DATE:** 11/14/2011	
DRILLER: W. DUNLAP		**FLUID LOSS:** N/A	
DEPTH TO WATER - INITIAL: ▽ 9.0'	**24 HR:** ▽ 8.8'	**CAVING>** C NONE	

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=17	8, 4, 8, 11, 14	8
1.5	3			GRAY AND BROWN PLASTIC CLAY WITH SAND	CL A-7-6	-200%=85 LL=42 PI=20	28, 25, 28, 26	8, 8
3	6			GRAY CLAYEY SAND	SC A-6	-200%=44	21, 20, 23, 22, 24, 26	
4.5	12					-200%=39 LL=21 PI=12	21	
6	15							
	18							
	21							

Wc (%) scale: 10, 20, 30, 40, 60

N-Value scale: 10, 20, 30, 40, 60, 80

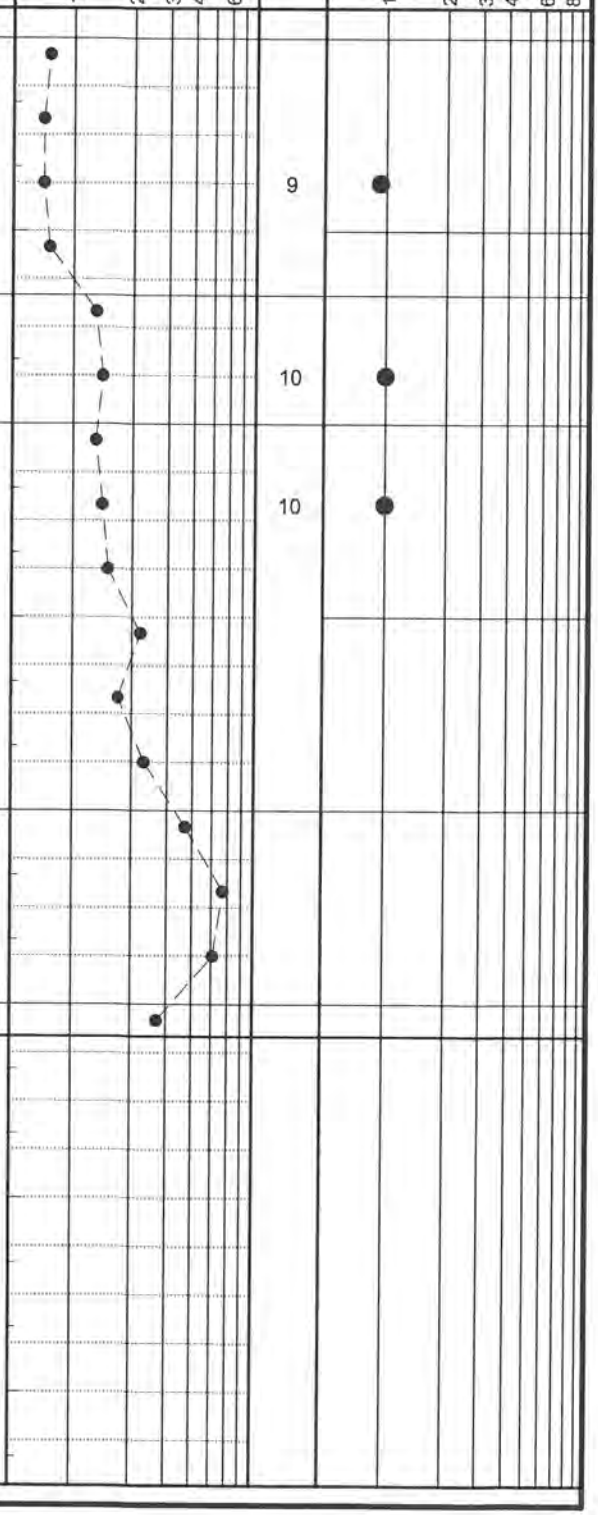
EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT:	SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:**	CPI
CLIENT:	METRIC ENGINEERING, INC.	**NORTHING:**	616680.1
PROJECT NO.:	28-09-09-03	**EASTING:**	1187311.9
PROJECT LOCATION:	SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):**	N/A
BORING NO.:	MP-3-3	**DATE:**	11/15/2011
DRILLER:	W. DUNLAP	**FLUID LOSS:**	N/A
DEPTH TO WATER - INITIAL:	11.0' **24 HR:** 10.8'	**CAVING>**	NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)
BROWN SILTY FINE SAND	SM A-2-4	-200%=25	6, 5, 5, 6
GRAY AND BROWN CLAYEY FINE SAND	SC A-2-6	-200%=26 LL=20 PI=12	13, 14
BROWN SILTY FINE SAND	SM A-2-4	-200%=15, -200%=21	13, 14, 15, 22, 17, 23
GRAY HIGHLY PLASTIC CLAY	CH A-7-6	-200%=80 LL=56 PI=32	37, 57, 51
GRAY CLAYEY SAND	SC A-6		27

N: 9, 10, 10



EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 614967.4
PROJECT NO.: 28-09-09-03	**EASTING:** 1182412.9
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-4-1	**DATE:** 11/15/2011
DRILLER: R. ROGERS	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=24	3, 3, 5, 7, 7	12
1.5	6			BROWN AND GRAY CLAYEY SAND	SC A-6	-200%=47 LL=31 PI=12; -200%=40 LL=30 PI=13	13, 15, 19, 17, 16, 18, 18	13, 12
3	12			BROWN AND GRAY CLAYEY FINE SAND	SC A-2-6	-200%=24; -200%=30 LL=22 PI=12	12, 10, 16, 17	
4.5	15							
6	18, 21							

Wc (%) scale: 10, 20, 30, 40, 60

N-Value scale: 10, 20, 30, 40, 60, 80

EGS

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS
CLIENT: METRIC ENGINEERING, INC.
PROJECT NO.: 28-09-09-03
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA
BORING NO.: MP-4-2
DRILLER: R. ROGERS
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE

HAMMER TYPE: CPI
NORTHING: 615347.0
EASTING: 1181996.7
ELEVATION (FEET): N/A
DATE: 11/16/2011
FLUID LOSS: N/A
CAVING> NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=31	9, 6, 6, 8, 9, 10	10, 12
1.5	3					-200%=30		
3	6			BROWN CLAYEY SAND	SC A-6	-200%=46 LL=36 PI=19	14, 13, 15, 16, 13, 12	12
4.5	9							
6	12			BROWN SILTY FINE SAND	SM A-2-4	-200%=22	11, 10, 11, 13	
	15							
	18							
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 616224.6
PROJECT NO.: 28-09-09-03	**EASTING:** 1182875.8
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-4-3	**DATE:** 11/15/2011
DRILLER: R. ROGERS	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			GRAY SILTY FINE SAND		-200%=23	10, 6	
	3			BROWN SILTY FINE SAND	SM A-2-4		8, 6, 8	6
1.5						-200%=16	13, 13	9
	6						15	11
						-200%=13	19, 18, 17	
3	9							
	12			GRAY CLAYEY SAND	SC A-6	-200%=39 LL=25 PI=12	16, 19	
				ORANGE SILTY FINE SAND	SM A-2-4		17, 22	
4.5	15					-200%=13	21	
	18							
6	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS		**HAMMER TYPE:** CPI	
CLIENT: METRIC ENGINEERING, INC.		**NORTHING:** 616007.6	
PROJECT NO.: 28-09-09-03		**EASTING:** 1181849.0	
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA		**ELEVATION (FEET):** N/A	
BORING NO.: MP-4-4		**DATE:** 11/15/2011	
DRILLER: W. DUNLAP		**FLUID LOSS:** N/A	
DEPTH TO WATER - INITIAL: ▽ 7.0'	**24 HR:** ▼ 7.0'	**CAVING>** C NONE	

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=20	9, 9, 3, 14, 13	9
1.5	3			GRAY SILTY FINE SAND		-200%=20	17, 17	10
3	6			DARK GRAY SILTY FINE SAND		ORG%=2.4	18, 19	5
4.5	9			GRAY SILTY FINE SAND		-200%=23 ORG%=1.8	19, 25	
6	12							
	15							
	18							
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS
CLIENT: METRIC ENGINEERING, INC.
PROJECT NO.: 28-09-09-03
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA
BORING NO.: MP-5-1
DRILLER: R. ROGERS
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE **CAVING>** NONE

HAMMER TYPE: CPI
NORTHING: 617055.1
EASTING: 1180466.2
ELEVATION (FEET): N/A
DATE: 11/15/2011
FLUID LOSS: N/A

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4		3	
						-200%=13	2	
							1	9
	3						1	
							3	
1.5						-200%=13	3	12
	6						1	
							1	12
				BROWN FINE SAND	SP-SM A-3		2	
	9					-200%=5	1	
3							3	
							4	
	12						3	
						-200%=7	3	
							4	
4.5	15						3	
	18							
6								
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 616621.2
PROJECT NO.: 28-09-09-03	**EASTING:** 1179123.0
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-5-2	**DATE:** 11/15/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** C NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)
BROWN SILTY FINE SAND	SM A-2-4	-200%=14	3, 3, 3, 2, 3, 3, 2, 2, 2, 2, 7, 10
		-200%=12	
		-200%=14	
BROWN CLAYEY FINE SAND	SC A-2-6	-200%=32 LL=20 PI=12	16, 15, 16, 14

N-Value: 8, 9, 9

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS		**HAMMER TYPE:** CPI	
CLIENT: METRIC ENGINEERING, INC.		**NORTHING:** 617701.5	
PROJECT NO.: 28-09-09-03		**EASTING:** 1179470.1	
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA		**ELEVATION (FEET):** N/A	
BORING NO.: MP-5-3		**DATE:** 11/15/2011	
DRILLER: R. ROGERS		**FLUID LOSS:** N/A	
DEPTH TO WATER - INITIAL: ▽ GNE	**24 HR:** ▼ GNE	**CAVING>** ⊂ NONE	

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=13	3	
							2	
							2	10
	3						2	
							2	
1.5						-200%=13	1	11
	6						2	
							2	10
	9			BROWN FINE SAND	SP-SM A-3	-200%=9	2	
							2	
3							3	
							5	
	12						4	
						-200%=6	2	
							2	
4.5	15						2	
	18							
6								
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT:	SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:**	CPI
CLIENT:	METRIC ENGINEERING, INC.	**NORTHING:**	616187.7
PROJECT NO.:	28-09-09-03	**EASTING:**	1178115.6
PROJECT LOCATION:	SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):**	N/A
BORING NO.:	MP-6-1	**DATE:**	11/15/2011
DRILLER:	W. DUNLAP	**FLUID LOSS:**	N/A
DEPTH TO WATER - INITIAL:	10.0' **24 HR:** 9.7'	**CAVING>**	NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=13	9, 2, 5, 2, 3, 7, 4	9, 8
1.5	3, 6					-200%=12		
3	9, 12			BROWN FINE SAND	SP-SM A-3	-200%=5, -200%=5	19, 10, 13, 20, 22, 17, 16, 19, 19	9
4.5	15							
6	18, 21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS		**HAMMER TYPE:** CPI	
CLIENT: METRIC ENGINEERING, INC.		**NORTHING:** 615890.3	
PROJECT NO.: 28-09-09-03		**EASTING:** 1175352.0	
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA		**ELEVATION (FEET):** N/A	
BORING NO.: MP-6-2		**DATE:** 11/15/2011	
DRILLER: W. DUNLAP		**FLUID LOSS:** N/A	
DEPTH TO WATER - INITIAL: ▽ GNE	**24 HR:** ▽ GNE	**CAVING>** C NONE	

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N	N-Value
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=14	3, 10	8	
	3					-200%=12	2, 2, 3		
1.5	6			ORANGE SILTY FINE SAND		-200%=13	4, 3, 2, 2	8, 9	
3	9					-200%=26	8, 10, 10		
	12			BROWN AND GRAY CLAYEY SAND	SC A-6	-200%=37 LL=24 PI=12	11, 14		
4.5	15			BROWN SILTY FINE SAND	SM A-2-4		12, 12		
6	18								
	21								

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 616576.6
PROJECT NO.: 28-09-09-03	**EASTING:** 1174706.0
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-6-3	**DATE:** 11/15/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** C NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4		4	
						-200%=13	2	
							2	6
	3						6	
							5	
1.5						-200%=12	3	6
	6						3	
							3	7
							4	
	9					-200%=15	5	
3							5	
							7	
	12			ORANGE SILTY FINE SAND			4	
						-200%=15	9	
							5	
4.5	15						4	
	18							
6								
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 616846.7
PROJECT NO.: 28-09-09-03	**EASTING:** 1173281.7
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-7-1	**DATE:** 11/15/2011
DRILLER: R. ROGERS	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** C NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4		4	
						-200%=13	3	
							4	9
	3						4	
							5	
1.5						-200%=13	4	12
	6						5	
							5	12
							5	
3	9					-200%=16	8	
							9	
							4	
	12			ORANGE SILTY FINE SAND			6	
						-200%=17	9	
							9	
4.5	15						8	
	18							
6								
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS		**HAMMER TYPE:** CPI	
CLIENT: METRIC ENGINEERING, INC.		**NORTHING:** 616231.0	
PROJECT NO.: 28-09-09-03		**EASTING:** 1172400.1	
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA		**ELEVATION (FEET):** N/A	
BORING NO.: MP-7-2		**DATE:** 11/15/2011	
DRILLER: R. ROGERS		**FLUID LOSS:** N/A	
DEPTH TO WATER - INITIAL: ▽ GNE	**24 HR:** ▼ GNE	**CAVING>** C NONE	

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			GRAY SILTY FINE SAND	SM A-2-4	-200%=15	3, 2, 3, 4, 2	10
	3			BROWN SILTY FINE SAND		-200%=13		
1.5	6			ORANGE CLAYEY FINE SAND	SC A-2-6	-200%=26	9, 8, 9, 9, 9	12, 12
3	9					-200%=25 LL=27 PI=13	11, 11, 8	
	12					-200%=25	10, 11, 9	
4.5	15							
6	18							
	21							

Wc (%) scale: 10, 20, 30, 40, 60

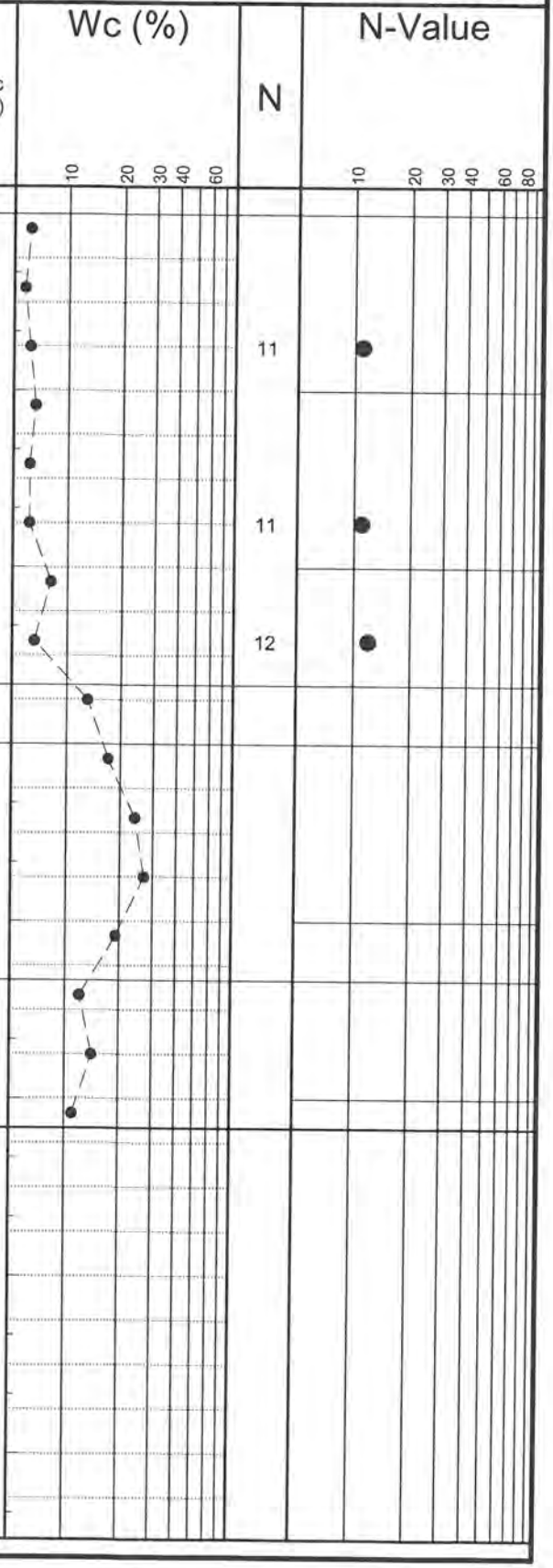
N-Value scale: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 615976.9
PROJECT NO.: 28-09-09-03	**EASTING:** 1170605.9
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-7-3	**DATE:** 11/15/2011
DRILLER: R. ROGERS	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
BROWN SILTY FINE SAND	SM A-2-4	-200%=18	3, 2, 3, 4, 3	11
		-200%=15	3, 7	11
ORANGE SILTY FINE SAND			4	12
ORANGE CLAYEY FINE SAND	SC A-2-6	-200%=23 LL=22 PI=12	13	
ORANGE AND GRAY HIGHLY PLASTIC CLAY	CH A-7-6	-200%=70 LL=55 PI=26	17, 24, 27, 19	
BROWN CLAYEY FINE SAND	SC A-2-6	-200%=23	12, 14, 11	



EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS		**HAMMER TYPE:** CPI	
CLIENT: METRIC ENGINEERING, INC.		**NORTHING:** 616073.6	
PROJECT NO.: 28-09-09-03		**EASTING:** 1169263.0	
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA		**ELEVATION (FEET):** N/A	
BORING NO.: MP-7-4		**DATE:** 11/15/2011	
DRILLER: W. DUNLAP		**FLUID LOSS:** N/A	
DEPTH TO WATER - INITIAL: GNE	**24 HR:** GNE	**CAVING>** C NONE	

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N	N-Value
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=22	5, 2, 3, 3, 4, 3, 7	9, 9	
1.5	3, 6					-200%=16			
3	9			BROWN AND GRAY CLAYEY FINE SAND	SC A-2-6	-200%=30 LL=28 PI=13	15, 16, 18	11	
4.5	12			BROWN AND GRAY HIGHLY PLASTIC CLAY	CH A-7-6	-200%=70 LL=58 PI=33	31, 22, 20		
6	15, 18, 21			BROWN AND GRAY CLAYEY SAND	SC A-6	-200%=37	15, 13, 14		

Wc (%): 10, 20, 30, 40, 60

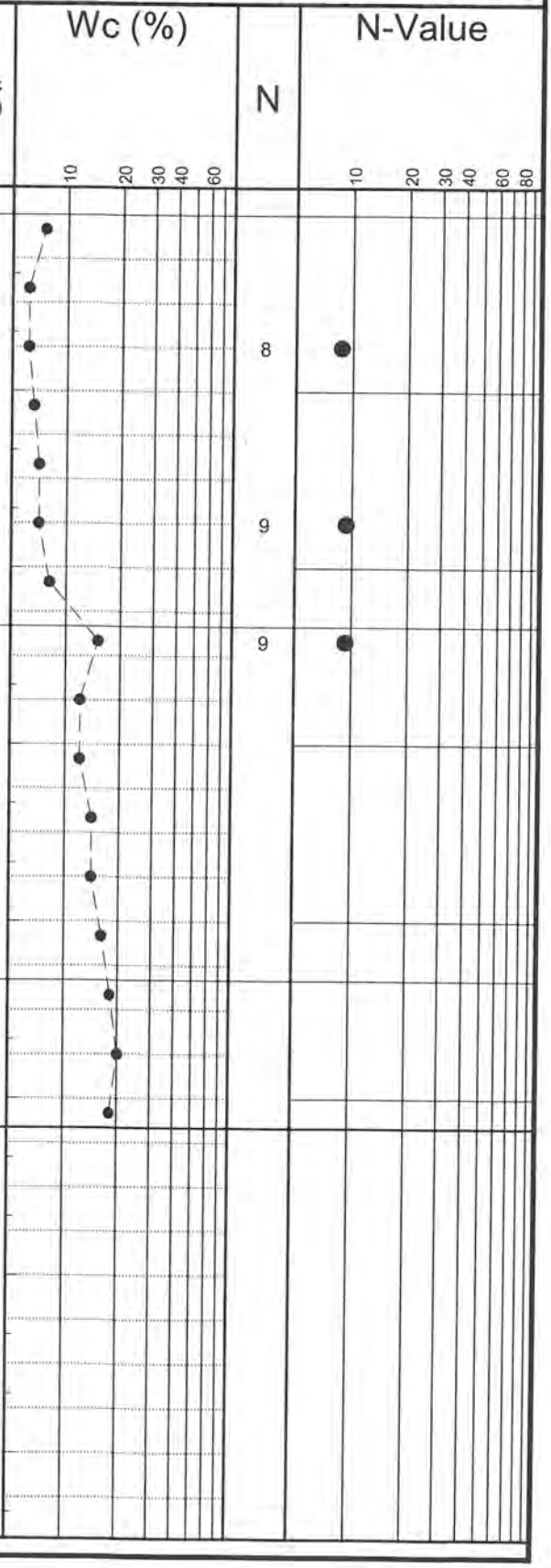
N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 616348.8
PROJECT NO.: 28-09-09-03	**EASTING:** 1166611.4
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-8-2	**DATE:** 11/16/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** C NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=19	6, 3, 3, 4, 5, 5, 7	8, 9
1.5	3, 6					-200%=13		
3	9			BROWN CLAYEY FINE SAND	SC A-2-6	-200%=24	15, 12, 12, 14, 14, 16	9
4.5	12			ORANGE CLAYEY FINE SAND		-200%=27 LL=27 PI=12		
6	15, 18, 21			ORANGE CLAYEY SAND	SC A-6	-200%=37 LL=36 PI=16	18, 20, 18	



EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 617221.0
PROJECT NO.: 28-09-09-03	**EASTING:** 1164974.6
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-8-3	**DATE:** 11/16/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: ▽ GNE **24 HR:** ▼ GNE	**CAVING>** ⊂ NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=16	7, 4, 3, 3	8
1.5	3			ORANGE SILTY FINE SAND		-200%=19	6, 4, 4, 7	9
3	6					-200%=17	5, 4, 7, 6	9
4.5	9					-200%=24	4, 5, 3, 7	
6	12							
	15							
	18							
	21							

Wc (%) scale: 10, 20, 30, 40, 60

N-Value scale: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 619138.6
PROJECT NO.: 28-09-09-03	**EASTING:** 1174684.0
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-9-1	**DATE:** 11/16/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=12	5, 2, 4, 7, 4	6
1.5	3					-200%=13	4, 4, 6, 7	7
3	6					-200%=13	7, 4, 5, 9	9
4.5	9			ORANGE SILTY FINE SAND		-200%=19	10, 11	
6	12					-200%=20 LL=22 PI=13	14	
	15			ORANGE CLAYEY FINE SAND	SC A-2-6			
	18							
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS
CLIENT: METRIC ENGINEERING, INC.
PROJECT NO.: 28-09-09-03
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA
BORING NO.: MP-9-3
DRILLER: W. DUNLAP
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE **CAVING>** NONE

HAMMER TYPE: CPI
NORTHING: 620939.1
EASTING: 1173816.3
ELEVATION (FEET): N/A
DATE: 11/16/2011
FLUID LOSS: N/A

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4		7	
							5	
						-200%=12	2	7
	3						3	
							2	
1.5							4	8
	6					-200%=13	4	
							5	8
							10	
	9						9	
3						-200%=18	8	
				ORANGE SILTY FINE SAND			12	
	12						10	
							10	
						-200%=19	9	
4.5	15						6	
	18							
6								
	21							

Wc (%): 10, 20, 30, 40, 60

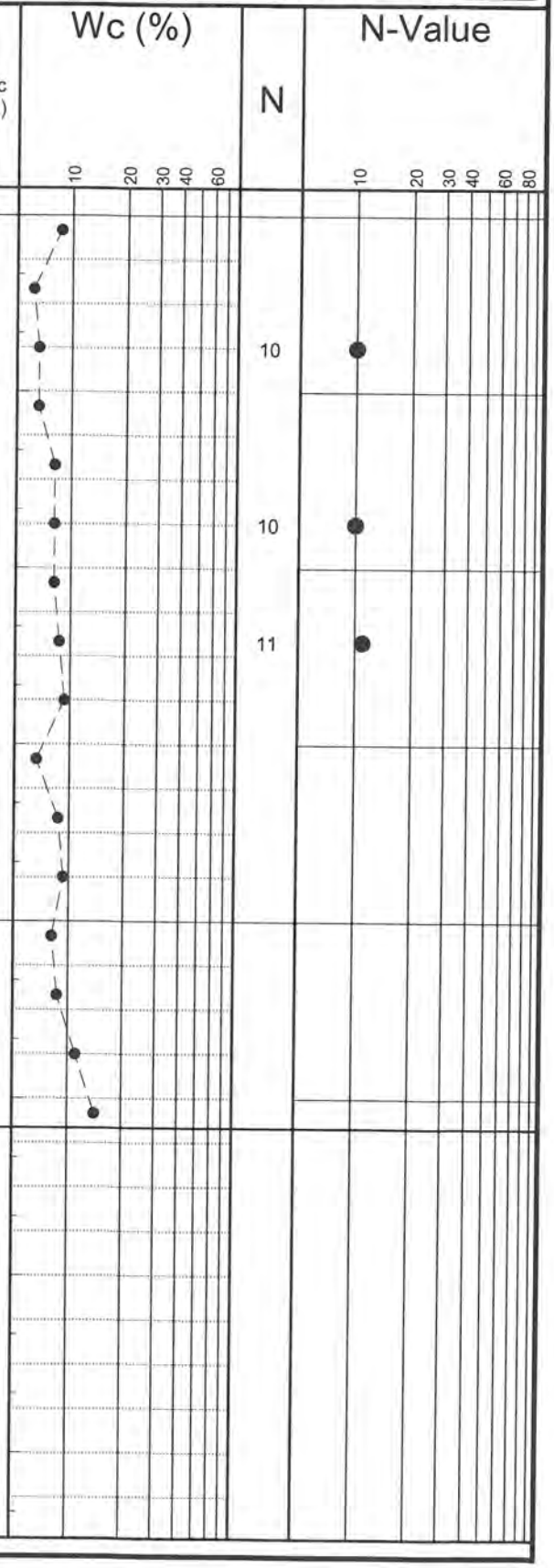
N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 622863.3
PROJECT NO.: 28-09-09-03	**EASTING:** 1173532.6
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-9-5	**DATE:** 11/16/2011
DRILLER: R. ROGERS	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: ▽ GNE **24 HR:** ▽ GNE	**CAVING>** C NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
BROWN SILTY FINE SAND	SM A-2-4	-200%=13	8, 3, 4, 4, 7	10
		-200%=13	7, 7, 8	10, 11
ORANGE SILTY FINE SAND		-200%=14	9, 4, 8, 9	
ORANGE FINE SAND	SP-SM A-3	-200%=5	7, 8, 11, 14	



EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 624883.5
PROJECT NO.: 28-09-09-03	**EASTING:** 1171005.9
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-9-6	**DATE:** 11/16/2011
DRILLER: R. ROGERS	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: ▽ GNE **24 HR:** ▼ GNE	**CAVING>** C NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			GRAY SILTY FINE SAND		-200%=17	9, 5, 3	11
1.5	3			BROWN SILTY FINE SAND	SM A-2-4	-200%=12	3, 3, 3, 4, 4	12
3	6					-200%=14	4, 10, 9, 10, 7	12
4.5	9			BROWN FINE SAND	SP-SM A-3	-200%=5	5, 4, 4, 7	
6	12							
	15							
	18							
	21							

Wc (%) scale: 10, 20, 30, 40, 60

N-Value scale: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS
CLIENT: METRIC ENGINEERING, INC.
PROJECT NO.: 28-09-09-03
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA
BORING NO.: MP-10-1
DRILLER: R. ROGERS
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE **CAVING>** NONE

HAMMER TYPE: CPI
NORTHING: 624506.0
EASTING: 1168715.5
ELEVATION (FEET): N/A
DATE: 11/16/2011
FLUID LOSS: N/A

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4		8	
						-200%=16	3	
							3	10
	3						3	
							3	
1.5						-200%=18	6	12
	6						9	
							5	12
							4	
	9					-200%=15	5	
3							8	
							8	
	12						9	
						-200%=18	8	
							7	
4.5	15						6	
	18							
6								
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 624537.2
PROJECT NO.: 28-09-09-03	**EASTING:** 1166391.2
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-10-3	**DATE:** 11/16/2011
DRILLER: R. ROGERS	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: ▽ GNE **24 HR:** ▼ GNE	**CAVING>** ⌐ NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=13	8	
							2	
							1	11
	3						1	
						-200%=12	1	
1.5							2	12
	6						10	
							14	12
	9			ORANGE CLAYEY FINE SAND	SC A-2-6	-200%=29 LL=30 PI=12	15	
3							20	
							13	
							14	
	12			ORANGE SILTY FINE SAND	SM A-2-4	-200%=14	13	
							17	
4.5	15			GRAY AND BROWN HIGHLY PLASTIC CLAY	CH A-7-6	-200%=95 LL=72 PI=44	35	
							30	
	18							
6								
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 624713.2
PROJECT NO.: 28-09-09-03	**EASTING:** 1165350.4
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-10-4	**DATE:** 11/16/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4		15	
						-200%=12	7	
							16	7
	3						4	
							3	
1.5						-200%=14	4	8
	6						3	
							4	8
							4	
	9					-200%=13	4	
3							4	
							4	
	12						4	
						-200%=14	5	
							5	
4.5	15						8	
	18							
6								
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: SR 87 PD&E - STORMWATER PONDS	**HAMMER TYPE:** CPI
CLIENT: METRIC ENGINEERING, INC.	**NORTHING:** 625414.9
PROJECT NO.: 28-09-09-03	**EASTING:** 1164503.2
PROJECT LOCATION: SANTA ROSA COUNTY, FLORIDA	**ELEVATION (FEET):** N/A
BORING NO.: MP-10-5	**DATE:** 11/16/2011
DRILLER: W. DUNLAP	**FLUID LOSS:** N/A
DEPTH TO WATER - INITIAL: GNE **24 HR:** GNE	**CAVING>** C NONE

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N
0	0			BROWN SILTY FINE SAND	SM A-2-4	-200%=15	8, 2, 2, 2, 3, 3, 4, 10	6, 8, 9
1.5	3							
	6					-200%=12		
3	9			BROWN CLAYEY FINE SAND	SC A-2-6	-200%=31 LL=26 PI=13	15, 15, 17, 15, 17	
4.5	12			ORANGE CLAYEY FINE SAND		-200%=23 LL=25 PI=15	16, 16, 18	
6	15							
	18							
	21							

Wc (%): 10, 20, 30, 40, 60

N-Value: 10, 20, 30, 40, 60, 80

APPENDIX B

SOIL CLASSIFICATION DATA SHEETS

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-1-1

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	3	100	100	95	65	37	22	15					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	3											8	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	4											9	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	6	100	100	95	65	40	27	19					SM	A-2-4	B	ORANGE SILTY FINE SAND
7.0-7.5	8											9	SM	A-2-4	B	ORANGE SILTY FINE SAND
8.0-8.5	5												SM	A-2-4	B	ORANGE SILTY FINE SAND
9.0-9.5	5												SM	A-2-4	B	ORANGE SILTY FINE SAND
10.0-10.5	6	100	100	94	65	38	23	15					SM	A-2-4	B	ORANGE SILTY FINE SAND
11.0-11.5	7												SM	A-2-4	B	ORANGE SILTY FINE SAND
12.0-12.5	6												SM	A-2-4	B	ORANGE SILTY FINE SAND
13.0-13.5	8												SM	A-2-4	B	ORANGE SILTY FINE SAND
14.0-14.5	8												SM	A-2-4	B	ORANGE SILTY FINE SAND
15.0-15.5	7	100	100	93	65	43	27	19					SM	A-2-4	B	ORANGE SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-1-2

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	3	100	100	97	78	49	32	19					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	3											9	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	6	100	100	97	82	58	41	26				9	SM	A-2-4	C	ORANGE SILTY FINE SAND
6.0-6.5	8												SM	A-2-4	C	ORANGE SILTY FINE SAND
7.0-7.5	6											10	SM	A-2-4	C	ORANGE SILTY FINE SAND
8.0-8.5	4												SM	A-2-4	C	ORANGE SILTY FINE SAND
9.0-9.5	5												SM	A-2-4	C	ORANGE SILTY FINE SAND
10.0-10.5	5	100	100	95	77	50	32	20					SM	A-2-4	C	ORANGE SILTY FINE SAND
11.0-11.5	4												SM	A-2-4	C	ORANGE SILTY FINE SAND
12.0-12.5	5												SM	A-2-4	C	ORANGE SILTY FINE SAND
13.0-13.5	5												SM	A-2-4	B	ORANGE SILTY FINE SAND
14.0-14.5	5	100	100	91	71	47	29	12					SM	A-2-4	B	ORANGE SILTY FINE SAND
15.0-15.5	3												SM	A-2-4	B	ORANGE SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-1-3

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	6												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	4	100	100	97	80	53	32	19					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	5											9	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	6												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	10												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
5.0-5.5	8	100	100	97	78	51	33	22				10	SC	A-2-6	D	ORANGE CLAYEY FINE SAND
6.0-6.5	8												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
7.0-7.5	7											10	SC	A-2-6	D	ORANGE CLAYEY FINE SAND
8.0-8.5	8												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
9.0-9.5	8	100	100	97	80	54	34	22					SC	A-2-6	D	ORANGE CLAYEY FINE SAND
10.0-10.5	8												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
11.0-11.5	9												SM	A-2-4	C	ORANGE SILTY FINE SAND
12.0-12.5	7												SM	A-2-4	C	ORANGE SILTY FINE SAND
13.0-13.5	8	100	100	96	80	54	33	20					SM	A-2-4	C	ORANGE SILTY FINE SAND
14.0-14.5	6												SM	A-2-4	C	ORANGE SILTY FINE SAND
15.0-15.5	5												SM	A-2-4	C	ORANGE SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-3-1

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	5												SM	A-2-4	C	BROWN SILTY FINE SAND
1.0-1.5	4	100	100	98	90	63	38	24					SM	A-2-4	C	BROWN SILTY FINE SAND
2.0-2.5	5											10	SM	A-2-4	C	BROWN SILTY FINE SAND
3.0-3.5	12												SC	A-2-6	D	BROWN CLAYEY FINE SAND
4.0-4.5	12	100	100	95	78	49	32	26	27	12			SC	A-2-6	D	BROWN CLAYEY FINE SAND
5.0-5.5	10											11	SC	A-2-6	D	BROWN CLAYEY FINE SAND
6.0-6.5	11												SC	A-2-6	D	BROWN CLAYEY FINE SAND
7.0-7.5	12											10	SC	A-2-6	D	BROWN CLAYEY FINE SAND
8.0-8.5	12	100	100	98	88	64	39	20					SC	A-2-6	D	BROWN CLAYEY FINE SAND
9.0-9.5	14												SC	A-2-6	D	BROWN CLAYEY FINE SAND
10.0-10.5	14												SC	A-2-6	D	BROWN CLAYEY FINE SAND
11.0-11.5	13												SM	A-2-4	B	BROWN SILTY FINE SAND
12.0-12.5	14	100	100	96	69	31	17	13					SM	A-2-4	B	BROWN SILTY FINE SAND
13.0-13.5	13												SM	A-2-4	B	BROWN SILTY FINE SAND
14.0-14.5	15												SM	A-2-4	B	BROWN SILTY FINE SAND
15.0-15.5	28	100	100	97	85	70	65	62	63	35			CH	A-7-6	F	BROWN HIGHLY PLASTIC CLAY

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-3-2

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	8												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	4	100	100	98	84	54	33	17					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	8											8	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	11												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	14												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	28											8	CL	A-7-6	F	GRAY AND BROWN PLASTIC CLAY WITH SAND
6.0-6.5	25	100	100	100	98	96	92	85	42	20			CL	A-7-6	F	GRAY AND BROWN PLASTIC CLAY WITH SAND
7.0-7.5	28											8	CL	A-7-6	F	GRAY AND BROWN PLASTIC CLAY WITH SAND
8.0-8.5	26												CL	A-7-6	F	GRAY AND BROWN PLASTIC CLAY WITH SAND
9.0-9.5	21												SC	A-6	E	GRAY CLAYEY SAND
10.0-10.5	20	100	100	98	88	70	57	44					SC	A-6	E	GRAY CLAYEY SAND
11.0-11.5	23												SC	A-6	E	GRAY CLAYEY SAND
12.0-12.5	22												SC	A-6	E	GRAY CLAYEY SAND
13.0-13.5	24												SC	A-6	E	GRAY CLAYEY SAND
14.0-14.5	26												SC	A-6	E	GRAY CLAYEY SAND
15.0-15.5	21	100	100	100	97	87	66	39	21	12			SC	A-6	E	GRAY CLAYEY SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-3-3

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	6												SM	A-2-4	C	BROWN SILTY FINE SAND
1.0-1.5	5	100	100	99	89	66	43	25					SM	A-2-4	C	BROWN SILTY FINE SAND
2.0-2.5	5											9	SM	A-2-4	C	BROWN SILTY FINE SAND
3.0-3.5	6												SM	A-2-4	C	BROWN SILTY FINE SAND
4.0-4.5	13	100	100	99	87	62	40	26	20	12			SC	A-2-6	D	GRAY AND BROWN CLAYEY FINE SAND
5.0-5.5	14											10	SC	A-2-6	D	GRAY AND BROWN CLAYEY FINE SAND
6.0-6.5	13												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	14	100	100	99	89	63	38	15				10	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	15												SM	A-2-4	B	BROWN SILTY FINE SAND
9.0-9.5	22												SM	A-2-4	C	BROWN SILTY FINE SAND
10.0-10.5	17												SM	A-2-4	C	BROWN SILTY FINE SAND
11.0-11.5	23	100	100	100	97	72	36	21					SM	A-2-4	C	BROWN SILTY FINE SAND
12.0-12.5	37												CH	A-7-6	F	GRAY HIGHLY PLASTIC CLAY
13.0-13.5	57												CH	A-7-6	F	GRAY HIGHLY PLASTIC CLAY
14.0-14.5	51	100	100	100	99	96	89	80	56	32			CH	A-7-6	F	GRAY HIGHLY PLASTIC CLAY
15.0-15.5	27												SC	A-6	E	GRAY CLAYEY SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-4-1

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	3												SM	A-2-4	C	BROWN SILTY FINE SAND
1.0-1.5	3	100	100	96	79	54	35	24					SM	A-2-4	C	BROWN SILTY FINE SAND
2.0-2.5	5											12	SM	A-2-4	C	BROWN SILTY FINE SAND
3.0-3.5	7												SM	A-2-4	C	BROWN SILTY FINE SAND
4.0-4.5	7												SM	A-2-4	C	BROWN SILTY FINE SAND
5.0-5.5	13	100	100	98	88	70	57	47	31	12		13	SC	A-6	E	BROWN AND GRAY CLAYEY SAND
6.0-6.5	15												SC	A-6	E	BROWN AND GRAY CLAYEY SAND
7.0-7.5	19											12	SC	A-6	E	BROWN AND GRAY CLAYEY SAND
8.0-8.5	17	100	100	98	91	76	61	40	30	13			SC	A-6	E	BROWN AND GRAY CLAYEY SAND
9.0-9.5	16												SC	A-6	E	BROWN AND GRAY CLAYEY SAND
10.0-10.5	18												SC	A-6	E	BROWN AND GRAY CLAYEY SAND
11.0-11.5	18												SC	A-6	E	BROWN AND GRAY CLAYEY SAND
12.0-12.5	12	100	100	96	72	50	37	24					SC	A-2-6	D	BROWN AND GRAY CLAYEY FINE SAND
13.0-13.5	10												SC	A-2-6	D	BROWN AND GRAY CLAYEY FINE SAND
14.0-14.5	16	100	100	95	73	53	41	30	22	12			SC	A-2-6	D	BROWN AND GRAY CLAYEY FINE SAND
15.0-15.5	17												SC	A-2-6	D	BROWN AND GRAY CLAYEY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-4-2

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	9												SM	A-2-4	C	BROWN SILTY FINE SAND
1.0-1.5	6	100	100	98	80	59	45	31					SM	A-2-4	C	BROWN SILTY FINE SAND
2.0-2.5	6											10	SM	A-2-4	C	BROWN SILTY FINE SAND
3.0-3.5	8												SM	A-2-4	C	BROWN SILTY FINE SAND
4.0-4.5	9												SM	A-2-4	C	BROWN SILTY FINE SAND
5.0-5.5	10	100	100	98	82	58	42	30				12	SM	A-2-4	C	BROWN SILTY FINE SAND
6.0-6.5	14												SC	A-6	E	BROWN CLAYEY SAND
7.0-7.5	13											12	SC	A-6	E	BROWN CLAYEY SAND
8.0-8.5	15												SC	A-6	E	BROWN CLAYEY SAND
9.0-9.5	16	100	100	99	91	77	62	46	36	19			SC	A-6	E	BROWN CLAYEY SAND
10.0-10.5	13												SC	A-6	E	BROWN CLAYEY SAND
11.0-11.5	12												SC	A-6	E	BROWN CLAYEY SAND
12.0-12.5	11												SM	A-2-4	C	BROWN SILTY FINE SAND
13.0-13.5	10	100	100	97	76	51	35	22					SM	A-2-4	C	BROWN SILTY FINE SAND
14.0-14.5	11												SM	A-2-4	C	BROWN SILTY FINE SAND
15.0-15.5	13												SM	A-2-4	C	BROWN SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-4-3

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	10												SM	A-2-4	C	GRAY SILTY FINE SAND
1.0-1.5	6	100	100	98	77	64	46	23					SM	A-2-4	C	GRAY SILTY FINE SAND
2.0-2.5	8											6	SM	A-2-4	C	BROWN SILTY FINE SAND
3.0-3.5	6												SM	A-2-4	C	BROWN SILTY FINE SAND
4.0-4.5	8												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	13	100	100	97	63	36	22	16				9	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	13												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	15											11	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	19	100	100	97	58	31	19	13					SM	A-2-4	B	BROWN SILTY FINE SAND
9.0-9.5	18												SM	A-2-4	B	BROWN SILTY FINE SAND
10.0-10.5	17												SM	A-2-4	B	BROWN SILTY FINE SAND
11.0-11.5	16	100	100	99	85	73	57	39	25	12			SC	A-6	E	GRAY CLAYEY SAND
12.0-12.5	19												SC	A-6	E	GRAY CLAYEY SAND
13.0-13.5	17												SM	A-2-4	B	ORANGE SILTY FINE SAND
14.0-14.5	22												SM	A-2-4	B	ORANGE SILTY FINE SAND
15.0-15.5	21	100	100	97	77	44	22	13					SM	A-2-4	B	ORANGE SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-4-4

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	9												SM	A-2-4	C	BROWN SILTY FINE SAND
1.0-1.5	9	100	100	98	83	58	37	20					SM	A-2-4	C	BROWN SILTY FINE SAND
2.0-2.5	3											9	SM	A-2-4	C	BROWN SILTY FINE SAND
3.0-3.5	14												SM	A-2-4	C	BROWN SILTY FINE SAND
4.0-4.5	13												SM	A-2-4	C	BROWN SILTY FINE SAND
5.0-5.5	17	100	100	97	90	74	45	20				10	SM	A-2-4	C	GRAY SILTY FINE SAND
6.0-6.5	17												SM	A-2-4	C	GRAY SILTY FINE SAND
7.0-7.5	18										2.4	5	SM	A-2-4	C	DARK GRAY SILTY FINE SAND
8.0-8.5	19												SM	A-2-4	C	DARK GRAY SILTY FINE SAND
9.0-9.5	19	100	100	98	86	62	42	23			1.8		SM	A-2-4	C	DARK GRAY SILTY FINE SAND
10.0-10.5	25												SM	A-2-4	C	GRAY SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-5-1

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	2	100	100	98	77	42	26	13					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	1											9	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	1												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	3	100	100	97	77	44	25	13				12	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	1												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	1											12	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	2												SP-SM	A-3	A	BROWN FINE SAND
9.0-9.5	1	100	100	95	69	35	17	5					SP-SM	A-3	A	BROWN FINE SAND
10.0-10.5	3												SP-SM	A-3	A	BROWN FINE SAND
11.0-11.5	4												SP-SM	A-3	A	BROWN FINE SAND
12.0-12.5	3												SP-SM	A-3	A	BROWN FINE SAND
13.0-13.5	3	100	100	96	67	30	15	7					SP-SM	A-3	A	BROWN FINE SAND
14.0-14.5	4												SP-SM	A-3	A	BROWN FINE SAND
15.0-15.5	3												SP-SM	A-3	A	BROWN FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-5-2

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	3	100	100	97	80	48	29	14					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	3											8	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	3	100	100	96	78	47	27	12				9	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	2											9	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
9.0-9.5	2	100	100	95	79	48	29	14					SM	A-2-4	B	BROWN SILTY FINE SAND
10.0-10.5	7												SM	A-2-4	B	BROWN SILTY FINE SAND
11.0-11.5	10												SM	A-2-4	B	BROWN SILTY FINE SAND
12.0-12.5	16												SC	A-2-6	D	BROWN CLAYEY FINE SAND
13.0-13.5	15	100	100	98	86	63	47	32	20	12			SC	A-2-6	D	BROWN CLAYEY FINE SAND
14.0-14.5	16												SC	A-2-6	D	BROWN CLAYEY FINE SAND
15.0-15.5	14												SC	A-2-6	D	BROWN CLAYEY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-5-3

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	2	100	100	94	70	37	22	13					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	2											10	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	1	100	100	94	71	39	22	13				11	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	2											10	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	2												SP-SM	A-3	A	BROWN FINE SAND
9.0-9.5	2	100	100	90	66	35	19	9					SP-SM	A-3	A	BROWN FINE SAND
10.0-10.5	3												SP-SM	A-3	A	BROWN FINE SAND
11.0-11.5	5												SP-SM	A-3	A	BROWN FINE SAND
12.0-12.5	4												SP-SM	A-3	A	BROWN FINE SAND
13.0-13.5	2	100	100	84	53	27	13	6					SP-SM	A-3	A	BROWN FINE SAND
14.0-14.5	2												SP-SM	A-3	A	BROWN FINE SAND
15.0-15.5	2												SP-SM	A-3	A	BROWN FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-6-1

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	9												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	2	100	100	99	83	49	30	13					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	5											9	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	7	100	100	99	85	54	31	12				8	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	19											9	SP-SM	A-3	A	BROWN FINE SAND
8.0-8.5	10												SP-SM	A-3	A	BROWN FINE SAND
9.0-9.5	13	100	100	99	82	45	23	5					SP-SM	A-3	A	BROWN FINE SAND
10.0-10.5	20												SP-SM	A-3	A	BROWN FINE SAND
11.0-11.5	22												SP-SM	A-3	A	BROWN FINE SAND
12.0-12.5	17												SP-SM	A-3	A	BROWN FINE SAND
13.0-13.5	16	100	100	99	84	46	23	5					SP-SM	A-3	A	BROWN FINE SAND
14.0-14.5	19												SP-SM	A-3	A	BROWN FINE SAND
15.0-15.5	19												SP-SM	A-3	A	BROWN FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-6-2

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	10	100	100	95	68	42	28	14					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	2											8	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	3	100	100	94	69	42	28	12					SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	4											8	SM	A-2-4	B	ORANGE SILTY FINE SAND
6.0-6.5	3												SM	A-2-4	B	ORANGE SILTY FINE SAND
7.0-7.5	2	100	100	92	61	35	23	13				9	SM	A-2-4	B	ORANGE SILTY FINE SAND
8.0-8.5	2												SM	A-2-4	B	ORANGE SILTY FINE SAND
9.0-9.5	8												SM	A-2-4	C	ORANGE SILTY FINE SAND
10.0-10.5	10	100	100	96	76	57	42	26					SM	A-2-4	C	ORANGE SILTY FINE SAND
11.0-11.5	10												SM	A-2-4	C	ORANGE SILTY FINE SAND
12.0-12.5	11												SM	A-2-4	C	ORANGE SILTY FINE SAND
13.0-13.5	14	100	100	97	78	59	50	37	24	12			SC	A-6	E	BROWN AND GRAY CLAYEY SAND
14.0-14.5	12												SM	A-2-4	C	BROWN SILTY FINE SAND
15.0-15.5	12												SM	A-2-4	C	BROWN SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-6-3

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	2	100	100	97	74	43	24	13					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	2											6	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	6												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	5												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	3	100	100	95	71	40	21	12				6	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	3											7	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
9.0-9.5	5	100	100	96	74	44	26	15					SM	A-2-4	B	ORANGE SILTY FINE SAND
10.0-10.5	5												SM	A-2-4	B	ORANGE SILTY FINE SAND
11.0-11.5	7												SM	A-2-4	B	ORANGE SILTY FINE SAND
12.0-12.5	4												SM	A-2-4	B	ORANGE SILTY FINE SAND
13.0-13.5	9	100	100	95	67	37	23	15					SM	A-2-4	B	ORANGE SILTY FINE SAND
14.0-14.5	5												SM	A-2-4	B	ORANGE SILTY FINE SAND
15.0-15.5	4												SM	A-2-4	B	ORANGE SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-7-1

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	3	100	100	98	73	39	21	13					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	4											9	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	5												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	4	100	100	98	77	44	24	13				12	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	5												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	5											12	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	5												SM	A-2-4	B	BROWN SILTY FINE SAND
9.0-9.5	8	100	100	98	80	48	29	16					SM	A-2-4	B	BROWN SILTY FINE SAND
10.0-10.5	9												SM	A-2-4	B	BROWN SILTY FINE SAND
11.0-11.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
12.0-12.5	6												SM	A-2-4	B	ORANGE SILTY FINE SAND
13.0-13.5	9	100	100	99	85	57	32	17					SM	A-2-4	B	ORANGE SILTY FINE SAND
14.0-14.5	9												SM	A-2-4	B	ORANGE SILTY FINE SAND
15.0-15.5	8												SM	A-2-4	B	ORANGE SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-7-2

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	3												SM	A-2-4	B	GRAY SILTY FINE SAND
1.0-1.5	2	100	100	96	69	43	26	15					SM	A-2-4	B	GRAY SILTY FINE SAND
2.0-2.5	3											10	SM	A-2-4	B	GRAY SILTY FINE SAND
3.0-3.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	2	100	100	95	70	44	25	13					SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	9											12	SC	A-2-6	D	ORANGE CLAYEY FINE SAND
6.0-6.5	8												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
7.0-7.5	9	100	100	97	76	53	36	26				12	SC	A-2-6	D	ORANGE CLAYEY FINE SAND
8.0-8.5	9												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
9.0-9.5	9												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
10.0-10.5	11	100	100	95	75	54	37	25	27	13			SC	A-2-6	D	ORANGE CLAYEY FINE SAND
11.0-11.5	11												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
12.0-12.5	8												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
13.0-13.5	10	100	100	94	56	40	31	25					SC	A-2-6	D	ORANGE CLAYEY FINE SAND
14.0-14.5	11												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
15.0-15.5	9												SC	A-2-6	D	ORANGE CLAYEY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-7-3

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	2	100	100	98	77	48	30	18					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	3											11	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	3	100	100	98	77	47	28	15				11	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	7												SM	A-2-4	B	ORANGE SILTY FINE SAND
7.0-7.5	4											12	SM	A-2-4	B	ORANGE SILTY FINE SAND
8.0-8.5	13	100	100	96	79	60	42	23	22	12			SC	A-2-6	D	ORANGE CLAYEY FINE SAND
9.0-9.5	17												CH	A-7-6	F	ORANGE AND GRAY HIGHLY PLASTIC CLAY
10.0-10.5	24												CH	A-7-6	F	ORANGE AND GRAY HIGHLY PLASTIC CLAY
11.0-11.5	27	100	100	100	99	98	96	70	55	26			CH	A-7-6	F	ORANGE AND GRAY HIGHLY PLASTIC CLAY
12.0-12.5	19												CH	A-7-6	F	ORANGE AND GRAY HIGHLY PLASTIC CLAY
13.0-13.5	12												SC	A-2-6	D	BROWN CLAYEY FINE SAND
14.0-14.5	14	100	100	98	80	50	32	23					SC	A-2-6	D	BROWN CLAYEY FINE SAND
15.0-15.5	11												SC	A-2-6	D	BROWN CLAYEY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-7-4

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	5												SM	A-2-4	C	BROWN SILTY FINE SAND
1.0-1.5	2	100	100	98	82	52	46	22					SM	A-2-4	C	BROWN SILTY FINE SAND
2.0-2.5	3											9	SM	A-2-4	C	BROWN SILTY FINE SAND
3.0-3.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	4	100	100	96	76	49	30	16					SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	3											9	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	7												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	15	100	100	95	77	55	40	30	28	13		11	SC	A-2-6	D	BROWN AND GRAY CLAYEY FINE SAND
8.0-8.5	16												SC	A-2-6	D	BROWN AND GRAY CLAYEY FINE SAND
9.0-9.5	18												SC	A-2-6	D	BROWN AND GRAY CLAYEY FINE SAND
10.0-10.5	31												CH	A-7-6	F	BROWN AND GRAY HIGHLY PLASTIC CLAY
11.0-11.5	22	100	100	100	90	89	84	70	58	33			CH	A-7-6	F	BROWN AND GRAY HIGHLY PLASTIC CLAY
12.0-12.5	20												CH	A-7-6	F	BROWN AND GRAY HIGHLY PLASTIC CLAY
13.0-13.5	15												SC	A-6	E	BROWN AND GRAY CLAYEY SAND
14.0-14.5	13												SC	A-6	E	BROWN AND GRAY CLAYEY SAND
15.0-15.5	14	100	100	97	88	74	50	37					SC	A-6	E	BROWN AND GRAY CLAYEY SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-8-2

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	6												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	3	100	100	98	73	46	29	19					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	3											8	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	5												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	5	100	100	98	76	46	25	13				9	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	7												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	15											9	SC	A-2-6	D	BROWN CLAYEY FINE SAND
8.0-8.5	12												SC	A-2-6	D	BROWN CLAYEY FINE SAND
9.0-9.5	12	100	100	96	77	54	30	24					SC	A-2-6	D	ORANGE CLAYEY FINE SAND
10.0-10.5	14												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
11.0-11.5	14	100	100	95	76	56	39	27	27	12			SC	A-2-6	D	ORANGE CLAYEY FINE SAND
12.0-12.5	16												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
13.0-13.5	18												SC	A-6	E	ORANGE CLAYEY SAND
14.0-14.5	20												SC	A-6	E	ORANGE CLAYEY SAND
15.0-15.5	18	100	100	98	85	70	56	37	36	16			SC	A-6	E	ORANGE CLAYEY SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-8-3

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	7												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	3	100	100	98	74	42	26	16				8	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	6												SM	A-2-4	B	ORANGE SILTY FINE SAND
5.0-5.5	4											9	SM	A-2-4	B	ORANGE SILTY FINE SAND
6.0-6.5	4	100	100	97	76	47	30	19					SM	A-2-4	B	ORANGE SILTY FINE SAND
7.0-7.5	7											9	SM	A-2-4	B	ORANGE SILTY FINE SAND
8.0-8.5	5												SM	A-2-4	B	ORANGE SILTY FINE SAND
9.0-9.5	4												SM	A-2-4	B	ORANGE SILTY FINE SAND
10.0-10.5	7	100	100	97	76	46	27	17					SM	A-2-4	B	ORANGE SILTY FINE SAND
11.0-11.5	6												SM	A-2-4	B	ORANGE SILTY FINE SAND
12.0-12.5	4												SM	A-2-4	B	ORANGE SILTY FINE SAND
13.0-13.5	5												SM	A-2-4	B	ORANGE SILTY FINE SAND
14.0-14.5	3												SM	A-2-4	C	ORANGE SILTY FINE SAND
15.0-15.5	7	100	100	96	76	48	33	24					SM	A-2-4	C	ORANGE SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-9-1

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	5												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	2	100	100	96	72	40	20	12					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	4											6	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	7												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	4	100	100	94	69	40	21	13				7	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	6											9	SM	A-2-4	B	ORANGE SILTY FINE SAND
8.0-8.5	7												SM	A-2-4	B	ORANGE SILTY FINE SAND
9.0-9.5	7	100	100	96	73	44	23	13					SM	A-2-4	B	ORANGE SILTY FINE SAND
10.0-10.5	4												SM	A-2-4	B	ORANGE SILTY FINE SAND
11.0-11.5	5												SM	A-2-4	B	ORANGE SILTY FINE SAND
12.0-12.5	9												SM	A-2-4	B	ORANGE SILTY FINE SAND
13.0-13.5	10	100	100	95	76	46	27	19					SM	A-2-4	B	ORANGE SILTY FINE SAND
14.0-14.5	11												SM	A-2-4	B	ORANGE SILTY FINE SAND
15.0-15.5	14	100	100	89	67	41	27	20	22	13			SC	A-2-6	D	ORANGE CLAYEY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-9-3

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	7												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	5												SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	2	100	100	96	74	44	23	12				7	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	4											8	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	4	100	100	97	80	49	23	13					SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	5											8	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	10												SM	A-2-4	B	ORANGE SILTY FINE SAND
9.0-9.5	9												SM	A-2-4	B	ORANGE SILTY FINE SAND
10.0-10.5	8	100	100	96	76	43	27	18					SM	A-2-4	B	ORANGE SILTY FINE SAND
11.0-11.5	12												SM	A-2-4	B	ORANGE SILTY FINE SAND
12.0-12.5	10												SM	A-2-4	B	ORANGE SILTY FINE SAND
13.0-13.5	10												SM	A-2-4	B	ORANGE SILTY FINE SAND
14.0-14.5	9	100	100	95	73	42	27	19					SM	A-2-4	B	ORANGE SILTY FINE SAND
15.0-15.5	6												SM	A-2-4	B	ORANGE SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-9-5

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	8												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	3	100	100	97	76	46	25	13					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	4											10	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	7												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	7	100	100	97	77	47	25	13				10	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	7												SM	A-2-4	B	ORANGE SILTY FINE SAND
7.0-7.5	8											11	SM	A-2-4	B	ORANGE SILTY FINE SAND
8.0-8.5	9												SM	A-2-4	B	ORANGE SILTY FINE SAND
9.0-9.5	4	100	100	97	81	52	28	14					SM	A-2-4	B	ORANGE SILTY FINE SAND
10.0-10.5	8												SM	A-2-4	B	ORANGE SILTY FINE SAND
11.0-11.5	9												SM	A-2-4	B	ORANGE SILTY FINE SAND
12.0-12.5	7												SP-SM	A-3	A	ORANGE FINE SAND
13.0-13.5	8	100	100	100	98	90	23	5					SP-SM	A-3	A	ORANGE FINE SAND
14.0-14.5	11												SP-SM	A-3	A	ORANGE FINE SAND
15.0-15.5	14												SP-SM	A-3	A	ORANGE FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-9-6

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	9												SM	A-2-4	B	GRAY SILTY FINE SAND
1.0-1.5	5												SM	A-2-4	B	GRAY SILTY FINE SAND
2.0-2.5	3	100	100	100	94	70	40	17				11	SM	A-2-4	B	GRAY SILTY FINE SAND
3.0-3.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	4											12	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	4	100	100	100	96	66	34	12					SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	4											12	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	10												SM	A-2-4	B	BROWN SILTY FINE SAND
9.0-9.5	9												SM	A-2-4	B	BROWN SILTY FINE SAND
10.0-10.5	10	100	100	99	93	76	44	14					SM	A-2-4	B	BROWN SILTY FINE SAND
11.0-11.5	7												SM	A-2-4	B	BROWN SILTY FINE SAND
12.0-12.5	5												SP-SM	A-3	A	BROWN FINE SAND
13.0-13.5	4												SP-SM	A-3	A	BROWN FINE SAND
14.0-14.5	4	100	100	98	67	26	8	5					SP-SM	A-3	A	BROWN FINE SAND
15.0-15.5	7												SP-SM	A-3	A	BROWN FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-10-1

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	8												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	3	100	100	98	79	48	26	16					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	3											10	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	6	100	100	97	78	50	29	18				12	SM	A-2-4	B	ORANGE SILTY FINE SAND
6.0-6.5	9												SM	A-2-4	B	ORANGE SILTY FINE SAND
7.0-7.5	5											12	SM	A-2-4	B	ORANGE SILTY FINE SAND
8.0-8.5	4												SM	A-2-4	B	ORANGE SILTY FINE SAND
9.0-9.5	5	100	100	96	74	46	28	15					SM	A-2-4	B	ORANGE SILTY FINE SAND
10.0-10.5	8												SM	A-2-4	B	ORANGE SILTY FINE SAND
11.0-11.5	8												SM	A-2-4	B	ORANGE SILTY FINE SAND
12.0-12.5	9												SM	A-2-4	B	ORANGE SILTY FINE SAND
13.0-13.5	8	100	99	94	74	46	28	18					SM	A-2-4	B	ORANGE SILTY FINE SAND
14.0-14.5	7												SM	A-2-4	B	ORANGE SILTY FINE SAND
15.0-15.5	6												SM	A-2-4	B	ORANGE SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-10-3

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	8												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	2	100	100	98	80	48	26	13					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	1											11	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	1												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	1	100	100	96	76	45	21	12					SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	2											12	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	10												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	14											12	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	15	100	100	95	74	50	36	29	30	12			SC	A-2-6	D	ORANGE CLAYEY FINE SAND
9.0-9.5	20												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
10.0-10.5	13												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
11.0-11.5	14												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
12.0-12.5	13	100	100	82	56	37	24	14					SM	A-2-4	B	ORANGE SILTY FINE SAND
13.0-13.5	17												SM	A-2-4	B	ORANGE SILTY FINE SAND
14.0-14.5	35												CH	A-7-6	F	GRAY AND BROWN HIGHLY PLASTIC CLAY
15.0-15.5	30	100	100	100	99	98	96	95	72	44			CH	A-7-6	F	GRAY AND BROWN HIGHLY PLASTIC CLAY

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-10-4

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	15												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	7	100	100	99	79	43	22	12					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	16											7	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	4	100	100	98	82	49	25	14				8	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	4											8	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
9.0-9.5	4	100	100	97	79	46	22	13					SM	A-2-4	B	BROWN SILTY FINE SAND
10.0-10.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
11.0-11.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
12.0-12.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
13.0-13.5	5	100	100	97	80	49	25	14					SM	A-2-4	B	BROWN SILTY FINE SAND
14.0-14.5	5												SM	A-2-4	B	BROWN SILTY FINE SAND
15.0-15.5	8												SM	A-2-4	B	BROWN SILTY FINE SAND

SOIL CLASSIFICATION DATA

Project: SR 87 PD&E - STORMWATER PONDS

Client: METRIC ENGINEERING, INC.

Project No.: 28-09-09-03

Boring: MP-10-5

Location: SANTA ROSA COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0-0.5	8												SM	A-2-4	B	BROWN SILTY FINE SAND
1.0-1.5	2	100	100	99	83	50	29	15					SM	A-2-4	B	BROWN SILTY FINE SAND
2.0-2.5	2											6	SM	A-2-4	B	BROWN SILTY FINE SAND
3.0-3.5	2												SM	A-2-4	B	BROWN SILTY FINE SAND
4.0-4.5	3												SM	A-2-4	B	BROWN SILTY FINE SAND
5.0-5.5	3	100	100	99	84	53	28	12				8	SM	A-2-4	B	BROWN SILTY FINE SAND
6.0-6.5	4												SM	A-2-4	B	BROWN SILTY FINE SAND
7.0-7.5	10											9	SM	A-2-4	B	BROWN SILTY FINE SAND
8.0-8.5	15												SC	A-2-6	D	BROWN CLAYEY FINE SAND
9.0-9.5	15	100	100	97	84	63	44	31	26	13			SC	A-2-6	D	BROWN CLAYEY FINE SAND
10.0-10.5	17												SC	A-2-6	D	BROWN CLAYEY FINE SAND
11.0-11.5	15												SC	A-2-6	D	BROWN CLAYEY FINE SAND
12.0-12.5	17												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
13.0-13.5	16	100	100	100	97	88	55	23	25	15			SC	A-2-6	D	ORANGE CLAYEY FINE SAND
14.0-14.5	16												SC	A-2-6	D	ORANGE CLAYEY FINE SAND
15.0-15.5	18												SC	A-2-6	D	ORANGE CLAYEY FINE SAND